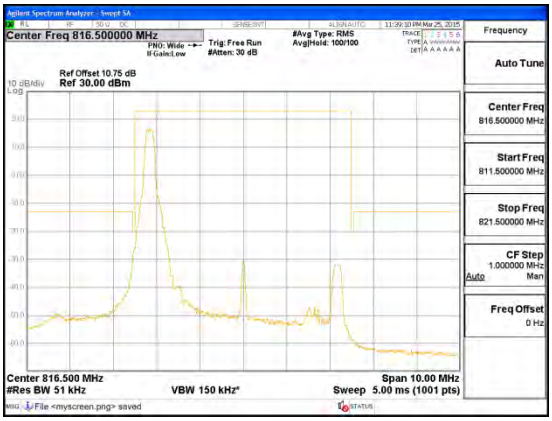
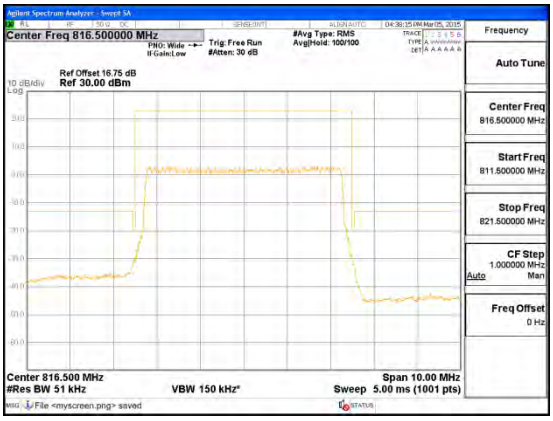
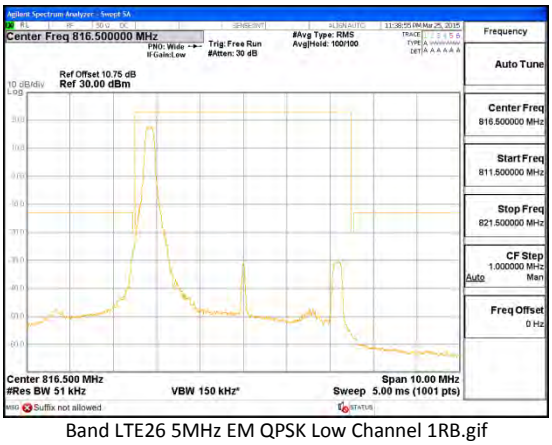
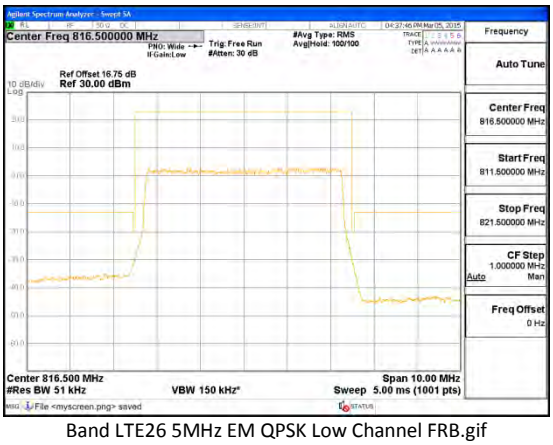
Band LTE26 5MHz 16QAM	 Band LTE26 5MHz EM 16QAM Low Channel 1RB.gif	 Band LTE26 5MHz EM 16QAM Low Channel FRB.gif
Band LTE26 5MHz QPSK	 Band LTE26 5MHz EM QPSK Low Channel 1RB.gif	 Band LTE26 5MHz EM QPSK Low Channel FRB.gif

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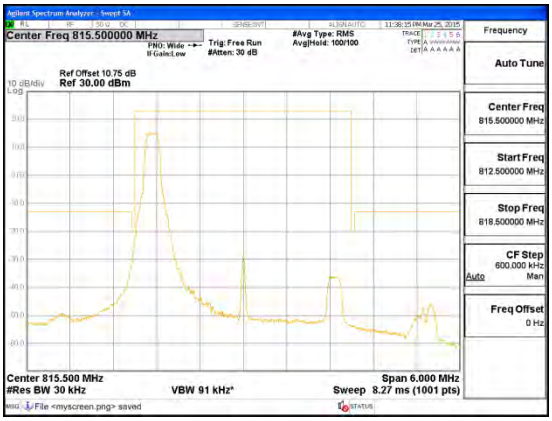
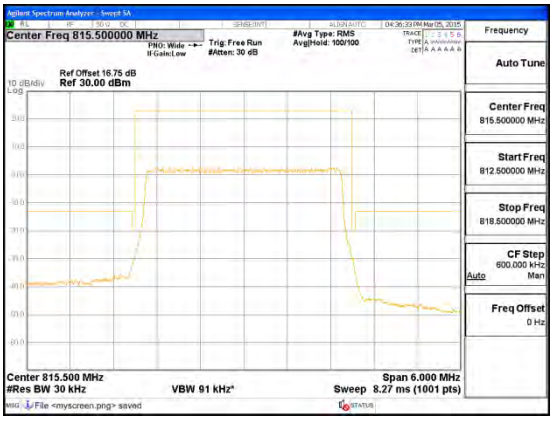
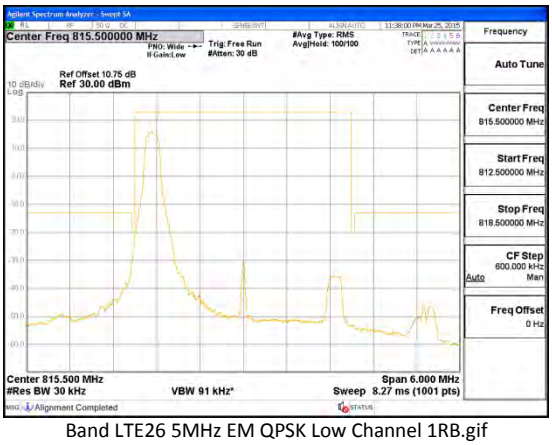
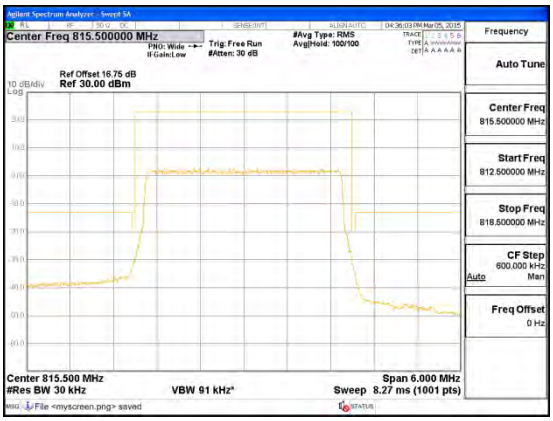
Band LTE26 3MHz 16QAM	 Band LTE26 3MHz EM 16QAM Low Channel 1RB.gif	 Band LTE26 3MHz EM 16QAM Low Channel FRB.gif
Band LTE26 3MHz QPSK	 Band LTE26 5MHz EM QPSK Low Channel 1RB.gif	 Band LTE26 3MHz EM QPSK Low Channel FRB.gif

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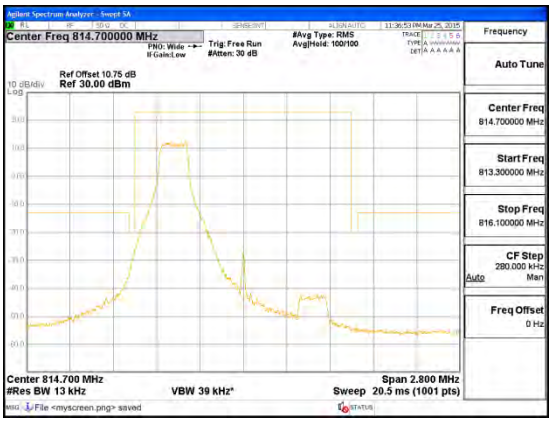
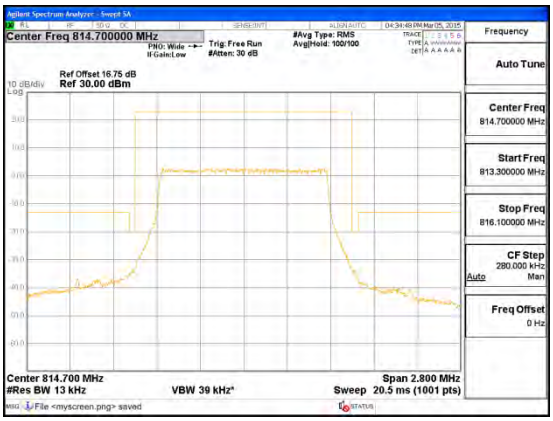
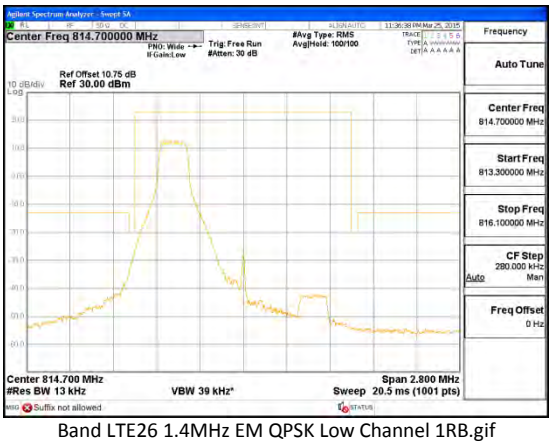
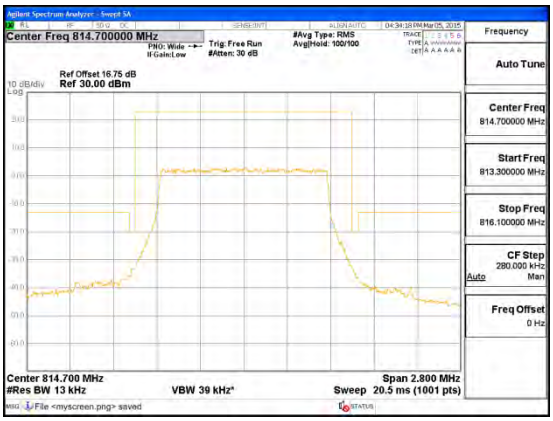
Band LTE26 1.4MHz 16QAM	 Band LTE26 1.4MHz EM 16QAM Low Channel 1RB.gif	 Band LTE26 1.4MHz EM 16QAM Low Channel FRB.gif
Band LTE26 1.4MHz QPSK	 Band LTE26 1.4MHz EM QPSK Low Channel 1RB.gif	 Band LTE26 1.4MHz EM QPSK Low Channel FRB.gif

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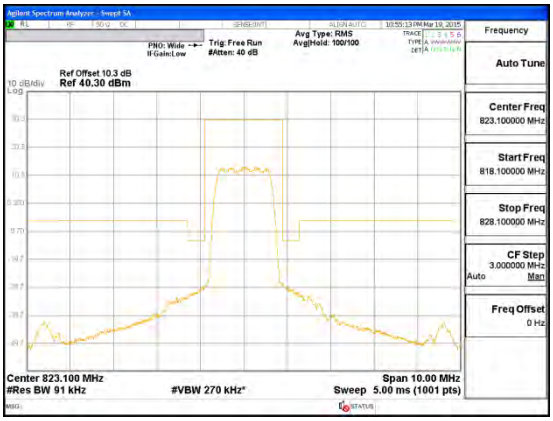
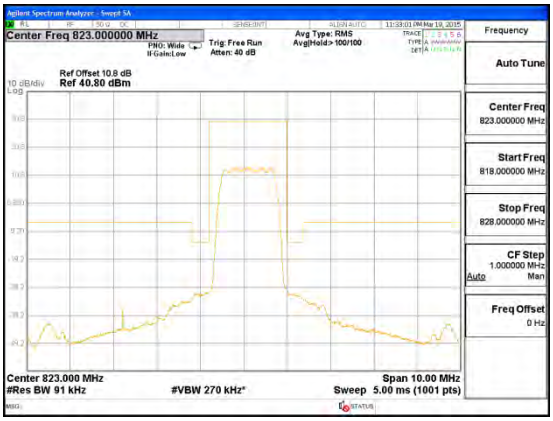
CDMA BC10

Band BC10	 Band BC1 EVDO Rel. 0 EM	 Band BC1 1xRTT EM

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11.3. OUT OF BAND EMISSIONS

RULE PART(S)

FCC: §2.1051, §22.901, §22.917, §24.238, §27.53 and §90.691

LIMITS

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

Part 27: (m)(4) For mobile station, the attenuation factor shall be not less than 43+10Log(P)dB at the channel edge and (55+10Log(P)dB) at 5.5MHz from the channel edges.

TEST PROCEDURE

Per KDB 971168 D01 Power Meas License Digital Systems v02r02

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

MODES TESTED

CDMA and LTE

RESULTS

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11.3.1. OUT OF BAND EMISSIONS RESULT

CDMA

Band	Mode	f (MHz)	Spur (dBm)	Spec (dBm)	Delta (dB)
BC10	1xRTT	817.9	-35.89	-13	-22.89
		820.5	-36.24	-13	-23.24
		823.1	-35.59	-13	-22.59
	EVDO R0	817.9	-34.85	-13	-21.85
		820.5	-34.62	-13	-21.62
		823.1	-34.94	-13	-21.94
BC0	1xRTT	824.7	-34.78	-13	-21.78
		836.52	-35.56	-13	-22.56
		848.31	-34.53	-13	-21.53
	EVDO R0	824.7	-33.91	-13	-20.91
		836.52	-34.81	-13	-21.81
		848.31	-34.95	-13	-21.95
BC1	1xRTT	1851.25	-34.11	-13	-21.11
		1880	-35.07	-13	-22.07
		1908.75	-35.10	-13	-22.10
	EVDO R0	1851.25	-37.67	-13	-24.67
		1880	-37.52	-13	-24.52
		1908.75	-37.90	-13	-24.90

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LTE Band 2

Band	BW (MHz)	Mode	f (MHz)	Spur (dBm)	Spec (dBm)	Delta (dB)
LTE2	20	QPSK	1860	-29.68	-13	-16.68
			1880	-27.40	-13	-14.40
			1900	-27.72	-13	-14.72
		16QAM	1860	-28.01	-13	-15.01
			1880	-27.29	-13	-14.29
			1900	-27.70	-13	-14.70
	15	QPSK	1857.5	-27.13	-13	-14.13
			1880	-27.60	-13	-14.60
			1902.5	-29.60	-13	-16.60
		16QAM	1857.5	-27.51	-13	-14.51
			1880	-26.03	-13	-13.03
			1902.5	-29.13	-13	-16.13
	10	QPSK	1855	-22.03	-13	-9.03
			1880	-21.51	-13	-8.51
			1905	-30.61	-13	-17.61
		16QAM	1855	-21.97	-13	-8.97
			1880	-21.67	-13	-8.67
			1905	-29.63	-13	-16.63
	5	QPSK	1852.5	-30.26	-13	-17.26
			1880	-21.07	-13	-8.07
			1907.5	-29.07	-13	-16.07
		16QAM	1852.5	-29.80	-13	-16.80
			1880	-21.08	-13	-8.08
			1907.5	-21.20	-13	-8.20

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Band	BW (MHz)	Mode	f (MHz)	Spur (dBm)	Spec (dBm)	Delta (dB)
LTE2	3	QPSK	1851.5	-27.87	-13	-14.87
			1880	-27.91	-13	-14.91
			1908.5	-27.83	-13	-14.83
		16QAM	1851.5	-27.73	-13	-14.73
			1880	-27.27	-13	-14.27
			1908.5	-27.53	-13	-14.53
	1.4	QPSK	1850.7	-27.43	-13	-14.43
			1880	-27.68	-13	-14.68
			1909.3	-27.83	-13	-14.83
		16QAM	1850.7	-27.54	-13	-14.54
			1880	-27.24	-13	-14.24
			1909.3	-28.10	-13	-15.10

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LTE Band 4

Band	BW (MHz)	Mode	f (MHz)	Spur (dBm)	Spec (dBm)	Delta (dB)
LTE4	20	QPSK	1720	-27.44	-13	-14.44
			1732.5	-27.89	-13	-14.89
			1745	-23.82	-13	-10.82
		16QAM	1720	-28.07	-13	-15.07
			1732.5	-27.46	-13	-14.46
			1745	-25.84	-13	-12.84
	15	QPSK	1717.5	-27.29	-13	-14.29
			1732.5	-27.63	-13	-14.63
			1747.5	-25.39	-13	-12.39
		16QAM	1717.5	-31.27	-13	-18.27
			1732.5	-27.58	-13	-14.58
			1747.5	-25.12	-13	-12.12
	10	QPSK	1715	-21.42	-13	-8.42
			1732.5	-20.86	-13	-7.86
			1750	-33.15	-13	-20.15
		16QAM	1715	-21.38	-13	-8.38
			1732.5	-21.74	-13	-8.74
			1750	-21.97	-13	-8.97
	5	QPSK	1712.5	-21.71	-13	-8.71
			1732.5	-21.32	-13	-8.32
			1752.5	-21.53	-13	-8.53
		16QAM	1712.5	-21.74	-13	-8.74
			1732.5	-21.34	-13	-8.34
			1752.5	-29.78	-13	-16.78

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Band	BW (MHz)	Mode	f (MHz)	Spur (dBm)	Spec (dBm)	Delta (dB)
LTE4	3	QPSK	1711.5	-30.78	-13	-17.78
			1732.5	-26.83	-13	-13.83
			1753.5	-27.62	-13	-14.62
		16QAM	1711.5	-25.78	-13	-12.78
			1732.5	-27.63	-13	-14.63
			1753.5	-27.78	-13	-14.78
	1.4	QPSK	1710.7	-27.51	-13	-14.51
			1732.5	-28.06	-13	-15.06
			1754.3	-27.90	-13	-14.90
		16QAM	1710.7	-27.78	-13	-14.78
			1732.5	-27.25	-13	-14.25
			1754.3	-27.44	-13	-14.44

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LTE Band 5

Band	BW (MHz)	Mode	f (MHz)	Spur (dBm)	Spec (dBm)	Delta (dB)
LTE5	10	QPSK	829	-21.14	-13	-8.14
			836.5	-21.40	-13	-8.40
			844	-20.36	-13	-7.36
		16QAM	829	-21.73	-13	-8.73
			836.5	-21.56	-13	-8.56
			844	-21.73	-13	-8.73
	5	QPSK	826.5	-20.33	-13	-7.33
			836.5	-22.11	-13	-9.11
			846.5	-21.44	-13	-8.44
		16QAM	826.5	-21.80	-13	-8.80
			836.5	-21.01	-13	-8.01
			846.5	-20.29	-13	-7.29
	3	QPSK	825.5	-21.83	-13	-8.83
			836.5	-21.59	-13	-8.59
			847.5	-21.31	-13	-8.31
		16QAM	825.5	-21.97	-13	-8.97
			836.5	-21.07	-13	-8.07
			847.5	-22.26	-13	-9.26
	1.4	QPSK	824.7	-21.63	-13	-8.63
			836.5	-21.44	-13	-8.44
			848.3	-21.60	-13	-8.60
		16QAM	824.7	-20.53	-13	-7.53
			836.5	-21.18	-13	-8.18
			848.3	-20.92	-13	-7.92

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LTE Band 12

Band	BW (MHz)	Mode	f (MHz)	Spur (dBm)	Spec (dBm)	Delta (dB)
LTE12	10	QPSK	704	-28.07	-13	-15.07
			707.5	-20.66	-13	-7.66
			711	-21.50	-13	-8.50
		16QAM	704	-28.01	-13	-15.01
			707.5	-22.05	-13	-9.05
			711	-21.78	-13	-8.78
	5	QPSK	701.5	-20.90	-13	-7.90
			707.5	-22.16	-13	-9.16
			713.5	-21.61	-13	-8.61
		16QAM	701.5	-21.21	-13	-8.21
			707.5	-21.45	-13	-8.45
			713.5	-27.39	-13	-14.39
	3	QPSK	700.5	-21.97	-13	-8.97
			707.5	-21.51	-13	-8.51
			714.5	-21.81	-13	-8.81
		16QAM	700.5	-21.99	-13	-8.99
			707.5	-21.01	-13	-8.01
			714.5	-21.59	-13	-8.59
	1.4	QPSK	699.7	-21.36	-13	-8.36
			707.5	-21.72	-13	-8.72
			715.3	-21.32	-13	-8.32
		16QAM	699.7	-21.81	-13	-8.81
			707.5	-21.30	-13	-8.30
			715.3	-21.68	-13	-8.68

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LTE Band 25

Band	BW (MHz)	Mode	f (MHz)	Spur (dBm)	Spec (dBm)	Delta (dB)
LTE25	20	QPSK	1860	-20.83	-13	-7.83
			1882.5	-21.37	-13	-8.37
			1905	-20.57	-13	-7.57
		16QAM	1860	-21.83	-13	-8.83
			1882.5	-21.30	-13	-8.30
			1905	-20.67	-13	-7.67
	15	QPSK	1857.5	-21.10	-13	-8.10
			1882.5	-21.11	-13	-8.11
			1907.5	-21.52	-13	-8.52
		16QAM	1857.5	-21.73	-13	-8.73
			1882.5	-21.99	-13	-8.99
			1907.5	-21.76	-13	-8.76
	10	QPSK	1855	-21.13	-13	-8.13
			1882.5	-19.50	-13	-6.50
			1910	-19.12	-13	-6.12
		16QAM	1855	-19.85	-13	-6.85
			1882.5	-20.91	-13	-7.91
			1910	-21.70	-13	-8.70
	5	QPSK	1852.5	-20.86	-13	-7.86
			1882.5	-20.56	-13	-7.56
			1912.5	-21.20	-13	-8.20
		16QAM	1852.5	-21.70	-13	-8.70
			1882.5	-21.59	-13	-8.59
			1912.5	-21.20	-13	-8.20

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Band	BW (MHz)	Mode	f (MHz)	Spur (dBm)	Spec (dBm)	Delta (dB)
LTE25	3	QPSK	1851.5	-21.74	-13	-8.74
			1882.5	-21.62	-13	-8.62
			1913.5	-21.81	-13	-8.81
		16QAM	1851.5	-21.77	-13	-8.77
			1882.5	-20.97	-13	-7.97
			1913.5	-21.81	-13	-8.81
	1.4	QPSK	1850.7	-21.00	-13	-8.00
			1882.5	-21.48	-13	-8.48
			1914.3	-21.38	-13	-8.38
		16QAM	1850.7	-21.68	-13	-8.68
			1882.5	-21.05	-13	-8.05
			1914.3	-21.66	-13	-8.66

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LTE Band 26

Band	BW (MHz)	Mode	f (MHz)	Spur (dBm)	Spec (dBm)	Delta (dB)
LTE26	15	QPSK	821.5	-27.60	-13	-14.60
			831.5	-27.11	-13	-14.11
			841.5	-27.25	-13	-14.25
		16QAM	821.5	-27.86	-13	-14.86
			831.5	-27.75	-13	-14.75
			841.5	-27.84	-13	-14.84
	10	QPSK	819	-20.91	-13	-7.91
			831.5	-21.63	-13	-8.63
			844	-21.84	-13	-8.84
		16QAM	819	-20.91	-13	-7.91
			831.5	-20.76	-13	-7.76
			844	-21.84	-13	-8.84
	5	QPSK	816.5	-21.25	-13	-8.25
			831.5	-21.66	-13	-8.66
			846.5	-21.44	-13	-8.44
		16QAM	816.5	-21.10	-13	-8.10
			831.5	-21.22	-13	-8.22
			846.5	-21.66	-13	-8.66
	3	QPSK	815.5	-21.69	-13	-8.69
			831.5	-21.45	-13	-8.45
			847.5	-21.74	-13	-8.74
		16QAM	815.5	-21.47	-13	-8.47
			831.5	-21.95	-13	-8.95
			847.5	-21.56	-13	-8.56
	1.4	QPSK	814.7	-21.01	-13	-8.01
			831.5	-20.34	-13	-7.34
			848.3	-21.69	-13	-8.69
		16QAM	814.7	-20.94	-13	-7.94
			831.5	-21.57	-13	-8.57
			848.3	-21.26	-13	-8.26

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LTE Band 41

Band	BW (MHz)	Mode	f (MHz)	Spur (dBm)	Spec (dBm)	Delta (dB)
LTE41	20	QPSK	2506	-27.14	-25	-2.14
			2593	-26.94	-25	-1.94
			2680	-26.81	-25	-1.81
		16QAM	2506	-27.21	-25	-2.21
			2593	-27.65	-25	-2.65
			2680	-27.39	-25	-2.39
	15	QPSK	2503.5	-27.32	-25	-2.32
			2593	-27.31	-25	-2.31
			2682.5	-27.01	-25	-2.01
		16QAM	2503.5	-27.20	-25	-2.20
			2593	-27.15	-25	-2.15
			2682.5	-27.27	-25	-2.27
	10	QPSK	2501	-27.71	-25	-2.71
			2593	-27.74	-25	-2.74
			2685	-27.94	-25	-2.94
		16QAM	2501	-27.50	-25	-2.50
			2593	-26.14	-25	-1.14
			2685	-26.46	-25	-1.46
	5	QPSK	2498.5	-26.87	-25	-1.87
			2593	-27.40	-25	-2.40
			2687.5	-26.86	-25	-1.86
		16QAM	2498.5	-27.62	-25	-2.62
			2593	-27.22	-25	-2.22
			2687.5	-26.96	-25	-1.96

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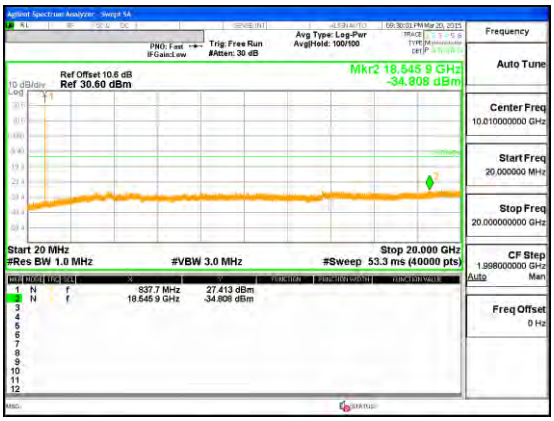
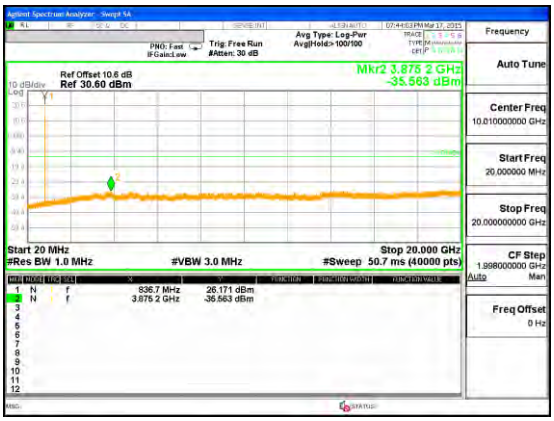
11.3.2. OUT OF BAND EMISSIONS PLOTS

CDMA

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

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

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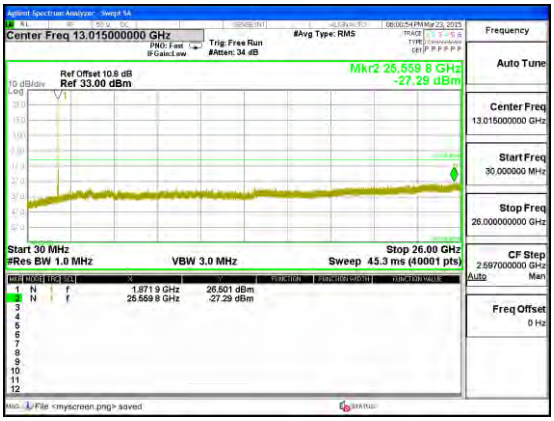
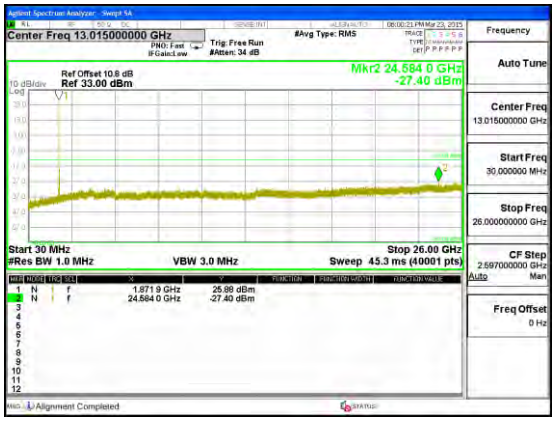
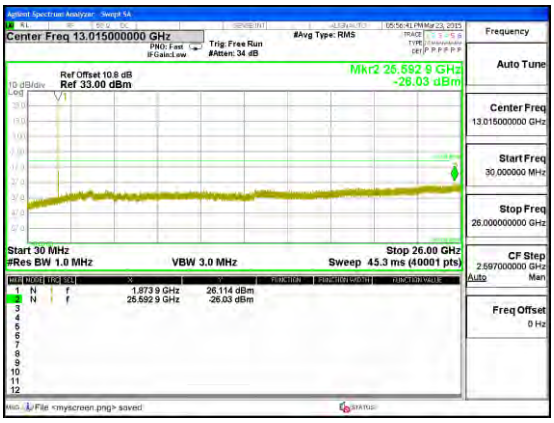
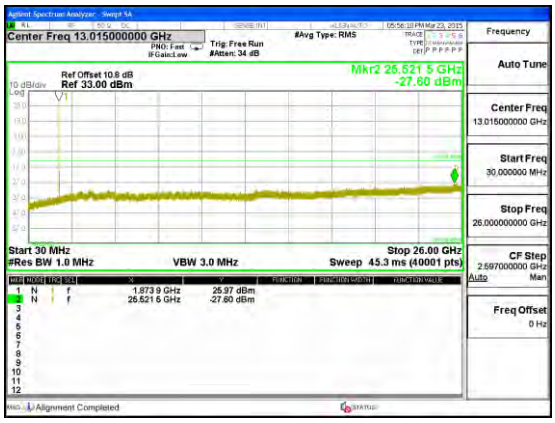
LTE Band 2

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

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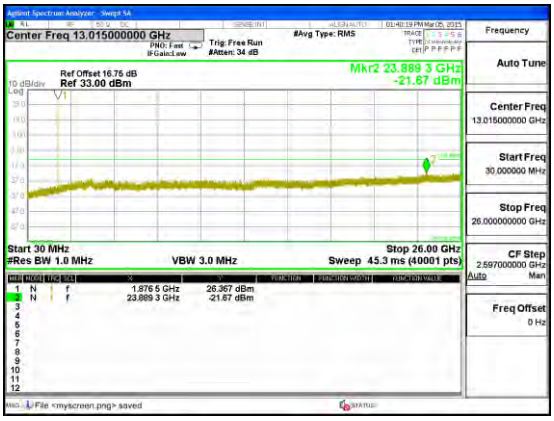
Band LTE2 10MHz 16QAM	 Band LTE2 10MHz CSE 16QAM Mid channel	 Band LTE2 10MHz CSE QPSK Mid channel
Band LTE2 5MHz 16QAM	 Band LTE2 5MHz CSE 16QAM Mid channel	 Band LTE2 5MHz CSE QPSK Mid channel

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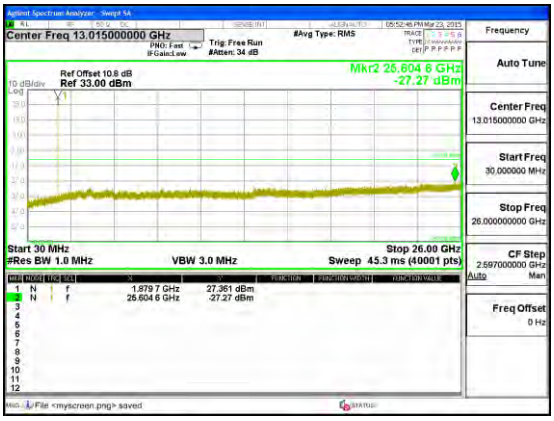
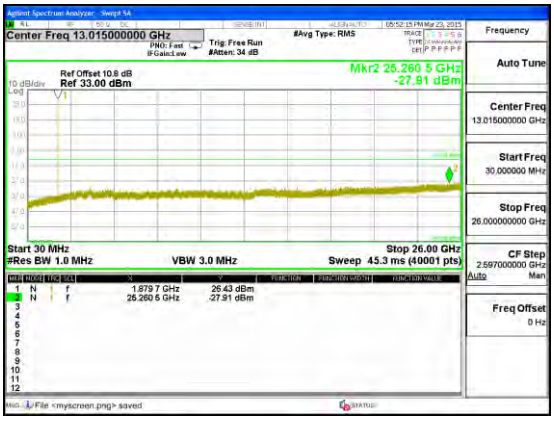
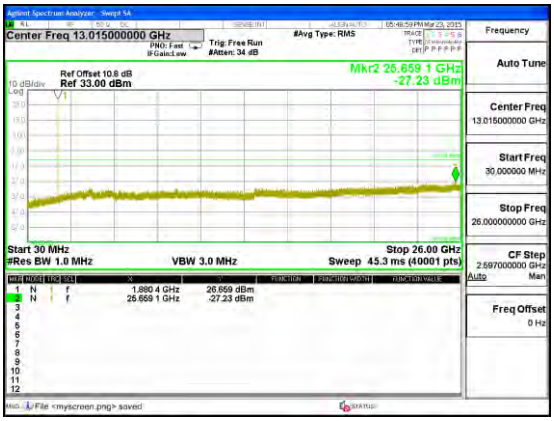
Band LTE2 3MHz 16QAM	 Band LTE2 3MHz CSE 16QAM Mid channel	 Band LTE2 3MHz CSE QPSK Mid channel
Band LTE2 1.4MHz 16QAM	 Band LTE2 1.4MHz CSE 16QAM Mid channel	 Band LTE2 1.4MHz CSE QPSK Mid channel

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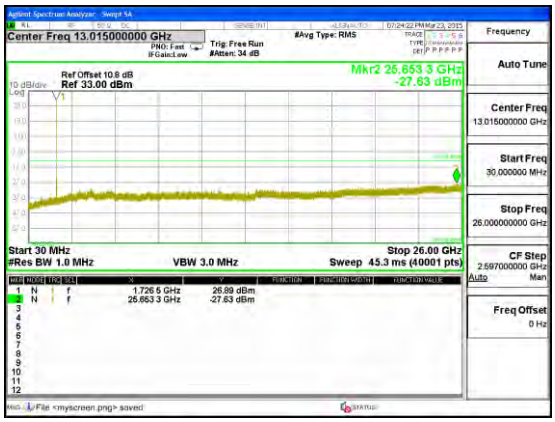
LTE Band 4

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

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

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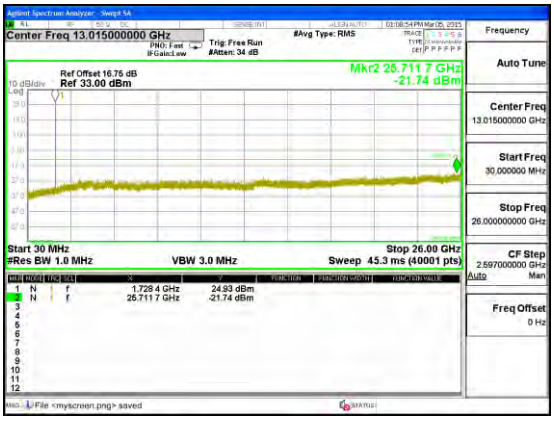
Band LTE4 10MHz 16QAM	 Band LTE4 10MHz CSE 16QAM Mid channel	 Band LTE4 10MHz CSE QPSK Mid channel

Band LTE4 5MHz 16QAM	 Band LTE4 5MHz CSE 16QAM Mid channel	 Band LTE4 5MHz CSE QPSK Mid channel

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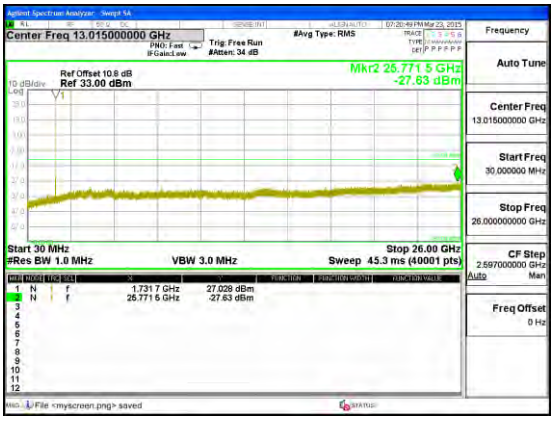
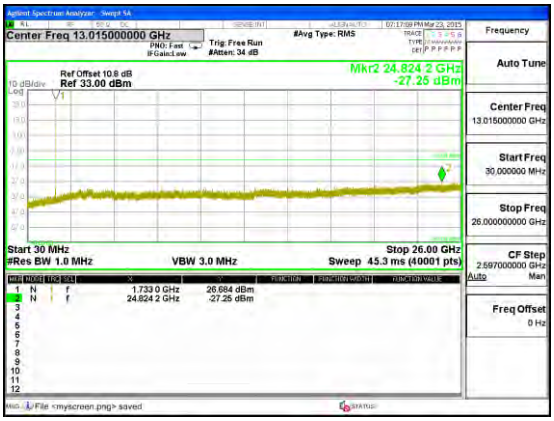
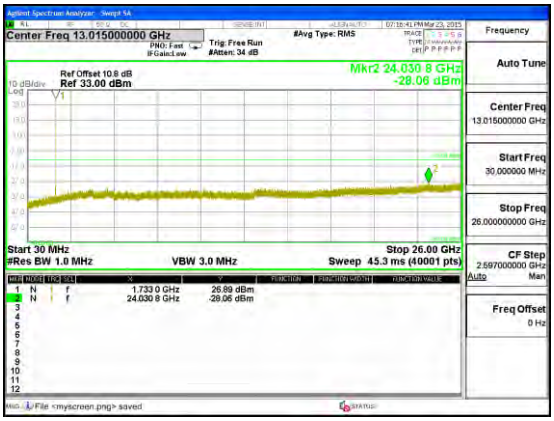
Band LTE4 3MHz 16QAM	 Band LTE4 3MHz CSE 16QAM Mid channel	 Band LTE4 3MHz CSE QPSK Mid channel

Band LTE4 1.4MHz 16QAM	 Band LTE4 1.4MHz CSE 16QAM Mid channel	 Band LTE4 1.4MHz CSE QPSK Mid channel

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LTE Band 5

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

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

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

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

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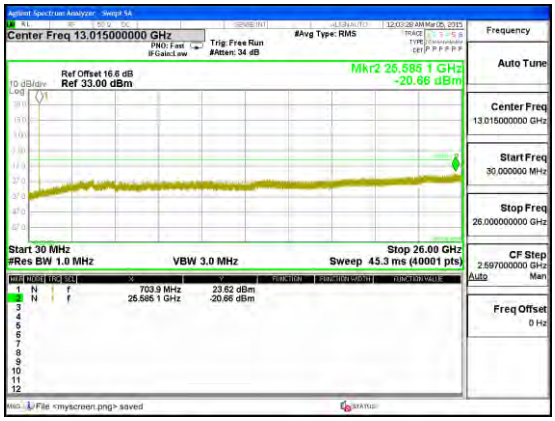
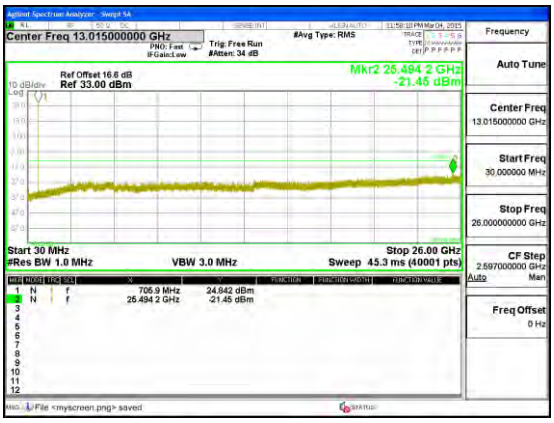
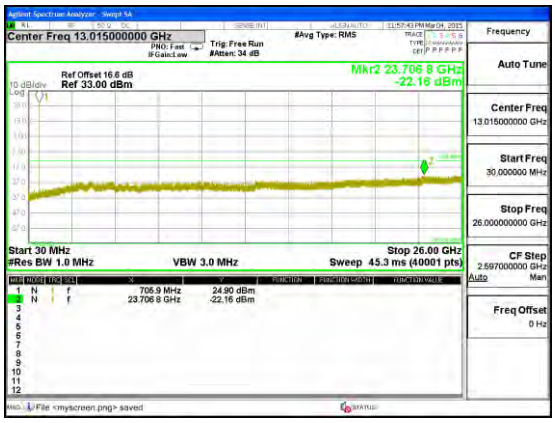
LTE Band 12

Band LTE12 10MHz 16QAM	 Band LTE12 10MHz CSE 16QAM Mid channel	 Band LTE12 10MHz CSE QPSK Mid channel
Band LTE12 5MHz 16QAM	 Band LTE12 5MHz CSE 16QAM Mid channel	 Band LTE12 5MHz CSE QPSK Mid channel

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Band LTE12 3MHz 16QAM	 Band LTE12 3MHz CSE 16QAM Mid channel	 Band LTE12 3MHz CSE QPSK Mid channel
Band LTE12 1.4MHz 16QAM	 Band LTE12 1.4MHz CSE 16QAM Mid channel	 Band LTE12 1.4MHz CSE QPSK Mid channel

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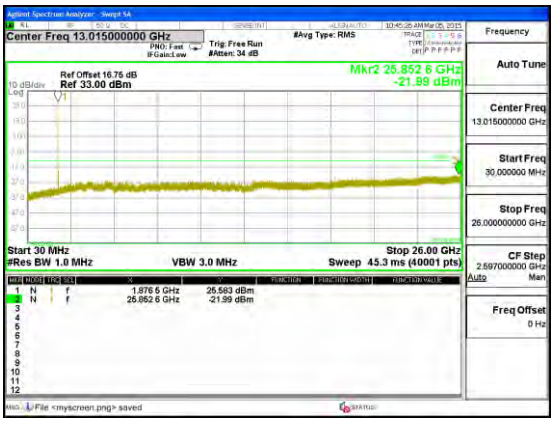
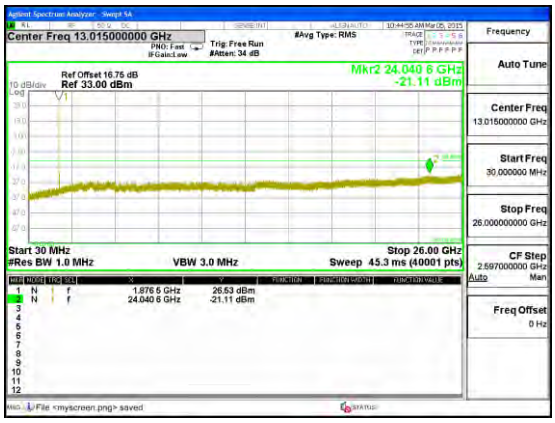
LTE Band 25

Band LTE25 20MHz 16QAM	 Band LTE25 20MHz CSE 16QAM Mid channel	 Band LTE25 20MHz CSE QPSK Mid channel
Band LTE25 15MHz 16QAM	 Band LTE25 15MHz CSE 16QAM Mid channel	 Band LTE25 15MHz CSE QPSK Mid channel

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

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Band LTE25 3MHz 16QAM	 Band LTE25 3MHz CSE 16QAM Mid channel	 Band LTE25 3MHz CSE QPSK Mid channel
Band LTE25 1.4MHz 16QAM	 Band LTE25 1.4MHz CSE 16QAM Mid channel	 Band LTE25 1.4MHz CSE QPSK Mid channel

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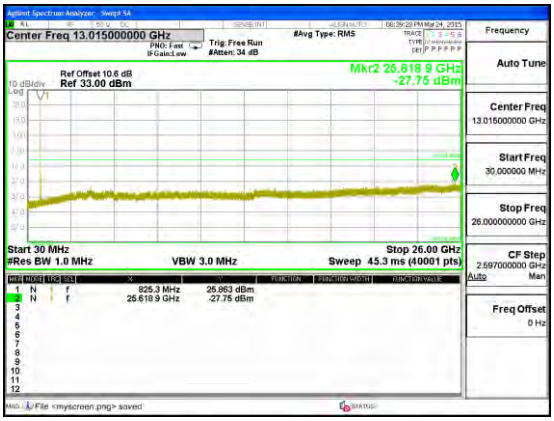
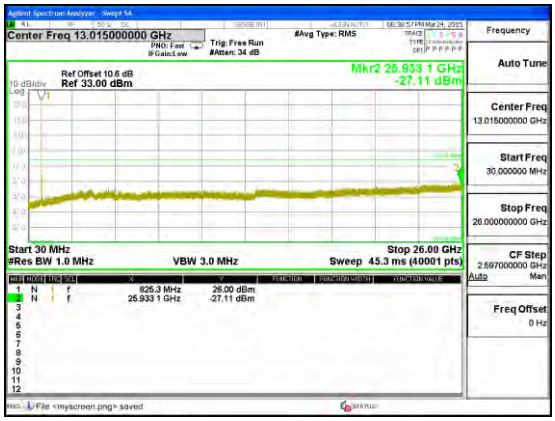
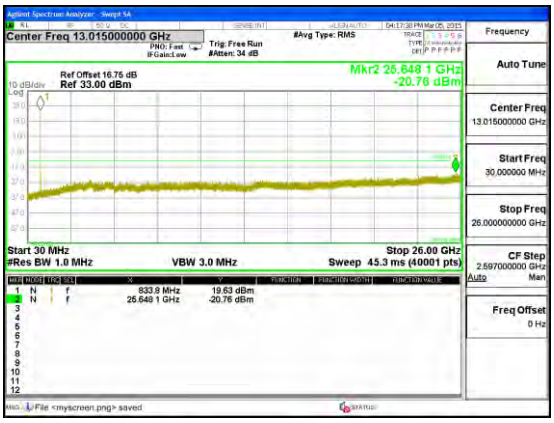
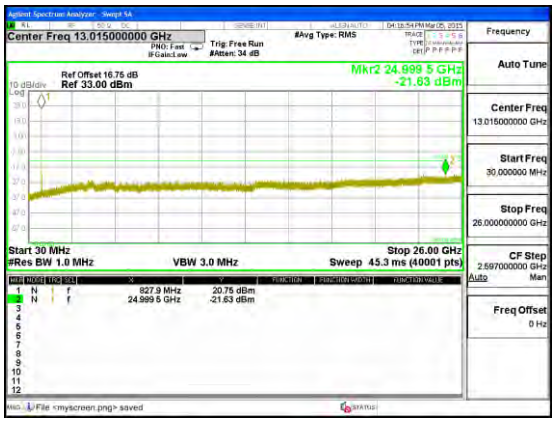
LTE Band 26

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

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

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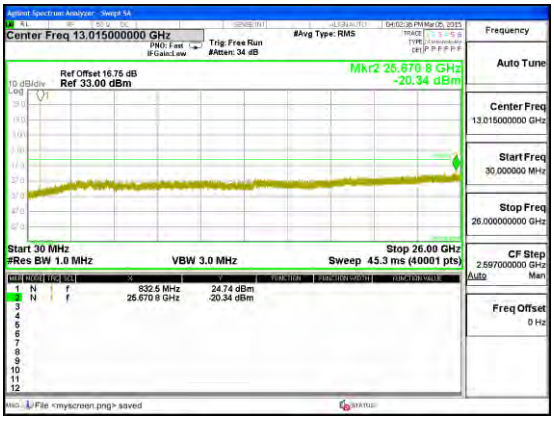
Band LTE26 1.4MHz 16QAM	 Band LTE26 1.4MHz CSE 16QAM Mid channel	 Band LTE26 1.4MHz CSE QPSK Mid channel

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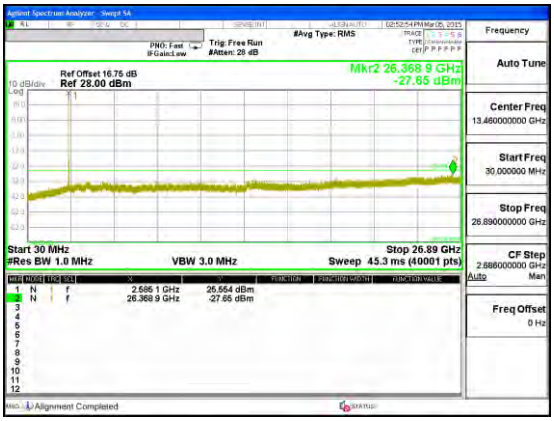
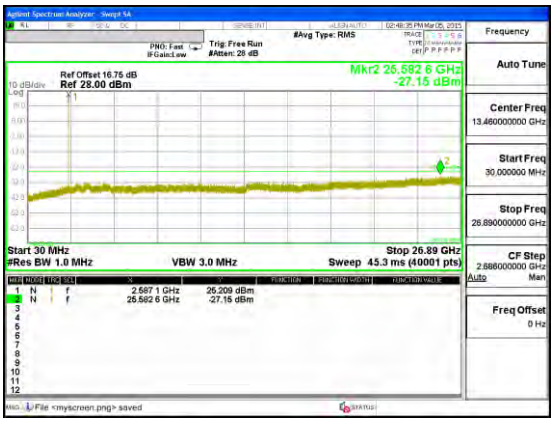
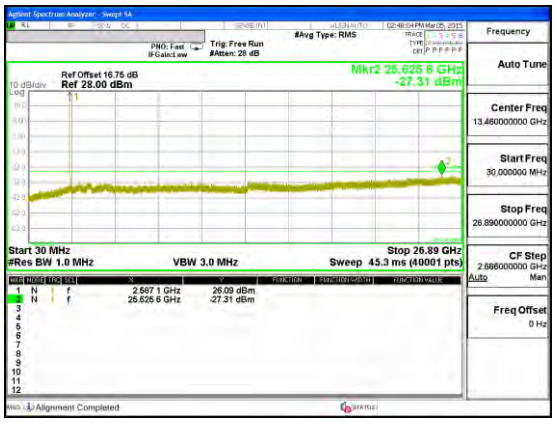
LTE Band 41

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

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Band LTE41 10MHz 16QAM	 Band LTE41 10MHz CSE 16QAM Mid channel	 Band LTE41 10MHz CSE QPSK Mid channel
Band LTE41 5MHz 16QAM	 Band LTE41 5MHz CSE 16QAM Mid channel	 Band LTE41 5MHz CSE QPSK Mid channel

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11.4. FREQUENCY STABILITY

RULE PART(S)

FCC: §2.1055, §22.355, §24.235, §27.54 and §90.213

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.

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

TEST PROCEDURE

Per KDB 971168 D01 Power Meas License Digital Systems v02r02

MODES TESTED

LTE

RESULTS

See the following pages.

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11.4.1. FREQUENCY STABILITY RESULTS

LTE BAND 2 – MID CHANNEL (1880.0 MHz)

Reference Frequency: Cellular Mid Channel 1879.999975MHz @ 20°C Limit: to stay +- 2.5 ppm = 4700.000 Hz				
Power Supply (Vdc)	Environment Temperature (°C)	Frequency Deviation Measureed with Time Elapse (MHz)	Delta (ppm)	Limit (ppm)
3.80	50	1880.000007	0.003	2.5
3.80	40	1879.999992	0.012	2.5
3.80	30	1879.999989	0.013	2.5
3.80	***20***	***1880.000013***	***0***	2.5
3.80	10	1879.999993	0.011	2.5
3.80	0	1879.999992	0.012	2.5
3.80	-10	1879.999993	0.011	2.5
3.80	-20	1879.999993	0.011	2.5
3.80	-30	1879.999991	0.012	2.5

Reference Frequency: Cellular Mid Channel 1879.999975MHz @ 20°C Limit: to stay +- 2.5 ppm = 4700.000 Hz				
Power Supply (Vdc)	Environment Temperature (°C)	Frequency Deviation Measureed with Time Elapse (MHz)	Delta (ppm)	Limit (ppm)
3.80	***20***	***1880.000013***	***0***	***2.5***
3.23	20	1880.000000	*0.007*	2.5
4.37	20	1879.999992	*0.011*	2.5

LTE BAND 4 – MID CHANNEL (1732.5 MHz)

Reference Frequency: Cellular Mid Channel 1732.500012MHz @ 20°C Limit: to stay +- 2.5 ppm = 4331.250 Hz				
Power Supply (Vdc)	Environment Temperature (°C)	Frequency Deviation Measureed with Time Elapse (MHz)	Delta (ppm)	Limit (ppm)
3.80	50	1732.499994	-0.008	2.5
3.80	40	1732.499980	0.000	2.5
3.80	30	1732.499992	-0.007	2.5
3.80	***20***	***1732.499980***	***0***	2.5
3.80	10	1732.499973	0.004	2.5
3.80	0	1732.499996	-0.009	2.5
3.80	-10	1732.499991	-0.006	2.5
3.80	-20	1732.499973	0.004	2.5
3.80	-30	1732.499989	-0.005	2.5

Reference Frequency: Cellular Mid Channel 1732.500012MHz @ 20°C Limit: to stay +- 2.5 ppm = 4331.250 Hz				
Power Supply (Vdc)	Environment Temperature (°C)	Frequency Deviation Measureed with Time Elapse (MHz)	Delta (ppm)	Limit (ppm)
3.80	***20***	***1732.499980***	***0***	***2.5***
3.23	20	1732.499981	*-0.001*	2.5
4.37	20	1732.499985	*-0.003*	2.5

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LTE BAND 5 – MID CHANNEL (836.5 MHz)

Reference Frequency: Cellular Mid Channel 836.500007MHz @ 20°C Limit: to stay +- 2.5 ppm = 2091.250 Hz				
Power Supply (Vdc)	Environment Temperature (°C)	Frequency Deviation Measureed with Time Elapse (MHz)	Delta (ppm)	Limit (ppm)
3.80	50	836.499989	0.007	2.5
3.80	40	836.499997	-0.002	2.5
3.80	30	836.499994	0.001	2.5
3.80	***20***	***836.499995***	***0***	2.5
3.80	10	836.499996	-0.001	2.5
3.80	0	836.499997	-0.002	2.5
3.80	-10	836.499996	-0.001	2.5
3.80	-20	836.499995	0.000	2.5
3.80	-30	836.499996	-0.002	2.5

Reference Frequency: Cellular Mid Channel 836.500007MHz @ 20°C Limit: to stay +- 2.5 ppm = 2091.250 Hz				
Power Supply (Vdc)	Environment Temperature (°C)	Frequency Deviation Measureed with Time Elapse (MHz)	Delta (ppm)	Limit (ppm)
3.80	***20***	***836.499995***	***0***	***2.5***
3.23	20	836.499997	*-0.003*	2.5
4.37	20	836.499994	*0.001*	2.5

LTE BAND 12 – MID CHANNEL (707.5 MHz)

Limit: to stay +- 2.5 ppm = 1768.750 Hz				
Power Supply (Vdc)	Environment Temperature (°C)	Frequency Deviation Measureed with Time Elapse (MHz)	Delta (ppm)	Limit (ppm)
3.80	50	707.499996	-0.002	2.5
3.80	40	707.499996	-0.001	2.5
3.80	30	707.499990	0.007	2.5
3.80	***20***	***707.499995***	***0***	2.5
3.80	10	707.499992	0.004	2.5
3.80	0	707.499996	-0.001	2.5
3.80	-10	707.499993	0.003	2.5
3.80	-20	707.499996	-0.002	2.5
3.80	-30	707.499993	0.002	2.5

Reference Frequency: Cellular Mid Channel 707.5 MHz @ 20°C Limit: to stay +- 2.5 ppm = 1768.750 Hz				
Power Supply (Vdc)	Environment Temperature (°C)	Frequency Deviation Measureed with Time Elapse (MHz)	Delta (ppm)	Limit (ppm)
3.80	***20***	***707.499995***	***0***	***2.5***
3.23	20	707.499993	*0.002*	2.5
4.37	20	707.499997	*-0.003*	2.5

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LTE BAND 41 Channel MID CHANNEL (2593 MHz)

Reference Frequency: LTE41 Channel 40620 Freq : 2593 MHz @ 20°C Limit: to stay +- 2.5 ppm = 6482.500 Hz				
Power Supply (Vdc)	Environment Temperature (°C)	Frequency Deviation Measureed with Time Elapse		
		(MHz)	Delta (ppm)	Limit (ppm)
3.80	50	2593.000031	-0.002	2.5
3.80	40	2593.000032	-0.002	2.5
3.80	30	2593.000021	0.002	2.5
3.80	***20***	2593.000026	***0***	***2.5***
3.80	10	2593.000032	-0.002	2.5
3.80	0	2593.000018	0.003	2.5
3.80	-10	2593.000021	0.002	2.5
3.80	-20	2593.000023	0.001	2.5
3.80	-30	2592.999862	0.063	2.5

Reference Frequency: LTE41 Channel 40620 Freq : 2593 MHz @ 20°C Limit: to stay +- 2.5 ppm = 6482.500 Hz				
Power Supply (Vdc)	Environment Temperature (°C)	Frequency Deviation Measureed with Time Elapse		
		(MHz)	Delta (ppm)	Limit (ppm)
3.80	***20***	2593.000026	***0***	***2.5***
3.30	20	2592.999913	*0.044*	2.5
4.20	20	2593.000017	0.004	2.5

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12. RADIATED TEST RESULTS

12.1. RADIATED POWER (ERP & EIRP)

RULE PART(S)

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

LIMITS

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

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

27.50(b) - (10) Portable stations (hand-held devices) transmitting in the 746-757 MHz, 776-788 MHz, and 805-806 MHz bands are limited to 3 watts ERP. (LTE B13)
27.50(c) - (10) Portable stations (hand-held devices) are limited to 3 watts ERP; (LTE B17 & LB12)
27.50(d) - (4) Fixed, mobile, and portable (hand-held) stations operating in the 1710-1755 MHz band and mobile and portable stations operating in the 1695-1710 MHz and 1755-1780 MHz bands are limited to 1 watt EIRP.(Band 4)
27.50(h) - (2) Mobile stations are limited to 2.0 watts EIRP. All user stations are limited to 2.0 watts transmitter output power.(LTE B41 & 7)

90.635(b) - The maximum output power of the transmitter for mobile stations is 100 watts (20 dBw). (LTE B26)
In addition, when the transmitter power is measured in terms of average value, the peak-to-average ratio of the power shall not exceed 13dB.

TEST PROCEDURE

ANSI / TIA / EIA 603C Clause 2.2.17; PSA setting reference to 971168 D01 v02r02
For peak power measurement with a PSA:
a) Set the RBW ≥ OBW; b) Set VBW ≥ 3 × RBW; c) Set span ≥ 2 x RBW; d) Sweep time = auto couple; e) Detector = peak; f) Ensure that the number of measurement points ≥ span/RBW; g) Trace mode = max hold;
For average power measurement with a PSA:
a) Set span to at least 1.5 times the OBW; b) Set RBW = 1-5% of the OBW, not to exceed 1 MHz; c) Set VBW ≥ 3 x RBW; d) Set number of points in sweep ≥ 2 × span / RBW; e) Sweep time = auto-couple; f) Detector = RMS (power averaging); g) Use free run trigger If burst duty cycle ≥ 98; h) Use trigger to capture bursts If burst duty cycle < 98; i) Trace average at least 100 traces in power averaging (*i.e.*, RMS) mode. j) Compute the power by integrating the spectrum across the OBW of the signal using the instrument's band power measurement function.

MODES TESTED

CDMA and LTE

TEST RESULTS

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12.1.1. ERP/EIRP Results

CDMA

Band	Mode	Channel	f(MHz)	ERP / EIRP	
				dBm	mW
BC10	1xRTT	476	817.9	23.68	233.35
		580	820.5	23.49	223.36
		684	823.1	23.38	217.77
	EVDO REL. 0	476	817.9	23.58	228.03
		580	820.5	23.39	218.27
		684	823.1	23.18	207.97

Band	Mode	Channel	f(MHz)	ERP / EIRP	
				dBm	mW
BC0	1xRTT	1013	824.7	23.44	220.80
		384	836.52	22.89	194.54
		777	848.31	22.32	170.61
	EVDO REL. 0	1013	824.7	23.38	217.77
		384	836.52	22.76	188.80
		777	848.31	22.12	162.93

Band	Mode	Channel	f(MHz)	ERP / EIRP	
				dBm	mW
BC1	1xRTT	25	1851.25	26.65	462.38
		600	1880	26.67	464.52
		1175	1908.75	27.15	518.80
	EVDO REL. 0	25	1851.25	26.05	402.72
		600	1880	26.55	451.86
		1175	1908.75	27.42	552.08

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12.1.2. LTE ERP/EIRP Results

LTE Band 2

Band	BW (MHz)	Mode	RB/RB Size	f (MHz)	ERP / EIRP	
					dBm	mW
LTE2	20	QPSK	1/0	1860	23.09	203.7
			1/0	1880	24.44	277.97
			1/0	1900	24.02	252.35
		16QAM	1/0	1860	22.00	158.49
			1/0	1880	23.63	230.67
			1/0	1900	23.17	207.49
	15	QPSK	1/0	1857.5	23.11	204.64
			1/0	1880	24.36	272.9
			1/0	1902.5	24.28	267.92
		16QAM	1/0	1857.5	21.98	157.76
			1/0	1880	23.64	231.21
			1/0	1902.5	23.58	228.03
	10	QPSK	1/0	1855	25.29	338.06
			1/0	1880	25.34	341.98
			1/0	1905	24.64	291.07
		16QAM	1/0	1855	24.41	276.06
			1/0	1880	24.37	273.53
			1/0	1905	23.91	246.04
	5	QPSK	1/0	1852.5	24.78	300.61
			1/0	1880	25.70	371.54
			1/0	1907.5	24.59	287.74
		16QAM	1/0	1852.5	24.00	251.19
			1/0	1880	24.38	274.16
			1/0	1907.5	23.44	220.8

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Band	BW (MHz)	Mode	RB/RB Size	f (MHz)	ERP / EIRP	
					dBm	mW
LTE2	3	QPSK	1/0	1851.5	24.90	309.03
			1/0	1880	25.29	338.06
			1/0	1908.5	24.19	262.42
		16QAM	1/0	1851.5	24.05	254.1
			1/0	1880	24.19	262.42
			1/0	1908.5	23.36	216.77
	1.4	QPSK	1/0	1850.7	24.81	302.69
			1/0	1880	25.98	396.28
			1/0	1909.3	23.86	243.22
		16QAM	1/0	1850.7	23.95	248.31
			1/0	1880	25.12	325.09
			1/0	1909.3	23.03	200.91

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LTE Band 4

Band	BW (MHz)	Mode	RB/RB Size	f (MHz)	ERP / EIRP	
					dBm	mW
LTE4	20	QPSK	1/0	1720	24.20	263.28
			1/0	1732.5	24.75	298.61
			1/0	1745	24.24	265.33
		16QAM	1/0	1720	23.38	217.98
			1/0	1732.5	23.85	242.72
			1/0	1745	23.32	214.68
	15	QPSK	1/0	1717.5	24.17	261.09
			1/0	1732.5	24.77	299.99
			1/0	1747.5	24.36	273.16
		16QAM	1/0	1717.5	23.34	215.67
			1/0	1732.5	23.89	244.97
			1/0	1747.5	23.33	215.49
	10	QPSK	1/0	1715	24.00	251.25
			1/0	1732.5	24.81	302.76
			1/0	1750	24.18	261.89
		16QAM	1/0	1715	23.37	217.32
			1/0	1732.5	23.83	241.6
			1/0	1750	23.35	216.33

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Band	BW (MHz)	Mode	RB/RB Size	f (MHz)	ERP / EIRP	
					dBm	mW
LTE4	5	QPSK	1/0	1712.5	24.01	252.01
			1/0	1732.5	24.66	292.49
			1/0	1752.5	24.21	263.5
		16QAM	1/0	1712.5	23.26	212.04
			1/0	1732.5	23.70	234.48
			1/0	1752.5	23.25	211.24
	3	QPSK	1/0	1711.5	24.05	253.98
			1/0	1732.5	24.87	306.98
			1/0	1753.5	24.28	268.18
		16QAM	1/0	1711.5	23.36	216.67
			1/0	1732.5	23.95	248.37
			1/0	1753.5	23.32	214.99
	1.4	QPSK	1/0	1710.7	24.06	254.74
			1/0	1732.5	24.73	297.24
			1/0	1754.3	24.26	266.76
		16QAM	1/0	1710.7	23.27	212.38
			1/0	1732.5	23.83	241.6
			1/0	1754.3	23.25	211.41

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LTE Band 5

Band	BW (MHz)	Mode	RB/RB Size	f (MHz)	ERP / EIRP	
					dBm	mW
LTE5	10	QPSK	1/0	829	22.25	167.8
			1/0	836.5	21.76	149.97
			1/0	844	21.52	141.91
		16QAM	1/0	829	21.08	128.17
			1/0	836.5	20.56	113.76
			1/0	844	20.42	110.15
	5	QPSK	1/0	826.5	22.20	165.96
			1/0	836.5	21.47	140.28
			1/0	846.5	21.06	127.64
		16QAM	1/0	826.5	20.98	125.26
			1/0	836.5	20.16	103.75
			1/0	846.5	19.84	96.38
	3	QPSK	1/0	825.5	22.28	168.97
			1/0	836.5	21.78	150.66
			1/0	847.5	21.22	132.43
		16QAM	1/0	825.5	21.08	128.17
			1/0	836.5	20.56	113.76
			1/0	847.5	20.32	107.65
	1.4	QPSK	1/0	824.7	22.18	165.12
			1/0	836.5	21.56	143.22
			1/0	848.3	21.32	135.52
		16QAM	1/0	824.7	21.08	128.17
			1/0	836.5	20.36	108.64
			1/0	848.3	20.22	105.2

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LTE Band 12

Band	BW (MHz)	Mode	RB/RB Size	f (MHz)	ERP / EIRP	
					dBm	mW
LTE12	10	QPSK	1/0	704	17.50	56.23
			1/0	707.5	18.06	63.97
			1/0	711	18.25	66.83
		16QAM	1/0	704	17.14	51.76
			1/0	707.5	17.72	59.16
			1/0	711	17.90	61.66
	5	QPSK	1/0	701.5	17.25	53.09
			1/0	707.5	17.56	57.02
			1/0	713.5	17.60	57.54
		16QAM	1/0	701.5	17.01	50.23
			1/0	707.5	17.32	53.95
			1/0	713.5	17.40	54.95
	3	QPSK	1/0	700.5	17.41	55.08
			1/0	707.5	17.82	60.53
			1/0	714.5	17.76	59.7
		16QAM	1/0	700.5	17.07	50.93
			1/0	707.5	17.52	56.49
			1/0	714.5	17.40	54.95
	1.4	QPSK	1/0	699.7	17.15	51.88
			1/0	707.5	17.49	56.1
			1/0	715.3	17.64	58.08
		16QAM	1/0	699.7	16.85	48.42
			1/0	707.5	17.22	52.72
			1/0	715.3	17.28	53.46

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LTE Band 25

Band	BW (MHz)	Mode	RB/RB Size	f (MHz)	ERP / EIRP	
					dBm	mW
LTE25	20	QPSK	1/0	1860	23.09	203.7
			1/0	1882.5	24.44	277.97
			1/0	1905	24.02	252.35
		16QAM	1/0	1860	22.00	158.49
			1/0	1882.5	23.63	230.67
			1/0	1905	23.17	207.49
	15	QPSK	1/0	1857.5	23.11	204.64
			1/0	1882.5	24.36	272.9
			1/0	1907.5	24.28	267.92
		16QAM	1/0	1857.5	21.98	157.76
			1/0	1882.5	23.64	231.21
			1/0	1907.5	23.58	228.03
	10	QPSK	1/0	1855	25.29	338.06
			1/0	1882.5	25.34	341.98
			1/0	1910	24.64	291.07
		16QAM	1/0	1855	24.41	276.06
			1/0	1882.5	24.37	273.53
			1/0	1910	23.91	246.04
	5	QPSK	1/0	1852.5	24.78	300.61
			1/0	1882.5	25.70	371.54
			1/0	1912.5	24.59	287.74
		16QAM	1/0	1852.5	24.00	251.19
			1/0	1882.5	24.38	274.16
			1/0	1912.5	23.44	220.8

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Band	BW (MHz)	Mode	RB/RB Size	f (MHz)	ERP / EIRP	
					dBm	mW
LTE25	3	QPSK	1/0	1851.5	24.90	309.03
			1/0	1882.5	25.29	338.06
			1/0	1913.5	24.19	262.42
		16QAM	1/0	1851.5	24.05	254.1
			1/0	1882.5	24.19	262.42
			1/0	1913.5	23.36	216.77
	1.4	QPSK	1/0	1850.7	24.81	302.69
			1/0	1882.5	25.98	396.28
			1/0	1914.3	23.86	243.22
		16QAM	1/0	1850.7	23.95	248.31
			1/0	1882.5	25.12	325.09
			1/0	1914.3	23.03	200.91

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LTE Band 41

Band	BW (MHz)	Mode	RB/RB Size	f (MHz)	ERP / EIRP	
					dBm	mW
LTE41	20	QPSK	1/0	2506	24.96	313.03
			1/0	2593	24.77	300.05
			1/0	2680	22.33	170.83
		16QAM	1/0	2506	23.84	241.87
			1/0	2593	23.97	249.57
			1/0	2680	21.63	145.4
	15	QPSK	1/0	2503.5	24.36	272.59
			1/0	2593	24.07	255.38
			1/0	2682.5	21.33	135.91
		16QAM	1/0	2503.5	23.66	232.01
			1/0	2593	23.27	212.42
			1/0	2682.5	22.13	163.4
	10	QPSK	1/0	2501	24.15	260.27
			1/0	2593	25.07	321.51
			1/0	2685	24.14	259.37
		16QAM	1/0	2501	23.35	216.49
			1/0	2593	24.47	280.02
			1/0	2685	23.44	220.76
	5	QPSK	1/0	2498.5	24.03	252.92
			1/0	2593	25.37	344.5
			1/0	2687.5	22.35	171.63
		16QAM	1/0	2498.5	23.70	234.41
			1/0	2593	24.97	314.19
			1/0	2687.5	21.55	142.76

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12.1.3. ERP/EIRP PLOTS

CDMA

Band

BC1

High Frequency Substitution Measurement
UL Verification Services Chamber G

Company: LG
Project #: 15I20232
Date: 3/23/2015
Test Engineer: R.Z
Configuration: EUT Only
Mode: CDMA EVDO BC1

Test Equipment:
Receiving: Horn T862, and Chamber G SMA Cables
Substitution: Horn T59 Substitution, 6ft SMA Cable

f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
1.8513	17.4	V	0.85	9.20	25.75	33.0	-7.3	
1.8513	17.7	H	0.85	9.20	26.05	33.0	-7.0	
Mid Ch								
1.8800	17.6	V	0.85	9.20	25.97	33.0	-7.0	
1.8800	18.2	H	0.85	9.20	26.55	33.0	-6.5	
High Ch								
1.9088	18.0	V	0.85	9.10	26.25	33.0	-6.8	
1.9088	19.2	H	0.85	9.10	27.42	33.0	-5.6	

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Band

BC1

1xRTT

High Frequency Substitution Measurement
UL Verification Services Chamber G

Company: LG
Project #: 15I20232
Date: 3/23/2015
Test Engineer: R.Z
Configuration: EUT Only
Mode: CDMA RTT BC1

Test Equipment:
Receiving: Horn T862, and Chamber G SMA Cables
Substitution: Horn T59 Substitution, 6ft SMA Cable

f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
1.8513	17.9	V	0.85	9.20	26.25	33.0	-6.8	
1.8513	18.3	H	0.85	9.20	26.65	33.0	-6.4	
Mid Ch								
1.8800	17.7	V	0.85	9.20	26.05	33.0	-7.0	
1.8800	18.3	H	0.85	9.20	26.67	33.0	-6.3	
High Ch								
1.9088	18.3	V	0.85	9.10	26.55	33.0	-6.5	
1.9088	18.9	H	0.85	9.10	27.15	33.0	-5.9	

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Band

BC0

High Frequency Substitution Measurement
UL Verification Services Chamber G

Company: LG
Project #: 15I20232
Date: 3/23/2015
Test Engineer: R.Z
Configuration: EUT Only
Mode: CDMA EVDO BC0

Test Equipment:
Receiving: T899, and Chamber G Cable
Substitution: Dipole T273, 6ft SMA Cable

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Margin (dB)	Notes
Low Ch								
824.70	16.49	V	0.9	0.0	15.59	38.5	-22.9	
824.70	24.28	H	0.9	0.0	23.38	38.5	-15.1	
Mid Ch								
836.52	15.30	V	0.9	0.0	14.40	38.5	-24.0	
836.52	23.66	H	0.9	0.0	22.76	38.5	-15.7	
High Ch								
848.31	14.84	V	0.9	0.0	13.94	38.5	-24.5	
848.31	23.02	H	0.9	0.0	22.12	38.5	-16.3	

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Band

BC0

1xRTT

High Frequency Substitution Measurement
UL Verification Services Chamber G

Company: LG
Project #: 15I20232
Date: 3/23/2015
Test Engineer: R.Z
Configuration: EUT Only
Mode: CDMA RTT BC0

Test Equipment:
Receiving: T899, and Chamber G Cable
Substitution: Dipole T273, 6ft SMA Cable

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Margin (dB)	Notes
Low Ch								
824.70	16.29	V	0.9	0.0	15.39	38.5	-23.1	
824.70	24.34	H	0.9	0.0	23.44	38.5	-15.0	
Mid Ch								
836.52	15.50	V	0.9	0.0	14.60	38.5	-23.8	
836.52	23.79	H	0.9	0.0	22.89	38.5	-15.6	
High Ch								
848.31	14.94	V	0.9	0.0	14.04	38.5	-24.4	
848.31	23.22	H	0.9	0.0	22.32	38.5	-16.1	

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Band

BC10

High Frequency Substitution Measurement
UL Verification Services Chamber G

Company: LG
Project #: 15I20232
Date: 3/23/2015
Test Engineer: R.Z
Configuration: EUT Only
Mode: CDMA EVDO BC10

Test Equipment:
Receiving: T899, and Chamber G Cable
Substitution: Dipole T273, 6ft SMA Cable

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Margin (dB)	Notes
Low Ch								
817.90	16.88	V	0.9	0.0	15.98	38.5	-22.5	
817.90	24.48	H	0.9	0.0	23.58	38.5	-14.9	
Mid Ch								
820.50	16.87	V	0.9	0.0	15.97	38.5	-22.5	
820.50	24.29	H	0.9	0.0	23.39	38.5	-15.1	
High Ch								
823.10	16.60	V	0.9	0.0	15.70	38.5	-22.7	
823.10	24.08	H	0.9	0.0	23.18	38.5	-15.3	

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Band

BC10

1xRTT

High Frequency Substitution Measurement
UL Verification Services Chamber G

Company: LG
Project #: 15I20232
Date: 3/23/2015
Test Engineer: R.Z
Configuration: EUT Only
Mode: CDMA RTT BC10

Test Equipment:
Receiving: T899, and Chamber G Cable
Substitution: Dipole T273, 6ft SMA Cable

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Margin (dB)	Notes
Low Ch								
817.90	16.80	V	0.9	0.0	15.90	38.5	-22.5	
817.90	24.58	H	0.9	0.0	23.68	38.5	-14.8	
Mid Ch								
820.50	17.10	V	0.9	0.0	16.20	38.5	-22.2	
820.50	24.39	H	0.9	0.0	23.49	38.5	-15.0	
High Ch								
823.10	16.70	V	0.9	0.0	15.80	38.5	-22.6	
823.10	24.28	H	0.9	0.0	23.38	38.5	-15.1	

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LTE Band 2

Band

LTE2

20MHz

16QAM

High Frequency Substitution Measurement
UL Verification Services, Inc.

Company: LG
Project #: 15I20232
Date: 3/4/2015
Test Engineer: L. Lara
Configuration: X-pos EUT Only (SN: 2067411)
Location: Chamber C
Mode: LTE_16QAM Band 2 Fundamentals, 20MHz Bandwidth

Test Equpment:
Receiving: Horn T119, and Chamber C SMA Cables
Substitution: Horn T59 Substitution, and 8ft SMA Cable

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
1860.00	12.91	V	0.9	8.0	20.02	30.0	-10.0	
1860.00	14.89	H	0.9	8.0	22.00	30.0	-8.0	
Mid Ch								
1880.00	14.74	V	0.9	8.0	21.85	30.0	-8.2	
1880.00	16.52	H	0.9	8.0	23.63	30.0	-6.4	
High Ch								
1900.00	13.87	V	0.9	8.0	20.98	30.0	-9.0	
1900.00	16.06	H	0.9	8.0	23.17	30.0	-6.8	

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Band

LTE2

20MHz

QPSK

High Frequency Substitution Measurement
UL Verification Services, Inc.

Company: LG
Project #: 15I20232
Date: 3/4/2015
Test Engineer: L. Lara
Configuration: X-pos EUT Only (SN: 2067411)
Location: Chamber C
Mode: LTE_QPSK Band 2 Fundamentals, 20MHz Bandwidth

Test Equpment:
Receiving: Horn T119, and Chamber C SMA Cables
Substitution: Horn T59 Substitution, and 8ft SMA Cable

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
1860.00	13.90	V	0.9	8.0	21.01	30.0	-9.0	
1860.00	15.98	H	0.9	8.0	23.09	30.0	-6.9	
Mid Ch								
1880.00	15.45	V	0.9	8.0	22.56	30.0	-7.4	
1880.00	17.33	H	0.9	8.0	24.44	30.0	-5.6	
High Ch								
1900.00	14.62	V	0.9	8.0	21.73	30.0	-8.3	
1900.00	16.91	H	0.9	8.0	24.02	30.0	-6.0	

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Band

LTE2

15MHz

16QAM

High Frequency Substitution Measurement
UL Verification Services, Inc.

Company: LG
Project #: 15I20232
Date: 3/4/2015
Test Engineer: L. Lara
Configuration: X-pos EUT Only (SN: 2067411)
Location: Chamber C
Mode: LTE_16QAM Band 2 Fundamentals, 15MHz Bandwidth

Test Equpment:
Receiving: Horn T119, and Chamber C SMA Cables
Substitution: Horn T59 Substitution, and 8ft SMA Cable

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
1857.50	13.53	V	0.9	8.0	20.64	30.0	-9.4	
1857.50	14.87	H	0.9	8.0	21.98	30.0	-8.0	
Mid Ch								
1880.00	15.39	V	0.9	8.0	22.50	30.0	-7.5	
1880.00	16.53	H	0.9	8.0	23.64	30.0	-6.4	
High Ch								
1902.50	14.92	V	0.9	8.0	22.03	30.0	-8.0	
1902.50	16.47	H	0.9	8.0	23.58	30.0	-6.4	

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Band

LTE2

15MHz

QPSK

High Frequency Substitution Measurement
UL Verification Services, Inc.

Company: LG
Project #: 15I20232
Date: 3/4/2015
Test Engineer: L. Lara
Configuration: X-pos EUT Only (SN: 2067411)
Location: Chamber C
Mode: LTE_QPSK Band 2 Fundamentals, 15MHz Bandwidth

Test Equpment:
Receiving: Horn T119, and Chamber C SMA Cables
Substitution: Horn T59 Substitution, and 8ft SMA Cable

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
1857.50	14.77	V	0.9	8.0	21.88	30.0	-8.1	
1857.50	16.00	H	0.9	8.0	23.11	30.0	-6.9	
Mid Ch								
1880.00	16.22	V	0.9	8.0	23.33	30.0	-6.7	
1880.00	17.25	H	0.9	8.0	24.36	30.0	-5.6	
High Ch								
1902.50	15.73	V	0.9	8.0	22.84	30.0	-7.2	
1902.50	17.17	H	0.9	8.0	24.28	30.0	-5.7	

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Band

LTE2

10MHz

16QAM

High Frequency Substitution Measurement
UL Verification Services, Inc.

Company: LG
Project #: 15I20232
Date: 3/4/2015
Test Engineer: L. Lara
Configuration: X-pos EUT Only (SN: 2067411)
Location: Chamber C
Mode: LTE_16QAM Band 2 Fundamentals, 10MHz Bandwidth

Test Equpment:
Receiving: Horn T119, and Chamber C SMA Cables
Substitution: Horn T59 Substitution, and 8ft SMA Cable

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
1855.00	15.23	V	0.9	8.0	22.34	30.0	-7.7	
1855.00	17.30	H	0.9	8.0	24.41	30.0	-5.6	
Mid Ch								
1880.00	15.39	V	0.9	8.0	22.50	30.0	-7.5	
1880.00	17.26	H	0.9	8.0	24.37	30.0	-5.6	
High Ch								
1905.00	14.52	V	0.9	8.0	21.63	30.0	-8.4	
1905.00	16.80	H	0.9	8.0	23.91	30.0	-6.1	

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Band

LTE2

10MHz

QPSK

High Frequency Substitution Measurement
UL Verification Services, Inc.

Company: LG
Project #: 15I20232
Date: 3/4/2015
Test Engineer: L. Lara
Configuration: X-pos EUT Only (SN: 2067411)
Location: Chamber C
Mode: LTE_QPSK Band 2 Fundamentals, 10MHz Bandwidth

Test Equpment:
Receiving: Horn T119, and Chamber C SMA Cables
Substitution: Horn T59 Substitution, and 8ft SMA Cable

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
1855.00	15.92	V	0.9	8.0	23.03	30.0	-7.0	
1855.00	18.18	H	0.9	8.0	25.29	30.0	-4.7	
Mid Ch								
1880.00	16.17	V	0.9	8.0	23.28	30.0	-6.7	
1880.00	18.23	H	0.9	8.0	25.34	30.0	-4.7	
High Ch								
1905.00	15.06	V	0.9	8.0	22.17	30.0	-7.8	
1905.00	17.53	H	0.9	8.0	24.64	30.0	-5.4	

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Band

LTE2

5MHz

16QAM

High Frequency Substitution Measurement
UL Verification Services, Inc.

Company: LG
Project #: 15I20232
Date: 3/4/2015
Test Engineer: L. Lara
Configuration: X-pos EUT Only (SN: 2067411)
Location: Chamber C
Mode: LTE_16QAM Band 2 Fundamentals, 5MHz Bandwidth

Test Equpment:
Receiving: Horn T119, and Chamber C SMA Cables
Substitution: Horn T59 Substitution, and 8ft SMA Cable

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
1852.50	14.89	V	0.9	8.0	22.00	30.0	-8.0	
1852.50	16.89	H	0.9	8.0	24.00	30.0	-6.0	
Mid Ch								
1880.00	15.47	V	0.9	8.0	22.58	30.0	-7.4	
1880.00	17.27	H	0.9	8.0	24.38	30.0	-5.6	
High Ch								
1907.50	14.12	V	0.9	8.0	21.23	30.0	-8.8	
1907.50	16.33	H	0.9	8.0	23.44	30.0	-6.6	

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Band

LTE2

5MHz

QPSK

High Frequency Substitution Measurement
UL Verification Services, Inc.

Company: LG
Project #: 15I20232
Date: 3/4/2015
Test Engineer: L. Lara
Configuration: X-pos EUT Only (SN: 2067411)
Location: Chamber C
Mode: LTE_QPSK Band 2 Fundamentals, 5MHz Bandwidth

Test Equpment:
Receiving: Horn T119, and Chamber C SMA Cables
Substitution: Horn T59 Substitution, and 8ft SMA Cable

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
1852.50	15.52	V	0.9	8.0	22.63	30.0	-7.4	
1852.50	17.67	H	0.9	8.0	24.78	30.0	-5.2	
Mid Ch								
1880.00	16.64	V	0.9	8.0	23.75	30.0	-6.3	
1880.00	18.59	H	0.9	8.0	25.70	30.0	-4.3	
High Ch								
1907.50	15.12	V	0.9	8.0	22.23	30.0	-7.8	
1907.50	17.48	H	0.9	8.0	24.59	30.0	-5.4	

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Band

LTE2

3MHz

16QAM

High Frequency Substitution Measurement
UL Verification Services, Inc.

Company: LG
Project #: 15I20232
Date: 3/4/2015
Test Engineer: L. Lara
Configuration: X-pos EUT Only (SN: 2067411)
Location: Chamber C
Mode: LTE_16QAM Band 2 Fundamentals, 3MHz Bandwidth

Test Equpment:
Receiving: Horn T119, and Chamber C SMA Cables
Substitution: Horn T59 Substitution, and 8ft SMA Cable

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
1851.50	14.96	V	0.9	8.0	22.07	30.0	-7.9	
1851.50	16.94	H	0.9	8.0	24.05	30.0	-6.0	
Mid Ch								
1880.00	15.30	V	0.9	8.0	22.41	30.0	-7.6	
1880.00	17.08	H	0.9	8.0	24.19	30.0	-5.8	
High Ch								
1908.50	14.06	V	0.9	8.0	21.17	30.0	-8.8	
1908.50	16.25	H	0.9	8.0	23.36	30.0	-6.6	

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Band

LTE2

3MHz

QPSK

High Frequency Substitution Measurement
UL Verification Services, Inc.

Company: LG
Project #: 15I20232
Date: 3/4/2015
Test Engineer: L. Lara
Configuration: X-pos EUT Only (SN: 2067411)
Location: Chamber C
Mode: LTE_QPSK Band 2 Fundamentals, 3MHz Bandwidth

Test Equpment:
Receiving: Horn T119, and Chamber C SMA Cables
Substitution: Horn T59 Substitution, and 8ft SMA Cable

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
1851.50	15.39	V	0.9	8.0	22.50	30.0	-7.5	
1851.50	17.79	H	0.9	8.0	24.90	30.0	-5.1	
Mid Ch								
1880.00	15.98	V	0.9	8.0	23.09	30.0	-6.9	
1880.00	18.18	H	0.9	8.0	25.29	30.0	-4.7	
High Ch								
1908.50	14.47	V	0.9	8.0	21.58	30.0	-8.4	
1908.50	17.08	H	0.9	8.0	24.19	30.0	-5.8	

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Band

LTE2

1.4MHz

16QAM

High Frequency Substitution Measurement
UL Verification Services, Inc.

Company: LG
Project #: 15I20232
Date: 3/4/2015
Test Engineer: L. Lara
Configuration: X-pos EUT Only (SN: 2067411)
Location: Chamber C
Mode: LTE_16QAM Band 2 Fundamentals, 1.4MHz Bandwidth

Test Equpment:
Receiving: Horn T119, and Chamber C SMA Cables
Substitution: Horn T59 Substitution, and 8ft SMA Cable

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
1850.70	15.81	V	0.9	8.0	22.92	30.0	-7.1	
1850.70	16.84	H	0.9	8.0	23.95	30.0	-6.1	
Mid Ch								
1880.00	16.44	V	0.9	8.0	23.55	30.0	-6.5	
1880.00	18.01	H	0.9	8.0	25.12	30.0	-4.9	
High Ch								
1909.30	14.61	V	0.9	8.0	21.72	30.0	-8.3	
1909.30	15.92	H	0.9	8.0	23.03	30.0	-7.0	

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Band

LTE2

1.4MHz

QPSK

High Frequency Substitution Measurement
UL Verification Services, Inc.

Company: LG
Project #: 15I20232
Date: 3/4/2015
Test Engineer: L. Lara
Configuration: X-pos EUT Only (SN: 2067411)
Location: Chamber C
Mode: LTE_QPSK Band 2 Fundamentals, 1.4MHz Bandwidth

Test Equpment:
Receiving: Horn T119, and Chamber C SMA Cables
Substitution: Horn T59 Substitution, and 8ft SMA Cable

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
1850.70	16.57	V	0.9	8.0	23.68	30.0	-6.3	
1850.70	17.70	H	0.9	8.0	24.81	30.0	-5.2	
Mid Ch								
1880.00	17.32	V	0.9	8.0	24.43	30.0	-5.6	
1880.00	18.87	H	0.9	8.0	25.98	30.0	-4.0	
High Ch								
1909.30	15.49	V	0.9	8.0	22.60	30.0	-7.4	
1909.30	16.75	H	0.9	8.0	23.86	30.0	-6.1	

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LTE Band 4

Band

LTE4

20MHz

16QAM

High Frequency Substitution Measurement
UL Verification Services, Inc.

Company: LG
Project #: 15I20232
Date: 3/4/2015
Test Engineer: R.Alegre
Configuration: EUT Only
Location: Chamber A
Mode: LTE_16QAM Band 4 Fundamentals, 20MHz Bandwidth

Test Equpment:
Receiving: Horn T711, and Chamber A SMA Cables
Substitution: Horn T59, 4ft SMA Cable Warehouse

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
1720.00	7.49	V	0.9	8.2	14.83	30.0	-15.2	
1720.00	16.04	H	0.9	8.2	23.38	30.0	-6.6	
Mid Ch								
1732.50	7.60	V	0.9	8.2	14.87	30.0	-15.1	
1732.50	16.58	H	0.9	8.2	23.85	30.0	-6.1	
High Ch								
1745.00	7.53	V	0.9	8.1	14.73	30.0	-15.3	
1745.00	16.12	H	0.9	8.1	23.32	30.0	-6.7	

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Band

LTE4

20MHz

QPSK

High Frequency Substitution Measurement
UL Verification Services, Inc.

Company: LG
Project #: 15I20232
Date: 3/4/2015
Test Engineer: R.Alegre
Configuration: EUT Only
Location: Chamber A
Mode: LTE_QPSK Band 4 Fundamentals, 20MHz Bandwidth

Test Equpment:
Receiving: Horn T711, and Chamber A SMA Cables
Substitution: Horn T59, 4ft SMA Cable Warehouse

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
1720.00	8.59	V	0.9	8.2	15.93	30.0	-14.1	
1720.00	16.86	H	0.9	8.2	24.20	30.0	-5.8	
Mid Ch								
1732.50	8.49	V	0.9	8.2	15.76	30.0	-14.2	
1732.50	17.48	H	0.9	8.2	24.75	30.0	-5.2	
High Ch								
1745.00	8.74	V	0.9	8.1	15.94	30.0	-14.1	
1745.00	17.04	H	0.9	8.1	24.24	30.0	-5.8	

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Band

LTE4

15MHz

16QAM

High Frequency Substitution Measurement
UL Verification Services, Inc.

Company: LG
Project #: 15I20232
Date: 3/4/2015
Test Engineer: R.Alegre
Configuration: EUT Only
Location: Chamber A
Mode: LTE_16QAM Band 4 Fundamentals, 15MHz Bandwidth

Test Equpment:
Receiving: Horn T711, and Chamber A SMA Cables
Substitution: Horn T59, 4ft SMA Cable Warehouse

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
1717.50	7.42	V	0.9	8.2	14.77	30.0	-15.2	
1717.50	15.99	H	0.9	8.2	23.34	30.0	-6.7	
Mid Ch								
1732.50	7.48	V	0.9	8.2	14.75	30.0	-15.2	
1732.50	16.62	H	0.9	8.2	23.89	30.0	-6.1	
High Ch								
1747.50	7.53	V	0.9	8.1	14.72	30.0	-15.3	
1747.50	16.14	H	0.9	8.1	23.33	30.0	-6.7	

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Band

LTE4

15MHz

QPSK

High Frequency Substitution Measurement
UL Verification Services, Inc.

Company: LG
Project #: 15I20232
Date: 3/4/2015
Test Engineer: R.Alegre
Configuration: EUT Only
Location: Chamber A
Mode: LTE_QPSK Band 4 Fundamentals, 15MHz Bandwidth

Test Equpment:
Receiving: Horn T711, and Chamber A SMA Cables
Substitution: Horn T59, 4ft SMA Cable Warehouse

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
1717.50	8.59	V	0.9	8.2	15.94	30.0	-14.1	
1717.50	16.82	H	0.9	8.2	24.17	30.0	-5.8	
Mid Ch								
1732.50	8.55	V	0.9	8.2	15.82	30.0	-14.2	
1732.50	17.50	H	0.9	8.2	24.77	30.0	-5.2	
High Ch								
1747.50	8.71	V	0.9	8.1	15.90	30.0	-14.1	
1747.50	17.17	H	0.9	8.1	24.36	30.0	-5.6	

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Band

LTE4

10MHz

16QAM

High Frequency Substitution Measurement
UL Verification Services, Inc.

Company: LG
Project #: 15I20232
Date: 3/4/2015
Test Engineer: R.Alegre
Configuration: EUT Only
Location: Chamber A
Mode: LTE_16QAM Band 4 Fundamentals, 10MHz Bandwidth

Test Equpment:
Receiving: Horn T711, and Chamber A SMA Cables
Substitution: Horn T59, 4ft SMA Cable Warehouse

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
1715.00	7.49	V	0.9	8.2	14.76	30.0	-15.2	
1715.00	16.10	H	0.9	8.2	23.37	30.0	-6.6	
Mid Ch								
1732.50	7.68	V	0.9	8.2	14.95	30.0	-15.0	
1732.50	16.56	H	0.9	8.2	23.83	30.0	-6.2	
High Ch								
1750.00	7.57	V	0.9	8.1	14.76	30.0	-15.2	
1750.00	16.16	H	0.9	8.1	23.35	30.0	-6.6	

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Band

LTE4

10MHz

QPSK

High Frequency Substitution Measurement
UL Verification Services, Inc.

Company: LG
Project #: 15I20232
Date: 3/4/2015
Test Engineer: R.Alegre
Configuration: EUT Only
Location: Chamber A
Mode: LTE_QPSK Band 4 Fundamentals, 10MHz Bandwidth

Test Equpment:
Receiving: Horn T711, and Chamber A SMA Cables
Substitution: Horn T59, 4ft SMA Cable Warehouse

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
1715.00	8.46	V	0.9	8.2	15.73	30.0	-14.3	
1715.00	16.73	H	0.9	8.2	24.00	30.0	-6.0	
Mid Ch								
1732.50	8.61	V	0.9	8.2	15.88	30.0	-14.1	
1732.50	17.54	H	0.9	8.2	24.81	30.0	-5.2	
High Ch								
1750.00	8.58	V	0.9	8.1	15.77	30.0	-14.2	
1750.00	16.99	H	0.9	8.1	24.18	30.0	-5.8	

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Band

LTE4

5MHz

16QAM

High Frequency Substitution Measurement
UL Verification Services, Inc.

Company: LG
Project #: 15I20232
Date: 3/4/2015
Test Engineer: R.Alegre
Configuration: EUT Only
Location: Chamber A
Mode: LTE_16QAM Band 4 Fundamentals, 5MHz Bandwidth

Test Equpment:
Receiving: Horn T711, and Chamber A SMA Cables
Substitution: Horn T59, 4ft SMA Cable Warehouse

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
1712.50	7.43	V	0.9	8.2	14.77	30.0	-15.2	
1712.50	15.92	H	0.9	8.2	23.26	30.0	-6.7	
Mid Ch								
1732.50	7.70	V	0.9	8.2	14.97	30.0	-15.0	
1732.50	16.43	H	0.9	8.2	23.70	30.0	-6.3	
High Ch								
1752.50	7.55	V	0.9	8.1	14.75	30.0	-15.3	
1752.50	16.05	H	0.9	8.1	23.25	30.0	-6.8	

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Band

LTE4

5MHz

QPSK

High Frequency Substitution Measurement
UL Verification Services, Inc.

Company: LG
Project #: 15I20232
Date: 3/4/2015
Test Engineer: R.Alegre
Configuration: EUT Only
Location: Chamber A
Mode: LTE_QPSK Band 4 Fundamentals, 5MHz Bandwidth

Test Equpment:
Receiving: Horn T711, and Chamber A SMA Cables
Substitution: Horn T59, 4ft SMA Cable Warehouse

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
1712.50	8.42	V	0.9	8.2	15.76	30.0	-14.2	
1712.50	16.67	H	0.9	8.2	24.01	30.0	-6.0	
Mid Ch								
1732.50	8.63	V	0.9	8.2	15.90	30.0	-14.1	
1732.50	17.39	H	0.9	8.2	24.66	30.0	-5.3	
High Ch								
1752.50	8.56	V	0.9	8.1	15.76	30.0	-14.2	
1752.50	17.01	H	0.9	8.1	24.21	30.0	-5.8	

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Band

LTE4

3MHz

16QAM

High Frequency Substitution Measurement
UL Verification Services, Inc.

Company: LG
Project #: 15I20232
Date: 3/4/2015
Test Engineer: R.Alegre
Configuration: EUT Only
Location: Chamber A
Mode: LTE_16QAM Band 4 Fundamentals, 3MHz Bandwidth

Test Equpment:
Receiving: Horn T711, and Chamber A SMA Cables
Substitution: Horn T59, 4ft SMA Cable Warehouse

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
1711.50	7.47	V	0.9	8.2	14.82	30.0	-15.2	
1711.50	16.01	H	0.9	8.2	23.36	30.0	-6.6	
Mid Ch								
1732.50	7.51	V	0.9	8.2	14.78	30.0	-15.2	
1732.50	16.68	H	0.9	8.2	23.95	30.0	-6.0	
High Ch								
1753.50	7.56	V	0.9	8.1	14.75	30.0	-15.2	
1753.50	16.13	H	0.9	8.1	23.32	30.0	-6.7	

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Band

LTE4

3MHz

QPSK

High Frequency Substitution Measurement
UL Verification Services, Inc.

Company: LG
Project #: 15I20232
Date: 3/4/2015
Test Engineer: R.Alegre
Configuration: EUT Only
Location: Chamber A
Mode: LTE_QPSK Band 4 Fundamentals, 3MHz Bandwidth

Test Equpment:
Receiving: Horn T711, and Chamber A SMA Cables
Substitution: Horn T59, 4ft SMA Cable Warehouse

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
1711.50	8.52	V	0.9	8.2	15.87	30.0	-14.1	
1711.50	16.70	H	0.9	8.2	24.05	30.0	-6.0	
Mid Ch								
1732.50	8.52	V	0.9	8.2	15.79	30.0	-14.2	
1732.50	17.60	H	0.9	8.2	24.87	30.0	-5.1	
High Ch								
1753.50	8.52	V	0.9	8.1	15.71	30.0	-14.3	
1753.50	17.09	H	0.9	8.1	24.28	30.0	-5.7	

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Band

LTE4

1.4MHz

16QAM

High Frequency Substitution Measurement
UL Verification Services, Inc.

Company: LG
Project #: 15I20232
Date: 3/4/2015
Test Engineer: R.Alegre
Configuration: EUT Only
Location: Chamber A
Mode: LTE_16QAM Band 4 Fundamentals, 1.4MHz Bandwidth

Test Equpment:
Receiving: Horn T711, and Chamber A SMA Cables
Substitution: Horn T59, 4ft SMA Cable Warehouse

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
1710.70	7.75	V	0.9	8.2	15.02	30.0	-15.0	
1710.70	16.00	H	0.9	8.2	23.27	30.0	-6.7	
Mid Ch								
1732.50	7.84	V	0.9	8.2	15.11	30.0	-14.9	
1732.50	16.56	H	0.9	8.2	23.83	30.0	-6.2	
High Ch								
1754.30	7.87	V	0.9	8.1	15.06	30.0	-14.9	
1754.30	16.06	H	0.9	8.1	23.25	30.0	-6.7	

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Band

LTE4

1.4MHz

QPSK

High Frequency Substitution Measurement
UL Verification Services, Inc.

Company: LG
Project #: 15I20232
Date: 3/4/2015
Test Engineer: R.Alegre
Configuration: EUT Only
Location: Chamber A
Mode: LTE_QPSK Band 4 Fundamentals, 1.4MHz Bandwidth

Test Equpment:
Receiving: Horn T711, and Chamber A SMA Cables
Substitution: Horn T59, 4ft SMA Cable Warehouse

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
1710.70	8.70	V	0.9	8.2	15.97	30.0	-14.0	
1710.70	16.79	H	0.9	8.2	24.06	30.0	-5.9	
Mid Ch								
1732.50	8.58	V	0.9	8.2	15.85	30.0	-14.1	
1732.50	17.46	H	0.9	8.2	24.73	30.0	-5.3	
High Ch								
1754.30	8.75	V	0.9	8.1	15.94	30.0	-14.1	
1754.30	17.07	H	0.9	8.1	24.26	30.0	-5.7	

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LTE Band 5

Band

LTE5

10MHz

16QAM

High Frequency Substitution Measurement
UL Verification Services, Inc.

Company: LG Electronics
Project #: 15I20232
Date: 3/23/2015
Test Engineer: R.Z
Configuration: EUT Only
Location: Chamber G
Mode: LTE_16QAM Band 5 Fundamentals, 10MHz Bandwidth

Test Equipment:
Receiving: Hybrid T899, and Chamber G SMA Cables
Substitution: Dipole T273, 3ft SMA Cable Warehouse

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
829.00	14.19	V	0.9	0.0	13.29	38.5	-25.2	
829.00	21.98	H	0.9	0.0	21.08	38.5	-17.4	
Mid Ch								
836.50	13.50	V	0.9	0.0	12.60	38.5	-25.9	
836.50	21.46	H	0.9	0.0	20.56	38.5	-17.9	
High Ch								
844.00	12.04	V	0.9	0.0	11.14	38.5	-27.4	
844.00	21.32	H	0.9	0.0	20.42	38.5	-18.1	

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Band

LTE5

10MHz

QPSK

High Frequency Substitution Measurement
UL Verification Services, Inc.

Company: LG Electronics
Project #: 15I20232
Date: 3/23/2015
Test Engineer: R.Z
Configuration: EUT Only
Location: Chamber G
Mode: LTE_QPSK Band 5 Fundamentals, 10MHz Bandwidth

Test Equpment:
Receiving: Hybrid T899, and Chamber G SMA Cables
Substitution: Dipole T273, 3ft SMA Cable Warehouse

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
829.00	15.39	V	0.9	0.0	14.49	38.5	-24.0	
829.00	23.15	H	0.9	0.0	22.25	38.5	-16.3	
Mid Ch								
836.50	14.67	V	0.9	0.0	13.77	38.5	-24.7	
836.50	22.66	H	0.9	0.0	21.76	38.5	-16.7	
High Ch								
844.00	12.84	V	0.9	0.0	11.94	38.5	-26.6	
844.00	22.42	H	0.9	0.0	21.52	38.5	-17.0	

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Band

LTE5

5MHz

16QAM

High Frequency Substitution Measurement
UL Verification Services, Inc.

Company: LG Electronics
Project #: 15I20232
Date: 3/23/2015
Test Engineer: R.Z
Configuration: EUT Only
Location: Chamber G
Mode: LTE_16QAM Band 5 Fundamentals, 5MHz Bandwidth

Test Equpment:
Receiving: Hybrid T899, and Chamber G SMA Cables
Substitution: Dipole T273, 3ft SMA Cable Warehouse

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
826.50	14.61	V	0.9	0.0	13.71	38.5	-24.8	
826.50	21.88	H	0.9	0.0	20.98	38.5	-17.5	
Mid Ch								
836.50	14.00	V	0.9	0.0	13.10	38.5	-25.4	
836.50	21.06	H	0.9	0.0	20.16	38.5	-18.3	
High Ch								
846.50	12.64	V	0.9	0.0	11.74	38.5	-26.8	
846.50	20.74	H	0.9	0.0	19.84	38.5	-18.7	

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Band

LTE5

5MHz

QPSK

High Frequency Substitution Measurement
UL Verification Services, Inc.

Company: LG Electronics
Project #: 15I20232
Date: 3/23/2015
Test Engineer: R.Z
Configuration: EUT Only
Location: Chamber G
Mode: LTE_QPSK Band 5 Fundamentals, 5MHz Bandwidth

Test Equpment:
Receiving: Hybrid T899, and Chamber G SMA Cables
Substitution: Dipole T273, 3ft SMA Cable Warehouse

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
826.50	15.70	V	0.9	0.0	14.80	38.5	-23.7	
826.50	23.10	H	0.9	0.0	22.20	38.5	-16.3	
Mid Ch								
836.50	14.60	V	0.9	0.0	13.70	38.5	-24.8	
836.50	22.37	H	0.9	0.0	21.47	38.5	-17.0	
High Ch								
846.50	13.50	V	0.9	0.0	12.60	38.5	-25.9	
846.50	21.96	H	0.9	0.0	21.06	38.5	-17.4	

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Band

LTE5

3MHz

16QAM

High Frequency Substitution Measurement
UL Verification Services, Inc.

Company: LG Electronics
Project #: 15I20232
Date: 3/23/2015
Test Engineer: R.Z
Configuration: EUT Only
Location: Chamber G
Mode: LTE_16QAM Band 5 Fundamentals, 3MHz Bandwidth

Test Equpment:
Receiving: Hybrid T899, and Chamber G SMA Cables
Substitution: Dipole T273, 3ft SMA Cable Warehouse

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
825.50	14.69	V	0.9	0.0	13.79	38.5	-24.7	
825.50	21.98	H	0.9	0.0	21.08	38.5	-17.4	
Mid Ch								
836.50	14.40	V	0.9	0.0	13.50	38.5	-25.0	
836.50	21.46	H	0.9	0.0	20.56	38.5	-17.9	
High Ch								
847.50	12.44	V	0.9	0.0	11.54	38.5	-27.0	
847.50	21.22	H	0.9	0.0	20.32	38.5	-18.2	

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Band

LTE5

3MHz

QPSK

High Frequency Substitution Measurement
UL Verification Services, Inc.

Company: LG Electronics
Project #: 15I20232
Date: 3/23/2015
Test Engineer: R.Z
Configuration: EUT Only
Location: Chamber G
Mode: LTE_QPSK Band 5 Fundamentals, 3MHz Bandwidth

Test Equpment:
Receiving: Hybrid T899, and Chamber G SMA Cables
Substitution: Dipole T273, 3ft SMA Cable Warehouse

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
825.50	15.59	V	0.9	0.0	14.69	38.5	-23.8	
825.50	23.18	H	0.9	0.0	22.28	38.5	-16.2	
Mid Ch								
836.50	15.01	V	0.9	0.0	14.11	38.5	-24.4	
836.50	22.68	H	0.9	0.0	21.78	38.5	-16.7	
High Ch								
847.50	13.54	V	0.9	0.0	12.64	38.5	-25.9	
847.50	22.12	H	0.9	0.0	21.22	38.5	-17.3	

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Band

LTE5

1.4MHz

16QAM

High Frequency Substitution Measurement
UL Verification Services, Inc.

Company: LG Electronics
Project #: 15I20232
Date: 3/23/2015
Test Engineer: R.Z
Configuration: EUT Only
Location: Chamber G
Mode: LTE_16QAM Band 5 Fundamentals, 1.4MHz Bandwidth

Test Equpment:
Receiving: Hybrid T899, and Chamber G SMA Cables
Substitution: Dipole T273, 3ft SMA Cable Warehouse

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
824.70	14.69	V	0.9	0.0	13.79	38.5	-24.7	
824.70	21.98	H	0.9	0.0	21.08	38.5	-17.4	
Mid Ch								
836.50	14.36	V	0.9	0.0	13.46	38.5	-25.0	
836.50	21.26	H	0.9	0.0	20.36	38.5	-18.1	
High Ch								
848.30	13.14	V	0.9	0.0	12.24	38.5	-26.3	
848.30	21.12	H	0.9	0.0	20.22	38.5	-18.3	

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Band

LTE5

1.4MHz

QPSK

High Frequency Substitution Measurement
UL Verification Services, Inc.

Company: LG Electronics
Project #: 15I20232
Date: 3/23/2015
Test Engineer: R.Z
Configuration: EUT Only
Location: Chamber G
Mode: LTE_QPSK Band 5 Fundamentals, 1.4MHz Bandwidth

Test Equpment:
Receiving: Hybrid T899, and Chamber G SMA Cables
Substitution: Dipole T273, 3ft SMA Cable Warehouse

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
824.70	15.29	V	0.9	0.0	14.39	38.5	-24.1	
824.70	23.08	H	0.9	0.0	22.18	38.5	-16.3	
Mid Ch								
836.50	14.80	V	0.9	0.0	13.90	38.5	-24.6	
836.50	22.46	H	0.9	0.0	21.56	38.5	-16.9	
High Ch								
848.30	13.74	V	0.9	0.0	12.84	38.5	-25.7	
848.30	22.22	H	0.9	0.0	21.32	38.5	-17.2	

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LTE Band 12

Band

LTE12

10MHz

16QAM

High Frequency Substitution Measurement
UL Verification Services, Inc.

Company: LG
Project #: 15I20232
Date: 3/23/2015
Test Engineer: R.Z
Configuration: EUT Only
Location: Chamber G
Mode: LTE_16QAM Band 12 Fundamentals, 10MHz Bandwidth

Test Equpment:
Receiving: Hybrid T899, and Chamber G SMA Cables
Substitution: Dipole T273, 6ft SMA Cable

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
704.00	11.20	V	0.9	0.0	10.30	34.8	-24.5	
704.00	18.04	H	0.9	0.0	17.14	34.8	-17.7	
Mid Ch								
707.50	10.63	V	0.9	0.0	9.73	34.8	-25.1	
707.50	18.62	H	0.9	0.0	17.72	34.8	-17.1	
High Ch								
711.00	10.58	V	0.9	0.0	9.68	34.8	-25.1	
711.00	18.80	H	0.9	0.0	17.90	34.8	-16.9	

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Band

LTE12

10MHz

QPSK

High Frequency Substitution Measurement
UL Verification Services, Inc.

Company: LG
Project #: 15I20232
Date: 3/23/2015
Test Engineer: R.Z
Configuration: EUT Only
Location: Chamber G
Mode: LTE_QPSK Band 12 Fundamentals, 10MHz Bandwidth

Test Equpment:
Receiving: Hybrid T899, and Chamber G SMA Cables
Substitution: Dipole T273, 6ft SMA Cable

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
704.00	11.60	V	0.9	0.0	10.70	34.8	-24.1	
704.00	18.40	H	0.9	0.0	17.50	34.8	-17.3	
Mid Ch								
707.50	10.92	V	0.9	0.0	10.02	34.8	-24.8	
707.50	18.96	H	0.9	0.0	18.06	34.8	-16.7	
High Ch								
711.00	11.05	V	0.9	0.0	10.15	34.8	-24.7	
711.00	19.15	H	0.9	0.0	18.25	34.8	-16.6	

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Band

LTE12

5MHz

16QAM

High Frequency Substitution Measurement
UL Verification Services, Inc.

Company: LG
Project #: 15I20232
Date: 3/23/2015
Test Engineer: R.Z
Configuration: EUT Only
Location: Chamber G
Mode: LTE_16QAM Band 12 Fundamentals, 5MHz Bandwidth

Test Equpment:
Receiving: Hybrid T899, and Chamber G SMA Cables
Substitution: Dipole T273, 6ft SMA Cable

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
701.50	11.18	V	0.9	0.0	10.28	34.8	-24.5	
701.50	17.91	H	0.9	0.0	17.01	34.8	-17.8	
Mid Ch								
707.50	10.44	V	0.9	0.0	9.54	34.8	-25.3	
707.50	18.22	H	0.9	0.0	17.32	34.8	-17.5	
High Ch								
713.50	10.07	V	0.9	0.0	9.17	34.8	-25.6	
713.50	18.30	H	0.9	0.0	17.40	34.8	-17.4	

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Band

LTE12

5MHz

QPSK

High Frequency Substitution Measurement
UL Verification Services, Inc.

Company: LG
Project #: 15I20232
Date: 3/23/2015
Test Engineer: R.Z
Configuration: EUT Only
Location: Chamber G
Mode: LTE_QPSK Band 12 Fundamentals, 5MHz Bandwidth

Test Equpment:
Receiving: Hybrid T899, and Chamber G SMA Cables
Substitution: Dipole T273, 6ft SMA Cable

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
701.50	11.50	V	0.9	0.0	10.60	34.8	-24.2	
701.50	18.15	H	0.9	0.0	17.25	34.8	-17.6	
Mid Ch								
707.50	10.72	V	0.9	0.0	9.82	34.8	-25.0	
707.50	18.46	H	0.9	0.0	17.56	34.8	-17.2	
High Ch								
713.50	10.34	V	0.9	0.0	9.44	34.8	-25.4	
713.50	18.50	H	0.9	0.0	17.60	34.8	-17.2	

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Band

LTE12

3MHz

16QAM

High Frequency Substitution Measurement
UL Verification Services, Inc.

Company: LG
Project #: 15I20232
Date: 3/23/2015
Test Engineer: R.Z
Configuration: EUT Only
Location: Chamber G
Mode: LTE_16QAM Band 12 Fundamentals, 3MHz Bandwidth

Test Equpment:
Receiving: Hybrid T899, and Chamber G SMA Cables
Substitution: Dipole T273, 6ft SMA Cable

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
700.50	11.90	V	0.9	0.0	11.00	34.8	-23.8	
700.50	17.97	H	0.9	0.0	17.07	34.8	-17.7	
Mid Ch								
707.50	11.04	V	0.9	0.0	10.14	34.8	-24.7	
707.50	18.42	H	0.9	0.0	17.52	34.8	-17.3	
High Ch								
714.50	10.48	V	0.9	0.0	9.58	34.8	-25.2	
714.50	18.30	H	0.9	0.0	17.40	34.8	-17.4	

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Band

LTE12

3MHz

QPSK

High Frequency Substitution Measurement
UL Verification Services, Inc.

Company: LG
Project #: 15I20232
Date: 3/23/2015
Test Engineer: R.Z
Configuration: EUT Only
Location: Chamber G
Mode: LTE_QPSK Band 12 Fundamentals, 3MHz Bandwidth

Test Equpment:
Receiving: Hybrid T899, and Chamber G SMA Cables
Substitution: Dipole T273, 6ft SMA Cable

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
700.50	12.16	V	0.9	0.0	11.26	34.8	-23.5	
700.50	18.31	H	0.9	0.0	17.41	34.8	-17.4	
Mid Ch								
707.50	11.38	V	0.9	0.0	10.48	34.8	-24.3	
707.50	18.72	H	0.9	0.0	17.82	34.8	-17.0	
High Ch								
714.50	10.70	V	0.9	0.0	9.80	34.8	-25.0	
714.50	18.66	H	0.9	0.0	17.76	34.8	-17.0	

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Band

LTE12

1.4MHz

16QAM

High Frequency Substitution Measurement
UL Verification Services, Inc.

Company: LG
Project #: 15I20232
Date: 3/23/2015
Test Engineer: R.Z
Configuration: EUT Only
Location: Chamber G
Mode: LTE_16QAM Band 12 Fundamentals, 1.4MHz Bandwidth

Test Equipment:
Receiving: Hybrid T899, and Chamber G SMA Cables
Substitution: Dipole T273, 6ft SMA Cable

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
699.70	11.40	V	0.9	0.0	10.50	34.8	-24.3	
699.70	17.75	H	0.9	0.0	16.85	34.8	-18.0	
Mid Ch								
707.50	10.48	V	0.9	0.0	9.58	34.8	-25.2	
707.50	18.12	H	0.9	0.0	17.22	34.8	-17.6	
High Ch								
715.30	10.10	V	0.9	0.0	9.20	34.8	-25.6	
715.30	18.18	H	0.9	0.0	17.28	34.8	-17.5	

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Band

LTE12

1.4MHz

QPSK

High Frequency Substitution Measurement
UL Verification Services, Inc.

Company: LG
Project #: 15I20232
Date: 3/23/2015
Test Engineer: R.Z
Configuration: EUT Only
Location: Chamber G
Mode: LTE_QPSK Band 12 Fundamentals, 1.4MHz Bandwidth

Test Equpment:
Receiving: Hybrid T899, and Chamber G SMA Cables
Substitution: Dipole T273, 6ft SMA Cable

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
699.70	11.70	V	0.9	0.0	10.80	34.8	-24.0	
699.70	18.05	H	0.9	0.0	17.15	34.8	-17.7	
Mid Ch								
707.50	10.82	V	0.9	0.0	9.92	34.8	-24.9	
707.50	18.39	H	0.9	0.0	17.49	34.8	-17.3	
High Ch								
715.30	10.57	V	0.9	0.0	9.67	34.8	-25.1	
715.30	18.54	H	0.9	0.0	17.64	34.8	-17.2	

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LTE Band 25

Band

LTE25

20MHz

16QAM

High Frequency Substitution Measurement
UL Verification Services, Inc.

Company: LG
Project #: 15I20232
Date: 3/4/2015
Test Engineer: L. Lara
Configuration: X-pos EUT Only (SN: 2067411)
Location: Chamber C
Mode: LTE_16QAM Band 25 Fundamentals, 20MHz Bandwidth

Test Equpment:
Receiving: Horn T119, and Chamber C SMA Cables
Substitution: Horn T59 Substitution, and 8ft SMA Cable

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
1860.00	12.91	V	0.9	8.0	20.02	30.0	-10.0	
1860.00	14.89	H	0.9	8.0	22.00	30.0	-8.0	
Mid Ch								
1882.50	14.74	V	0.9	8.0	21.85	30.0	-8.2	
1882.50	16.52	H	0.9	8.0	23.63	30.0	-6.4	
High Ch								
1905.00	13.87	V	0.9	8.0	20.98	30.0	-9.0	
1905.00	16.06	H	0.9	8.0	23.17	30.0	-6.8	

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Band

LTE25

20MHz

QPSK

High Frequency Substitution Measurement
UL Verification Services, Inc.

Company: LG
Project #: 15I20232
Date: 3/4/2015
Test Engineer: L. Lara
Configuration: X-pos EUT Only (SN: 2067411)
Location: Chamber C
Mode: LTE_QPSK Band 25 Fundamentals, 20MHz Bandwidth

Test Equpment:
Receiving: Horn T119, and Chamber C SMA Cables
Substitution: Horn T59 Substitution, and 8ft SMA Cable

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
1860.00	13.90	V	0.9	8.0	21.01	30.0	-9.0	
1860.00	15.98	H	0.9	8.0	23.09	30.0	-6.9	
Mid Ch								
1882.50	15.45	V	0.9	8.0	22.56	30.0	-7.4	
1882.50	17.33	H	0.9	8.0	24.44	30.0	-5.6	
High Ch								
1905.00	14.62	V	0.9	8.0	21.73	30.0	-8.3	
1905.00	16.91	H	0.9	8.0	24.02	30.0	-6.0	

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Band

LTE25

15MHz

16QAM

High Frequency Substitution Measurement
UL Verification Services, Inc.

Company: LG
Project #: 15I20232
Date: 3/4/2015
Test Engineer: L. Lara
Configuration: X-pos EUT Only (SN: 2067411)
Location: Chamber C
Mode: LTE_16QAM Band 25 Fundamentals, 15MHz Bandwidth

Test Equpment:
Receiving: Horn T119, and Chamber C SMA Cables
Substitution: Horn T59 Substitution, and 8ft SMA Cable

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
1857.50	13.53	V	0.9	8.0	20.64	30.0	-9.4	
1857.50	14.87	H	0.9	8.0	21.98	30.0	-8.0	
Mid Ch								
1882.50	15.39	V	0.9	8.0	22.50	30.0	-7.5	
1882.50	16.53	H	0.9	8.0	23.64	30.0	-6.4	
High Ch								
1907.50	14.92	V	0.9	8.0	22.03	30.0	-8.0	
1907.50	16.47	H	0.9	8.0	23.58	30.0	-6.4	

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Band

LTE25

15MHz

QPSK

High Frequency Substitution Measurement
UL Verification Services, Inc.

Company: LG
Project #: 15I20232
Date: 3/4/2015
Test Engineer: L. Lara
Configuration: X-pos EUT Only (SN: 2067411)
Location: Chamber C
Mode: LTE_QPSK Band 25 Fundamentals, 15MHz Bandwidth

Test Equpment:
Receiving: Horn T119, and Chamber C SMA Cables
Substitution: Horn T59 Substitution, and 8ft SMA Cable

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
1857.50	14.77	V	0.9	8.0	21.88	30.0	-8.1	
1857.50	16.00	H	0.9	8.0	23.11	30.0	-6.9	
Mid Ch								
1882.50	16.22	V	0.9	8.0	23.33	30.0	-6.7	
1882.50	17.25	H	0.9	8.0	24.36	30.0	-5.6	
High Ch								
1907.50	15.73	V	0.9	8.0	22.84	30.0	-7.2	
1907.50	17.17	H	0.9	8.0	24.28	30.0	-5.7	

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Band

LTE25

10MHz

16QAM

High Frequency Substitution Measurement
UL Verification Services, Inc.

Company: LG
Project #: 15I20232
Date: 3/4/2015
Test Engineer: L. Lara
Configuration: X-pos EUT Only (SN: 2067411)
Location: Chamber C
Mode: LTE_16QAM Band 25 Fundamentals, 10MHz Bandwidth

Test Equpment:
Receiving: Horn T119, and Chamber C SMA Cables
Substitution: Horn T59 Substitution, and 8ft SMA Cable

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
1855.00	15.23	V	0.9	8.0	22.34	30.0	-7.7	
1855.00	17.30	H	0.9	8.0	24.41	30.0	-5.6	
Mid Ch								
1882.50	15.39	V	0.9	8.0	22.50	30.0	-7.5	
1882.50	17.26	H	0.9	8.0	24.37	30.0	-5.6	
High Ch								
1910.00	14.52	V	0.9	8.0	21.63	30.0	-8.4	
1910.00	16.80	H	0.9	8.0	23.91	30.0	-6.1	

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Band

LTE25

10MHz

QPSK

High Frequency Substitution Measurement
UL Verification Services, Inc.

Company: LG
Project #: 15I20232
Date: 3/4/2015
Test Engineer: L. Lara
Configuration: X-pos EUT Only (SN: 2067411)
Location: Chamber C
Mode: LTE_QPSK Band 25 Fundamentals, 10MHz Bandwidth

Test Equpment:
Receiving: Horn T119, and Chamber C SMA Cables
Substitution: Horn T59 Substitution, and 8ft SMA Cable

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
1855.00	15.92	V	0.9	8.0	23.03	30.0	-7.0	
1855.00	18.18	H	0.9	8.0	25.29	30.0	-4.7	
Mid Ch								
1882.50	16.17	V	0.9	8.0	23.28	30.0	-6.7	
1882.50	18.23	H	0.9	8.0	25.34	30.0	-4.7	
High Ch								
1910.00	15.06	V	0.9	8.0	22.17	30.0	-7.8	
1910.00	17.53	H	0.9	8.0	24.64	30.0	-5.4	

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Band

LTE25

5MHz

16QAM

High Frequency Substitution Measurement
UL Verification Services, Inc.

Company: LG
Project #: 15I20232
Date: 3/4/2015
Test Engineer: L. Lara
Configuration: X-pos EUT Only (SN: 2067411)
Location: Chamber C
Mode: LTE_16QAM Band 25 Fundamentals, 5MHz Bandwidth

Test Equpment:
Receiving: Horn T119, and Chamber C SMA Cables
Substitution: Horn T59 Substitution, and 8ft SMA Cable

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
1852.50	14.89	V	0.9	8.0	22.00	30.0	-8.0	
1852.50	16.89	H	0.9	8.0	24.00	30.0	-6.0	
Mid Ch								
1882.50	15.47	V	0.9	8.0	22.58	30.0	-7.4	
1882.50	17.27	H	0.9	8.0	24.38	30.0	-5.6	
High Ch								
1912.50	14.12	V	0.9	8.0	21.23	30.0	-8.8	
1912.50	16.33	H	0.9	8.0	23.44	30.0	-6.6	

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Band

LTE25

5MHz

QPSK

High Frequency Substitution Measurement
UL Verification Services, Inc.

Company: LG
Project #: 15I20232
Date: 3/4/2015
Test Engineer: L. Lara
Configuration: X-pos EUT Only (SN: 2067411)
Location: Chamber C
Mode: LTE_QPSK Band 25 Fundamentals, 5MHz Bandwidth

Test Equpment:
Receiving: Horn T119, and Chamber C SMA Cables
Substitution: Horn T59 Substitution, and 8ft SMA Cable

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
1852.50	15.52	V	0.9	8.0	22.63	30.0	-7.4	
1852.50	17.67	H	0.9	8.0	24.78	30.0	-5.2	
Mid Ch								
1882.50	16.64	V	0.9	8.0	23.75	30.0	-6.3	
1882.50	18.59	H	0.9	8.0	25.70	30.0	-4.3	
High Ch								
1912.50	15.12	V	0.9	8.0	22.23	30.0	-7.8	
1912.50	17.48	H	0.9	8.0	24.59	30.0	-5.4	

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Band

LTE25

3MHz

16QAM

High Frequency Substitution Measurement
UL Verification Services, Inc.

Company: LG
Project #: 15I20232
Date: 3/4/2015
Test Engineer: L. Lara
Configuration: X-pos EUT Only (SN: 2067411)
Location: Chamber C
Mode: LTE_16QAM Band 25 Fundamentals, 3MHz Bandwidth

Test Equpment:
Receiving: Horn T119, and Chamber C SMA Cables
Substitution: Horn T59 Substitution, and 8ft SMA Cable

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
1851.50	14.96	V	0.9	8.0	22.07	30.0	-7.9	
1851.50	16.94	H	0.9	8.0	24.05	30.0	-6.0	
Mid Ch								
1882.50	15.30	V	0.9	8.0	22.41	30.0	-7.6	
1882.50	17.08	H	0.9	8.0	24.19	30.0	-5.8	
High Ch								
1913.50	14.06	V	0.9	8.0	21.17	30.0	-8.8	
1913.50	16.25	H	0.9	8.0	23.36	30.0	-6.6	

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Band

LTE25

3MHz

QPSK

High Frequency Substitution Measurement
UL Verification Services, Inc.

Company: LG
Project #: 15I20232
Date: 3/4/2015
Test Engineer: L. Lara
Configuration: X-pos EUT Only (SN: 2067411)
Location: Chamber C
Mode: LTE_QPSK Band 25 Fundamentals, 3MHz Bandwidth

Test Equpment:
Receiving: Horn T119, and Chamber C SMA Cables
Substitution: Horn T59 Substitution, and 8ft SMA Cable

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
1851.50	15.39	V	0.9	8.0	22.50	30.0	-7.5	
1851.50	17.79	H	0.9	8.0	24.90	30.0	-5.1	
Mid Ch								
1882.50	15.98	V	0.9	8.0	23.09	30.0	-6.9	
1882.50	18.18	H	0.9	8.0	25.29	30.0	-4.7	
High Ch								
1913.50	14.47	V	0.9	8.0	21.58	30.0	-8.4	
1913.50	17.08	H	0.9	8.0	24.19	30.0	-5.8	

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Band

LTE25

1.4MHz

16QAM

High Frequency Substitution Measurement
UL Verification Services, Inc.

Company: LG
Project #: 15I20232
Date: 3/4/2015
Test Engineer: L. Lara
Configuration: X-pos EUT Only (SN: 2067411)
Location: Chamber C
Mode: LTE_16QAM Band 25 Fundamentals, 1.4MHz Bandwidth

Test Equpment:
Receiving: Horn T119, and Chamber C SMA Cables
Substitution: Horn T59 Substitution, and 8ft SMA Cable

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
1850.70	15.81	V	0.9	8.0	22.92	30.0	-7.1	
1850.70	16.84	H	0.9	8.0	23.95	30.0	-6.1	
Mid Ch								
1882.50	16.44	V	0.9	8.0	23.55	30.0	-6.5	
1882.50	18.01	H	0.9	8.0	25.12	30.0	-4.9	
High Ch								
1914.30	14.61	V	0.9	8.0	21.72	30.0	-8.3	
1914.30	15.92	H	0.9	8.0	23.03	30.0	-7.0	

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Band

LTE25

1.4MHz

QPSK

High Frequency Substitution Measurement
UL Verification Services, Inc.

Company: LG
Project #: 15I20232
Date: 3/4/2015
Test Engineer: L. Lara
Configuration: X-pos EUT Only (SN: 2067411)
Location: Chamber C
Mode: LTE_QPSK Band 25 Fundamentals, 1.4MHz Bandwidth

Test Equpment:
Receiving: Horn T119, and Chamber C SMA Cables
Substitution: Horn T59 Substitution, and 8ft SMA Cable

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
1850.70	16.57	V	0.9	8.0	23.68	30.0	-6.3	
1850.70	17.70	H	0.9	8.0	24.81	30.0	-5.2	
Mid Ch								
1882.50	17.32	V	0.9	8.0	24.43	30.0	-5.6	
1882.50	18.87	H	0.9	8.0	25.98	30.0	-4.0	
High Ch								
1914.30	15.49	V	0.9	8.0	22.60	30.0	-7.4	
1914.30	16.75	H	0.9	8.0	23.86	30.0	-6.1	

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LTE Band 26

Band

LTE26

15MHz

16QAM

High Frequency Substitution Measurement
UL Verification Services, Inc.

Company: LG Electronics
Project #: 15I20232
Date: 3/23/2015
Test Engineer: R.Z
Configuration: EUT Only
Location: Chamber G
Mode: LTE_16QAM Band 26 Fundamentals, 15MHz Bandwidth

Test Equpment:
Receiving: Hybrid T899, and Chamber G SMA Cables
Substitution: Dipole T273, 3ft SMA Cable Warehouse

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
831.50	13.99	V	0.9	0.0	13.09	50.0	-36.9	
831.50	22.28	H	0.9	0.0	21.38	50.0	-28.6	
Mid Ch								
836.50	13.90	V	0.9	0.0	13.00	50.0	-37.0	
836.50	21.86	H	0.9	0.0	20.96	50.0	-29.0	
High Ch								
841.50	13.34	V	0.9	0.0	12.44	50.0	-37.6	
841.50	22.22	H	0.9	0.0	21.32	50.0	-28.7	

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Band

LTE26

15MHz

QPSK

High Frequency Substitution Measurement
UL Verification Services, Inc.

Company: LG Electronics
Project #: 15I20232
Date: 3/23/2015
Test Engineer: R.Z
Configuration: EUT Only
Location: Chamber G
Mode: LTE_QPSK Band 26 Fundamentals, 15MHz Bandwidth

Test Equpment:
Receiving: Hybrid T899, and Chamber G SMA Cables
Substitution: Dipole T273, 3ft SMA Cable Warehouse

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
831.50	15.09	V	0.9	0.0	14.19	50.0	-35.8	
831.50	23.08	H	0.9	0.0	22.18	50.0	-27.8	
Mid Ch								
836.50	15.06	V	0.9	0.0	14.16	50.0	-35.8	
836.50	22.69	H	0.9	0.0	21.79	50.0	-28.2	
High Ch								
841.50	14.64	V	0.9	0.0	13.74	50.0	-36.3	
841.50	23.03	H	0.9	0.0	22.13	50.0	-27.9	

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Band

LTE26

10MHz

16QAM

High Frequency Substitution Measurement
UL Verification Services, Inc.

Company: LG Electronics
Project #: 15I20232
Date: 3/23/2015
Test Engineer: R.Z
Configuration: EUT Only
Location: Chamber G
Mode: LTE_16QAM Band 26 Fundamentals, 10MHz Bandwidth

Test Equpment:
Receiving: Hybrid T899, and Chamber G SMA Cables
Substitution: Dipole T273, 3ft SMA Cable Warehouse

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
819.00	14.19	V	0.9	0.0	13.29	38.5	-25.2	
819.00	21.98	H	0.9	0.0	21.08	38.5	-17.4	
Mid Ch								
831.50	13.50	V	0.9	0.0	12.60	38.5	-25.9	
831.50	21.46	H	0.9	0.0	20.56	38.5	-17.9	
High Ch								
844.00	12.04	V	0.9	0.0	11.14	38.5	-27.4	
844.00	21.32	H	0.9	0.0	20.42	38.5	-18.1	

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Band

LTE26

10MHz

QPSK

High Frequency Substitution Measurement
UL Verification Services, Inc.

Company: LG Electronics
Project #: 15I20232
Date: 3/23/2015
Test Engineer: R.Z
Configuration: EUT Only
Location: Chamber G
Mode: LTE_QPSK Band 26 Fundamentals, 10MHz Bandwidth

Test Equpment:
Receiving: Hybrid T899, and Chamber G SMA Cables
Substitution: Dipole T273, 3ft SMA Cable Warehouse

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
819.00	15.39	V	0.9	0.0	14.49	38.5	-24.0	
819.00	23.15	H	0.9	0.0	22.25	38.5	-16.3	
Mid Ch								
831.50	14.67	V	0.9	0.0	13.77	38.5	-24.7	
831.50	22.66	H	0.9	0.0	21.76	38.5	-16.7	
High Ch								
844.00	12.84	V	0.9	0.0	11.94	38.5	-26.6	
844.00	22.42	H	0.9	0.0	21.52	38.5	-17.0	

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Band

LTE26

5MHz

16QAM

High Frequency Substitution Measurement
UL Verification Services, Inc.

Company: LG Electronics
Project #: 15I20232
Date: 3/23/2015
Test Engineer: R.Z
Configuration: EUT Only
Location: Chamber G
Mode: LTE_16QAM Band 26 Fundamentals, 5MHz Bandwidth

Test Equpment:
Receiving: Hybrid T899, and Chamber G SMA Cables
Substitution: Dipole T273, 3ft SMA Cable Warehouse

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
816.50	14.61	V	0.9	0.0	13.71	38.5	-24.8	
816.50	21.88	H	0.9	0.0	20.98	38.5	-17.5	
Mid Ch								
831.50	14.00	V	0.9	0.0	13.10	38.5	-25.4	
831.50	21.06	H	0.9	0.0	20.16	38.5	-18.3	
High Ch								
846.50	12.64	V	0.9	0.0	11.74	38.5	-26.8	
846.50	20.74	H	0.9	0.0	19.84	38.5	-18.7	

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Band

LTE26

5MHz

QPSK

High Frequency Substitution Measurement
UL Verification Services, Inc.

Company: LG Electronics
Project #: 15I20232
Date: 3/23/2015
Test Engineer: R.Z
Configuration: EUT Only
Location: Chamber G
Mode: LTE_QPSK Band 26 Fundamentals, 5MHz Bandwidth

Test Equpment:
Receiving: Hybrid T899, and Chamber G SMA Cables
Substitution: Dipole T273, 3ft SMA Cable Warehouse

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
816.50	15.70	V	0.9	0.0	14.80	38.5	-23.7	
816.50	23.10	H	0.9	0.0	22.20	38.5	-16.3	
Mid Ch								
831.50	14.60	V	0.9	0.0	13.70	38.5	-24.8	
831.50	22.37	H	0.9	0.0	21.47	38.5	-17.0	
High Ch								
846.50	13.50	V	0.9	0.0	12.60	38.5	-25.9	
846.50	21.96	H	0.9	0.0	21.06	38.5	-17.4	

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Band

LTE26

3MHz

16QAM

High Frequency Substitution Measurement
UL Verification Services, Inc.

Company: LG Electronics
Project #: 15I20232
Date: 3/23/2015
Test Engineer: R.Z
Configuration: EUT Only
Location: Chamber G
Mode: LTE_16QAM Band 26 Fundamentals, 3MHz Bandwidth

Test Equpment:
Receiving: Hybrid T899, and Chamber G SMA Cables
Substitution: Dipole T273, 3ft SMA Cable Warehouse

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
815.50	14.69	V	0.9	0.0	13.79	38.5	-24.7	
815.50	21.98	H	0.9	0.0	21.08	38.5	-17.4	
Mid Ch								
831.50	14.40	V	0.9	0.0	13.50	38.5	-25.0	
831.50	21.46	H	0.9	0.0	20.56	38.5	-17.9	
High Ch								
847.50	12.44	V	0.9	0.0	11.54	38.5	-27.0	
847.50	21.22	H	0.9	0.0	20.32	38.5	-18.2	

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Band

LTE26

3MHz

QPSK

High Frequency Substitution Measurement
UL Verification Services, Inc.

Company: LG Electronics
Project #: 15I20232
Date: 3/23/2015
Test Engineer: R.Z
Configuration: EUT Only
Location: Chamber G
Mode: LTE_QPSK Band 26 Fundamentals, 3MHz Bandwidth

Test Equpment:
Receiving: Hybrid T899, and Chamber G SMA Cables
Substitution: Dipole T273, 3ft SMA Cable Warehouse

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
815.50	15.59	V	0.9	0.0	14.69	38.5	-23.8	
815.50	23.18	H	0.9	0.0	22.28	38.5	-16.2	
Mid Ch								
831.50	15.01	V	0.9	0.0	14.11	38.5	-24.4	
831.50	22.68	H	0.9	0.0	21.78	38.5	-16.7	
High Ch								
847.50	13.54	V	0.9	0.0	12.64	38.5	-25.9	
847.50	22.12	H	0.9	0.0	21.22	38.5	-17.3	

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Band

LTE26

1.4MHz

16QAM

High Frequency Substitution Measurement
UL Verification Services, Inc.

Company: LG Electronics
Project #: 15I20232
Date: 3/23/2015
Test Engineer: R.Z
Configuration: EUT Only
Location: Chamber G
Mode: LTE_16QAM Band 26 Fundamentals, 1.4MHz Bandwidth

Test Equpment:
Receiving: Hybrid T899, and Chamber G SMA Cables
Substitution: Dipole T273, 3ft SMA Cable Warehouse

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
814.70	14.69	V	0.9	0.0	13.79	38.5	-24.7	
814.70	21.98	H	0.9	0.0	21.08	38.5	-17.4	
Mid Ch								
831.50	14.36	V	0.9	0.0	13.46	38.5	-25.0	
831.50	21.26	H	0.9	0.0	20.36	38.5	-18.1	
High Ch								
848.30	13.14	V	0.9	0.0	12.24	38.5	-26.3	
848.30	21.12	H	0.9	0.0	20.22	38.5	-18.3	

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Band

LTE26

1.4MHz

QPSK

High Frequency Substitution Measurement
UL Verification Services, Inc.

Company: LG Electronics
Project #: 15I20232
Date: 3/23/2015
Test Engineer: R.Z
Configuration: EUT Only
Location: Chamber G
Mode: LTE_QPSK Band 26 Fundamentals, 1.4MHz Bandwidth

Test Equpment:
Receiving: Hybrid T899, and Chamber G SMA Cables
Substitution: Dipole T273, 3ft SMA Cable Warehouse

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
814.70	15.29	V	0.9	0.0	14.39	38.5	-24.1	
814.70	23.08	H	0.9	0.0	22.18	38.5	-16.3	
Mid Ch								
831.50	14.80	V	0.9	0.0	13.90	38.5	-24.6	
831.50	22.46	H	0.9	0.0	21.56	38.5	-16.9	
High Ch								
848.30	13.74	V	0.9	0.0	12.84	38.5	-25.7	
848.30	22.22	H	0.9	0.0	21.32	38.5	-17.2	

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LTE Band 41

Band

LTE41

20MHz

16QAM

High Frequency Substitution Measurement
UL Verification Services, Inc.

Company: LG
Project #: 15I20232
Date: 3/24/2015
Test Engineer: R.Z
Configuration: EUT Only
Location: Chamber G
Mode: LTE_16QAM Band 41 Fundamentals, 20MHz Bandwidth

Test Equpment:
Receiving: Horn T862, and Chamber G SMA Cables
Substitution: Horn T59, 6ft SMA Cable

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
2506.00	11.70	V	0.9	9.5	20.28	33.0	-12.7	
2506.00	15.26	H	0.9	9.5	23.84	33.0	-9.2	
Mid Ch								
2593.00	12.60	V	0.9	9.5	21.21	33.0	-11.8	
2593.00	15.37	H	0.9	9.5	23.97	33.0	-9.0	
High Ch								
2680.00	11.00	V	0.9	9.7	19.83	33.0	-13.2	
2680.00	12.80	H	0.9	9.7	21.63	33.0	-11.4	

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Band

LTE41

20MHz

QPSK

High Frequency Substitution Measurement
UL Verification Services, Inc.

Company: LG
Project #: 15I20232
Date: 3/24/2015
Test Engineer: R.Z
Configuration: EUT Only
Location: Chamber G
Mode: LTE_QPSK Band 41 Fundamentals, 20MHz Bandwidth

Test Equpment:
Receiving: Horn T862, and Chamber G SMA Cables
Substitution: Horn T59, 6ft SMA Cable

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
2506.00	12.90	V	0.9	9.5	21.48	33.0	-11.5	
2506.00	16.38	H	0.9	9.5	24.96	33.0	-8.0	
Mid Ch								
2593.00	13.77	V	0.9	9.5	22.38	33.0	-10.6	
2593.00	16.17	H	0.9	9.5	24.77	33.0	-8.2	
High Ch								
2680.00	12.14	V	0.9	9.7	20.97	33.0	-12.0	
2680.00	13.50	H	0.9	9.7	22.33	33.0	-10.7	

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Band

LTE41

15MHz

16QAM

High Frequency Substitution Measurement
UL Verification Services, Inc.

Company: LG
Project #: 15I20232
Date: 3/24/2015
Test Engineer: R.Z
Configuration: EUT Only
Location: Chamber G
Mode: LTE_16QAM Band 41 Fundamentals, 15MHz Bandwidth

Test Equpment:
Receiving: Horn T862, and Chamber G SMA Cables
Substitution: Horn T59, 6ft SMA Cable

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
2503.50	10.40	V	0.9	9.5	18.98	33.0	-14.0	
2503.50	15.08	H	0.9	9.5	23.66	33.0	-9.3	
Mid Ch								
2593.00	11.40	V	0.9	9.5	20.01	33.0	-13.0	
2593.00	14.67	H	0.9	9.5	23.27	33.0	-9.7	
High Ch								
2682.50	9.40	V	0.9	9.7	18.23	33.0	-14.8	
2682.50	13.30	H	0.9	9.7	22.13	33.0	-10.9	

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Band

LTE41

15MHz

QPSK

High Frequency Substitution Measurement
UL Verification Services, Inc.

Company: LG
Project #: 15I20232
Date: 3/24/2015
Test Engineer: R.Z
Configuration: EUT Only
Location: Chamber G
Mode: LTE_QPSK Band 41 Fundamentals, 15MHz Bandwidth

Test Equpment:
Receiving: Horn T862, and Chamber G SMA Cables
Substitution: Horn T59, 6ft SMA Cable

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
2503.50	11.50	V	0.9	9.5	20.08	33.0	-12.9	
2503.50	15.78	H	0.9	9.5	24.36	33.0	-8.6	
Mid Ch								
2593.00	12.33	V	0.9	9.5	20.94	33.0	-12.1	
2593.00	15.47	H	0.9	9.5	24.07	33.0	-8.9	
High Ch								
2682.50	10.25	V	0.9	9.7	19.08	33.0	-13.9	
2682.50	12.50	H	0.9	9.7	21.33	33.0	-11.7	

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Band

LTE41

10MHz

16QAM

High Frequency Substitution Measurement
UL Verification Services, Inc.

Company: LG
Project #: 15I20232
Date: 3/24/2015
Test Engineer: R.Z
Configuration: EUT Only
Location: Chamber G
Mode: LTE_16QAM Band 41 Fundamentals, 10MHz Bandwidth

Test Equpment:
Receiving: Horn T862, and Chamber G SMA Cables
Substitution: Horn T59, 6ft SMA Cable

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
2501.00	11.00	V	0.9	9.5	19.58	33.0	-13.4	
2501.00	14.78	H	0.9	9.5	23.35	33.0	-9.6	
Mid Ch								
2593.00	11.90	V	0.9	9.5	20.51	33.0	-12.5	
2593.00	15.87	H	0.9	9.5	24.47	33.0	-8.5	
High Ch								
2685.00	10.10	V	0.9	9.7	18.94	33.0	-14.1	
2685.00	14.60	H	0.9	9.7	23.44	33.0	-9.6	

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Band

LTE41

10MHz

QPSK

High Frequency Substitution Measurement
UL Verification Services, Inc.

Company: LG
Project #: 15I20232
Date: 3/24/2015
Test Engineer: R.Z
Configuration: EUT Only
Location: Chamber G
Mode: LTE_QPSK Band 41 Fundamentals, 10MHz Bandwidth

Test Equpment:
Receiving: Horn T862, and Chamber G SMA Cables
Substitution: Horn T59, 6ft SMA Cable

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
2501.00	12.00	V	0.9	9.5	20.58	33.0	-12.4	
2501.00	15.58	H	0.9	9.5	24.15	33.0	-8.8	
Mid Ch								
2593.00	12.70	V	0.9	9.5	21.31	33.0	-11.7	
2593.00	16.47	H	0.9	9.5	25.07	33.0	-7.9	
High Ch								
2685.00	11.00	V	0.9	9.7	19.84	33.0	-13.2	
2685.00	15.30	H	0.9	9.7	24.14	33.0	-8.9	

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Band

LTE41

5MHz

16QAM

High Frequency Substitution Measurement
UL Verification Services, Inc.

Company: LG
Project #: 15I20232
Date: 3/24/2015
Test Engineer: R.Z
Configuration: EUT Only
Location: Chamber G
Mode: LTE_16QAM Band 41 Fundamentals, 5MHz Bandwidth

Test Equpment:
Receiving: Horn T862, and Chamber G SMA Cables
Substitution: Horn T59, 6ft SMA Cable

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
2498.50	9.80	V	0.9	9.5	18.37	33.0	-14.6	
2498.50	15.13	H	0.9	9.5	23.70	33.0	-9.3	
Mid Ch								
2593.00	11.50	V	0.9	9.5	20.11	33.0	-12.9	
2593.00	16.37	H	0.9	9.5	24.97	33.0	-8.0	
High Ch								
2687.50	9.20	V	0.9	9.7	18.05	33.0	-15.0	
2687.50	12.70	H	0.9	9.7	21.55	33.0	-11.5	

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Band

LTE41

5MHz

QPSK

High Frequency Substitution Measurement
UL Verification Services, Inc.

Company: LG
Project #: 15I20232
Date: 3/24/2015
Test Engineer: R.Z
Configuration: EUT Only
Location: Chamber G
Mode: LTE_QPSK Band 41 Fundamentals, 5MHz Bandwidth

Test Equpment:
Receiving: Horn T862, and Chamber G SMA Cables
Substitution: Horn T59, 6ft SMA Cable

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
2498.50	10.60	V	0.9	9.5	19.17	33.0	-13.8	
2498.50	15.46	H	0.9	9.5	24.03	33.0	-9.0	
Mid Ch								
2593.00	12.25	V	0.9	9.5	20.86	33.0	-12.1	
2593.00	16.77	H	0.9	9.5	25.37	33.0	-7.6	
High Ch								
2687.50	10.10	V	0.9	9.7	18.95	33.0	-14.1	
2687.50	13.50	H	0.9	9.7	22.35	33.0	-10.7	

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12.2. FIELD STRENGTH OF SPURIOUS RADIATION

RULE PART(S)

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

LIMIT

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

Part 27: (m)(4) For mobile station, the attenuation factor shall be not less than 43+10Log(P)dB at the channel edge and (55+10Log(P)dB) at 5.5MHz from the channel edges.

TEST PROCEDURE

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

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

MODES TESTED

CDMA and LTE

RESULTS

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12.2.1. SPURIOUS RADIATION PLOTS

CDMA

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

Company: LG Electronics
Project #: 15I20232
Date: 3/25/2015
Test Engineer: R.Z
Configuration: EUT , AC Adapter, Headset
Location: Chamber G
Mode: CDMA EVDO BC10 Harmonics

Band BC10

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 817.9MHz									
1.636	-15.6	V	3.0	37.4	1.0	-52.0	-13.0	-39.0	
2.454	-24.4	V	3.0	36.4	1.0	-59.8	-13.0	-46.8	
3.272	-20.5	V	3.0	35.8	1.0	-55.3	-13.0	-42.3	
1.636	-13.0	H	3.0	37.4	1.0	-49.4	-13.0	-36.4	
2.454	-24.0	H	3.0	36.4	1.0	-59.4	-13.0	-46.4	
3.272	-19.3	H	3.0	35.8	1.0	-54.1	-13.0	-41.1	
Mid Ch, 820.5MHz									
1.641	-16.4	V	3.0	37.3	1.0	-52.7	-13.0	-39.7	
2.462	-24.6	V	3.0	36.4	1.0	-60.0	-13.0	-47.0	
3.282	-21.7	V	3.0	35.8	1.0	-56.5	-13.0	-43.5	
1.641	-13.7	H	3.0	37.3	1.0	-50.0	-13.0	-37.0	
2.462	-22.4	H	3.0	36.4	1.0	-57.8	-13.0	-44.8	
3.282	-20.5	H	3.0	35.8	1.0	-55.3	-13.0	-42.3	
High Ch, 823.1MHz									
1.646	-16.2	V	3.0	37.3	1.0	-52.5	-13.0	-39.5	
2.469	-24.4	V	3.0	36.3	1.0	-59.7	-13.0	-46.7	
3.292	-20.4	V	3.0	35.7	1.0	-55.1	-13.0	-42.1	
1.646	-16.4	H	3.0	37.3	1.0	-52.7	-13.0	-39.7	
2.469	-22.9	H	3.0	36.3	1.0	-58.2	-13.0	-45.2	
3.292	-20.3	H	3.0	35.7	1.0	-55.0	-13.0	-42.0	

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Band

BC10

1xRTT

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

Company: LG Electronics
Project #: 15I20232
Date: 3/25/2015
Test Engineer: R.Z
Configuration: EUT , AC Adapter, Headset
Location: Chamber G
Mode: CDMA 1xRTT BC10 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, 817.9MHz									
1.636	-16.5	V	3.0	37.4	1.0	-52.9	-13.0	-39.9	
2.454	-23.7	V	3.0	36.4	1.0	-59.1	-13.0	-46.1	
3.272	-20.7	V	3.0	35.8	1.0	-55.5	-13.0	-42.5	
1.636	-13.2	H	3.0	37.4	1.0	-49.6	-13.0	-36.6	
2.454	-24.3	H	3.0	36.4	1.0	-59.7	-13.0	-46.7	
3.272	-19.4	H	3.0	35.8	1.0	-54.2	-13.0	-41.2	
Mid Ch, 820.5MHz									
1.641	-17.5	V	3.0	37.3	1.0	-53.8	-13.0	-40.8	
2.462	-25.1	V	3.0	36.4	1.0	-60.5	-13.0	-47.5	
3.282	-22.1	V	3.0	35.8	1.0	-56.9	-13.0	-43.9	
1.641	-14.5	H	3.0	37.3	1.0	-50.8	-13.0	-37.8	
2.462	-22.7	H	3.0	36.4	1.0	-58.1	-13.0	-45.1	
3.282	-20.8	H	3.0	35.8	1.0	-55.6	-13.0	-42.6	
High Ch, 823.1MHz									
1.646	-16.8	V	3.0	37.3	1.0	-53.1	-13.0	-40.1	
2.469	-24.8	V	3.0	36.3	1.0	-60.1	-13.0	-47.1	
3.292	-20.7	V	3.0	35.7	1.0	-55.4	-13.0	-42.4	
1.646	-16.1	H	3.0	37.3	1.0	-52.4	-13.0	-39.4	
2.469	-23.0	H	3.0	36.3	1.0	-58.3	-13.0	-45.3	
3.292	-20.8	H	3.0	35.7	1.0	-55.5	-13.0	-42.5	

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Band

BC0

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

Company: LG Electronics
Project #: 15I20232
Date: 3/25/2015
Test Engineer: R.Z
Configuration: EUT , AC Adapter, Headset
Location: Chamber G
Mode: CDMA EVDO BC0 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, 824.7									
1649.40	-19.0	V	3.0	37.4	1.0	-55.4	-13.0	-42.4	
2474.10	-25.6	V	3.0	36.4	1.0	-61.0	-13.0	-48.0	
3298.80	-21.7	V	3.0	35.8	1.0	-56.5	-13.0	-43.5	
1649.40	-24.4	H	3.0	37.4	1.0	-60.8	-13.0	-47.8	
2474.10	-23.1	H	3.0	36.4	1.0	-58.5	-13.0	-45.5	
3298.80	-21.0	H	3.0	35.8	1.0	-55.8	-13.0	-42.8	
Mid Ch, 836.52									
1673.04	-18.2	V	3.0	37.3	1.0	-54.5	-13.0	-41.5	
2509.56	-24.9	V	3.0	36.4	1.0	-60.3	-13.0	-47.3	
3346.08	-20.8	V	3.0	35.8	1.0	-55.6	-13.0	-42.6	
1673.04	-20.4	H	3.0	37.3	1.0	-56.7	-13.0	-43.7	
2509.56	-23.2	H	3.0	36.4	1.0	-58.6	-13.0	-45.6	
3346.08	-20.4	H	3.0	35.8	1.0	-55.2	-13.0	-42.2	
High Ch, 848.31									
1696.62	-16.0	V	3.0	37.3	1.0	-52.3	-13.0	-39.3	
2544.93	-24.7	V	3.0	36.3	1.0	-60.0	-13.0	-47.0	
3393.24	-20.7	V	3.0	35.7	1.0	-55.4	-13.0	-42.4	
1696.62	-17.6	H	3.0	37.3	1.0	-53.9	-13.0	-40.9	
2544.93	-22.5	H	3.0	36.3	1.0	-57.8	-13.0	-44.8	
3393.24	-20.4	H	3.0	35.7	1.0	-55.1	-13.0	-42.1	

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

Company: LG Electronics
Project #: 15I20232
Date: 3/25/2015
Test Engineer: R.Z
Configuration: EUT , AC Adapter, Headset
Location: Chamber G
Mode: CDMA 1xRTT BC0 Harmonics

Band BC0 1xRTT

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	-21.0	V	3.0	37.4	1.0	-57.4	-13.0	-44.4	
2474.10	-25.7	V	3.0	36.4	1.0	-61.1	-13.0	-48.1	
3298.80	-22.1	V	3.0	35.8	1.0	-56.9	-13.0	-43.9	
1649.40	-24.7	H	3.0	37.4	1.0	-61.1	-13.0	-48.1	
2474.10	-24.2	H	3.0	36.4	1.0	-59.6	-13.0	-46.6	
3298.80	-21.1	H	3.0	35.8	1.0	-55.9	-13.0	-42.9	
Mid Ch, 836.52									
1673.04	-18.6	V	3.0	37.3	1.0	-54.9	-13.0	-41.9	
2509.56	-25.2	V	3.0	36.4	1.0	-60.6	-13.0	-47.6	
3346.08	-21.1	V	3.0	35.8	1.0	-55.9	-13.0	-42.9	
1673.04	-21.7	H	3.0	37.3	1.0	-58.0	-13.0	-45.0	
2509.56	-23.2	H	3.0	36.4	1.0	-58.6	-13.0	-45.6	
3346.08	-20.5	H	3.0	35.8	1.0	-55.3	-13.0	-42.3	
High Ch, 848.31									
1696.62	-16.6	V	3.0	37.3	1.0	-52.9	-13.0	-39.9	
2544.93	-25.3	V	3.0	36.3	1.0	-60.6	-13.0	-47.6	
3393.24	-21.7	V	3.0	35.7	1.0	-56.4	-13.0	-43.4	
1696.62	-17.6	H	3.0	37.3	1.0	-53.9	-13.0	-40.9	
2544.93	-22.0	H	3.0	36.3	1.0	-57.3	-13.0	-44.3	
3393.24	-20.6	H	3.0	35.7	1.0	-55.3	-13.0	-42.3	

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Band

BC1

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

Company: LG Electronics
Project #: 15I20232
Date: 3/25/2015
Test Engineer: R.Z
Configuration: EUT , AC Adapter, Headset
Location: Chamber G
Mode: CDMA EVDO BC1 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, 1851.25									
3702.50	-7.2	V	3.0	35.9	1.0	-42.0	-13.0	-29.0	
5553.75	1.4	V	3.0	35.5	1.0	-33.1	-13.0	-20.1	
7405.00	-2.3	V	3.0	35.7	1.0	-37.1	-13.0	-24.1	
3702.50	-8.9	H	3.0	35.9	1.0	-43.8	-13.0	-30.8	
5553.75	-1.2	H	3.0	35.5	1.0	-35.7	-13.0	-22.7	
7405.00	-3.6	H	3.0	35.7	1.0	-38.3	-13.0	-25.3	
Mid Ch, 1880									
3760.00	-6.5	V	3.0	35.8	1.0	-41.3	-13.0	-28.3	
5640.00	4.5	V	3.0	35.5	1.0	-30.0	-13.0	-17.0	
7520.00	-5.2	V	3.0	35.7	1.0	-40.0	-13.0	-27.0	
3760.00	-9.0	H	3.0	35.8	1.0	-43.8	-13.0	-30.8	
5640.00	1.6	H	3.0	35.5	1.0	-32.9	-13.0	-19.9	
7520.00	-7.5	H	3.0	35.7	1.0	-42.2	-13.0	-29.2	
High Ch, 1908.75									
3817.50	-5.8	V	3.0	35.8	1.0	-40.6	-13.0	-27.6	
5726.25	-0.8	V	3.0	35.5	1.0	-35.3	-13.0	-22.3	
7635.00	-8.3	V	3.0	35.8	1.0	-43.0	-13.0	-30.0	
3817.50	-5.0	H	3.0	35.8	1.0	-39.8	-13.0	-26.8	
5726.25	-0.3	H	3.0	35.5	1.0	-34.8	-13.0	-21.8	
7635.00	-8.0	H	3.0	35.8	1.0	-42.8	-13.0	-29.8	

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

Company: LG Electronics
Project #: 15I20232
Date: 3/25/2015
Test Engineer: R.Z
Configuration: EUT , AC Adapter, Headset
Location: Chamber G
Mode: CDMA 1xRTT BC1 Harmonics

Band

BC1

1xRTT

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 1851.25									
3702.50	-7.0	V	3.0	35.9	1.0	-41.9	-13.0	-28.9	
5553.75	2.0	V	3.0	35.5	1.0	-32.5	-13.0	-19.5	
7405.00	-3.7	V	3.0	35.7	1.0	-38.4	-13.0	-25.4	
3702.50	-12.3	H	3.0	35.9	1.0	-47.1	-13.0	-34.1	
5553.75	-1.2	H	3.0	35.5	1.0	-35.7	-13.0	-22.7	
7405.00	-6.5	H	3.0	35.7	1.0	-41.2	-13.0	-28.2	
Mid Ch, 1880									
3760.00	-6.7	V	3.0	35.8	1.0	-41.5	-13.0	-28.5	
5640.00	4.0	V	3.0	35.5	1.0	-30.5	-13.0	-17.5	
7520.00	-5.1	V	3.0	35.7	1.0	-39.9	-13.0	-26.9	
3760.00	-11.0	H	3.0	35.8	1.0	-45.8	-13.0	-32.8	
5640.00	2.8	H	3.0	35.5	1.0	-31.7	-13.0	-18.7	
7520.00	-5.2	H	3.0	35.7	1.0	-39.9	-13.0	-26.9	
High Ch, 1908.75									
3817.50	-4.9	V	3.0	35.8	1.0	-39.7	-13.0	-26.7	
5726.25	-0.5	V	3.0	35.5	1.0	-35.0	-13.0	-22.0	
7635.00	-9.2	V	3.0	35.8	1.0	-43.9	-13.0	-30.9	
3817.50	-11.6	H	3.0	35.8	1.0	-46.4	-13.0	-33.4	
5726.25	-1.8	H	3.0	35.5	1.0	-36.3	-13.0	-23.3	
7635.00	-11.3	H	3.0	35.8	1.0	-46.1	-13.0	-33.1	

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LTE Band 2

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

Company: LG
Project #: 15I20232
Date: 3/12/2015
Test Engineer: Jude Semana
Configuration: EUT , AC Adapter
Location: Chamber G
Mode: LTE_16QAM Band 2 Harmonics, 20MHz Bandwidth

Band
LTE2
20MHz
16QAM

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 1860									
3720.00	-17.4	V	3.0	35.8	1.0	-52.3	-13.0	-39.3	
5580.00	-13.1	V	3.0	35.5	1.0	-47.6	-13.0	-34.6	
7440.00	-10.9	V	3.0	35.7	1.0	-45.7	-13.0	-32.7	
3720.00	-17.0	H	3.0	35.8	1.0	-51.9	-13.0	-38.9	
5580.00	-13.0	H	3.0	35.5	1.0	-47.4	-13.0	-34.4	
7440.00	-10.8	H	3.0	35.7	1.0	-45.6	-13.0	-32.6	
Mid Ch, 1880									
3760.00	-11.4	V	3.0	35.8	1.0	-46.2	-13.0	-33.2	
5640.00	-14.1	V	3.0	35.5	1.0	-48.6	-13.0	-35.6	
7520.00	-12.1	V	3.0	35.7	1.0	-46.8	-13.0	-33.8	
3760.00	-16.6	H	3.0	35.8	1.0	-51.4	-13.0	-38.4	
5640.00	-13.6	H	3.0	35.5	1.0	-48.1	-13.0	-35.1	
7520.00	-11.0	H	3.0	35.7	1.0	-45.8	-13.0	-32.8	
High Ch, 1900									
3800.00	-16.8	V	3.0	35.8	1.0	-51.6	-13.0	-38.6	
5700.00	-13.5	V	3.0	35.5	1.0	-48.0	-13.0	-35.0	
7600.00	-10.5	V	3.0	35.8	1.0	-45.3	-13.0	-32.3	
3800.00	-12.5	H	3.0	35.8	1.0	-47.3	-13.0	-34.3	
5700.00	-12.9	H	3.0	35.5	1.0	-47.4	-13.0	-34.4	
7600.00	-11.3	H	3.0	35.8	1.0	-46.1	-13.0	-33.1	

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

Company: LG
Project #: 15I20232
Date: 3/12/2015
Test Engineer: Jude Semana
Configuration: EUT , AC Adapter
Location: Chamber G
Mode: LTE_QPSK Band 2 Harmonics, 20MHz Bandwidth

Band
LTE2
20MHz
QPSK

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 1860									
3720.00	-16.0	V	3.0	35.8	1.0	-50.8	-13.0	-37.8	
5580.00	-13.8	V	3.0	35.5	1.0	-48.3	-13.0	-35.3	
7440.00	-11.7	V	3.0	35.7	1.0	-46.4	-13.0	-33.4	
3720.00	-17.0	H	3.0	35.8	1.0	-51.9	-13.0	-38.9	
5580.00	-12.9	H	3.0	35.5	1.0	-47.3	-13.0	-34.3	
7440.00	-10.5	H	3.0	35.7	1.0	-45.3	-13.0	-32.3	
Mid Ch, 1880									
3760.00	-11.8	V	3.0	35.8	1.0	-46.6	-13.0	-33.6	
5640.00	-13.5	V	3.0	35.5	1.0	-48.0	-13.0	-35.0	
7520.00	-11.9	V	3.0	35.7	1.0	-46.7	-13.0	-33.7	
3760.00	-17.0	H	3.0	35.8	1.0	-51.8	-13.0	-38.8	
5640.00	-13.9	H	3.0	35.5	1.0	-48.4	-13.0	-35.4	
7520.00	-10.4	H	3.0	35.7	1.0	-45.2	-13.0	-32.2	
High Ch, 1900									
3800.00	-16.8	V	3.0	35.8	1.0	-51.6	-13.0	-38.6	
5700.00	-13.5	V	3.0	35.5	1.0	-48.0	-13.0	-35.0	
7600.00	-11.6	V	3.0	35.8	1.0	-46.3	-13.0	-33.3	
3800.00	-12.1	H	3.0	35.8	1.0	-46.9	-13.0	-33.9	
5700.00	-13.7	H	3.0	35.5	1.0	-48.2	-13.0	-35.2	
7600.00	-11.6	H	3.0	35.8	1.0	-46.3	-13.0	-33.3	

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Above 1GHz High Frequency Substitution Measurement

Company: LG
Project #: 15I20232
Date: 3/12/2015
Test Engineer: Jude Semana
Configuration: EUT , AC Adapter
Location: Chamber G
Mode: LTE_16QAM Band 2 Harmonics, 15MHz Bandwidth

Band
LTE2
15MHz
16QAM

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 1857.5									
3715.00	-17.5	V	3.0	35.8	1.0	-52.4	-13.0	-39.4	
5572.50	-12.8	V	3.0	35.5	1.0	-47.3	-13.0	-34.3	
7430.00	-11.4	V	3.0	35.7	1.0	-46.2	-13.0	-33.2	
3715.00	-15.9	H	3.0	35.8	1.0	-50.8	-13.0	-37.8	
5572.50	-13.4	H	3.0	35.5	1.0	-47.9	-13.0	-34.9	
7430.00	-10.2	H	3.0	35.7	1.0	-44.9	-13.0	-31.9	
Mid Ch, 1880									
3760.00	-17.0	V	3.0	35.8	1.0	-51.8	-13.0	-38.8	
5640.00	-13.7	V	3.0	35.5	1.0	-48.2	-13.0	-35.2	
7520.00	-11.9	V	3.0	35.7	1.0	-46.7	-13.0	-33.7	
3760.00	-13.7	H	3.0	35.8	1.0	-48.5	-13.0	-35.5	
5640.00	-12.9	H	3.0	35.5	1.0	-47.4	-13.0	-34.4	
7520.00	-10.8	H	3.0	35.7	1.0	-45.5	-13.0	-32.5	
High Ch, 1902.5									
3805.00	-15.6	V	3.0	35.8	1.0	-50.4	-13.0	-37.4	
5707.50	-13.2	V	3.0	35.5	1.0	-47.7	-13.0	-34.7	
7610.00	-11.6	V	3.0	35.8	1.0	-46.3	-13.0	-33.3	
3805.00	-12.0	H	3.0	35.8	1.0	-46.7	-13.0	-33.7	
5707.50	-13.0	H	3.0	35.5	1.0	-47.5	-13.0	-34.5	
7610.00	-10.8	H	3.0	35.8	1.0	-45.5	-13.0	-32.5	

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

Company: LG
Project #: 15I20232
Date: 3/12/2015
Test Engineer: Jude Semana
Configuration: EUT , AC Adapter
Location: Chamber G
Mode: LTE_QPSK Band 2 Harmonics, 15MHz Bandwidth

Band
LTE2
15MHz
QPSK

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 1857.5									
3715.00	-17.9	V	3.0	35.8	1.0	-52.7	-13.0	-39.7	
5572.50	-13.0	V	3.0	35.5	1.0	-47.5	-13.0	-34.5	
7430.00	-11.1	V	3.0	35.7	1.0	-45.9	-13.0	-32.9	
3715.00	-15.6	H	3.0	35.8	1.0	-50.5	-13.0	-37.5	
5572.50	-13.3	H	3.0	35.5	1.0	-47.8	-13.0	-34.8	
7430.00	-10.4	H	3.0	35.7	1.0	-45.1	-13.0	-32.1	
Mid Ch, 1880									
3760.00	-16.7	V	3.0	35.8	1.0	-51.5	-13.0	-38.5	
5640.00	-14.0	V	3.0	35.5	1.0	-48.5	-13.0	-35.5	
7520.00	-11.2	V	3.0	35.7	1.0	-46.0	-13.0	-33.0	
3760.00	-13.7	H	3.0	35.8	1.0	-48.5	-13.0	-35.5	
5640.00	-13.9	H	3.0	35.5	1.0	-48.4	-13.0	-35.4	
7520.00	-11.1	H	3.0	35.7	1.0	-45.8	-13.0	-32.8	
High Ch, 1902.5									
3805.00	-15.7	V	3.0	35.8	1.0	-50.5	-13.0	-37.5	
5707.50	-12.4	V	3.0	35.5	1.0	-46.9	-13.0	-33.9	
7610.00	-10.9	V	3.0	35.8	1.0	-45.6	-13.0	-32.6	
3805.00	-11.7	H	3.0	35.8	1.0	-46.4	-13.0	-33.4	
5707.50	-12.8	H	3.0	35.5	1.0	-47.3	-13.0	-34.3	
7610.00	-10.2	H	3.0	35.8	1.0	-45.0	-13.0	-32.0	

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

Company: LG
Project #: 15I20232
Date: 3/12/2015
Test Engineer: Jude Semana
Configuration: EUT , AC Adapter
Location: Chamber G
Mode: LTE_16QAM Band 2 Harmonics, 10MHz Bandwidth

Band
LTE2
10MHz
16QAM

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 1855									
3710.00	-17.8	V	3.0	35.9	1.0	-52.7	-13.0	-39.7	
5565.00	-13.4	V	3.0	35.5	1.0	-47.8	-13.0	-34.8	
7420.00	-11.4	V	3.0	35.7	1.0	-46.2	-13.0	-33.2	
3710.00	-15.5	H	3.0	35.9	1.0	-50.4	-13.0	-37.4	
5565.00	-13.2	H	3.0	35.5	1.0	-47.7	-13.0	-34.7	
7420.00	-9.4	H	3.0	35.7	1.0	-44.1	-13.0	-31.1	
Mid Ch, 1880									
3760.00	-16.2	V	3.0	35.8	1.0	-51.0	-13.0	-38.0	
5640.00	-13.6	V	3.0	35.5	1.0	-48.1	-13.0	-35.1	
7520.00	-11.5	V	3.0	35.7	1.0	-46.3	-13.0	-33.3	
3760.00	-12.8	H	3.0	35.8	1.0	-47.6	-13.0	-34.6	
5640.00	-13.7	H	3.0	35.5	1.0	-48.2	-13.0	-35.2	
7520.00	117.2	H	3.0	35.7	1.0	82.5	-13.0	95.5	
High Ch, 1905									
3810.00	-16.0	V	3.0	35.8	1.0	-50.8	-13.0	-37.8	
5715.00	-13.6	V	3.0	35.5	1.0	-48.1	-13.0	-35.1	
7620.00	-12.5	V	3.0	35.8	1.0	-47.2	-13.0	-34.2	
3810.00	-15.2	H	3.0	35.8	1.0	-49.9	-13.0	-36.9	
5715.00	-13.7	H	3.0	35.5	1.0	-48.2	-13.0	-35.2	
7620.00	-10.0	H	3.0	35.8	1.0	-44.8	-13.0	-31.8	

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

Company: LG
Project #: 15I20232
Date: 3/12/2015
Test Engineer: Jude Semana
Configuration: EUT , AC Adapter
Location: Chamber G
Mode: LTE_QPSK Band 2 Harmonics, 10MHz Bandwidth

Band
LTE2
10MHz
QPSK

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 1855									
3710.00	-17.0	V	3.0	35.9	1.0	-51.9	-13.0	-38.9	
5565.00	-13.2	V	3.0	35.5	1.0	-47.7	-13.0	-34.7	
7420.00	-10.8	V	3.0	35.7	1.0	-45.5	-13.0	-32.5	
3710.00	-15.1	H	3.0	35.9	1.0	-49.9	-13.0	-36.9	
5565.00	-13.4	H	3.0	35.5	1.0	-47.9	-13.0	-34.9	
7420.00	-9.2	H	3.0	35.7	1.0	-44.0	-13.0	-31.0	
Mid Ch, 1880									
3760.00	-16.5	V	3.0	35.8	1.0	-51.3	-13.0	-38.3	
5640.00	-13.5	V	3.0	35.5	1.0	-48.0	-13.0	-35.0	
7520.00	-11.6	V	3.0	35.7	1.0	-46.3	-13.0	-33.3	
3760.00	-13.2	H	3.0	35.8	1.0	-48.0	-13.0	-35.0	
5640.00	-13.5	H	3.0	35.5	1.0	-48.0	-13.0	-35.0	
7520.00	-10.7	H	3.0	35.7	1.0	-45.4	-13.0	-32.4	
High Ch, 1905									
3810.00	-16.4	V	3.0	35.8	1.0	-51.1	-13.0	-38.1	
5715.00	-13.6	V	3.0	35.5	1.0	-48.1	-13.0	-35.1	
7620.00	-11.5	V	3.0	35.8	1.0	-46.2	-13.0	-33.2	
3810.00	-14.2	H	3.0	35.8	1.0	-48.9	-13.0	-35.9	
5715.00	-13.7	H	3.0	35.5	1.0	-48.2	-13.0	-35.2	
7620.00	-10.1	H	3.0	35.8	1.0	-44.8	-13.0	-31.8	

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

Company: LG
Project #: 15I20232
Date: 3/12/2015
Test Engineer: Jude Semana
Configuration: EUT , AC Adapter
Location: Chamber G
Mode: LTE_16QAM Band 2 Harmonics, 5MHz Bandwidth

Band
LTE2
5MHz
16QAM

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 1852.5									
3705.00	-15.8	V	3.0	35.9	1.0	-50.6	-13.0	-37.6	
5557.50	-12.4	V	3.0	35.5	1.0	-46.9	-13.0	-33.9	
7410.00	-9.5	V	3.0	35.7	1.0	-44.3	-13.0	-31.3	
3705.00	-12.7	H	3.0	35.9	1.0	-47.6	-13.0	-34.6	
5557.50	-11.0	H	3.0	35.5	1.0	-45.4	-13.0	-32.4	
7410.00	-9.2	H	3.0	35.7	1.0	-44.0	-13.0	-31.0	
Mid Ch, 1880									
3760.00	-15.8	V	3.0	35.8	1.0	-50.6	-13.0	-37.6	
5640.00	-13.3	V	3.0	35.5	1.0	-47.7	-13.0	-34.7	
7520.00	-12.0	V	3.0	35.7	1.0	-46.8	-13.0	-33.8	
3760.00	-11.0	H	3.0	35.8	1.0	-45.8	-13.0	-32.8	
5640.00	-13.3	H	3.0	35.5	1.0	-47.8	-13.0	-34.8	
7520.00	-10.7	H	3.0	35.7	1.0	-45.5	-13.0	-32.5	
High Ch, 1907.5									
3815.00	-12.6	V	3.0	35.8	1.0	-47.4	-13.0	-34.4	
5722.50	-13.7	V	3.0	35.5	1.0	-48.2	-13.0	-35.2	
7630.00	-9.2	V	3.0	35.8	1.0	-44.0	-13.0	-31.0	
3815.00	-11.1	H	3.0	35.8	1.0	-45.8	-13.0	-32.8	
5722.50	-13.3	H	3.0	35.5	1.0	-47.8	-13.0	-34.8	
7630.00	-10.9	H	3.0	35.8	1.0	-45.6	-13.0	-32.6	

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

Company: LG
Project #: 15I20232
Date: 3/12/2015
Test Engineer: Jude Semana
Configuration: EUT , AC Adapter
Location: Chamber G
Mode: LTE_QPSK Band 2 Harmonics, 5MHz Bandwidth

Band
LTE2
5MHz
QPSK

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 1852.5									
3705.00	-16.2	V	3.0	35.9	1.0	-51.1	-13.0	-38.1	
5557.50	-12.1	V	3.0	35.5	1.0	-46.6	-13.0	-33.6	
7410.00	-9.2	V	3.0	35.7	1.0	-43.9	-13.0	-30.9	
3705.00	-12.5	H	3.0	35.9	1.0	-47.4	-13.0	-34.4	
5557.50	-12.8	H	3.0	35.5	1.0	-47.2	-13.0	-34.2	
7410.00	-8.9	H	3.0	35.7	1.0	-43.6	-13.0	-30.6	
Mid Ch, 1880									
3760.00	-16.1	V	3.0	35.8	1.0	-50.9	-13.0	-37.9	
5640.00	-14.1	V	3.0	35.5	1.0	-48.6	-13.0	-35.6	
7520.00	-11.8	V	3.0	35.7	1.0	-46.5	-13.0	-33.5	
3760.00	-11.1	H	3.0	35.8	1.0	-45.9	-13.0	-32.9	
5640.00	-13.4	H	3.0	35.5	1.0	-47.9	-13.0	-34.9	
7520.00	-10.6	H	3.0	35.7	1.0	-45.3	-13.0	-32.3	
High Ch, 1907.5									
3815.00	-15.3	V	3.0	35.8	1.0	-50.1	-13.0	-37.1	
5722.50	-13.0	V	3.0	35.5	1.0	-47.5	-13.0	-34.5	
7630.00	-9.9	V	3.0	35.8	1.0	-44.7	-13.0	-31.7	
3815.00	-11.1	H	3.0	35.8	1.0	-45.9	-13.0	-32.9	
5722.50	-13.2	H	3.0	35.5	1.0	-47.7	-13.0	-34.7	
7630.00	-10.5	H	3.0	35.8	1.0	-45.2	-13.0	-32.2	

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

Company: LG
Project #: 15I20232
Date: 3/12/2015
Test Engineer: Jude Semana
Configuration: EUT , AC Adapter
Location: Chamber G
Mode: LTE_16QAM Band 2 Harmonics, 3MHz Bandwidth

Band
LTE2
3MHz
16QAM

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 1851.5									
3703.00	-14.8	V	3.0	35.9	1.0	-49.6	-13.0	-36.6	
5554.50	-12.3	V	3.0	35.5	1.0	-46.8	-13.0	-33.8	
7406.00	-7.8	V	3.0	35.7	1.0	-42.6	-13.0	-29.6	
3703.00	-12.2	H	3.0	35.9	1.0	-47.1	-13.0	-34.1	
5554.50	-11.9	H	3.0	35.5	1.0	-46.4	-13.0	-33.4	
7406.00	-8.4	H	3.0	35.7	1.0	-43.1	-13.0	-30.1	
Mid Ch, 1880									
3760.00	-16.1	V	3.0	35.8	1.0	-51.0	-13.0	-38.0	
5640.00	-12.8	V	3.0	35.5	1.0	-47.3	-13.0	-34.3	
7520.00	-11.4	V	3.0	35.7	1.0	-46.2	-13.0	-33.2	
3760.00	-10.3	H	3.0	35.8	1.0	-45.1	-13.0	-32.1	
5640.00	-13.6	H	3.0	35.5	1.0	-48.1	-13.0	-35.1	
7520.00	-10.5	H	3.0	35.7	1.0	-45.2	-13.0	-32.2	
High Ch, 1908.5									
3817.00	-13.9	V	3.0	35.8	1.0	-48.7	-13.0	-35.7	
5725.50	-12.9	V	3.0	35.5	1.0	-47.4	-13.0	-34.4	
7634.00	-10.2	V	3.0	35.8	1.0	-44.9	-13.0	-31.9	
3817.00	-10.0	H	3.0	35.8	1.0	-44.8	-13.0	-31.8	
5725.50	-12.0	H	3.0	35.5	1.0	-46.5	-13.0	-33.5	
7634.00	-8.7	H	3.0	35.8	1.0	-43.5	-13.0	-30.5	

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

Company: LG
Project #: 15I20232
Date: 3/12/2015
Test Engineer: Jude Semana
Configuration: EUT , AC Adapter
Location: Chamber G
Mode: LTE_QPSK Band 2 Harmonics, 3MHz Bandwidth

Band
LTE2
3MHz
QPSK

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 1851.5									
3703.00	-14.9	V	3.0	35.9	1.0	-49.7	-13.0	-36.7	
5554.50	-13.0	V	3.0	35.5	1.0	-47.5	-13.0	-34.5	
7406.00	-8.7	V	3.0	35.7	1.0	-43.4	-13.0	-30.4	
3703.00	-12.5	H	3.0	35.9	1.0	-47.4	-13.0	-34.4	
5554.50	-12.4	H	3.0	35.5	1.0	-46.9	-13.0	-33.9	
7406.00	-9.0	H	3.0	35.7	1.0	-43.7	-13.0	-30.7	
Mid Ch, 1880									
3760.00	-18.3	V	3.0	35.8	1.0	-53.1	-13.0	-40.1	
5640.00	-13.1	V	3.0	35.5	1.0	-47.6	-13.0	-34.6	
7520.00	-11.1	V	3.0	35.7	1.0	-45.9	-13.0	-32.9	
3760.00	-10.9	H	3.0	35.8	1.0	-45.7	-13.0	-32.7	
5640.00	-13.3	H	3.0	35.5	1.0	-47.8	-13.0	-34.8	
7520.00	-10.3	H	3.0	35.7	1.0	-45.1	-13.0	-32.1	
High Ch, 1908.5									
3817.00	-12.9	V	3.0	35.8	1.0	-47.7	-13.0	-34.7	
5725.50	-13.4	V	3.0	35.5	1.0	-47.9	-13.0	-34.9	
7634.00	-9.4	V	3.0	35.8	1.0	-44.1	-13.0	-31.1	
3817.00	-10.3	H	3.0	35.8	1.0	-45.0	-13.0	-32.0	
5725.50	-12.4	H	3.0	35.5	1.0	-46.9	-13.0	-33.9	
7634.00	-9.5	H	3.0	35.8	1.0	-44.3	-13.0	-31.3	

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

Company: LG
Project #: 15I20232
Date: 3/12/2015
Test Engineer: Jude Semana
Configuration: EUT , AC Adapter
Location: Chamber G
Mode: LTE_16QAM Band 2 Harmonics, 1.4MHz Bandwidth

Band
LTE2
1.4MHz
16QAM

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 1850.7									
3701.40	-11.6	V	3.0	35.9	1.0	-46.5	-13.0	-33.5	
5552.10	-16.7	V	3.0	35.5	1.0	-51.2	-13.0	-38.2	
7402.80	-7.2	V	3.0	35.7	1.0	-41.9	-13.0	-28.9	
3701.40	-11.7	H	3.0	35.9	1.0	-46.6	-13.0	-33.6	
5552.10	-13.2	H	3.0	35.5	1.0	-47.7	-13.0	-34.7	
7402.80	-10.9	H	3.0	35.7	1.0	-45.7	-13.0	-32.7	
Mid Ch, 1880									
3760.00	-14.3	V	3.0	35.8	1.0	-49.1	-13.0	-36.1	
5640.00	-10.3	V	3.0	35.5	1.0	-44.8	-13.0	-31.8	
7520.00	-6.5	V	3.0	35.7	1.0	-41.2	-13.0	-28.2	
3760.00	-8.8	H	3.0	35.8	1.0	-43.6	-13.0	-30.6	
5640.00	-13.5	H	3.0	35.5	1.0	-48.0	-13.0	-35.0	
7520.00	-10.2	H	3.0	35.7	1.0	-44.9	-13.0	-31.9	
High Ch, 1909.3									
3818.60	-16.3	V	3.0	35.8	1.0	-51.1	-13.0	-38.1	
5727.90	-11.8	V	3.0	35.5	1.0	-46.3	-13.0	-33.3	
7637.20	-7.1	V	3.0	35.8	1.0	-41.9	-13.0	-28.9	
3818.60	-9.6	H	3.0	35.8	1.0	-44.3	-13.0	-31.3	
5727.90	-11.6	H	3.0	35.5	1.0	-46.1	-13.0	-33.1	
7637.20	-10.7	H	3.0	35.8	1.0	-45.5	-13.0	-32.5	

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Band

LTE2

1.4MHz

QPSK

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

Company: LG
Project #: 15I20232
Date: 3/12/2015
Test Engineer: Jude Semana
Configuration: EUT , AC Adapter
Location: Chamber G
Mode: LTE_QPSK Band 2 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, 1850.7									
3701.40	-12.1	V	3.0	35.9	1.0	-47.0	-13.0	-34.0	
5552.10	-13.9	V	3.0	35.5	1.0	-48.3	-13.0	-35.3	
7402.80	-7.4	V	3.0	35.7	1.0	-42.1	-13.0	-29.1	
3701.40	-11.3	H	3.0	35.9	1.0	-46.1	-13.0	-33.1	
5552.10	-12.8	H	3.0	35.5	1.0	-47.3	-13.0	-34.3	
7402.80	-10.1	H	3.0	35.7	1.0	-44.8	-13.0	-31.8	
Mid Ch, 1880									
3760.00	-15.0	V	3.0	35.8	1.0	-49.8	-13.0	-36.8	
5640.00	-10.4	V	3.0	35.5	1.0	-44.9	-13.0	-31.9	
7520.00	-6.8	V	3.0	35.7	1.0	-41.5	-13.0	-28.5	
3760.00	-8.3	H	3.0	35.8	1.0	-43.1	-13.0	-30.1	
5640.00	-13.5	H	3.0	35.5	1.0	-48.0	-13.0	-35.0	
7520.00	-10.6	H	3.0	35.7	1.0	-45.3	-13.0	-32.3	
High Ch, 1909.3									
3818.60	-14.8	V	3.0	35.8	1.0	-49.6	-13.0	-36.6	
5727.90	-11.6	V	3.0	35.5	1.0	-46.1	-13.0	-33.1	
7637.20	-7.7	V	3.0	35.8	1.0	-42.4	-13.0	-29.4	
3818.60	-9.8	H	3.0	35.8	1.0	-44.5	-13.0	-31.5	
5727.90	-11.7	H	3.0	35.5	1.0	-46.2	-13.0	-33.2	
7637.20	-10.1	H	3.0	35.8	1.0	-44.9	-13.0	-31.9	

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LTE Band 5

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

Company: LG Electronics
Project #: 15I20232
Date: 3/25/2015
Test Engineer: R.Z
Configuration: EUT/ AC Charger/ Headset
Location: Chamber G
Mode: LTE_16QAM Band 5 Harmonics, 10MHz Bandwidth

Band
LTE5
10MHz
16QAM

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	-15.5	V	3.0	37.0	1.0	-51.5	-13.0	-38.5	
2487.00	-23.0	V	3.0	36.4	1.0	-58.4	-13.0	-45.4	
3316.00	-21.1	V	3.0	36.2	1.0	-56.3	-13.0	-43.3	
1658.00	-19.1	H	3.0	37.0	1.0	-55.1	-13.0	-42.1	
2487.00	-24.9	H	3.0	36.4	1.0	-60.4	-13.0	-47.4	
3316.00	-20.9	H	3.0	36.2	1.0	-56.1	-13.0	-43.1	
Mid Ch, 836.5									
1673.00	-16.0	V	3.0	37.0	1.0	-52.0	-13.0	-39.0	
2509.50	-22.8	V	3.0	36.4	1.0	-58.2	-13.0	-45.2	
3346.00	-21.3	V	3.0	36.1	1.0	-56.4	-13.0	-43.4	
1673.00	-23.7	H	3.0	37.0	1.0	-59.7	-13.0	-46.7	
2509.50	-24.9	H	3.0	36.4	1.0	-60.3	-13.0	-47.3	
3346.00	-22.3	H	3.0	36.1	1.0	-57.4	-13.0	-44.4	
High Ch, 844									
1688.00	-17.3	V	3.0	37.0	1.0	-53.3	-13.0	-40.3	
2532.00	-23.3	V	3.0	36.4	1.0	-58.7	-13.0	-45.7	
3376.00	-20.9	V	3.0	36.1	1.0	-56.0	-13.0	-43.0	
1688.00	-21.2	H	3.0	37.0	1.0	-57.2	-13.0	-44.2	
2532.00	-24.7	H	3.0	36.4	1.0	-60.1	-13.0	-47.1	
3376.00	-21.8	H	3.0	36.1	1.0	-56.9	-13.0	-43.9	

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

Company: LG Electronics
Project #: 15I20232
Date: 3/25/2015
Test Engineer: R.Z
Configuration: EUT/ AC Charger/ Headset
Location: Chamber G
Mode: LTE_QPSK Band 5 Harmonics, 10MHz Bandwidth

Band
LTE5
10MHz
QPSK

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	-13.6	V	3.0	37.0	1.0	-49.7	-13.0	-36.7	
2487.00	-23.3	V	3.0	36.4	1.0	-58.7	-13.0	-45.7	
3316.00	-21.1	V	3.0	36.2	1.0	-56.3	-13.0	-43.3	
1658.00	-17.1	H	3.0	37.0	1.0	-53.1	-13.0	-40.1	
2487.00	-23.9	H	3.0	36.4	1.0	-59.4	-13.0	-46.4	
3316.00	-21.1	H	3.0	36.2	1.0	-56.3	-13.0	-43.3	
Mid Ch, 836.5									
1673.00	-16.3	V	3.0	37.0	1.0	-52.3	-13.0	-39.3	
2509.50	-22.8	V	3.0	36.4	1.0	-58.2	-13.0	-45.2	
3346.00	-21.1	V	3.0	36.1	1.0	-56.2	-13.0	-43.2	
1673.00	-24.0	H	3.0	37.0	1.0	-60.0	-13.0	-47.0	
2509.50	-25.3	H	3.0	36.4	1.0	-60.7	-13.0	-47.7	
3346.00	-21.6	H	3.0	36.1	1.0	-56.7	-13.0	-43.7	
High Ch, 844									
1688.00	-17.5	V	3.0	37.0	1.0	-53.5	-13.0	-40.5	
2532.00	-22.7	V	3.0	36.4	1.0	-58.1	-13.0	-45.1	
3376.00	-21.2	V	3.0	36.1	1.0	-56.3	-13.0	-43.3	
1688.00	-18.8	H	3.0	37.0	1.0	-54.8	-13.0	-41.8	
2532.00	-24.2	H	3.0	36.4	1.0	-59.6	-13.0	-46.6	
3376.00	-21.5	H	3.0	36.1	1.0	-56.6	-13.0	-43.6	

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

Company: LG Electronics
Project #: 15I20232
Date: 3/25/2015
Test Engineer: R.Z
Configuration: EUT/ AC Charger/ Headset
Location: Chamber G
Mode: LTE_16QAM Band 5 Harmonics, 5MHz Bandwidth

Band
LTE5
5MHz
16QAM

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	-16.9	V	3.0	37.0	1.0	-52.9	-13.0	-39.9	
2479.50	-23.6	V	3.0	36.4	1.0	-59.1	-13.0	-46.1	
3306.00	-20.6	V	3.0	36.2	1.0	-55.7	-13.0	-42.7	
1653.00	-17.1	H	3.0	37.0	1.0	-53.2	-13.0	-40.2	
2479.50	-24.8	H	3.0	36.4	1.0	-60.2	-13.0	-47.2	
3306.00	-21.0	H	3.0	36.2	1.0	-56.1	-13.0	-43.1	
Mid Ch, 836.5									
1673.00	-21.2	V	3.0	37.0	1.0	-57.2	-13.0	-44.2	
2509.50	-23.2	V	3.0	36.4	1.0	-58.6	-13.0	-45.6	
3346.00	-20.0	V	3.0	36.1	1.0	-55.1	-13.0	-42.1	
1673.00	-21.9	H	3.0	37.0	1.0	-57.9	-13.0	-44.9	
2509.50	-24.3	H	3.0	36.4	1.0	-59.7	-13.0	-46.7	
3346.00	-20.7	H	3.0	36.1	1.0	-55.8	-13.0	-42.8	
High Ch, 846.5									
1693.00	-20.8	V	3.0	37.0	1.0	-56.8	-13.0	-43.8	
2539.50	-22.9	V	3.0	36.4	1.0	-58.4	-13.0	-45.4	
3386.00	-21.1	V	3.0	36.1	1.0	-56.2	-13.0	-43.2	
1693.00	-23.5	H	3.0	37.0	1.0	-59.5	-13.0	-46.5	
2539.50	-24.0	H	3.0	36.4	1.0	-59.4	-13.0	-46.4	
3386.00	-21.1	H	3.0	36.1	1.0	-56.2	-13.0	-43.2	

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

Company: LG Electronics
Project #: 15I20232
Date: 3/25/2015
Test Engineer: R.Z
Configuration: EUT/ AC Charger/ Headset
Location: Chamber G
Mode: LTE_QPSK Band 5 Harmonics, 5MHz Bandwidth

Band LTE5 5MHz QPSK

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	-13.5	V	3.0	37.0	1.0	-49.5	-13.0	-36.5	
2479.50	-23.5	V	3.0	36.4	1.0	-59.0	-13.0	-46.0	
3306.00	-22.0	V	3.0	36.2	1.0	-57.1	-13.0	-44.1	
1653.00	-13.5	H	3.0	37.0	1.0	-49.6	-13.0	-36.6	
2479.50	-24.9	H	3.0	36.4	1.0	-60.3	-13.0	-47.3	
3306.00	-20.9	H	3.0	36.2	1.0	-56.0	-13.0	-43.0	
Mid Ch, 836.5									
1673.00	-19.4	V	3.0	37.0	1.0	-55.4	-13.0	-42.4	
2509.50	-22.1	V	3.0	36.4	1.0	-57.5	-13.0	-44.5	
3346.00	-21.1	V	3.0	36.1	1.0	-56.2	-13.0	-43.2	
1673.00	-22.3	H	3.0	37.0	1.0	-58.3	-13.0	-45.3	
2509.50	-24.1	H	3.0	36.4	1.0	-59.5	-13.0	-46.5	
3346.00	-21.5	H	3.0	36.1	1.0	-56.6	-13.0	-43.6	
High Ch, 846.5									
1693.00	-17.5	V	3.0	37.0	1.0	-53.5	-13.0	-40.5	
2539.50	-22.2	V	3.0	36.4	1.0	-57.7	-13.0	-44.7	
3386.00	-21.1	V	3.0	36.1	1.0	-56.2	-13.0	-43.2	
1693.00	-24.6	H	3.0	37.0	1.0	-60.5	-13.0	-47.5	
2539.50	-24.2	H	3.0	36.4	1.0	-59.6	-13.0	-46.6	
3386.00	-21.0	H	3.0	36.1	1.0	-56.1	-13.0	-43.1	

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

Company: LG Electronics
Project #: 15I20232
Date: 3/25/2015
Test Engineer: R.Z
Configuration: EUT/ AC Charger/ Headset
Location: Chamber G
Mode: LTE_16QAM Band 5 Harmonics, 3MHz Bandwidth

Band
LTE5
3MHz
16QAM

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	-12.2	V	3.0	37.0	1.0	-48.2	-13.0	-35.2	
2476.50	-22.4	V	3.0	36.4	1.0	-57.8	-13.0	-44.8	
3302.00	-20.4	V	3.0	36.2	1.0	-55.6	-13.0	-42.6	
1651.00	-17.2	H	3.0	37.0	1.0	-53.2	-13.0	-40.2	
2476.50	-23.7	H	3.0	36.4	1.0	-59.1	-13.0	-46.1	
3302.00	-21.4	H	3.0	36.2	1.0	-56.6	-13.0	-43.6	
Mid Ch, 836.5									
1673.00	-21.1	V	3.0	37.0	1.0	-57.1	-13.0	-44.1	
2509.50	-22.0	V	3.0	36.4	1.0	-57.4	-13.0	-44.4	
3346.00	-21.1	V	3.0	36.1	1.0	-56.2	-13.0	-43.2	
1673.00	-22.4	H	3.0	37.0	1.0	-58.4	-13.0	-45.4	
2509.50	-23.4	H	3.0	36.4	1.0	-58.8	-13.0	-45.8	
3346.00	-20.3	H	3.0	36.1	1.0	-55.4	-13.0	-42.4	
High Ch, 847.5									
1695.00	-21.7	V	3.0	37.0	1.0	-57.7	-13.0	-44.7	
2542.50	-21.6	V	3.0	36.4	1.0	-57.1	-13.0	-44.1	
3390.00	-20.9	V	3.0	36.1	1.0	-56.0	-13.0	-43.0	
1695.00	-21.5	H	3.0	37.0	1.0	-57.5	-13.0	-44.5	
2542.50	-23.0	H	3.0	36.4	1.0	-58.5	-13.0	-45.5	
3390.00	-20.3	H	3.0	36.1	1.0	-55.4	-13.0	-42.4	

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Band

LTE5

3MHz

QPSK

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

Company: LG Electronics
Project #: 15I20232
Date: 3/25/2015
Test Engineer: R.Z
Configuration: EUT/ AC Charger/ Headset
Location: Chamber G
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	-15.5	V	3.0	37.0	1.0	-51.5	-13.0	-38.5	
2476.50	-22.2	V	3.0	36.4	1.0	-57.7	-13.0	-44.7	
3302.00	-19.8	V	3.0	36.2	1.0	-55.0	-13.0	-42.0	
1651.00	-14.9	H	3.0	37.0	1.0	-51.0	-13.0	-38.0	
2476.50	-22.5	H	3.0	36.4	1.0	-57.9	-13.0	-44.9	
3302.00	-20.7	H	3.0	36.2	1.0	-55.9	-13.0	-42.9	
Mid Ch, 836.5									
1673.00	-21.7	V	3.0	37.0	1.0	-57.7	-13.0	-44.7	
2509.50	-21.3	V	3.0	36.4	1.0	-56.7	-13.0	-43.7	
3346.00	-21.0	V	3.0	36.1	1.0	-56.1	-13.0	-43.1	
1673.00	-23.5	H	3.0	37.0	1.0	-59.5	-13.0	-46.5	
2509.50	-23.9	H	3.0	36.4	1.0	-59.3	-13.0	-46.3	
3346.00	-20.3	H	3.0	36.1	1.0	-55.4	-13.0	-42.4	
High Ch, 847.5									
1695.00	-21.9	V	3.0	37.0	1.0	-57.9	-13.0	-44.9	
2542.50	-21.3	V	3.0	36.4	1.0	-56.8	-13.0	-43.8	
3390.00	-19.9	V	3.0	36.1	1.0	-55.0	-13.0	-42.0	
1695.00	-22.5	H	3.0	37.0	1.0	-58.5	-13.0	-45.5	
2542.50	-23.3	H	3.0	36.4	1.0	-58.8	-13.0	-45.8	
3390.00	-19.8	H	3.0	36.1	1.0	-54.9	-13.0	-41.9	

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

Company: LG Electronics
Project #: 15I20232
Date: 3/25/2015
Test Engineer: R.Z
Configuration: EUT/ AC Charger/ Headset
Location: Chamber G
Mode: LTE_16QAM Band 5 Harmonics, 1.4MHz Bandwidth

Band
LTE5
1.4MHz
16QAM

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	-12.1	V	3.0	37.1	1.0	-48.1	-13.0	-35.1	
2474.10	-23.2	V	3.0	36.4	1.0	-58.6	-13.0	-45.6	
3298.80	-20.7	V	3.0	36.2	1.0	-55.9	-13.0	-42.9	
1649.40	-21.1	H	3.0	37.1	1.0	-57.1	-13.0	-44.1	
2474.10	-24.4	H	3.0	36.4	1.0	-59.9	-13.0	-46.9	
3298.80	-21.2	H	3.0	36.2	1.0	-56.4	-13.0	-43.4	
Mid Ch, 836.5									
1673.00	-20.0	V	3.0	37.0	1.0	-56.0	-13.0	-43.0	
2509.50	-22.0	V	3.0	36.4	1.0	-57.4	-13.0	-44.4	
3346.00	-20.4	V	3.0	36.1	1.0	-55.5	-13.0	-42.5	
1673.00	-24.2	H	3.0	37.0	1.0	-60.2	-13.0	-47.2	
2509.50	-23.8	H	3.0	36.4	1.0	-59.2	-13.0	-46.2	
3346.00	-21.2	H	3.0	36.1	1.0	-56.4	-13.0	-43.4	
High Ch, 848.3									
1696.60	-21.5	V	3.0	37.0	1.0	-57.5	-13.0	-44.5	
2544.90	-22.2	V	3.0	36.4	1.0	-57.6	-13.0	-44.6	
3393.20	-20.9	V	3.0	36.1	1.0	-55.9	-13.0	-42.9	
1696.60	-20.6	H	3.0	37.0	1.0	-56.5	-13.0	-43.5	
2544.90	-23.4	H	3.0	36.4	1.0	-58.8	-13.0	-45.8	
3393.20	-20.5	H	3.0	36.1	1.0	-55.6	-13.0	-42.6	

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

Company: LG Electronics
Project #: 15I20232
Date: 3/25/2015
Test Engineer: R.Z
Configuration: EUT/ AC Charger/ Headset
Location: Chamber G
Mode: LTE_QPSK Band 5 Harmonics, 1.4MHz Bandwidth

Band LTE5 1.4MHz QPSK

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	-18.4	V	3.0	37.1	1.0	-54.5	-13.0	-41.5	
2474.10	-22.9	V	3.0	36.4	1.0	-58.3	-13.0	-45.3	
3298.80	-20.7	V	3.0	36.2	1.0	-55.8	-13.0	-42.8	
1649.40	-16.4	H	3.0	37.1	1.0	-52.5	-13.0	-39.5	
2474.10	-23.1	H	3.0	36.4	1.0	-58.5	-13.0	-45.5	
3298.80	-20.7	H	3.0	36.2	1.0	-55.9	-13.0	-42.9	
Mid Ch, 836.5									
1673.00	-19.4	V	3.0	37.0	1.0	-55.4	-13.0	-42.4	
2509.50	-23.3	V	3.0	36.4	1.0	-58.7	-13.0	-45.7	
3346.00	-20.5	V	3.0	36.1	1.0	-55.6	-13.0	-42.6	
1673.00	-25.0	H	3.0	37.0	1.0	-61.0	-13.0	-48.0	
2509.50	-23.0	H	3.0	36.4	1.0	-58.4	-13.0	-45.4	
3346.00	-20.9	H	3.0	36.1	1.0	-56.0	-13.0	-43.0	
High Ch, 848.3									
1696.60	-18.2	V	3.0	37.0	1.0	-54.2	-13.0	-41.2	
2544.90	-22.0	V	3.0	36.4	1.0	-57.4	-13.0	-44.4	
3393.20	-19.8	V	3.0	36.1	1.0	-54.8	-13.0	-41.8	
1696.60	-22.9	H	3.0	37.0	1.0	-58.9	-13.0	-45.9	
2544.90	-24.2	H	3.0	36.4	1.0	-59.6	-13.0	-46.6	
3393.20	-20.2	H	3.0	36.1	1.0	-55.2	-13.0	-42.2	

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LTE Band 4

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

Company: LG
Project #: 15I20232
Date: 3/25/2015
Test Engineer: R.Z
Configuration: EUT , AC Adapter and Headset
Location: Chamber G
Mode: LTE_16QAM Band 4 Harmonics, 15MHz Bandwidth

Band LTE4 15MHz 16QAM

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 1717.5									
3435.00	0.4	V	3.0	36.1	1.0	-34.6	-13.0	-21.6	
5152.50	11.3	V	3.0	35.4	1.0	-23.1	-13.0	-10.1	
6870.00	8.7	V	3.0	35.7	1.0	-26.0	-13.0	-13.0	
3435.00	0.4	H	3.0	36.1	1.0	-34.7	-13.0	-21.7	
5152.50	8.9	H	3.0	35.4	1.0	-25.6	-13.0	-12.6	
6870.00	6.4	H	3.0	35.7	1.0	-28.3	-13.0	-15.3	
Mid Ch, 1732.5									
3465.00	-5.7	V	3.0	36.0	1.0	-40.8	-13.0	-27.8	
5197.50	7.6	V	3.0	35.4	1.0	-26.8	-13.0	-13.8	
6930.00	2.2	V	3.0	35.7	1.0	-32.5	-13.0	-19.5	
3465.00	-4.7	H	3.0	36.0	1.0	-39.8	-13.0	-26.8	
5197.50	5.0	H	3.0	35.4	1.0	-29.4	-13.0	-16.4	
6930.00	-0.5	H	3.0	35.7	1.0	-35.1	-13.0	-22.1	
High Ch, 1747.5									
3495.00	0.1	V	3.0	36.0	1.0	-35.0	-13.0	-22.0	
5242.50	9.7	V	3.0	35.4	1.0	-24.7	-13.0	-11.7	
6990.00	5.5	V	3.0	35.7	1.0	-29.2	-13.0	-16.2	
3495.00	-2.4	H	3.0	36.0	1.0	-37.4	-13.0	-24.4	
5242.50	7.2	H	3.0	35.4	1.0	-27.2	-13.0	-14.2	
6990.00	4.2	H	3.0	35.7	1.0	-30.5	-13.0	-17.5	

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

Company: LG
Project #: 15I20232
Date: 3/25/2015
Test Engineer: R.Z
Configuration: EUT , AC Adapter and Headset
Location: Chamber G
Mode: LTE_QPSK Band 4 Harmonics, 15MHz Bandwidth

Band
LTE4
15MHz
QPSK

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 1717.5									
3435.00	1.8	V	3.0	36.1	1.0	-33.3	-13.0	-20.3	
5152.50	10.1	V	3.0	35.4	1.0	-24.4	-13.0	-11.4	
6870.00	8.8	V	3.0	35.7	1.0	-25.8	-13.0	-12.8	
3435.00	0.9	H	3.0	36.1	1.0	-34.2	-13.0	-21.2	
5152.50	10.3	H	3.0	35.4	1.0	-24.1	-13.0	-11.1	
6870.00	8.2	H	3.0	35.7	1.0	-26.5	-13.0	-13.5	
Mid Ch, 1732.5									
3465.00	-3.3	V	3.0	36.0	1.0	-38.3	-13.0	-25.3	
5197.50	7.6	V	3.0	35.4	1.0	-26.9	-13.0	-13.9	
6930.00	1.4	V	3.0	35.7	1.0	-33.3	-13.0	-20.3	
3465.00	-3.4	H	3.0	36.0	1.0	-38.4	-13.0	-25.4	
5197.50	3.7	H	3.0	35.4	1.0	-30.7	-13.0	-17.7	
6930.00	2.1	H	3.0	35.7	1.0	-32.6	-13.0	-19.6	
High Ch, 1747.5									
3495.00	0.2	V	3.0	36.0	1.0	-34.8	-13.0	-21.8	
5242.50	9.1	V	3.0	35.4	1.0	-25.3	-13.0	-12.3	
6990.00	6.3	V	3.0	35.7	1.0	-28.4	-13.0	-15.4	
3495.00	0.6	H	3.0	36.0	1.0	-34.4	-13.0	-21.4	
5242.50	6.1	H	3.0	35.4	1.0	-28.4	-13.0	-15.4	
6990.00	5.2	H	3.0	35.7	1.0	-29.5	-13.0	-16.5	

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

Company: LG
Project #: 15I20232
Date: 3/25/2015
Test Engineer: R.Z
Configuration: EUT , AC Adapter and Headset
Location: Chamber G
Mode: LTE_16QAM Band 4 Harmonics, 10MHz Bandwidth

Band
LTE4
10MHz
16QAM

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 1715									
3430.00	2.0	V	3.0	36.1	1.0	-33.0	-13.0	-20.0	
5145.00	10.9	V	3.0	35.4	1.0	-23.6	-13.0	-10.6	
6860.00	8.4	V	3.0	35.7	1.0	-26.3	-13.0	-13.3	
3430.00	0.4	H	3.0	36.1	1.0	-34.6	-13.0	-21.6	
5145.00	9.6	H	3.0	35.4	1.0	-24.8	-13.0	-11.8	
6860.00	6.2	H	3.0	35.7	1.0	-28.5	-13.0	-15.5	
Mid Ch, 1732.5									
3465.00	-5.0	V	3.0	36.0	1.0	-40.1	-13.0	-27.1	
5197.50	4.1	V	3.0	35.4	1.0	-30.3	-13.0	-17.3	
6930.00	0.7	V	3.0	35.7	1.0	-34.0	-13.0	-21.0	
3465.00	-5.0	H	3.0	36.0	1.0	-40.0	-13.0	-27.0	
5197.50	2.6	H	3.0	35.4	1.0	-31.8	-13.0	-18.8	
6930.00	0.0	H	3.0	35.7	1.0	-34.7	-13.0	-21.7	
High Ch, 1750									
3500.00	-0.4	V	3.0	36.0	1.0	-35.4	-13.0	-22.4	
5250.00	10.2	V	3.0	35.4	1.0	-24.2	-13.0	-11.2	
7000.00	6.5	V	3.0	35.7	1.0	-28.2	-13.0	-15.2	
3500.00	0.4	H	3.0	36.0	1.0	-34.6	-13.0	-21.6	
5250.00	9.4	H	3.0	35.4	1.0	-25.1	-13.0	-12.1	
7000.00	6.5	H	3.0	35.7	1.0	-28.2	-13.0	-15.2	

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Band

LTE4

10MHz

QPSK

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

Company: LG
Project #: 15I20232
Date: 3/25/2015
Test Engineer: R.Z
Configuration: EUT , AC Adapter and Headset
Location: Chamber G
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, 1715									
3430.00	-0.3	V	3.0	36.1	1.0	-35.4	-13.0	-22.4	
5145.00	10.6	V	3.0	35.4	1.0	-23.9	-13.0	-10.9	
6860.00	7.5	V	3.0	35.7	1.0	-27.2	-13.0	-14.2	
3430.00	0.1	H	3.0	36.1	1.0	-35.0	-13.0	-22.0	
5145.00	9.3	H	3.0	35.4	1.0	-25.1	-13.0	-12.1	
6860.00	5.8	H	3.0	35.7	1.0	-28.8	-13.0	-15.8	
Mid Ch, 1732.5									
3465.00	-4.5	V	3.0	36.0	1.0	-39.6	-13.0	-26.6	
5197.50	4.2	V	3.0	35.4	1.0	-30.2	-13.0	-17.2	
6930.00	-1.6	V	3.0	35.7	1.0	-36.3	-13.0	-23.3	
3465.00	-5.0	H	3.0	36.0	1.0	-40.0	-13.0	-27.0	
5197.50	5.9	H	3.0	35.4	1.0	-28.5	-13.0	-15.5	
6930.00	0.1	H	3.0	35.7	1.0	-34.6	-13.0	-21.6	
High Ch, 1750									
3500.00	3.0	V	3.0	36.0	1.0	-32.0	-13.0	-19.0	
5250.00	9.2	V	3.0	35.4	1.0	-25.2	-13.0	-12.2	
7000.00	8.8	V	3.0	35.7	1.0	-25.9	-13.0	-12.9	
3500.00	0.7	H	3.0	36.0	1.0	-34.3	-13.0	-21.3	
5250.00	7.5	H	3.0	35.4	1.0	-26.9	-13.0	-13.9	
7000.00	5.9	H	3.0	35.7	1.0	-28.8	-13.0	-15.8	

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

Company: LG
Project #: 15I20232
Date: 3/25/2015
Test Engineer: R.Z
Configuration: EUT , AC Adapter and Headset
Location: Chamber G
Mode: LTE_16QAM Band 4 Harmonics, 5MHz Bandwidth

Band
LTE4
5MHz
16QAM

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 1712.5									
3425.00	0.7	V	3.0	36.1	1.0	-34.4	-13.0	-21.4	
5137.50	10.6	V	3.0	35.4	1.0	-23.8	-13.0	-10.8	
6850.00	7.1	V	3.0	35.7	1.0	-27.5	-13.0	-14.5	
3425.00	0.3	H	3.0	36.1	1.0	-34.8	-13.0	-21.8	
5137.50	10.0	H	3.0	35.4	1.0	-24.4	-13.0	-11.4	
6850.00	6.9	H	3.0	35.7	1.0	-27.8	-13.0	-14.8	
Mid Ch, 1732.5									
3465.00	-6.0	V	3.0	36.0	1.0	-41.0	-13.0	-28.0	
5197.50	4.2	V	3.0	35.4	1.0	-30.2	-13.0	-17.2	
6930.00	0.6	V	3.0	35.7	1.0	-34.1	-13.0	-21.1	
3465.00	-6.2	H	3.0	36.0	1.0	-41.2	-13.0	-28.2	
5197.50	2.3	H	3.0	35.4	1.0	-32.2	-13.0	-19.2	
6930.00	-0.2	H	3.0	35.7	1.0	-34.9	-13.0	-21.9	
High Ch, 1752.5									
3505.00	-0.5	V	3.0	36.0	1.0	-35.5	-13.0	-22.5	
5257.50	11.4	V	3.0	35.4	1.0	-23.0	-13.0	-10.0	
7010.00	5.7	V	3.0	35.7	1.0	-29.0	-13.0	-16.0	
3505.00	3.1	H	3.0	36.0	1.0	-31.9	-13.0	-18.9	
5257.50	8.1	H	3.0	35.4	1.0	-26.3	-13.0	-13.3	
7010.00	6.0	H	3.0	35.7	1.0	-28.7	-13.0	-15.7	

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

Company: LG
Project #: 15I20232
Date: 3/25/2015
Test Engineer: R.Z
Configuration: EUT , AC Adapter and Headset
Location: Chamber G
Mode: LTE_QPSK Band 4 Harmonics, 5MHz Bandwidth

Band
LTE4
5MHz
QPSK

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 1712.5									
3425.00	0.1	V	3.0	36.1	1.0	-35.0	-13.0	-22.0	
5137.50	11.9	V	3.0	35.4	1.0	-22.5	-13.0	-9.5	
6850.00	9.3	V	3.0	35.7	1.0	-25.3	-13.0	-12.3	
3425.00	0.0	H	3.0	36.1	1.0	-35.1	-13.0	-22.1	
5137.50	9.7	H	3.0	35.4	1.0	-24.7	-13.0	-11.7	
6850.00	6.1	H	3.0	35.7	1.0	-28.5	-13.0	-15.5	
Mid Ch, 1732.5									
3465.00	-4.5	V	3.0	36.0	1.0	-39.6	-13.0	-26.6	
5197.50	0.4	V	3.0	35.4	1.0	-34.0	-13.0	-21.0	
6930.00	-0.5	V	3.0	35.7	1.0	-35.2	-13.0	-22.2	
3465.00	-4.9	H	3.0	36.0	1.0	-40.0	-13.0	-27.0	
5197.50	0.5	H	3.0	35.4	1.0	-33.9	-13.0	-20.9	
6930.00	0.2	H	3.0	35.7	1.0	-34.5	-13.0	-21.5	
High Ch, 1752.5									
3505.00	-2.8	V	3.0	36.0	1.0	-37.8	-13.0	-24.8	
5257.50	11.1	V	3.0	35.4	1.0	-23.4	-13.0	-10.4	
7010.00	9.2	V	3.0	35.7	1.0	-25.5	-13.0	-12.5	
3505.00	0.8	H	3.0	36.0	1.0	-34.2	-13.0	-21.2	
5257.50	7.2	H	3.0	35.4	1.0	-27.2	-13.0	-14.2	
7010.00	6.7	H	3.0	35.7	1.0	-28.0	-13.0	-15.0	

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