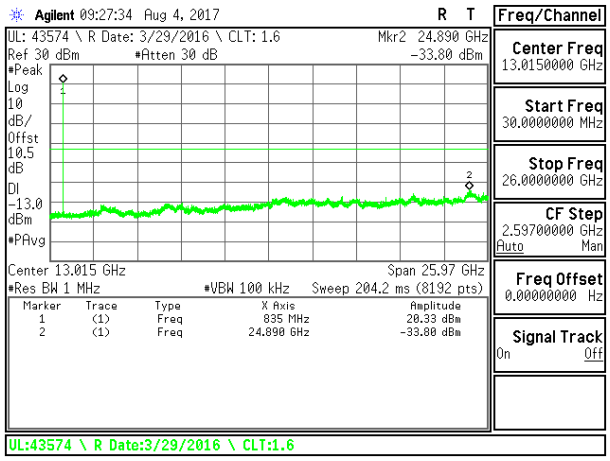
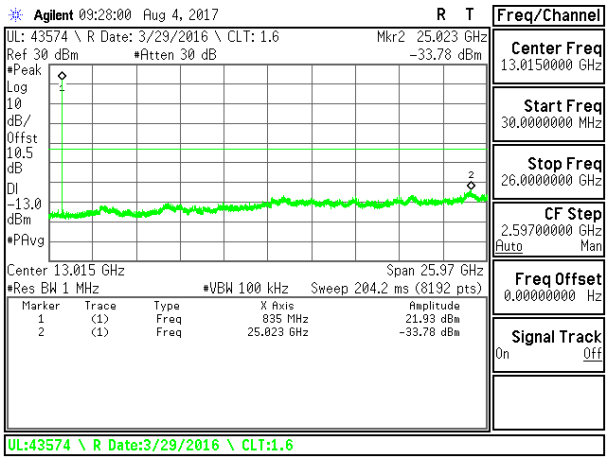
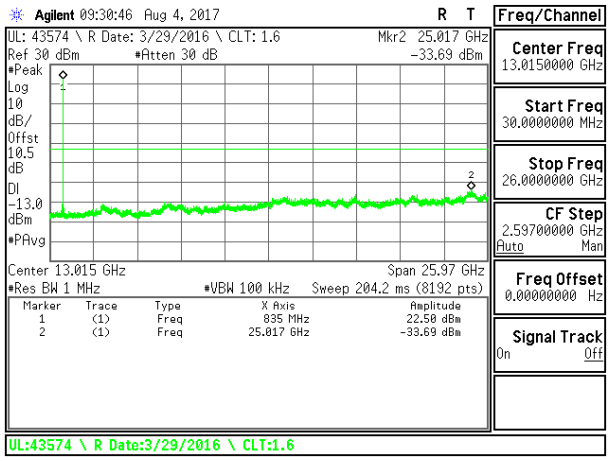


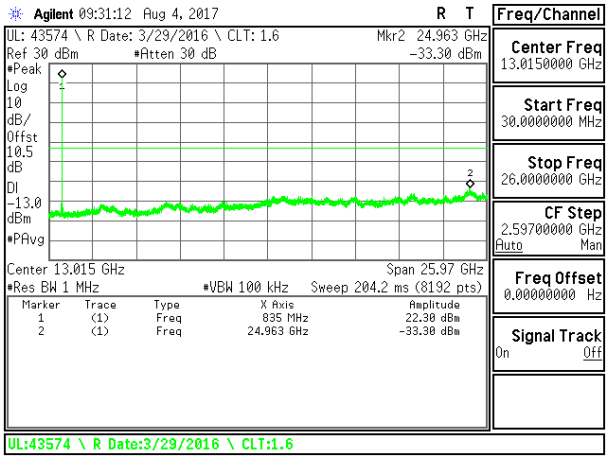
LTE B5 1.4MHz QPSK Middle Channel



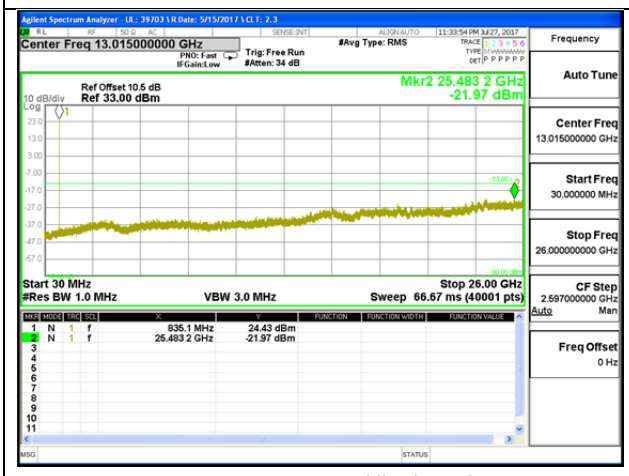
LTE B5 1.4MHz 16QAM Middle Channel



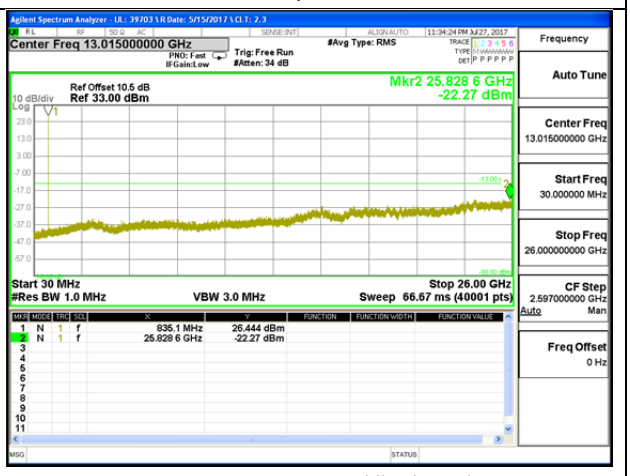
LTE B5 3MHz QPSK Middle Channel



LTE B5 3MHz 16QAM Middle Channel



LTE B5 5MHz QPSK Middle Channel



LTE B5 5MHz 16QAM Middle Channel

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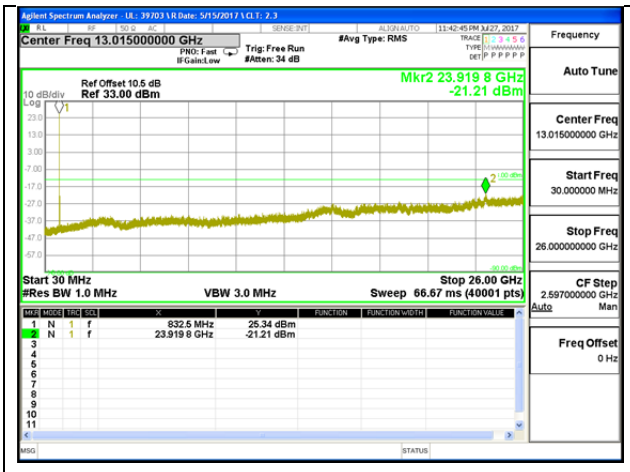
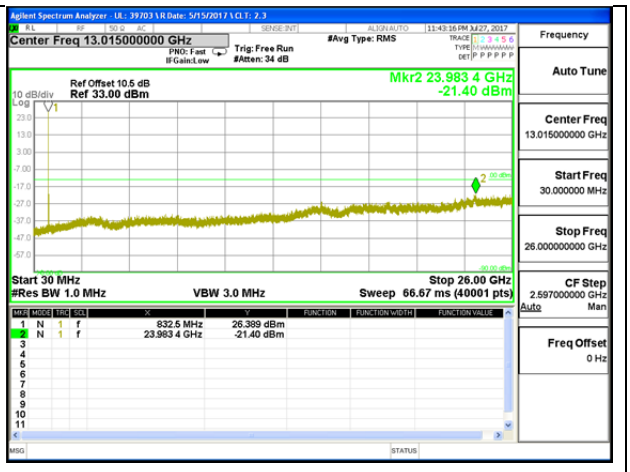


LTE B5 10MHz QPSK Middle Channel



LTE B5 10MHz 16QAM Middle Channel

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LTE Band 7

Band	BW (MHz)	Mode	f (MHz)	Spur (dBm)	Spec (dBm)	Delta (dB)
LTE7	5	QPSK	2502.5	-32.30	-25	-7.3
			2535	-35.75	-25	-10.75
			2567.5	-35.07	-25	-10.07
		16QAM	2502.5	-32.01	-25	-7.01
			2535	-34.09	-25	-9.09
			2567.5	-34.26	-25	-9.26
	10	QPSK	2505	-31.89	-25	-6.89
			2535	-35.08	-25	-10.08
			2565	-33.98	-25	-8.98
		16QAM	2505	-32.47	-25	-7.47
			2535	-34.77	-25	-9.77
			2565	-34.45	-25	-9.45
	15	QPSK	2507.5	-32.57	-25	-7.57
			2535	-34.80	-25	-9.8
			2562.5	-35.20	-25	-10.2
		16QAM	2507.5	-31.06	-25	-6.06
			2535	-34.91	-25	-9.91
			2562.5	-35.38	-25	-10.38
	20	QPSK	2510	-33.78	-25	-8.78
			2535	-34.67	-25	-9.67
			2560	-35.70	-25	-10.7
		16QAM	2510	-32.54	-25	-7.54
			2535	-35.34	-25	-10.34
			2560	-49.57	-25	-24.57

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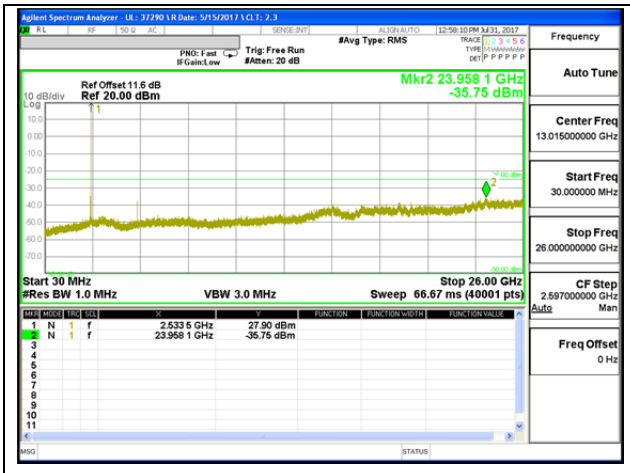
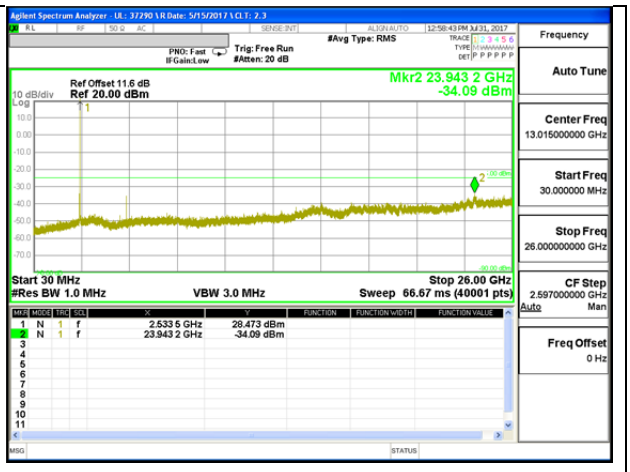
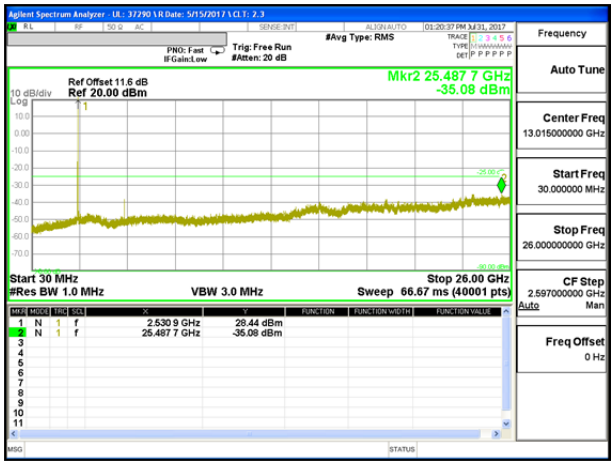


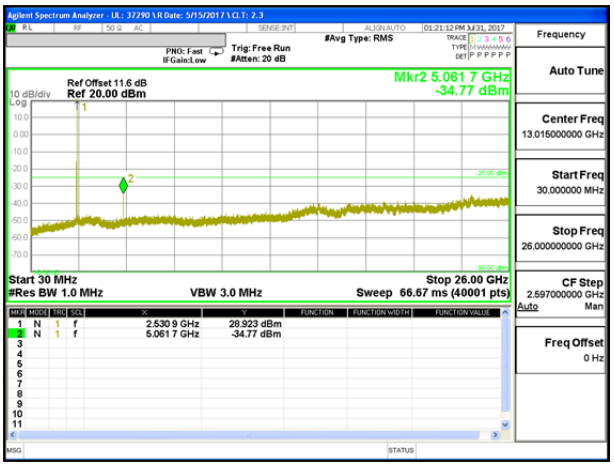
LTE B7 5MHz QPSK Middle Channel



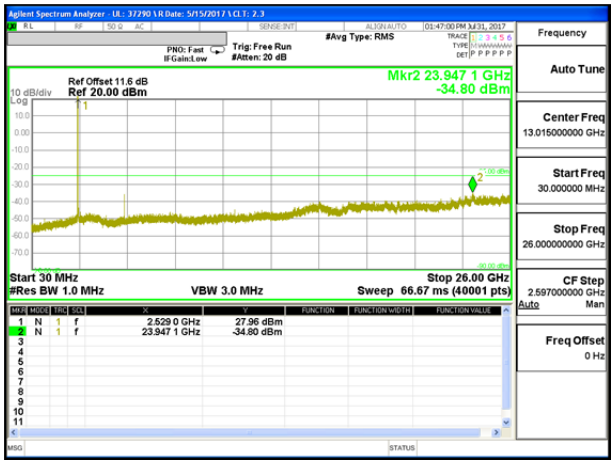
LTE B7 5MHz 16QAM Middle Channel



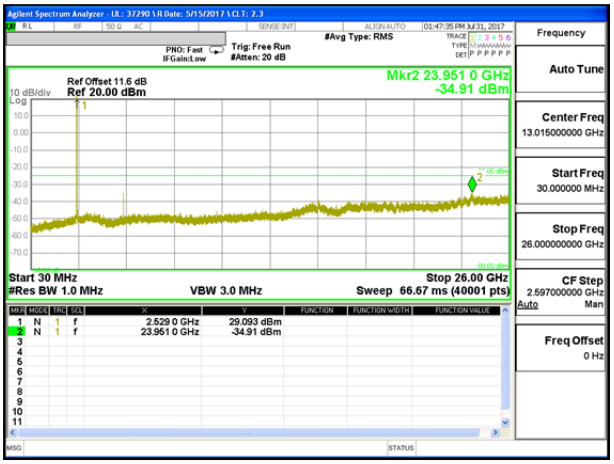
LTE B7 10MHz QPSK Middle Channel



LTE B7 10MHz 16QAM Middle Channel



LTE B7 15MHz QPSK Middle Channel



LTE B7 15MHz 16QAM Middle Channel

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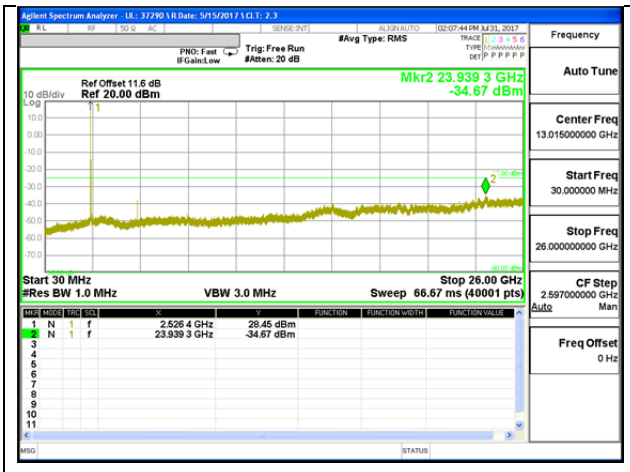
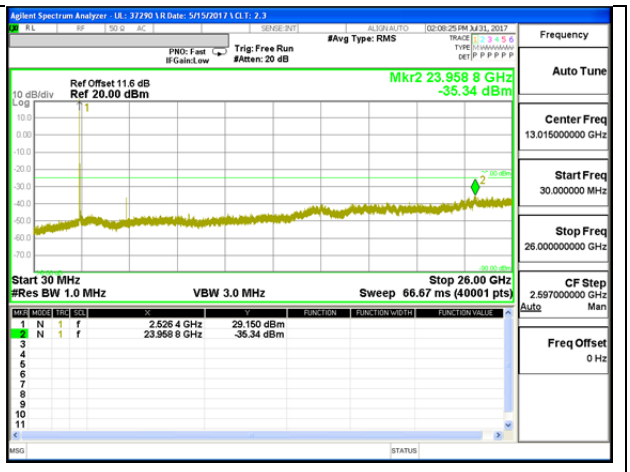


LTE B7 20MHz QPSK Middle Channel



LTE B7 20MHz 16QAM Middle Channel

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LTE Band 12

Band	BW (MHz)	Mode	f (MHz)	Spur (dBm)	Spec (dBm)	Delta (dB)
LTE12	1.4	QPSK	699.7	-21.55	-13	-8.55
			707.5	-21.56	-13	-8.56
			715.3	-21.79	-13	-8.79
		16QAM	699.7	-21.31	-13	-8.31
			707.5	-21.54	-13	-8.54
			715.3	-21.91	-13	-8.91
	3	QPSK	700.5	-21.70	-13	-8.7
			707.5	-20.17	-13	-7.17
			714.5	-21.09	-13	-8.09
		16QAM	700.5	-21.73	-13	-8.73
			707.5	-21.02	-13	-8.02
			714.5	-21.71	-13	-8.71
	5	QPSK	701.5	-21.84	-13	-8.84
			707.5	-21.14	-13	-8.14
			713.5	-20.13	-13	-7.13
		16QAM	701.5	-20.38	-13	-7.38
			707.5	-21.40	-13	-8.4
			713.5	-21.12	-13	-8.12
	10	QPSK	704	-20.38	-13	-7.38
			707.5	-21.63	-13	-8.63
			711	-21.78	-13	-8.78
		16QAM	704	-21.48	-13	-8.48
			707.5	-21.50	-13	-8.5
			711	-21.08	-13	-8.08

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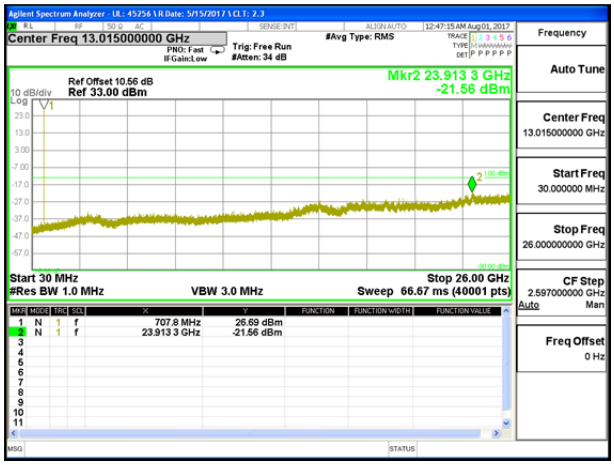
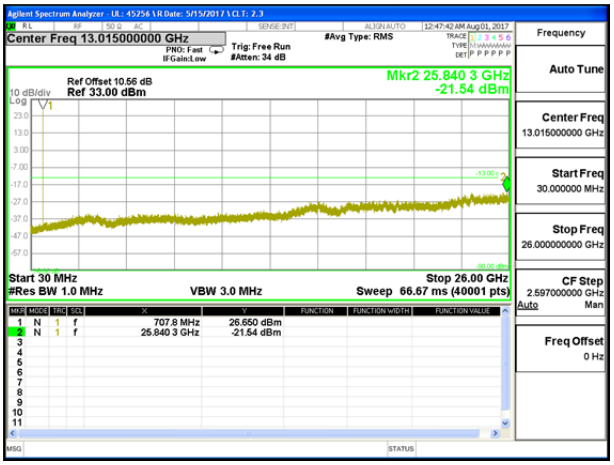
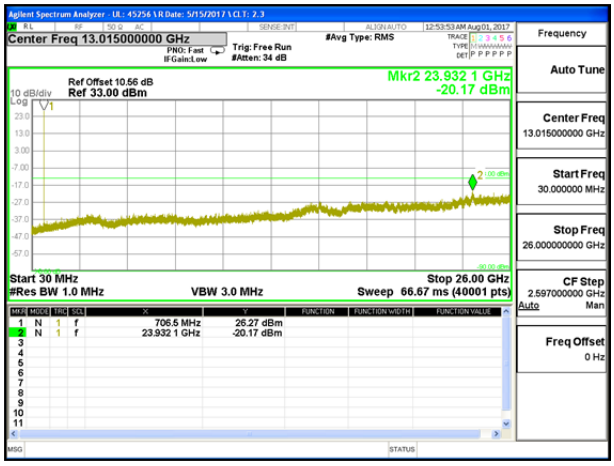


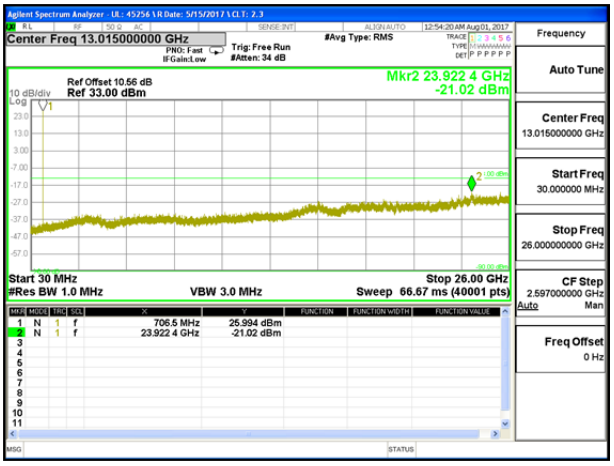
LTE B12 1.4MHz QPSK Middle Channel



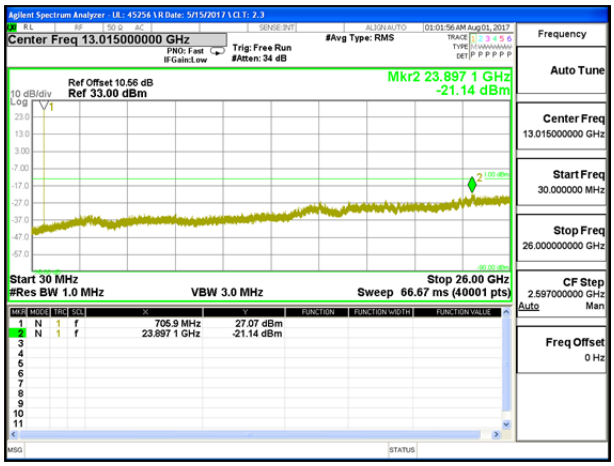
LTE B12 1.4MHz 16QAM Middle Channel



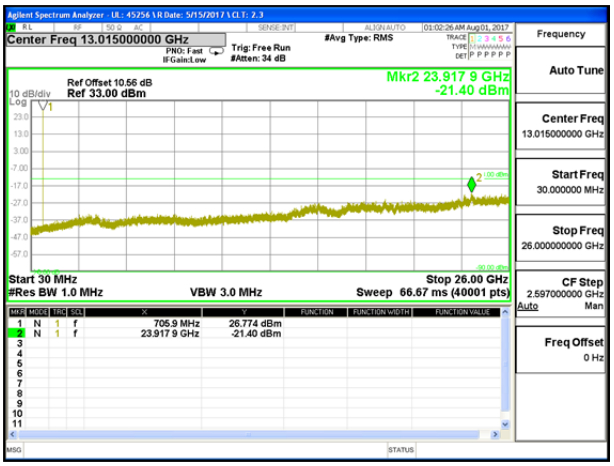
LTE B12 3MHz QPSK Middle Channel



LTE B12 3MHz 16QAM Middle Channel



LTE B12 5MHz QPSK Middle Channel



LTE B12 5MHz 16QAM Middle Channel

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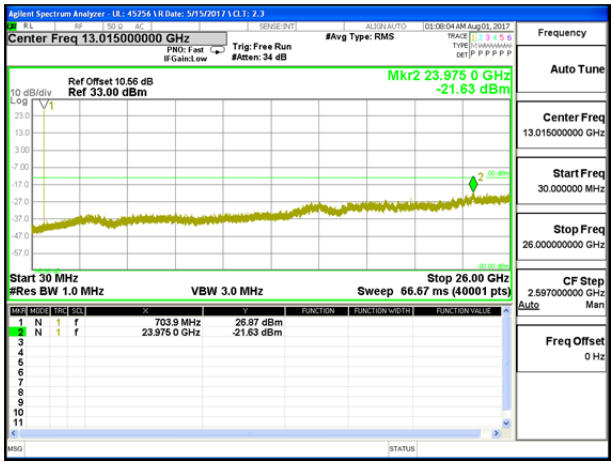
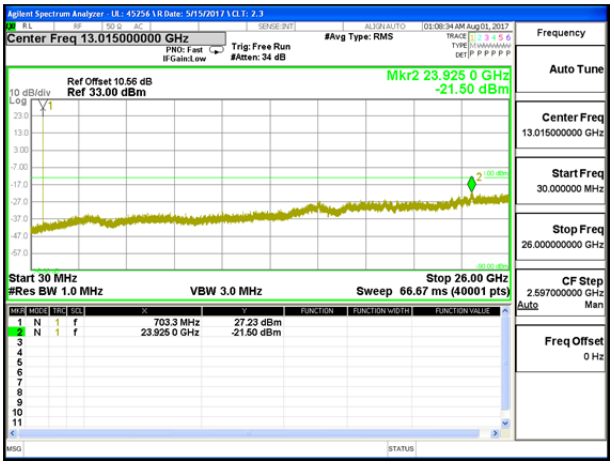


LTE B12 10MHz QPSK Middle Channel



LTE B12 10MHz 16QAM Middle Channel

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LTE Band 13

Band	BW (MHz)	Mode	f (MHz)	Spur (dBm)	Spec (dBm)	Delta (dB)
LTE13	5	QPSK	779.5	-21.66	-13	-8.66
			782	-21.17	-13	-8.17
			784.5	-21.22	-13	-8.22
		16QAM	779.5	-21.26	-13	-8.26
			782	-21.63	-13	-8.63
			784.5	-21.60	-13	-8.6
	10	QPSK				
			782	-20.76	-13	-7.76
		16QAM	782	-20.89	-13	-7.89

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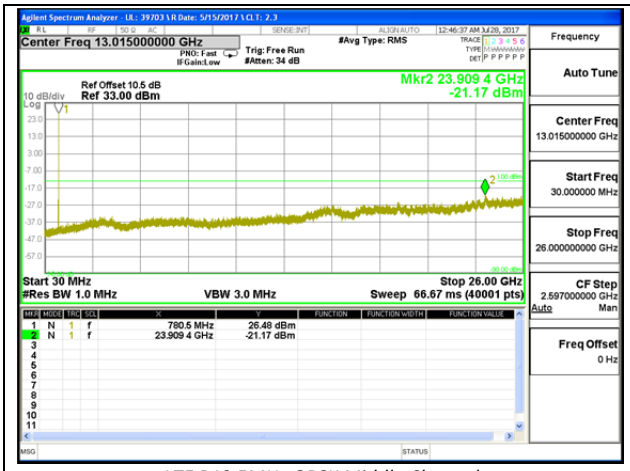
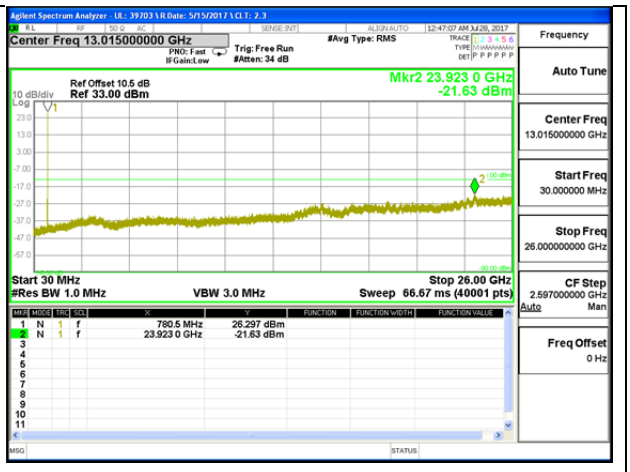
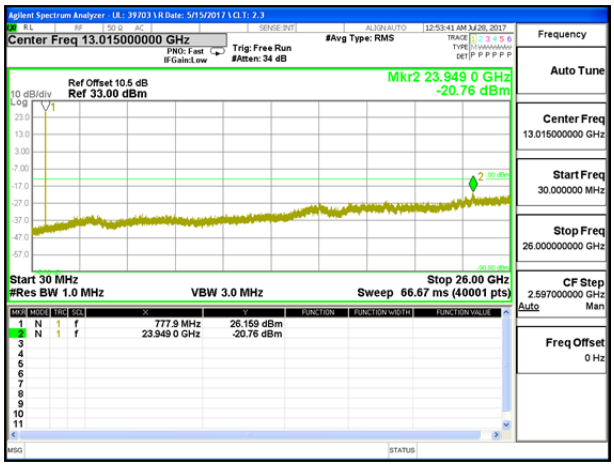


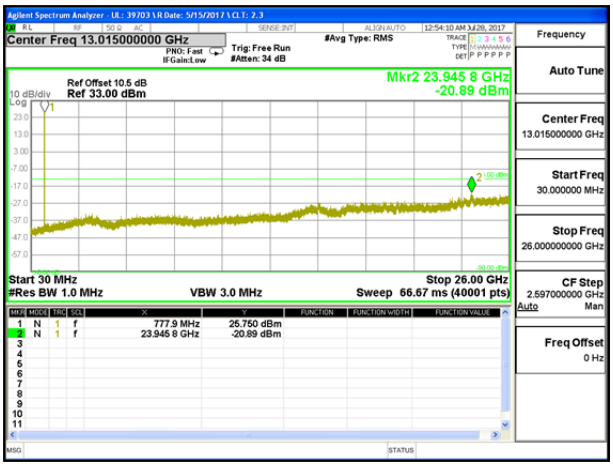
LTE B13 5MHz QPSK Middle Channel



LTE B13 5MHz 16QAM Middle Channel



LTE B13 10MHz QPSK Middle Channel



LTE B13 10MHz 16QAM Middle Channel

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LTE Band 41

Band	BW (MHz)	Mode	f (MHz)	Spur (dBm)	Spec (dBm)	Delta (dB)
LTE41	5	QPSK	2498.5	-35.33	-25	-10.33
			2593	-33.3	-25	-8.3
			2687.5	-35.14	-25	-10.14
		16QAM	2498.5	-36.70	-25	-11.7
			2593	-29.18	-25	-4.18
			2687.5	-33.51	-25	-8.51
	10	QPSK	2501	-35.17	-25	-10.17
			2593	-32.83	-25	-7.83
			2685	-34.97	-25	-9.97
		16QAM	2501	-35.05	-25	-10.05
			2593	-31.91	-25	-6.91
			2685	-34.88	-25	-9.88
	15	QPSK	2503.5	-34.73	-25	-9.73
			2593	-31.94	-25	-6.94
			2682.5	-33.20	-25	-8.2
		16QAM	2503.5	-37.83	-25	-12.83
			2593	-31.68	-25	-6.68
			2682.5	-33.08	-25	-8.08
	20	QPSK	2506	-43.04	-25	-18.04
			2593	-31.56	-25	-6.56
			2680	-32.17	-25	-7.17
		16QAM	2506	-35.32	-25	-10.32
			2593	-30.21	-25	-5.21
			2680	-49.56	-25	-24.56

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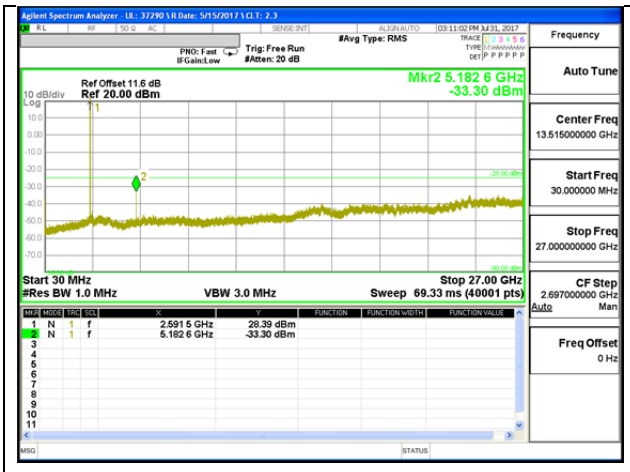
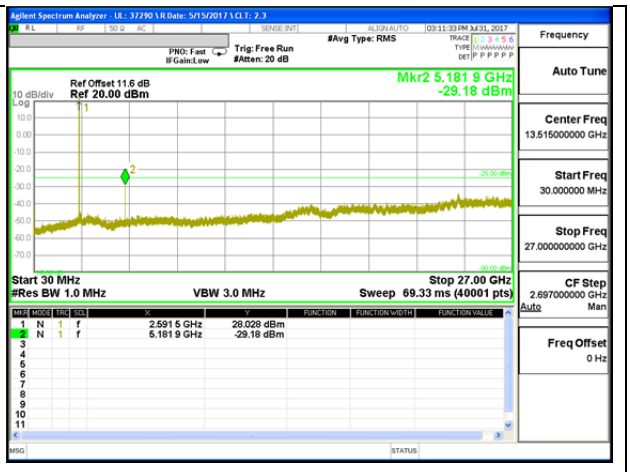
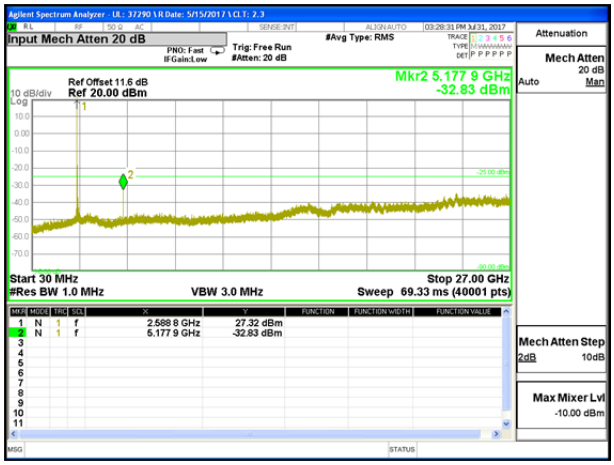


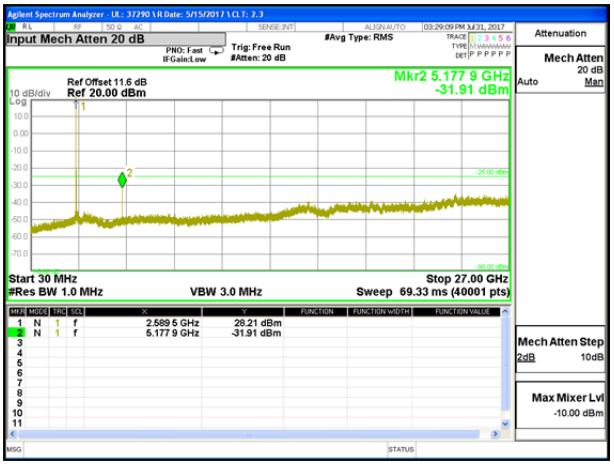
LTE B41 5MHz QPSK Middle Channel



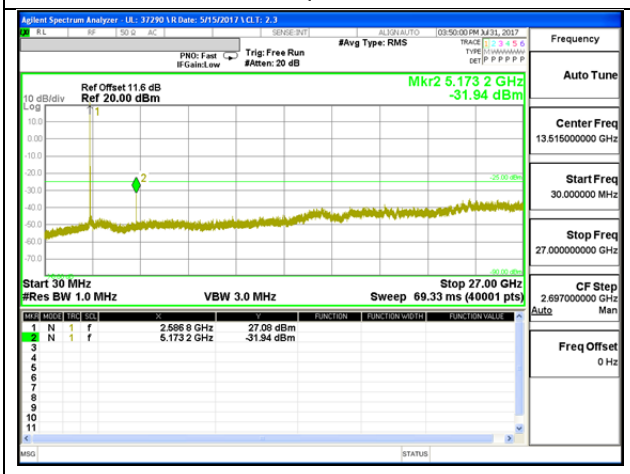
LTE B41 5MHz 16QAM Middle Channel



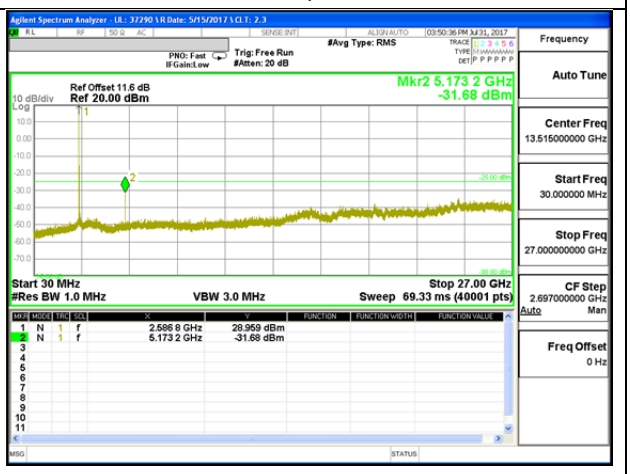
LTE B41 10MHz QPSK Middle Channel



LTE B41 10MHz 16QAM Middle Channel



LTE B41 15MHz QPSK Middle Channel



LTE B41 15MHz 16QAM Middle Channel

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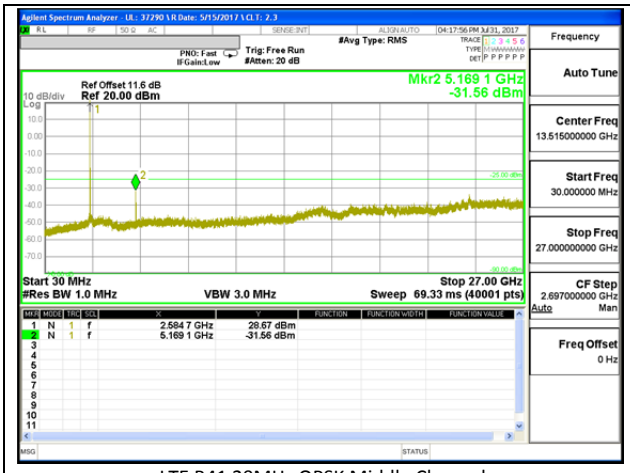
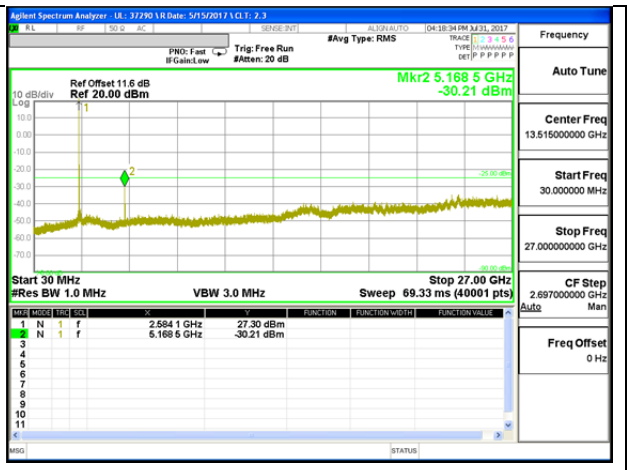


LTE B41 20MHz QPSK Middle Channel



LTE B41 20MHz 16QAM Middle Channel

UL VERIFICATION SERVICES INC. FORM NO: CCSUP4701H
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16. FREQUENCY STABILITY

RULE PART(S)

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

FCC LIMITS

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

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

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

TEST PROCEDURE

Per KDB 971168 D01 Power Meas License Digital Systems v02r02

Results

Tested By	Oren Stoelting
Date	8/1/2017

Note(s):

GSM 850 Band Measured Results
GSM 850 (Frequency range: 824.2-848.8 MHz) is covered by LTE Band 5 (Frequency range: 824~849 MHz) no testing is necessary due to overlapping frequency range.

WCDMA Band 5 Measured Results
WCDMA Band 5 (Frequency range: 826.4-846.6 MHz) is covered by LTE Band 5 (Frequency range: 824~849 MHz) no testing is necessary due to overlapping frequency range.

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16.1. FREQUENCY STABILITY RESULTS

GSM1900

Reference Frequency: GSM1900 Mid Channel		1880	MHz @ 20°C	
Limit: to stay +- 2.5 ppm =		4700.000	Hz	
Power Supply	Environment	Frequency Deviation Measureed with Time Elapse		
(Vdc)	Temperature (°C)	(MHz)	Delta (ppm)	Limit (ppm)
3.80	50	1880.000033	0.002	2.5
3.80	40	1880.000030	0.004	2.5
3.80	30	1880.000025	0.007	2.5
3.80	***20***	**1880.000038**	**0**	***2.5***
3.80	10	1880.000038	0.000	2.5
3.80	0	1880.000028	0.005	2.5
3.80	-10	1880.000028	0.005	2.5
3.80	-20	1880.000019	0.010	2.5
3.80	-30	1880.000023	0.008	2.5

Reference Frequency: GSM1900 Mid Channel		1880	MHz @ 20°C	
Limit: to stay +- 2.5 ppm =		4700.000	Hz	
Power Supply	Environment	Frequency Deviation Measured with Time Elapse		
(Vdc)	Temperature (°C)	(MHz)	Delta (ppm)	Limit (ppm)
3.80	***20***	***1880.000038***	***0***	***2.5***
4.37	20	1880.000039	*0.000*	2.5
3.23	20	1880.000034	*0.002*	2.5

LTE Band 4

Reference Frequency: LTE Band 4 Mid Channel		1732.5	MHz @ 20°C	
Limit: to stay +- 2.5 ppm =		4331.250	Hz	
Power Supply	Environment	Frequency Deviation Measureed with Time Elapse		
(Vdc)	Temperature (°C)	(MHz)	Delta (ppm)	Limit (ppm)
3.80	50	1732.500011	0.002	2.5
3.80	40	1732.500014	0.000	2.5
3.80	30	1732.500014	0.001	2.5
3.80	***20***	**1732.500015**	**0**	***2.5***
3.80	10	1732.500014	0.001	2.5
3.80	0	1732.500013	0.001	2.5
3.80	-10	1732.500016	-0.001	2.5
3.80	-20	1732.500014	0.000	2.5
3.80	-30	1732.500014	0.000	2.5

Reference Frequency: LTE Band 4 Mid Channel		1732.5	MHz @ 20°C	
Limit: to stay +- 2.5 ppm =		4331.250	Hz	
Power Supply	Environment	Frequency Deviation Measured with Time Elapse		
(Vdc)	Temperature (°C)	(MHz)	Delta (ppm)	Limit (ppm)
3.80	***20***	***1732.500015***	***0***	***2.5***
4.37	20	1732.500014	*0.001*	2.5
3.23	20	1732.500016	*-0.001*	2.5

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LTE Band 5

Reference Frequency: LTE Band 5 Mid Channel		836.5	MHz @ 20°C	
Limit: to stay +- 2.5 ppm =		2091.250	Hz	
Power Supply	Environment	Frequency Deviation Measureed with Time Elapse		
(Vdc)	Temperature (°C)	(MHz)	Delta (ppm)	Limit (ppm)
3.80	50	836.499992	0.001	2.5
3.80	40	836.499991	0.003	2.5
3.80	30	836.499990	0.003	2.5
3.80	***20***	**836.499993**	**0**	***2.5***
3.80	10	836.499992	0.001	2.5
3.80	0	836.499991	0.002	2.5
3.80	-10	836.499994	-0.001	2.5
3.80	-20	836.499996	-0.004	2.5
3.80	-30	836.499993	0.000	2.5

Reference Frequency: LTE Band 5 Mid Channel		836.5	MHz @ 20°C	
Limit: to stay +- 2.5 ppm =		2091.250	Hz	
Power Supply	Environment	Frequency Deviation Measured with Time Elapse		
(Vdc)	Temperature (°C)	(MHz)	Delta (ppm)	Limit (ppm)
3.80	***20***	***836.499993***	***0***	***2.5***
4.37	20	836.499992	*0.001*	2.5
3.23	20	836.499991	*0.002*	2.5

LTE Band 7

Reference Frequency: LTE Band 7 Mid Channel		2535	MHz @ 20°C	
Limit: to stay +- 2.5 ppm =		6337.500	Hz	
Power Supply	Environment	Frequency Deviation Measureed with Time Elapse		
(Vdc)	Temperature (°C)	(MHz)	Delta (ppm)	Limit (ppm)
3.80	50	2535.000011	0.002	2.5
3.80	40	2535.000012	0.001	2.5
3.80	30	2535.000014	0.001	2.5
3.80	***20***	**2535.000015**	**0**	***2.5***
3.80	10	2535.000013	0.001	2.5
3.80	0	2535.000013	0.001	2.5
3.80	-10	2535.000014	0.000	2.5
3.80	-20	2535.000010	0.002	2.5
3.80	-30	2535.000014	0.000	2.5

Reference Frequency: LTE Band 7 Mid Channel		2535	MHz @ 20°C	
Limit: to stay +- 2.5 ppm =		6337.500	Hz	
Power Supply	Environment	Frequency Deviation Measured with Time Elapse		
(Vdc)	Temperature (°C)	(MHz)	Delta (ppm)	Limit (ppm)
3.80	***20***	***2535.000015***	***0***	***2.5***
4.37	20	2535.000012	*0.001*	2.5
3.23	20	2535.000013	*0.001*	2.5

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LTE Band 12

Reference Frequency: LTE Band 12 Mid Channel		710	MHz @ 20°C	
Limit: to stay +- 2.5 ppm =		1775.000	Hz	
Power Supply	Environment	Frequency Deviation Measureed with Time Elapse		
(Vdc)	Temperature (°C)	(MHz)	Delta (ppm)	Limit (ppm)
3.80	50	710.000006	0.004	2.5
3.80	40	710.000010	-0.002	2.5
3.80	30	710.000007	0.003	2.5
3.80	***20***	**710.000009**	**0**	***2.5***
3.80	10	710.000010	-0.001	2.5
3.80	0	710.000009	0.001	2.5
3.80	-10	710.000005	0.006	2.5
3.80	-20	710.000010	-0.002	2.5
3.80	-30	710.000008	0.002	2.5

Reference Frequency: LTE Band 12 Mid Channel		710	MHz @ 20°C	
Limit: to stay +- 2.5 ppm =		1775.000	Hz	
Power Supply	Environment	Frequency Deviation Measured with Time Elapse		
(Vdc)	Temperature (°C)	(MHz)	Delta (ppm)	Limit (ppm)
3.80	***20***	***710.000009***	***0***	***2.5***
4.37	20	710.000008	*0.001*	2.5
3.23	20	710.000011	*-0.003*	2.5

LTE Band 13

Reference Frequency: LTE Band 13 Mid Channel		782	MHz @ 20°C	
Limit: to stay +- 2.5 ppm =		1955.000	Hz	
Power Supply	Environment	Frequency Deviation Measureed with Time Elapse		
(Vdc)	Temperature (°C)	(MHz)	Delta (ppm)	Limit (ppm)
3.80	50	781.999990	0.003	2.5
3.80	40	781.999992	-0.001	2.5
3.80	30	781.999990	0.002	2.5
3.80	***20***	**781.999992**	**0**	***2.5***
3.80	10	781.999992	-0.001	2.5
3.80	0	781.999990	0.002	2.5
3.80	-10	781.999990	0.002	2.5
3.80	-20	781.999993	-0.002	2.5
3.80	-30	781.999992	-0.001	2.5

Reference Frequency: LTE Band 13 Mid Channel		782	MHz @ 20°C	
Limit: to stay +- 2.5 ppm =		1955.000	Hz	
Power Supply	Environment	Frequency Deviation Measured with Time Elapse		
(Vdc)	Temperature (°C)	(MHz)	Delta (ppm)	Limit (ppm)
3.80	***20***	***781.999992***	***0***	***2.5***
4.37	20	781.999991	*0.001*	2.5
3.23	20	781.999992	*-0.001*	2.5

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LTE Band 41

Reference Frequency: LTE Band 41 Mid Channel		2593	MHz @ 20°C	
Limit: to stay +- 2.5 ppm =		6482.500	Hz	
Power Supply (Vdc)	Environment Temperature (°C)	Frequency Deviation Measureed with Time Elapse (MHz)	Delta (ppm)	Limit (ppm)
3.80	50	2593.000007	-0.006	2.5
3.80	40	2593.000016	-0.010	2.5
3.80	30	2593.000017	-0.010	2.5
3.80	***20***	**2592.999991**	**0**	***2.5***
3.80	10	2593.000017	-0.010	2.5
3.80	0	2593.000020	-0.011	2.5
3.80	-10	2593.000021	-0.012	2.5
3.80	-20	2593.000017	-0.010	2.5
3.80	-30	2593.000017	-0.010	2.5

Reference Frequency: LTE Band 41 Mid Channel		2593	MHz @ 20°C	
Limit: to stay +- 2.5 ppm =		6482.500	Hz	
Power Supply (Vdc)	Environment Temperature (°C)	Frequency Deviation Measured with Time Elapse (MHz)	Delta (ppm)	Limit (ppm)
3.80	***20***	***2592.999991***	***0***	***2.5***
4.37	20	2593.000012	*-0.008*	2.5
3.23	20	2593.000012	*-0.008*	2.5

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17. RADIATED TEST RESULTS

17.1. FIELD STRENGTH OF SPURIOUS RADIATION

RULE PART(S)

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

FCC 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.

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17.1.1. SPURIOUS RADIATION PLOTS

GSM

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

Company: SOMC
Project #: 11775548
Date: 7/31/2017
Test Engineer: 43574
Configuration: EUT + AC + Headset
Location: Chamber C
Mode: GPRS 850 MHz Harmonics

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	-24.6	V	3.0	36.4	1.0	-59.9	-13.0	-46.9	
2472.60	-24.8	V	3.0	35.0	1.0	-58.8	-13.0	-45.8	
3296.80	-21.3	V	3.0	34.3	1.0	-54.6	-13.0	-41.6	
1648.40	-25.5	H	3.0	36.4	1.0	-60.9	-13.0	-47.9	
2472.60	-25.1	H	3.0	35.0	1.0	-59.1	-13.0	-46.1	
3296.80	-22.4	H	3.0	34.3	1.0	-55.7	-13.0	-42.7	
Mid Ch, 836.6									
1673.20	-24.8	V	3.0	36.3	1.0	-60.1	-13.0	-47.1	
2509.80	-25.2	V	3.0	34.9	1.0	-59.1	-13.0	-46.1	
3346.40	-21.0	V	3.0	34.2	1.0	-54.3	-13.0	-41.3	
1673.20	-25.7	H	3.0	36.3	1.0	-61.0	-13.0	-48.0	
2509.80	-24.6	H	3.0	34.9	1.0	-58.5	-13.0	-45.5	
3346.40	-22.5	H	3.0	34.2	1.0	-55.7	-13.0	-42.7	
High Ch, 848.8									
1697.60	-23.9	V	3.0	36.3	1.0	-59.2	-13.0	-46.2	
2546.40	-24.5	V	3.0	34.9	1.0	-58.4	-13.0	-45.4	
3395.20	-21.5	V	3.0	34.2	1.0	-54.6	-13.0	-41.6	
1697.60	-25.0	H	3.0	36.3	1.0	-60.2	-13.0	-47.2	
2546.40	-21.7	H	3.0	34.9	1.0	-55.6	-13.0	-42.6	
3395.20	-22.1	H	3.0	34.2	1.0	-55.2	-13.0	-42.2	

GSM850 GPRS

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

Company: SOMC
Project #: 11775548
Date: 7/31/2017
Test Engineer: 43574
Configuration: EUT + AC + Headset
Location: Chamber C
Mode: EGPRS 850 MHz Harmonics

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	-24.4	V	3.0	36.4	1.0	-59.8	-13.0	-46.8	
2472.60	-24.5	V	3.0	35.0	1.0	-58.5	-13.0	-45.5	
3296.80	-22.0	V	3.0	34.3	1.0	-55.2	-13.0	-42.2	
1648.40	-25.2	H	3.0	36.4	1.0	-60.6	-13.0	-47.6	
2472.60	-24.7	H	3.0	35.0	1.0	-58.6	-13.0	-45.6	
3296.80	-22.4	H	3.0	34.3	1.0	-55.6	-13.0	-42.6	
Mid Ch, 836.6									
1673.20	-24.9	V	3.0	36.3	1.0	-60.2	-13.0	-47.2	
2509.80	-23.4	V	3.0	34.9	1.0	-57.3	-13.0	-44.3	
3346.40	-22.5	V	3.0	34.2	1.0	-55.7	-13.0	-42.7	
1673.20	-25.8	H	3.0	36.3	1.0	-61.1	-13.0	-48.1	
2509.80	-24.5	H	3.0	34.9	1.0	-58.4	-13.0	-45.4	
3346.40	-22.7	H	3.0	34.2	1.0	-56.0	-13.0	-43.0	
High Ch, 848.8									
1697.60	-24.0	V	3.0	36.3	1.0	-59.3	-13.0	-46.3	
2546.40	-24.4	V	3.0	34.9	1.0	-58.3	-13.0	-45.3	
3395.20	-21.6	V	3.0	34.2	1.0	-54.8	-13.0	-41.8	
1697.60	-25.0	H	3.0	36.3	1.0	-60.3	-13.0	-47.3	
2546.40	-21.8	H	3.0	34.9	1.0	-55.7	-13.0	-42.7	
3395.20	-22.3	H	3.0	34.2	1.0	-55.5	-13.0	-42.5	

GSM850 EGPRS

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

Company: SOMC
Project #: 11775548
Date: 7/31/2017
Test Engineer: 43574
Configuration: EUT + AC + Headset
Location: Chamber C
Mode: GPRS 1900 MHz Harmonics

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	-17.8	V	3.0	38.4	1.0	-55.2	-13.0	-42.2	
5550.60	-18.2	V	3.0	38.8	1.0	-56.0	-13.0	-43.0	
7400.80	-16.1	V	3.0	38.3	1.0	-53.4	-13.0	-40.4	
3700.40	-18.4	H	3.0	38.4	1.0	-55.8	-13.0	-42.8	
5550.60	-17.9	H	3.0	38.8	1.0	-55.7	-13.0	-42.7	
7400.80	-16.6	H	3.0	38.3	1.0	-53.9	-13.0	-40.9	
Mid Ch, 1880									
3760.00	-17.3	V	3.0	38.4	1.0	-54.7	-13.0	-41.7	
5640.00	-16.4	V	3.0	38.7	1.0	-54.2	-13.0	-41.2	
7520.00	-16.1	V	3.0	38.2	1.0	-53.3	-13.0	-40.3	
3760.00	-18.3	H	3.0	38.4	1.0	-55.7	-13.0	-42.7	
5640.00	-16.4	H	3.0	38.7	1.0	-54.2	-13.0	-41.2	
7520.00	-15.5	H	3.0	38.2	1.0	-52.7	-13.0	-39.7	
High Ch, 1909.8									
3819.60	-17.4	V	3.0	38.4	1.0	-54.8	-13.0	-41.8	
5729.40	-17.6	V	3.0	38.7	1.0	-55.3	-13.0	-42.3	
7639.20	-16.1	V	3.0	38.1	1.0	-53.3	-13.0	-40.3	
3819.60	-17.5	H	3.0	38.4	1.0	-54.9	-13.0	-41.9	
5729.40	-17.7	H	3.0	38.7	1.0	-55.5	-13.0	-42.5	
7639.20	-16.5	H	3.0	38.1	1.0	-53.6	-13.0	-40.6	

GSM1900 GPRS

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

Company: SOMC
Project #: 11775548
Date: 7/31/2017
Test Engineer: 43574
Configuration: EUT + AC + Headset
Location: Chamber C
Mode: EGPRS 1900 MHz Harmonics

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	-17.8	V	3.0	38.4	1.0	-55.2	-13.0	-42.2	
5550.60	-18.2	V	3.0	38.8	1.0	-55.9	-13.0	-42.9	
7400.80	-16.9	V	3.0	38.3	1.0	-54.1	-13.0	-41.1	
3700.40	-18.8	H	3.0	38.4	1.0	-56.2	-13.0	-43.2	
5550.60	-17.3	H	3.0	38.8	1.0	-55.1	-13.0	-42.1	
7400.80	-16.7	H	3.0	38.3	1.0	-54.0	-13.0	-41.0	
Mid Ch, 1880									
3760.00	-17.6	V	3.0	38.4	1.0	-55.0	-13.0	-42.0	
5640.00	-15.9	V	3.0	38.7	1.0	-53.6	-13.0	-40.6	
7520.00	-16.2	V	3.0	38.2	1.0	-53.4	-13.0	-40.4	
3760.00	-18.7	H	3.0	38.4	1.0	-56.1	-13.0	-43.1	
5640.00	-16.1	H	3.0	38.7	1.0	-53.9	-13.0	-40.9	
7520.00	-15.6	H	3.0	38.2	1.0	-52.8	-13.0	-39.8	
High Ch, 1909.8									
3819.60	-18.0	V	3.0	38.4	1.0	-55.4	-13.0	-42.4	
5729.40	-17.1	V	3.0	38.7	1.0	-54.8	-13.0	-41.8	
7639.20	-16.2	V	3.0	38.1	1.0	-53.3	-13.0	-40.3	
3819.60	-17.7	H	3.0	38.4	1.0	-55.1	-13.0	-42.1	
5729.40	-17.6	H	3.0	38.7	1.0	-55.3	-13.0	-42.3	
7639.20	-16.8	H	3.0	38.1	1.0	-53.9	-13.0	-40.9	

GSM1900 EGPRS

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

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WCDMA

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

Company: SOMC
Project #: 11775548
Date: 7/31/2017
Test Engineer: 43575 OS
Configuration: EUT + AC + Headset
Location: Chamber A
Mode: Rel99 Band 5 Harmonics

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 826.4									
1652.80	-22.0	V	3.0	39.3	1.0	-60.3	-13.0	-47.3	
2479.20	-27.7	V	3.0	38.6	1.0	-65.2	-13.0	-52.2	
3305.60	-27.5	V	3.0	38.1	1.0	-64.6	-13.0	-51.6	
1652.80	-23.9	H	3.0	39.3	1.0	-62.2	-13.0	-49.2	
2479.20	-28.3	H	3.0	38.6	1.0	-65.8	-13.0	-52.8	
3305.60	-26.9	H	3.0	38.1	1.0	-64.0	-13.0	-51.0	
Mid Ch, 836.6									
1673.20	-11.0	V	3.0	39.2	1.0	-49.2	-13.0	-36.2	
2509.80	-19.9	V	3.0	38.5	1.0	-57.4	-13.0	-44.4	
3346.40	-18.4	V	3.0	38.1	1.0	-55.5	-13.0	-42.5	
1673.20	-14.3	H	3.0	39.2	1.0	-52.5	-13.0	-39.5	
2509.80	-19.9	H	3.0	38.5	1.0	-57.4	-13.0	-44.4	
3346.40	-19.4	H	3.0	38.1	1.0	-56.5	-13.0	-43.5	
High Ch, 846.6									
1693.20	-22.4	V	3.0	39.1	1.0	-60.5	-13.0	-47.5	
2539.80	-27.5	V	3.0	38.5	1.0	-65.0	-13.0	-52.0	
3386.40	-27.1	V	3.0	38.0	1.0	-64.1	-13.0	-51.1	
1693.20	-25.0	H	3.0	39.1	1.0	-63.2	-13.0	-50.2	
2539.80	-27.8	H	3.0	38.5	1.0	-65.3	-13.0	-52.3	
3386.40	-27.1	H	3.0	38.0	1.0	-64.1	-13.0	-51.1	

B5 REL99

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

Company: SOMC
Project #: 11775548
Date: 8/3/2017
Test Engineer: 43575 OS
Configuration: EUT + AC + Headset
Location: Chamber A
Mode: HSDPA Band 5 Harmonics

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 826.4									
1652.80	-14.3	V	3.0	39.3	1.0	-52.6	-13.0	-39.6	
2479.20	-20.7	V	3.0	38.6	1.0	-58.2	-13.0	-45.2	
3305.60	-19.1	V	3.0	38.1	1.0	-56.2	-13.0	-43.2	
1652.80	-15.3	H	3.0	39.3	1.0	-53.6	-13.0	-40.6	
2479.20	-20.2	H	3.0	38.6	1.0	-57.8	-13.0	-44.8	
3305.60	-18.5	H	3.0	38.1	1.0	-55.5	-13.0	-42.5	
Mid Ch, 836.6									
1673.20	-13.8	V	3.0	39.2	1.0	-52.0	-13.0	-39.0	
2509.80	-19.4	V	3.0	38.5	1.0	-56.9	-13.0	-43.9	
3346.40	-19.2	V	3.0	38.1	1.0	-56.2	-13.0	-43.2	
1673.20	-15.7	H	3.0	39.2	1.0	-54.0	-13.0	-41.0	
2509.80	-19.7	H	3.0	38.5	1.0	-57.2	-13.0	-44.2	
3346.40	-18.7	H	3.0	38.1	1.0	-55.7	-13.0	-42.7	
High Ch, 846.6									
1693.20	-16.2	V	3.0	39.1	1.0	-54.4	-13.0	-41.4	
2539.80	-20.1	V	3.0	38.5	1.0	-57.5	-13.0	-44.5	
3386.40	-19.2	V	3.0	38.0	1.0	-56.2	-13.0	-43.2	
1693.20	-21.6	H	3.0	39.1	1.0	-59.7	-13.0	-46.7	
2539.80	-19.5	H	3.0	38.5	1.0	-57.0	-13.0	-44.0	
3386.40	-19.5	H	3.0	38.0	1.0	-56.5	-13.0	-43.5	

B5 HSDPA

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LTE Band 4

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

Company: SOMC
Project #: 11775548
Date: 7/31/2017
Test Engineer: 43575 OS
Configuration: EUT + HS + Charger
Location: Chamber C
Mode: LTE_QPSK Band 4 Harmonics, 1.4MHz Bandwidth

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 1710.7MHz									
3421.40	-18.4	V	3.0	36.1	1.0	-53.5	-13.0	-40.5	
5132.10	-15.6	V	3.0	35.4	1.0	-50.0	-13.0	-37.0	
6842.80	-14.4	V	3.0	35.7	1.0	-49.1	-13.0	-36.1	
3421.40	-18.9	H	3.0	36.1	1.0	-53.9	-13.0	-40.9	
5132.10	-15.9	H	3.0	35.4	1.0	-50.3	-13.0	-37.3	
6842.80	-14.7	H	3.0	35.7	1.0	-49.4	-13.0	-36.4	
Mid Ch, 1732.5MHz									
3465.00	-17.4	V	3.0	36.0	1.0	-52.5	-13.0	-39.5	
5197.50	-14.2	V	3.0	35.4	1.0	-48.6	-13.0	-35.6	
6930.00	-14.2	V	3.0	35.7	1.0	-48.9	-13.0	-35.9	
3465.00	-18.5	H	3.0	36.0	1.0	-53.6	-13.0	-40.6	
5197.50	-14.9	H	3.0	35.4	1.0	-49.4	-13.0	-36.4	
6930.00	-14.5	H	3.0	35.7	1.0	-49.1	-13.0	-36.1	
High Ch, 1754.3MHz									
3508.60	-19.2	V	3.0	36.0	1.0	-54.2	-13.0	-41.2	
5262.90	-15.6	V	3.0	35.4	1.0	-50.0	-13.0	-37.0	
7017.20	-15.5	V	3.0	35.7	1.0	-50.2	-13.0	-37.2	
3508.60	-18.6	H	3.0	36.0	1.0	-53.6	-13.0	-40.6	
5262.90	-15.5	H	3.0	35.4	1.0	-49.9	-13.0	-36.9	
7017.20	-13.9	H	3.0	35.7	1.0	-48.6	-13.0	-35.6	

LTE B4 1.4MHz QPSK

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

Company: SOMC
Project #: 11775548
Date: 7/31/2017
Test Engineer: 43575 OS
Configuration: EUT + HS + Charger
Location: Chamber C
Mode: LTE_16QAM Band 4 Harmonics, 1.4MHz Bandwidth

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 1710.7MHz									
3421.40	-18.5	V	3.0	36.1	1.0	-53.6	-13.0	-40.6	
5132.10	-15.6	V	3.0	35.4	1.0	-50.0	-13.0	-37.0	
6842.80	-14.2	V	3.0	35.7	1.0	-48.8	-13.0	-35.8	
3421.40	-18.6	H	3.0	36.1	1.0	-53.7	-13.0	-40.7	
5132.10	-15.7	H	3.0	35.4	1.0	-50.1	-13.0	-37.1	
6842.80	-14.3	H	3.0	35.7	1.0	-49.0	-13.0	-36.0	
Mid Ch, 1732.5MHz									
3465.00	-18.1	V	3.0	36.0	1.0	-53.1	-13.0	-40.1	
5197.50	-15.7	V	3.0	35.4	1.0	-50.1	-13.0	-37.1	
6930.00	-14.1	V	3.0	35.7	1.0	-48.8	-13.0	-35.8	
3465.00	-18.4	H	3.0	36.0	1.0	-53.4	-13.0	-40.4	
5197.50	-15.3	H	3.0	35.4	1.0	-49.7	-13.0	-36.7	
6930.00	-15.3	H	3.0	35.7	1.0	-50.0	-13.0	-37.0	
High Ch, 1754.3MHz									
3508.60	-19.2	V	3.0	36.0	1.0	-54.2	-13.0	-41.2	
5262.90	-15.9	V	3.0	35.4	1.0	-50.3	-13.0	-37.3	
7017.20	-15.6	V	3.0	35.7	1.0	-50.3	-13.0	-37.3	
3508.60	-18.9	H	3.0	36.0	1.0	-53.9	-13.0	-40.9	
5262.90	-15.9	H	3.0	35.4	1.0	-50.3	-13.0	-37.3	
7017.20	-13.5	H	3.0	35.7	1.0	-48.2	-13.0	-35.2	

LTE B4 1.4MHz 16QAM

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

Company: SOMC
Project #: 11775548
Date: 7/31/2017
Test Engineer: 43575 OS
Configuration: EUT + HS + Charger
Location: Chamber C
Mode: LTE_QPSK Band 4 Harmonics, 3MHz Bandwidth

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 1711.5MHz									
3423.00	-19.1	V	3.0	36.1	1.0	-54.1	-13.0	-41.1	
5134.50	-16.0	V	3.0	35.4	1.0	-50.4	-13.0	-37.4	
6846.00	-14.8	V	3.0	35.7	1.0	-49.4	-13.0	-36.4	
3423.00	-18.7	H	3.0	36.1	1.0	-53.8	-13.0	-40.8	
5134.50	-15.4	H	3.0	35.4	1.0	-49.8	-13.0	-36.8	
6846.00	-14.6	H	3.0	35.7	1.0	-49.2	-13.0	-36.2	
Mid Ch, 1732.5MHz									
3465.00	-18.5	V	3.0	36.0	1.0	-53.6	-13.0	-40.6	
5197.50	-15.6	V	3.0	35.4	1.0	-50.0	-13.0	-37.0	
6930.00	-15.0	V	3.0	35.7	1.0	-49.7	-13.0	-36.7	
3465.00	-18.4	H	3.0	36.0	1.0	-53.4	-13.0	-40.4	
5197.50	-14.9	H	3.0	35.4	1.0	-49.3	-13.0	-36.3	
6930.00	-14.6	H	3.0	35.7	1.0	-49.3	-13.0	-36.3	
High Ch, 1753.5MHz									
3507.00	-18.7	V	3.0	36.0	1.0	-53.7	-13.0	-40.7	
5260.50	-16.6	V	3.0	35.4	1.0	-51.0	-13.0	-38.0	
7014.00	-14.8	V	3.0	35.7	1.0	-49.5	-13.0	-36.5	
3507.00	-19.1	H	3.0	36.0	1.0	-54.1	-13.0	-41.1	
5260.50	-17.2	H	3.0	35.4	1.0	-51.6	-13.0	-38.6	
7014.00	-15.5	H	3.0	35.7	1.0	-50.2	-13.0	-37.2	

LTE B4 3MHz QPSK

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

Company: SOMC
Project #: 11775548
Date: 7/31/2017
Test Engineer: 43575 OS
Configuration: EUT + HS + Charger
Location: Chamber C
Mode: LTE_16QAM Band 4 Harmonics, 3MHz Bandwidth

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 1711.5MHz									
3423.00	-19.1	V	3.0	36.1	1.0	-54.1	-13.0	-41.1	
5134.50	-16.0	V	3.0	35.4	1.0	-50.4	-13.0	-37.4	
6846.00	-14.4	V	3.0	35.7	1.0	-49.0	-13.0	-36.0	
3423.00	-17.8	H	3.0	36.1	1.0	-52.9	-13.0	-39.9	
5134.50	-15.2	H	3.0	35.4	1.0	-49.7	-13.0	-36.7	
6846.00	-14.6	H	3.0	35.7	1.0	-49.3	-13.0	-36.3	
Mid Ch, 1732.5MHz									
3465.00	-18.5	V	3.0	36.0	1.0	-53.6	-13.0	-40.6	
5197.50	-15.9	V	3.0	35.4	1.0	-50.3	-13.0	-37.3	
6930.00	-15.0	V	3.0	35.7	1.0	-49.7	-13.0	-36.7	
3465.00	-18.0	H	3.0	36.0	1.0	-53.0	-13.0	-40.0	
5197.50	-14.7	H	3.0	35.4	1.0	-49.1	-13.0	-36.1	
6930.00	-13.9	H	3.0	35.7	1.0	-48.6	-13.0	-35.6	
High Ch, 1753.5MHz									
3507.00	-18.9	V	3.0	36.0	1.0	-53.9	-13.0	-40.9	
5260.50	-16.4	V	3.0	35.4	1.0	-50.8	-13.0	-37.8	
7014.00	-14.8	V	3.0	35.7	1.0	-49.5	-13.0	-36.5	
3507.00	-19.0	H	3.0	36.0	1.0	-54.0	-13.0	-41.0	
5260.50	-15.9	H	3.0	35.4	1.0	-50.3	-13.0	-37.3	
7014.00	-15.8	H	3.0	35.7	1.0	-50.5	-13.0	-37.5	

LTE B4 3MHz 16QAM

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

Company: SOMC
Project #: 11775548
Date: 7/31/2017
Test Engineer: 43575 OS
Configuration: EUT + HS + Charger
Location: Chamber C
Mode: LTE_QPSK Band 4 Harmonics, 5MHz Bandwidth

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 1712.5MHz									
3425.00	-19.1	V	3.0	36.1	1.0	-54.1	-13.0	-41.1	
5137.50	-15.5	V	3.0	35.4	1.0	-50.0	-13.0	-37.0	
6850.00	-14.8	V	3.0	35.7	1.0	-49.5	-13.0	-36.5	
3425.00	-19.1	H	3.0	36.1	1.0	-54.2	-13.0	-41.2	
5137.50	-14.8	H	3.0	35.4	1.0	-49.3	-13.0	-36.3	
6850.00	-14.7	H	3.0	35.7	1.0	-49.4	-13.0	-36.4	
Mid Ch, 1732.5MHz									
3465.00	-18.0	V	3.0	36.0	1.0	-53.0	-13.0	-40.0	
5197.50	-16.0	V	3.0	35.4	1.0	-50.4	-13.0	-37.4	
6930.00	-15.0	V	3.0	35.7	1.0	-49.7	-13.0	-36.7	
3465.00	-19.0	H	3.0	36.0	1.0	-54.0	-13.0	-41.0	
5197.50	-15.6	H	3.0	35.4	1.0	-50.1	-13.0	-37.1	
6930.00	-15.2	H	3.0	35.7	1.0	-49.9	-13.0	-36.9	
High Ch, 1752.5MHz									
3505.00	-19.2	V	3.0	36.0	1.0	-54.2	-13.0	-41.2	
5257.50	-16.5	V	3.0	35.4	1.0	-50.9	-13.0	-37.9	
7010.00	-15.2	V	3.0	35.7	1.0	-49.9	-13.0	-36.9	
3505.00	-18.6	H	3.0	36.0	1.0	-53.6	-13.0	-40.6	
5257.50	-16.5	H	3.0	35.4	1.0	-50.9	-13.0	-37.9	
7010.00	-15.3	H	3.0	35.7	1.0	-50.0	-13.0	-37.0	

LTE B4 5MHz QPSK

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

Company: SOMC
Project #: 11775548
Date: 7/31/2017
Test Engineer: 43575 OS
Configuration: EUT + HS + Charger
Location: Chamber C
Mode: LTE_16QAM Band 4 Harmonics, 5MHz Bandwidth

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 1712.5MHz									
3425.00	-19.0	V	3.0	36.1	1.0	-54.1	-13.0	-41.1	
5137.50	-15.8	V	3.0	35.4	1.0	-50.3	-13.0	-37.3	
6850.00	-14.8	V	3.0	35.7	1.0	-49.5	-13.0	-36.5	
3425.00	-18.8	H	3.0	36.1	1.0	-53.8	-13.0	-40.8	
5137.50	-16.0	H	3.0	35.4	1.0	-50.5	-13.0	-37.5	
6850.00	-14.5	H	3.0	35.7	1.0	-49.2	-13.0	-36.2	
Mid Ch, 1732.5MHz									
3465.00	-17.9	V	3.0	36.0	1.0	-52.9	-13.0	-39.9	
5197.50	-15.8	V	3.0	35.4	1.0	-50.2	-13.0	-37.2	
6930.00	-14.7	V	3.0	35.7	1.0	-49.4	-13.0	-36.4	
3465.00	-18.3	H	3.0	36.0	1.0	-53.3	-13.0	-40.3	
5197.50	-16.0	H	3.0	35.4	1.0	-50.4	-13.0	-37.4	
6930.00	-14.9	H	3.0	35.7	1.0	-49.6	-13.0	-36.6	
High Ch, 1752.5MHz									
3505.00	-19.0	V	3.0	36.0	1.0	-54.0	-13.0	-41.0	
5257.50	-16.2	V	3.0	35.4	1.0	-50.7	-13.0	-37.7	
7010.00	-15.6	V	3.0	35.7	1.0	-50.3	-13.0	-37.3	
3505.00	-18.7	H	3.0	36.0	1.0	-53.7	-13.0	-40.7	
5257.50	-15.7	H	3.0	35.4	1.0	-50.1	-13.0	-37.1	
7010.00	-15.1	H	3.0	35.7	1.0	-49.8	-13.0	-36.8	

LTE B4 5MHz 16QAM

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

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

Company: SOMC
Project #: 11775548
Date: 7/31/2017
Test Engineer: 43575 OS
Configuration: EUT + HS + Charger
Location: Chamber C
Mode: LTE_QPSK Band 4 Harmonics, 10MHz Bandwidth

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 1715MHz									
3430.00	-18.6	V	3.0	36.1	1.0	-53.7	-13.0	-40.7	
5145.00	-15.2	V	3.0	35.4	1.0	-49.6	-13.0	-36.6	
6860.00	-14.1	V	3.0	35.7	1.0	-48.7	-13.0	-35.7	
3430.00	-18.8	H	3.0	36.1	1.0	-53.9	-13.0	-40.9	
5145.00	-15.6	H	3.0	35.4	1.0	-50.1	-13.0	-37.1	
6860.00	-13.9	H	3.0	35.7	1.0	-48.6	-13.0	-35.6	
Mid Ch, 1732.5MHz									
3465.00	-17.7	V	3.0	36.0	1.0	-52.7	-13.0	-39.7	
5197.50	-15.8	V	3.0	35.4	1.0	-50.2	-13.0	-37.2	
6930.00	-15.4	V	3.0	35.7	1.0	-50.1	-13.0	-37.1	
3465.00	-18.5	H	3.0	36.0	1.0	-53.6	-13.0	-40.6	
5197.50	-14.4	H	3.0	35.4	1.0	-48.8	-13.0	-35.8	
6930.00	-14.9	H	3.0	35.7	1.0	-49.6	-13.0	-36.6	
High Ch, 1750MHz									
3500.00	-17.7	V	3.0	36.0	1.0	-52.7	-13.0	-39.7	
5250.00	-15.5	V	3.0	35.4	1.0	-50.0	-13.0	-37.0	
7000.00	-15.0	V	3.0	35.7	1.0	-49.7	-13.0	-36.7	
3500.00	-19.0	H	3.0	36.0	1.0	-54.0	-13.0	-41.0	
5250.00	-15.5	H	3.0	35.4	1.0	-50.0	-13.0	-37.0	
7000.00	-14.3	H	3.0	35.7	1.0	-49.0	-13.0	-36.0	

LTE B4 10MHz QPSK

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

Company: SOMC
Project #: 11775548
Date: 7/31/2017
Test Engineer: 43575 OS
Configuration: EUT + HS + Charger
Location: Chamber C
Mode: LTE_16QAM Band 4 Harmonics, 10MHz Bandwidth

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 1715MHz									
3430.00	-18.7	V	3.0	36.1	1.0	-53.8	-13.0	-40.8	
5145.00	-14.8	V	3.0	35.4	1.0	-49.2	-13.0	-36.2	
6860.00	-14.7	V	3.0	35.7	1.0	-49.4	-13.0	-36.4	
3430.00	-18.4	H	3.0	36.1	1.0	-53.5	-13.0	-40.5	
5145.00	-14.6	H	3.0	35.4	1.0	-49.0	-13.0	-36.0	
6860.00	-14.9	H	3.0	35.7	1.0	-49.6	-13.0	-36.6	
Mid Ch, 1732.5MHz									
3465.00	-17.0	V	3.0	36.0	1.0	-52.0	-13.0	-39.0	
5197.50	-15.8	V	3.0	35.4	1.0	-50.2	-13.0	-37.2	
6930.00	-15.1	V	3.0	35.7	1.0	-49.8	-13.0	-36.8	
3465.00	-18.1	H	3.0	36.0	1.0	-53.1	-13.0	-40.1	
5197.50	-15.0	H	3.0	35.4	1.0	-49.4	-13.0	-36.4	
6930.00	-14.5	H	3.0	35.7	1.0	-49.2	-13.0	-36.2	
High Ch, 1750MHz									
3500.00	-18.3	V	3.0	36.0	1.0	-53.3	-13.0	-40.3	
5250.00	-16.0	V	3.0	35.4	1.0	-50.5	-13.0	-37.5	
7000.00	-13.6	V	3.0	35.7	1.0	-48.3	-13.0	-35.3	
3500.00	-18.9	H	3.0	36.0	1.0	-53.9	-13.0	-40.9	
5250.00	-15.7	H	3.0	35.4	1.0	-50.1	-13.0	-37.1	
7000.00	-15.3	H	3.0	35.7	1.0	-50.0	-13.0	-37.0	

LTE B4 10MHz 16QAM

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

Company: SOMC
Project #: 11775548
Date: 7/31/2017
Test Engineer: 43575 OS
Configuration: EUT + HS + Charger
Location: Chamber C
Mode: LTE_QPSK Band 4 Harmonics, 15MHz Bandwidth

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 1717.5MHz									
3435.00	-18.8	V	3.0	36.1	1.0	-53.8	-13.0	-40.8	
5152.50	-15.5	V	3.0	35.4	1.0	-49.9	-13.0	-36.9	
6870.00	-14.1	V	3.0	35.7	1.0	-48.7	-13.0	-35.7	
3435.00	-18.4	H	3.0	36.1	1.0	-53.4	-13.0	-40.4	
5152.50	-15.7	H	3.0	35.4	1.0	-50.1	-13.0	-37.1	
6870.00	-14.1	H	3.0	35.7	1.0	-48.8	-13.0	-35.8	
Mid Ch, 1732.5MHz									
3465.00	-18.7	V	3.0	36.0	1.0	-53.7	-13.0	-40.7	
5197.50	-15.3	V	3.0	35.4	1.0	-49.7	-13.0	-36.7	
6930.00	-15.1	V	3.0	35.7	1.0	-49.7	-13.0	-36.7	
3465.00	-17.4	H	3.0	36.0	1.0	-52.5	-13.0	-39.5	
5197.50	-15.8	H	3.0	35.4	1.0	-50.2	-13.0	-37.2	
6930.00	-14.9	H	3.0	35.7	1.0	-49.6	-13.0	-36.6	
High Ch, 1747.5MHz									
3495.00	-18.8	V	3.0	36.0	1.0	-53.8	-13.0	-40.8	
5242.50	-16.6	V	3.0	35.4	1.0	-51.1	-13.0	-38.1	
6990.00	-15.7	V	3.0	35.7	1.0	-50.4	-13.0	-37.4	
3495.00	-18.4	H	3.0	36.0	1.0	-53.4	-13.0	-40.4	
5242.50	-15.4	H	3.0	35.4	1.0	-49.9	-13.0	-36.9	
6990.00	-14.1	H	3.0	35.7	1.0	-48.8	-13.0	-35.8	

LTE B4 15MHz QPSK

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

Company: SOMC
Project #: 11775548
Date: 7/31/2017
Test Engineer: 43575 OS
Configuration: EUT + HS + Charger
Location: Chamber C
Mode: LTE_16QAM Band 4 Harmonics, 15MHz Bandwidth

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 1717.5MHz									
3435.00	-18.8	V	3.0	36.1	1.0	-53.9	-13.0	-40.9	
5152.50	-14.9	V	3.0	35.4	1.0	-49.3	-13.0	-36.3	
6870.00	-13.8	V	3.0	35.7	1.0	-48.5	-13.0	-35.5	
3435.00	-18.8	H	3.0	36.1	1.0	-53.9	-13.0	-40.9	
5152.50	-15.8	H	3.0	35.4	1.0	-50.2	-13.0	-37.2	
6870.00	-14.0	H	3.0	35.7	1.0	-48.6	-13.0	-35.6	
Mid Ch, 1732.5MHz									
3465.00	-18.2	V	3.0	36.0	1.0	-53.2	-13.0	-40.2	
5197.50	-14.6	V	3.0	35.4	1.0	-49.0	-13.0	-36.0	
6930.00	-14.7	V	3.0	35.7	1.0	-49.4	-13.0	-36.4	
3465.00	-17.7	H	3.0	36.0	1.0	-52.7	-13.0	-39.7	
5197.50	-15.0	H	3.0	35.4	1.0	-49.4	-13.0	-36.4	
6930.00	-14.7	H	3.0	35.7	1.0	-49.4	-13.0	-36.4	
High Ch, 1747.5MHz									
3495.00	-19.4	V	3.0	36.0	1.0	-54.4	-13.0	-41.4	
5242.50	-15.6	V	3.0	35.4	1.0	-50.0	-13.0	-37.0	
6990.00	-15.1	V	3.0	35.7	1.0	-49.7	-13.0	-36.7	
3495.00	-18.7	H	3.0	36.0	1.0	-53.7	-13.0	-40.7	
5242.50	-15.5	H	3.0	35.4	1.0	-50.0	-13.0	-37.0	
6990.00	-14.7	H	3.0	35.7	1.0	-49.4	-13.0	-36.4	

LTE B4 15MHz 16QAM

UL VERIFICATION SERVICES INC. FORM NO: CCSUP4701H
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LTE Band 5

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

Company: SOMC
Project #: 11775548
Date: 7/31/2017
Test Engineer: 43574
Configuration: EUT + AC + Headset
Location: Chamber C
Mode: LTE_QPSK Band 5 Harmonics, 1.4MHz Bandwidth

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 824.7									
1649.40	-24.5	V	3.0	36.4	1.0	-59.8	-13.0	-46.8	
2474.10	-23.8	V	3.0	35.0	1.0	-57.8	-13.0	-44.8	
3298.80	-23.4	V	3.0	34.3	1.0	-56.7	-13.0	-43.7	
1649.40	-26.2	H	3.0	36.4	1.0	-61.6	-13.0	-48.6	
2474.10	-23.7	H	3.0	35.0	1.0	-57.7	-13.0	-44.7	
3298.80	-23.9	H	3.0	34.3	1.0	-57.2	-13.0	-44.2	
Mid Ch, 836.5									
1673.00	-25.1	V	3.0	36.3	1.0	-60.4	-13.0	-47.4	
2509.50	-23.9	V	3.0	34.9	1.0	-57.9	-13.0	-44.9	
3346.00	-21.7	V	3.0	34.2	1.0	-54.9	-13.0	-41.9	
1673.00	-25.4	H	3.0	36.3	1.0	-60.7	-13.0	-47.7	
2509.50	-24.1	H	3.0	34.9	1.0	-58.0	-13.0	-45.0	
3346.00	-21.9	H	3.0	34.2	1.0	-55.2	-13.0	-42.2	
High Ch, 848.3									
1696.60	-23.8	V	3.0	36.3	1.0	-59.1	-13.0	-46.1	
2544.90	-23.5	V	3.0	34.9	1.0	-57.4	-13.0	-44.4	
3393.20	-23.3	V	3.0	34.2	1.0	-56.5	-13.0	-43.5	
1696.60	-25.8	H	3.0	36.3	1.0	-61.1	-13.0	-48.1	
2544.90	-23.6	H	3.0	34.9	1.0	-57.5	-13.0	-44.5	
3393.20	-23.8	H	3.0	34.2	1.0	-57.0	-13.0	-44.0	

LTE B5 1.4MHz QPSK

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

Company: SOMC
Project #: 11775548
Date: 7/31/2017
Test Engineer: 43574
Configuration: EUT + AC + Headset
Location: Chamber C
Mode: LTE_16QAM Band 5 Harmonics, 1.4MHz Bandwidth

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 824.7									
1649.40	-24.4	V	3.0	36.4	1.0	-59.8	-13.0	-46.8	
2474.10	-23.9	V	3.0	35.0	1.0	-57.9	-13.0	-44.9	
3298.80	-23.5	V	3.0	34.3	1.0	-56.7	-13.0	-43.7	
1649.40	-26.2	H	3.0	36.4	1.0	-61.5	-13.0	-48.5	
2474.10	-23.8	H	3.0	35.0	1.0	-57.8	-13.0	-44.8	
3298.80	-24.4	H	3.0	34.3	1.0	-57.6	-13.0	-44.6	
Mid Ch, 836.5									
1673.00	-23.9	V	3.0	36.3	1.0	-59.3	-13.0	-46.3	
2509.50	-24.0	V	3.0	34.9	1.0	-58.0	-13.0	-45.0	
3346.00	-21.8	V	3.0	34.2	1.0	-55.0	-13.0	-42.0	
1673.00	-25.3	H	3.0	36.3	1.0	-60.7	-13.0	-47.7	
2509.50	-24.1	H	3.0	34.9	1.0	-58.0	-13.0	-45.0	
3346.00	-23.0	H	3.0	34.2	1.0	-56.2	-13.0	-43.2	
High Ch, 848.3									
1696.60	-23.9	V	3.0	36.3	1.0	-59.2	-13.0	-46.2	
2544.90	-23.8	V	3.0	34.9	1.0	-57.7	-13.0	-44.7	
3393.20	-23.8	V	3.0	34.2	1.0	-57.0	-13.0	-44.0	
1696.60	-25.8	H	3.0	36.3	1.0	-61.1	-13.0	-48.1	
2544.90	-23.8	H	3.0	34.9	1.0	-57.7	-13.0	-44.7	
3393.20	-24.1	H	3.0	34.2	1.0	-57.3	-13.0	-44.3	

LTE B5 1.4MHz 16QAM

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

Company: SOMC
Project #: 11775548
Date: 7/31/2017
Test Engineer: 43574
Configuration: EUT + AC + Headset
Location: Chamber C
Mode: LTE_QPSK Band 5 Harmonics, 3MHz Bandwidth

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 825.5									
1651.00	-25.1	V	3.0	36.4	1.0	-60.5	-13.0	-47.5	
2476.50	-24.5	V	3.0	35.0	1.0	-58.4	-13.0	-45.4	
3302.00	-21.9	V	3.0	34.3	1.0	-55.1	-13.0	-42.1	
1651.00	-26.0	H	3.0	36.4	1.0	-61.4	-13.0	-48.4	
2476.50	-24.7	H	3.0	35.0	1.0	-58.7	-13.0	-45.7	
3302.00	-22.3	H	3.0	34.3	1.0	-55.6	-13.0	-42.6	
Mid Ch, 836.5									
1673.00	-23.5	V	3.0	36.3	1.0	-58.8	-13.0	-45.8	
2509.50	-23.8	V	3.0	34.9	1.0	-57.7	-13.0	-44.7	
3346.00	-22.1	V	3.0	34.2	1.0	-55.3	-13.0	-42.3	
1673.00	-24.8	H	3.0	36.3	1.0	-60.1	-13.0	-47.1	
2509.50	-24.6	H	3.0	34.9	1.0	-58.5	-13.0	-45.5	
3346.00	-22.4	H	3.0	34.2	1.0	-55.7	-13.0	-42.7	
High Ch, 847.5									
1695.00	-24.5	V	3.0	36.3	1.0	-59.8	-13.0	-46.8	
2542.50	-24.4	V	3.0	34.9	1.0	-58.3	-13.0	-45.3	
3390.00	-21.9	V	3.0	34.2	1.0	-55.1	-13.0	-42.1	
1695.00	-25.7	H	3.0	36.3	1.0	-61.0	-13.0	-48.0	
2542.50	-24.6	H	3.0	34.9	1.0	-58.5	-13.0	-45.5	
3390.00	-22.5	H	3.0	34.2	1.0	-55.7	-13.0	-42.7	

LTE B5 3MHz QPSK

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

Company: SOMC
Project #: 11775548
Date: 7/31/2017
Test Engineer: 43574
Configuration: EUT + AC + Headset
Location: Chamber C
Mode: LTE_16QAM Band 5 Harmonics, 3MHz Bandwidth

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 825.5									
1651.00	-25.3	V	3.0	36.4	1.0	-60.7	-13.0	-47.7	
2476.50	-24.8	V	3.0	35.0	1.0	-58.7	-13.0	-45.7	
3302.00	-22.0	V	3.0	34.3	1.0	-55.3	-13.0	-42.3	
1651.00	-26.2	H	3.0	36.4	1.0	-61.6	-13.0	-48.6	
2476.50	-25.1	H	3.0	35.0	1.0	-59.0	-13.0	-46.0	
3302.00	-22.5	H	3.0	34.3	1.0	-55.8	-13.0	-42.8	
Mid Ch, 836.5									
1673.00	-24.0	V	3.0	36.3	1.0	-59.3	-13.0	-46.3	
2509.50	-24.7	V	3.0	34.9	1.0	-58.7	-13.0	-45.7	
3346.00	-22.1	V	3.0	34.2	1.0	-55.3	-13.0	-42.3	
1673.00	-25.5	H	3.0	36.3	1.0	-60.9	-13.0	-47.9	
2509.50	-24.2	H	3.0	34.9	1.0	-58.2	-13.0	-45.2	
3346.00	-22.9	H	3.0	34.2	1.0	-56.2	-13.0	-43.2	
High Ch, 847.5									
1695.00	-24.7	V	3.0	36.3	1.0	-60.0	-13.0	-47.0	
2542.50	-24.6	V	3.0	34.9	1.0	-58.5	-13.0	-45.5	
3390.00	-22.1	V	3.0	34.2	1.0	-55.2	-13.0	-42.2	
1695.00	-25.9	H	3.0	36.3	1.0	-61.2	-13.0	-48.2	
2542.50	-24.7	H	3.0	34.9	1.0	-58.6	-13.0	-45.6	
3390.00	-22.6	H	3.0	34.2	1.0	-55.8	-13.0	-42.8	

LTE B5 3MHz 16QAM

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

Company: SOMC
Project #: 11775548
Date: 7/31/2017
Test Engineer: 43574
Configuration: EUT + AC + Headset
Location: Chamber C
Mode: LTE_QPSK Band 5 Harmonics, 5MHz Bandwidth

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 826.5									
1653.00	-25.1	V	3.0	36.4	1.0	-60.4	-13.0	-47.4	
2479.50	-23.7	V	3.0	35.0	1.0	-57.7	-13.0	-44.7	
3306.00	-22.0	V	3.0	34.3	1.0	-55.3	-13.0	-42.3	
1653.00	-25.8	H	3.0	36.4	1.0	-61.2	-13.0	-48.2	
2479.50	-24.4	H	3.0	35.0	1.0	-58.3	-13.0	-45.3	
3306.00	-22.4	H	3.0	34.3	1.0	-55.7	-13.0	-42.7	
Mid Ch, 836.5									
1673.00	-24.6	V	3.0	36.3	1.0	-60.0	-13.0	-47.0	
2509.50	-24.2	V	3.0	34.9	1.0	-58.1	-13.0	-45.1	
3346.00	-21.8	V	3.0	34.2	1.0	-55.1	-13.0	-42.1	
1673.00	-25.1	H	3.0	36.3	1.0	-60.4	-13.0	-47.4	
2509.50	-24.3	H	3.0	34.9	1.0	-58.3	-13.0	-45.3	
3346.00	-22.8	H	3.0	34.2	1.0	-56.0	-13.0	-43.0	
High Ch, 846.5									
1693.00	-24.6	V	3.0	36.3	1.0	-59.9	-13.0	-46.9	
2539.50	-23.3	V	3.0	34.9	1.0	-57.2	-13.0	-44.2	
3386.00	-21.3	V	3.0	34.2	1.0	-54.4	-13.0	-41.4	
1693.00	-25.3	H	3.0	36.3	1.0	-60.6	-13.0	-47.6	
2539.50	-23.9	H	3.0	34.9	1.0	-57.8	-13.0	-44.8	
3386.00	-22.0	H	3.0	34.2	1.0	-55.1	-13.0	-42.1	

LTE B5 5MHz QPSK

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

Company: SOMC
Project #: 11775548
Date: 7/31/2017
Test Engineer: 43574
Configuration: EUT + AC + Headset
Location: Chamber C
Mode: LTE_16QAM Band 5 Harmonics, 5MHz Bandwidth

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 826.5									
1653.00	-24.7	V	3.0	36.4	1.0	-60.0	-13.0	-47.0	
2479.50	-23.7	V	3.0	35.0	1.0	-57.6	-13.0	-44.6	
3306.00	-22.6	V	3.0	34.3	1.0	-55.9	-13.0	-42.9	
1653.00	-25.8	H	3.0	36.4	1.0	-61.2	-13.0	-48.2	
2479.50	-24.3	H	3.0	35.0	1.0	-58.3	-13.0	-45.3	
3306.00	-22.8	H	3.0	34.3	1.0	-56.0	-13.0	-43.0	
Mid Ch, 836.5									
1673.00	-24.4	V	3.0	36.3	1.0	-59.7	-13.0	-46.7	
2509.50	-24.1	V	3.0	34.9	1.0	-58.0	-13.0	-45.0	
3346.00	-22.0	V	3.0	34.2	1.0	-55.2	-13.0	-42.2	
1673.00	-25.6	H	3.0	36.3	1.0	-60.9	-13.0	-47.9	
2509.50	-24.2	H	3.0	34.9	1.0	-58.1	-13.0	-45.1	
3346.00	-22.9	H	3.0	34.2	1.0	-56.2	-13.0	-43.2	
High Ch, 846.5									
1693.00	-24.5	V	3.0	36.3	1.0	-59.7	-13.0	-46.7	
2539.50	-23.2	V	3.0	34.9	1.0	-57.1	-13.0	-44.1	
3386.00	-21.9	V	3.0	34.2	1.0	-55.1	-13.0	-42.1	
1693.00	-25.3	H	3.0	36.3	1.0	-60.6	-13.0	-47.6	
2539.50	-23.8	H	3.0	34.9	1.0	-57.7	-13.0	-44.7	
3386.00	-22.3	H	3.0	34.2	1.0	-55.4	-13.0	-42.4	

LTE B5 5MHz 16QAM

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

Company: SOMC
Project #: 11775548
Date: 7/31/2017
Test Engineer: 43574
Configuration: EUT + AC + Headset
Location: Chamber C
Mode: LTE_16QPSK Band 5 Harmonics, 10MHz Bandwidth

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 829									
1658.00	-24.6	V	3.0	36.4	1.0	-60.0	-13.0	-47.0	
2487.00	-24.8	V	3.0	35.0	1.0	-58.8	-13.0	-45.8	
3316.00	-21.8	V	3.0	34.3	1.0	-55.0	-13.0	-42.0	
1658.00	-25.6	H	3.0	36.4	1.0	-60.9	-13.0	-47.9	
2487.00	-24.4	H	3.0	35.0	1.0	-58.3	-13.0	-45.3	
3316.00	-22.8	H	3.0	34.3	1.0	-56.1	-13.0	-43.1	
Mid Ch, 836.5									
1673.00	-24.0	V	3.0	36.3	1.0	-59.3	-13.0	-46.3	
2509.50	-23.6	V	3.0	34.9	1.0	-57.6	-13.0	-44.6	
3346.00	-22.0	V	3.0	34.2	1.0	-55.2	-13.0	-42.2	
1673.00	-25.5	H	3.0	36.3	1.0	-60.8	-13.0	-47.8	
2509.50	-24.5	H	3.0	34.9	1.0	-58.5	-13.0	-45.5	
3346.00	-22.4	H	3.0	34.2	1.0	-55.6	-13.0	-42.6	
High Ch, 844									
1688.00	-24.2	V	3.0	36.3	1.0	-59.5	-13.0	-46.5	
2532.00	-24.6	V	3.0	34.9	1.0	-58.6	-13.0	-45.6	
3376.00	-21.8	V	3.0	34.2	1.0	-55.0	-13.0	-42.0	
1688.00	-25.2	H	3.0	36.3	1.0	-60.5	-13.0	-47.5	
2532.00	-24.2	H	3.0	34.9	1.0	-58.1	-13.0	-45.1	
3376.00	-23.1	H	3.0	34.2	1.0	-56.3	-13.0	-43.3	

LTE B5 10MHz QPSK

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

Company: SOMC
Project #: 11775548
Date: 7/31/2017
Test Engineer: 43574
Configuration: EUT + AC + Headset
Location: Chamber C
Mode: LTE_16QAM Band 5 Harmonics, 10MHz Bandwidth

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 829									
1658.00	-24.5	V	3.0	36.4	1.0	-59.9	-13.0	-46.9	
2487.00	-24.7	V	3.0	35.0	1.0	-58.7	-13.0	-45.7	
3316.00	-21.9	V	3.0	34.3	1.0	-55.1	-13.0	-42.1	
1658.00	-25.4	H	3.0	36.4	1.0	-60.8	-13.0	-47.8	
2487.00	-24.3	H	3.0	35.0	1.0	-58.3	-13.0	-45.3	
3316.00	-22.8	H	3.0	34.3	1.0	-56.0	-13.0	-43.0	
Mid Ch, 836.5									
1673.00	-24.0	V	3.0	36.3	1.0	-59.3	-13.0	-46.3	
2509.50	-23.3	V	3.0	34.9	1.0	-57.3	-13.0	-44.3	
3346.00	-21.7	V	3.0	34.2	1.0	-54.9	-13.0	-41.9	
1673.00	-25.8	H	3.0	36.3	1.0	-61.1	-13.0	-48.1	
2509.50	-24.4	H	3.0	34.9	1.0	-58.3	-13.0	-45.3	
3346.00	-22.7	H	3.0	34.2	1.0	-55.9	-13.0	-42.9	
High Ch, 844									
1688.00	-24.2	V	3.0	36.3	1.0	-59.5	-13.0	-46.5	
2532.00	-24.5	V	3.0	34.9	1.0	-58.4	-13.0	-45.4	
3376.00	-21.9	V	3.0	34.2	1.0	-55.1	-13.0	-42.1	
1688.00	-25.1	H	3.0	36.3	1.0	-60.4	-13.0	-47.4	
2532.00	-24.2	H	3.0	34.9	1.0	-58.1	-13.0	-45.1	
3376.00	-22.9	H	3.0	34.2	1.0	-56.1	-13.0	-43.1	

LTE B5 10MHz 16QAM

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

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LTE Band 7

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

Company: SOMC
Project #: 11775548
Date: 7/31/2017
Test Engineer: 43575 OS
Configuration: EUT + AC + Headset
Location: Chamber C
Mode: LTE_QPSK Band 7 Harmonics, 5MHz Bandwidth

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 2502.5									
5005.00	-17.9	V	3.0	33.2	1.0	-50.1	-25.0	-25.1	
7507.50	-19.3	V	3.0	32.8	1.0	-51.1	-25.0	-26.1	
10010.00	-18.7	V	3.0	32.8	1.0	-50.5	-25.0	-25.5	
5005.00	-12.9	H	3.0	33.2	1.0	-45.2	-25.0	-20.2	
7507.50	-19.4	H	3.0	32.8	1.0	-51.3	-25.0	-26.3	
10010.00	-17.5	H	3.0	32.8	1.0	-49.3	-25.0	-24.3	
Mid Ch, 2535									
5070.00	-20.0	V	3.0	33.2	1.0	-52.2	-25.0	-27.2	
7605.00	-18.1	V	3.0	32.8	1.0	-49.9	-25.0	-24.9	
10140.00	-18.8	V	3.0	32.7	1.0	-50.4	-25.0	-25.4	
5070.00	-18.2	H	3.0	33.2	1.0	-50.4	-25.0	-25.4	
7605.00	-18.6	H	3.0	32.8	1.0	-50.4	-25.0	-25.4	
10140.00	-19.3	H	3.0	32.7	1.0	-51.0	-25.0	-26.0	
High Ch, 2567.5									
5135.00	-13.7	V	3.0	33.2	1.0	-45.9	-25.0	-20.9	
7702.50	-18.7	V	3.0	32.8	1.0	-50.5	-25.0	-25.5	
10270.00	-19.1	V	3.0	32.6	1.0	-50.7	-25.0	-25.7	
5135.00	-16.2	H	3.0	33.2	1.0	-48.4	-25.0	-23.4	
7702.50	-18.7	H	3.0	32.8	1.0	-50.5	-25.0	-25.5	
10270.00	-18.4	H	3.0	32.6	1.0	-50.0	-25.0	-25.0	

LTE B7 5MHz QPSK

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

Company: SOMC
Project #: 11775548
Date: 7/31/2017
Test Engineer: 43575 OS
Configuration: EUT + AC + Headset
Location: Chamber C
Mode: LTE_16QAM Band 7 Harmonics, 5MHz Bandwidth

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 2502.5									
5005.00	-16.2	V	3.0	33.2	1.0	-48.4	-25.0	-23.4	
7507.50	-20.0	V	3.0	32.8	1.0	-51.9	-25.0	-26.9	
10010.00	-19.1	V	3.0	32.8	1.0	-50.8	-25.0	-25.8	
5005.00	-11.7	H	3.0	33.2	1.0	-44.0	-25.0	-19.0	
7507.50	-19.1	H	3.0	32.8	1.0	-51.0	-25.0	-26.0	
10010.00	-18.3	H	3.0	32.8	1.0	-50.0	-25.0	-25.0	
Mid Ch, 2535									
5070.00	-19.1	V	3.0	33.2	1.0	-51.3	-25.0	-26.3	
7605.00	-18.0	V	3.0	32.8	1.0	-49.8	-25.0	-24.8	
10140.00	-17.9	V	3.0	32.7	1.0	-49.5	-25.0	-24.5	
5070.00	-18.3	H	3.0	33.2	1.0	-50.5	-25.0	-25.5	
7605.00	-19.0	H	3.0	32.8	1.0	-50.8	-25.0	-25.8	
10140.00	-19.6	H	3.0	32.7	1.0	-51.3	-25.0	-26.3	
High Ch, 2567.5									
5135.00	-13.4	V	3.0	33.2	1.0	-45.6	-25.0	-20.6	
7702.50	-18.4	V	3.0	32.8	1.0	-50.2	-25.0	-25.2	
10270.00	-18.7	V	3.0	32.6	1.0	-50.3	-25.0	-25.3	
5135.00	-14.4	H	3.0	33.2	1.0	-46.6	-25.0	-21.6	
7702.50	-18.2	H	3.0	32.8	1.0	-50.0	-25.0	-25.0	
10270.00	-17.7	H	3.0	32.6	1.0	-49.3	-25.0	-24.3	

LTE B7 5MHz 16QAM

Above 1GHz High Frequency Substitution Measurement

Company: SOMC
Project #: 11775548
Date: 7/31/2017
Test Engineer: 43575 OS
Configuration: EUT + AC + Headset
Location: Chamber C
Mode: LTE_QPSK Band 7 Harmonics, 10MHz Bandwidth

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 2505									
5010.00	-10.3	V	3.0	33.2	1.0	-42.5	-25.0	-17.5	
7515.00	-19.1	V	3.0	32.8	1.0	-51.0	-25.0	-26.0	
10020.00	-19.8	V	3.0	32.8	1.0	-51.6	-25.0	-26.6	
5010.00	-13.7	H	3.0	33.2	1.0	-45.9	-25.0	-20.9	
7515.00	-18.7	H	3.0	32.8	1.0	-50.6	-25.0	-25.6	
10020.00	-18.6	H	3.0	32.8	1.0	-50.4	-25.0	-25.4	
Mid Ch, 2535									
5070.00	-16.2	V	3.0	33.2	1.0	-48.4	-25.0	-23.4	
7605.00	-17.4	V	3.0	32.8	1.0	-49.2	-25.0	-24.2	
10140.00	-19.0	V	3.0	32.7	1.0	-50.6	-25.0	-25.6	
5070.00	-15.2	H	3.0	33.2	1.0	-47.4	-25.0	-22.4	
7605.00	-17.8	H	3.0	32.8	1.0	-49.6	-25.0	-24.6	
10140.00	-18.5	H	3.0	32.7	1.0	-50.1	-25.0	-25.1	
High Ch, 2565									
5130.00	-15.8	V	3.0	33.2	1.0	-48.0	-25.0	-23.0	
7695.00	-18.0	V	3.0	32.8	1.0	-49.9	-25.0	-24.9	
10260.00	-17.8	V	3.0	32.6	1.0	-49.4	-25.0	-24.4	
5130.00	-15.7	H	3.0	33.2	1.0	-47.9	-25.0	-22.9	
7695.00	-18.3	H	3.0	32.8	1.0	-50.2	-25.0	-25.2	
10260.00	-17.8	H	3.0	32.6	1.0	-49.4	-25.0	-24.4	

LTE B7 10MHz QPSK

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

Company: SOMC
Project #: 11775548
Date: 7/31/2017
Test Engineer: 43575 OS
Configuration: EUT + AC + Headset
Location: Chamber C
Mode: LTE_16QAM Band 7 Harmonics, 10MHz Bandwidth

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 2505									
5010.00	-10.3	V	3.0	33.2	1.0	-42.6	-25.0	-17.6	
7515.00	-19.3	V	3.0	32.8	1.0	-51.2	-25.0	-26.2	
10020.00	-19.1	V	3.0	32.8	1.0	-50.9	-25.0	-25.9	
5010.00	-13.6	H	3.0	33.2	1.0	-45.8	-25.0	-20.8	
7515.00	-20.0	H	3.0	32.8	1.0	-51.9	-25.0	-26.9	
10020.00	-18.2	H	3.0	32.8	1.0	-49.9	-25.0	-24.9	
Mid Ch, 2535									
5070.00	-16.2	V	3.0	33.2	1.0	-48.5	-25.0	-23.5	
7605.00	-17.3	V	3.0	32.8	1.0	-49.1	-25.0	-24.1	
10140.00	-18.9	V	3.0	32.7	1.0	-50.6	-25.0	-25.6	
5070.00	-15.4	H	3.0	33.2	1.0	-47.6	-25.0	-22.6	
7605.00	-17.7	H	3.0	32.8	1.0	-49.5	-25.0	-24.5	
10140.00	-18.8	H	3.0	32.7	1.0	-50.5	-25.0	-25.5	
High Ch, 2565									
5130.00	-15.5	V	3.0	33.2	1.0	-47.7	-25.0	-22.7	
7695.00	-18.7	V	3.0	32.8	1.0	-50.5	-25.0	-25.5	
10260.00	-17.9	V	3.0	32.6	1.0	-49.5	-25.0	-24.5	
5130.00	-15.0	H	3.0	33.2	1.0	-47.2	-25.0	-22.2	
7695.00	-18.5	H	3.0	32.8	1.0	-50.3	-25.0	-25.3	
10260.00	-18.2	H	3.0	32.6	1.0	-49.8	-25.0	-24.8	

LTE B7 10MHz 16QAM

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

Company: SOMC
Project #: 11775548
Date: 7/31/2017
Test Engineer: 43575 OS
Configuration: EUT + AC + Headset
Location: Chamber C
Mode: LTE_QPSK Band 7 Harmonics, 15MHz Bandwidth

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 2507.5									
5015.00	-9.6	V	3.0	33.2	1.0	-41.8	-25.0	-16.8	
7522.50	-19.0	V	3.0	32.8	1.0	-50.9	-25.0	-25.9	
10030.00	-18.0	V	3.0	32.8	1.0	-49.8	-25.0	-24.8	
5015.00	-11.8	H	3.0	33.2	1.0	-44.0	-25.0	-19.0	
7522.50	-18.6	H	3.0	32.8	1.0	-50.4	-25.0	-25.4	
10030.00	-18.8	H	3.0	32.8	1.0	-50.5	-25.0	-25.5	
Mid Ch, 2535									
5070.00	-15.9	V	3.0	33.2	1.0	-48.1	-25.0	-23.1	
7605.00	-16.6	V	3.0	32.8	1.0	-48.5	-25.0	-23.5	
10140.00	-18.6	V	3.0	32.7	1.0	-50.3	-25.0	-25.3	
5070.00	-18.9	H	3.0	33.2	1.0	-51.1	-25.0	-26.1	
7605.00	-18.6	H	3.0	32.8	1.0	-50.4	-25.0	-25.4	
10140.00	-19.9	H	3.0	32.7	1.0	-51.5	-25.0	-26.5	
High Ch, 2562.5									
5125.00	-14.9	V	3.0	33.2	1.0	-47.1	-25.0	-22.1	
7687.50	-19.3	V	3.0	32.8	1.0	-51.1	-25.0	-26.1	
10250.00	-17.7	V	3.0	32.6	1.0	-49.3	-25.0	-24.3	
5125.00	-14.5	H	3.0	33.2	1.0	-46.7	-25.0	-21.7	
7687.50	-18.0	H	3.0	32.8	1.0	-49.8	-25.0	-24.8	
10250.00	-17.9	H	3.0	32.6	1.0	-49.5	-25.0	-24.5	

LTE B7 15MHz QPSK

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

Company: SOMC
Project #: 11775548
Date: 7/31/2017
Test Engineer: 43575 OS
Configuration: EUT + AC + Headset
Location: Chamber C
Mode: LTE_16QAM Band 7 Harmonics, 15MHz Bandwidth

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 2507.5									
5015.00	-9.0	V	3.0	33.2	1.0	-41.3	-25.0	-16.3	
7522.50	-18.3	V	3.0	32.8	1.0	-50.1	-25.0	-25.1	
10030.00	-18.3	V	3.0	32.8	1.0	-50.0	-25.0	-25.0	
5015.00	-11.2	H	3.0	33.2	1.0	-43.4	-25.0	-18.4	
7522.50	-19.0	H	3.0	32.8	1.0	-50.9	-25.0	-25.9	
10030.00	-18.9	H	3.0	32.8	1.0	-50.7	-25.0	-25.7	
Mid Ch, 2535									
5070.00	-24.8	V	3.0	33.2	1.0	-57.0	-25.0	-32.0	
7605.00	-17.9	V	3.0	32.8	1.0	-49.7	-25.0	-24.7	
10140.00	-18.8	V	3.0	32.7	1.0	-50.5	-25.0	-25.5	
5070.00	-16.5	H	3.0	33.2	1.0	-48.7	-25.0	-23.7	
7605.00	-18.9	H	3.0	32.8	1.0	-50.8	-25.0	-25.8	
10140.00	-19.5	H	3.0	32.7	1.0	-51.1	-25.0	-26.1	
High Ch, 2562.5									
5125.00	-14.4	V	3.0	33.2	1.0	-46.6	-25.0	-21.6	
7687.50	-18.4	V	3.0	32.8	1.0	-50.2	-25.0	-25.2	
10250.00	-19.5	V	3.0	32.6	1.0	-51.1	-25.0	-26.1	
5125.00	-14.1	H	3.0	33.2	1.0	-46.3	-25.0	-21.3	
7687.50	-18.2	H	3.0	32.8	1.0	-50.0	-25.0	-25.0	
10250.00	-17.9	H	3.0	32.6	1.0	-49.5	-25.0	-24.5	

LTE B7 15MHz 16QAM

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

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

Company: SOMC
Project #: 11775548
Date: 7/31/2017
Test Engineer: 43575 OS
Configuration: EUT + AC + Headset
Location: Chamber C
Mode: LTE_QPSK Band 7 Harmonics, 20MHz Bandwidth

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 2510									
5020.00	-11.4	V	3.0	33.2	1.0	-43.6	-25.0	-18.6	
7530.00	-16.8	V	3.0	32.8	1.0	-48.7	-25.0	-23.7	
10040.00	-16.6	V	3.0	32.7	1.0	-48.3	-25.0	-23.3	
5020.00	-10.4	H	3.0	33.2	1.0	-42.6	-25.0	-17.6	
7530.00	-17.8	H	3.0	32.8	1.0	-49.6	-25.0	-24.6	
10040.00	-18.8	H	3.0	32.7	1.0	-50.6	-25.0	-25.6	
Mid Ch, 2535									
5070.00	-15.8	V	3.0	33.2	1.0	-48.0	-25.0	-23.0	
7605.00	-18.3	V	3.0	32.8	1.0	-50.2	-25.0	-25.2	
10140.00	-18.6	V	3.0	32.7	1.0	-50.3	-25.0	-25.3	
5070.00	-18.6	H	3.0	33.2	1.0	-50.8	-25.0	-25.8	
7605.00	-17.5	H	3.0	32.8	1.0	-49.4	-25.0	-24.4	
10140.00	-18.9	H	3.0	32.7	1.0	-50.5	-25.0	-25.5	
High Ch, 2560									
5120.00	-15.0	V	3.0	33.2	1.0	-47.2	-25.0	-22.2	
7680.00	-17.2	V	3.0	32.8	1.0	-49.1	-25.0	-24.1	
10240.00	-17.8	V	3.0	32.6	1.0	-49.4	-25.0	-24.4	
5120.00	-15.0	H	3.0	33.2	1.0	-47.2	-25.0	-22.2	
7680.00	-17.9	H	3.0	32.8	1.0	-49.7	-25.0	-24.7	
10240.00	-18.0	H	3.0	32.6	1.0	-49.6	-25.0	-24.6	

LTE B7 20MHz QPSK

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

Company: SOMC
Project #: 11775548
Date: 7/31/2017
Test Engineer: 43575 OS
Configuration: EUT + AC + Headset
Location: Chamber C
Mode: LTE_16QAM Band 7 Harmonics, 20MHz Bandwidth

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 2510									
5020.00	-9.4	V	3.0	33.2	1.0	-41.6	-25.0	-16.6	
7530.00	-15.2	V	3.0	32.8	1.0	-47.0	-25.0	-22.0	
10040.00	-16.1	V	3.0	32.7	1.0	-47.8	-25.0	-22.8	
5020.00	-9.0	H	3.0	33.2	1.0	-41.2	-25.0	-16.2	
7530.00	-16.1	H	3.0	32.8	1.0	-47.9	-25.0	-22.9	
10040.00	-16.2	H	3.0	32.7	1.0	-47.9	-25.0	-22.9	
Mid Ch, 2535									
5070.00	-14.2	V	3.0	33.2	1.0	-46.4	-25.0	-21.4	
7605.00	-15.3	V	3.0	32.8	1.0	-47.1	-25.0	-22.1	
10140.00	-18.0	V	3.0	32.7	1.0	-49.7	-25.0	-24.7	
5070.00	-16.9	H	3.0	33.2	1.0	-49.1	-25.0	-24.1	
7605.00	-15.7	H	3.0	32.8	1.0	-47.6	-25.0	-22.6	
10140.00	-16.9	H	3.0	32.7	1.0	-48.6	-25.0	-23.6	
High Ch, 2560									
5120.00	-13.5	V	3.0	33.2	1.0	-45.7	-25.0	-20.7	
7680.00	-14.2	V	3.0	32.8	1.0	-46.1	-25.0	-21.1	
10240.00	-16.0	V	3.0	32.6	1.0	-47.6	-25.0	-22.6	
5120.00	-12.0	H	3.0	33.2	1.0	-44.2	-25.0	-19.2	
7680.00	-17.5	H	3.0	32.8	1.0	-49.3	-25.0	-24.3	
10240.00	-16.6	H	3.0	32.6	1.0	-48.2	-25.0	-23.2	

LTE B7 20MHz 16QAM

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

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LTE Band 12

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

Company: SOMC
Project #: 11775548
Date: 8/2/2017
Test Engineer: 43575 OS
Configuration: EUT + AC + Headset
Location: Chamber A
Mode: LTE_QPSK Band 12 Harmonics, 1.4MHz Bandwidth

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 699.7									
1399.40	-14.1	V	3.0	36.5	1.0	-49.6	-13.0	-36.6	
2099.10	-20.0	V	3.0	35.6	1.0	-54.6	-13.0	-41.6	
2798.80	-19.9	V	3.0	34.7	1.0	-53.6	-13.0	-40.6	
1399.40	-13.1	H	3.0	36.5	1.0	-48.6	-13.0	-35.6	
2099.10	-21.0	H	3.0	35.6	1.0	-55.6	-13.0	-42.6	
2798.80	-20.9	H	3.0	34.7	1.0	-54.7	-13.0	-41.7	
Mid Ch, 707.5									
1415.00	-15.6	V	3.0	36.5	1.0	-51.1	-13.0	-38.1	
2122.50	-14.9	V	3.0	35.6	1.0	-49.6	-13.0	-36.6	
2830.00	-20.0	V	3.0	34.7	1.0	-53.7	-13.0	-40.7	
1415.00	-14.4	H	3.0	36.5	1.0	-49.9	-13.0	-36.9	
2122.50	-18.5	H	3.0	35.6	1.0	-53.1	-13.0	-40.1	
2830.00	-20.5	H	3.0	34.7	1.0	-54.2	-13.0	-41.2	
High Ch, 715.3									
1430.60	-11.1	V	3.0	36.5	1.0	-46.6	-13.0	-33.6	
2145.90	-16.2	V	3.0	35.6	1.0	-50.8	-13.0	-37.8	
2861.20	-18.7	V	3.0	34.7	1.0	-52.4	-13.0	-39.4	
1430.60	-11.8	H	3.0	36.5	1.0	-47.4	-13.0	-34.4	
2145.90	-20.1	H	3.0	35.6	1.0	-54.7	-13.0	-41.7	
2861.20	-22.0	H	3.0	34.7	1.0	-55.7	-13.0	-42.7	

LTE B12 1.4MHz QPSK

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

Company: SOMC
Project #: 11775548
Date: 8/2/2017
Test Engineer: 43575 OS
Configuration: EUT + AC + Headset
Location: Chamber A
Mode: LTE_16QAM Band 12 Harmonics, 1.4MHz Bandwidth

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 699.7									
1399.40	-14.1	V	3.0	36.5	1.0	-49.6	-13.0	-36.6	
2099.10	-20.1	V	3.0	35.6	1.0	-54.8	-13.0	-41.8	
2798.80	-20.3	V	3.0	34.7	1.0	-54.0	-13.0	-41.0	
1399.40	-13.2	H	3.0	36.5	1.0	-48.7	-13.0	-35.7	
2099.10	-21.0	H	3.0	35.6	1.0	-55.7	-13.0	-42.7	
2798.80	-21.1	H	3.0	34.7	1.0	-54.8	-13.0	-41.8	
Mid Ch, 707.5									
1415.00	-15.2	V	3.0	36.5	1.0	-50.7	-13.0	-37.7	
2122.50	-16.1	V	3.0	35.6	1.0	-50.7	-13.0	-37.7	
2830.00	-20.4	V	3.0	34.7	1.0	-54.1	-13.0	-41.1	
1415.00	-14.3	H	3.0	36.5	1.0	-49.8	-13.0	-36.8	
2122.50	-18.7	H	3.0	35.6	1.0	-53.3	-13.0	-40.3	
2830.00	-20.9	H	3.0	34.7	1.0	-54.6	-13.0	-41.6	
High Ch, 715.3									
1430.60	-11.0	V	3.0	36.5	1.0	-46.6	-13.0	-33.6	
2145.90	-17.8	V	3.0	35.6	1.0	-52.4	-13.0	-39.4	
2861.20	-18.4	V	3.0	34.7	1.0	-52.0	-13.0	-39.0	
1430.60	-12.0	H	3.0	36.5	1.0	-47.5	-13.0	-34.5	
2145.90	-20.0	H	3.0	35.6	1.0	-54.6	-13.0	-41.6	
2861.20	-21.0	H	3.0	34.7	1.0	-54.7	-13.0	-41.7	

LTE B12 1.4MHz 16QAM

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

Company: SOMC
Project #: 11775548
Date: 8/2/2017
Test Engineer: 43575 OS
Configuration: EUT + AC + Headset
Location: Chamber A
Mode: LTE_QPSK Band 12 Harmonics, 3MHz Bandwidth

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 700.5									
1401.00	-14.5	V	3.0	36.5	1.0	-50.0	-13.0	-37.0	
2101.50	-18.2	V	3.0	35.6	1.0	-52.9	-13.0	-39.9	
2802.00	-20.1	V	3.0	34.7	1.0	-53.8	-13.0	-40.8	
1401.00	-14.0	H	3.0	36.5	1.0	-49.5	-13.0	-36.5	
2101.50	-21.1	H	3.0	35.6	1.0	-55.7	-13.0	-42.7	
2802.00	-21.0	H	3.0	34.7	1.0	-54.8	-13.0	-41.8	
Mid Ch, 707.5									
1415.00	-15.5	V	3.0	36.5	1.0	-51.0	-13.0	-38.0	
2122.50	-15.1	V	3.0	35.6	1.0	-49.7	-13.0	-36.7	
2830.00	-20.2	V	3.0	34.7	1.0	-53.9	-13.0	-40.9	
1415.00	-16.2	H	3.0	36.5	1.0	-51.7	-13.0	-38.7	
2122.50	-17.0	H	3.0	35.6	1.0	-51.6	-13.0	-38.6	
2830.00	-20.4	H	3.0	34.7	1.0	-54.1	-13.0	-41.1	
High Ch, 714.5									
1429.00	-10.3	V	3.0	36.5	1.0	-45.9	-13.0	-32.9	
2143.50	-16.8	V	3.0	35.6	1.0	-51.4	-13.0	-38.4	
2858.00	-20.4	V	3.0	34.7	1.0	-54.1	-13.0	-41.1	
1429.00	-12.9	H	3.0	36.5	1.0	-48.4	-13.0	-35.4	
2143.50	-18.3	H	3.0	35.6	1.0	-52.9	-13.0	-39.9	
2858.00	-20.8	H	3.0	34.7	1.0	-54.5	-13.0	-41.5	

LTE B12 3MHz QPSK

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

Company: SOMC
Project #: 11775548
Date: 8/2/2017
Test Engineer: 43575 OS
Configuration: EUT + AC + Headset
Location: Chamber A
Mode: LTE_16QAM Band 12 Harmonics, 3MHz Bandwidth

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 700.5									
1401.00	-14.3	V	3.0	36.5	1.0	-49.8	-13.0	-36.8	
2101.50	-19.2	V	3.0	35.6	1.0	-53.8	-13.0	-40.8	
2802.00	-20.4	V	3.0	34.7	1.0	-54.1	-13.0	-41.1	
1401.00	-13.7	H	3.0	36.5	1.0	-49.2	-13.0	-36.2	
2101.50	-20.3	H	3.0	35.6	1.0	-55.0	-13.0	-42.0	
2802.00	-20.1	H	3.0	34.7	1.0	-53.9	-13.0	-40.9	
Mid Ch, 707.5									
1415.00	-15.3	V	3.0	36.5	1.0	-50.8	-13.0	-37.8	
2122.50	-16.6	V	3.0	35.6	1.0	-51.2	-13.0	-38.2	
2830.00	-19.9	V	3.0	34.7	1.0	-53.6	-13.0	-40.6	
1415.00	-15.7	H	3.0	36.5	1.0	-51.2	-13.0	-38.2	
2122.50	-17.7	H	3.0	35.6	1.0	-52.3	-13.0	-39.3	
2830.00	-20.2	H	3.0	34.7	1.0	-53.9	-13.0	-40.9	
High Ch, 714.5									
1429.00	-10.2	V	3.0	36.5	1.0	-45.7	-13.0	-32.7	
2143.50	-17.0	V	3.0	35.6	1.0	-51.6	-13.0	-38.6	
2858.00	-20.0	V	3.0	34.7	1.0	-53.7	-13.0	-40.7	
1429.00	-12.7	H	3.0	36.5	1.0	-48.2	-13.0	-35.2	
2143.50	-19.0	H	3.0	35.6	1.0	-53.6	-13.0	-40.6	
2858.00	-21.6	H	3.0	34.7	1.0	-55.3	-13.0	-42.3	

LTE B12 3MHz 16QAM

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

Company: SOMC
Project #: 11775548
Date: 8/2/2017
Test Engineer: 43575 OS
Configuration: EUT + AC + Headset
Location: Chamber A
Mode: LTE_QPSK Band 12 Harmonics, 5MHz Bandwidth

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 701.5									
1403.00	-15.9	V	3.0	36.5	1.0	-51.4	-13.0	-38.4	
2104.50	-16.5	V	3.0	35.6	1.0	-51.2	-13.0	-38.2	
2806.00	-19.6	V	3.0	34.7	1.0	-53.3	-13.0	-40.3	
1403.00	-14.6	H	3.0	36.5	1.0	-50.1	-13.0	-37.1	
2104.50	-19.8	H	3.0	35.6	1.0	-54.5	-13.0	-41.5	
2806.00	-20.6	H	3.0	34.7	1.0	-54.3	-13.0	-41.3	
Mid Ch, 707.5									
1415.00	-15.6	V	3.0	36.5	1.0	-51.1	-13.0	-38.1	
2122.50	-14.1	V	3.0	35.6	1.0	-48.7	-13.0	-35.7	
2830.00	-20.5	V	3.0	34.7	1.0	-54.2	-13.0	-41.2	
1415.00	-15.4	H	3.0	36.5	1.0	-50.9	-13.0	-37.9	
2122.50	-17.2	H	3.0	35.6	1.0	-51.8	-13.0	-38.8	
2830.00	-20.6	H	3.0	34.7	1.0	-54.3	-13.0	-41.3	
High Ch, 713.5									
1427.00	-11.2	V	3.0	36.5	1.0	-46.8	-13.0	-33.8	
2140.50	-16.3	V	3.0	35.6	1.0	-50.9	-13.0	-37.9	
2854.00	-20.9	V	3.0	34.7	1.0	-54.6	-13.0	-41.6	
1427.00	-14.0	H	3.0	36.5	1.0	-49.5	-13.0	-36.5	
2140.50	-18.6	H	3.0	35.6	1.0	-53.2	-13.0	-40.2	
2854.00	-20.8	H	3.0	34.7	1.0	-54.5	-13.0	-41.5	

LTE B12 5MHz QPSK

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

Company: SOMC
Project #: 11775548
Date: 8/2/2017
Test Engineer: 43575 OS
Configuration: EUT + AC + Headset
Location: Chamber A
Mode: LTE_16QAM Band 12 Harmonics, 5MHz Bandwidth

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 701.5									
1403.00	-15.3	V	3.0	36.5	1.0	-50.8	-13.0	-37.8	
2104.50	-15.8	V	3.0	35.6	1.0	-50.5	-13.0	-37.5	
2806.00	-20.8	V	3.0	34.7	1.0	-54.5	-13.0	-41.5	
1403.00	-14.5	H	3.0	36.5	1.0	-50.0	-13.0	-37.0	
2104.50	-18.3	H	3.0	35.6	1.0	-53.0	-13.0	-40.0	
2806.00	-20.9	H	3.0	34.7	1.0	-54.6	-13.0	-41.6	
Mid Ch, 707.5									
1415.00	-15.4	V	3.0	36.5	1.0	-50.9	-13.0	-37.9	
2122.50	-15.7	V	3.0	35.6	1.0	-50.3	-13.0	-37.3	
2830.00	-20.4	V	3.0	34.7	1.0	-54.1	-13.0	-41.1	
1415.00	-15.1	H	3.0	36.5	1.0	-50.6	-13.0	-37.6	
2122.50	-18.1	H	3.0	35.6	1.0	-52.7	-13.0	-39.7	
2830.00	-21.1	H	3.0	34.7	1.0	-54.8	-13.0	-41.8	
High Ch, 713.5									
1427.00	-11.0	V	3.0	36.5	1.0	-46.5	-13.0	-33.5	
2140.50	-17.5	V	3.0	35.6	1.0	-52.1	-13.0	-39.1	
2854.00	-20.4	V	3.0	34.7	1.0	-54.0	-13.0	-41.0	
1427.00	-13.9	H	3.0	36.5	1.0	-49.5	-13.0	-36.5	
2140.50	-19.8	H	3.0	35.6	1.0	-54.4	-13.0	-41.4	
2854.00	-20.9	H	3.0	34.7	1.0	-54.6	-13.0	-41.6	

LTE B12 5MHz 16QAM

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

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

Company: SOMC
Project #: 11775548
Date: 8/2/2017
Test Engineer: 43575 OS
Configuration: EUT + AC + Headset
Location: Chamber A
Mode: LTE_QPSK Band 12 Harmonics, 10MHz Bandwidth

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 704									
1408.00	-14.1	V	3.0	36.5	1.0	-49.7	-13.0	-36.7	
2112.00	-15.2	V	3.0	35.6	1.0	-49.9	-13.0	-36.9	
2816.00	-20.1	V	3.0	34.7	1.0	-53.9	-13.0	-40.9	
1408.00	-12.8	H	3.0	36.5	1.0	-48.3	-13.0	-35.3	
2112.00	-18.7	H	3.0	35.6	1.0	-53.4	-13.0	-40.4	
2816.00	-20.5	H	3.0	34.7	1.0	-54.2	-13.0	-41.2	
Mid Ch, 707.5									
1415.00	-16.2	V	3.0	36.5	1.0	-51.7	-13.0	-38.7	
2122.50	-16.1	V	3.0	35.6	1.0	-50.7	-13.0	-37.7	
2830.00	-19.9	V	3.0	34.7	1.0	-53.6	-13.0	-40.6	
1415.00	-15.4	H	3.0	36.5	1.0	-50.9	-13.0	-37.9	
2122.50	-17.0	H	3.0	35.6	1.0	-51.6	-13.0	-38.6	
2830.00	-20.7	H	3.0	34.7	1.0	-54.4	-13.0	-41.4	
High Ch, 711									
1422.00	-16.4	V	3.0	36.5	1.0	-52.0	-13.0	-39.0	
2133.00	-15.4	V	3.0	35.6	1.0	-50.0	-13.0	-37.0	
2844.00	-20.2	V	3.0	34.7	1.0	-53.9	-13.0	-40.9	
1422.00	-19.9	H	3.0	36.5	1.0	-55.4	-13.0	-42.4	
2133.00	-17.7	H	3.0	35.6	1.0	-52.3	-13.0	-39.3	
2844.00	-21.2	H	3.0	34.7	1.0	-54.9	-13.0	-41.9	

LTE B12 10MHz QPSK

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

Company: SOMC
Project #: 11775548
Date: 8/2/2017
Test Engineer: 43575 OS
Configuration: EUT + AC + Headset
Location: Chamber A
Mode: LTE_16QAM Band 12 Harmonics, 10MHz Bandwidth

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 704									
1408.00	-12.0	V	3.0	40.1	1.0	-51.1	-13.0	-38.1	
2112.00	-16.5	V	3.0	38.2	1.0	-53.7	-13.0	-40.7	
2816.00	-20.1	V	3.0	38.4	1.0	-57.5	-13.0	-44.5	
1408.00	-11.0	H	3.0	40.1	1.0	-50.0	-13.0	-37.0	
2112.00	-18.0	H	3.0	38.2	1.0	-55.2	-13.0	-42.2	
2816.00	-20.1	H	3.0	38.4	1.0	-57.5	-13.0	-44.5	
Mid Ch, 707.5									
1415.00	-14.5	V	3.0	40.0	1.0	-53.6	-13.0	-40.6	
2122.50	-16.6	V	3.0	38.2	1.0	-53.8	-13.0	-40.8	
2830.00	-19.4	V	3.0	38.4	1.0	-56.8	-13.0	-43.8	
1415.00	-13.6	H	3.0	40.0	1.0	-52.6	-13.0	-39.6	
2122.50	-17.1	H	3.0	38.2	1.0	-54.4	-13.0	-41.4	
2830.00	-20.0	H	3.0	38.4	1.0	-57.4	-13.0	-44.4	
High Ch, 711									
1422.00	-14.9	V	3.0	40.0	1.0	-53.9	-13.0	-40.9	
2133.00	-16.6	V	3.0	38.2	1.0	-53.8	-13.0	-40.8	
2844.00	-19.7	V	3.0	38.4	1.0	-57.1	-13.0	-44.1	
1422.00	-18.0	H	3.0	40.0	1.0	-57.0	-13.0	-44.0	
2133.00	-17.2	H	3.0	38.2	1.0	-54.5	-13.0	-41.5	
2844.00	-20.0	H	3.0	38.4	1.0	-57.4	-13.0	-44.4	

LTE B12 10MHz 16QAM

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

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LTE Band 13

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

Company: SOMC
Project #: 11775548
Date: 7/31/2017
Test Engineer: 43574
Configuration: EUT + AC + Headset
Location: Chamber C
Mode: LTE_QPSK Band 13 Harmonics, 5MHz Bandwidth

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 779.5									
1559.00	-25.4	V	3.0	36.5	1.0	-60.9	-40.0	-20.9	
2338.50	-24.2	V	3.0	35.2	1.0	-58.4	-13.0	-45.4	
3118.00	-20.8	V	3.0	34.5	1.0	-54.3	-13.0	-41.3	
1559.00	-26.2	H	3.0	36.5	1.0	-61.7	-40.0	-21.7	
2338.50	-24.3	H	3.0	35.2	1.0	-58.5	-13.0	-45.5	
3118.00	-21.5	H	3.0	34.5	1.0	-55.0	-13.0	-42.0	
Mid Ch, 782									
1564.00	-25.3	V	3.0	36.5	1.0	-60.8	-40.0	-20.8	
2346.00	-24.4	V	3.0	35.2	1.0	-58.6	-13.0	-45.6	
3128.00	-20.8	V	3.0	34.4	1.0	-54.2	-13.0	-41.2	
1564.00	-26.2	H	3.0	36.5	1.0	-61.7	-40.0	-21.7	
2346.00	-24.5	H	3.0	35.2	1.0	-58.7	-13.0	-45.7	
3128.00	-21.7	H	3.0	34.4	1.0	-55.1	-13.0	-42.1	
High Ch, 784.5									
1569.00	-25.3	V	3.0	36.5	1.0	-60.8	-40.0	-20.8	
2353.50	-24.4	V	3.0	35.2	1.0	-58.5	-13.0	-45.5	
3138.00	-20.9	V	3.0	34.4	1.0	-54.4	-13.0	-41.4	
1569.00	-26.2	H	3.0	36.5	1.0	-61.7	-40.0	-21.7	
2353.50	-24.9	H	3.0	35.2	1.0	-59.1	-13.0	-46.1	
3138.00	-21.8	H	3.0	34.4	1.0	-55.2	-13.0	-42.2	

LTE B13 5MHz QPSK

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

Company: SOMC
Project #: 11775548
Date: 7/31/2017
Test Engineer: 43574
Configuration: EUT + AC + Headset
Location: Chamber C
Mode: LTE_16QAM Band 13 Harmonics, 5MHz Bandwidth

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 779.5									
1559.00	-25.8	V	3.0	36.5	1.0	-61.3	-40.0	-21.3	
2338.50	-21.4	V	3.0	35.2	1.0	-55.7	-13.0	-42.7	
3118.00	-20.9	V	3.0	34.5	1.0	-54.4	-13.0	-41.4	
1559.00	-26.4	H	3.0	36.5	1.0	-61.9	-40.0	-21.9	
2338.50	-24.6	H	3.0	35.2	1.0	-58.8	-13.0	-45.8	
3118.00	-21.8	H	3.0	34.5	1.0	-55.3	-13.0	-42.3	
Mid Ch, 782									
1564.00	-25.7	V	3.0	36.5	1.0	-61.2	-40.0	-21.2	
2346.00	-24.6	V	3.0	35.2	1.0	-58.8	-13.0	-45.8	
3128.00	-20.3	V	3.0	34.4	1.0	-53.8	-13.0	-40.8	
1564.00	-26.2	H	3.0	36.5	1.0	-61.7	-40.0	-21.7	
2346.00	-24.1	H	3.0	35.2	1.0	-58.3	-13.0	-45.3	
3128.00	-21.5	H	3.0	34.4	1.0	-55.0	-13.0	-42.0	
High Ch, 784.5									
1569.00	-25.5	V	3.0	36.5	1.0	-61.0	-40.0	-21.0	
2353.50	-24.5	V	3.0	35.2	1.0	-58.7	-13.0	-45.7	
3138.00	-21.1	V	3.0	34.4	1.0	-54.5	-13.0	-41.5	
1569.00	-26.5	H	3.0	36.5	1.0	-62.0	-40.0	-22.0	
2353.50	-25.1	H	3.0	35.2	1.0	-59.3	-13.0	-46.3	
3138.00	-22.3	H	3.0	34.4	1.0	-55.7	-13.0	-42.7	

LTE B13 5MHz 16QAM

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

Company: SOMC
Project #: 11775548
Date: 7/31/2017
Test Engineer: 43574
Configuration: EUT + AC + Headset
Location: Chamber C
Mode: LTE_QPSK Band 13 Harmonics, 10MHz Bandwidth

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
	0.0	V	3.0	36.5	1.0	0.0	-40.0	0.0	
	0.0	V	3.0	35.2	1.0	0.0	-13.0	0.0	
	0.0	V	3.0	34.4	1.0	0.0	-13.0	0.0	
	0.0	H	3.0	36.5	1.0	0.0	-40.0	0.0	
	0.0	H	3.0	35.2	1.0	0.0	-13.0	0.0	
	0.0	H	3.0	34.4	1.0	0.0	-13.0	0.0	
Mid Ch, 782									
1564.00	-25.5	V	3.0	36.5	1.0	-61.0	-40.0	-21.0	
2346.00	-24.7	V	3.0	35.2	1.0	-58.9	-13.0	-45.9	
3128.00	-20.6	V	3.0	34.4	1.0	-54.0	-13.0	-41.0	
1564.00	-26.3	H	3.0	36.5	1.0	-61.8	-40.0	-21.8	
2346.00	-24.2	H	3.0	35.2	1.0	-58.4	-13.0	-45.4	
3128.00	-20.9	H	3.0	34.4	1.0	-54.3	-13.0	-41.3	
	0.0	V	3.0	36.5	1.0	0.0	-40.0	0.0	
	0.0	V	3.0	35.2	1.0	0.0	-13.0	0.0	
	0.0	V	3.0	34.4	1.0	0.0	-13.0	0.0	
	0.0	H	3.0	36.5	1.0	0.0	-40.0	0.0	
	0.0	H	3.0	35.2	1.0	0.0	-13.0	0.0	
	0.0	H	3.0	34.4	1.0	0.0	-13.0	0.0	

LTE B13 10MHz QPSK

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

Company: SOMC
Project #: 11775548
Date: 7/31/2017
Test Engineer: 43574
Configuration: EUT + AC + Headset
Location: Chamber C
Mode: LTE_16QAM Band 13 Harmonics, 10MHz Bandwidth

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
	0.0	V	3.0	36.5	1.0	0.0	-40.0	0.0	
	0.0	V	3.0	35.2	1.0	0.0	-13.0	0.0	
	0.0	V	3.0	34.4	1.0	0.0	-13.0	0.0	
	0.0	H	3.0	36.5	1.0	0.0	-40.0	0.0	
	0.0	H	3.0	35.2	1.0	0.0	-13.0	0.0	
	0.0	H	3.0	34.4	1.0	0.0	-13.0	0.0	
Mid Ch, 782									
1564.00	-25.7	V	3.0	36.5	1.0	-61.2	-40.0	-21.2	
2346.00	-24.9	V	3.0	35.2	1.0	-59.1	-13.0	-46.1	
3128.00	-20.9	V	3.0	34.4	1.0	-54.3	-13.0	-41.3	
1564.00	-26.5	H	3.0	36.5	1.0	-62.0	-40.0	-22.0	
2346.00	-24.4	H	3.0	35.2	1.0	-58.6	-13.0	-45.6	
3128.00	-21.1	H	3.0	34.4	1.0	-54.6	-13.0	-41.6	
	0.0	V	3.0	36.5	1.0	0.0	-40.0	0.0	
	0.0	V	3.0	35.2	1.0	0.0	-13.0	0.0	
	0.0	V	3.0	34.4	1.0	0.0	-13.0	0.0	
	0.0	H	3.0	36.5	1.0	0.0	-40.0	0.0	
	0.0	H	3.0	35.2	1.0	0.0	-13.0	0.0	
	0.0	H	3.0	34.4	1.0	0.0	-13.0	0.0	

LTE B13 10MHz 16QAM

UL VERIFICATION SERVICES INC. FORM NO: CCSUP4701H
47173 BENICIA STREET, FREMONT, CA 94538, USA TEL: (510) 771-1000 FAX: (510) 661-0888
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LTE Band 41

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

Company: SOMC
Project #: 11775548
Date: 7/31/2017
Test Engineer: 43575 OS
Configuration: EUT + AC + Headset
Location: Chamber C
Mode: LTE_QPSK Band 41 Harmonics, 5MHz Bandwidth

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 2498.5									
4997.00	-13.7	V	3.0	33.2	1.0	-46.0	-25.0	-21.0	
7495.50	-19.1	V	3.0	32.8	1.0	-50.9	-25.0	-25.9	
9994.00	-17.6	V	3.0	32.8	1.0	-49.3	-25.0	-24.3	
4997.00	-13.6	H	3.0	33.2	1.0	-45.9	-25.0	-20.9	
7495.50	-19.1	H	3.0	32.8	1.0	-51.0	-25.0	-26.0	
9994.00	-17.9	H	3.0	32.8	1.0	-49.7	-25.0	-24.7	
Mid Ch, 2593									
5186.00	-11.4	V	3.0	33.2	1.0	-43.6	-25.0	-18.6	
7779.00	-15.3	V	3.0	32.8	1.0	-47.1	-25.0	-22.1	
10372.00	-19.0	V	3.0	32.5	1.0	-50.5	-25.0	-25.5	
5186.00	-11.5	H	3.0	33.2	1.0	-43.6	-25.0	-18.6	
7779.00	-17.5	H	3.0	32.8	1.0	-49.4	-25.0	-24.4	
10372.00	-17.3	H	3.0	32.5	1.0	-48.9	-25.0	-23.9	
High Ch, 2687.5									
5375.00	-16.7	V	3.0	33.1	1.0	-48.8	-25.0	-23.8	
8062.50	-17.4	V	3.0	32.8	1.0	-49.2	-25.0	-24.2	
10750.00	-17.8	V	3.0	32.3	1.0	-49.0	-25.0	-24.0	
5375.00	-13.3	H	3.0	33.1	1.0	-45.5	-25.0	-20.5	
8062.50	-17.8	H	3.0	32.8	1.0	-49.7	-25.0	-24.7	
10750.00	-18.1	H	3.0	32.3	1.0	-49.4	-25.0	-24.4	

LTE B41 5MHz QPSK

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

Company: SOMC
Project #: 11775548
Date: 7/31/2017
Test Engineer: 43575 OS
Configuration: EUT + AC + Headset
Location: Chamber C
Mode: LTE_16QAM Band 41 Harmonics, 5MHz Bandwidth

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 2498.5									
4997.00	-14.0	V	3.0	33.2	1.0	-46.2	-25.0	-21.2	
7495.50	-18.0	V	3.0	32.8	1.0	-49.8	-25.0	-24.8	
9994.00	-18.0	V	3.0	32.8	1.0	-49.8	-25.0	-24.8	
4997.00	-13.4	H	3.0	33.2	1.0	-45.6	-25.0	-20.6	
7495.50	-19.1	H	3.0	32.8	1.0	-50.9	-25.0	-25.9	
9994.00	-19.3	H	3.0	32.8	1.0	-51.1	-25.0	-26.1	
Mid Ch, 2593									
5186.00	-9.6	V	3.0	33.2	1.0	-41.8	-25.0	-16.8	
7779.00	-15.3	V	3.0	32.8	1.0	-47.1	-25.0	-22.1	
10372.00	-19.7	V	3.0	32.5	1.0	-51.2	-25.0	-26.2	
5186.00	-11.6	H	3.0	33.2	1.0	-43.8	-25.0	-18.8	
7779.00	-17.6	H	3.0	32.8	1.0	-49.5	-25.0	-24.5	
10372.00	-18.6	H	3.0	32.5	1.0	-50.1	-25.0	-25.1	
High Ch, 2687.5									
5375.00	-15.3	V	3.0	33.1	1.0	-47.5	-25.0	-22.5	
8062.50	-17.5	V	3.0	32.8	1.0	-49.4	-25.0	-24.4	
10750.00	-18.2	V	3.0	32.3	1.0	-49.4	-25.0	-24.4	
5375.00	-12.8	H	3.0	33.1	1.0	-45.0	-25.0	-20.0	
8062.50	-18.6	H	3.0	32.8	1.0	-50.4	-25.0	-25.4	
10750.00	-17.5	H	3.0	32.3	1.0	-48.8	-25.0	-23.8	

LTE B41 5MHz 16QAM

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

Company: SOMC
Project #: 11775548
Date: 7/31/2017
Test Engineer: 43575 OS
Configuration: EUT + AC + Headset
Location: Chamber C
Mode: LTE_QPSK Band 41 Harmonics, 10MHz Bandwidth

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 2501									
5002.00	-19.3	V	3.0	33.2	1.0	-51.5	-25.0	-26.5	
7503.00	-19.2	V	3.0	32.8	1.0	-51.1	-25.0	-26.1	
10004.00	-19.0	V	3.0	32.8	1.0	-50.8	-25.0	-25.8	
5002.00	-16.8	H	3.0	33.2	1.0	-49.1	-25.0	-24.1	
7503.00	-19.7	H	3.0	32.8	1.0	-51.5	-25.0	-26.5	
10004.00	-18.0	H	3.0	32.8	1.0	-49.8	-25.0	-24.8	
Mid Ch, 2593									
5186.00	-12.6	V	3.0	33.2	1.0	-44.8	-25.0	-19.8	
7779.00	-17.9	V	3.0	32.8	1.0	-49.8	-25.0	-24.8	
10372.00	-19.1	V	3.0	32.5	1.0	-50.6	-25.0	-25.6	
5186.00	-18.0	H	3.0	33.2	1.0	-50.2	-25.0	-25.2	
7779.00	-18.0	H	3.0	32.8	1.0	-49.8	-25.0	-24.8	
10372.00	-19.6	H	3.0	32.5	1.0	-51.2	-25.0	-26.2	
High Ch, 2685									
5370.00	-13.1	V	3.0	33.1	1.0	-45.2	-25.0	-20.2	
8055.00	-18.7	V	3.0	32.8	1.0	-50.5	-25.0	-25.5	
10740.00	-18.4	V	3.0	32.3	1.0	-49.7	-25.0	-24.7	
5370.00	-17.7	H	3.0	33.1	1.0	-49.8	-25.0	-24.8	
8055.00	-18.1	H	3.0	32.8	1.0	-49.9	-25.0	-24.9	
10740.00	-18.3	H	3.0	32.3	1.0	-49.6	-25.0	-24.6	

LTE B41 10MHz QPSK

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

Company: SOMC
Project #: 11775548
Date: 7/31/2017
Test Engineer: 43575 OS
Configuration: EUT + AC + Headset
Location: Chamber C
Mode: LTE_16QAM Band 41 Harmonics, 10MHz Bandwidth

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 2501									
5002.00	-18.6	V	3.0	33.2	1.0	-50.8	-25.0	-25.8	
7503.00	-18.2	V	3.0	32.8	1.0	-50.1	-25.0	-25.1	
10004.00	-18.7	V	3.0	32.8	1.0	-50.5	-25.0	-25.5	
5002.00	-16.4	H	3.0	33.2	1.0	-48.7	-25.0	-23.7	
7503.00	-19.5	H	3.0	32.8	1.0	-51.3	-25.0	-26.3	
10004.00	-19.3	H	3.0	32.8	1.0	-51.0	-25.0	-26.0	
Mid Ch, 2593									
5186.00	-12.1	V	3.0	33.2	1.0	-44.3	-25.0	-19.3	
7779.00	-16.8	V	3.0	32.8	1.0	-48.7	-25.0	-23.7	
10372.00	-19.5	V	3.0	32.5	1.0	-51.1	-25.0	-26.1	
5186.00	-19.3	H	3.0	33.2	1.0	-51.4	-25.0	-26.4	
7779.00	-17.9	H	3.0	32.8	1.0	-49.7	-25.0	-24.7	
10372.00	-20.1	H	3.0	32.5	1.0	-51.7	-25.0	-26.7	
High Ch, 2685									
5370.00	-12.9	V	3.0	33.1	1.0	-45.0	-25.0	-20.0	
8055.00	-18.3	V	3.0	32.8	1.0	-50.1	-25.0	-25.1	
10740.00	-18.1	V	3.0	32.3	1.0	-49.3	-25.0	-24.3	
5370.00	-18.5	H	3.0	33.1	1.0	-50.7	-25.0	-25.7	
8055.00	-18.7	H	3.0	32.8	1.0	-50.5	-25.0	-25.5	
10740.00	-18.7	H	3.0	32.3	1.0	-50.0	-25.0	-25.0	

LTE B41 10MHz 16QAM

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

Company: SOMC
Project #: 11775548
Date: 7/31/2017
Test Engineer: 43575 OS
Configuration: EUT + AC + Headset
Location: Chamber C
Mode: LTE_QPSK Band 41 Harmonics, 15MHz Bandwidth

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 2503.5									
5007.00	-14.6	V	3.0	33.2	1.0	-46.9	-25.0	-21.9	
7510.50	-18.7	V	3.0	32.8	1.0	-50.5	-25.0	-25.5	
10014.00	-19.1	V	3.0	32.8	1.0	-50.9	-25.0	-25.9	
5007.00	-20.2	H	3.0	33.2	1.0	-52.4	-25.0	-27.4	
7510.50	-18.7	H	3.0	32.8	1.0	-50.6	-25.0	-25.6	
10014.00	-19.1	H	3.0	32.8	1.0	-50.9	-25.0	-25.9	
Mid Ch, 2593									
5186.00	-10.6	V	3.0	33.2	1.0	-42.8	-25.0	-17.8	
7779.00	-17.7	V	3.0	32.8	1.0	-49.5	-25.0	-24.5	
10372.00	-18.2	V	3.0	32.5	1.0	-49.7	-25.0	-24.7	
5186.00	-13.7	H	3.0	33.2	1.0	-45.9	-25.0	-20.9	
7779.00	-17.6	H	3.0	32.8	1.0	-49.4	-25.0	-24.4	
10372.00	-18.5	H	3.0	32.5	1.0	-50.0	-25.0	-25.0	
High Ch, 2682.5									
5365.00	-12.2	V	3.0	33.1	1.0	-44.4	-25.0	-19.4	
8047.50	-17.7	V	3.0	32.8	1.0	-49.6	-25.0	-24.6	
10730.00	-17.6	V	3.0	32.3	1.0	-48.9	-25.0	-23.9	
5365.00	-10.7	H	3.0	33.1	1.0	-42.9	-25.0	-17.9	
8047.50	-18.0	H	3.0	32.8	1.0	-49.9	-25.0	-24.9	
10730.00	-17.3	H	3.0	32.3	1.0	-48.6	-25.0	-23.6	

LTE B41 15MHz QPSK

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

Company: SOMC
Project #: 11775548
Date: 7/31/2017
Test Engineer: 43575 OS
Configuration: EUT + AC + Headset
Location: Chamber C
Mode: LTE_16QAM Band 41 Harmonics, 15MHz Bandwidth

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 2503.5									
5007.00	-13.5	V	3.0	33.2	1.0	-45.8	-25.0	-20.8	
7510.50	-19.2	V	3.0	32.8	1.0	-51.1	-25.0	-26.1	
10014.00	-18.9	V	3.0	32.8	1.0	-50.7	-25.0	-25.7	
5007.00	-12.7	H	3.0	33.2	1.0	-45.0	-25.0	-20.0	
7510.50	-19.3	H	3.0	32.8	1.0	-51.1	-25.0	-26.1	
10014.00	-18.5	H	3.0	32.8	1.0	-50.2	-25.0	-25.2	
Mid Ch, 2593									
5186.00	-10.5	V	3.0	33.2	1.0	-42.7	-25.0	-17.7	
7779.00	-17.5	V	3.0	32.8	1.0	-49.4	-25.0	-24.4	
10372.00	-19.2	V	3.0	32.5	1.0	-50.7	-25.0	-25.7	
5186.00	-12.9	H	3.0	33.2	1.0	-45.1	-25.0	-20.1	
7779.00	-17.7	H	3.0	32.8	1.0	-49.5	-25.0	-24.5	
10372.00	-18.2	H	3.0	32.5	1.0	-49.7	-25.0	-24.7	
High Ch, 2682.5									
5365.00	-12.2	V	3.0	33.1	1.0	-44.3	-25.0	-19.3	
8047.50	-18.8	V	3.0	32.8	1.0	-50.6	-25.0	-25.6	
10730.00	-17.6	V	3.0	32.3	1.0	-48.9	-25.0	-23.9	
5365.00	-10.3	H	3.0	33.1	1.0	-42.5	-25.0	-17.5	
8047.50	-17.2	H	3.0	32.8	1.0	-49.0	-25.0	-24.0	
10730.00	-17.1	H	3.0	32.3	1.0	-48.4	-25.0	-23.4	

LTE B41 15MHz 16QAM

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

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

Company: SOMC
Project #: 11775548
Date: 7/31/2017
Test Engineer: 43575 OS
Configuration: EUT + AC + Headset
Location: Chamber C
Mode: LTE_QPSK Band 41 Harmonics, 20MHz Bandwidth

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 2506									
5012.00	-14.9	V	3.0	33.2	1.0	-47.1	-25.0	-22.1	
7518.00	-17.7	V	3.0	32.8	1.0	-49.6	-25.0	-24.6	
10024.00	-19.3	V	3.0	32.8	1.0	-51.1	-25.0	-26.1	
5012.00	-18.0	H	3.0	33.2	1.0	-50.2	-25.0	-25.2	
7518.00	-19.2	H	3.0	32.8	1.0	-51.0	-25.0	-26.0	
10024.00	-18.7	H	3.0	32.8	1.0	-50.5	-25.0	-25.5	
Mid Ch, 2593									
5186.00	-10.7	V	3.0	33.2	1.0	-42.9	-25.0	-17.9	
7779.00	-17.3	V	3.0	32.8	1.0	-49.1	-25.0	24.1	
10372.00	-19.1	V	3.0	32.5	1.0	-50.7	-25.0	-25.7	
5186.00	-11.9	H	3.0	33.2	1.0	-44.1	-25.0	-19.1	
7779.00	-17.9	H	3.0	32.8	1.0	-49.7	-25.0	-24.7	
10372.00	-18.1	H	3.0	32.5	1.0	-49.6	-25.0	-24.6	
High Ch, 2680									
5360.00	-13.7	V	3.0	33.1	1.0	-45.8	-25.0	-20.8	
8040.00	-17.5	V	3.0	32.8	1.0	-49.3	-25.0	-24.3	
10720.00	-17.5	V	3.0	32.3	1.0	-48.8	-25.0	-23.8	
5360.00	-13.0	H	3.0	33.1	1.0	-45.2	-25.0	-20.2	
8040.00	-17.5	H	3.0	32.8	1.0	-49.3	-25.0	-24.3	
10720.00	-18.8	H	3.0	32.3	1.0	-50.1	-25.0	-25.1	

LTE B41 20MHz QPSK

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

Company: SOMC
Project #: 11775548
Date: 7/31/2017
Test Engineer: 43575 OS
Configuration: EUT + AC + Headset
Location: Chamber C
Mode: LTE_16QAM Band 41 Harmonics, 20MHz Bandwidth

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 2506									
5012.00	-13.1	V	3.0	33.2	1.0	-45.3	-25.0	-20.3	
7518.00	-17.2	V	3.0	32.8	1.0	-49.1	-25.0	-24.1	
10024.00	-19.6	V	3.0	32.8	1.0	-51.4	-25.0	-26.4	
5012.00	-19.0	H	3.0	33.2	1.0	-51.2	-25.0	-26.2	
7518.00	-19.7	H	3.0	32.8	1.0	-51.5	-25.0	-26.5	
10024.00	-18.0	H	3.0	32.8	1.0	-49.7	-25.0	-24.7	
Mid Ch, 2593									
5186.00	-10.5	V	3.0	33.2	1.0	-42.7	-25.0	-17.7	
7779.00	-16.7	V	3.0	32.8	1.0	-48.5	-25.0	-23.5	
10372.00	-18.6	V	3.0	32.5	1.0	-50.1	-25.0	-25.1	
5186.00	-12.5	H	3.0	33.2	1.0	-44.7	-25.0	-19.7	
7779.00	-17.9	H	3.0	32.8	1.0	-49.7	-25.0	-24.7	
10372.00	-18.5	H	3.0	32.5	1.0	-50.0	-25.0	-25.0	
High Ch, 2680									
5360.00	-13.0	V	3.0	33.1	1.0	-45.1	-25.0	-20.1	
8040.00	-17.9	V	3.0	32.8	1.0	-49.8	-25.0	-24.8	
10720.00	-17.3	V	3.0	32.3	1.0	-48.6	-25.0	-23.6	
5360.00	-12.6	H	3.0	33.1	1.0	-44.7	-25.0	-19.7	
8040.00	-18.9	H	3.0	32.8	1.0	-50.7	-25.0	-25.7	
10720.00	-18.5	H	3.0	32.3	1.0	-49.8	-25.0	-24.8	

LTE B41 20MHz 16QAM

UL VERIFICATION SERVICES INC. FORM NO: CCSUP4701H
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