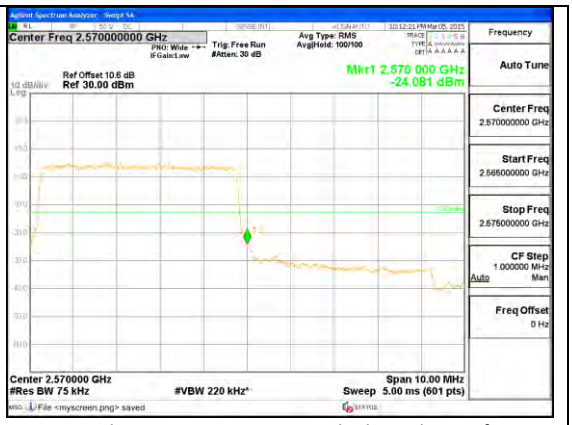
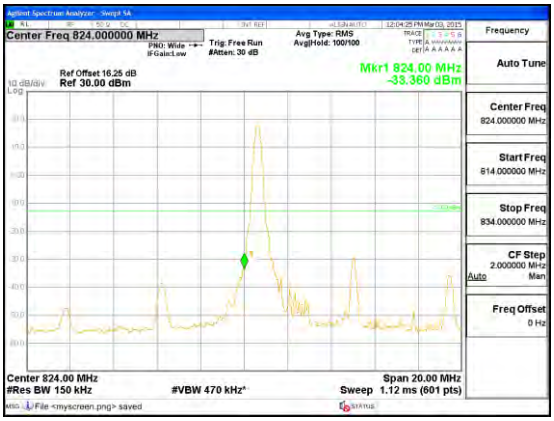
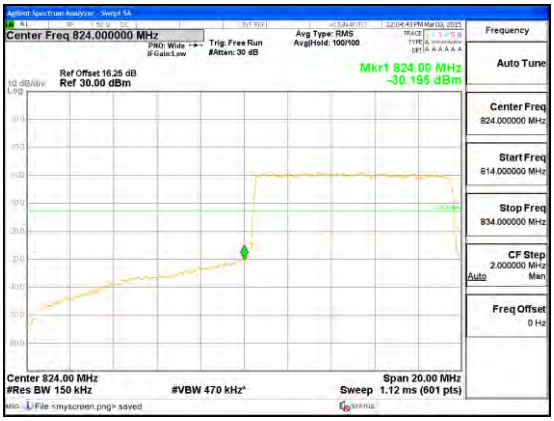
Band LTE7 5MHz QPSK	 Band LTE7 5MHz CBE QPSK High Channel 1RB.gif	 Band LTE7 5MHz CBE QPSK High Channel FRB.gif

Band LTE5 10MHz 16QAM	 Band LTE5 10MHz CBE 16QAM Low Channel 1RB.gif	 Band LTE5 10MHz CBE 16QAM Low Channel FRB.gif

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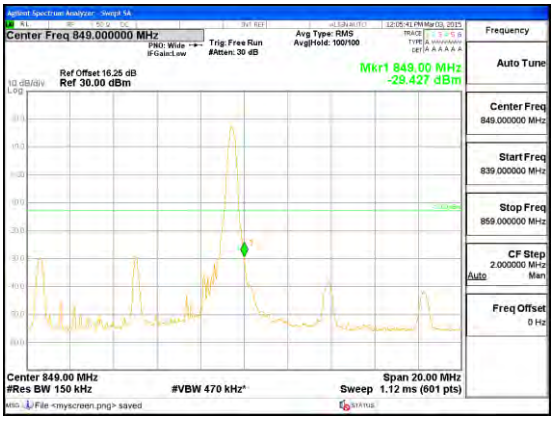
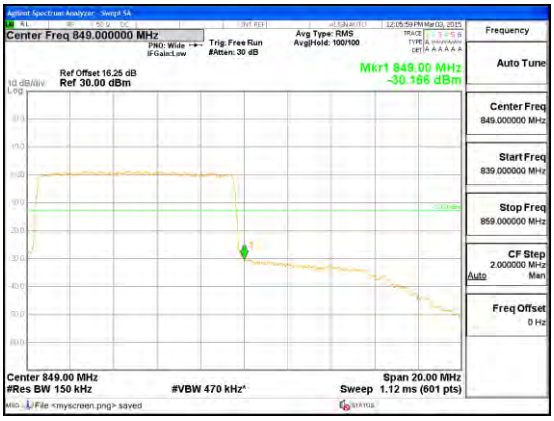
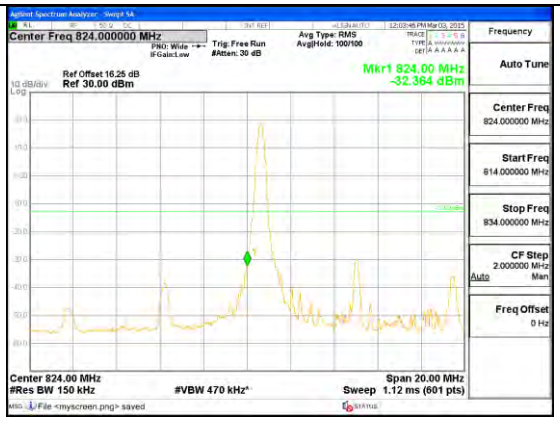
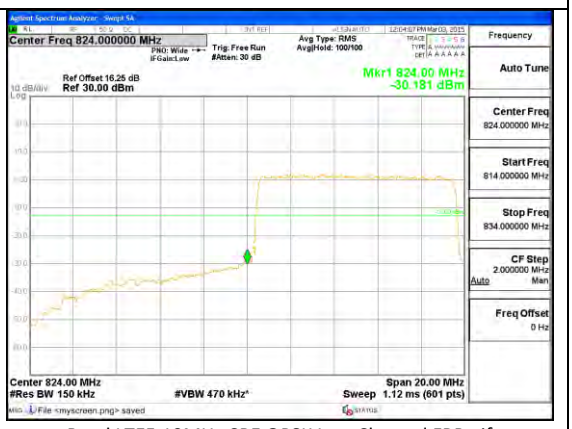
Band LTE5 10MHz 16QAM	 Band LTE5 10MHz CBE 16QAM High Channel 1RB.gif	 Band LTE5 10MHz CBE 16QAM High Channel FRB.gif
Band LTE5 10MHz QPSK	 Band LTE5 10MHz CBE QPSK Low Channel 1RB.gif	 Band LTE5 10MHz CBE QPSK Low Channel FRB.gif

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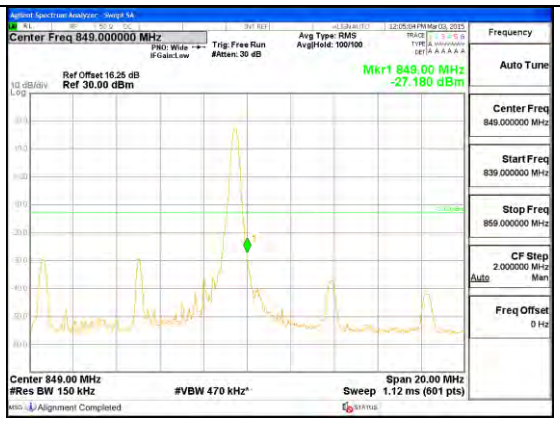
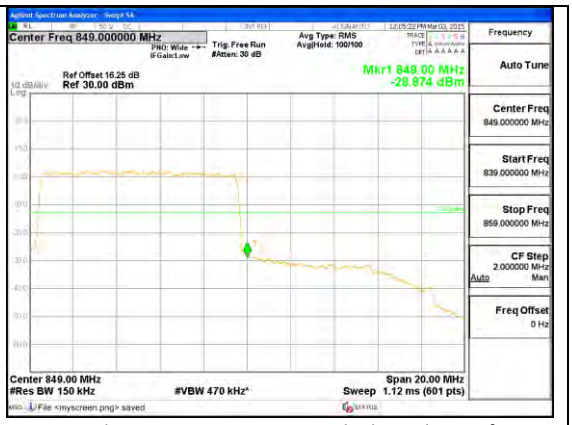
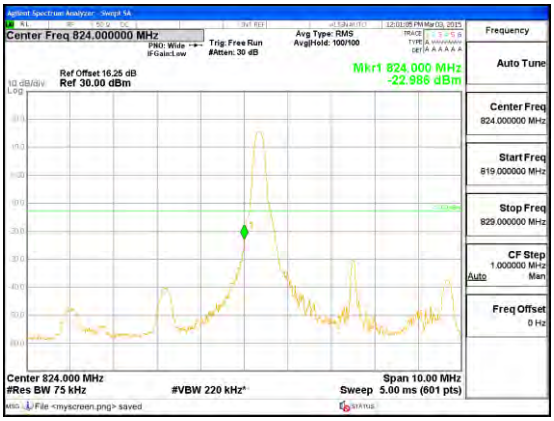
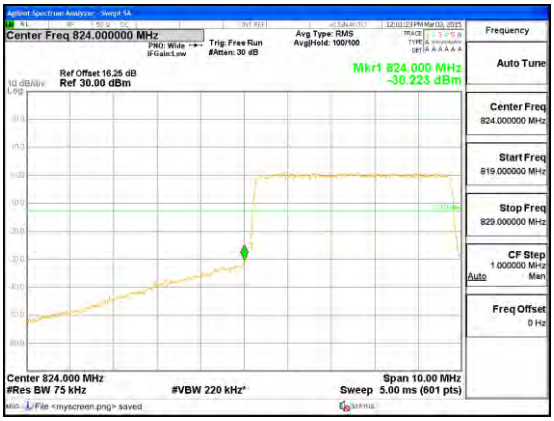
Band LTE5 10MHz QPSK	 Band LTE5 10MHz CBE QPSK High Channel 1RB.gif	 Band LTE5 10MHz CBE QPSK High Channel FRB.gif

Band LTE5 5MHz 16QAM	 Band LTE5 5MHz CBE 16QAM Low Channel 1RB.gif	 Band LTE5 5MHz CBE 16QAM Low Channel FRB.gif

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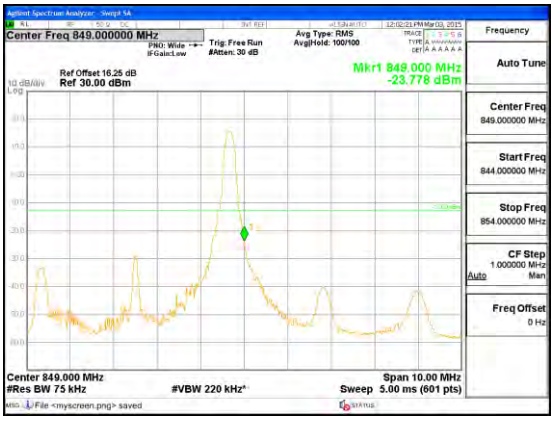
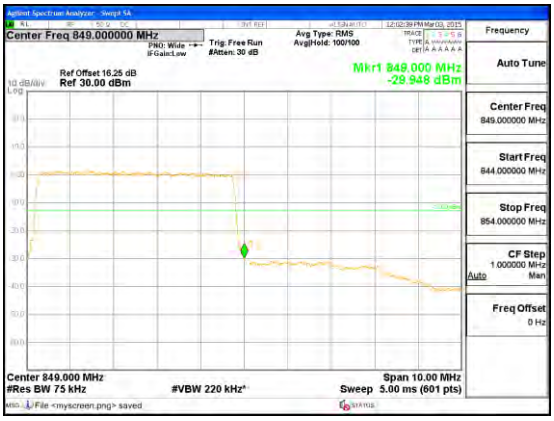
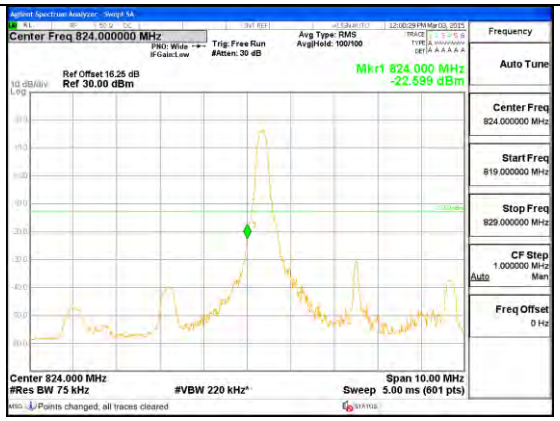
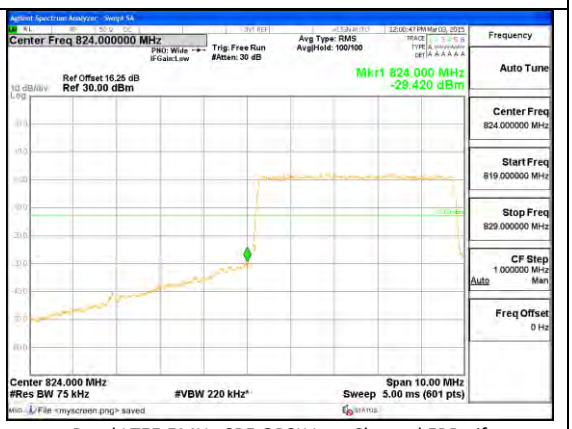
Band LTE5 5MHz 16QAM	 Band LTE5 5MHz CBE 16QAM High Channel 1RB.gif	 Band LTE5 5MHz CBE 16QAM High Channel FRB.gif
Band LTE5 5MHz QPSK	 Band LTE5 5MHz CBE QPSK Low Channel 1RB.gif	 Band LTE5 5MHz CBE QPSK Low Channel FRB.gif

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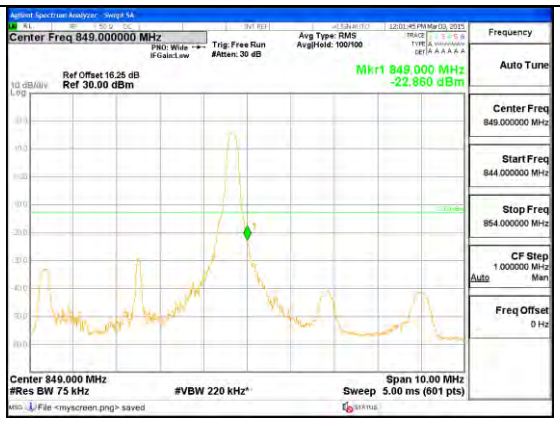
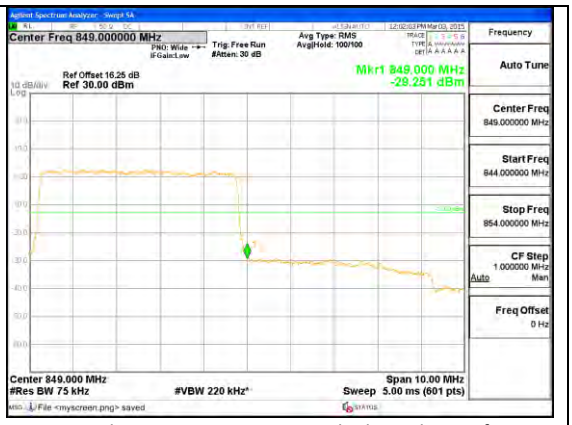
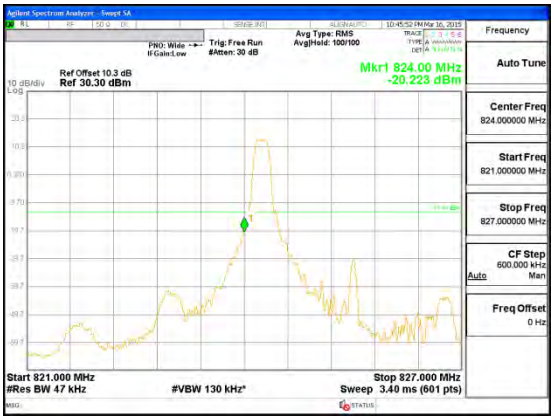
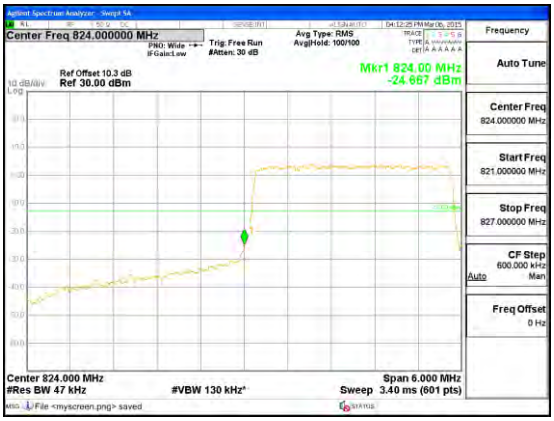
Band LTE5 5MHz QPSK	 Band LTE5 5MHz CBE QPSK High Channel 1RB.gif	 Band LTE5 5MHz CBE QPSK High Channel FRB.gif

Band LTE5 3MHz 16QAM	 Band LTE5 3MHz CBE 16QAM Low Channel 1RB.gif	 Band LTE5 3MHz CBE 16QAM Low Channel FRB.gif

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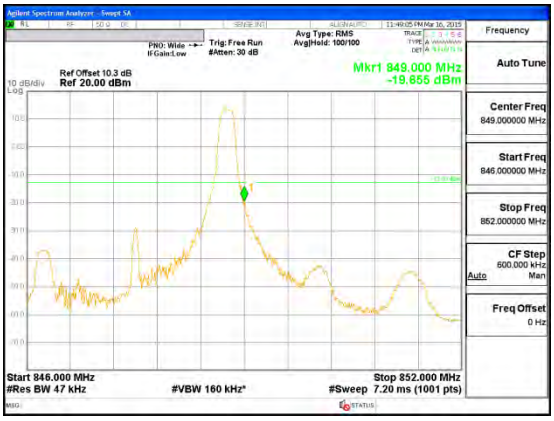
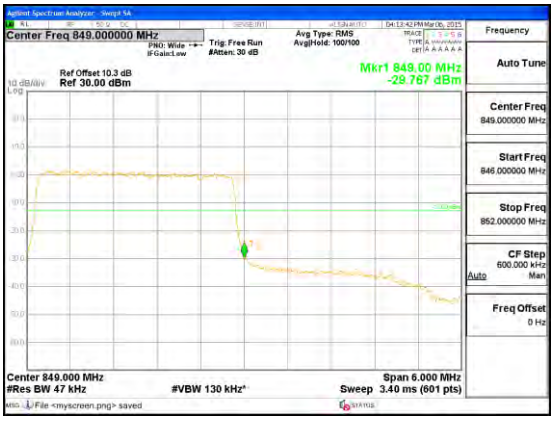
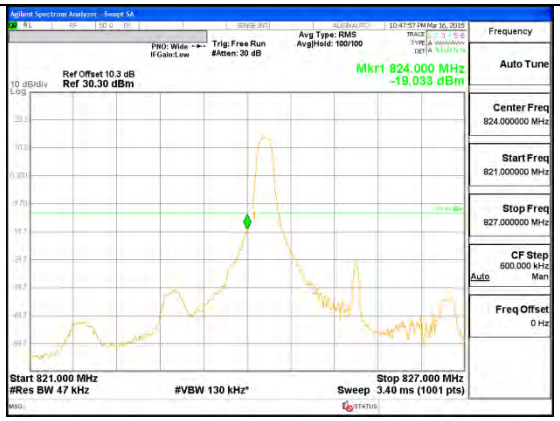
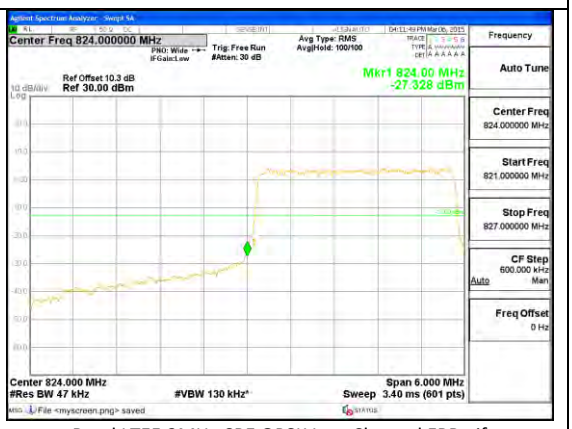
Band LTE5 3MHz 16QAM	 Band LTE5 3MHz CBE 16QAM High Channel 1RB.gif	 Band LTE5 3MHz CBE 16QAM High Channel FRB.gif
Band LTE5 3MHz QPSK	 Band LTE5 3MHz CBE QPSK Low Channel 1RB.gif	 Band LTE5 3MHz CBE QPSK Low Channel FRB.gif

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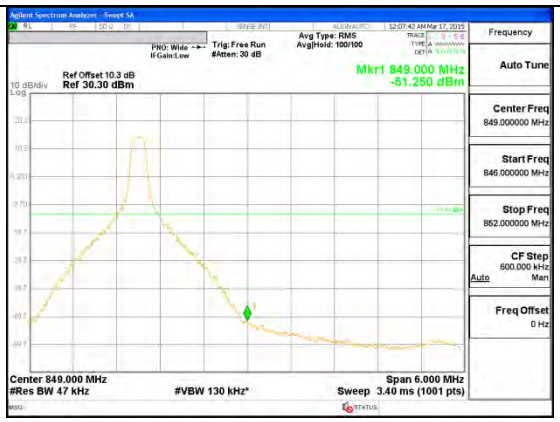
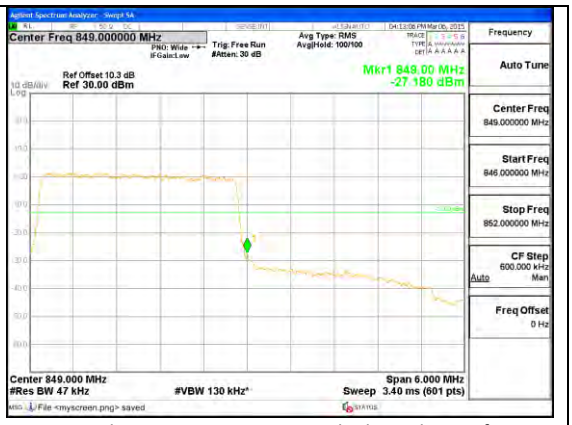
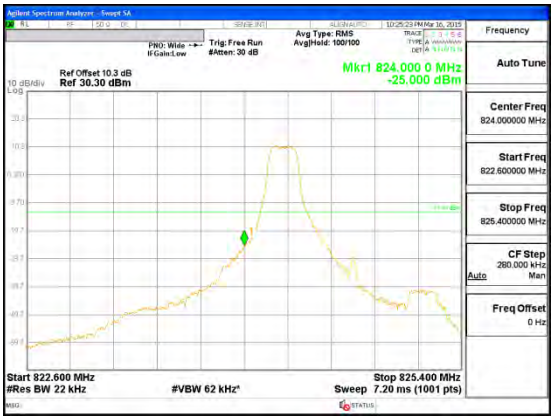
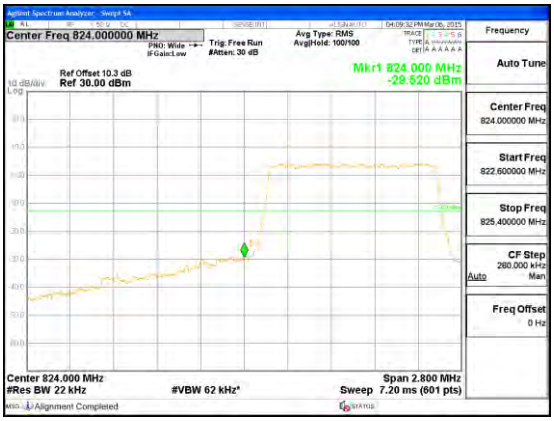
Band LTE5 3MHz QPSK	 Band LTE5 3MHz CBE QPSK High Channel 1RB.gif	 Band LTE5 3MHz CBE QPSK High Channel FRB.gif

Band LTE5 1.4MHz 16QAM	 Band LTE5 1.4MHz CBE 16QAM Low Channel 1RB.gif	 Band LTE5 1.4MHz CBE 16QAM Low Channel FRB.gif

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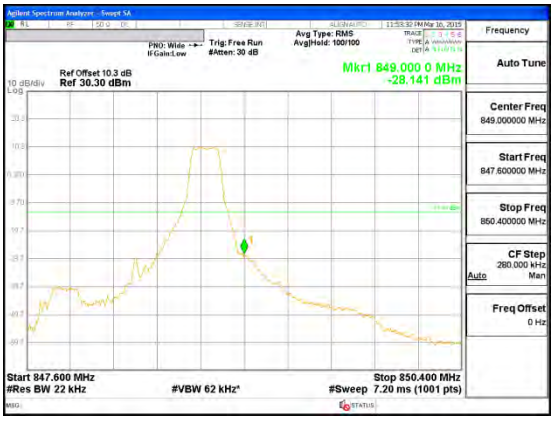
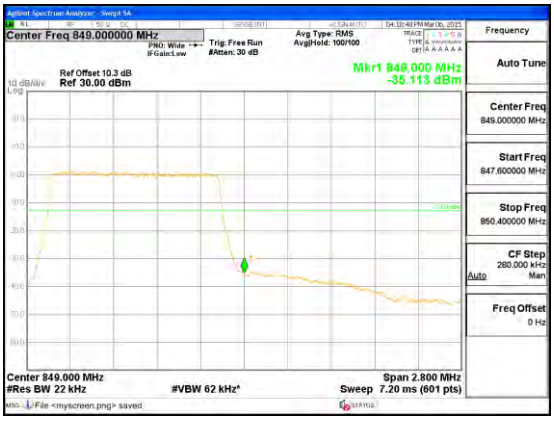
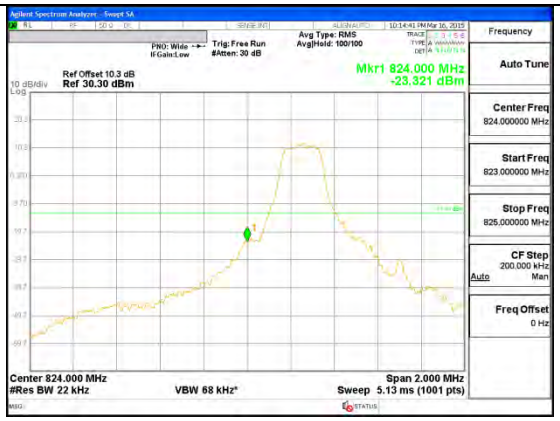
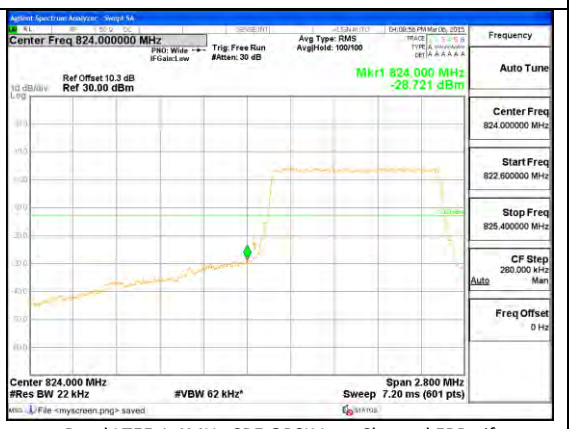
Band LTE5 1.4MHz 16QAM	 Band LTE5 1.4MHz CBE 16QAM High Channel 1RB.gif	 Band LTE5 1.4MHz CBE 16QAM High Channel FRB.gif
Band LTE5 1.4MHz QPSK	 Band LTE5 1.4MHz CBE QPSK Low Channel 1RB.gif	 Band LTE5 1.4MHz CBE QPSK Low Channel FRB.gif

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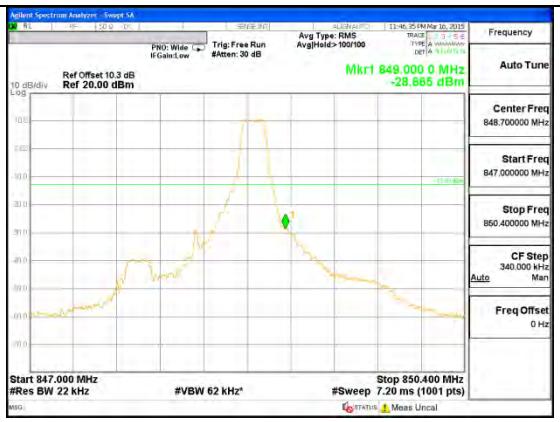
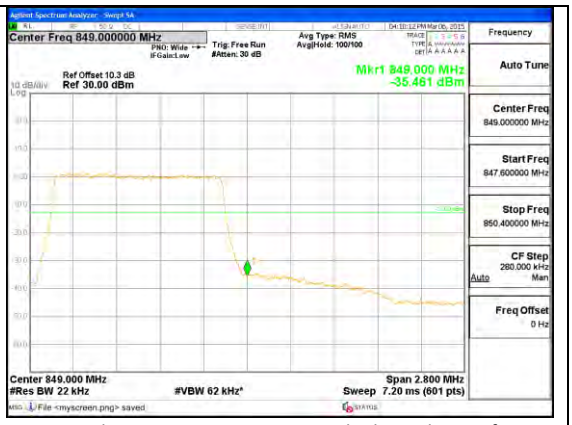
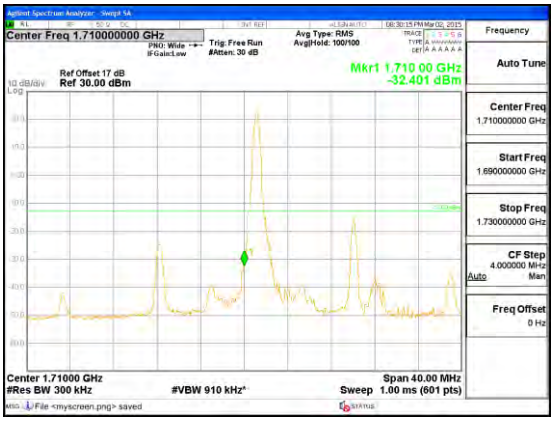
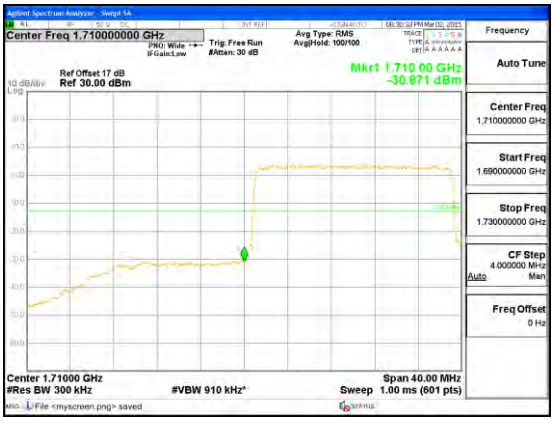
Band LTE5 1.4MHz QPSK	 Band LTE5 1.4MHz CBE QPSK High Channel 1RB.gif	 Band LTE5 1.4MHz CBE QPSK High Channel FRB.gif

Band LTE4 20MHz 16QAM	 Band LTE4 20MHz CBE 16QAM Low Channel 1RB.gif	 Band LTE4 20MHz CBE 16QAM Low Channel FRB.gif

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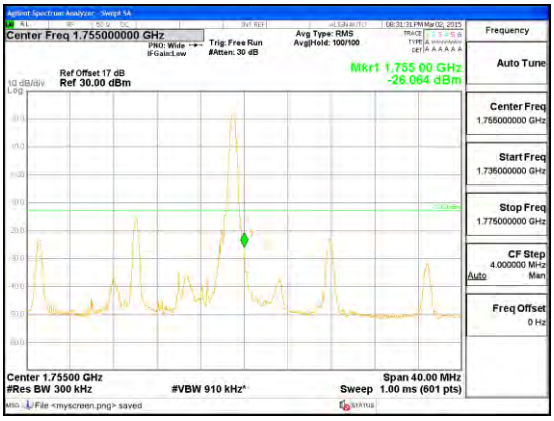
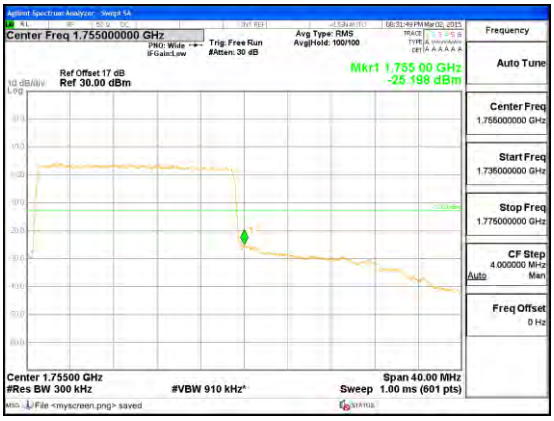
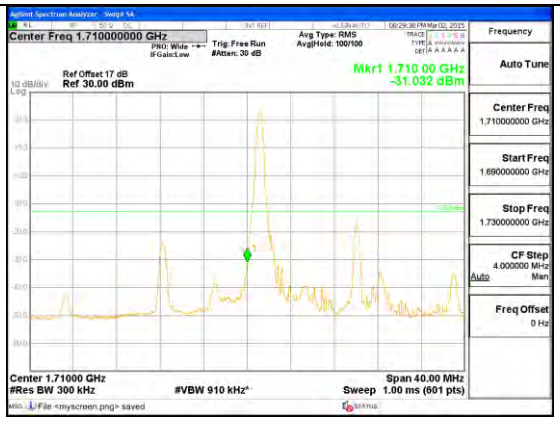
Band LTE4 20MHz 16QAM	 Band LTE4 20MHz CBE 16QAM High Channel 1RB.gif	 Band LTE4 20MHz CBE 16QAM High Channel FRB.gif
Band LTE4 20MHz QPSK	 Band LTE4 20MHz CBE QPSK Low Channel 1RB.gif	 Band LTE4 20MHz CBE QPSK Low Channel FRB.gif

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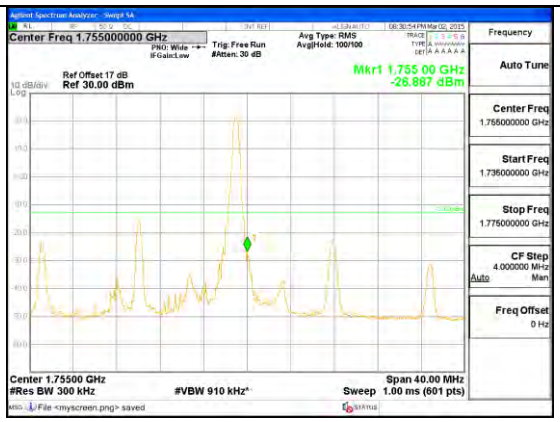
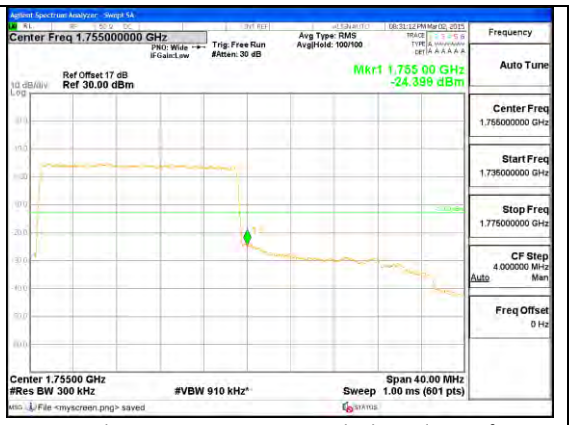
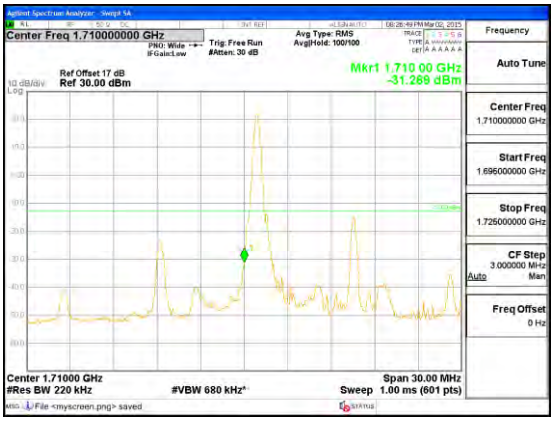
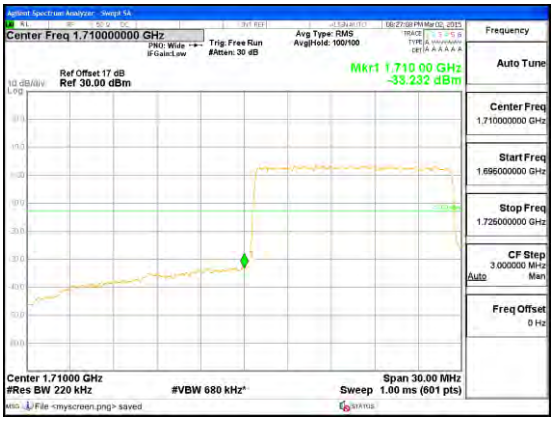
Band LTE4 20MHz QPSK	 Band LTE4 20MHz CBE QPSK High Channel 1RB.gif	 Band LTE4 20MHz CBE QPSK High Channel FRB.gif

Band LTE4 15MHz 16QAM	 Band LTE4 15MHz CBE 16QAM Low Channel 1RB.gif	 Band LTE4 15MHz CBE 16QAM Low Channel FRB.gif

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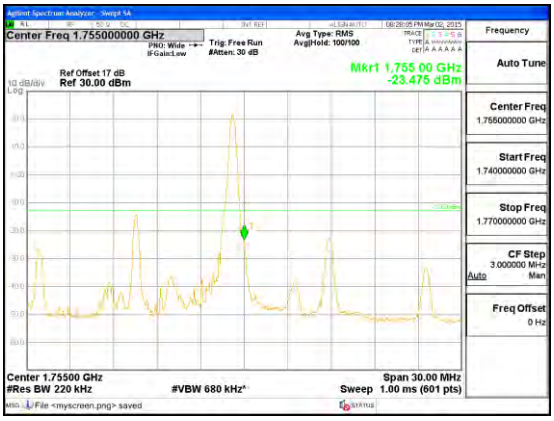
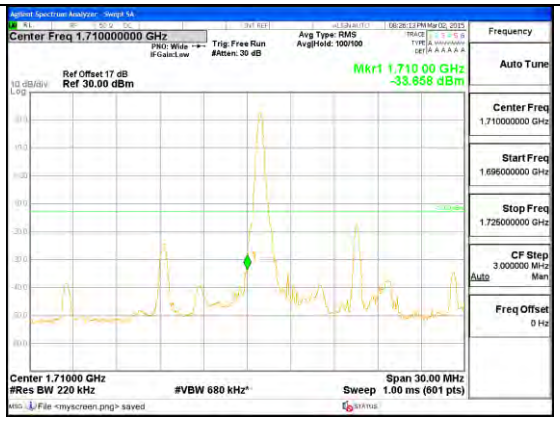
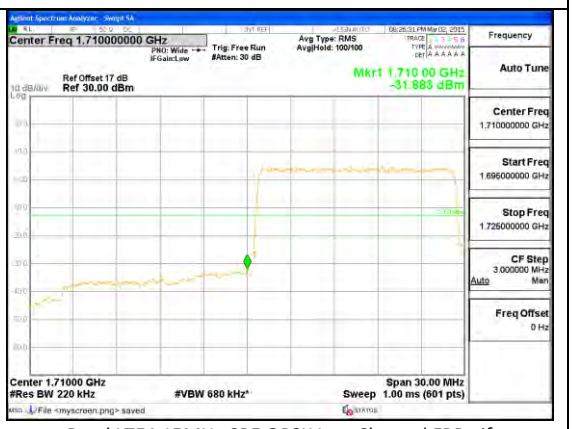
Band LTE4 15MHz 16QAM	 Band LTE4 15MHz CBE 16QAM High Channel 1RB.gif	 Band LTE4 15MHz CBE 16QAM High Channel FRB.gif
Band LTE4 15MHz QPSK	 Band LTE4 15MHz CBE QPSK Low Channel 1RB.gif	 Band LTE4 15MHz CBE QPSK Low Channel FRB.gif

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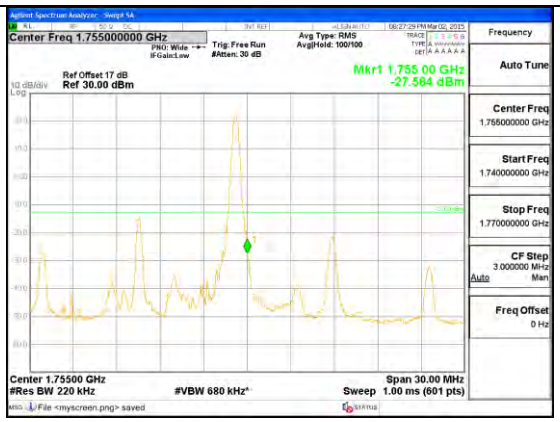
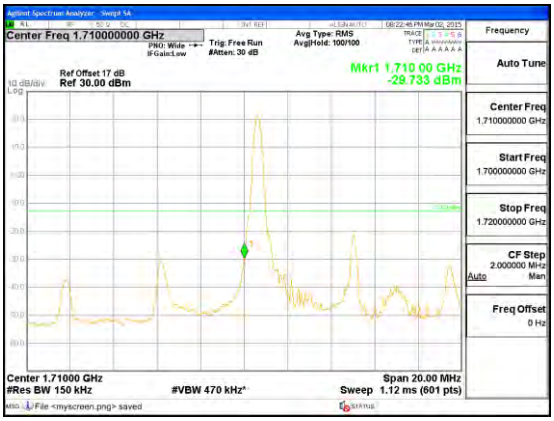
Band LTE4 15MHz QPSK	 Band LTE4 15MHz CBE QPSK High Channel 1RB.gif	 Band LTE4 15MHz CBE QPSK High Channel FRB.gif

Band LTE4 10MHz 16QAM	 Band LTE4 10MHz CBE 16QAM Low Channel 1RB.gif	 Band LTE4 10MHz CBE 16QAM Low Channel FRB.gif

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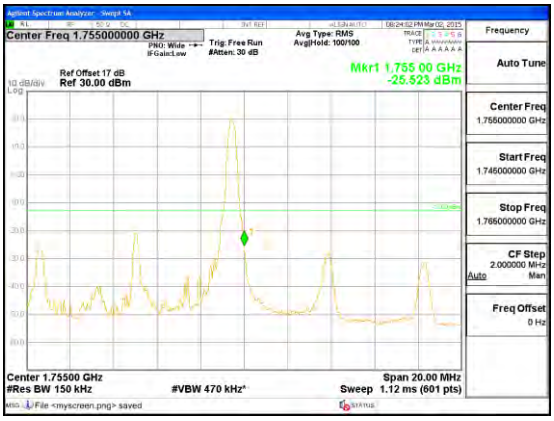
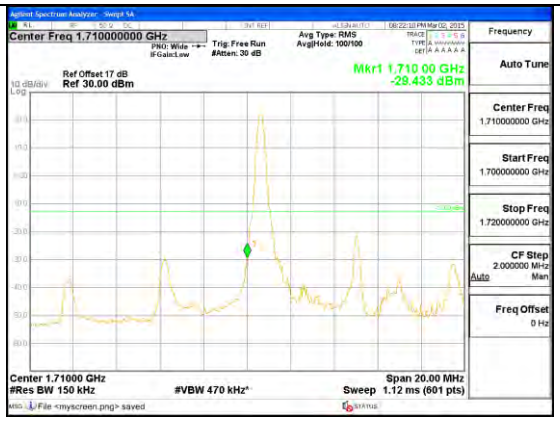
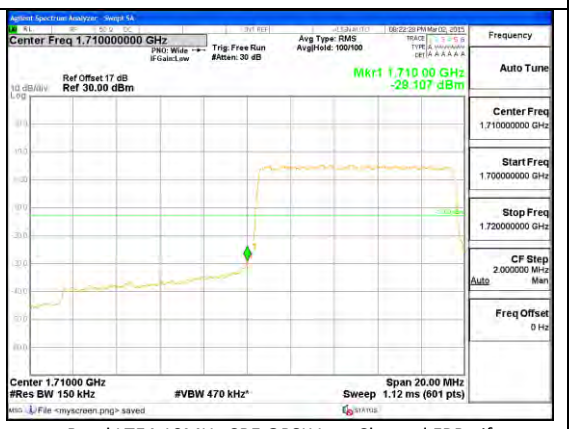
Band LTE4 10MHz 16QAM	 Band LTE4 10MHz CBE 16QAM High Channel 1RB.gif	 Band LTE4 10MHz CBE 16QAM High Channel FRB.gif
Band LTE4 10MHz QPSK	 Band LTE4 10MHz CBE QPSK Low Channel 1RB.gif	 Band LTE4 10MHz CBE QPSK Low Channel FRB.gif

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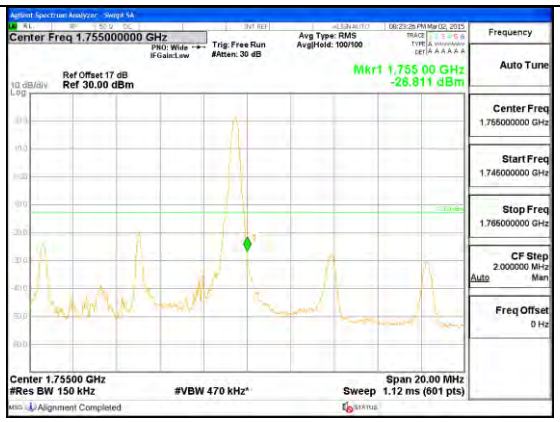
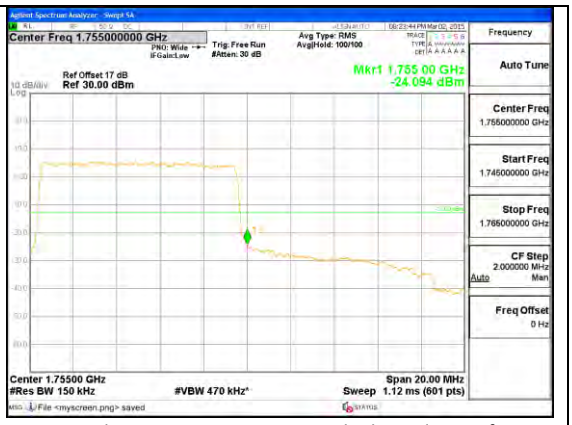
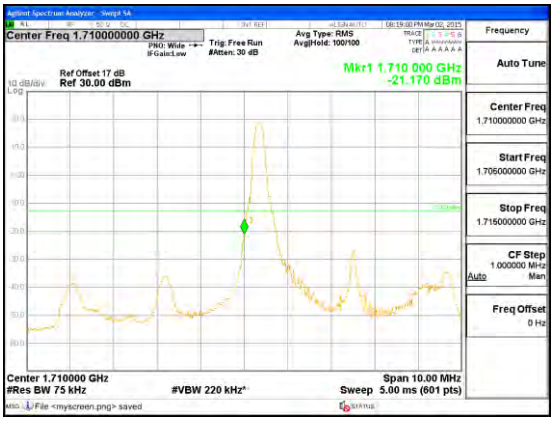
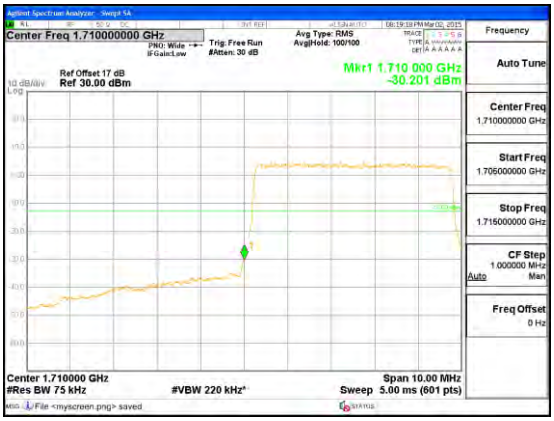
Band LTE4 10MHz QPSK	 Band LTE4 10MHz CBE QPSK High Channel 1RB.gif	 Band LTE4 10MHz CBE QPSK High Channel FRB.gif

Band LTE4 5MHz 16QAM	 Band LTE4 5MHz CBE 16QAM Low Channel 1RB.gif	 Band LTE4 5MHz CBE 16QAM Low Channel FRB.gif

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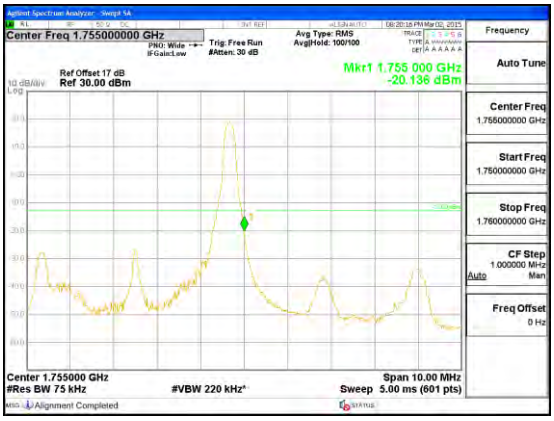
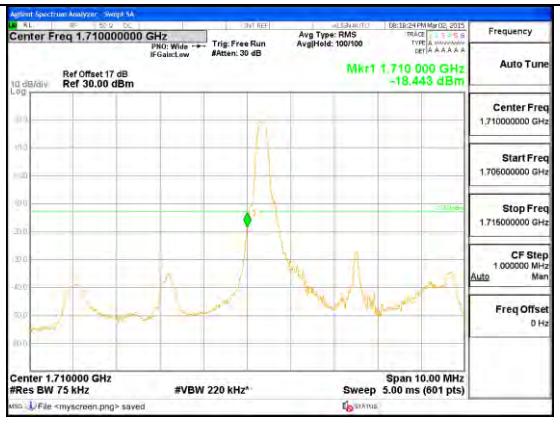
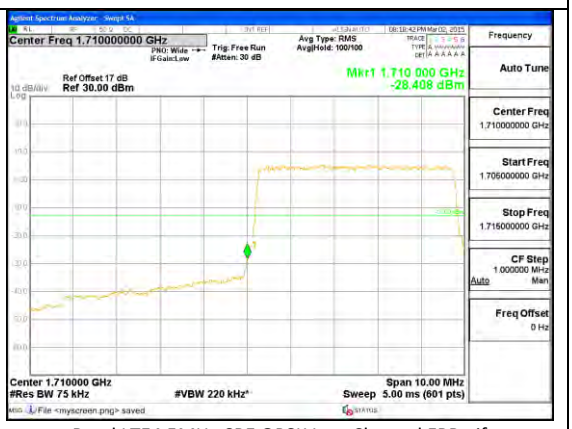
Band LTE4 5MHz 16QAM	 Band LTE4 5MHz CBE 16QAM High Channel 1RB.gif	 Band LTE4 5MHz CBE 16QAM High Channel FRB.gif
Band LTE4 5MHz QPSK	 Band LTE4 5MHz CBE QPSK Low Channel 1RB.gif	 Band LTE4 5MHz CBE QPSK Low Channel FRB.gif

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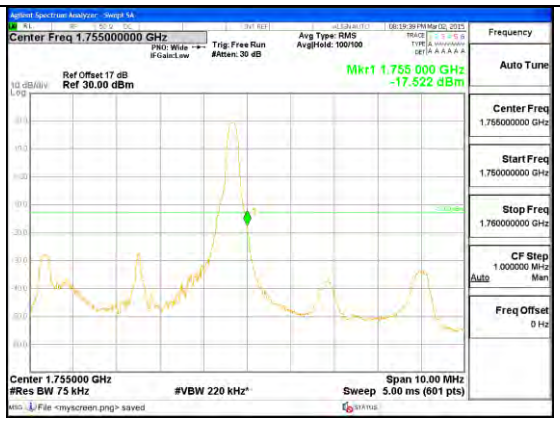
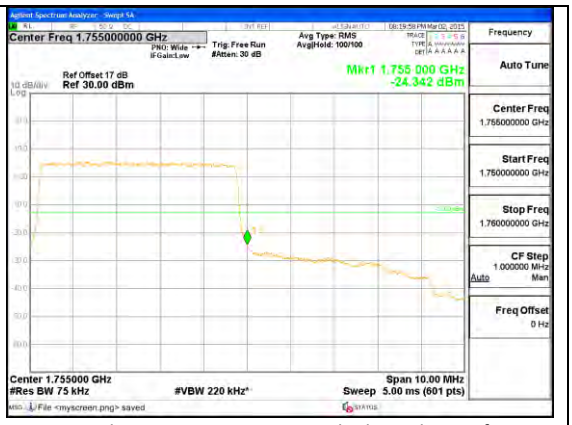
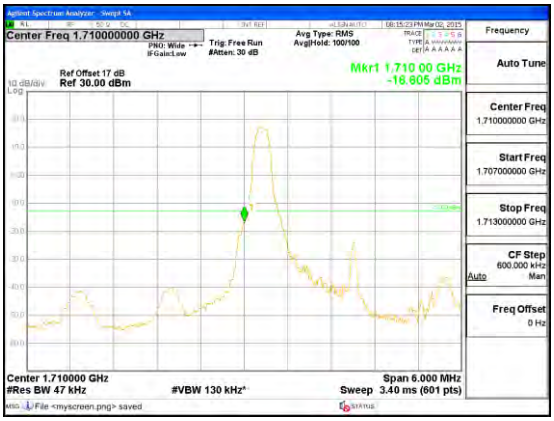
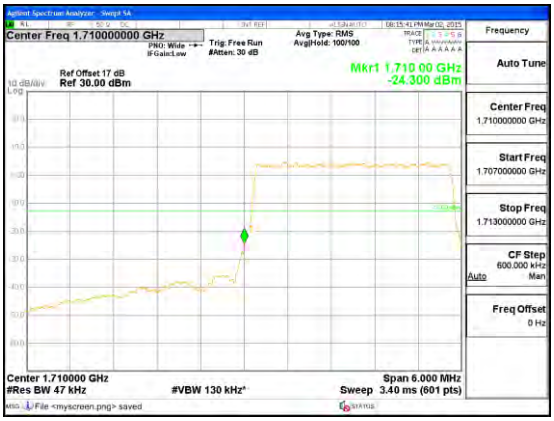
Band LTE4 5MHz QPSK	 Band LTE4 5MHz CBE QPSK High Channel 1RB.gif	 Band LTE4 5MHz CBE QPSK High Channel FRB.gif

Band LTE4 3MHz 16QAM	 Band LTE4 3MHz CBE 16QAM Low Channel 1RB.gif	 Band LTE4 3MHz CBE 16QAM Low Channel FRB.gif

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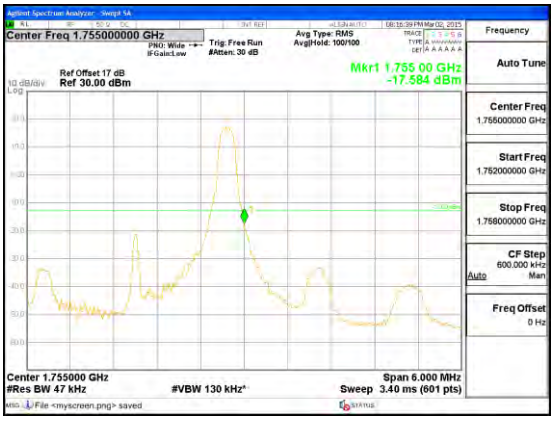
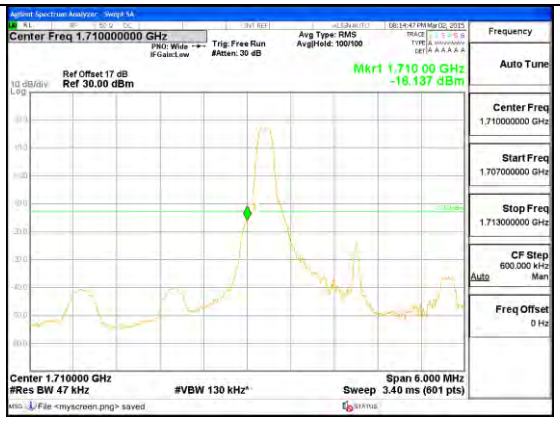
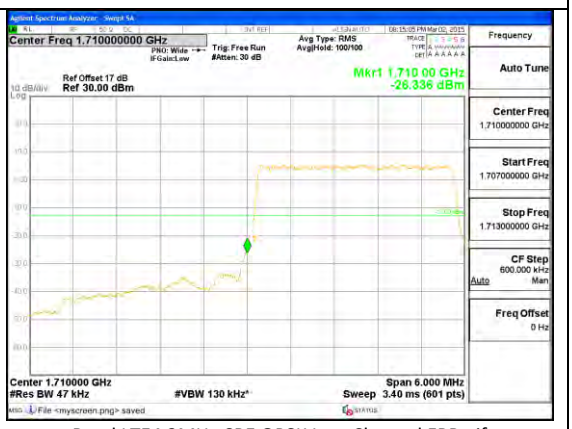
Band LTE4 3MHz 16QAM	 Band LTE4 3MHz CBE 16QAM High Channel 1RB.gif	 Band LTE4 3MHz CBE 16QAM High Channel FRB.gif
Band LTE4 3MHz QPSK	 Band LTE4 3MHz CBE QPSK Low Channel 1RB.gif	 Band LTE4 3MHz CBE QPSK Low Channel FRB.gif

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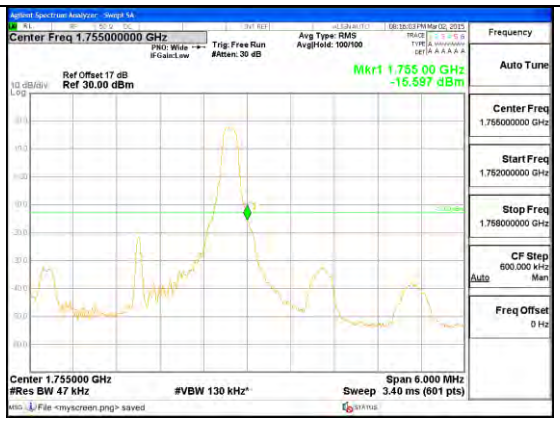
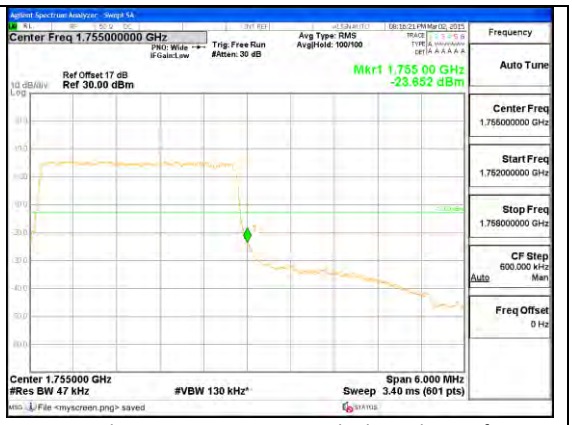
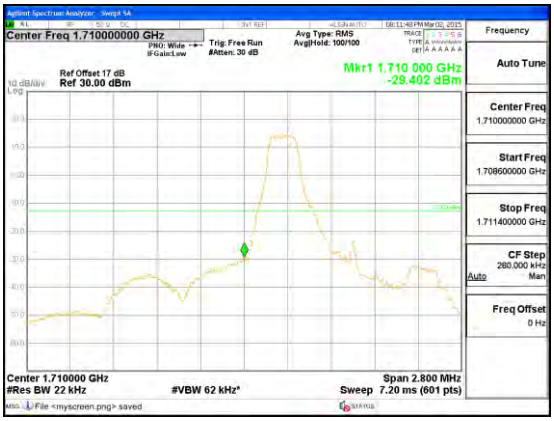
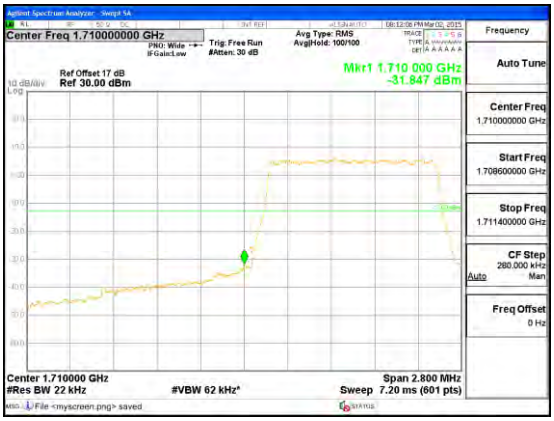
Band LTE4 3MHz QPSK	 Band LTE4 3MHz CBE QPSK High Channel 1RB.gif	 Band LTE4 3MHz CBE QPSK High Channel FRB.gif

Band LTE4 1.4MHz 16QAM	 Band LTE4 1.4MHz CBE 16QAM Low Channel 1RB.gif	 Band LTE4 1.4MHz CBE 16QAM Low Channel FRB.gif

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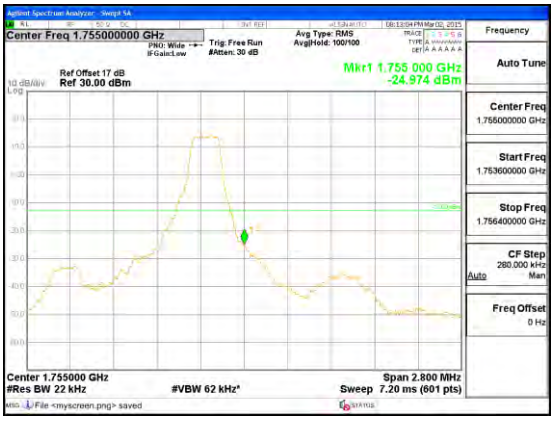
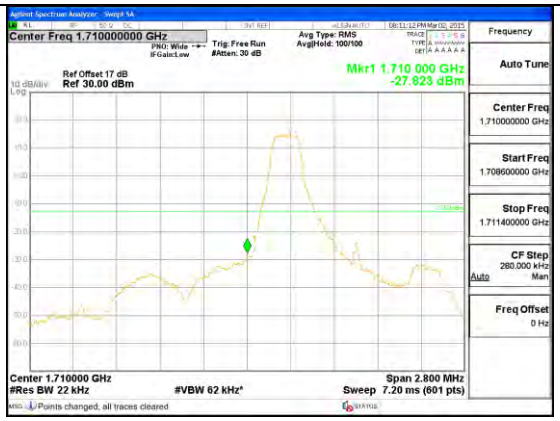
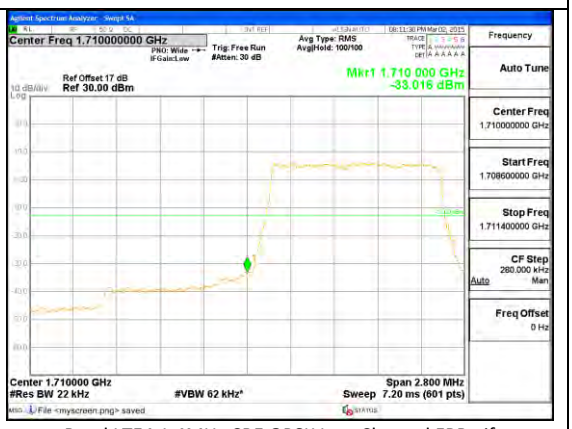
Band LTE4 1.4MHz 16QAM	 Band LTE4 1.4MHz CBE 16QAM High Channel 1RB.gif	 Band LTE4 1.4MHz CBE 16QAM High Channel FRB.gif
Band LTE4 1.4MHz QPSK	 Band LTE4 1.4MHz CBE QPSK Low Channel 1RB.gif	 Band LTE4 1.4MHz CBE QPSK Low Channel FRB.gif

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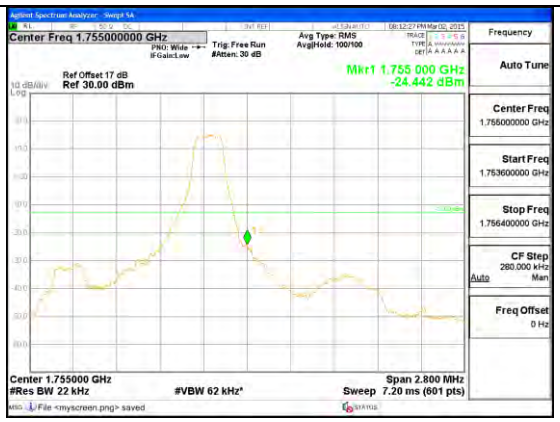
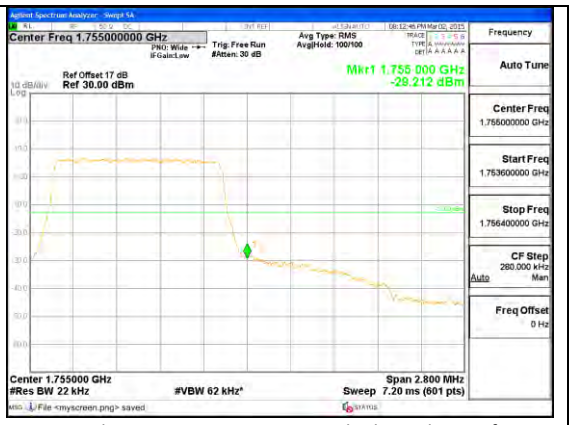
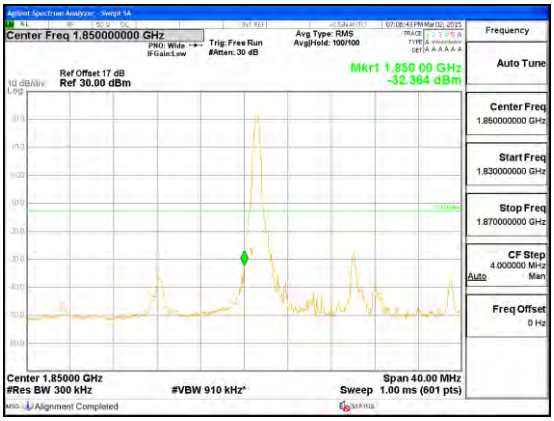
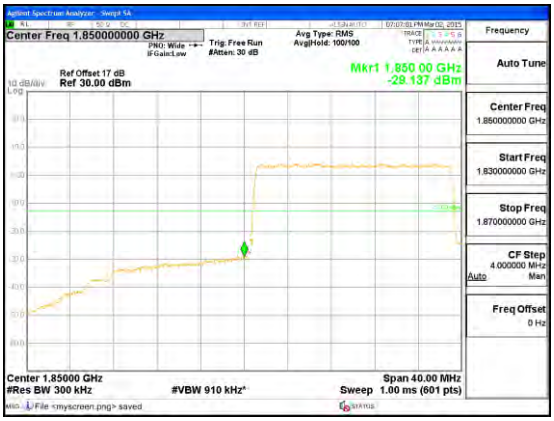
Band LTE4 1.4MHz QPSK	 Band LTE4 1.4MHz CBE QPSK High Channel 1RB.gif	 Band LTE4 1.4MHz CBE QPSK High Channel FRB.gif

Band LTE2 20MHz 16QAM	 Band LTE2 20MHz CBE 16QAM Low Channel 1RB.gif	 Band LTE2 20MHz CBE 16QAM Low Channel FRB.gif

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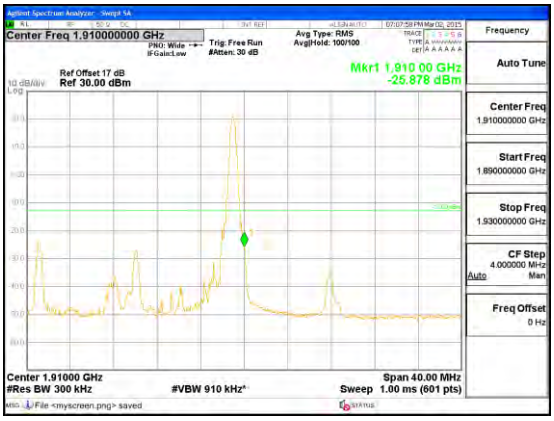
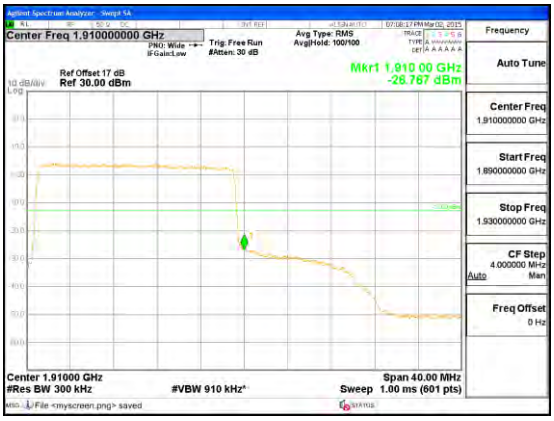
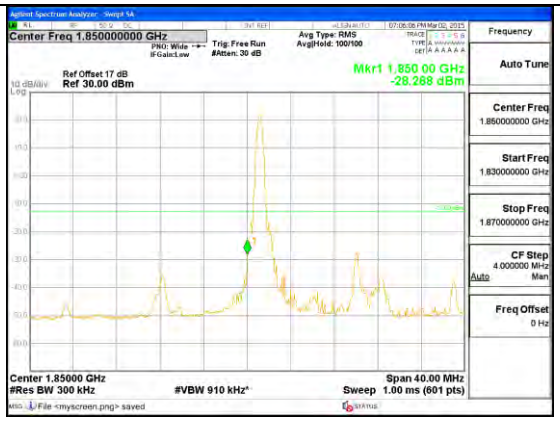
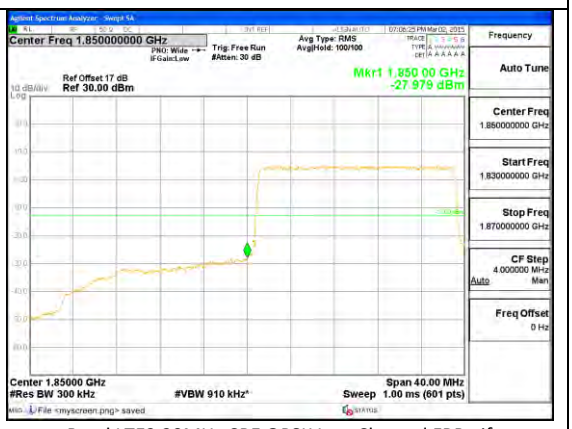
Band LTE2 20MHz 16QAM	 Band LTE2 20MHz CBE 16QAM High Channel 1RB.gif	 Band LTE2 20MHz CBE 16QAM High Channel FRB.gif
Band LTE2 20MHz QPSK	 Band LTE2 20MHz CBE QPSK Low Channel 1RB.gif	 Band LTE2 20MHz CBE QPSK Low Channel FRB.gif

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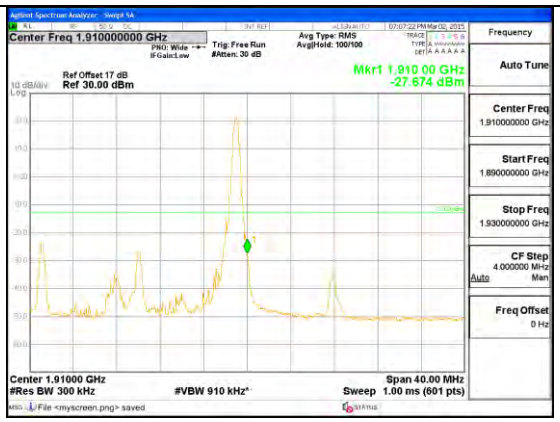
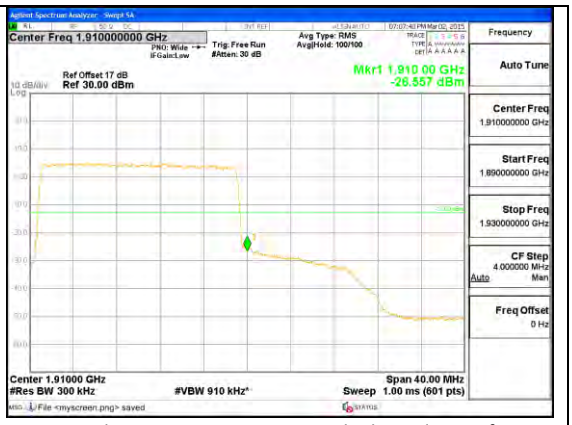
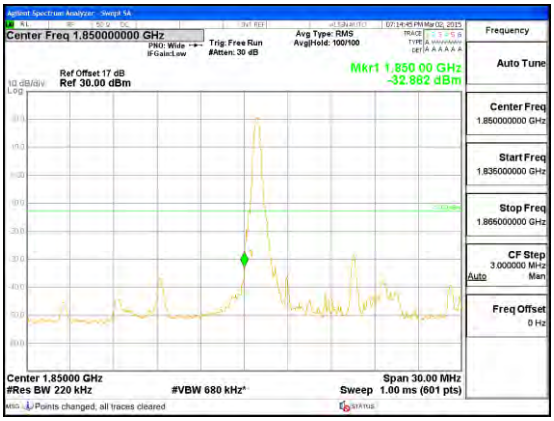
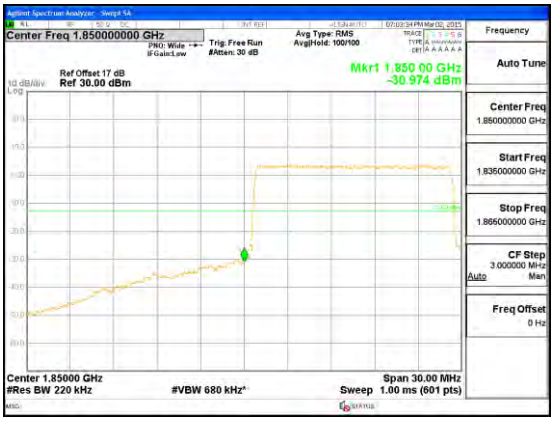
Band LTE2 20MHz QPSK	 Band LTE2 20MHz CBE QPSK High Channel 1RB.gif	 Band LTE2 20MHz CBE QPSK High Channel FRB.gif

Band LTE2 15MHz 16QAM	 Band LTE2 15MHz CBE 16QAM Low Channel 1RB.gif	 Band LTE2 15MHz CBE 16QAM Low Channel FRB.gif

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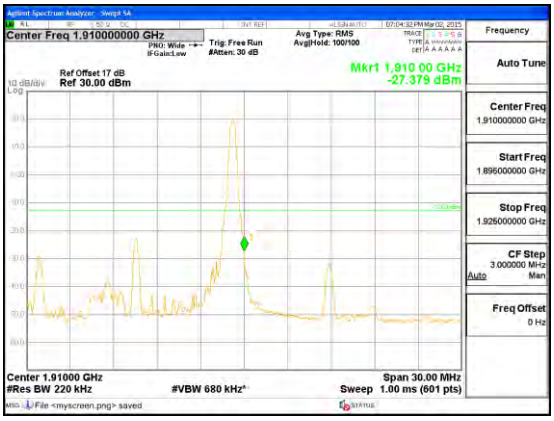
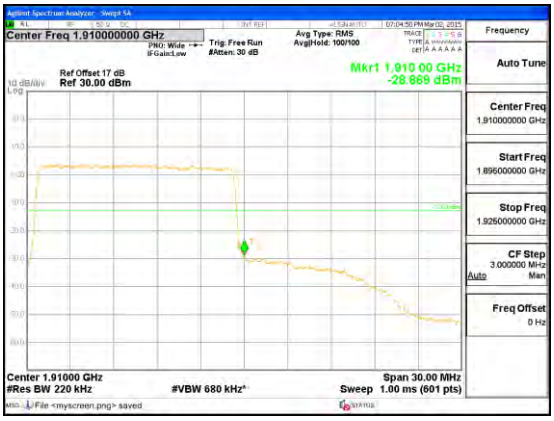
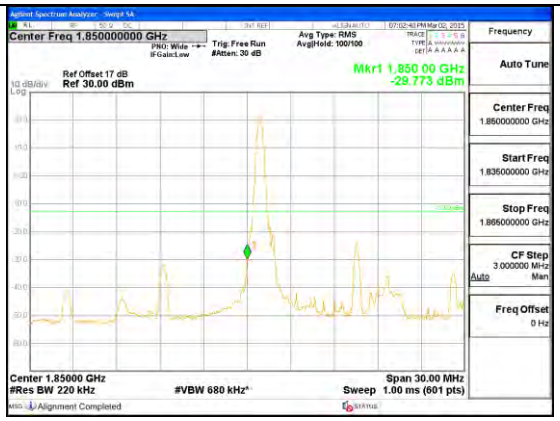
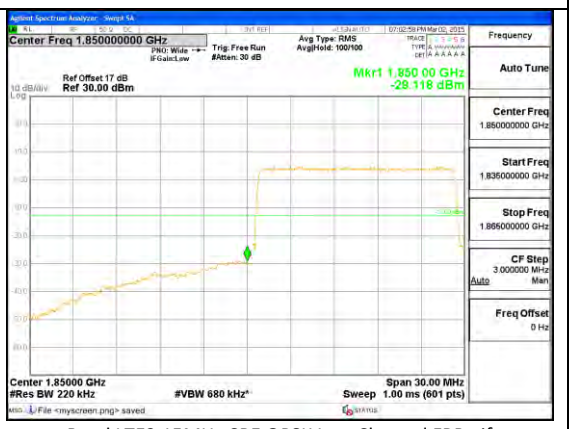
Band LTE2 15MHz 16QAM	 Band LTE2 15MHz CBE 16QAM High Channel 1RB.gif	 Band LTE2 15MHz CBE 16QAM High Channel FRB.gif
Band LTE2 15MHz QPSK	 Band LTE2 15MHz CBE QPSK Low Channel 1RB.gif	 Band LTE2 15MHz CBE QPSK Low Channel FRB.gif

UL VERIFICATION SERVICES INC.
47173 BENICIA STREET, FREMONT, CA 94538, USA
TEL: (510) 771-1000
FAX: (510) 661-0888

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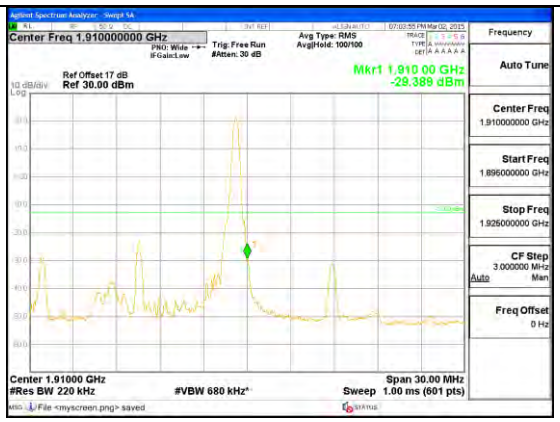
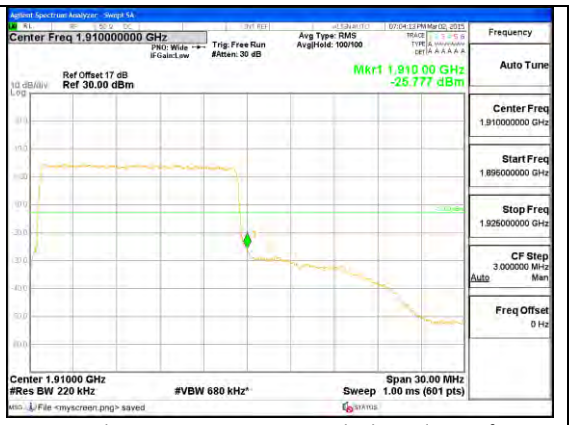
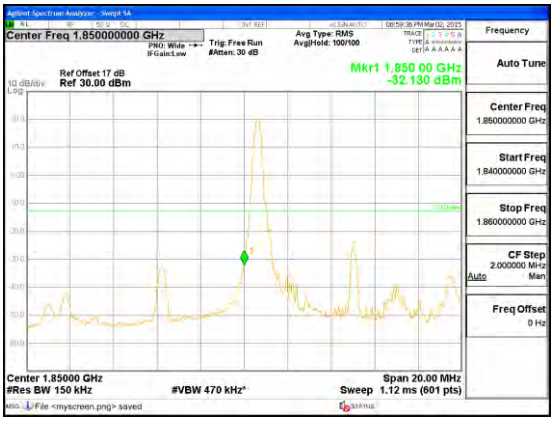
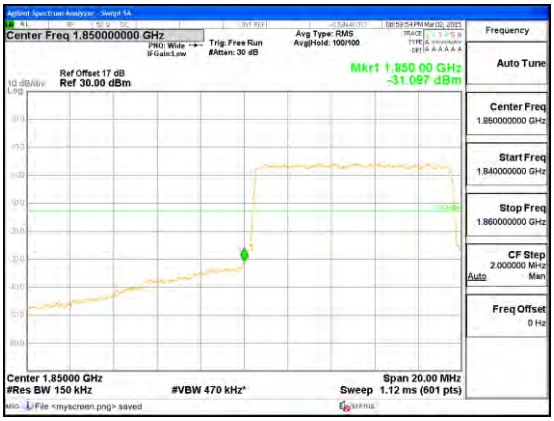
Band LTE2 15MHz QPSK	 Band LTE2 15MHz CBE QPSK High Channel 1RB.gif	 Band LTE2 15MHz CBE QPSK High Channel FRB.gif

Band LTE2 10MHz 16QAM	 Band LTE2 10MHz CBE 16QAM Low Channel 1RB.gif	 Band LTE2 10MHz CBE 16QAM Low Channel FRB.gif

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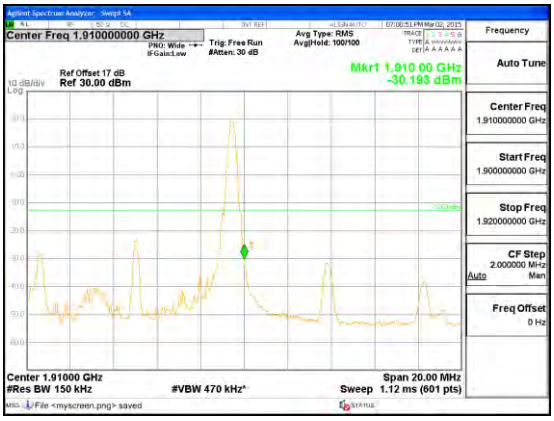
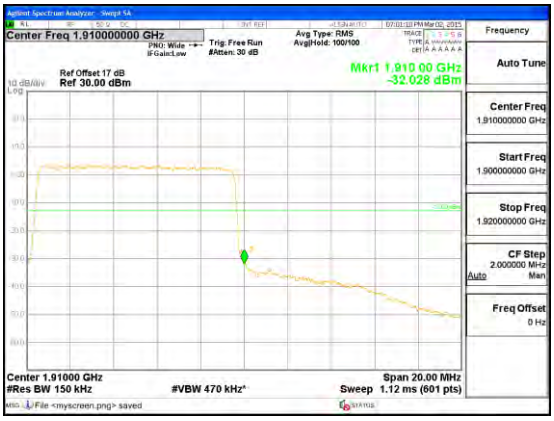
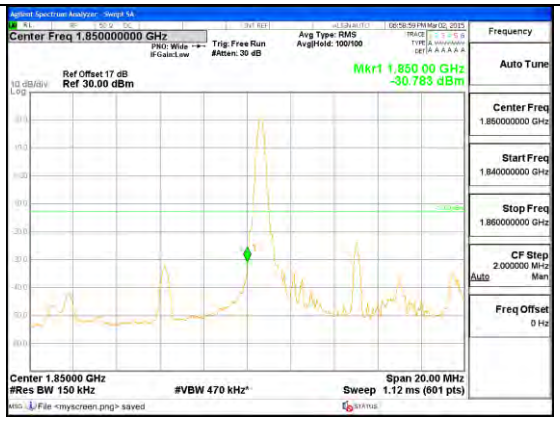
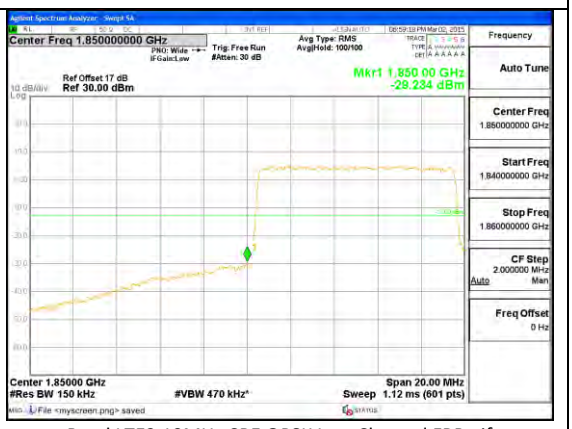
Band LTE2 10MHz 16QAM	 Band LTE2 10MHz CBE 16QAM High Channel 1RB.gif	 Band LTE2 10MHz CBE 16QAM High Channel FRB.gif
Band LTE2 10MHz QPSK	 Band LTE2 10MHz CBE QPSK Low Channel 1RB.gif	 Band LTE2 10MHz CBE QPSK Low Channel FRB.gif

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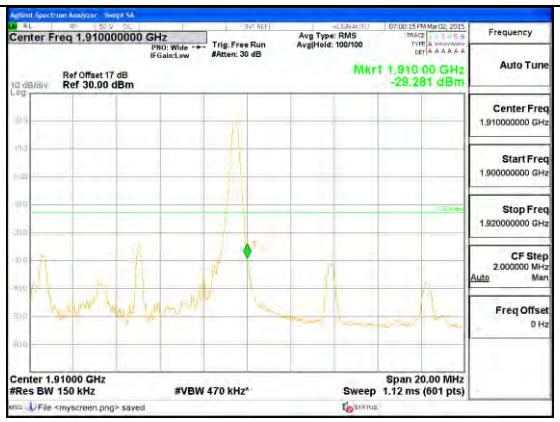
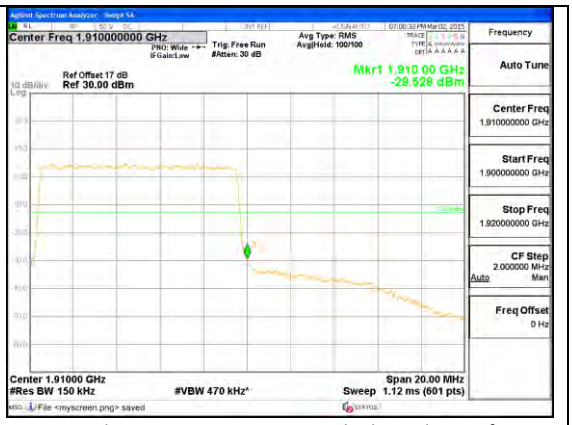
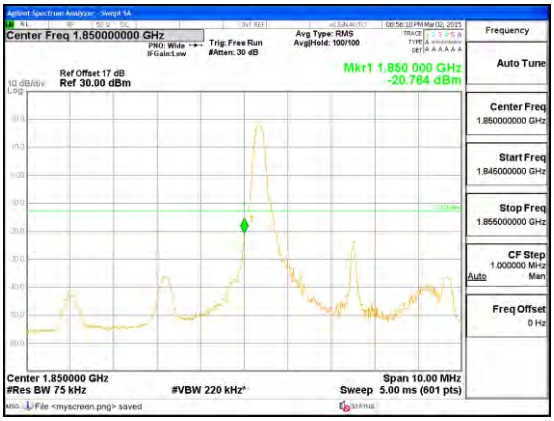
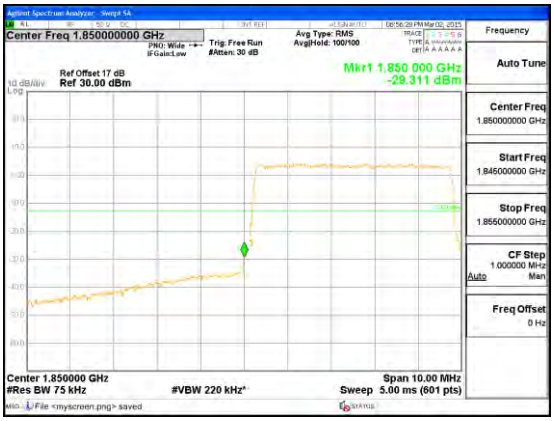
Band LTE2 10MHz QPSK	 Band LTE2 10MHz CBE QPSK High Channel 1RB.gif	 Band LTE2 10MHz CBE QPSK High Channel FRB.gif

Band LTE2 5MHz 16QAM	 Band LTE2 5MHz CBE 16QAM Low Channel 1RB.gif	 Band LTE2 5MHz CBE 16QAM Low Channel FRB.gif

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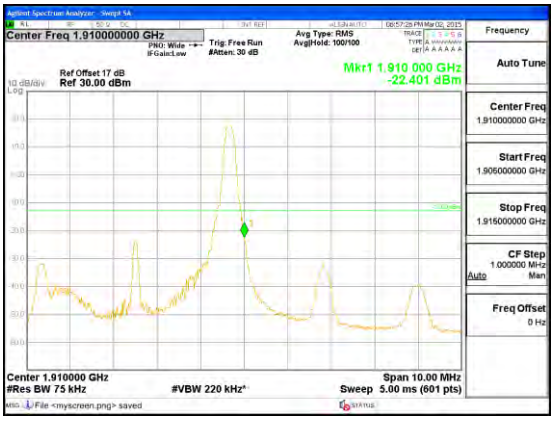
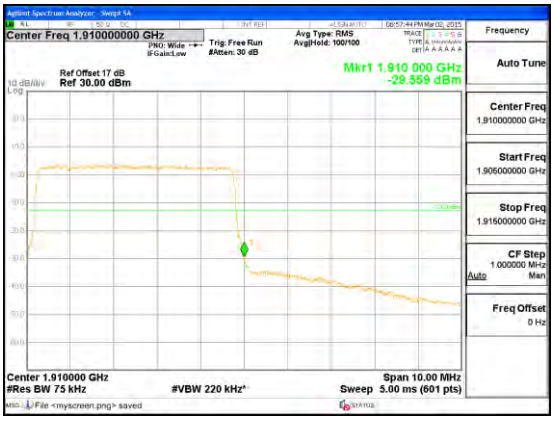
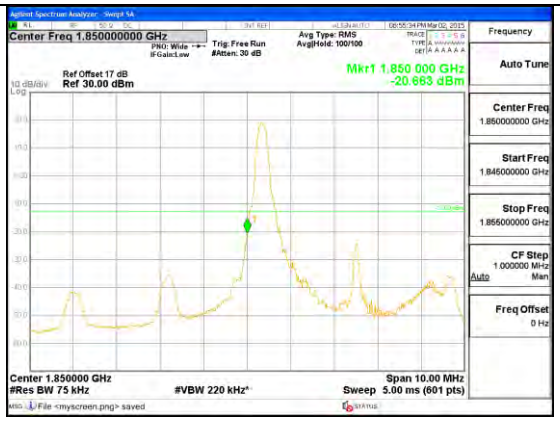
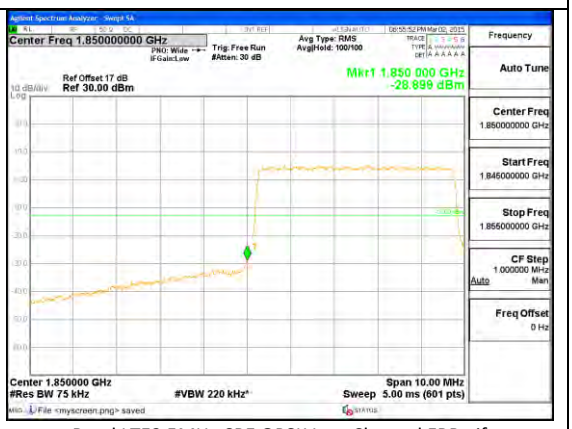
Band LTE2 5MHz 16QAM	 Band LTE2 5MHz CBE 16QAM High Channel 1RB.gif	 Band LTE2 5MHz CBE 16QAM High Channel FRB.gif
Band LTE2 5MHz QPSK	 Band LTE2 5MHz CBE QPSK Low Channel 1RB.gif	 Band LTE2 5MHz CBE QPSK Low Channel FRB.gif

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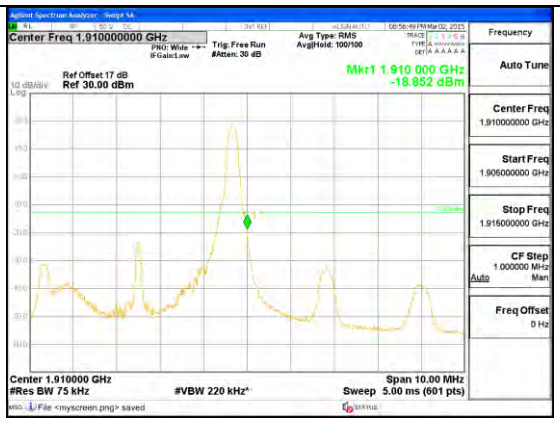
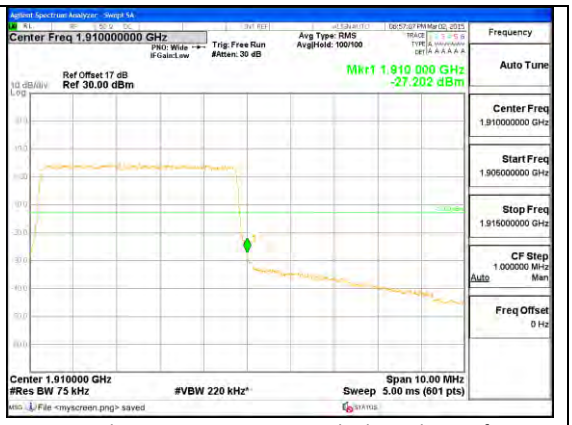
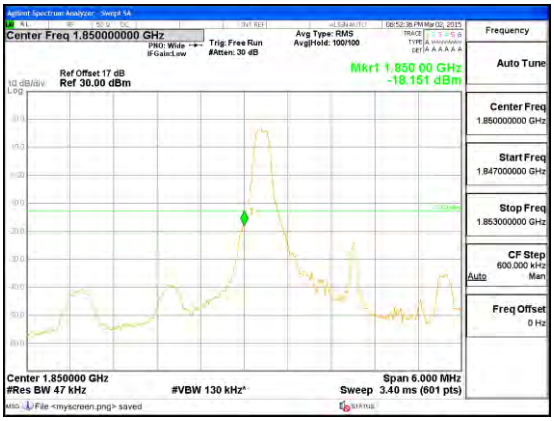
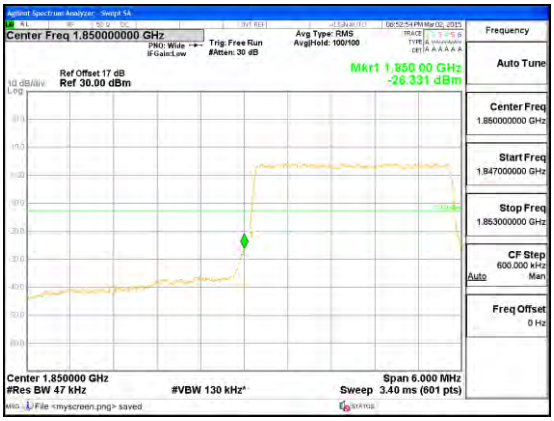
Band LTE2 5MHz QPSK	 Band LTE2 5MHz CBE QPSK High Channel 1RB.gif	 Band LTE2 5MHz CBE QPSK High Channel FRB.gif

Band LTE2 3MHz 16QAM	 Band LTE2 3MHz CBE 16QAM Low Channel 1RB.gif	 Band LTE2 3MHz CBE 16QAM Low Channel FRB.gif

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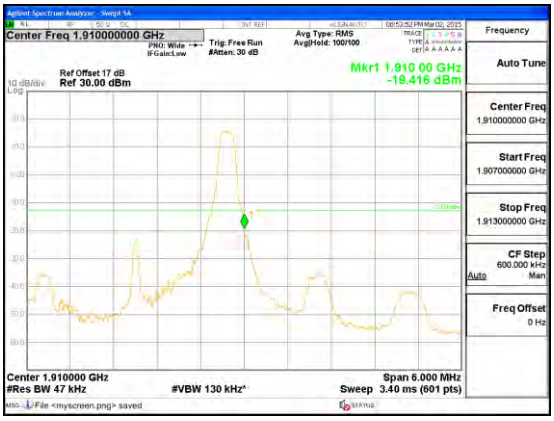
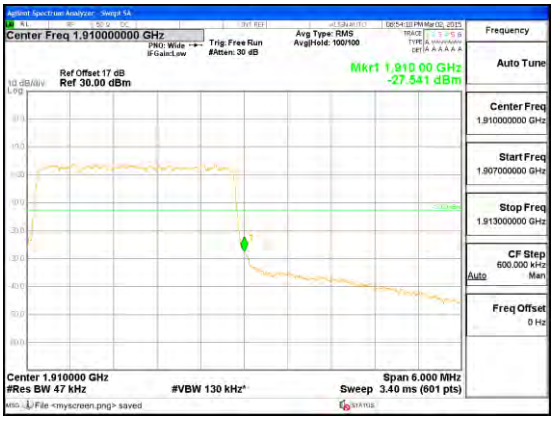
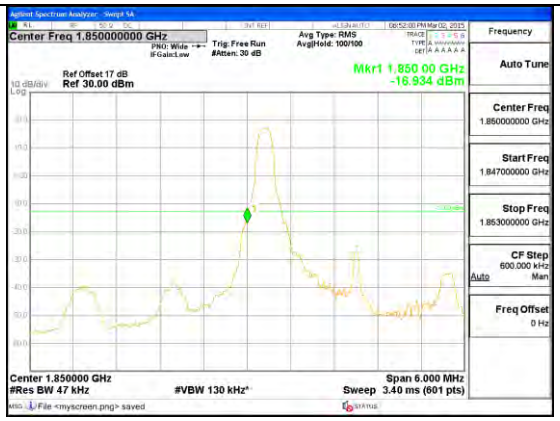
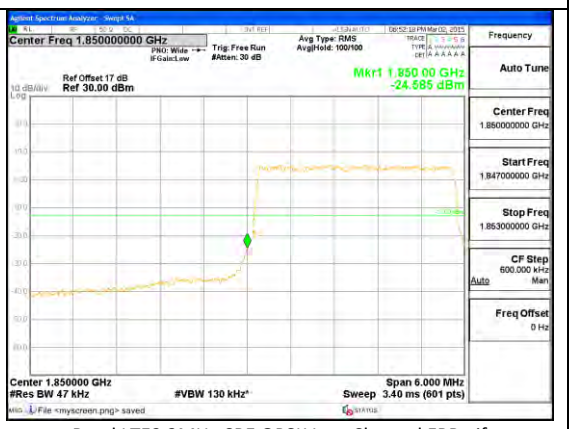
Band LTE2 3MHz 16QAM	 Band LTE2 3MHz CBE 16QAM High Channel 1RB.gif	 Band LTE2 3MHz CBE 16QAM High Channel FRB.gif
Band LTE2 3MHz QPSK	 Band LTE2 3MHz CBE QPSK Low Channel 1RB.gif	 Band LTE2 3MHz CBE QPSK Low Channel FRB.gif

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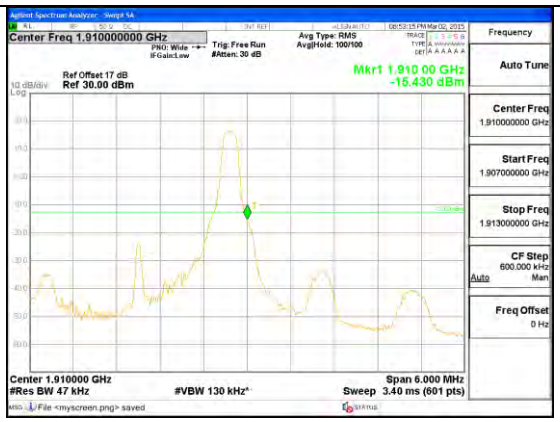
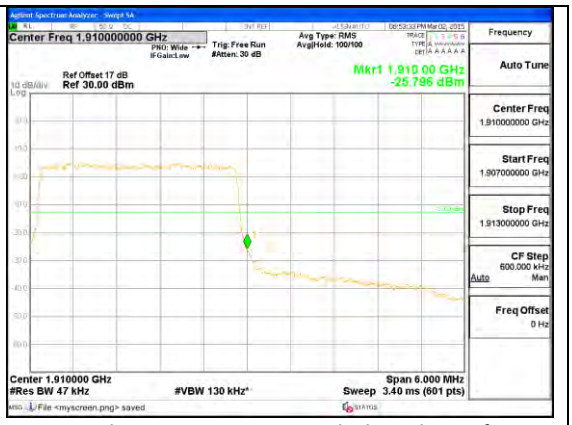
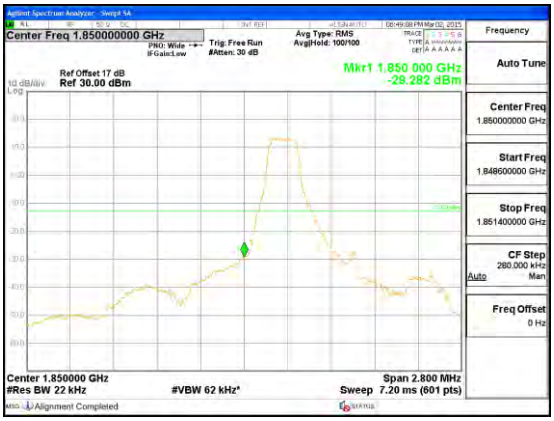
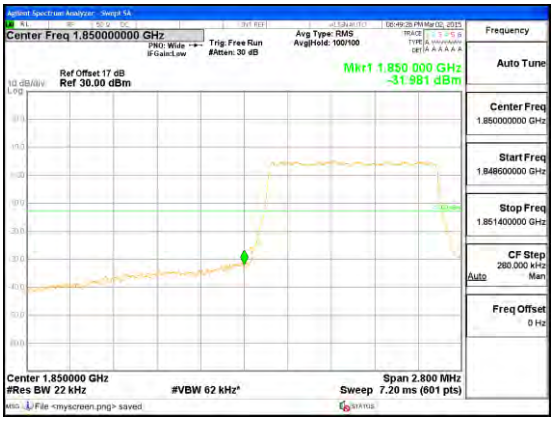
Band LTE2 3MHz QPSK	 Band LTE2 3MHz CBE QPSK High Channel 1RB.gif	 Band LTE2 3MHz CBE QPSK High Channel FRB.gif

Band LTE2 1.4MHz 16QAM	 Band LTE2 1.4MHz CBE 16QAM Low Channel 1RB.gif	 Band LTE2 1.4MHz CBE 16QAM Low Channel FRB.gif

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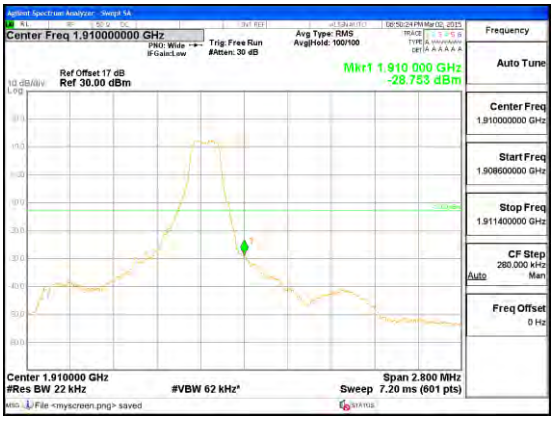
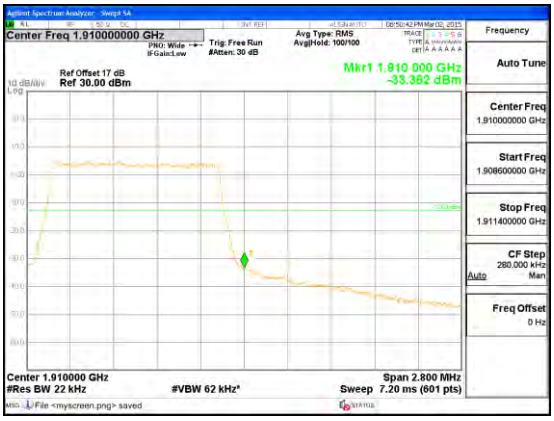
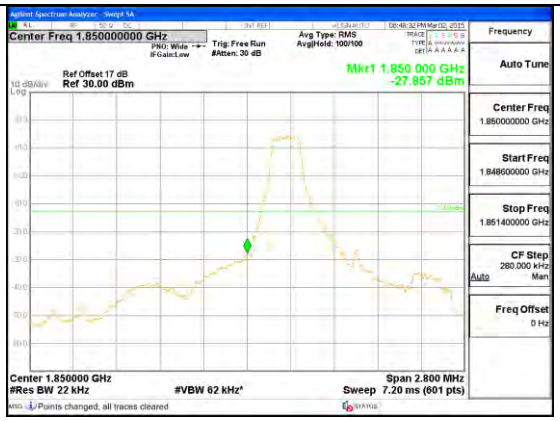
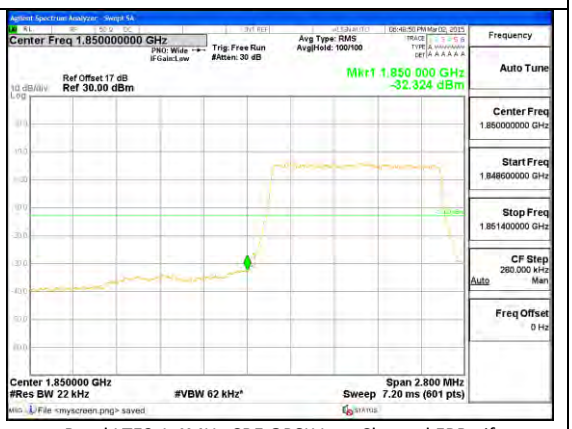
Band LTE2 1.4MHz 16QAM	 Band LTE2 1.4MHz CBE 16QAM High Channel 1RB.gif	 Band LTE2 1.4MHz CBE 16QAM High Channel FRB.gif
Band LTE2 1.4MHz QPSK	 Band LTE2 1.4MHz CBE QPSK Low Channel 1RB.gif	 Band LTE2 1.4MHz CBE QPSK Low Channel FRB.gif

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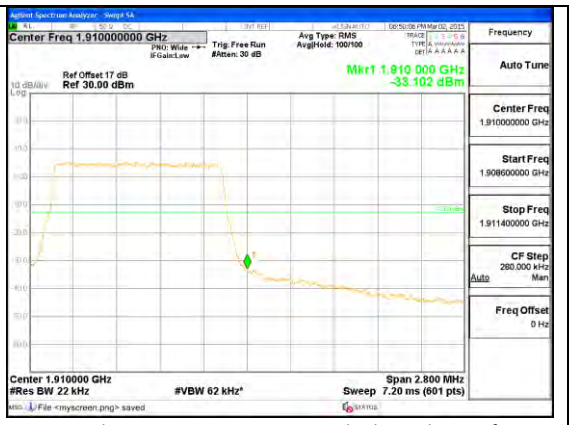
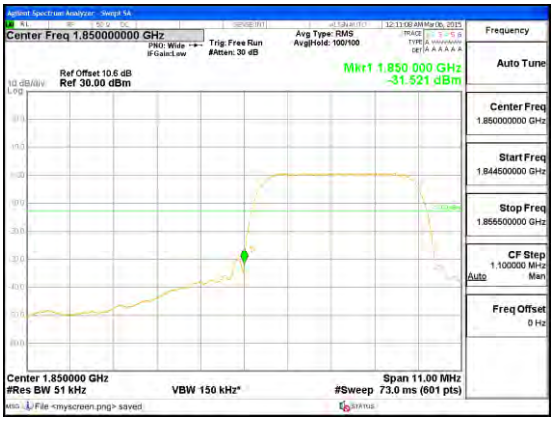
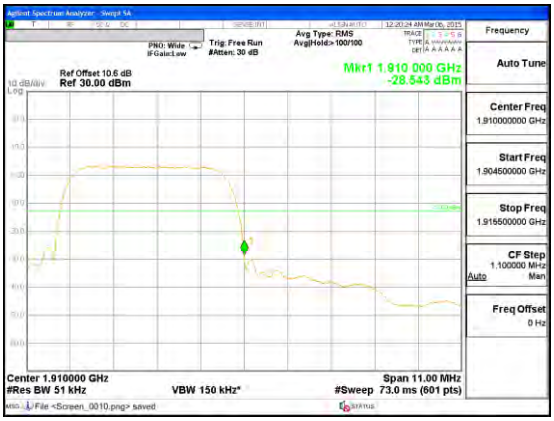
Band LTE2 1.4MHz QPSK	 Band LTE2 1.4MHz CBE QPSK High Channel 1RB.gif	 Band LTE2 1.4MHz CBE QPSK High Channel FRB.gif

Band Band 2 HSDPA	 Band WCDMA B2 HSDPA CBE Low channel	 Band WCDMA B2 HSDPA CBE High channel

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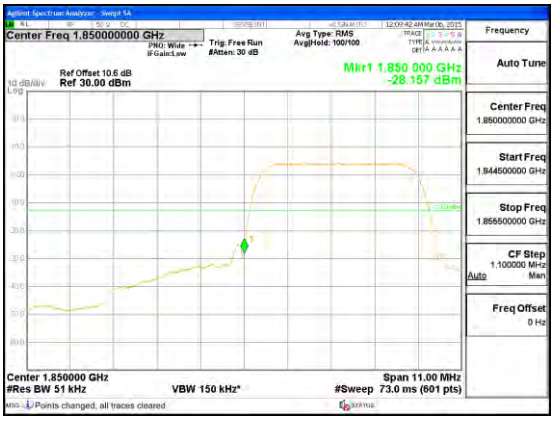
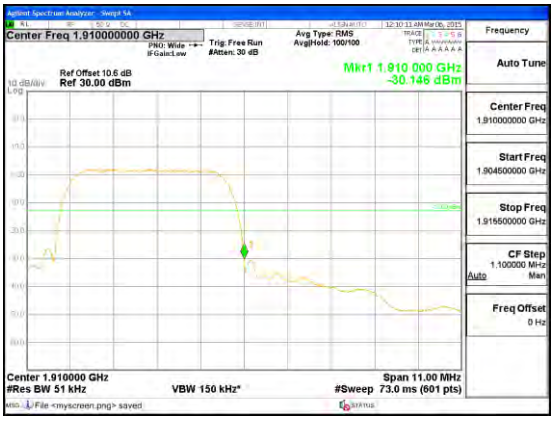
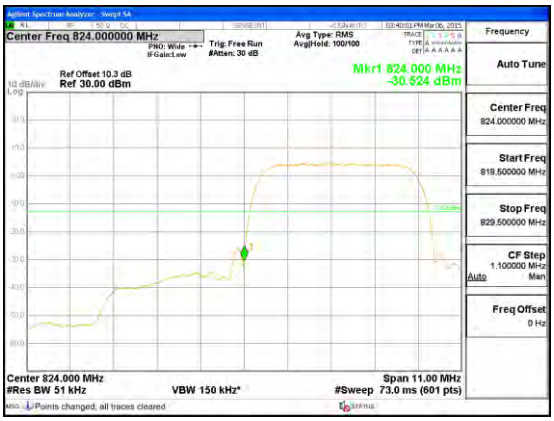
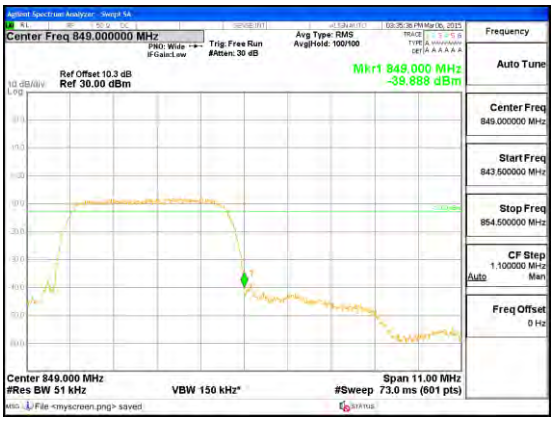
Band Band 2 REL99	 Band WCDMA B2 REL99 CBE Low channel	 Band WCDMA B2 REL99 CBE High channel

Band Band 5 HSDPA	 Band WCDMA B5 HSDPA CBE Low channel	 Band WCDMA B5 HSDPA CBE High channel

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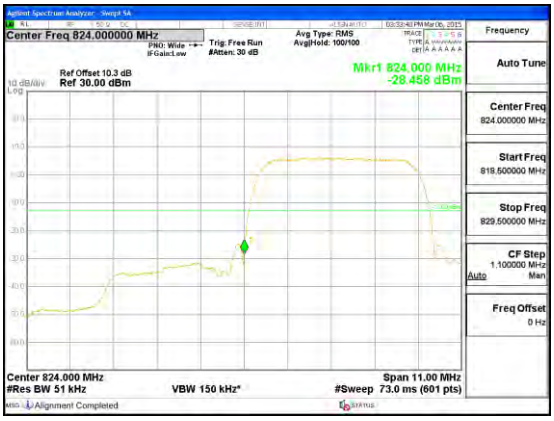
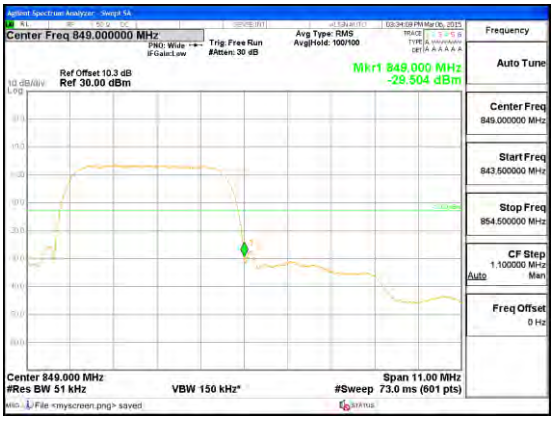
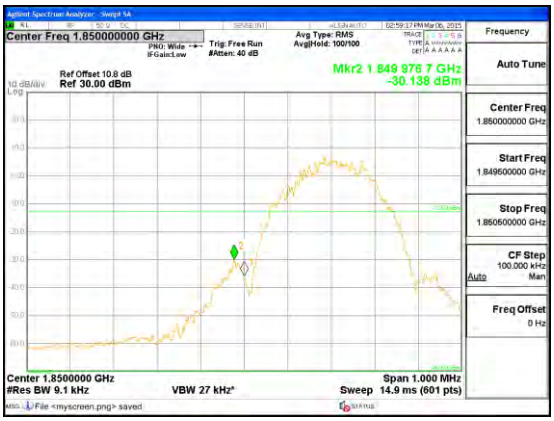
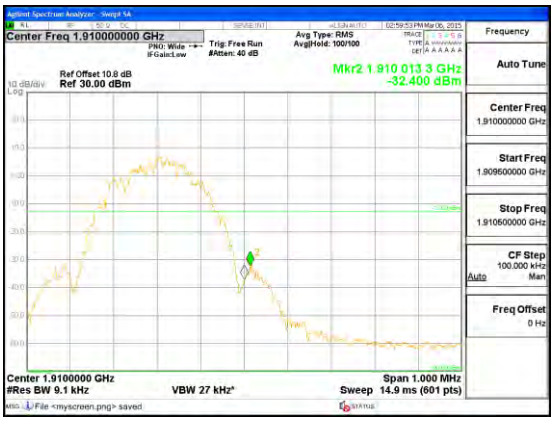
Band Band 5 REL99	 Band WCDMA B5 REL99 CBE Low channel	 Band WCDMA B5 REL99 CBE High channel

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

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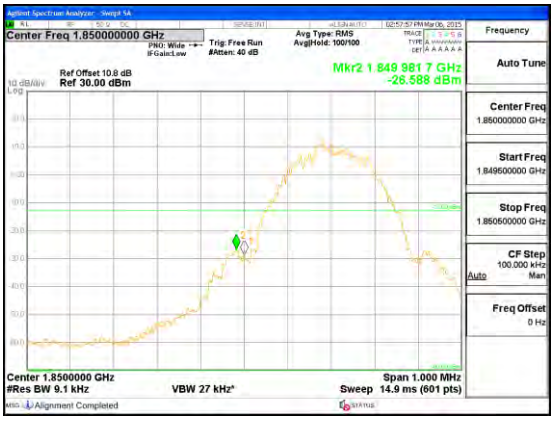
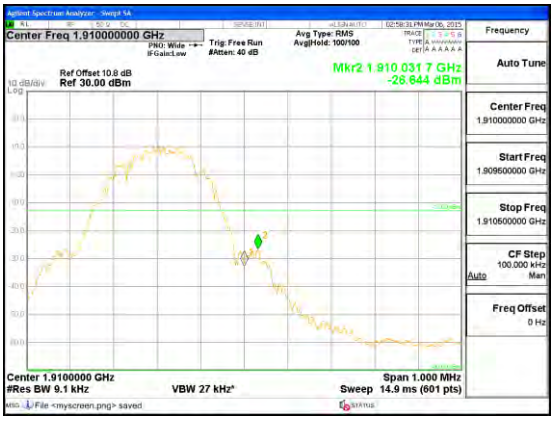
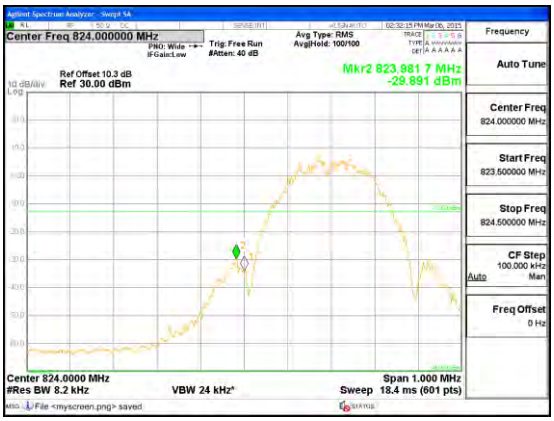
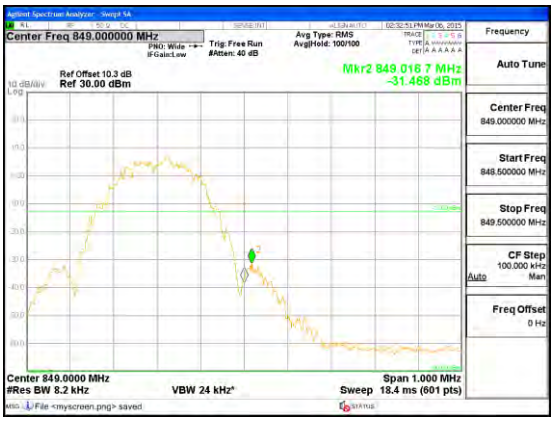
Band GSM1900 GPRS	 Band GSM1900 GPRS CBE Low channel	 Band GSM1900 GPRS CBE High channel

Note: GSM reading need add 9dB DCCF factor due to duty cycle is 12.5% during test.

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

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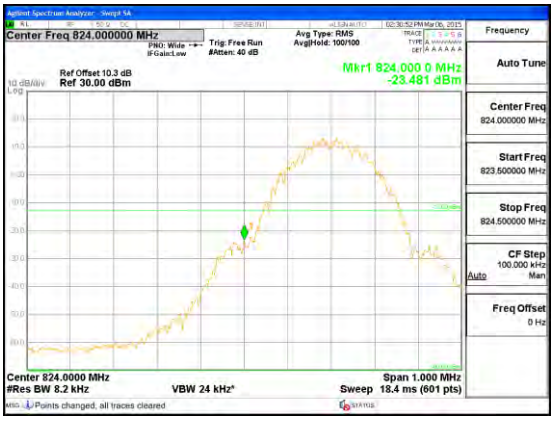
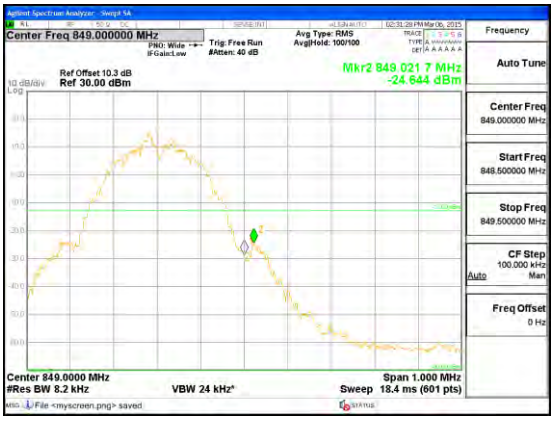
Band GSM850 GPRS	 Band GSM850 GPRS CBE Low channel	 Band GSM850 GPRS CBE High channel

Note: GSM reading need add 9dB DCCF factor due to duty cycle is 12.5% during test.

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10.3. OUT OF BAND EMISSIONS

RULE PART(S)

FCC: §2.1051, §22.917(a), §24.238 (a), §27. 53 (g)

LIMITS

Part 22.917(a) & Part 24.238(a) 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 27.53(g) For operations in the 600 MHz band and the 698-746 MHz band, the power of any emission outside a licensee's frequency band(s) of operation shall be attenuated below the transmitter power (P) within the licensed band(s) of operation, measured in watts, by at least 43 + 10 log (P) dB. Compliance with this provision is based on the use of measurement instrumentation employing a resolution bandwidth of 100 kilohertz or greater. However, in the 100 kilohertz bands immediately outside and adjacent to a licensee's frequency block, a resolution bandwidth of at least 30 kHz may be employed.

TEST PROCEDURE

Per KDB 971168 D01 Power Meas License Digital Systems v02r02

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

MODES TESTED

GSM, WCDMA, and LTE

RESULTS

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10.3.1. OUT OF BAND EMISSIONS RESULT

LTE Band 17

Band	BW (MHz)	Mode	f (MHz)	Spur (dBm)	Spec (dBm)	Delta (dB)
LTE17	10	QPSK	709	-27.57	-13	-14.57
			710	-28.08	-13	-15.08
			711	-27.92	-13	-14.92
		16QAM	709	-28.56	-13	-15.56
			710	-27.85	-13	-14.85
			711	-28.34	-13	-15.34
	5	QPSK	706.5	-27.66	-13	-14.66
			710	-28.06	-13	-15.06
			713.5	-27.76	-13	-14.76
		16QAM	706.5	-27.18	-13	-14.18
			710	-28.14	-13	-15.14
			713.5	-27.69	-13	-14.69

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LTE Band 12

Band	BW (MHz)	Mode	f (MHz)	Spur (dBm)	Spec (dBm)	Delta (dB)
LTE12	10	QPSK	704	-34.69	-13	-21.69
			707.5	-27.54	-13	-14.54
			711	-27.45	-13	-14.45
		16QAM	704	-27.90	-13	-14.90
			707.5	-27.23	-13	-14.23
			711	-27.21	-13	-14.21
	5	QPSK	701.5	-34.52	-13	-21.52
			707.5	-27.72	-13	-14.72
			713.5	-24.65	-13	-11.65
		16QAM	701.5	-25.93	-13	-12.93
			707.5	-27.83	-13	-14.83
			713.5	-24.65	-13	-11.65
	3	QPSK	700.5	-27.67	-13	-14.67
			707.5	-27.67	-13	-14.67
			714.5	-27.91	-13	-14.91
		16QAM	700.5	-27.70	-13	-14.70
			707.5	-27.74	-13	-14.74
			714.5	-27.56	-13	-14.56
	1.4	QPSK	699.7	-27.32	-13	-14.32
			707.5	-27.54	-13	-14.54
			715.3	-28.39	-13	-15.39
		16QAM	699.7	-26.69	-13	-13.69
			707.5	-27.81	-13	-14.81
			715.3	-27.91	-13	-14.91

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LTE Band 7

Band	BW (MHz)	Mode	f (MHz)	Spur (dBm)	Spec (dBm)	Delta (dB)
LTE7	20	QPSK	2510	-34.91	-25	-9.91
			2535	-34.30	-25	-9.30
			2560	-33.54	-25	-8.54
		16QAM	2510	-39.98	-25	-14.98
			2535	-33.81	-25	-8.81
			2560	-32.96	-25	-7.96
	15	QPSK	2507.5	-30.62	-25	-5.62
			2535	-33.36	-25	-8.36
			2562.5	-33.64	-25	-8.64
		16QAM	2507.5	-33.82	-25	-8.82
			2535	-33.43	-25	-8.43
			2562.5	-30.11	-25	-5.11
	10	QPSK	2505	-40.39	-25	-15.39
			2535	-33.59	-25	-8.59
			2565	-40.05	-25	-15.05
		16QAM	2505	-41.66	-25	-16.66
			2535	-33.79	-25	-8.79
			2565	-34.22	-25	-9.22
	5	QPSK	2502.5	-34.81	-25	-9.81
			2535	-32.82	-25	-7.82
			2567.5	-33.85	-25	-8.85
		16QAM	2502.5	-41.85	-25	-16.85
			2535	-33.44	-25	-8.44
			2567.5	-33.73	-25	-8.73

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LTE Band 5

Band	BW (MHz)	Mode	f (MHz)	Spur (dBm)	Spec (dBm)	Delta (dB)
LTE5	10	QPSK	829	-22.34	-13	-9.34
			836.5	-21.75	-13	-8.75
			844	-22.85	-13	-9.85
		16QAM	829	-22.46	-13	-9.46
			836.5	-21.03	-13	-8.03
			844	-22.41	-13	-9.41
	5	QPSK	826.5	-21.90	-13	-8.90
			836.5	-21.72	-13	-8.72
			846.5	-21.70	-13	-8.70
		16QAM	826.5	-20.76	-13	-7.76
			836.5	-22.28	-13	-9.28
			846.5	-22.44	-13	-9.44
	3	QPSK	825.5	-27.23	-13	-14.23
			836.5	-27.42	-13	-14.42
			847.5	-27.23	-13	-14.23
		16QAM	825.5	-27.23	-13	-14.23
			836.5	-26.95	-13	-13.95
			847.5	-27.23	-13	-14.23
	1.4	QPSK	824.7	-27.45	-13	-14.45
			836.5	-27.96	-13	-14.96
			848.3	-28.55	-13	-15.55
		16QAM	824.7	-27.14	-13	-14.14
			836.5	-27.97	-13	-14.97
			848.3	-26.90	-13	-13.90

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LTE Band 4

Band	BW (MHz)	Mode	f (MHz)	Spur (dBm)	Spec (dBm)	Delta (dB)
LTE4	20	QPSK	1720	-20.93	-13	-7.93
			1732.5	-21.32	-13	-8.32
			1745	-20.06	-13	-7.06
		16QAM	1720	-21.72	-13	-8.72
			1732.5	-21.71	-13	-8.71
			1745	-21.46	-13	-8.46
	15	QPSK	1717.5	-21.51	-13	-8.51
			1732.5	-21.52	-13	-8.52
			1747.5	-21.73	-13	-8.73
		16QAM	1717.5	-21.02	-13	-8.02
			1732.5	-21.26	-13	-8.26
			1747.5	-21.49	-13	-8.49
	10	QPSK	1715	-20.97	-13	-7.97
			1732.5	-21.24	-13	-8.24
			1750	-21.14	-13	-8.14
		16QAM	1715	-20.42	-13	-7.42
			1732.5	-22.01	-13	-9.01
			1750	-20.75	-13	-7.75

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Band	BW (MHz)	Mode	f (MHz)	Spur (dBm)	Spec (dBm)	Delta (dB)
LTE4	5	QPSK	1712.5	-21.46	-13	-8.46
			1732.5	-21.40	-13	-8.40
			1752.5	-21.12	-13	-8.12
		16QAM	1712.5	-20.86	-13	-7.86
			1732.5	-21.83	-13	-8.83
			1752.5	-21.12	-13	-8.12
	3	QPSK	1711.5	-21.52	-13	-8.52
			1732.5	-21.44	-13	-8.44
			1753.5	-21.10	-13	-8.10
		16QAM	1711.5	-21.94	-13	-8.94
			1732.5	-21.79	-13	-8.79
			1753.5	-21.12	-13	-8.12
	1.4	QPSK	1710.7	-20.84	-13	-7.84
			1732.5	-21.51	-13	-8.51
			1754.3	-21.88	-13	-8.88
		16QAM	1710.7	-21.40	-13	-8.40
			1732.5	-21.26	-13	-8.26
			1754.3	-20.89	-13	-7.89

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LTE Band 2

Band	BW (MHz)	Mode	f (MHz)	Spur (dBm)	Spec (dBm)	Delta (dB)
LTE2	20	QPSK	1860	-21.62	-13	-8.62
			1880	-21.02	-13	-8.02
			1900	-21.73	-13	-8.73
		16QAM	1860	-21.78	-13	-8.78
			1880	-21.35	-13	-8.35
			1900	-21.32	-13	-8.32
	15	QPSK	1857.5	-20.97	-13	-7.97
			1880	-20.92	-13	-7.92
			1902.5	-20.77	-13	-7.77
		16QAM	1857.5	-20.67	-13	-7.67
			1880	-21.58	-13	-8.58
			1902.5	-21.86	-13	-8.86
	10	QPSK	1855	-20.15	-13	-7.15
			1880	-21.24	-13	-8.24
			1905	-21.77	-13	-8.77
		16QAM	1855	-21.75	-13	-8.75
			1880	-21.34	-13	-8.34
			1905	-21.75	-13	-8.75

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Band	BW (MHz)	Mode	f (MHz)	Spur (dBm)	Spec (dBm)	Delta (dB)
LTE2	5	QPSK	1852.5	-21.51	-13	-8.51
			1880	-21.69	-13	-8.69
			1907.5	-21.39	-13	-8.39
		16QAM	1852.5	-21.36	-13	-8.36
			1880	-20.64	-13	-7.64
			1907.5	-21.28	-13	-8.28
	3	QPSK	1851.5	-21.27	-13	-8.27
			1880	-20.61	-13	-7.61
			1908.5	-21.54	-13	-8.54
		16QAM	1851.5	-21.84	-13	-8.84
			1880	-21.63	-13	-8.63
			1908.5	-21.77	-13	-8.77
	1.4	QPSK	1850.7	-20.98	-13	-7.98
			1880	-21.55	-13	-8.55
			1909.3	-21.52	-13	-8.52
		16QAM	1850.7	-21.38	-13	-8.38
			1880	-21.59	-13	-8.59
			1909.3	-21.21	-13	-8.21

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GSM

Band	Mode	f (MHz)	Spur (dBm)	Spec (dBm)	Delta (dB)
GSM850	GPRS	824.2	-24.301	-13	-11.301
		836.6	-24.773	-13	-11.773
		848.8	-24.417	-13	-11.417
	EGPRS	824.2	-24.705	-13	-11.705
		836.6	-24.714	-13	-11.714
		848.8	-24.969	-13	-11.969
GSM1900	GPRS	1850.2	-24.278	-13	-11.278
		1880	-22.779	-13	-9.779
		1909.8	-24.048	-13	-11.048
	EGPRS	1850.2	-24.33	-13	-11.33
		1880	-24.363	-13	-11.363
		1909.8	-24.434	-13	-11.434

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WCDMA

Band	Mode	f (MHz)	Spur (dBm)	Spec (dBm)	Delta (dB)
Band 5	REL99	826.4	-24.30	-13	-11.30
		836.6	-30.86	-13	-17.86
		846.6	-24.42	-13	-11.42
	HSDPA	826.4	-24.301	-13	-11.301
		836.6	-24.773	-13	-11.773
		846.6	-24.417	-13	-11.417
Band 2	REL99	1852.4	-34.54	-13	-21.54
		1880	-34.31	-13	-21.31
		1907.6	-34.37	-13	-34.37
	HSDPA	1852.4	-24.278	-13	-11.278
		1880	-22.779	-13	-9.779
		1907.6	-24.048	-13	-11.048

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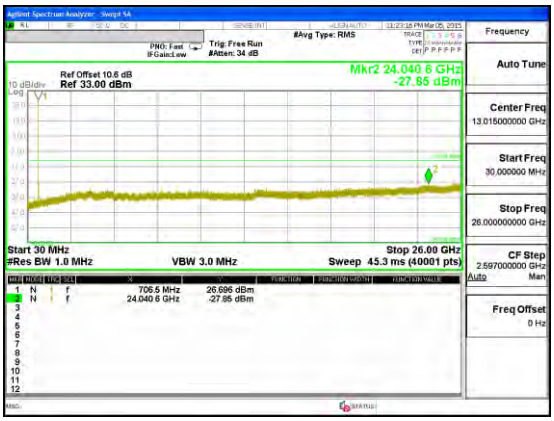
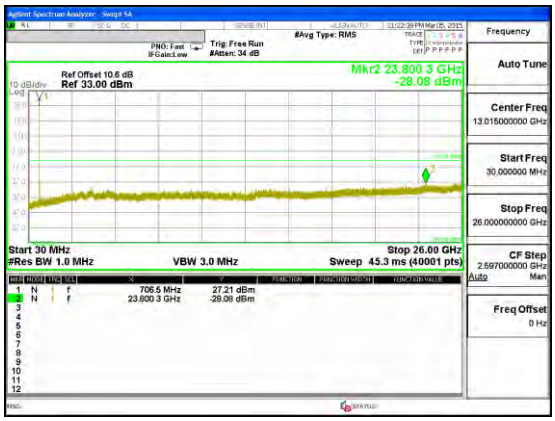
10.3.2. OUT OF BAND EMISSIONS PLOTS

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

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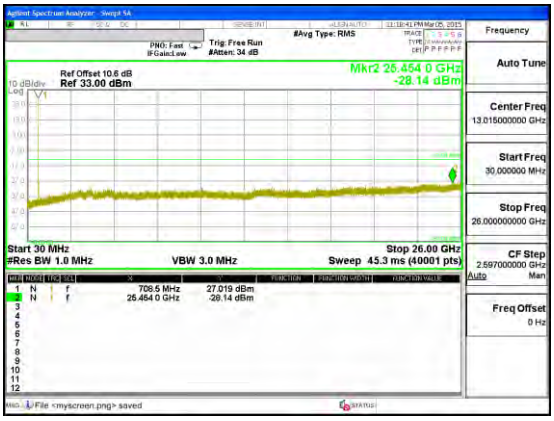
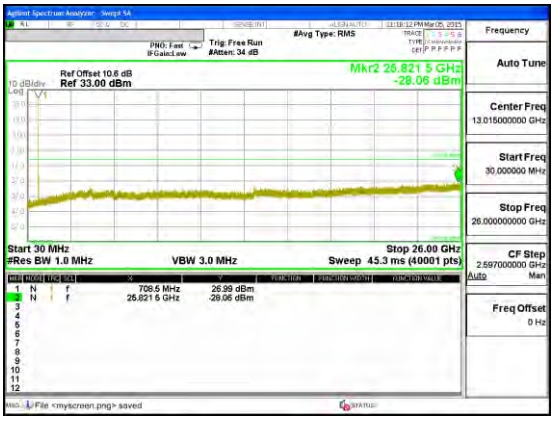
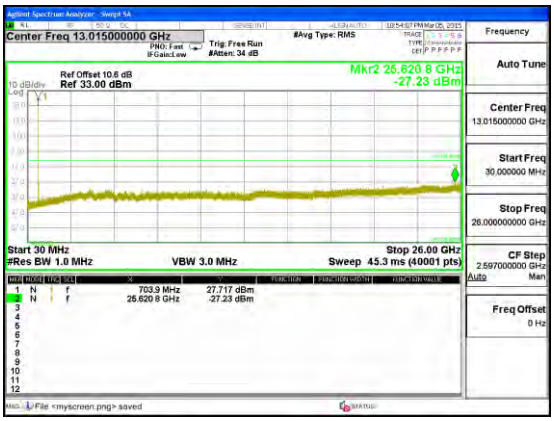
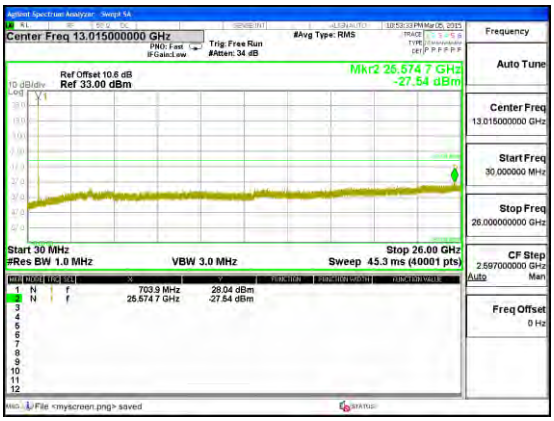
Band LTE17 5MHz 16QAM	 Band LTE17 5MHz CSE 16QAM Mid channel	 Band LTE17 5MHz CSE QPSK Mid channel

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

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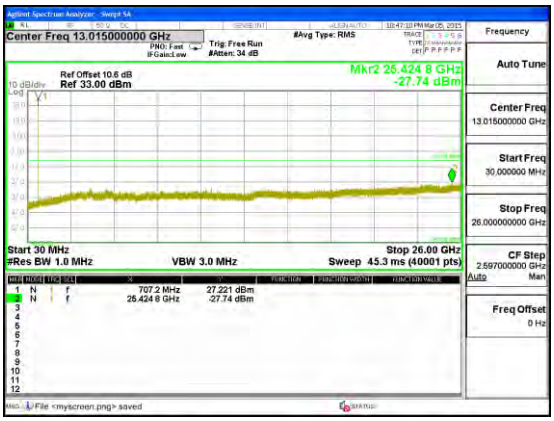
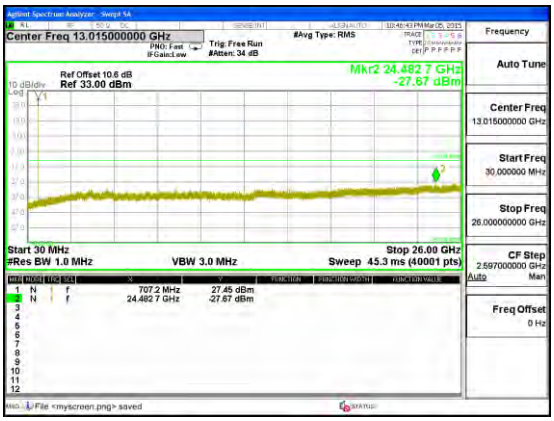
Band LTE12 5MHz 16QAM	 Band LTE12 5MHz CSE 16QAM Mid channel	 Band LTE12 5MHz CSE QPSK Mid channel

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

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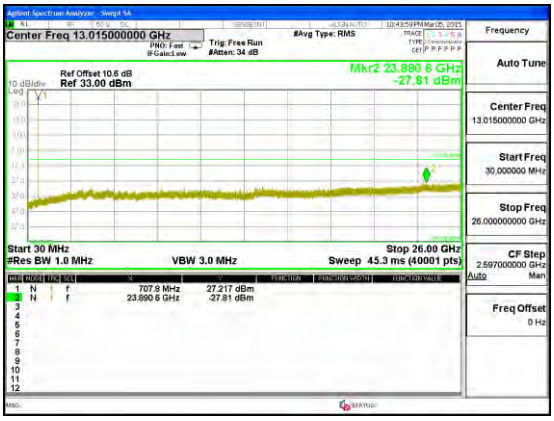
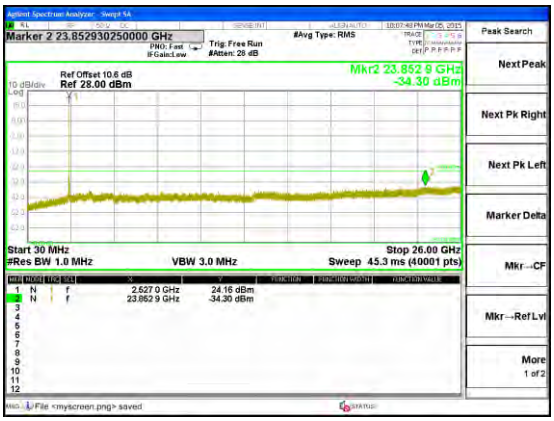
Band LTE12 1.4MHz 16QAM	 Band LTE12 1.4MHz CSE 16QAM Mid channel	 Band LTE12 1.4MHz CSE QPSK Mid channel

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

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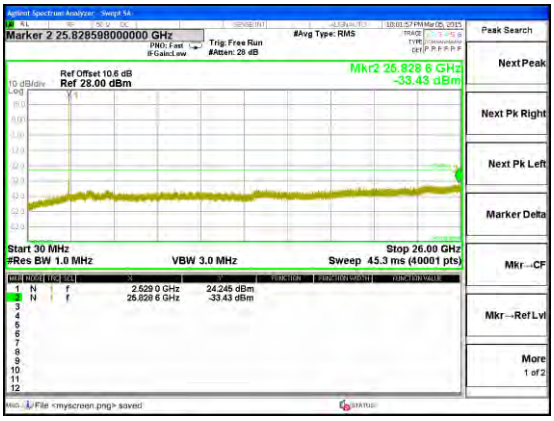
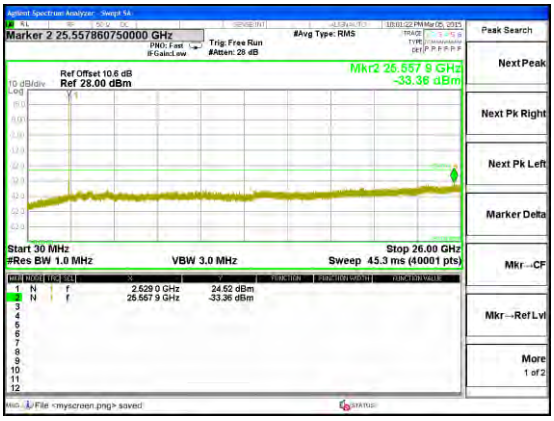
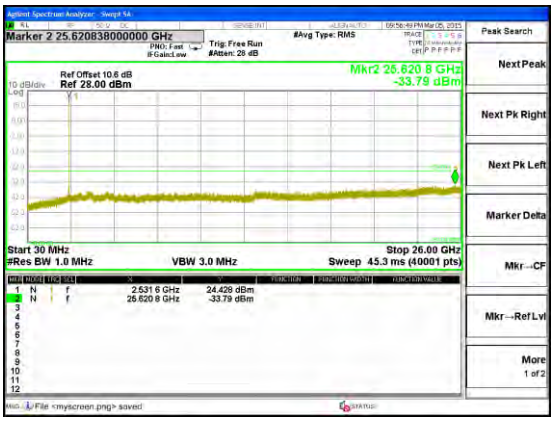
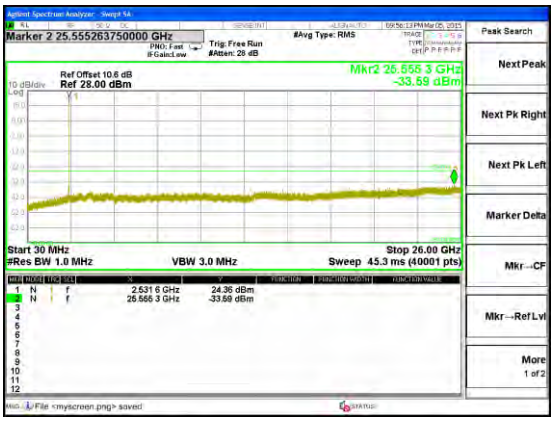
Band LTE7 15MHz 16QAM	 Band LTE7 15MHz CSE 16QAM Mid channel	 Band LTE7 15MHz CSE QPSK Mid channel

Band LTE7 10MHz 16QAM	 Band LTE7 10MHz CSE 16QAM Mid channel	 Band LTE7 10MHz CSE QPSK Mid channel

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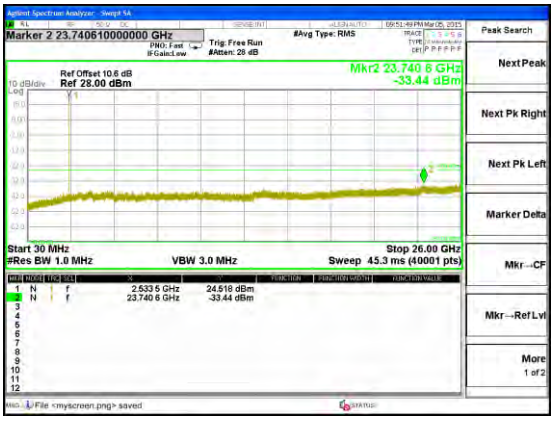
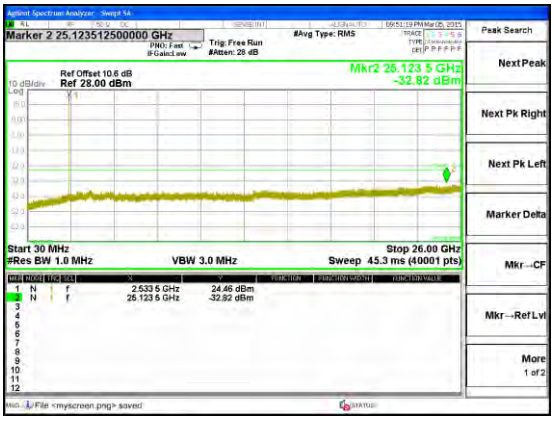
Band LTE7 5MHz 16QAM	 Band LTE7 5MHz CSE 16QAM Mid channel	 Band LTE7 5MHz CSE QPSK Mid channel

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

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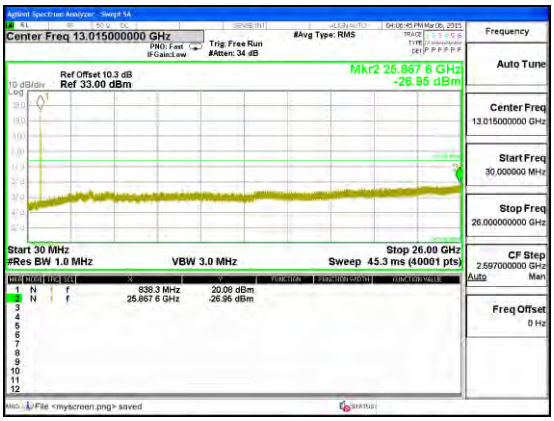
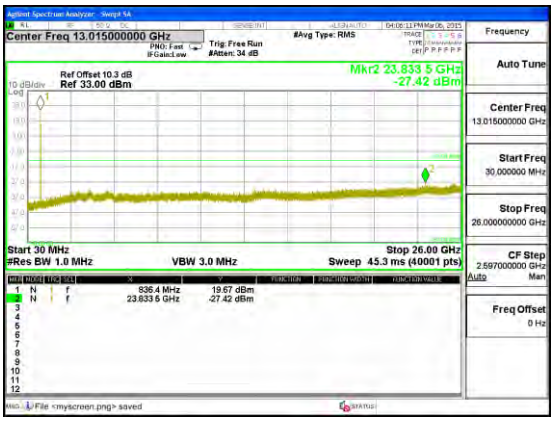
Band LTE5 5MHz 16QAM	 Band LTE5 5MHz CSE 16QAM Mid channel	 Band LTE5 5MHz CSE QPSK Mid channel

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

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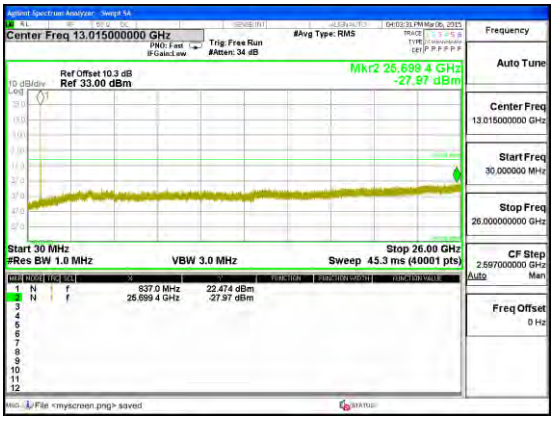
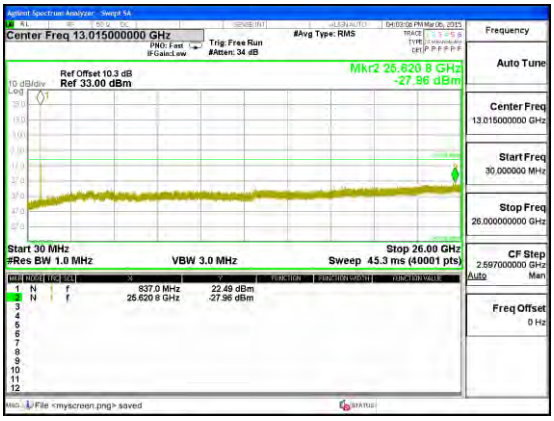
Band LTE5 1.4MHz 16QAM	 Band LTE5 1.4MHz CSE 16QAM Mid channel	 Band LTE5 1.4MHz CSE QPSK Mid channel

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

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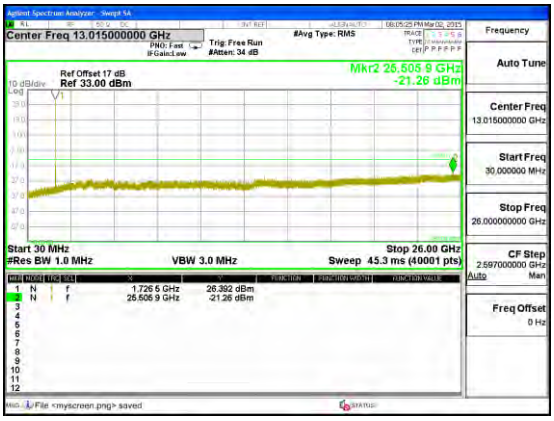
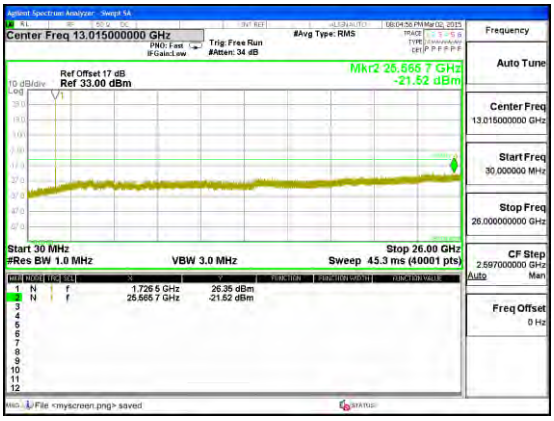
Band LTE4 15MHz 16QAM	 Band LTE4 15MHz CSE 16QAM Mid channel	 Band LTE4 15MHz CSE QPSK Mid channel

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

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

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

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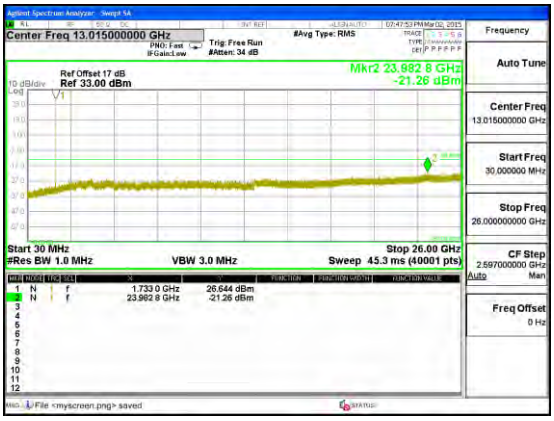
Band LTE4 1.4MHz 16QAM	 Band LTE4 1.4MHz CSE 16QAM Mid channel	 Band LTE4 1.4MHz CSE QPSK Mid channel

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

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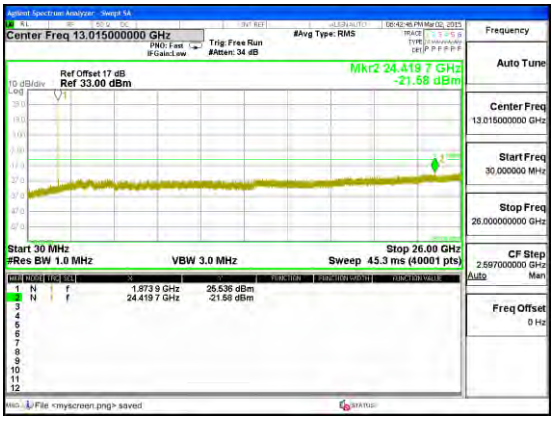
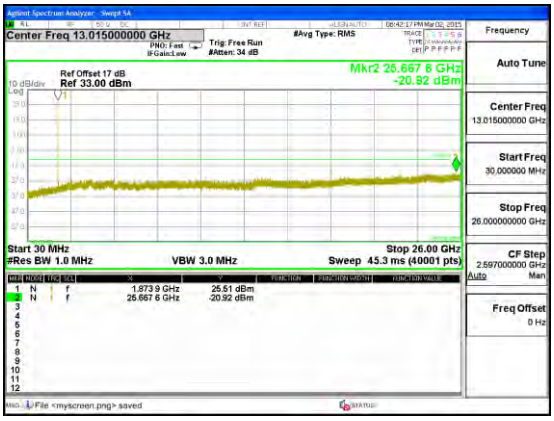
Band LTE2 15MHz 16QAM	 Band LTE2 15MHz CSE 16QAM Mid channel	 Band LTE2 15MHz CSE QPSK Mid channel

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

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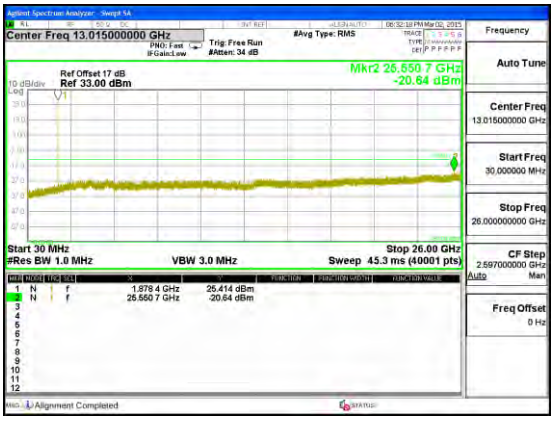
Band LTE2 5MHz 16QAM	 Band LTE2 5MHz CSE 16QAM Mid channel	 Band LTE2 5MHz CSE QPSK Mid channel

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

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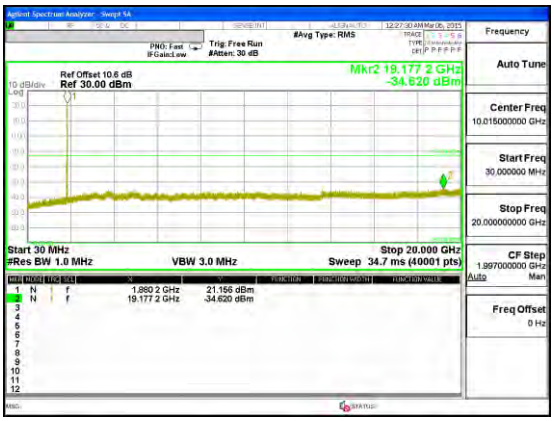
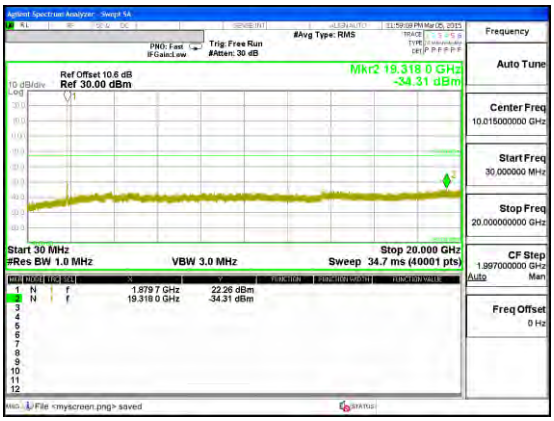
Band LTE2 1.4MHz 16QAM	 Band LTE2 1.4MHz CSE 16QAM Mid channel	 Band LTE2 1.4MHz CSE QPSK Mid channel

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

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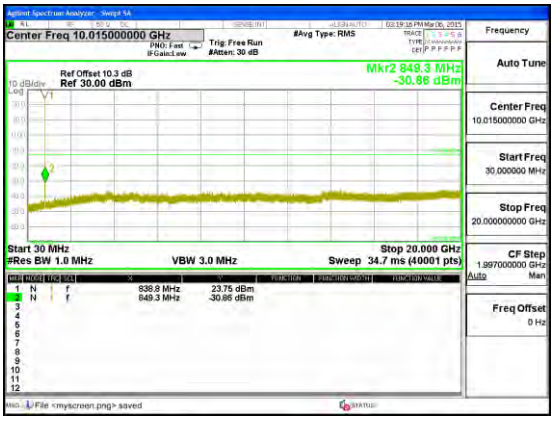
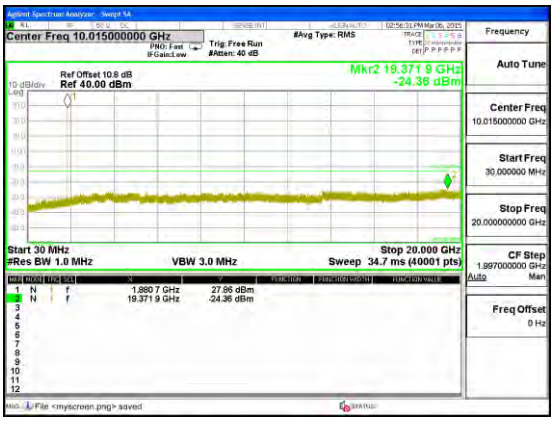
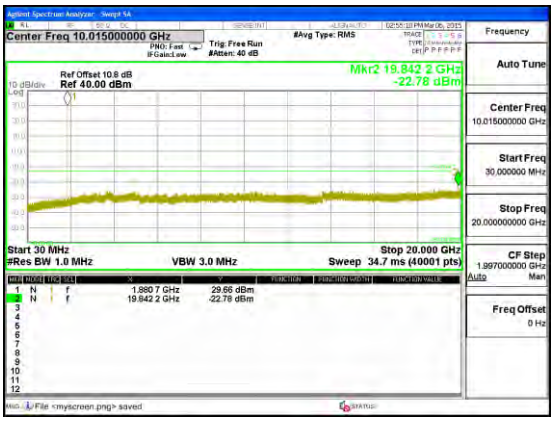
Band Band 5 HSDPA	 Band WCDMA B5 HSDPA CSE	 Band WCDMA B5 REL99 CSE

Band GSM 1900	 Band GSM1900 EGPRS CSE Mid channel	 Band GSM1900 GPRS CSE Mid channel

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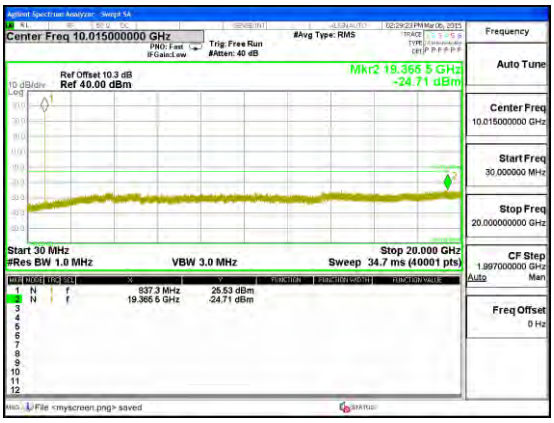
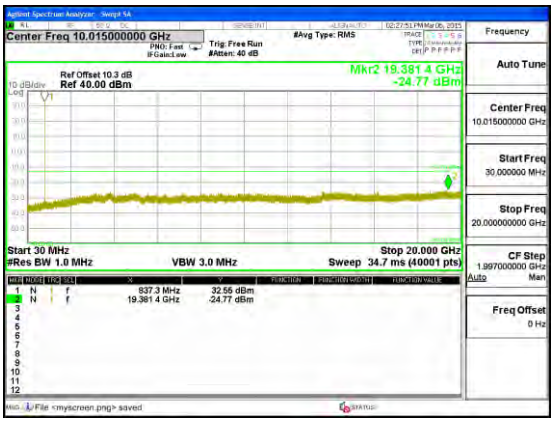
Band GSM 850	 Band GSM850 EGPRS CSE Mid channel	 Band GSM850 GPRS CSE Mid channel

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10.4. FREQUENCY STABILITY

RULE PART(S)

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

LIMITS

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

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

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

TEST PROCEDURE

Per KDB 971168 D01 Power Meas License Digital Systems v02r02

MODES TESTED

LTE

RESULTS

See the following pages.

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10.4.1. FREQUENCY STABILITY RESULTS

LTE2 QPSK 5MHz BW, Freq: 1880MHz– MID CHANNEL

Reference Frequency: PCS Mid Channel		1880	MHz @ 20°C	
Limit: to stay +- 2.5 ppm =		4700.000	Hz	
Power Supply (Vdc)	Environment Temperature (°C)	Frequency Deviation Measured with Time Elapse (MHz)	Delta (ppm)	Limit (ppm)
3.80	50	1879.999992	0.000	2.5
3.80	40	1879.999991	0.000	2.5
3.80	30	1879.999991	0.000	2.5
3.80	***20***	**1879.999991**	**0**	***2.5***
3.80	10	1879.999991	0.000	2.5
3.80	0	1879.999992	0.000	2.5
3.80	-10	1879.999991	0.000	2.5
3.80	-20	1879.999991	0.000	2.5
3.80	-30	1879.999990	0.001	2.5

Reference Frequency: PCS Mid Channel		1880	MHz @ 20°C	
Limit: to stay +- 2.5 ppm =		4700.000	Hz	
Power Supply (Vdc)	Environment Temperature (°C)	Frequency Deviation Measured with Time Elapse (MHz)	Delta (ppm)	Limit (ppm)
3.80	***20***	***1879.999991***	***0***	***2.5***
4.37	20	1879.999993	*-0.001*	2.5
3.23	20	1879.999993	*-0.001*	2.5

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LTE4 QPSK 5MHz BW, Freq: 1732.5 MHz– MID CHANNEL

Reference Frequency: PCS Mid Channel		1732.5	MHz @ 20°C	
Limit: to stay +- 2.5 ppm =		4331.250	Hz	
Power Supply (Vdc)	Environment Temperature (°C)	Frequency Deviation Measured with Time Elapse (MHz)	Delta (ppm)	Limit (ppm)
3.80	50	1732.500005	0.001	2.5
3.80	40	1732.500007	0.000	2.5
3.80	30	1732.500007	0.000	2.5
3.80	***20***	**1732.500007**	**0**	***2.5***
3.80	10	1732.500005	0.001	2.5
3.80	0	1732.499995	0.007	2.5
3.80	-10	1732.499995	0.007	2.5
3.80	-20	1732.499994	0.007	2.5
3.80	-30	1732.499994	0.007	2.5

Reference Frequency: PCS Mid Channel		1732.5	MHz @ 20°C	
Limit: to stay +- 2.5 ppm =		4331.250	Hz	
Power Supply (Vdc)	Environment Temperature (°C)	Frequency Deviation Measured with Time Elapse (MHz)	Delta (ppm)	Limit (ppm)
3.80	***20***	***1732.500007***	***0***	***2.5***
4.37	20	1732.500006	*0.000*	2.5
3.23	20	1732.500005	*0.001*	2.5

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LTE5 QPSK 5MHz BW, Freq: 836.5 MHz– MID CHANNEL

Reference Frequency: PCS Mid Channel		836.5	MHz @ 20°C	
Limit: to stay +- 2.5 ppm =		2091.250	Hz	
Power Supply (Vdc)	Environment Temperature (°C)	Frequency Deviation Measured with Time Elapse (MHz)	Delta (ppm)	Limit (ppm)
3.80	50	836.499994	0.003	2.5
3.80	40	836.499995	0.001	2.5
3.80	30	836.499995	0.001	2.5
3.80	***20***	**836.499996**	**0**	***2.5***
3.80	10	836.499996	0.000	2.5
3.80	0	836.500004	-0.010	2.5
3.80	-10	836.500005	-0.011	2.5
3.80	-20	836.500004	-0.010	2.5
3.80	-30	836.500004	-0.010	2.5

Reference Frequency: PCS Mid Channel		836.5	MHz @ 20°C	
Limit: to stay +- 2.5 ppm =		2091.250	Hz	
Power Supply (Vdc)	Environment Temperature (°C)	Frequency Deviation Measured with Time Elapse (MHz)	Delta (ppm)	Limit (ppm)
3.80	***20***	***836.499996***	***0***	***2.5***
4.37	20	836.4999949	*0.001*	2.5
3.23	20	836.4999948	*0.001*	2.5

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LTE7 QPSK 5MHz BW, Freq: 2535 MHz– MID CHANNEL

Reference Frequency: Cellular Mid Channel 2535.999990MHz @ 20°C Limit: to stay +- 2.5 ppm = 6337.500 Hz				
Power Supply (Vdc)	Environment Temperature (°C)	Frequency Deviation Measureed with Time Elapse		
		(MHz)	Delta (ppm)	Limit (ppm)
3.80	50	2534.999992	-0.001	2.5
3.80	40	2534.999991	-0.001	2.5
3.80	30	2534.999989	0.000	2.5
3.80	***20***	***2534.999990***	***0***	2.5
3.80	10	2534.999993	-0.001	2.5
3.80	0	2534.999991	-0.001	2.5
3.80	-10	2534.999993	-0.001	2.5
3.80	-20	2534.999992	-0.001	2.5
3.80	-30	2534.999992	-0.001	2.5

Reference Frequency: Cellular Mid Channel 2534.999990MHz @ 20°C Limit: to stay +- 2.5 ppm = 6337.500 Hz				
Power Supply (Vdc)	Environment Temperature (°C)	Frequency Deviation Measureed with Time Elapse		
		(MHz)	Delta (ppm)	Limit (ppm)
3.80	***20***	***2534.999990***	***0***	***2.5***
3.23	20	2534.999989	*0.000*	2.5
4.37	20	2534.999993	*-0.001*	2.5

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LTE12 10MHz QPSK, Freq: 707.5 MHz– MID CHANNEL

Reference Frequency: PCS 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	50	707.500005	-0.003	2.5
3.80	40	707.499997	0.008	2.5
3.80	30	707.499997	0.009	2.5
3.80	***20***	**707.500003**	**0**	***2.5***
3.80	10	707.500002	0.000	2.5
3.80	0	707.499996	0.010	2.5
3.80	-10	707.500004	-0.001	2.5
3.80	-20	707.500004	-0.001	2.5
3.80	-30	707.500004	-0.002	2.5

Reference Frequency: PCS 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***	***707.500003***	***0***	***2.5***
4.37	20	707.5000049	*-0.003*	2.5
3.23	20	707.5000032	*-0.001*	2.5

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LTE17 QPSK 5MHz BW, Freq: 710 MHz– MID CHANNEL

Reference Frequency: PCS Mid Channel		710	MHz @ 20°C	
Limit: to stay +- 2.5 ppm =		1775.000	Hz	
Power Supply (Vdc)	Environment Temperature (°C)	Frequency Deviation Measured with Time Elapse (MHz)	Delta (ppm)	Limit (ppm)
3.80	50	710.000004	0.000	2.5
3.80	40	710.000005	-0.001	2.5
3.80	30	710.000005	-0.002	2.5
3.80	***20***	**710.000004**	**0**	***2.5***
3.80	10	710.000003	0.000	2.5
3.80	0	710.000004	-0.001	2.5
3.80	-10	710.000002	0.002	2.5
3.80	-20	709.999996	0.011	2.5
3.80	-30	709.999996	0.010	2.5

Reference Frequency: PCS Mid Channel		710	MHz @ 20°C	
Limit: to stay +- 2.5 ppm =		1775.000	Hz	
Power Supply (Vdc)	Environment Temperature (°C)	Frequency Deviation Measured with Time Elapse (MHz)	Delta (ppm)	Limit (ppm)
3.80	***20***	***710.000004***	***0***	***2.5***
4.37	20	710.0000044	*-0.001*	2.5
3.23	20	710.0000029	*0.001*	2.5

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11. RADIATED TEST RESULTS

11.1. RADIATED POWER (ERP & EIRP)

RULE PART(S)

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

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

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

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

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 average power measurement with a PSA:

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

MODES TESTED

GSM, WCDMA, and LTE

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11.1.1. ERP/EIRP Results

WCDMA

Band	Mode	Channel	f(MHz)	ERP / EIRP	
				dBm	mW
Band 2	REL99	9262	1852.4	23.56	226.99
		9400	1880	25.23	333.43
		9538	1907.6	24.42	276.69
	HSDPA	9262	1852.4	22.21	166.39
		9400	1880	23.56	226.96
		9538	1907.6	23.81	240.64

Band	Mode	Channel	f(MHz)	ERP / EIRP	
				dBm	mW
Band 5	REL99	4132	826.4	21.49	140.96
		4183	836.6	21.70	147.94
		4233	846.6	22.05	160.36
	HSDPA	4132	826.4	21.37	137.12
		4183	836.6	21.54	142.59
		4233	846.6	21.80	151.39

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GSM

Band	Mode	Channel	f(MHz)	ERP / EIRP	
				dBm	mW
GSM1900	GPRS	512	1850.2	30.16	1036.91
		661	1880	32.63	1832.06
		810	1909.8	32.81	1911.44
	EGPRS	512	1850.2	26.93	493.17
		661	1880	28.51	709.58
		810	1909.8	28.45	699.84

Band	Mode	Channel	f(MHz)	ERP / EIRP	
				dBm	mW
GSM850	GPRS	128	824.2	29.47	885.32
		190	836.6	29.17	826.23
		251	848.8	30.41	1099.26
	EGPRS	128	824.2	23.50	223.87
		190	836.6	24.52	283.14
		251	848.8	23.58	228.03

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11.1.2. LTE ERP/EIRP Results

LTE Band 17

Band	BW (MHz)	Mode	RB/RB Size	f (MHz)	ERP / EIRP	
					dBm	mW
LTE17	10	QPSK	1/0	709	22.17	164.82
			1/0	710	21.9	154.88
			1/0	711	21.65	146.22
		16QAM	1/0	709	21.06	127.64
			1/0	710	20.92	123.59
			1/0	711	21.08	128.23
	5	QPSK	1/0	706.5	21.96	157.04
			1/0	710	21.55	142.89
			1/0	713.5	21.8	151.36
		16QAM	1/0	706.5	21.04	127.06
			1/0	710	20.85	121.62
			1/0	713.5	20.97	125.03

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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	21.95	156.68
			1/0	707.5	21.98	157.76
			1/0	711	22.18	165.2
		16QAM	1/0	704	21.06	127.64
			1/0	707.5	21.07	127.94
			1/0	711	21.11	129.12
	5	QPSK	1/0	701.5	21.8	151.36
			1/0	707.5	21.97	157.4
			1/0	713.5	21.84	152.76
		16QAM	1/0	701.5	20.9	123.03
			1/0	707.5	21.05	127.35
			1/0	713.5	20.97	125.03
	3	QPSK	1/0	700.5	21.67	146.89
			1/0	707.5	21.8	151.36
			1/0	714.5	21.87	153.82
		16QAM	1/0	700.5	20.69	117.22
			1/0	707.5	20.85	121.62
			1/0	714.5	20.99	125.6
	1.4	QPSK	1/0	699.7	21.68	147.23
			1/0	707.5	21.81	151.71
			1/0	715.3	21.86	153.46
		16QAM	1/0	699.7	20.7	117.49
			1/0	707.5	20.86	121.9
			1/0	715.3	21	125.89

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LTE Band 7

Band	BW (MHz)	Mode	RB/RB Size	f (MHz)	ERP / EIRP	
					dBm	mW
LTE7	20	QPSK	1/0	2510	25.386	345.62
			1/0	2535	25.023	317.91
			1/0	2560	24.16	260.62
		16QAM	1/0	2510	24.596	288.14
			1/0	2535	24.403	275.61
			1/0	2560	23.34	215.77
	15	QPSK	1/0	2507.5	24.886	308.03
			1/0	2535	25.503	355.06
			1/0	2562.5	24.79	301.3
		16QAM	1/0	2507.5	24.056	254.45
			1/0	2535	24.743	298.06
			1/0	2562.5	23.97	249.46
	10	QPSK	1/0	2505	24.986	315.21
			1/0	2535	25.273	336.74
			1/0	2565	24.44	277.97
		16QAM	1/0	2505	24.346	272.02
			1/0	2535	24.583	287.28
			1/0	2565	23.7	234.42
	5	QPSK	1/0	2502.5	25.136	326.29
			1/0	2535	25.123	325.31
			1/0	2567.5	25.64	366.44
		16QAM	1/0	2502.5	24.286	268.29
			1/0	2535	24.273	267.49
			1/0	2567.5	25.05	319.89

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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	20.15	103.51
			1/0	836.5	20.99	125.60
			1/0	844	20.56	113.76
		16QAM	1/0	829	19.35	86.10
			1/0	836.5	19.66	92.47
			1/0	844	19.59	90.99
	5	QPSK	1/0	826.5	20.28	106.68
			1/0	836.5	20.95	124.48
			1/0	846.5	20.26	106.19
		16QAM	1/0	826.5	19.55	90.18
			1/0	836.5	20.19	104.50
			1/0	846.5	19.57	90.59
	3	QPSK	1/0	825.5	20.06	101.41
			1/0	836.5	20.69	117.25
			1/0	847.5	20.25	105.95
		16QAM	1/0	825.5	19.32	85.53
			1/0	836.5	19.89	97.52
			1/0	847.5	19.49	88.94
	1.4	QPSK	1/0	824.7	19.66	92.49
			1/0	836.5	20.54	113.27
			1/0	848.3	19.77	94.86
		16QAM	1/0	824.7	18.99	79.27
			1/0	836.5	19.76	94.65
			1/0	848.3	19.13	81.87

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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	23.16	207.22
			1/0	1732.5	23.92	246.66
			1/0	1745	23.20	208.83
		16QAM	1/0	1720	22.12	163.09
			1/0	1732.5	22.98	198.66
			1/0	1745	22.33	170.92
	15	QPSK	1/0	1717.5	23.19	208.35
			1/0	1732.5	23.13	205.64
			1/0	1747.5	23.29	213.51
		16QAM	1/0	1717.5	22.19	165.5
			1/0	1732.5	22.36	172.23
			1/0	1747.5	22.36	172.35
	10	QPSK	1/0	1715	22.97	198.2
			1/0	1732.5	23.16	207.06
			1/0	1750	23.29	213.37
		16QAM	1/0	1715	22.05	160.36
			1/0	1732.5	22.36	172.23
			1/0	1750	22.35	171.84
	5	QPSK	1/0	1712.5	22.90	195.18
			1/0	1732.5	23.15	206.59
			1/0	1752.5	23.37	217.16
		16QAM	1/0	1712.5	22.07	161.22
			1/0	1732.5	22.32	170.65
			1/0	1752.5	22.40	173.69

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Band	BW (MHz)	Mode	RB/RB Size	f (MHz)	ERP / EIRP	
					dBm	mW
LTE4	3	QPSK	1/0	1711.5	22.93	196.24
			1/0	1732.5	23.26	211.89
			1/0	1753.5	23.36	216.98
		16QAM	1/0	1711.5	22.10	162.1
			1/0	1732.5	22.38	173.02
			1/0	1753.5	22.60	182.15
	1.4	QPSK	1/0	1710.7	22.94	196.84
			1/0	1732.5	23.17	207.54
			1/0	1754.3	23.39	218.34
		16QAM	1/0	1710.7	21.99	158.16
			1/0	1732.5	22.37	172.63
			1/0	1754.3	22.45	175.84

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LTE Band 2

Band	BW (MHz)	Mode	RB/RB Size	f (MHz)	ERP / EIRP	
					dBm	mW
LTE2	20	QPSK	1/0	1860	25.02	317.50
			1/0	1880	25.10	323.55
			1/0	1900	25.56	360.05
		16QAM	1/0	1860	24.21	263.48
			1/0	1880	24.52	283.10
			1/0	1900	24.80	302.25
	15	QPSK	1/0	1857.5	24.72	296.31
			1/0	1880	24.63	290.36
			1/0	1902.5	24.75	298.79
		16QAM	1/0	1857.5	23.74	236.45
			1/0	1880	24.01	251.73
			1/0	1902.5	23.89	245.11
	10	QPSK	1/0	1855	25.17	328.65
			1/0	1880	25.23	333.38
			1/0	1905	24.02	252.56
		16QAM	1/0	1855	24.36	272.73
			1/0	1880	24.49	281.15
			1/0	1905	23.14	206.23
	5	QPSK	1/0	1852.5	25.17	328.65
			1/0	1880	24.29	268.50
			1/0	1907.5	24.28	268.14
		16QAM	1/0	1852.5	24.70	294.94
			1/0	1880	23.63	230.64
			1/0	1907.5	23.49	223.54

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Band	BW (MHz)	Mode	RB/RB Size	f (MHz)	ERP / EIRP	
					dBm	mW
LTE2	3	QPSK	1/0	1851.5	25.66	367.91
			1/0	1880	25.47	352.32
			1/0	1908.5	24.89	308.57
		16QAM	1/0	1851.5	24.83	303.91
			1/0	1880	24.61	289.03
			1/0	1908.5	24.06	254.89
	1.4	QPSK	1/0	1850.7	25.07	321.17
			1/0	1880	24.85	305.45
			1/0	1909.3	24.27	267.52
		16QAM	1/0	1850.7	24.35	272.11
			1/0	1880	24.39	274.75
			1/0	1909.3	23.61	229.81

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11.1.3. ERP/EIRP PLOTS

LTE Band 17

Band

LTE17

10MHz

16QAM

High Frequency Substitution Measurement
UL Verification Services, Inc.

Company: Sony
Project #: 15I20030
Date: 03/05/15
Test Engineer: Charles Vergonio
Configuration: EUT only
Location: Chamber C
Mode: LTE_16QAM Band 17 Fundamentals, 10MHz Bandwidth

Test Equipment:
Receiving: Sunol T185, and 3m Chamber C N-type Cable
Substitution: Dipole T273, 4ft 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								
709.00	14.50	V	0.9	0.0	13.60	34.8	-21.2	
709.00	21.96	H	0.9	0.0	21.06	34.8	-13.7	
Mid Ch								
710.00	14.05	V	0.9	0.0	13.15	34.8	-21.6	
710.00	21.82	H	0.9	0.0	20.92	34.8	-13.9	
High Ch								
711.00	13.93	V	0.9	0.0	13.03	34.8	-21.7	
711.00	21.98	H	0.9	0.0	21.08	34.8	-13.7	

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Band

LTE17

10MHz

QPSK

High Frequency Substitution Measurement
UL Verification Services, Inc.

Company: Sony
Project #: 15I20030
Date: 03/05/15
Test Engineer: Charles Vergonio
Configuration: EUT only
Location: Chamber C
Mode: LTE_QPSK Band 17 Fundamentals, 10MHz Bandwidth

Test Equipment:
Receiving: Sunol T185, and 3m Chamber C N-type Cable
Substitution: Dipole T273, 4ft 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								
709.00	15.28	V	0.9	0.0	14.38	34.8	-20.4	
709.00	23.07	H	0.9	0.0	22.17	34.8	-12.6	
Mid Ch								
710.00	14.75	V	0.9	0.0	13.85	34.8	-20.9	
710.00	22.80	H	0.9	0.0	21.90	34.8	-12.9	
High Ch								
711.00	15.27	V	0.9	0.0	14.37	34.8	-20.4	
711.00	22.55	H	0.9	0.0	21.65	34.8	-13.1	

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Band

LTE17

5MHz

16QAM

High Frequency Substitution Measurement
UL Verification Services, Inc.

Company: Sony
Project #: 15I20030
Date: 03/05/15
Test Engineer: Charles Vergonio
Configuration: EUT only
Location: Chamber C
Mode: LTE_16QAM Band 17 Fundamentals, 5MHz Bandwidth

Test Equipment:
Receiving: Sunol T185, and 3m Chamber C N-type Cable
Substitution: Dipole T273, 4ft 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								
706.50	14.81	V	0.9	0.0	13.91	34.8	-20.9	
706.50	21.94	H	0.9	0.0	21.04	34.8	-13.7	
Mid Ch								
710.00	14.23	V	0.9	0.0	13.33	34.8	-21.4	
710.00	21.75	H	0.9	0.0	20.85	34.8	-13.9	
High Ch								
713.50	14.72	V	0.9	0.0	13.82	34.8	-21.0	
713.50	21.87	H	0.9	0.0	20.97	34.8	-13.8	

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Band

LTE17

5MHz

QPSK

High Frequency Substitution Measurement
UL Verification Services, Inc.

Company: Sony
Project #: 15I20030
Date: 03/05/15
Test Engineer: Charles Vergonio
Configuration: EUT only
Location: Chamber C
Mode: LTE_QPSK Band 17 Fundamentals, 5MHz Bandwidth

Test Equipment:
Receiving: Sunol T185, and 3m Chamber C N-type Cable
Substitution: Dipole T273, 4ft 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								
706.50	15.44	V	0.9	0.0	14.54	34.8	-20.2	
706.50	22.86	H	0.9	0.0	21.96	34.8	-12.8	
Mid Ch								
710.00	14.97	V	0.9	0.0	14.07	34.8	-20.7	
710.00	22.45	H	0.9	0.0	21.55	34.8	-13.2	
High Ch								
713.50	15.15	V	0.9	0.0	14.25	34.8	-20.5	
713.50	22.70	H	0.9	0.0	21.80	34.8	-13.0	

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LTE Band 12

Band

LTE12

10MHz

16QAM

High Frequency Substitution Measurement
UL Verification Services, Inc.

Company: Sony
Project #: 15U20030
Date: 3/615
Test Engineer: R.Alegre
Configuration: EUT Only
Location: Chamber B
Mode: LTE_16QAM Band 12 Fundamentals, 10MHz Bandwidth

Test Equpment:
Receiving: Hybrid T243, and Chamber B SMA Cables
Substitution: Dipole T273, Xft SMA Cable (SN # SERIALNUMBER) Warehouse

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
704.00	11.80	V	0.9	0.0	10.90	34.8	-23.9	
704.00	21.96	H	0.9	0.0	21.06	34.8	-13.7	
Mid Ch								
707.50	11.94	V	0.9	0.0	11.04	34.8	-23.7	
707.50	21.97	H	0.9	0.0	21.07	34.8	-13.7	
High Ch								
711.00	11.94	V	0.9	0.0	11.04	34.8	-23.7	
711.00	22.01	H	0.9	0.0	21.11	34.8	-13.7	

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Band

LTE12

10MHz

QPSK

High Frequency Substitution Measurement
UL Verification Services, Inc.

Company: Sony
Project #: 15U20030
Date: 3/615
Test Engineer: R.Alegre
Configuration: EUT Only
Location: Chamber B
Mode: LTE_QPSK Band 12 Fundamentals, 10MHz Bandwidth

Test Equpment:
Receiving: Hybrid T243, and Chamber B SMA Cables
Substitution: Dipole T273, Xft SMA Cable (SN # SERIALNUMBER) Warehouse

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
704.00	12.84	V	0.9	0.0	11.94	34.8	-22.8	
704.00	22.85	H	0.9	0.0	21.95	34.8	-12.8	
Mid Ch								
707.50	12.87	V	0.9	0.0	11.97	34.8	-22.8	
707.50	22.88	H	0.9	0.0	21.98	34.8	-12.8	
High Ch								
711.00	12.81	V	0.9	0.0	11.91	34.8	-22.9	
711.00	23.08	H	0.9	0.0	22.18	34.8	-12.6	

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Band

LTE12

5MHz

16QAM

High Frequency Substitution Measurement
UL Verification Services, Inc.

Company: Sony
Project #: 15U20030
Date: 3/615
Test Engineer: R.Alegre
Configuration: EUT Only
Location: Chamber B
Mode: LTE_16QAM Band 12 Fundamentals, 5MHz Bandwidth

Test Equpment:
Receiving: Hybrid T243, and Chamber B SMA Cables
Substitution: Dipole T273, Xft SMA Cable (SN # SERIALNUMBER) Warehouse

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
701.50	11.75	V	0.9	0.0	10.85	34.8	-23.9	
701.50	21.80	H	0.9	0.0	20.90	34.8	-13.9	
Mid Ch								
707.50	11.92	V	0.9	0.0	11.02	34.8	-23.8	
707.50	21.95	H	0.9	0.0	21.05	34.8	-13.7	
High Ch								
713.50	11.95	V	0.9	0.0	11.05	34.8	-23.7	
713.50	21.87	H	0.9	0.0	20.97	34.8	-13.8	

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Band

LTE12

5MHz

QPSK

High Frequency Substitution Measurement
UL Verification Services, Inc.

Company: Sony
Project #: 15U20030
Date: 3/615
Test Engineer: R.Alegre
Configuration: EUT Only
Location: Chamber B
Mode: LTE_QPSK Band 12 Fundamentals, 5MHz Bandwidth

Test Equpment:
Receiving: Hybrid T243, and Chamber B SMA Cables
Substitution: Dipole T273, Xft SMA Cable (SN # SERIALNUMBER) Warehouse

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
701.50	12.83	V	0.9	0.0	11.93	34.8	-22.8	
701.50	22.70	H	0.9	0.0	21.80	34.8	-13.0	
Mid Ch								
707.50	12.86	V	0.9	0.0	11.96	34.8	-22.8	
707.50	22.87	H	0.9	0.0	21.97	34.8	-12.8	
High Ch								
713.50	12.83	V	0.9	0.0	11.93	34.8	-22.8	
713.50	22.74	H	0.9	0.0	21.84	34.8	-12.9	

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Band

LTE12

3MHz

16QAM

High Frequency Substitution Measurement
UL Verification Services, Inc.

Company: Sony
Project #: 15U20030
Date: 3/615
Test Engineer: R.Alegre
Configuration: EUT Only
Location: Chamber B
Mode: LTE_16QAM Band 12 Fundamentals, 3MHz Bandwidth

Test Equpment:
Receiving: Hybrid T243, and Chamber B SMA Cables
Substitution: Dipole T273, Xft SMA Cable (SN # SERIALNUMBER) Warehouse

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
700.50	11.74	V	0.9	0.0	10.84	34.8	-23.9	
700.50	21.59	H	0.9	0.0	20.69	34.8	-14.1	
Mid Ch								
707.50	11.93	V	0.9	0.0	11.03	34.8	-23.7	
707.50	21.75	H	0.9	0.0	20.85	34.8	-13.9	
High Ch								
714.50	11.93	V	0.9	0.0	11.03	34.8	-23.7	
714.50	21.89	H	0.9	0.0	20.99	34.8	-13.8	

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Band

LTE12

3MHz

QPSK

High Frequency Substitution Measurement
UL Verification Services, Inc.

Company: Sony
Project #: 15U20030
Date: 3/615
Test Engineer: R.Alegre
Configuration: EUT Only
Location: Chamber B
Mode: LTE_QPSK Band 12 Fundamentals, 3MHz Bandwidth

Test Equpment:
Receiving: Hybrid T243, and Chamber B SMA Cables
Substitution: Dipole T273, Xft SMA Cable (SN # SERIALNUMBER) Warehouse

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
700.50	12.86	V	0.9	0.0	11.96	34.8	-22.8	
700.50	22.57	H	0.9	0.0	21.67	34.8	-13.1	
Mid Ch								
707.50	12.85	V	0.9	0.0	11.95	34.8	-22.8	
707.50	22.70	H	0.9	0.0	21.80	34.8	-13.0	
High Ch								
714.50	12.83	V	0.9	0.0	11.93	34.8	-22.8	
714.50	22.77	H	0.9	0.0	21.87	34.8	-12.9	

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Band

LTE12

1.4MHz

16QAM

High Frequency Substitution Measurement
UL Verification Services, Inc.

Company: Sony
Project #: 15U20030
Date: 3/615
Test Engineer: R.Alegre
Configuration: EUT Only
Location: Chamber B
Mode: LTE_16QAM Band 12 Fundamentals, 1.4MHz Bandwidth

Test Equpment:
Receiving: Hybrid T243, and Chamber B SMA Cables
Substitution: Dipole T273, Xft SMA Cable (SN # SERIALNUMBER) Warehouse

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
699.70	11.73	V	0.9	0.0	10.83	34.8	-23.9	
699.70	21.60	H	0.9	0.0	20.70	34.8	-14.1	
Mid Ch								
707.50	11.91	V	0.9	0.0	11.01	34.8	-23.8	
707.50	21.76	H	0.9	0.0	20.86	34.8	-13.9	
High Ch								
715.30	11.93	V	0.9	0.0	11.03	34.8	-23.7	
715.30	21.90	H	0.9	0.0	21.00	34.8	-13.8	

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Band

LTE12

1.4MHz

QPSK

High Frequency Substitution Measurement
UL Verification Services, Inc.

Company: Sony
Project #: 15U20030
Date: 3/615
Test Engineer: R.Alegre
Configuration: EUT Only
Location: Chamber B
Mode: LTE_QPSK Band 12 Fundamentals, 1.4MHz Bandwidth

Test Equpment:
Receiving: Hybrid T243, and Chamber B SMA Cables
Substitution: Dipole T273, Xft SMA Cable (SN # SERIALNUMBER) Warehouse

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
699.70	12.82	V	0.9	0.0	11.92	34.8	-22.9	
699.70	22.58	H	0.9	0.0	21.68	34.8	-13.1	
Mid Ch								
707.50	12.88	V	0.9	0.0	11.98	34.8	-22.8	
707.50	22.71	H	0.9	0.0	21.81	34.8	-13.0	
High Ch								
715.30	12.81	V	0.9	0.0	11.91	34.8	-22.9	
715.30	22.76	H	0.9	0.0	21.86	34.8	-12.9	

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LTE Band 7

Band

LTE7

20MHz

16QAM

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

Company: Sony
Project #: 15U20030
Date: 03/04/15
Test Engineer: O. Stoelting
Configuration: X-pos EUT
Mode: LTE7 20MHz 16QAM

Test Equipment:
Receiving: Horn T136, and Chamber A SMA Cables
Substitution: Horn S/N: T72, SMA Cable #C6 Warehouse.

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Notes
Low Ch								
2510.00	12.58	V	0.9	9.5	21.18	33.0	-11.8	
2510.00	16.00	H	0.9	9.5	24.60	33.0	-8.4	
Mid Ch								
2535.00	12.76	V	0.9	9.5	21.36	33.0	-11.6	
2535.00	15.80	H	0.9	9.5	24.40	33.0	-8.6	
High Ch								
2560.00	11.57	V	0.9	9.5	20.17	33.0	-12.8	
2560.00	14.74	H	0.9	9.5	23.34	33.0	-9.7	

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

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Band

LTE7

20MHz

QPSK

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

Company: Sony
Project #: 15U20030
Date: 03/04/15
Test Engineer: O. Stoelting
Configuration: X-pos EUT
Mode: LTE7 20MHz QPSK

Test Equipment:
Receiving: Horn T136, and Chamber A SMA Cables
Substitution: Horn S/N: T72, SMA Cable #C6 Warehouse.

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Notes
Low Ch								
2510.00	13.21	V	0.9	9.5	21.81	33.0	-11.2	
2510.00	16.79	H	0.9	9.5	25.39	33.0	-7.6	
Mid Ch								
2535.00	13.40	V	0.9	9.5	22.00	33.0	-11.0	
2535.00	16.42	H	0.9	9.5	25.02	33.0	-8.0	
High Ch								
2560.00	12.24	V	0.9	9.5	20.84	33.0	-12.2	
2560.00	15.56	H	0.9	9.5	24.16	33.0	-8.8	

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

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Band

LTE7

15MHz

16QAM

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

Company: Sony
Project #: 15U20030
Date: 03/04/15
Test Engineer: O. Stoelting
Configuration: X-pos EUT
Mode: LTE7 15MHz 16QAM

Test Equipment:
Receiving: Horn T136, and Chamber A SMA Cables
Substitution: Horn S/N: T72, SMA Cable #C6 Warehouse.

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Notes
Low Ch								
2507.50	12.61	V	0.9	9.5	21.21	33.0	-11.8	
2507.50	15.46	H	0.9	9.5	24.06	33.0	-8.9	
Mid Ch								
2535.00	12.94	V	0.9	9.5	21.54	33.0	-11.5	
2535.00	16.14	H	0.9	9.5	24.74	33.0	-8.3	
High Ch								
2562.50	12.34	V	0.9	9.5	20.94	33.0	-12.1	
2562.50	15.37	H	0.9	9.5	23.97	33.0	-9.0	

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Note: For Band 4 EIRP limit is 30dBm

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Band

LTE7

15MHz

QPSK

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

Company: Sony
Project #: 15U20030
Date: 03/04/15
Test Engineer: O. Stoelting
Configuration: X-pos EUT
Mode: LTE7 15MHz QPSK

Test Equipment:
Receiving: Horn T136, and Chamber A SMA Cables
Substitution: Horn S/N: T72, SMA Cable #C6 Warehouse.

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Notes
Low Ch								
2507.50	13.35	V	0.9	9.5	21.95	33.0	-11.0	
2507.50	16.29	H	0.9	9.5	24.89	33.0	-8.1	
Mid Ch								
2535.00	13.41	V	0.9	9.5	22.01	33.0	-11.0	
2535.00	16.90	H	0.9	9.5	25.50	33.0	-7.5	
High Ch								
2562.50	13.09	V	0.9	9.5	21.69	33.0	-11.3	
2562.50	16.19	H	0.9	9.5	24.79	33.0	-8.2	

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

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Band

LTE7

10MHz

16QAM

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

Company: Sony
Project #: 15U20030
Date: 03/04/15
Test Engineer: O. Stoelting
Configuration: X-pos EUT
Mode: LTE7 10MHz 16QAM

Test Equipment:
Receiving: Horn T136, and Chamber A SMA Cables
Substitution: Horn S/N: T72, SMA Cable #C6 Warehouse.

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Notes
Low Ch								
2505.00	12.03	V	0.9	9.5	20.63	33.0	-12.4	
2505.00	15.75	H	0.9	9.5	24.35	33.0	-8.7	
Mid Ch								
2535.00	12.90	V	0.9	9.5	21.50	33.0	-11.5	
2535.00	15.98	H	0.9	9.5	24.58	33.0	-8.4	
High Ch								
2565.00	11.68	V	0.9	9.5	20.28	33.0	-12.7	
2565.00	15.10	H	0.9	9.5	23.70	33.0	-9.3	

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

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Band

LTE7

10MHz

QPSK

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

Company: Sony
Project #: 15U20030
Date: 03/04/15
Test Engineer: O. Stoelting
Configuration: X-pos EUT
Mode: LTE7 10MHz QPSK

Test Equipment:
Receiving: Horn T136, and Chamber A SMA Cables
Substitution: Horn S/N: T72, SMA Cable #C6 Warehouse.

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Notes
Low Ch								
2505.00	12.73	V	0.9	9.5	21.33	33.0	-11.7	
2505.00	16.39	H	0.9	9.5	24.99	33.0	-8.0	
Mid Ch								
2535.00	13.69	V	0.9	9.5	22.29	33.0	-10.7	
2535.00	16.67	H	0.9	9.5	25.27	33.0	-7.7	
High Ch								
2565.00	12.40	V	0.9	9.5	21.00	33.0	-12.0	
2565.00	15.84	H	0.9	9.5	24.44	33.0	-8.6	

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Note: For Band 4 EIRP limit is 30dBm

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Band

LTE7

5MHz

16QAM

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

Company: Sony
Project #: 15U20030
Date: 03/04/15
Test Engineer: O. Stoelting
Configuration: X-pos EUT
Mode: LTE7 5MHz 16QAM

Test Equipment:
Receiving: Horn T136, and Chamber A SMA Cables
Substitution: Horn S/N: T72, SMA Cable #C6 Warehouse.

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Notes
Low Ch								
2502.50	9.57	V	0.9	9.5	18.17	33.0	-14.8	
2502.50	15.69	H	0.9	9.5	24.29	33.0	-8.7	
Mid Ch								
2535.00	12.50	V	0.9	9.5	21.10	33.0	-11.9	
2535.00	15.67	H	0.9	9.5	24.27	33.0	-8.7	
High Ch								
2567.50	12.31	V	0.9	9.5	20.91	33.0	-12.1	
2567.50	16.45	H	0.9	9.5	25.05	33.0	-8.0	

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

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Band

LTE7

5MHz

QPSK

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

Company: Sony
Project #: 15U20030
Date: 03/04/15
Test Engineer: O. Stoelting
Configuration: X-pos EUT
Mode: LTE7 5MHz QPSK

Test Equipment:
Receiving: Horn T136, and Chamber A SMA Cables
Substitution: Horn S/N: T72, SMA Cable #C6 Warehouse.

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Notes
Low Ch								
2502.50	10.28	V	0.9	9.5	18.88	33.0	-14.1	
2502.50	16.54	H	0.9	9.5	25.14	33.0	-7.9	
Mid Ch								
2535.00	13.23	V	0.9	9.5	21.83	33.0	-11.2	
2535.00	16.52	H	0.9	9.5	25.12	33.0	-7.9	
High Ch								
2567.50	12.87	V	0.9	9.5	21.47	33.0	-11.5	
2567.50	17.04	H	0.9	9.5	25.64	33.0	-7.4	

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Note: For Band 4 EIRP limit is 30dBm

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LTE Band 5

Band

LTE5

10MHz

16QAM

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

Company: Sony
Project #: 15I20030
Date: 3/5/2015
Test Engineer: Charles Vergonio
Configuration: EUT Y-position
Mode: LTE5 10MHz 16QAM

Test Equipment:
Receiving: Sunol T185, and 3m Chamber C N-type Cable
Substitution: Dipole T273, 4ft SMA Cable Warehouse.

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Margin (dB)	Notes
Low Ch								
824.70	20.25	V	0.9	0.0	19.35	38.5	-19.1	
824.70	10.65	H	0.9	0.0	9.75	38.5	-28.7	
Mid Ch								
836.50	20.56	V	0.9	0.0	19.66	38.5	-18.8	
836.50	10.37	H	0.9	0.0	9.47	38.5	-29.0	
High Ch								
848.30	20.49	V	0.9	0.0	19.59	38.5	-18.9	
848.30	10.08	H	0.9	0.0	9.18	38.5	-29.3	

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

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Band

LTE5

10MHz

QPSK

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

Company: Sony
Project #: 15I20030
Date: 3/5/2015
Test Engineer: Charles Vergonio
Configuration: EUT Y-position
Mode: LTE5 10MHz QPSK

Test Equipment:
Receiving: Sunol T185, and 3m Chamber C N-type Cable
Substitution: Dipole T273, 4ft SMA Cable Warehouse.

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Margin (dB)	Notes
Low Ch								
824.70	21.05	V	0.9	0.0	20.15	38.5	-18.3	
824.70	11.66	H	0.9	0.0	10.76	38.5	-27.7	
Mid Ch								
836.50	21.89	V	0.9	0.0	20.99	38.5	-17.5	
836.50	12.02	H	0.9	0.0	11.12	38.5	-27.3	
High Ch								
848.30	21.46	V	0.9	0.0	20.56	38.5	-17.9	
848.30	11.59	H	0.9	0.0	10.69	38.5	-27.8	

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

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Band

LTE5

5MHz

16QAM

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

Company: Sony
Project #: 15I20030
Date: 3/5/2015
Test Engineer: Charles Vergonio
Configuration: EUT Y-position
Mode: LTE5 5MHz 16QAM

Test Equipment:
Receiving: Sunol T185, and 3m Chamber C N-type Cable
Substitution: Dipole T273, 4ft SMA Cable Warehouse.

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Margin (dB)	Notes
Low Ch								
826.50	20.45	V	0.9	0.0	19.55	38.5	-18.9	
826.50	10.87	H	0.9	0.0	9.97	38.5	-28.5	
Mid Ch								
836.50	21.09	V	0.9	0.0	20.19	38.5	-18.3	
836.50	11.02	H	0.9	0.0	10.12	38.5	-28.3	
High Ch								
846.50	20.47	V	0.9	0.0	19.57	38.5	-18.9	
846.50	10.63	H	0.9	0.0	9.73	38.5	-28.7	

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

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Band

LTE5

5MHz

QPSK

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

Company: Sony
Project #: 15I20030
Date: 3/5/2015
Test Engineer: Charles Vergonio
Configuration: EUT Y-position
Mode: LTE5 5MHz 16QAM

Test Equipment:
Receiving: Sunol T185, and 3m Chamber C N-type Cable
Substitution: Dipole T273, 4ft SMA Cable Warehouse.

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Margin (dB)	Notes
Low Ch								
826.50	21.18	V	0.9	0.0	20.28	38.5	-18.2	
826.50	11.54	H	0.9	0.0	10.64	38.5	-27.8	
Mid Ch								
836.50	21.85	V	0.9	0.0	20.95	38.5	-17.5	
836.50	12.03	H	0.9	0.0	11.13	38.5	-27.3	
High Ch								
846.50	21.16	V	0.9	0.0	20.26	38.5	-18.2	
846.50	11.41	H	0.9	0.0	10.51	38.5	-27.9	

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

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Band

LTE5

3MHz

16QAM

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

Company: Sony
Project #: 15I20030
Date: 3/5/2015
Test Engineer: Charles Vergonio
Configuration: EUT Y-position
Mode: LTE5 3MHz 16QAM

Test Equipment:
Receiving: Sunol T185, and 3m Chamber C N-type Cable
Substitution: Dipole T273, 4ft SMA Cable Warehouse.

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Margin (dB)	Notes
Low Ch								
825.50	20.22	V	0.9	0.0	19.32	38.5	-19.1	
825.50	10.77	H	0.9	0.0	9.87	38.5	-28.6	
Mid Ch								
836.50	20.79	V	0.9	0.0	19.89	38.5	-18.6	
836.50	10.77	H	0.9	0.0	9.87	38.5	-28.6	
High Ch								
847.50	20.39	V	0.9	0.0	19.49	38.5	-19.0	
847.50	10.50	H	0.9	0.0	9.60	38.5	-28.8	

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

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Band

LTE5

3MHz

QPSK

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

Company: Sony
Project #: 15I20030
Date: 3/5/2015
Test Engineer: Charles Vergonio
Configuration: EUT Y-position
Mode: LTE5 3MHz QPSK

Test Equipment:
Receiving: Sunol T185, and 3m Chamber C N-type Cable
Substitution: Dipole T273, 4ft SMA Cable Warehouse.

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Margin (dB)	Notes
Low Ch								
825.50	20.96	V	0.9	0.0	20.06	38.5	-18.4	
825.50	11.51	H	0.9	0.0	10.61	38.5	-27.8	
Mid Ch								
836.50	21.59	V	0.9	0.0	20.69	38.5	-17.8	
836.50	11.52	H	0.9	0.0	10.62	38.5	-27.8	
High Ch								
847.50	21.15	V	0.9	0.0	20.25	38.5	-18.2	
847.50	11.40	H	0.9	0.0	10.50	38.5	-27.9	

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

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Band

LTE5

1.4MHz

16QAM

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

Company: Sony
Project #: 15I20030
Date: 3/5/2015
Test Engineer: Charles Vergonio
Configuration: EUT Y-position
Mode: LTE5 1.4MHz 16QAM

Test Equipment:
Receiving: Sunol T185, and 3m Chamber C N-type Cable
Substitution: Dipole T273, 4ft SMA Cable Warehouse.

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Margin (dB)	Notes
Low Ch								
824.70	19.89	V	0.9	0.0	18.99	38.5	-19.5	
824.70	10.76	H	0.9	0.0	9.86	38.5	-28.6	
Mid Ch								
836.50	20.66	V	0.9	0.0	19.76	38.5	-18.7	
836.50	10.58	H	0.9	0.0	9.68	38.5	-28.8	
High Ch								
848.30	20.03	V	0.9	0.0	19.13	38.5	-19.3	
848.30	9.93	H	0.9	0.0	9.03	38.5	-29.4	

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

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Band

LTE5

1.4MHz

QPSK

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

Company: Sony
Project #: 15I20030
Date: 3/5/2015
Test Engineer: Charles Vergonio
Configuration: EUT Y-position
Mode: LTE5 1.4MHz QPSK

Test Equipment:
Receiving: Sunol T185, and 3m Chamber C N-type Cable
Substitution: Dipole T273, 4ft SMA Cable Warehouse.

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Margin (dB)	Notes
Low Ch								
824.70	20.56	V	0.9	0.0	19.66	38.5	-18.8	
824.70	10.89	H	0.9	0.0	9.99	38.5	-28.5	
Mid Ch								
836.50	21.44	V	0.9	0.0	20.54	38.5	-17.9	
836.50	11.37	H	0.9	0.0	10.47	38.5	-28.0	
High Ch								
848.30	20.67	V	0.9	0.0	19.77	38.5	-18.7	
848.30	10.73	H	0.9	0.0	9.83	38.5	-28.6	

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

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LTE Band 4

Band

LTE4

20MHz

16QAM

High Frequency Substitution Measurement
UL Verification Services, Inc.

Company: Sony
Project #: 15U20030
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	7.46	V	0.9	8.2	14.80	30.0	-15.2	
1720.00	14.78	H	0.9	8.2	22.12	30.0	-7.9	
Mid Ch								
1732.50	7.53	V	0.9	8.2	14.80	30.0	-15.2	
1732.50	15.71	H	0.9	8.2	22.98	30.0	-7.0	
High Ch								
1745.00	7.55	V	0.9	8.1	14.75	30.0	-15.3	
1745.00	15.13	H	0.9	8.1	22.33	30.0	-7.7	

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Band

LTE4

20MHz

QPSK

High Frequency Substitution Measurement
UL Verification Services, Inc.

Company: Sony
Project #: 15U20030
Date: 3/4/2015
Test Engineer: R.Alegre
Configuration: EUT Only
Location: Chamber A
Mode: LTE_QPSK Band 4 Fundamentals, 20MHz Bandwidth

Test Equipment:
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	8.43	V	0.9	8.2	15.77	30.0	-14.2	
1720.00	15.82	H	0.9	8.2	23.16	30.0	-6.8	
Mid Ch								
1732.50	8.38	V	0.9	8.2	15.65	30.0	-14.3	
1732.50	16.65	H	0.9	8.2	23.92	30.0	-6.1	
High Ch								
1745.00	8.86	V	0.9	8.1	16.06	30.0	-13.9	
1745.00	16.00	H	0.9	8.1	23.20	30.0	-6.8	

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Band

LTE4

15MHz

16QAM

High Frequency Substitution Measurement
UL Verification Services, Inc.

Company: Sony
Project #: 15U20030
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	7.57	V	0.9	8.2	14.92	30.0	-15.1	
1717.50	14.84	H	0.9	8.2	22.19	30.0	-7.8	
Mid Ch								
1732.50	7.26	V	0.9	8.2	14.53	30.0	-15.5	
1732.50	15.09	H	0.9	8.2	22.36	30.0	-7.6	
High Ch								
1747.50	7.47	V	0.9	8.1	14.66	30.0	-15.3	
1747.50	15.17	H	0.9	8.1	22.36	30.0	-7.6	

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Band

LTE4

15MHz

QPSK

High Frequency Substitution Measurement
UL Verification Services, Inc.

Company: Sony
Project #: 15U20030
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	8.45	V	0.9	8.2	15.80	30.0	-14.2	
1717.50	15.84	H	0.9	8.2	23.19	30.0	-6.8	
Mid Ch								
1732.50	8.55	V	0.9	8.2	15.82	30.0	-14.2	
1732.50	15.86	H	0.9	8.2	23.13	30.0	-6.9	
High Ch								
1747.50	8.52	V	0.9	8.1	15.71	30.0	-14.3	
1747.50	16.10	H	0.9	8.1	23.29	30.0	-6.7	

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Band

LTE4

10MHz

16QAM

High Frequency Substitution Measurement
UL Verification Services, Inc.

Company: Sony
Project #: 15U20030
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	7.58	V	0.9	8.2	14.85	30.0	-15.1	
1715.00	14.78	H	0.9	8.2	22.05	30.0	-7.9	
Mid Ch								
1732.50	7.53	V	0.9	8.2	14.80	30.0	-15.2	
1732.50	15.09	H	0.9	8.2	22.36	30.0	-7.6	
High Ch								
1750.00	7.84	V	0.9	8.1	15.03	30.0	-15.0	
1750.00	15.16	H	0.9	8.1	22.35	30.0	-7.6	

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