LTE BAND 13

Band	Mode	RB Allocation/RB Offset	f(MHz)	99% BW (MHz)	-26dB BW (MHz)
LTE BAND 13	5 MHz, QPSK	25/0	782.0	4.4788	4.913
	5 MHz, 16QAM			4.4921	4.924
	5 MHz, 64QAM			4.4975	4.929
	10 MHz, QPSK	50/0		8.9746	10.315
	10 MHz, 16QAM			8.9668	10.277
	10 MHz, 64QAM			8.9943	10.35

LTE BAND 14

Band	Mode	RB Allocation/RB Offset	f(MHz)	99% BW (MHz)	-26dB BW (MHz)
LTE BAND 14	5 MHz, QPSK	25/0	793	4.5025	4.928
	5 MHz, 16QAM			4.5057	4.965
	5 MHz, 64QAM			4.4922	4.932
	10 MHz, QPSK	50/0		8.9892	10.205
	10 MHz, 16QAM			8.9919	10.205
	10 MHz, 64QAM			9.0141	10.25

LTE BAND 17

Band	Mode	RB Allocation/RB Offset	f(MHz)	99% BW (MHz)	-26dB BW (MHz)
LTE BAND 17	5 MHz, QPSK	25/0	710.0	4.4888	4.931
	5 MHz, 16QAM			4.4885	4.928
	5 MHz, 64QAM			4.5019	4.949
	10 MHz, QPSK	50/0		8.9978	10.466
	10 MHz, 16QAM			9.0046	10.399
	10 MHz, 64QAM			9.0260	10.37

LTE BAND 25

Band	Mode	RB Allocation/RB Offset	f(MHz)	99% BW (MHz)	-26dB BW (MHz)
LTE BAND 25	1.4 MHz, QPSK	6/0	1882.5	1.0854	1.240
	1.4 MHz,16QAM			1.0876	1.245
	1.4 MHz, 64QAM			1.0957	1.246
	3 MHz, QPSK	15/0		2.6983	2.973
	3 MHz, 16QAM			2.6949	2.971
	3 MHz, 64QAM			2.7029	2.987
	5 MHz, QPSK	25/0		4.4869	4.941
	5 MHz, 16QAM			4.4918	4.901
	5 MHz, 64QAM			4.5079	5.103
	10 MHz, QPSK	50/0		9.0031	10.371
	10 MHz, 16QAM			8.9917	10.368
	10 MHz, 64QAM			9.0176	10.43
	15 MHz, QPSK	75/0		13.4365	15.452
	15 MHz, 16QAM			13.4581	15.574
	15 MHz, 64QAM			13.493	15.55
	20 MHz, QPSK	100/0		17.8943	19.903
	20 MHz, 16QAM			17.8892	19.680
	20 MHz, 64QAM			17.961	19.90

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LTE BAND 26(FCC PART 90S)

Band	Mode	RB Allocation/RB Offset	f(MHz)	99% BW (MHz)	-26dB BW (MHz)
LTE BAND 26	1.4 MHz, QPSK	1/0	819.0	.2454	.383
	1.4 MHz,16QAM			.2398	.383
	1.4 MHz,64QAM			.2439	.3660
	1.4 MHz, QPSK	6/0		1.0905	1.244
	1.4 MHz,16QAM			1.0901	1.248
	1.4 MHz, 64QAM			1.0916	1.240
	3 MHz, QPSK	1/0		.2496	.369
	3 MHz, 16QAM			.2591	.404
	3 MHz, 64QAM			.2540	.3801
	3 MHz, QPSK	15/0		2.6876	2.971
	3 MHz, 16QAM			2.6844	2.973
	3 MHz, 64QAM			2.69454	2.970
	5 MHz, QPSK	1/0		.3018	.479
	5 MHz, 16QAM			.2287	.373
	5 MHz, 64QAM			.2519	.4211
	5 MHz, QPSK	25/0		4.4765	4.915
	5 MHz, 16QAM			4.4821	4.919
	5 MHz, 64QAM			4.4977	4.914
	10 MHz, QPSK	1/0		.2641	.406
	10 MHz, 16QAM			.2897	.444
	10 MHZ, 64QAM			.3443	.5337
	10 MHz, QPSK	50/0		8.9655	10.242
	10 MHz, 16QAM			8.9685	10.335
	10 MHz, 64QAM			9.0040	10.37

LTE BAND 30

Band	Mode	RB Allocation/RB Offset	f(MHz)	99% BW (MHz)	-26dB BW (MHz)
LTE BAND 30	5 MHz, QPSK	25/0	2310.0	4.4952	4.936
	5 MHz, 16QAM			4.5126	4.988
	5 MHz, 64QAM			4.5019	4.938
	10 MHz, QPSK	50/0		9.0063	10.395
	10 MHz, 16QAM			8.9901	10.310
	10 MHz, 64QAM			9.0007	10.320

LTE BAND 41

Band	Mode	RB Allocation/RB Offset	f(MHz)	99% BW (MHz)	-26dB BW (MHz)
LTE BAND 41	5 MHz, QPSK	25/0	2593.0	4.5118	4.966
	5 MHz, 16QAM			4.4960	4.792
	5 MHz, 64QAM			4.4879	5.087
	10 MHz, QPSK	50/0		8.9919	9.963
	10 MHz, 16QAM			8.9652	10.133
	10 MHz, 64QAM			8.9915	10.44
	15 MHz, QPSK	75/0		13.4911	15.085
	15 MHz, 16QAM			13.4495	15.122
	15 MHz, 64QAM			13.502	15.05
	20 MHz, QPSK	100/0		17.9358	21.409
	20 MHz, 16QAM			17.9090	19.481
	20 MHz, 64QAM			17.932	21.65

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LTE BAND 66

Band	Mode	RB Allocation/RB Offset	f(MHz)	99% BW (MHz)	-26dB BW (MHz)
LTE BAND 66	1.4 MHz, QPSK	6/0	1745	1.0845	1.238
	1.4 MHz,16QAM			1.0867	1.245
	1.4MHz 64QAM			1.0875	1.239
	3 MHz, QPSK	15/0		2.6636	2.927
	3 MHz, 16QAM			2.6950	2.996
	3MHz 64QAM			2.6831	2.972
	5 MHz, QPSK	25/0		4.4996	4.933
	5 MHz, 16QAM			4.5146	4.893
	5MHz 64QAM			4.5004	4.945
	10 MHz, QPSK	50/0		8.9913	10.306
	10 MHz, 16QAM			9.0034	10.452
	10MHz 64QAM			8.9968	10.57
	15 MHz, QPSK	75/0		13.4593	14.838
	15 MHz, 16QAM			13.4394	15.085
	15MHz 64QAM			13.464	15.36
	20 MHz, QPSK	100/0		17.8762	19.843
	20 MHz, 16QAM			17.8858	19.649
	20MHz 64QAM			17.926	19.83

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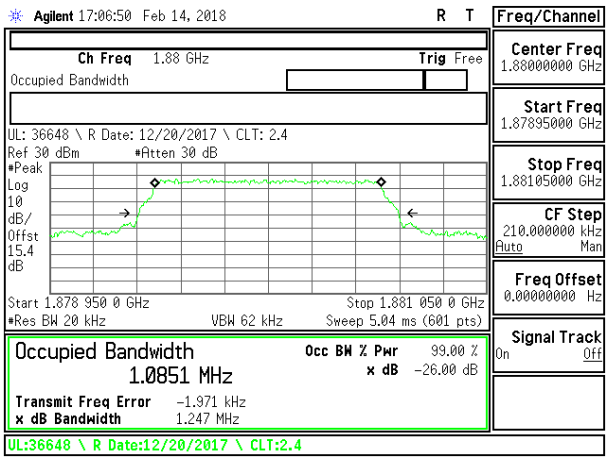
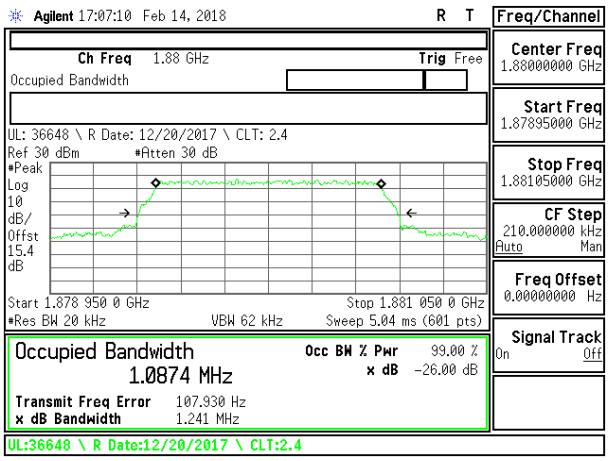
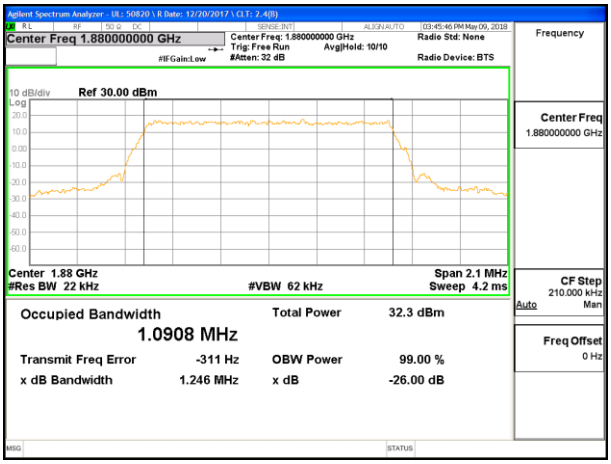
8.1.1. LTE BAND 2



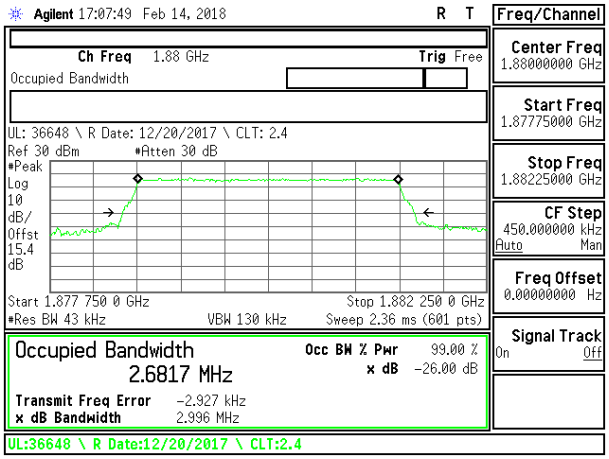
LTE B2 1.4MHz QPSK Middle Channel RB6-0



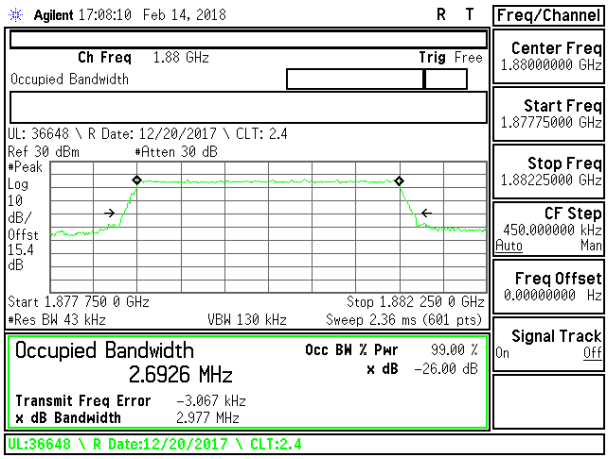
LTE B2 1.4MHz 16QAM Middle Channel RB6-0



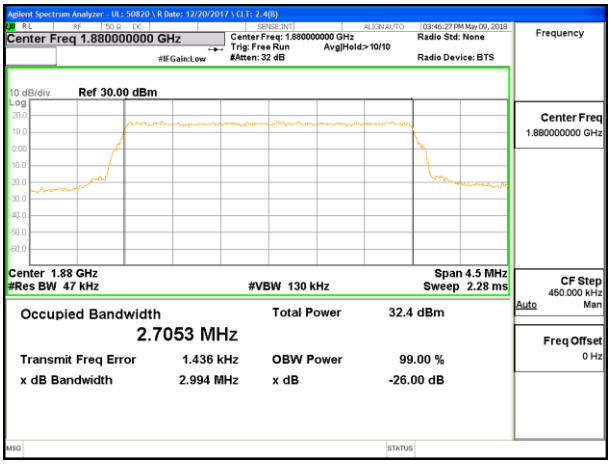
LTE B2 1.4MHz 64QAM Middle Channel RB6-0



LTE B2 3MHz QPSK Middle Channel RB15-0



LTE B2 3MHz 16QAM Middle Channel RB15-0



LTE B2 3MHz 64QAM Middle Channel RB15-0

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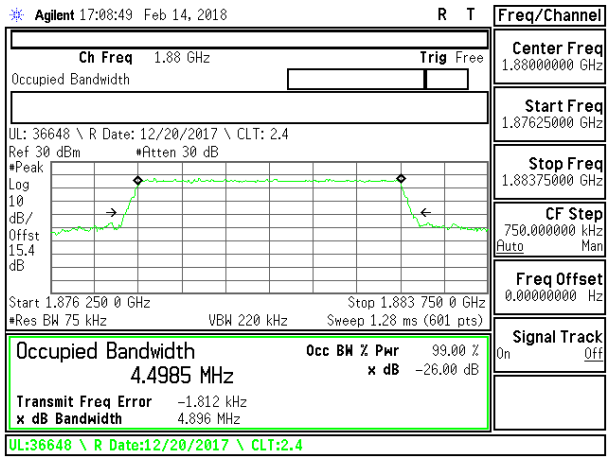
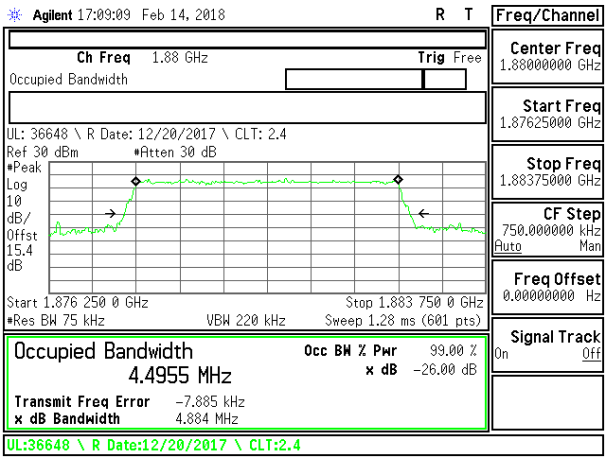
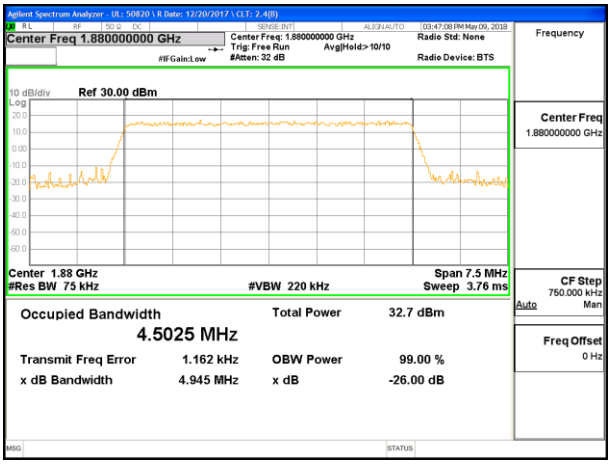


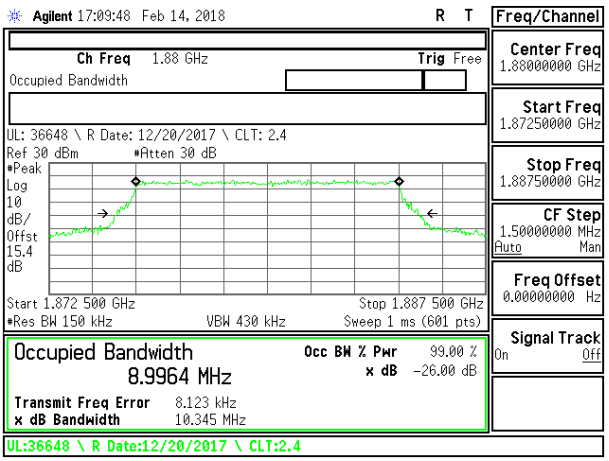
LTE B2 5MHz QPSK Middle Channel RB25-0



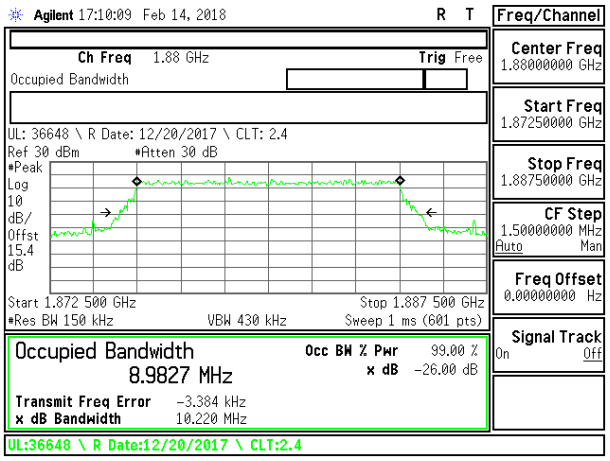
LTE B2 5MHz 16QAM Middle Channel RB25-0



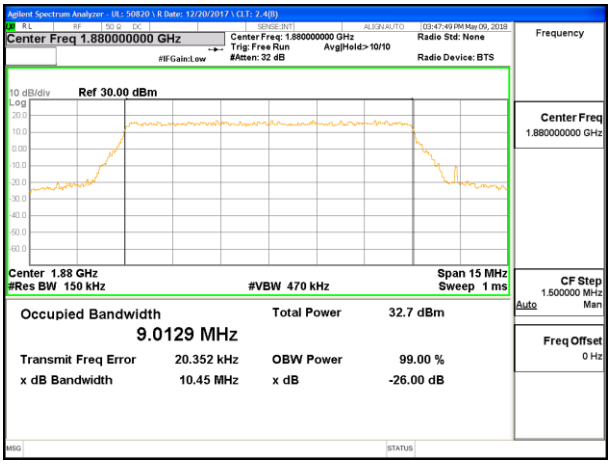
LTE B2 5MHz 64QAM Middle Channel RB25-0



LTE B2 10MHz QPSK Middle Channel RB50-0



LTE B2 10MHz 16QAM Middle Channel RB50-0



LTE B2 10MHz 64QAM Middle Channel RB50-0

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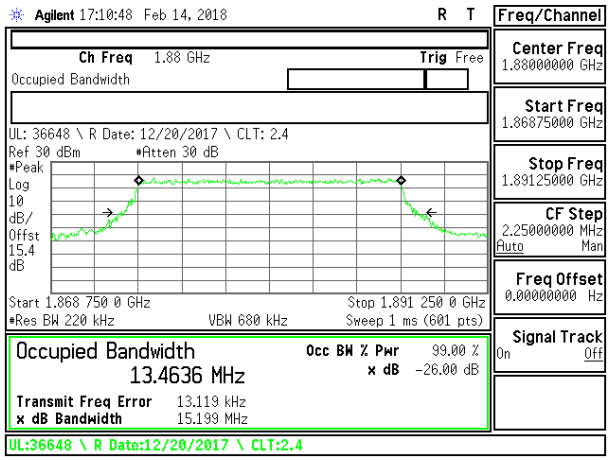
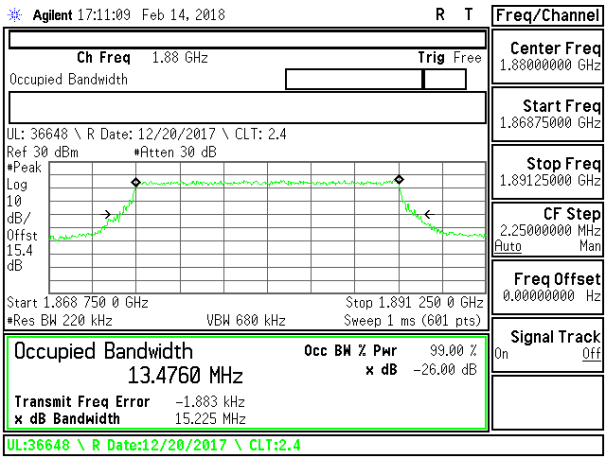
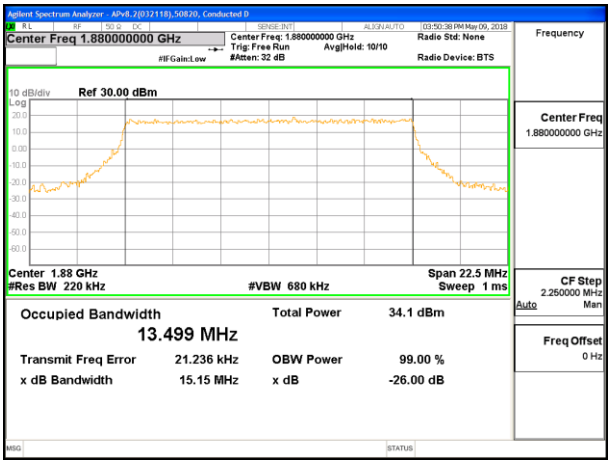


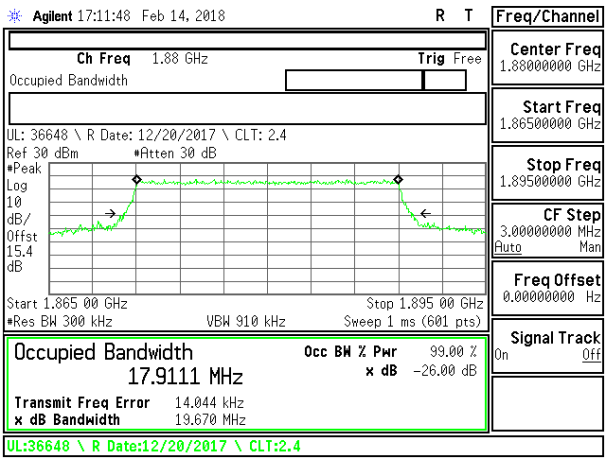
LTE B2 15MHz QPSK Middle Channel RB75-0



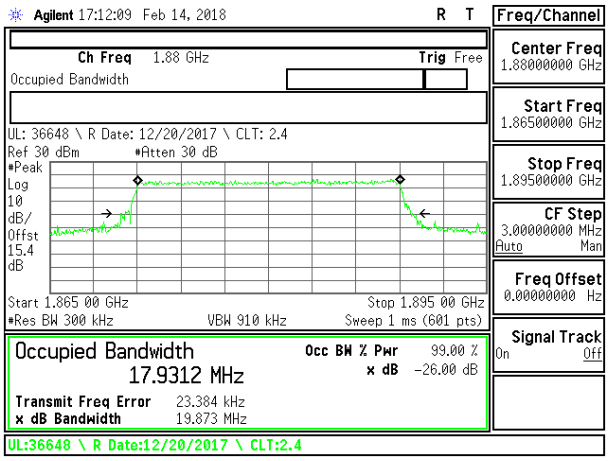
LTE B2 15MHz 16QAM Middle Channel RB75-0



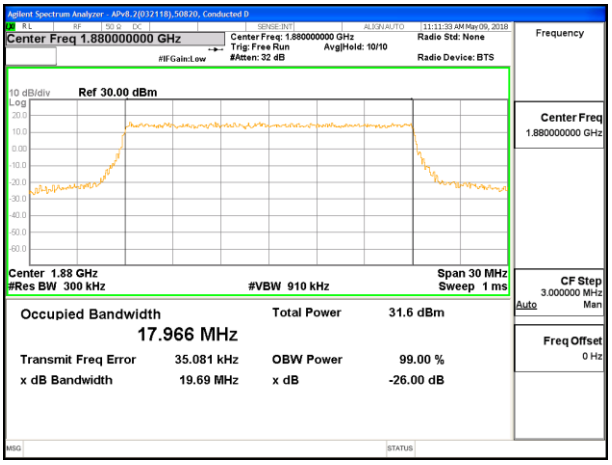
LTE B2 15MHz 64QAM Middle Channel RB75-0



LTE B2 20MHz QPSK Middle Channel RB100-0



LTE B2 20MHz 16QAM Middle Channel RB100-0



LTE B2 20MHz 64QAM Middle Channel RB100-0

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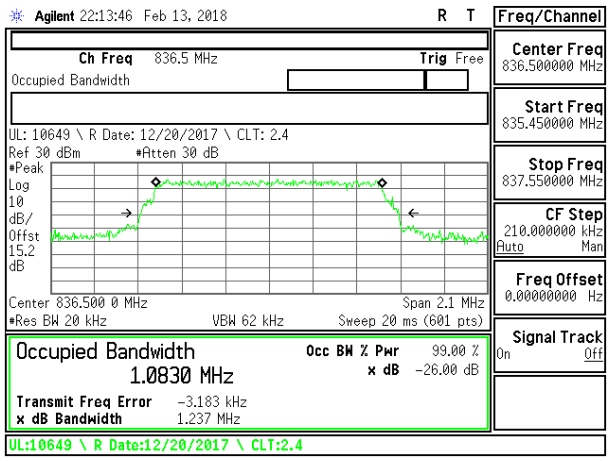
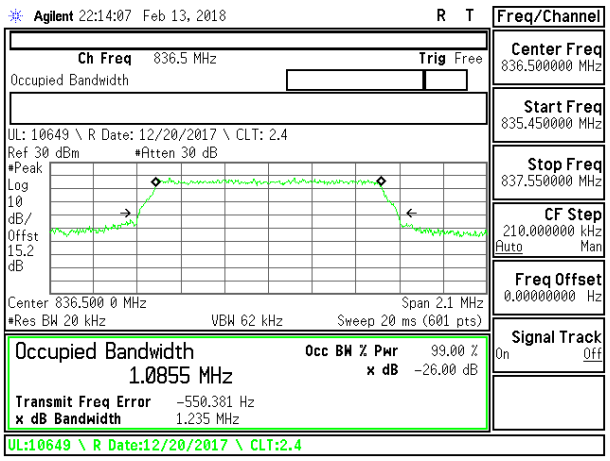
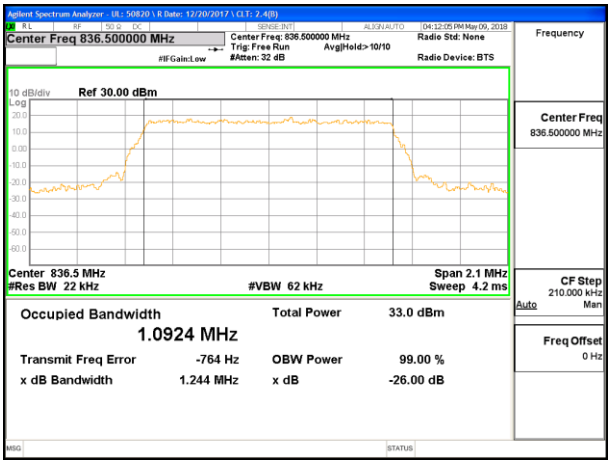
8.1.2. LTE BAND 5



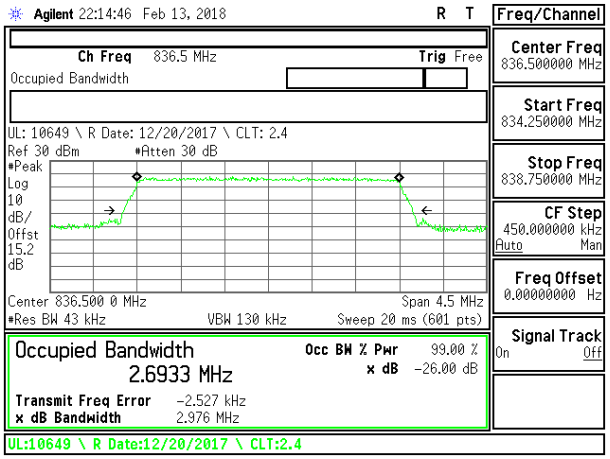
LTE B5 1.4MHz QPSK Middle Channel RB6-0



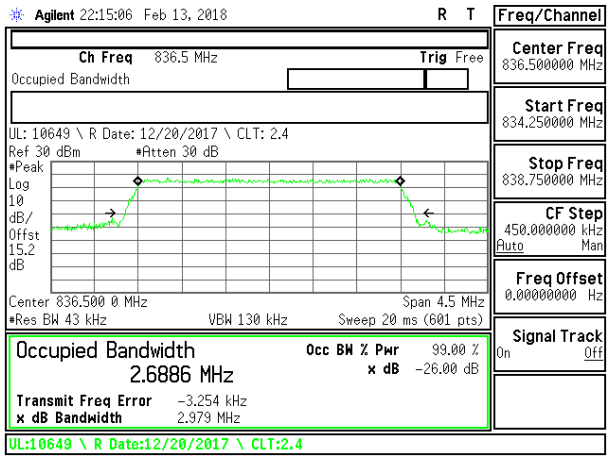
LTE B5 1.4MHz 16QAM Middle Channel RB6-0



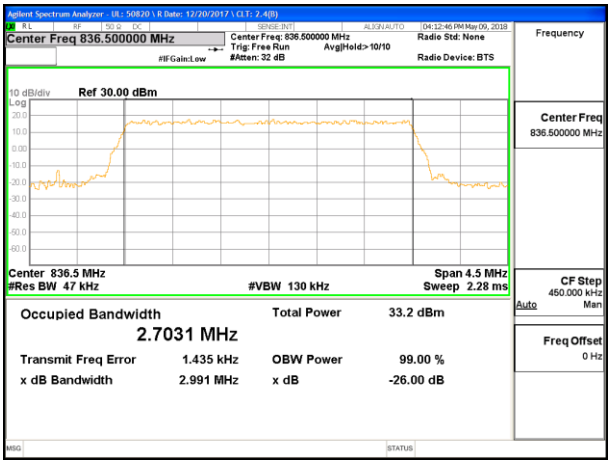
LTE B5 1.4MHz 64QAM Middle Channel RB6-0



LTE B5 3MHz QPSK Middle Channel RB15-0



LTE B5 3MHz 16QAM Middle Channel RB15-0



LTE B5 3MHz 64QAM Middle Channel RB15-0

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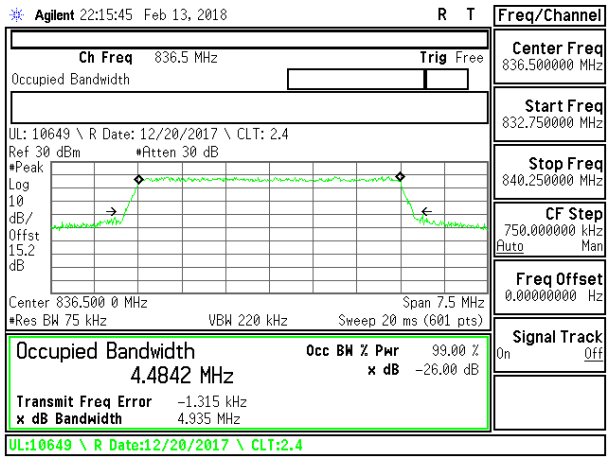
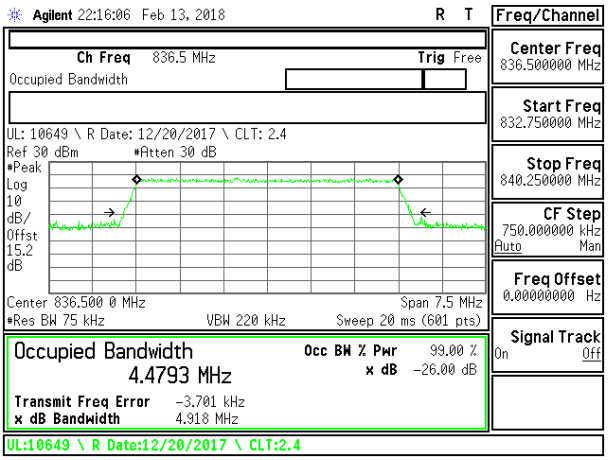
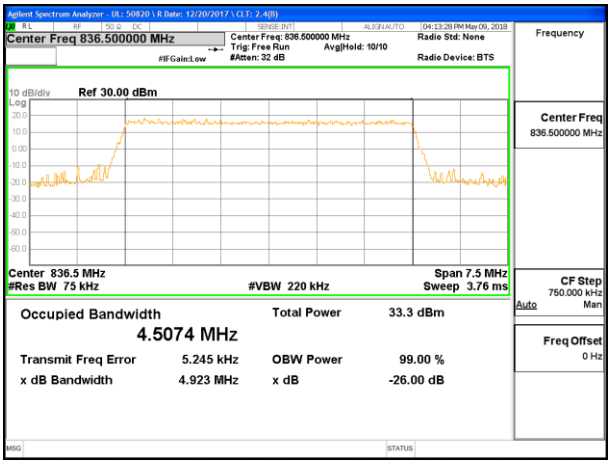


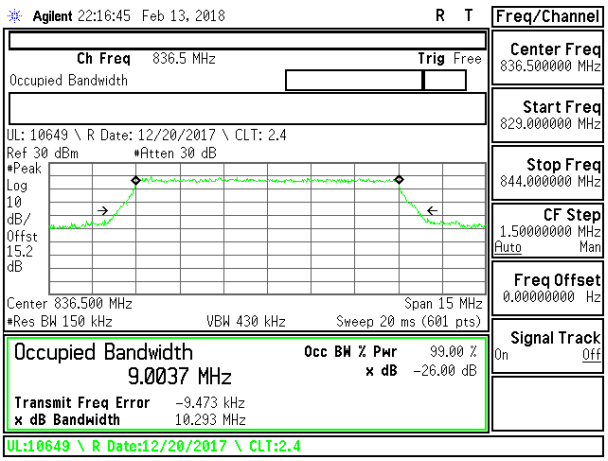
LTE B5 5MHz QPSK Middle Channel RB25-0



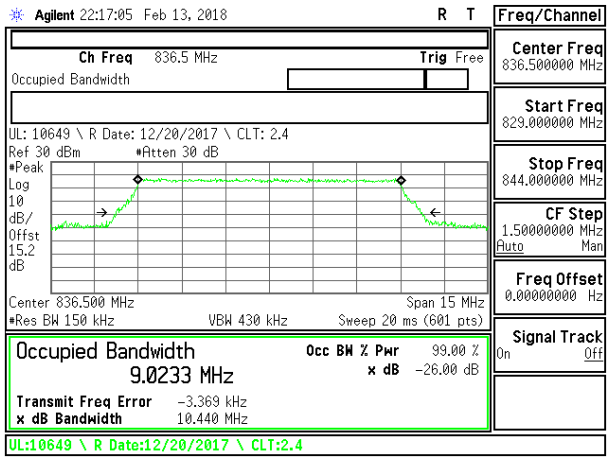
LTE B5 5MHz 16QAM Middle Channel RB25-0



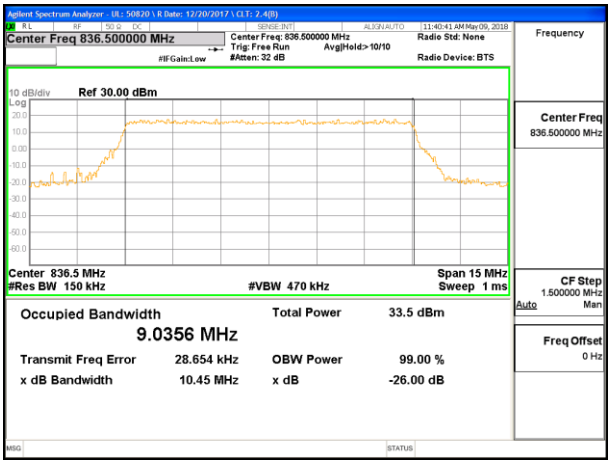
LTE B5 5MHz 64QAM Middle Channel RB25-0



LTE B5 10MHz QPSK Middle Channel RB50-0



LTE B5 10MHz 16QAM Middle Channel RB50-0



LTE B5 10MHz 64QAM Middle Channel RB50-0

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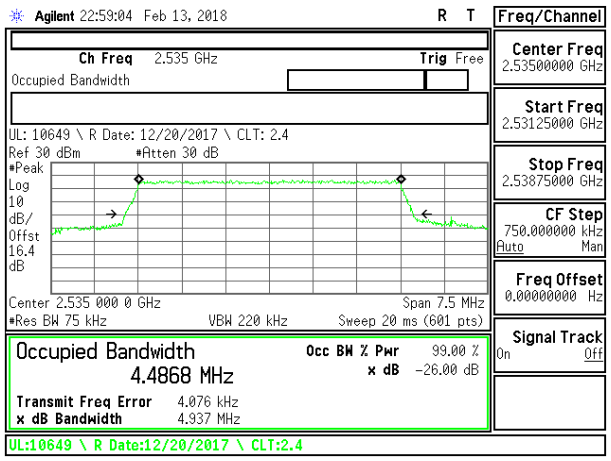
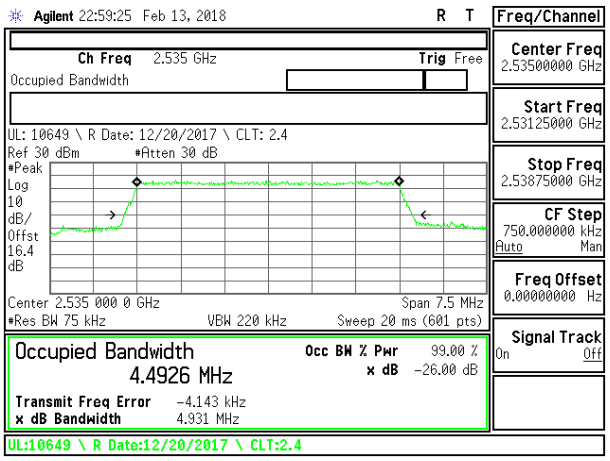
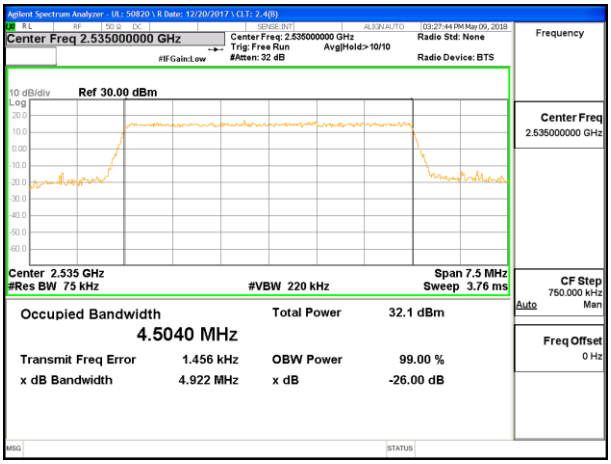
8.1.3. LTE BAND 7



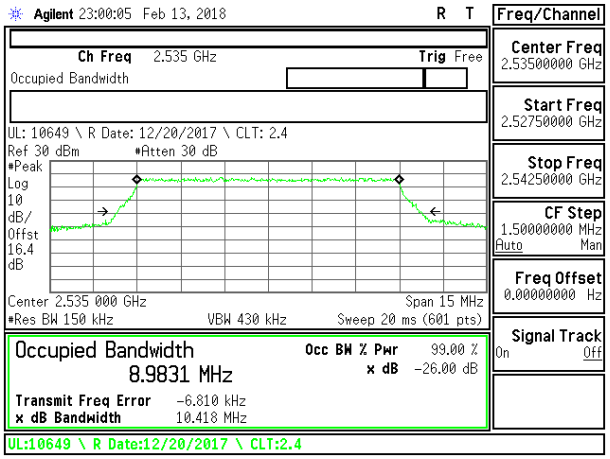
LTE B7 5MHz QPSK Middle Channel RB25-0



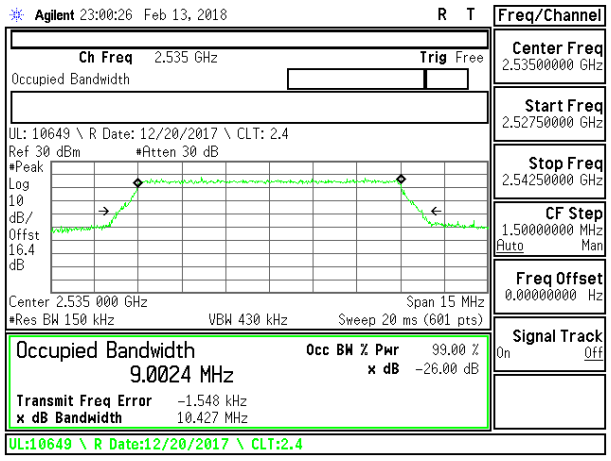
LTE B7 5MHz 16QAM Middle Channel RB25-0



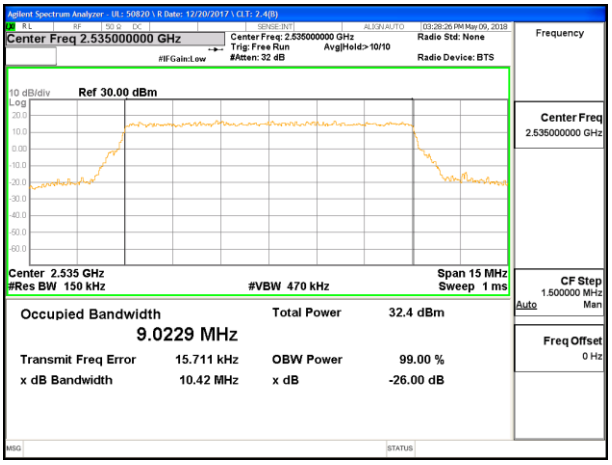
LTE B7 5MHz 64QAM Middle Channel RB25-0



LTE B7 10MHz QPSK Middle Channel RB50-0



LTE B7 10MHz 16QAM Middle Channel RB50-0



LTE B7 10MHz 64QAM Middle Channel RB50-0

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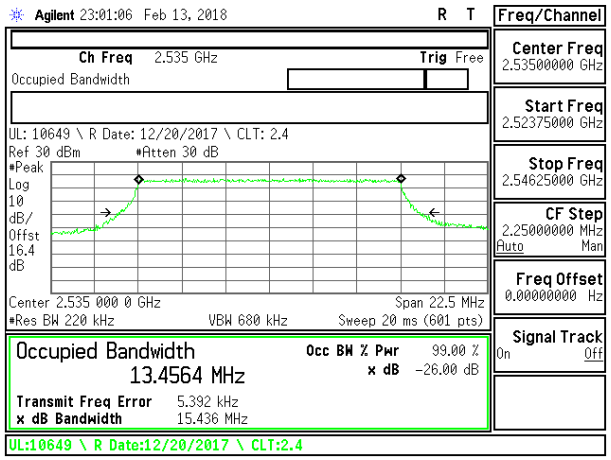
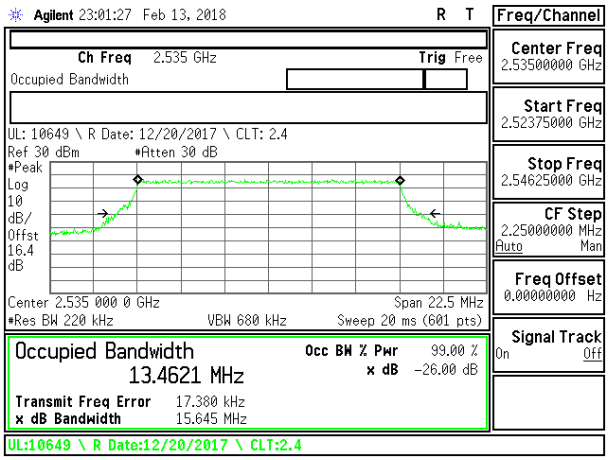
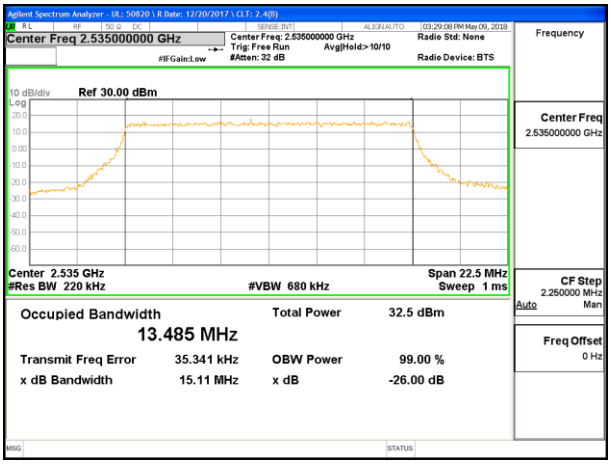


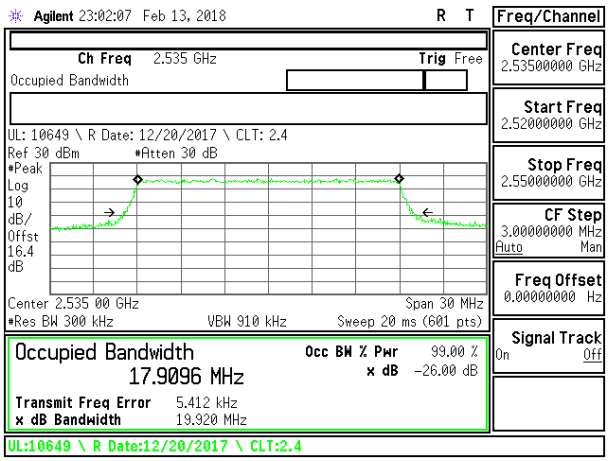
LTE B7 15MHz QPSK Middle Channel RB75-0



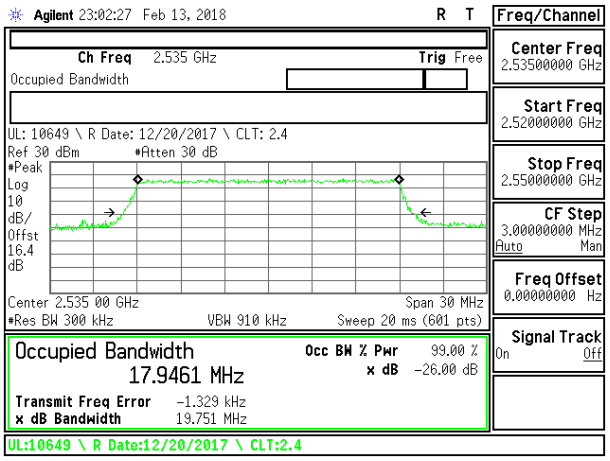
LTE B7 15MHz 16QAM Middle Channel RB75-0



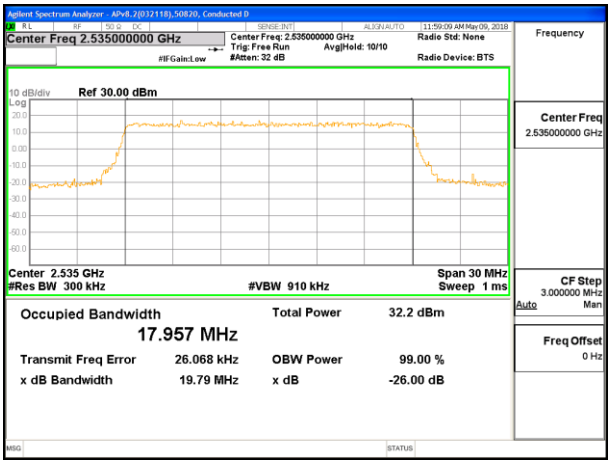
LTE B7 15MHz 64QAM Middle Channel RB75-0



LTE B7 20MHz QPSK Middle Channel RB100-0



LTE B7 20MHz 16QAM Middle Channel RB100-0



LTE B7 20MHz 64QAM Middle Channel RB100-0

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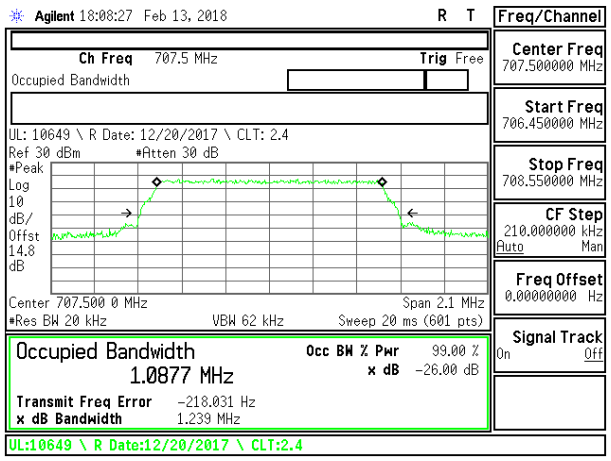
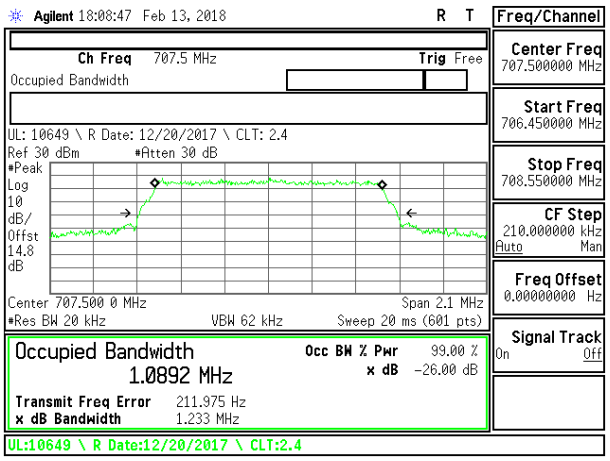
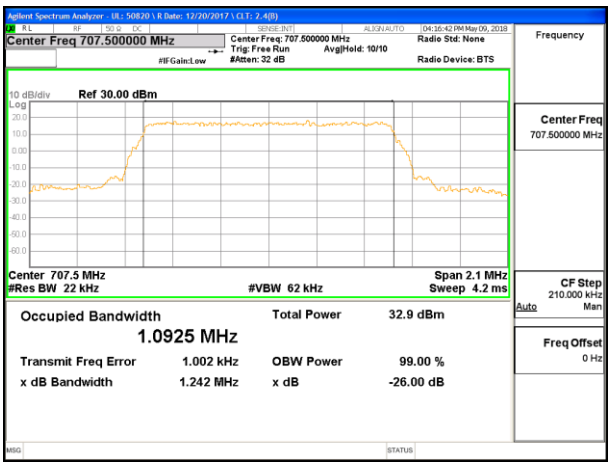
8.1.4. LTE BAND 12



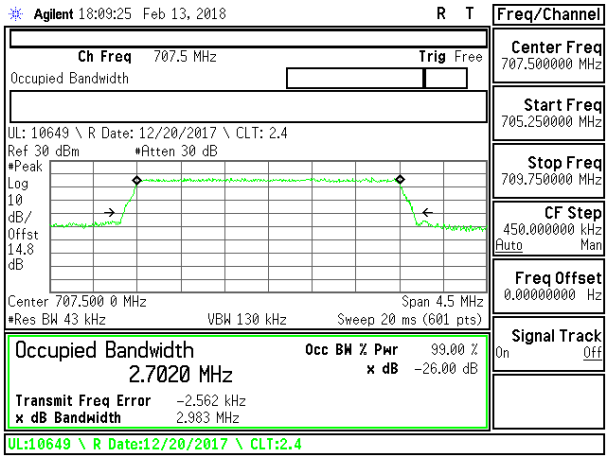
LTE B12 1.4MHz QPSK Middle Channel RB6-0



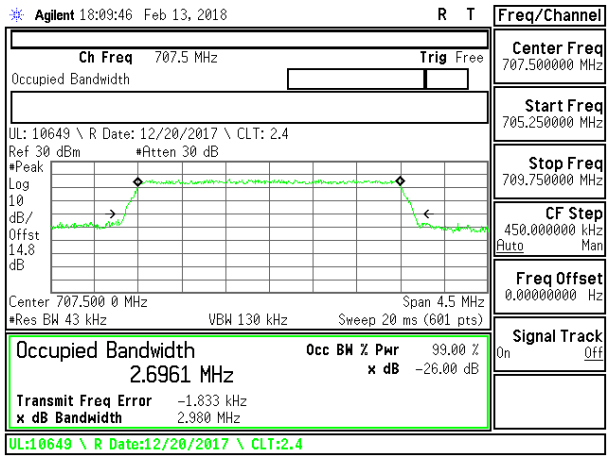
LTE B12 1.4MHz 16QAM Middle Channel RB6-0



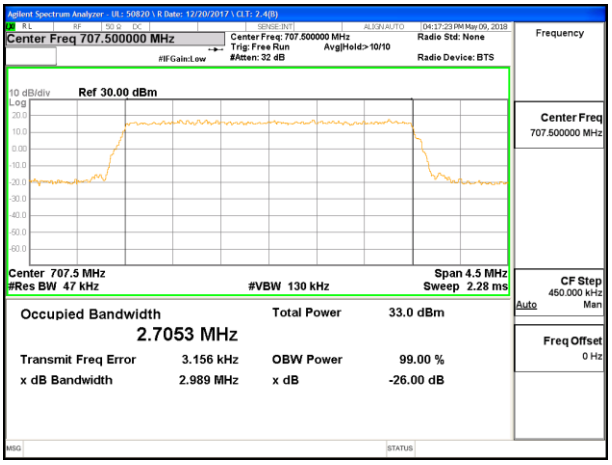
LTE B12 1.4MHz 64QAM Middle Channel RB6-0



LTE B12 3MHz QPSK Middle Channel RB15-0



LTE B12 3MHz 16QAM Middle Channel RB15-0



LTE B12 3MHz 64QAM Middle Channel RB15-0

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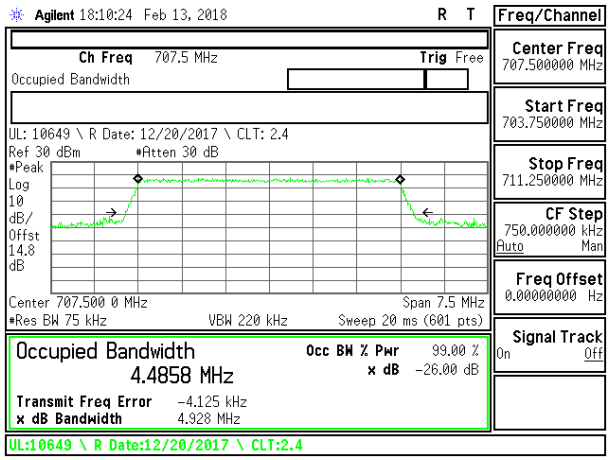
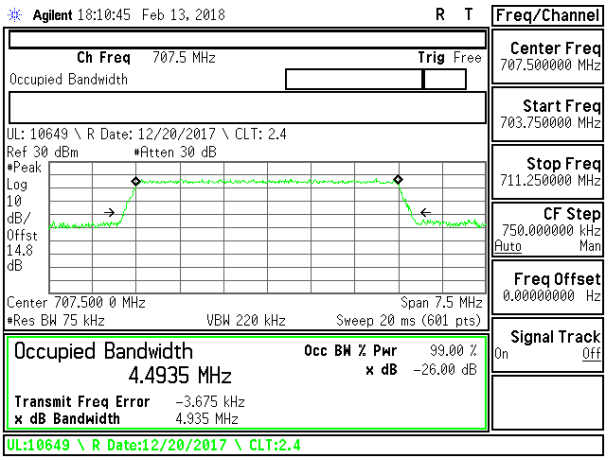
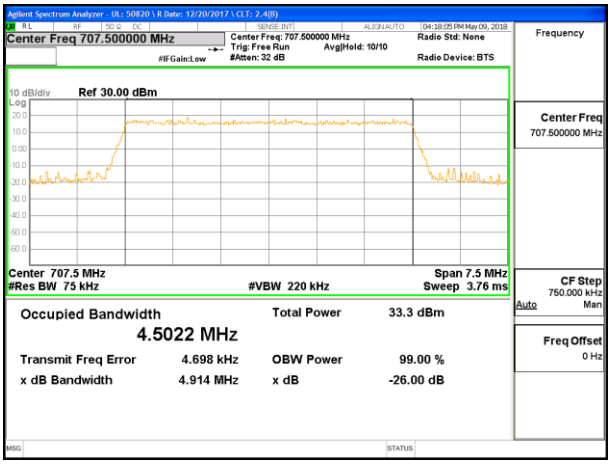


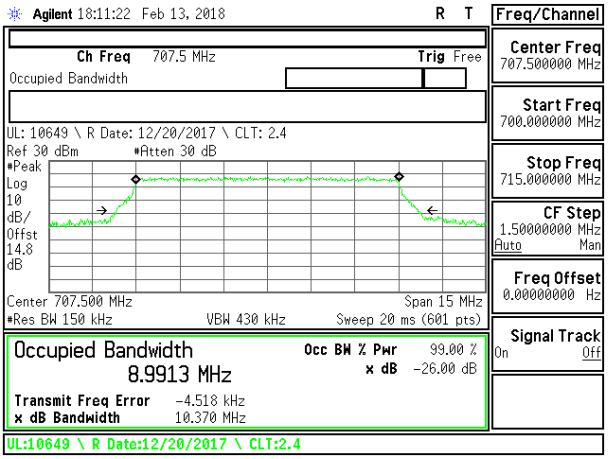
LTE B12 5MHz QPSK Middle Channel RB25-0



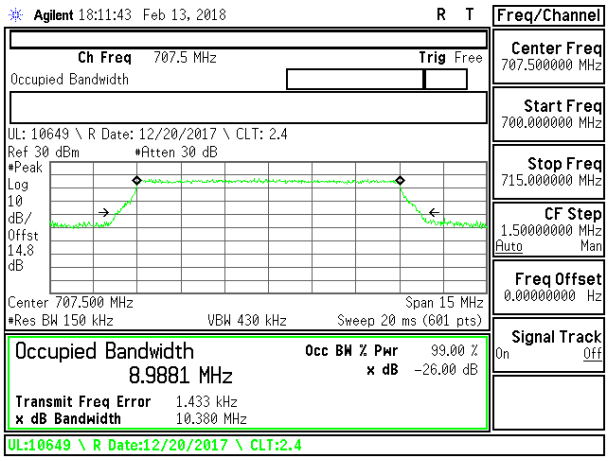
LTE B12 5MHz 16QAM Middle Channel RB25-0



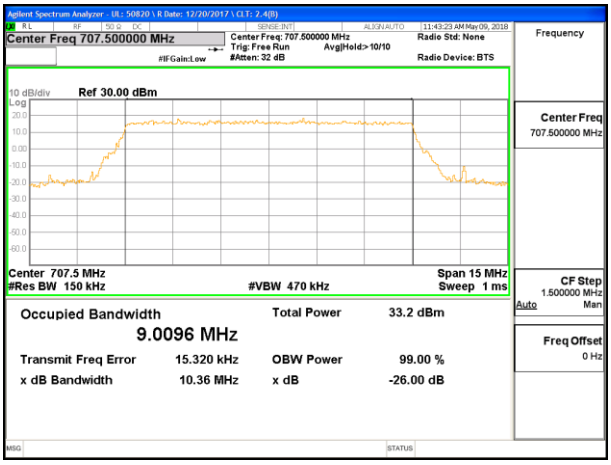
LTE B12 5MHz 64QAM Middle Channel RB25-0



LTE B12 10MHz QPSK Middle Channel RB50-0



LTE B12 10MHz 16QAM Middle Channel RB50-0



LTE B12 10MHz 64QAM Middle Channel RB50-0

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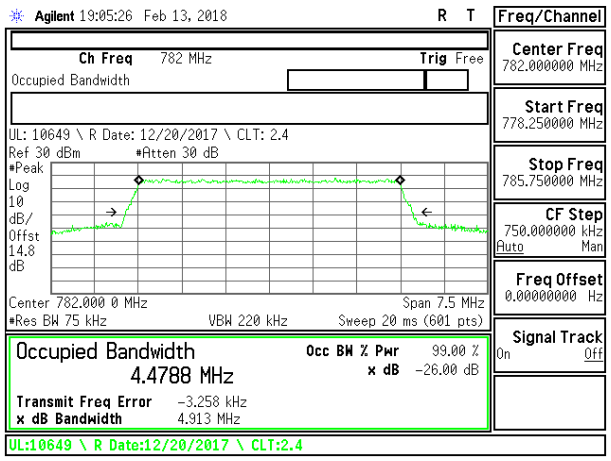
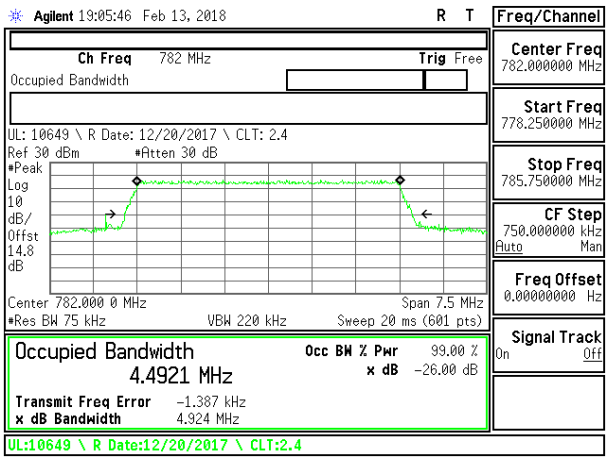
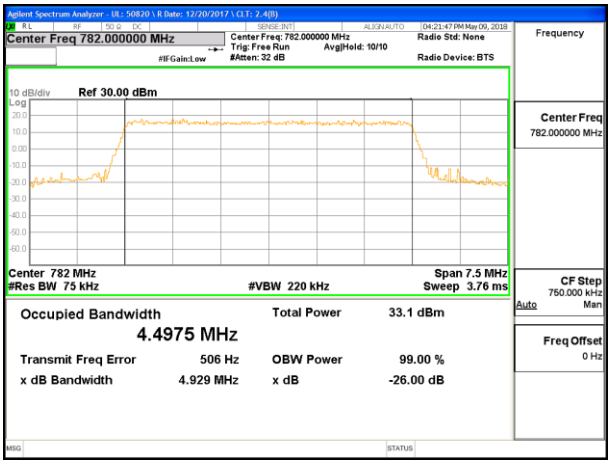
8.1.5. LTE BAND 13



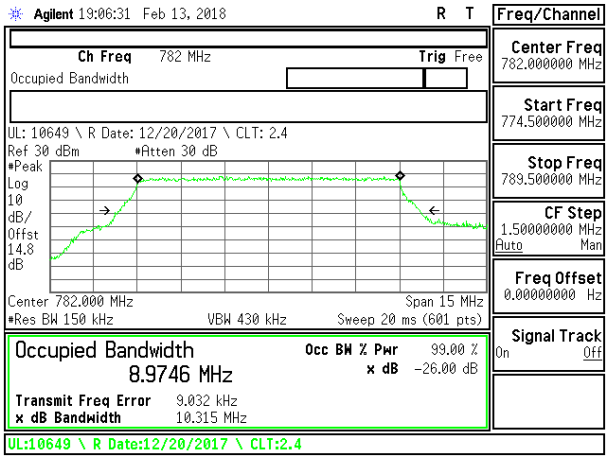
LTE B13 5MHz QPSK Middle Channel RB25-0



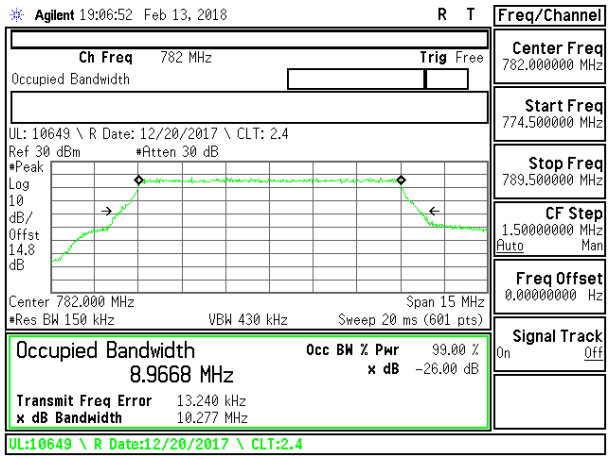
LTE B13 5MHz 16QAM Middle Channel RB25-0



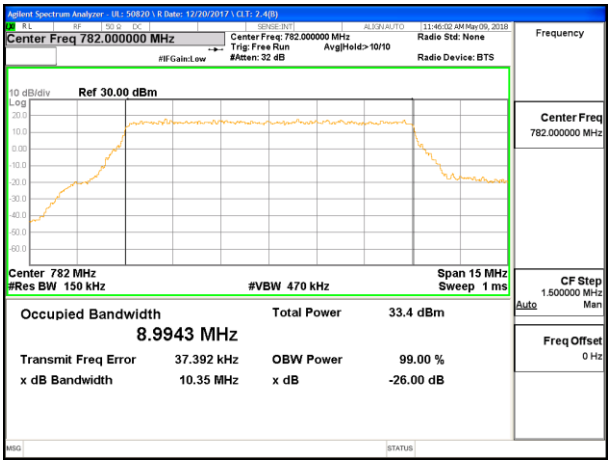
LTE B13 5MHz 64QAM Middle Channel RB25-0



LTE B13 10MHz QPSK Middle Channel RB50-0



LTE B13 10MHz 16QAM Middle Channel RB50-0



LTE B13 10MHz 64QAM Middle Channel RB50-0

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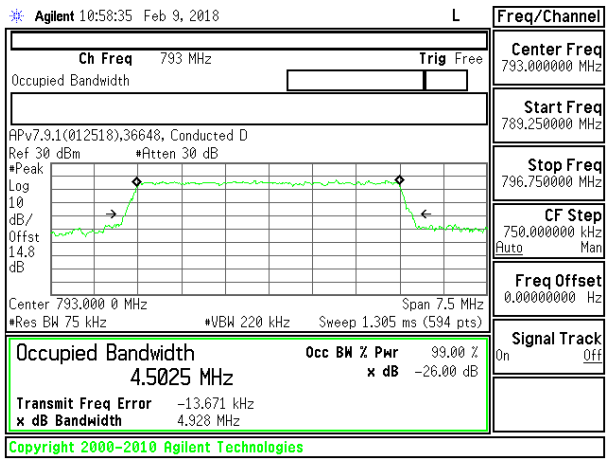
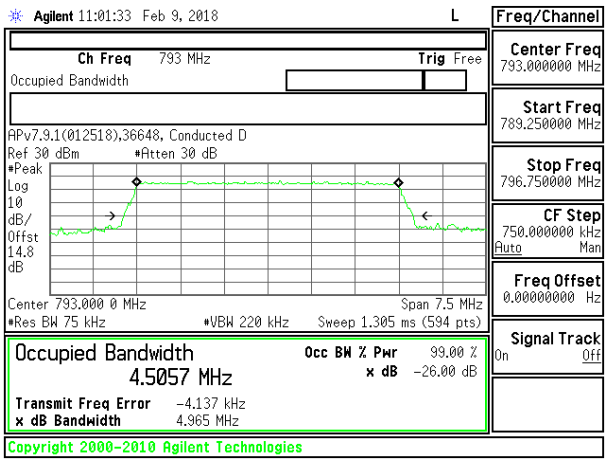
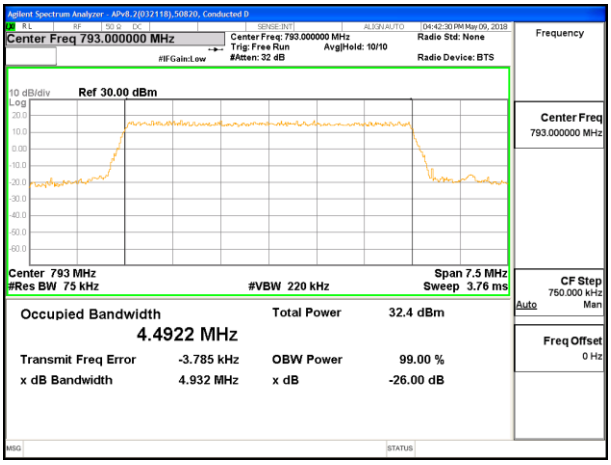
8.1.6. LTE BAND 14



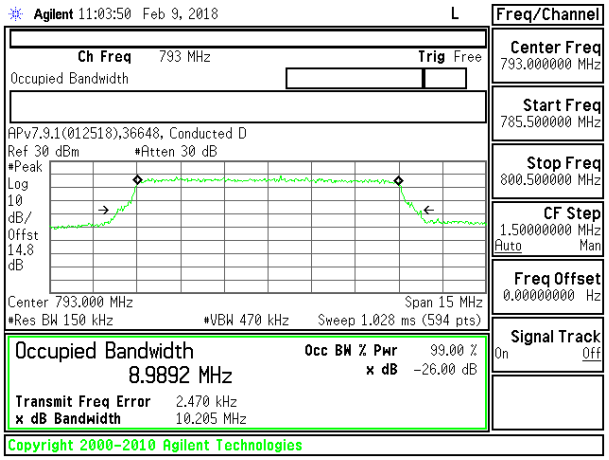
LTE B14 5MHz QPSK Middle Channel RB25-0



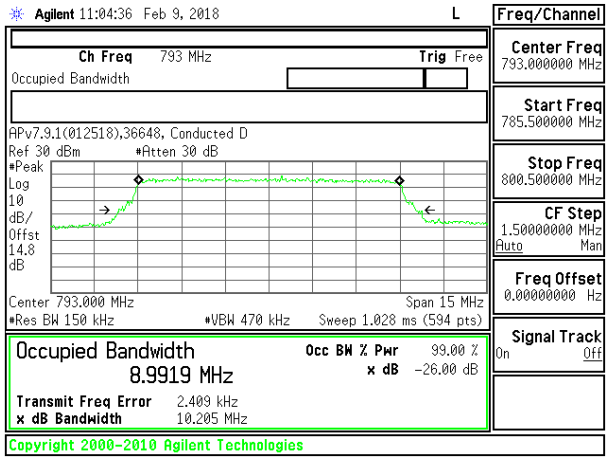
LTE B14 5MHz 16QAM Middle Channel RB25-0



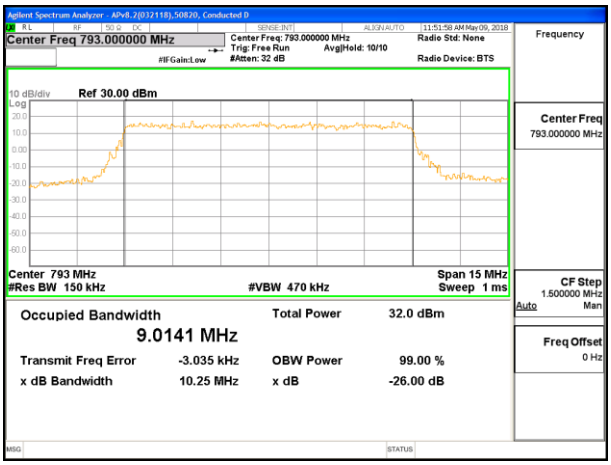
LTE B14 5MHz 64QAM Middle Channel RB25-0



LTE B14 10MHz QPSK Middle Channel RB50-0



LTE B14 10MHz 16QAM Middle Channel RB50-0



LTE B14 10MHz 64QAM Middle Channel RB50-0

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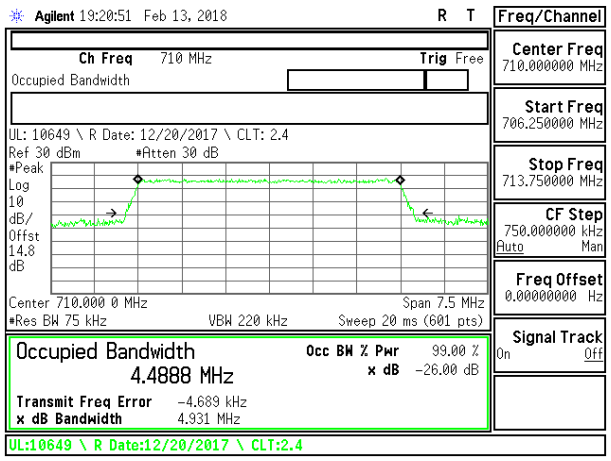
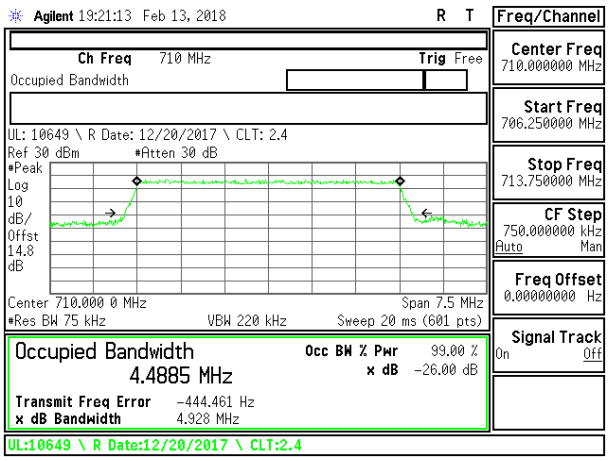
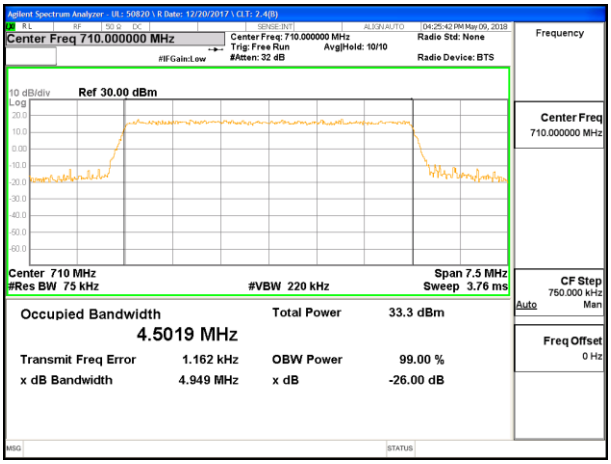
8.1.7. LTE BAND 17



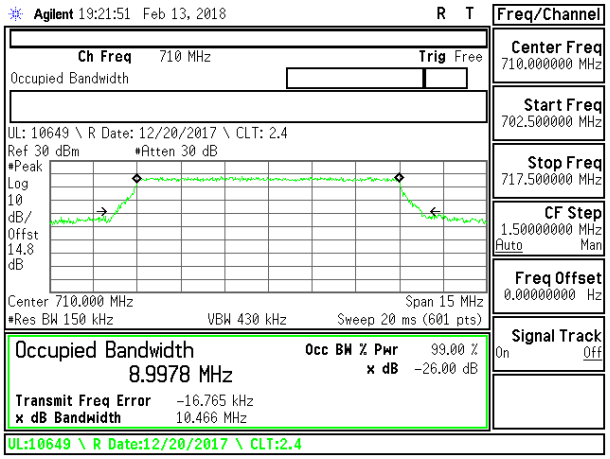
LTE B17 5MHz QPSK Middle Channel RB25-0



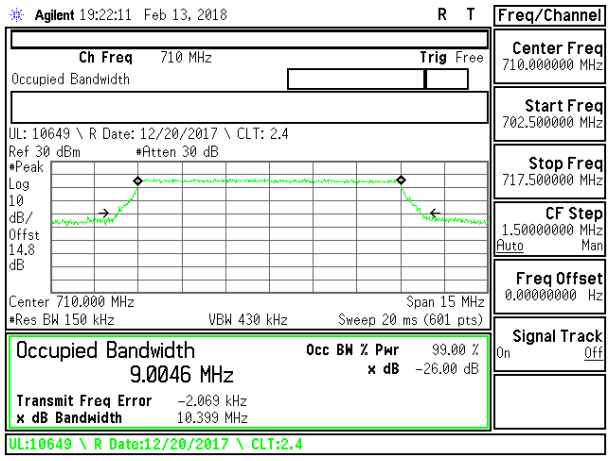
LTE B17 5MHz 16QAM Middle Channel RB25-0



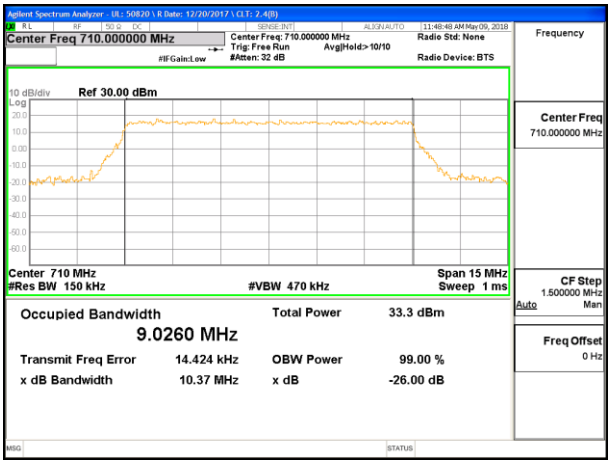
LTE B17 5MHz 64QAM Middle Channel RB25-0



LTE B17 10MHz QPSK Middle Channel RB50-0



LTE B17 10MHz 16QAM Middle Channel RB50-0



LTE B17 10MHz 64QAM Middle Channel RB50-0

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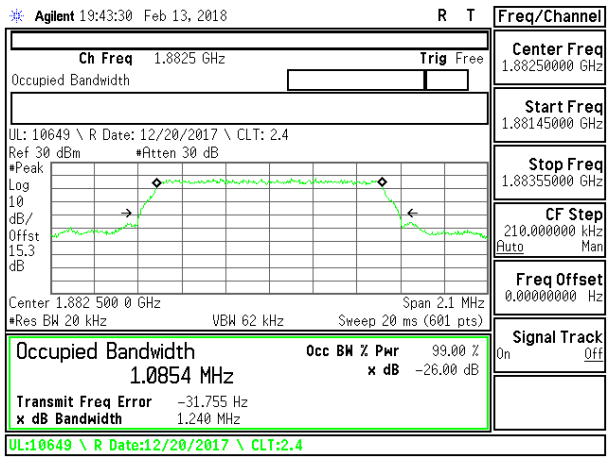
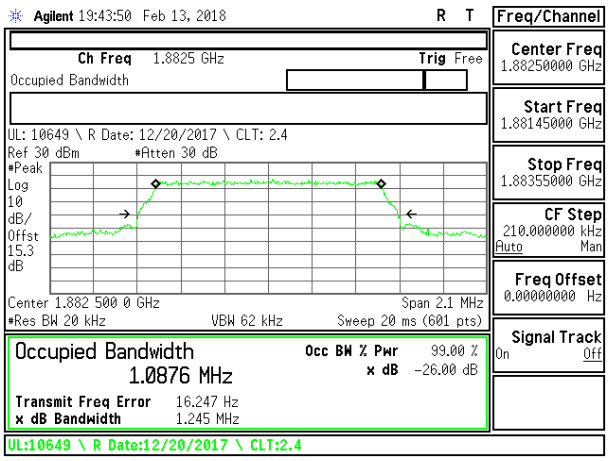
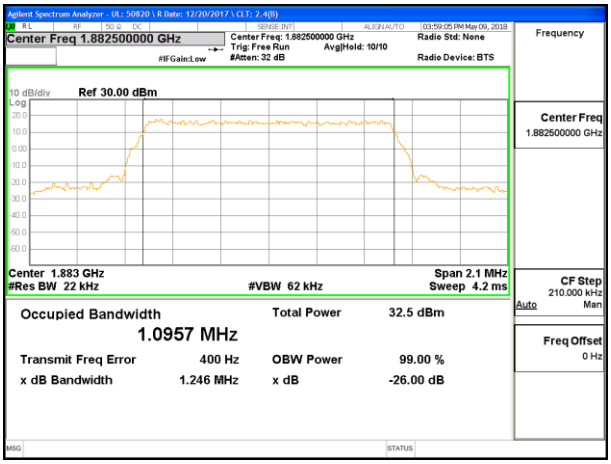
8.1.8. LTE BAND 25



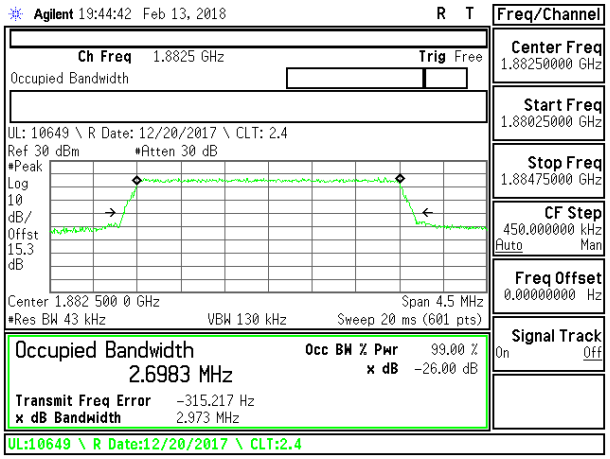
LTE B25 1.4MHz QPSK Middle Channel RB6-0



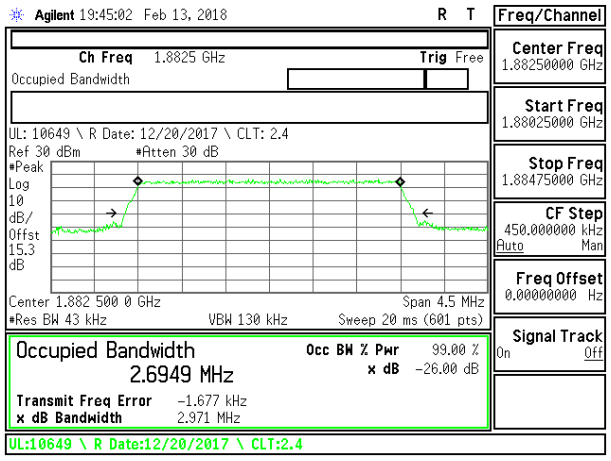
LTE B25 1.4MHz 16QAM Middle Channel RB6-0



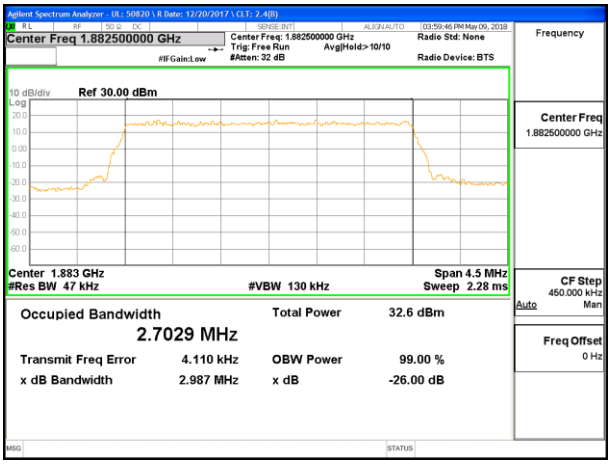
LTE B25 1.4MHz 64QAM Middle Channel RB6-0



LTE B25 3MHz QPSK Middle Channel RB15-0



LTE B25 3MHz 16QAM Middle Channel RB15-0



LTE B25 3MHz 64QAM Middle Channel RB15-0

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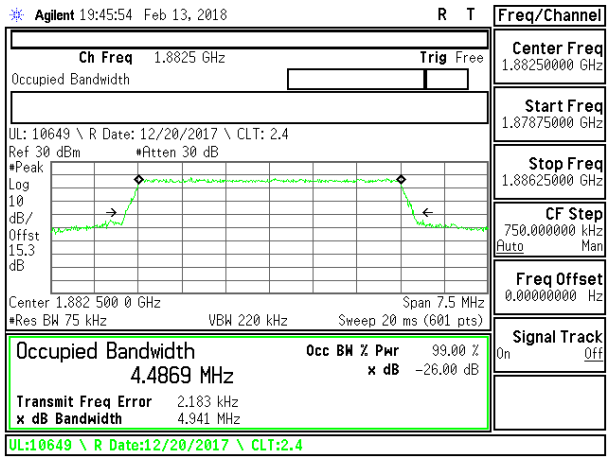
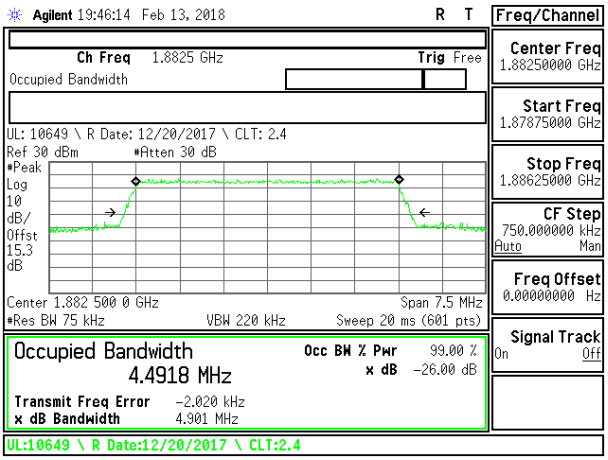
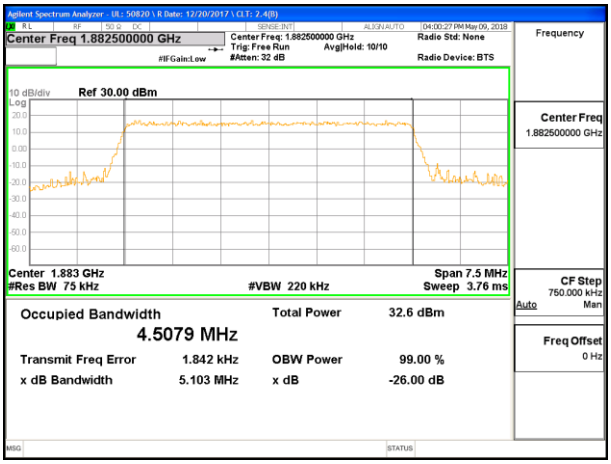


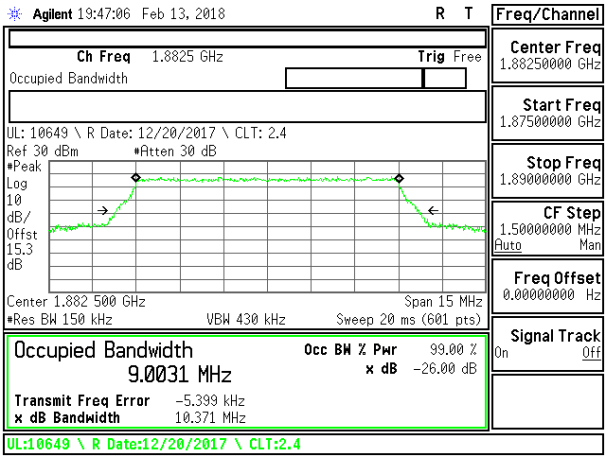
LTE B25 5MHz QPSK Middle Channel RB25-0



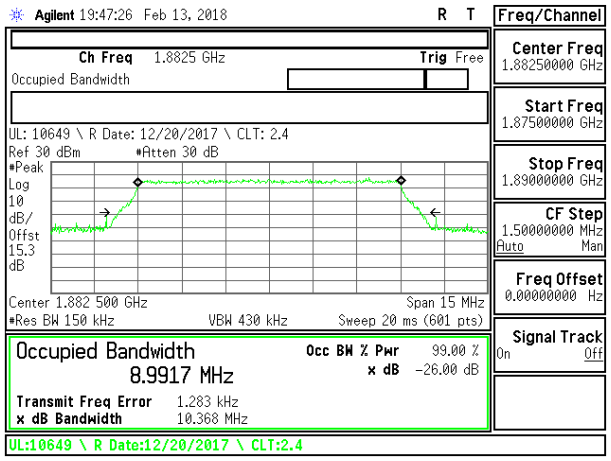
LTE B25 5MHz 16QAM Middle Channel RB25-0



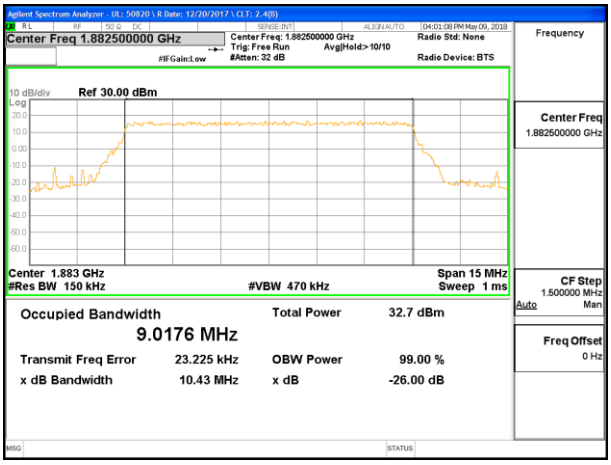
LTE B25 5MHz 64QAM Middle Channel RB25-0



LTE B25 10MHz QPSK Middle Channel RB50-0



LTE B25 10MHz 16QAM Middle Channel RB50-0



LTE B25 10MHz 64QAM Middle Channel RB50-0

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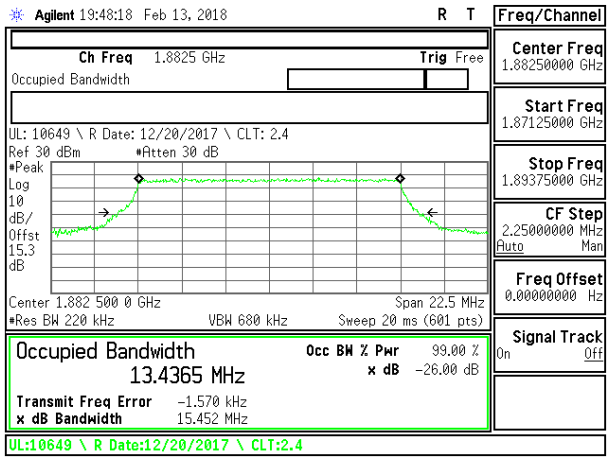
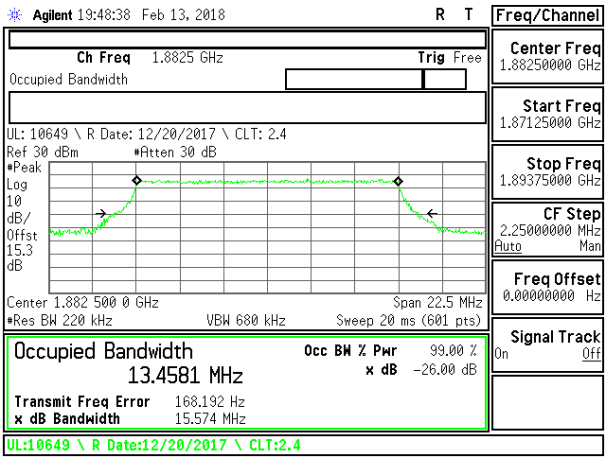
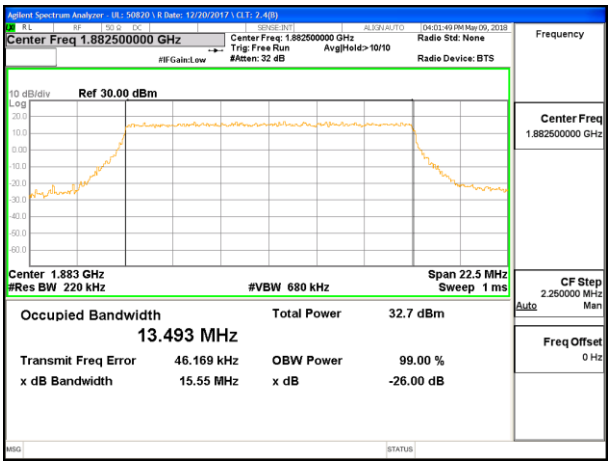


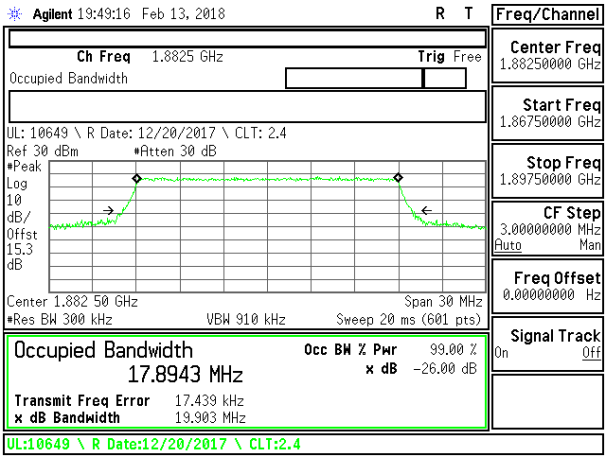
LTE B25 15MHz QPSK Middle Channel RB75-0



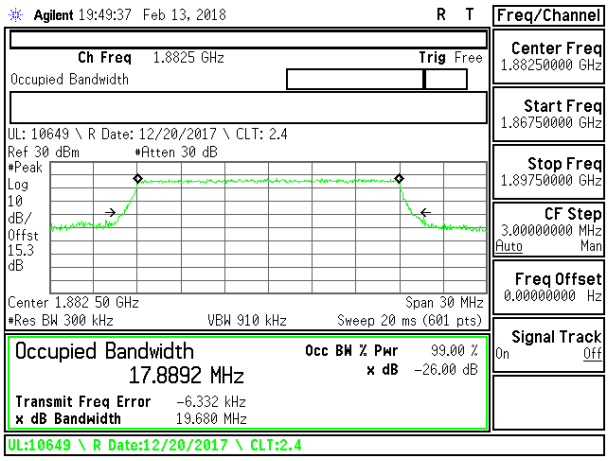
LTE B25 15MHz 16QAM Middle Channel RB75-0



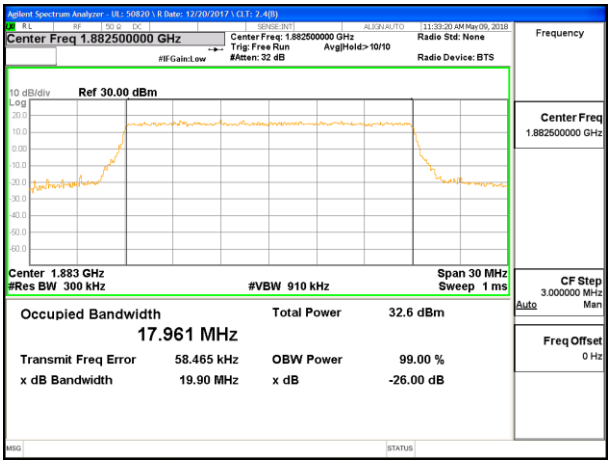
LTE B25 15MHz 64QAM Middle Channel RB75-0



LTE B25 20MHz QPSK Middle Channel RB100-0



LTE B25 20MHz 16QAM Middle Channel RB100-0



LTE B25 20MHz 64QAM Middle Channel RB100-0

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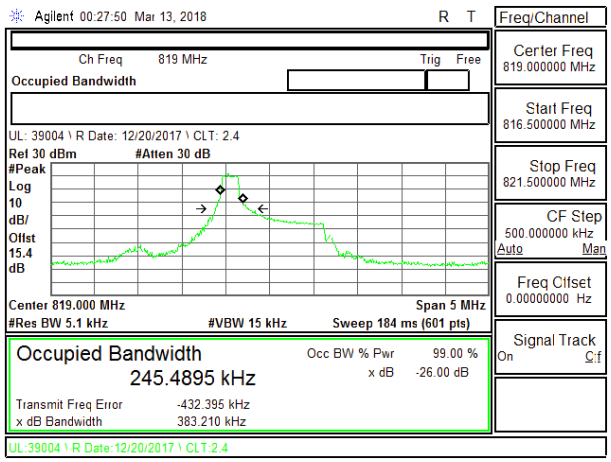
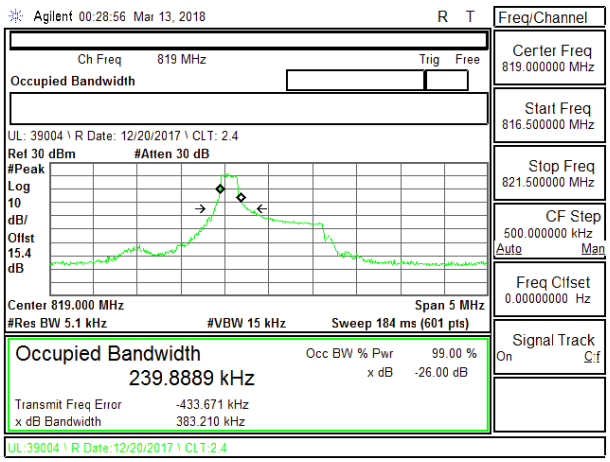
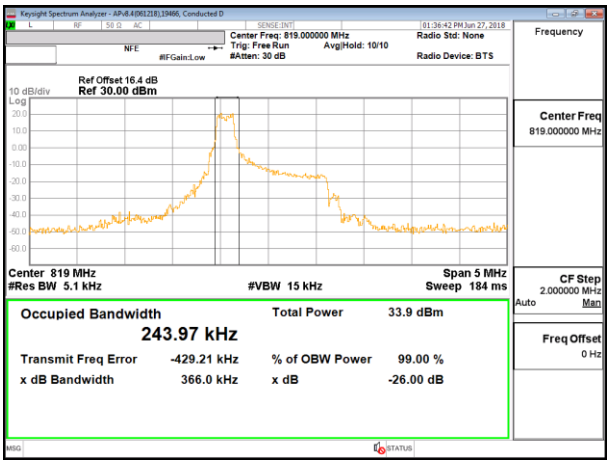
8.1.9. LTE BAND 26 (FCC PART 90S)



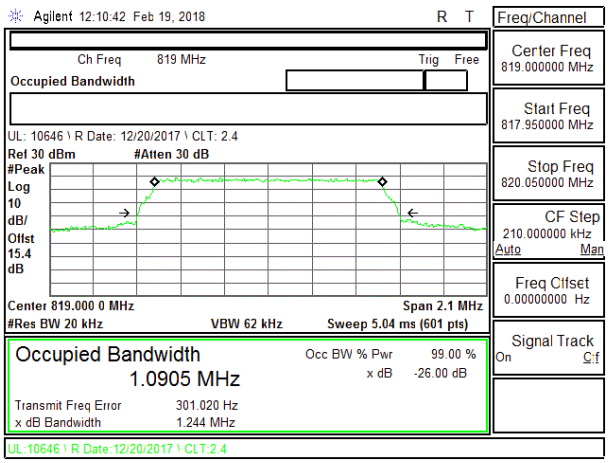
LTE B26 1.4MHz QPSK Middle Channel RB1-0



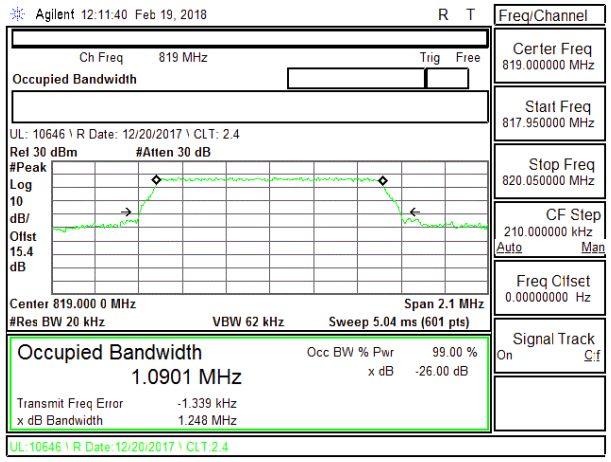
LTE B26 1.4MHz 16QAM Middle Channel RB1-0



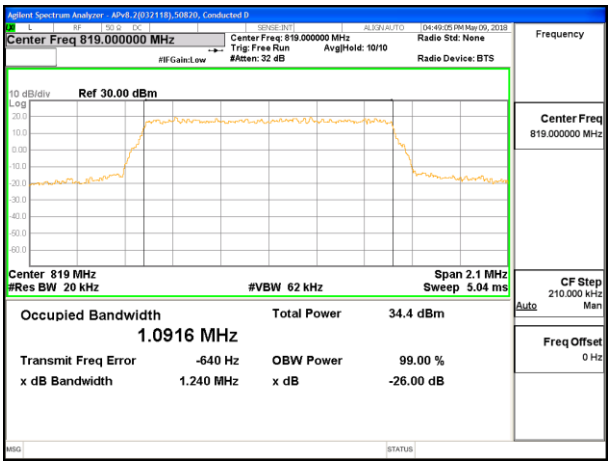
LTE B26 1.4MHz 64QAM Middle Channel RB1-0



LTE B26 1.4MHz QPSK Middle Channel RB6-0



LTE B26 1.4MHz 16QAM Middle Channel RB6-0



LTE B26 1.4MHz 64QAM Middle Channel RB6-0

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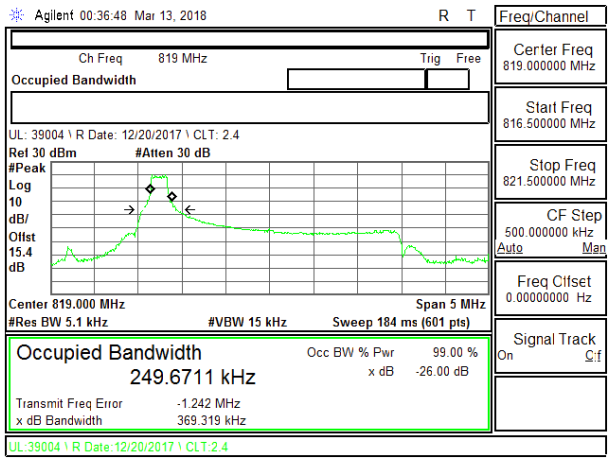
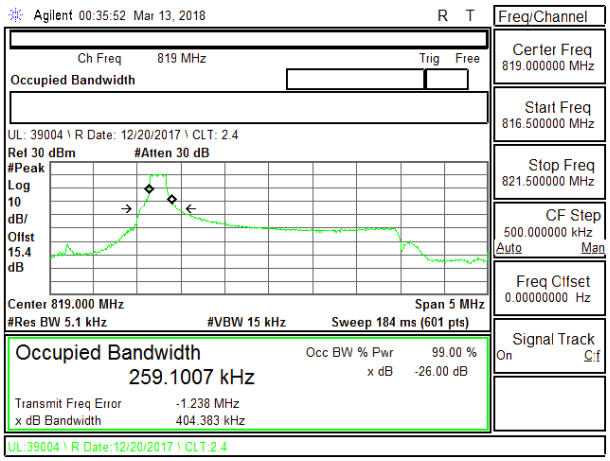
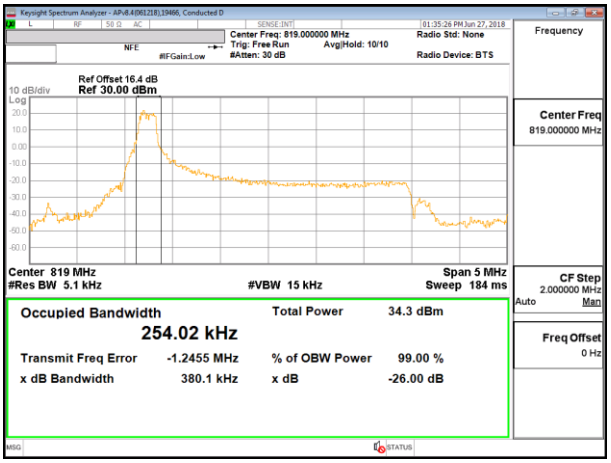


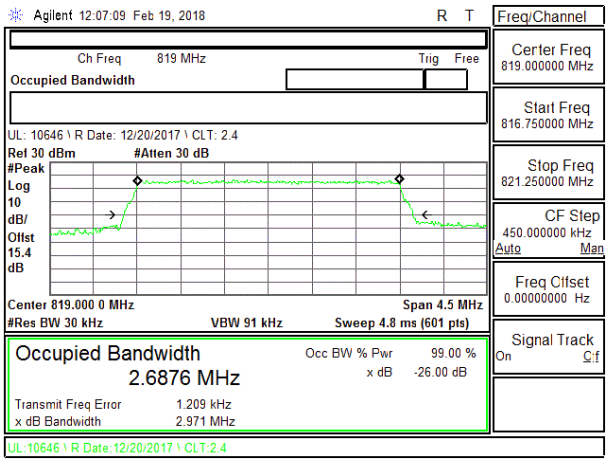
LTE B26 3MHz QPSK Middle Channel RB1-0



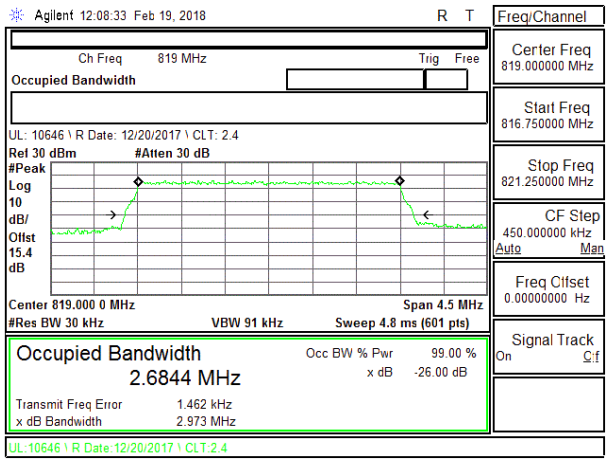
LTE B26 3MHz 16QAM Middle Channel RB1-0



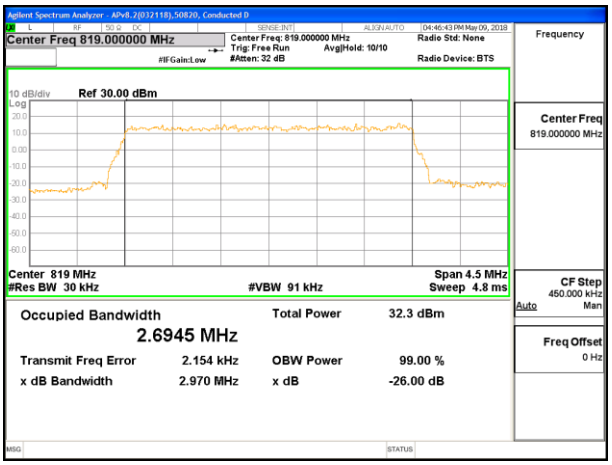
LTE B26 3MHz 64QAM Middle Channel RB1-0



LTE B26 3MHz QPSK Middle Channel RB15-0



LTE B26 3MHz 16QAM Middle Channel RB15-0



LTE B26 3MHz 64QAM Middle Channel RB15-0

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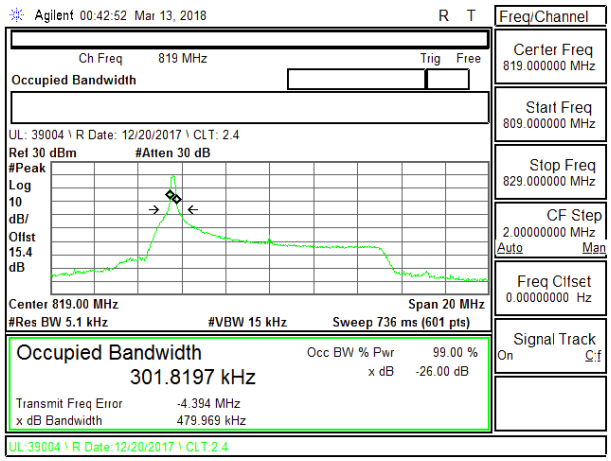
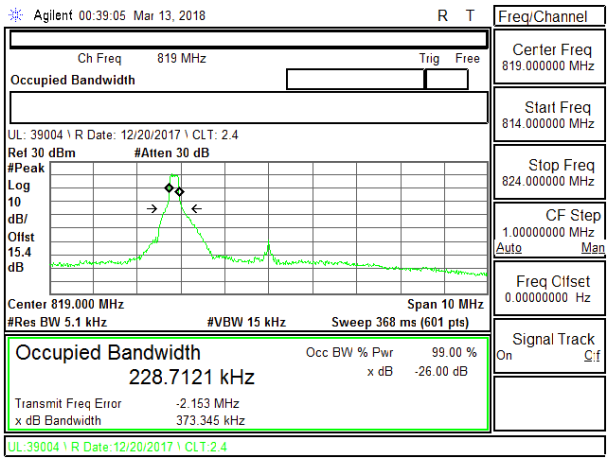
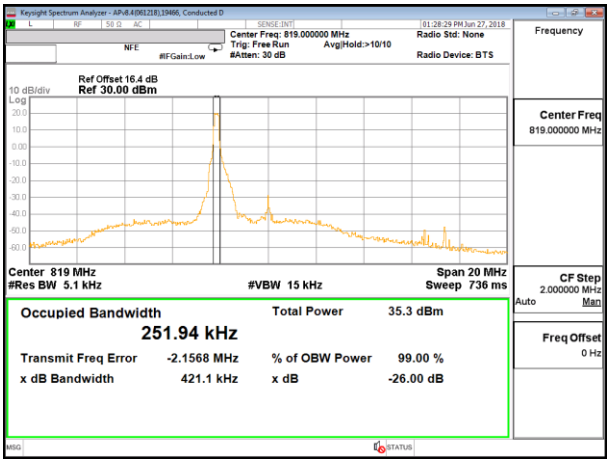


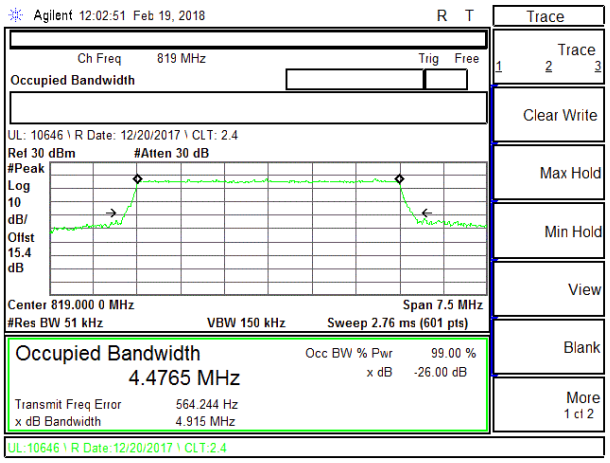
LTE B26 5MHz QPSK Middle Channel RB1-0



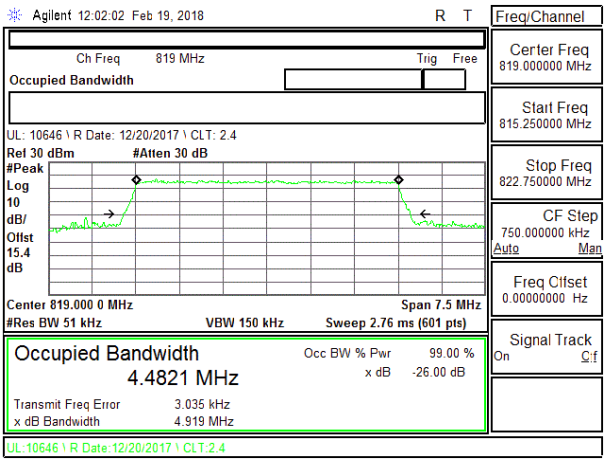
LTE B26 5MHz 16QAM Middle Channel RB1-0



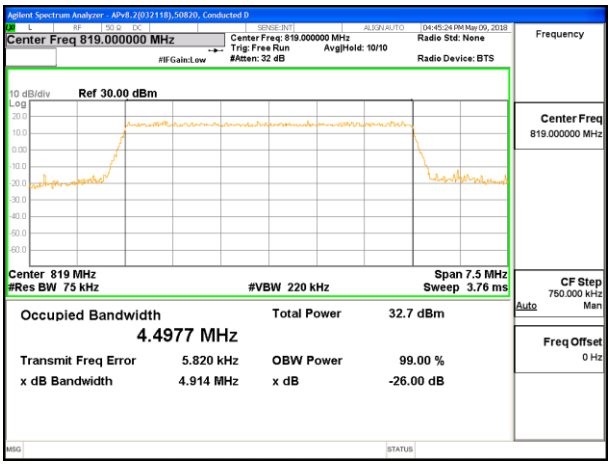
LTE B26 5MHz 64QAM Middle Channel RB1-0



LTE B26 5MHz QPSK Middle Channel RB25-0



LTE B26 5MHz 16QAM Middle Channel RB25-0



LTE B26 5MHz 64QAM Middle Channel RB25-0

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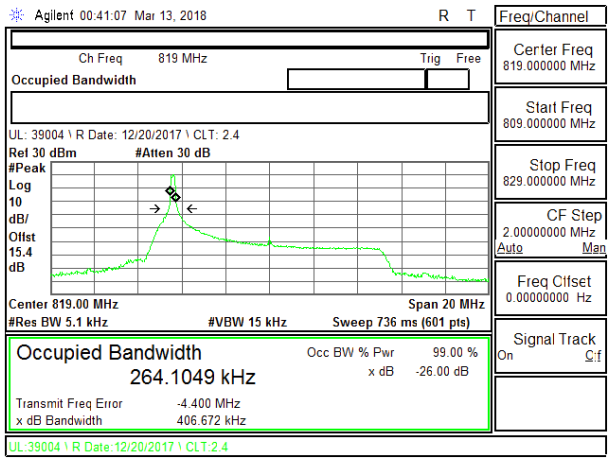
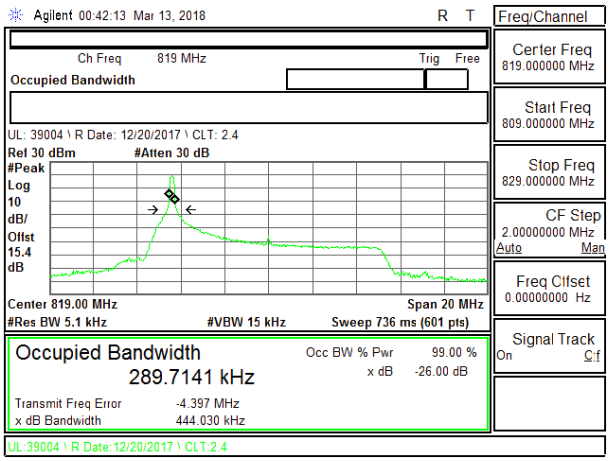
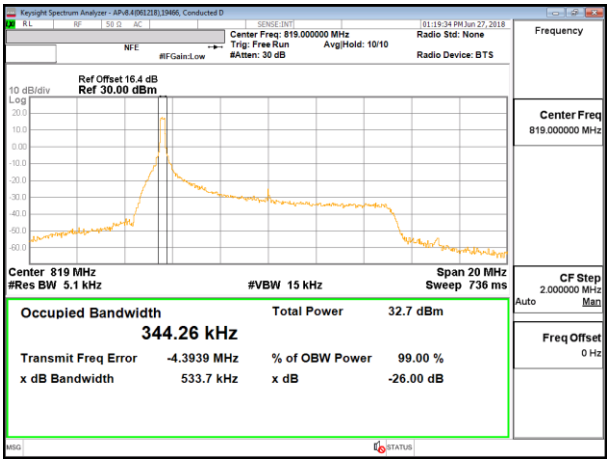


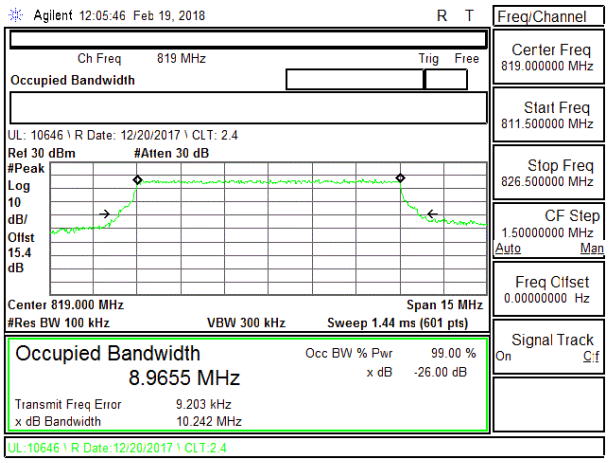
LTE B26 10MHz QPSK Middle Channel RB1-0



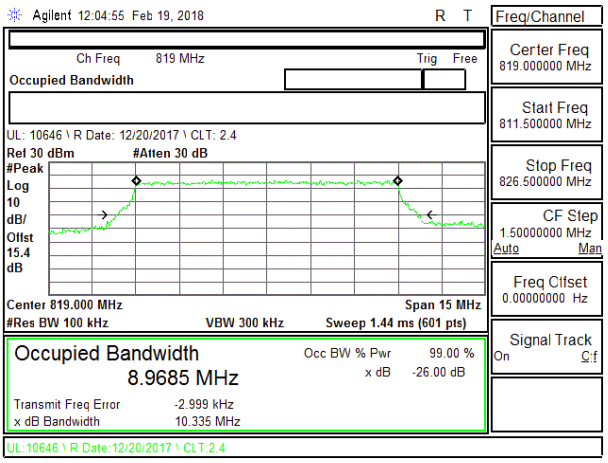
LTE B26 10MHz 16QAM Middle Channel RB1-0



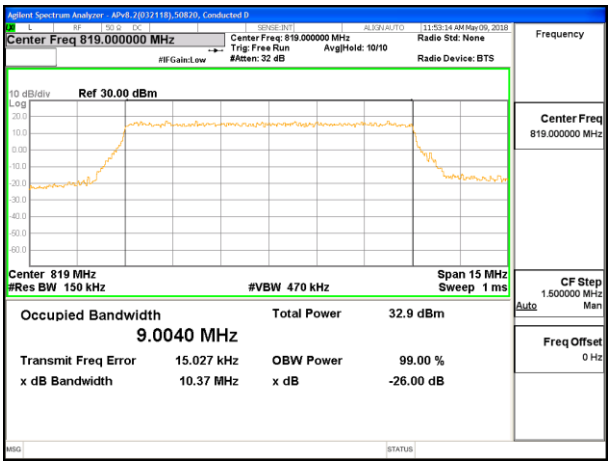
LTE B26 10MHz 64QAM Middle Channel RB1-0



LTE B26 10MHz QPSK Middle Channel RB50-0



LTE B26 10MHz 16QAM Middle Channel RB50-0



LTE B26 10MHz 64QAM Middle Channel RB50-0

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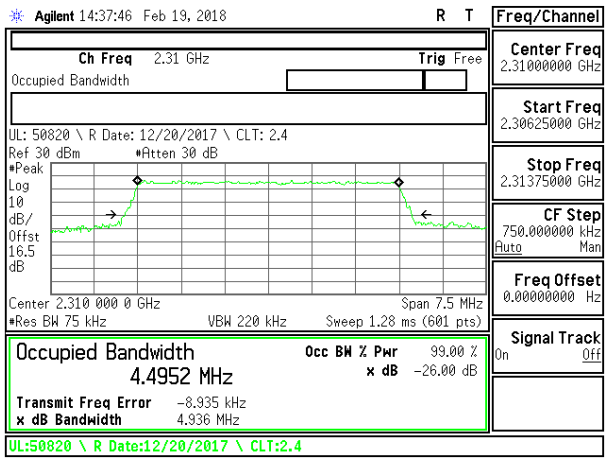
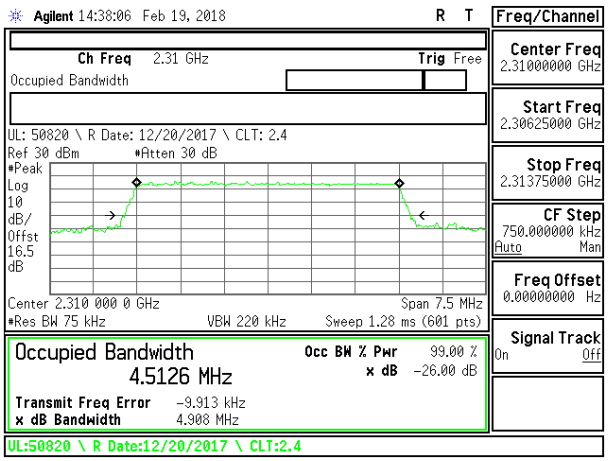
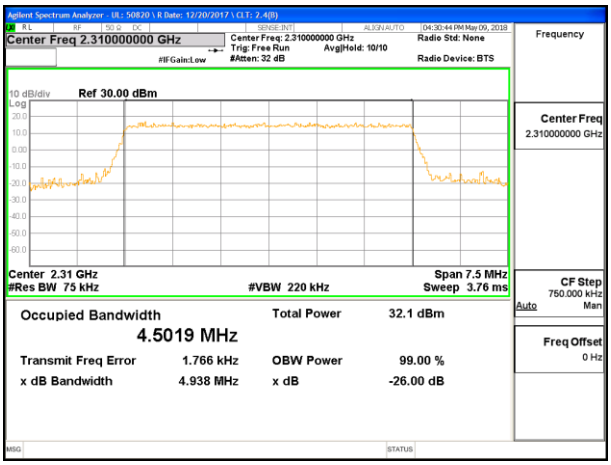
8.1.10. LTE BAND 30



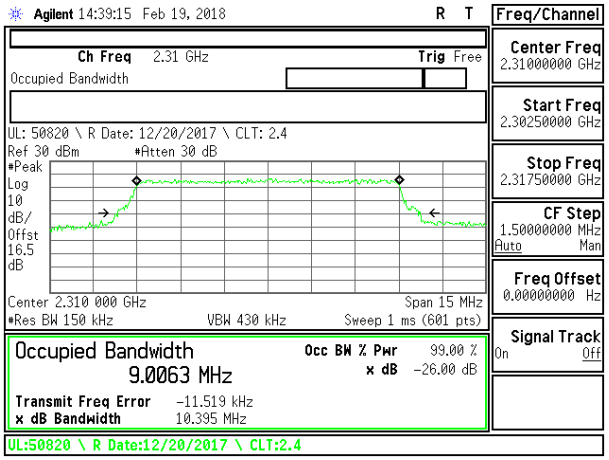
LTE B30 5MHz QPSK Middle Channel RB25-0



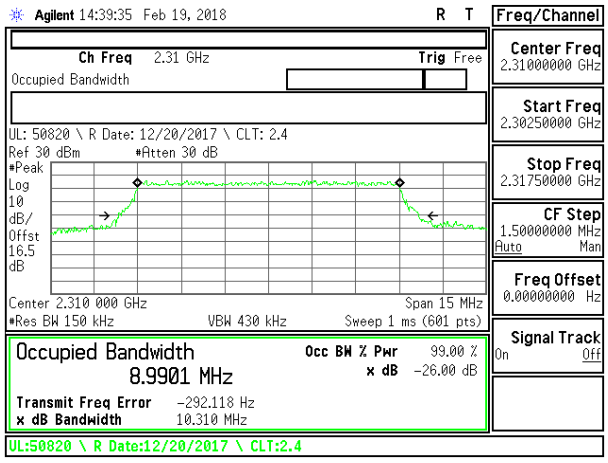
LTE B30 5MHz 16QAM Middle Channel RB25-0



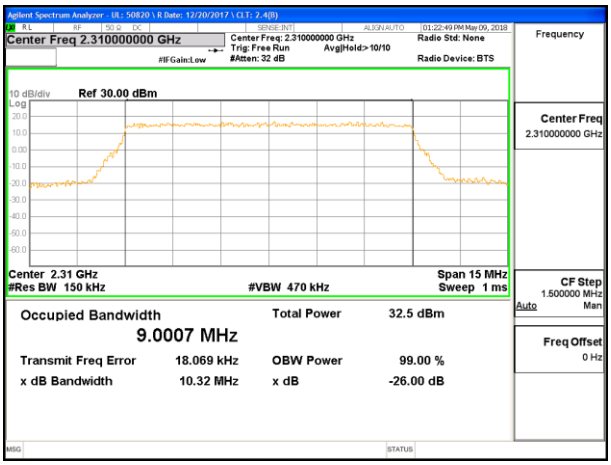
LTE B30 5MHz 64QAM Middle Channel RB25-0



LTE B30 10MHz QPSK Middle Channel RB50-0



LTE B30 10MHz 16QAM Middle Channel RB50-0



LTE B30 10MHz 64QAM Middle Channel RB50-0

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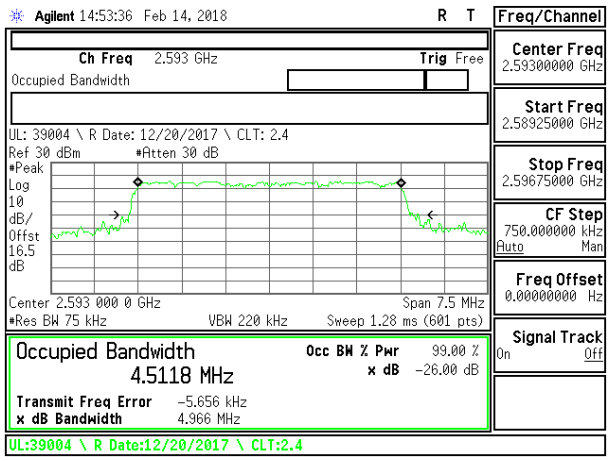
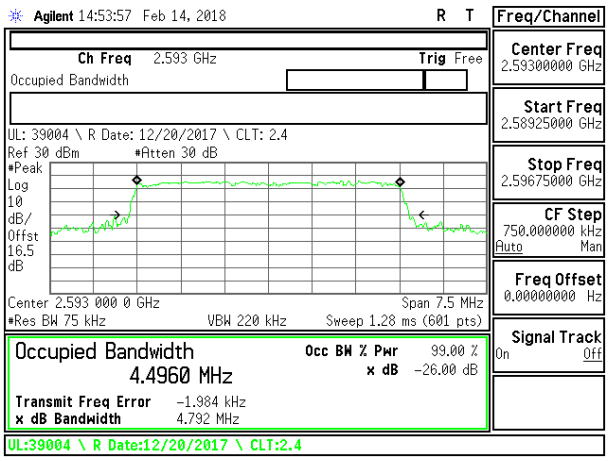
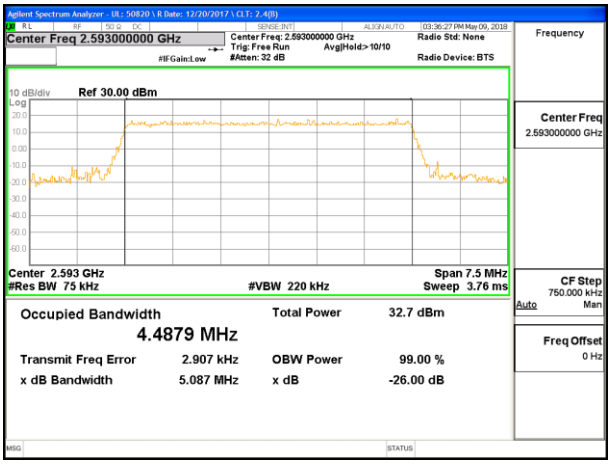
8.1.11. LTE BAND 41



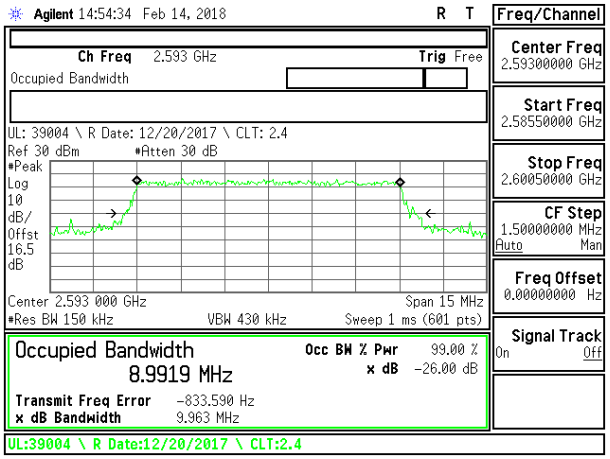
LTE B41 5MHz QPSK Middle Channel RB25-0



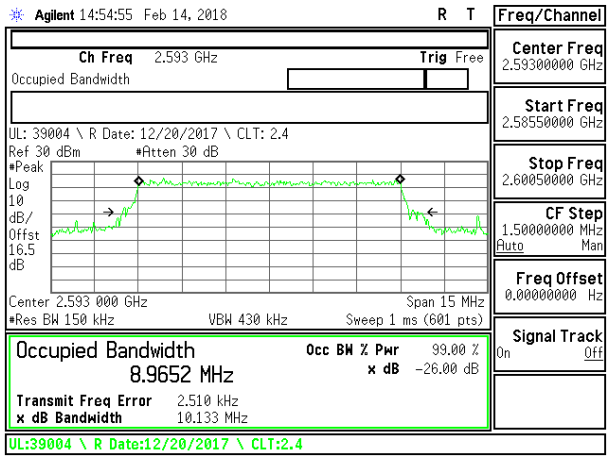
LTE B41 5MHz 16QAM Middle Channel RB25-0



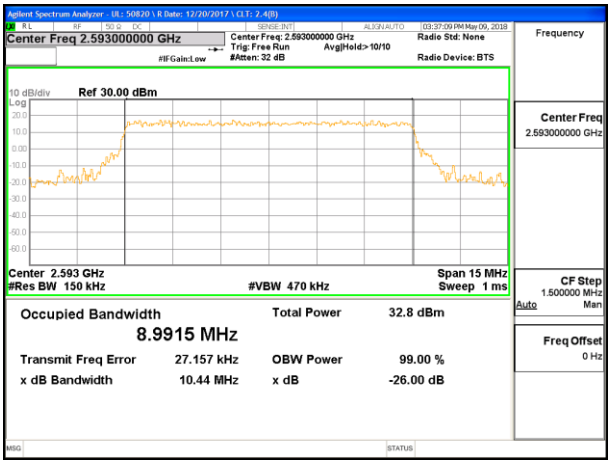
LTE B41 5MHz 64QAM Middle Channel RB25-0



LTE B41 10MHz QPSK Middle Channel RB50-0



LTE B41 10MHz 16QAM Middle Channel RB50-0



LTE B41 10MHz 64QAM Middle Channel RB50-0

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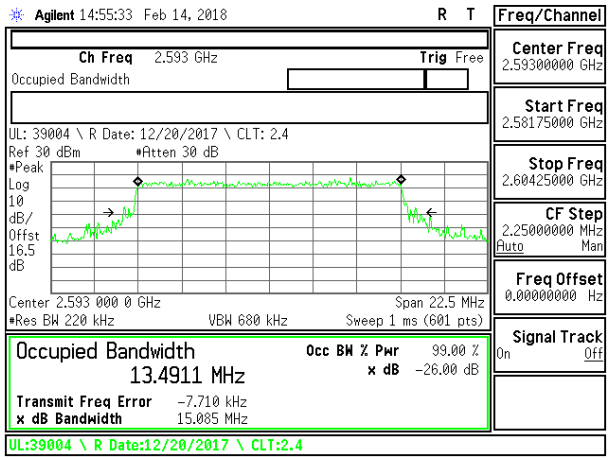
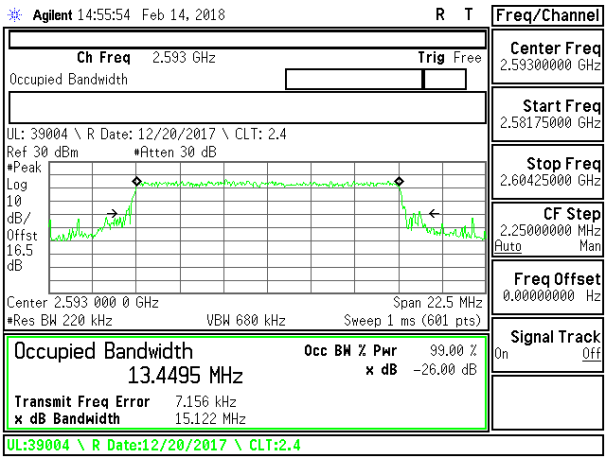
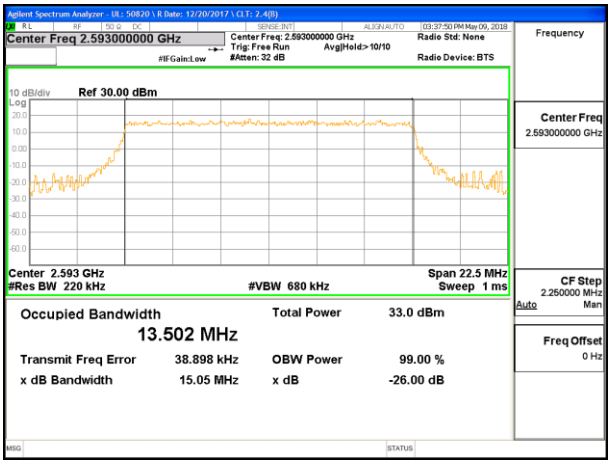


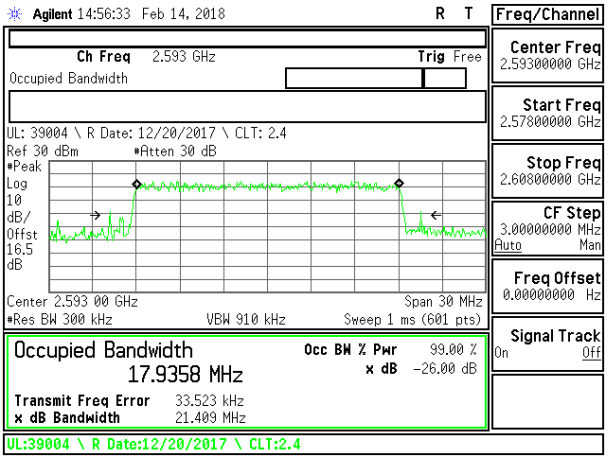
LTE B41 15MHz QPSK Middle Channel RB75-0



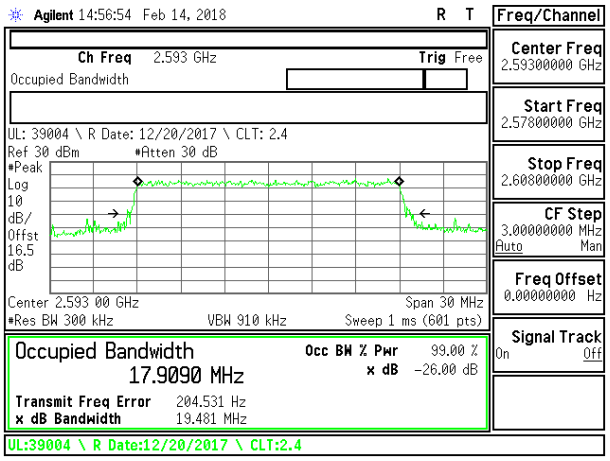
LTE B41 15MHz 16QAM Middle Channel RB75-0



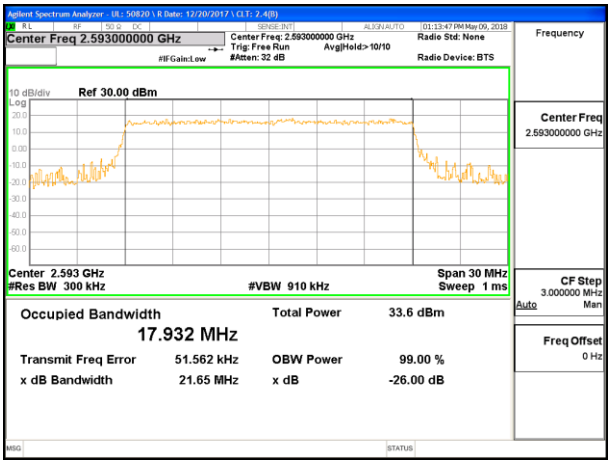
LTE B41 15MHz 64QAM Middle Channel RB75-0



LTE B41 20MHz QPSK Middle Channel RB100-0



LTE B41 20MHz 16QAM Middle Channel RB100-0



LTE B41 20MHz 64QAM Middle Channel RB100-0

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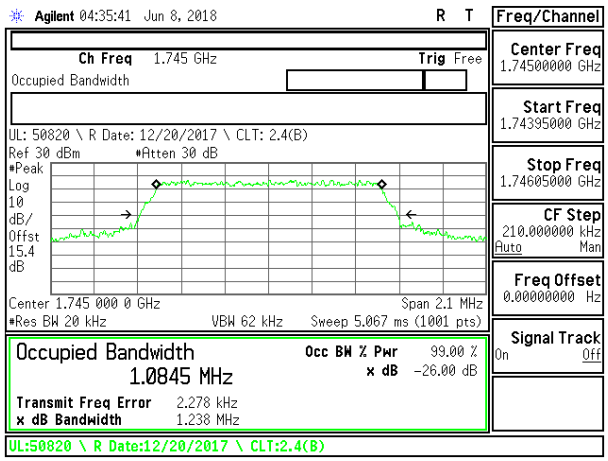
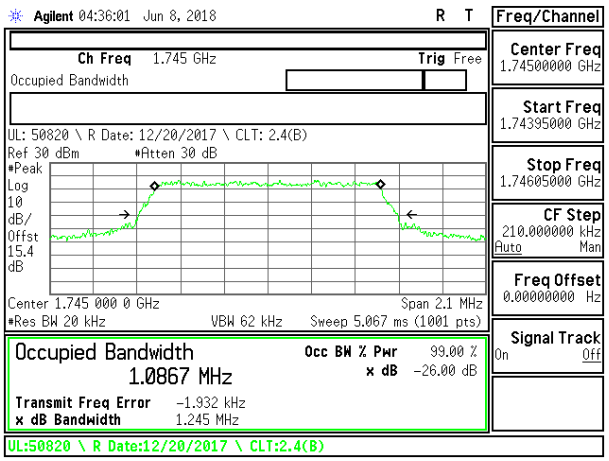
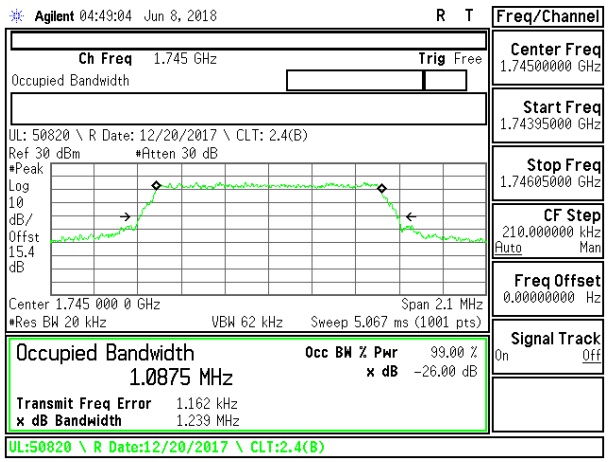
8.1.12. LTE BAND 66



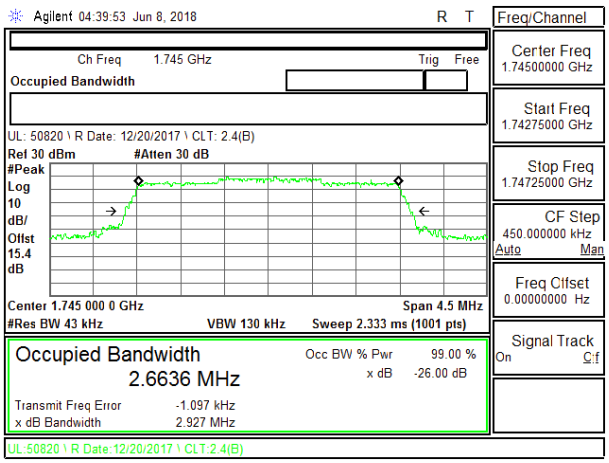
LTE B66 1.4MHz QPSK Middle Channel RB6-0



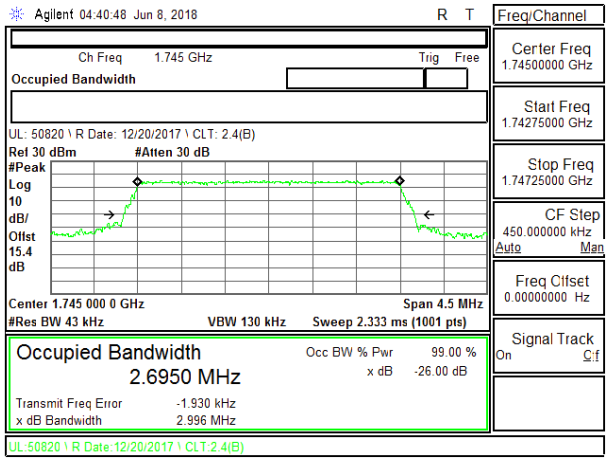
LTE B66 1.4MHz 16QAM Middle Channel RB6-0



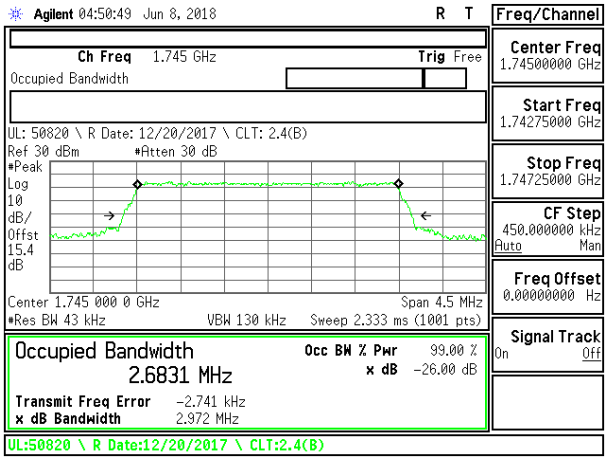
LTE B66 1.4MHz 64QAM Middle Channel RB6-0



LTE B66 3MHz QPSK Middle Channel RB15-0



LTE B66 3MHz 16QAM Middle Channel RB15-0



LTE B66 3MHz 64QAM Middle Channel RB15-0

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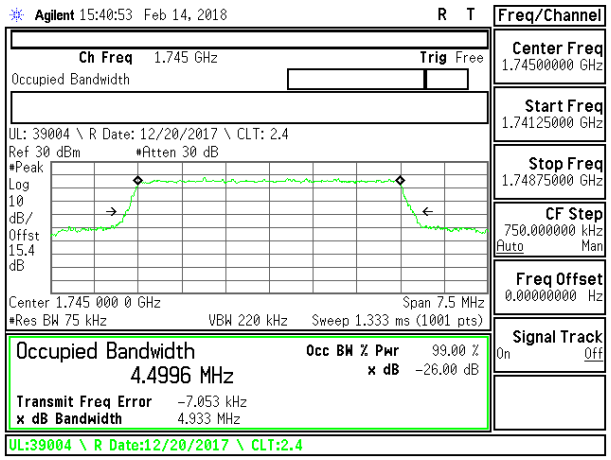
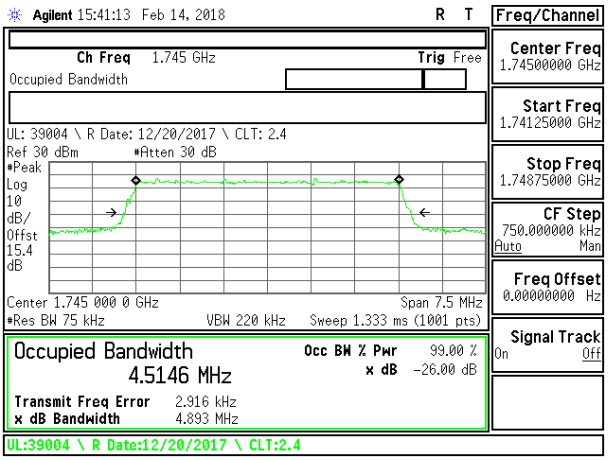
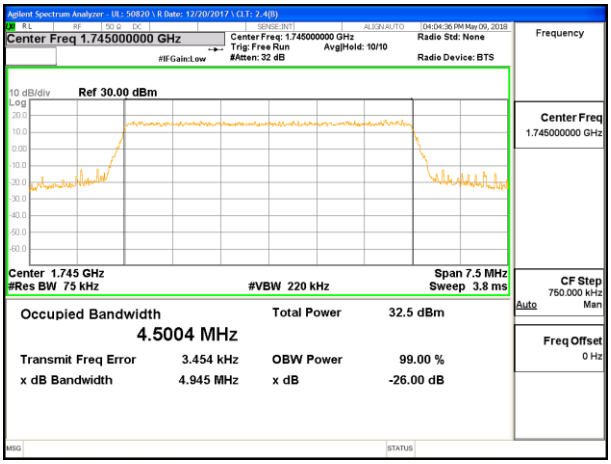


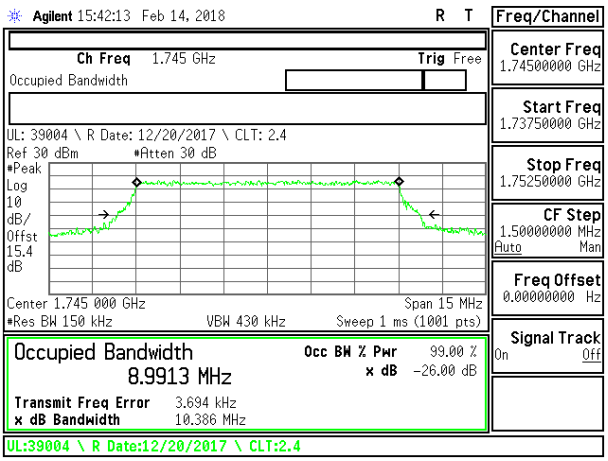
LTE B66 5MHz QPSK Middle Channel RB25-0



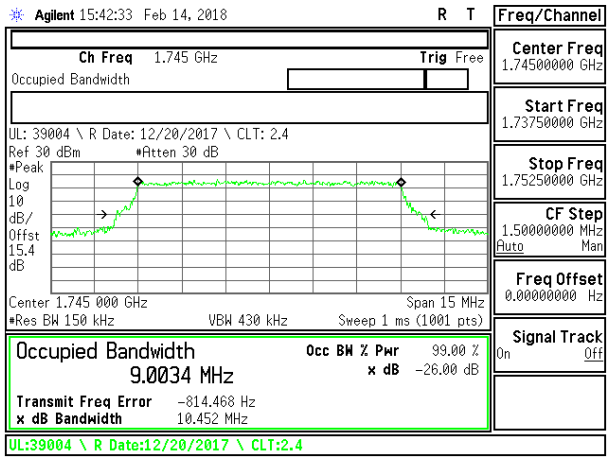
LTE B66 5MHz 16QAM Middle Channel RB25-0



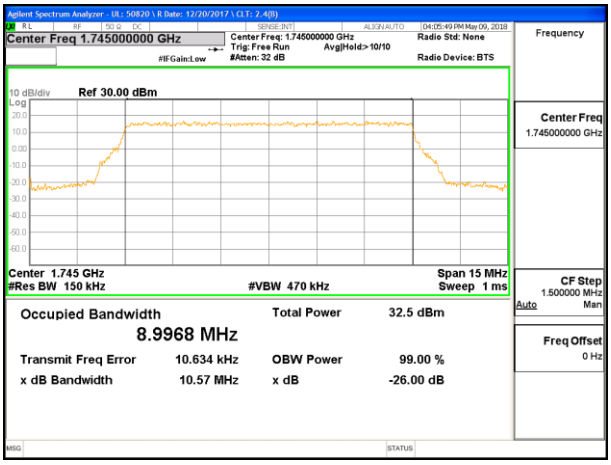
LTE B66 5MHz 64QAM Middle Channel RB25-0



LTE B66 10MHz QPSK Middle Channel RB50-0



LTE B66 10MHz 16QAM Middle Channel RB50-0



LTE B66 10MHz 64QAM Middle Channel RB50-0

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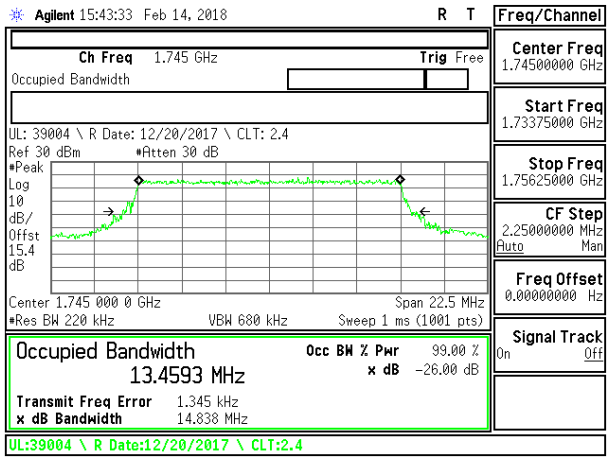
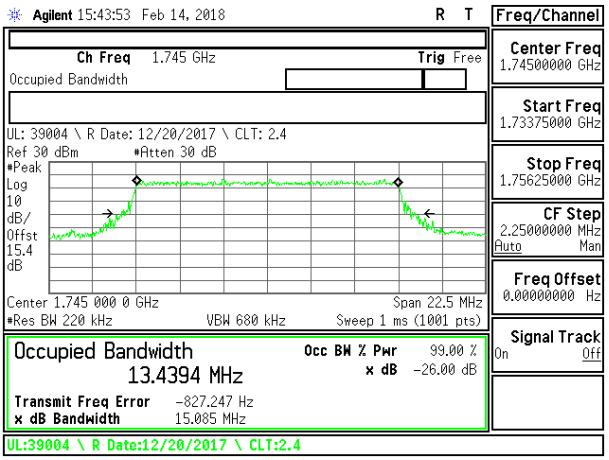
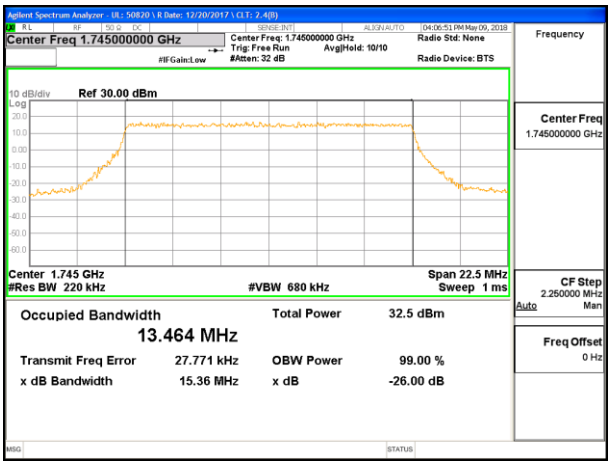


LTE B66 15MHz QPSK Middle Channel RB75-0



LTE B66 15MHz 16QAM Middle Channel RB75-0



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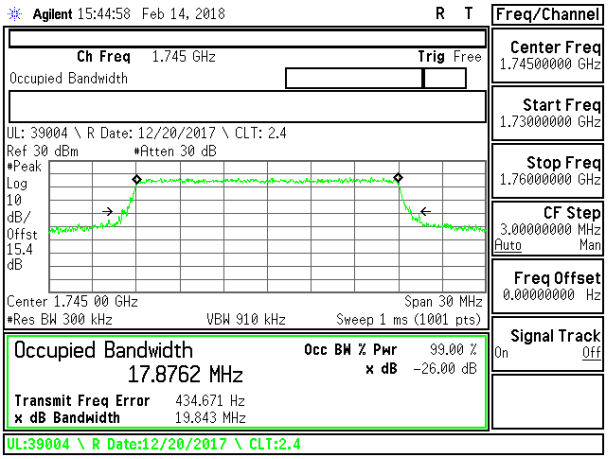
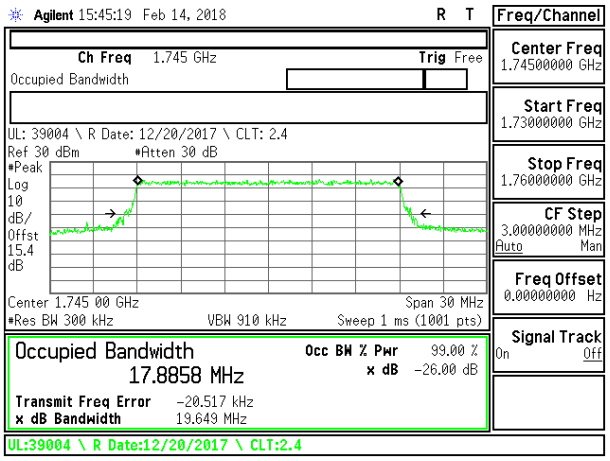
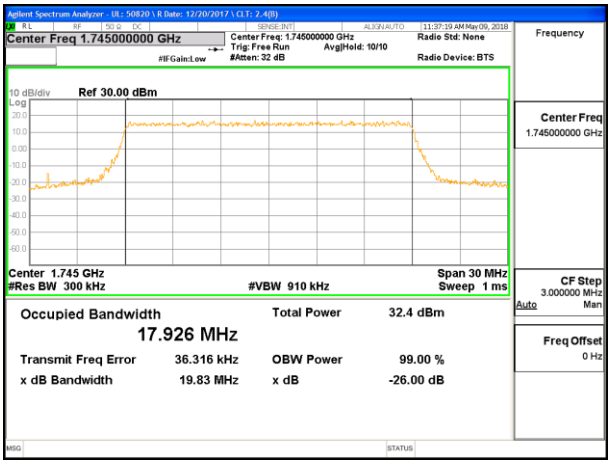


LTE B66 20MHz QPSK Middle Channel RB100-0



LTE B66 20MHz 16QAM Middle Channel RB100-0



LTE B66 20MHz 64QAM Middle Channel RB100-0

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8.2. BAND EDGE AND EMISSION MASK

RULE PART(S)

§2.1051, §22.917, §24.238, §27.53, §90.691 and §90.543

LIMITS

FCC: §22.917, §24.238, §27.53(h)
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.

FCC: §90.691 Emission mask requirements for EA-based systems.
(a) Out-of-band emission requirement shall apply only to the “outer” channels included in an EA license and to spectrum adjacent to interior channels used by incumbent licensees. The emission limits are as follows:

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

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

FCC: §90.543 Emission Limitations. (Band 14)
(e) For operations in the 758-768 MHz and the 788-798 MHz bands, the power of any emission outside the 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, in accordance with the following:

(2) On all frequencies between 769-775 MHz and 799-805 MHz, by a factor not less than 65 + 10 log (P) dB in a 6.25 kHz band segment, for mobile and portable stations.

(3) On any frequency between 775-788 MHz, above 805 MHz, and below 758 MHz, by at least 43 + 10 log (P) dB.

(4) Compliance with the provisions of paragraphs (e)(1) and (2) of this section is based on the use of measurement instrumentation such that the reading taken with any resolution bandwidth setting should be adjusted to indicate spectral energy in a 6.25 kHz segment.

(5) Compliance with the provisions of paragraph (e)(3) of this section is based on the use of measurement instrumentation employing a resolution bandwidth of 100 kHz or greater. However, in the 100 kHz bands immediately outside and adjacent to the frequency block, a resolution bandwidth of 30 kHz may be employed.

(f) For operations in the 758-775 MHz and 788-805 MHz bands, all emissions including harmonics in the band 1559-1610 MHz shall be limited to −70 dBW/MHz equivalent isotropically radiated power (EIRP) for wideband signals, and −80 dBW EIRP for discrete emissions of less than 700 Hz bandwidth. For the purpose of equipment authorization, a transmitter shall be tested with an antenna that is representative of the type that will be used with the equipment in normal operation.

FCC: §27.53 (Band 30)
(a) For operations in the 2305-2320 MHz band and the 2345-2360 MHz band, the power of any emission outside a licensee's frequency band(s) of operation shall be attenuated below the transmitter power P (with averaging performed only during periods of transmission) within the licensed band(s) of operation, in watts, by the following amounts:

(4) For mobile and portable stations operating in the 2305-2315 MHz and 2350-2360 MHz bands:

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(i) By a factor of not less than: 43 + 10 log (P) dB on all frequencies between 2305 and 2320 MHz and on all frequencies between 2345 and 2360 MHz that are outside the licensed band(s) of operation, not less than 55 + 10 log (P) dB on all frequencies between 2320 and 2324 MHz and on all frequencies between 2341 and 2345 MHz, not less than 61 + 10 log (P) dB on all frequencies between 2324 and 2328 MHz and on all frequencies between 2337 and 2341 MHz, and not less than 67 + 10 log (P) dB on all frequencies between 2328 and 2337 MHz;

(ii) By a factor of not less than 43 + 10 log (P) dB on all frequencies between 2300 and 2305 MHz, 55 + 10 log (P) dB on all frequencies between 2296 and 2300 MHz, 61 + 10 log (P) dB on all frequencies between 2292 and 2296 MHz, 67 + 10 log (P) dB on all frequencies between 2288 and 2292 MHz, and 70 + 10 log (P) dB below 2288 MHz;

(iii) By a factor of not less than 43 + 10 log (P) dB on all frequencies between 2360 and 2365 MHz, and not less than 70 + 10 log (P) dB above 2365 MHz.

FCC: §27.53 (Band 13)
(c)For operations in the 746-758 MHz band and the 776-788 MHz band, the power of any emission outside the 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, in accordance with the following:

(2) On any frequency outside the 776-788 MHz band, the power of any emission shall be attenuated outside the band below the transmitter power (P) by at least 43 + 10 log (P) dB;

(4) On all frequencies between 763-775 MHz and 793-805 MHz, by a factor not less than 65 + 10 log (P) dB in a 6.25 kHz band segment, for mobile and portable stations;

(5) Compliance with the provisions of paragraphs (c)(2) of this section is based on the use of measurement instrumentation employing a resolution bandwidth of 100 kHz or greater. However, in the 100 kHz bands immediately outside and adjacent to the frequency block, a resolution bandwidth of at least 30 kHz may be employed;

(6) Compliance with the provisions of paragraphs (c)(4) of this section is based on the use of measurement instrumentation such that the reading taken with any resolution bandwidth setting should be adjusted to indicate spectral energy in a 6.25 kHz segment.

(f) Emissions in the band 1559-1610 MHz shall be limited to −70 dBW/MHz equivalent isotropically radiated power (EIRP) for wideband signals. (-70 dBW/MHz = -40dBm/MHz).

FCC: §27.53 (Band 12, 17, 71)
(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.

FCC: §27.53 (Band 7, 41)
(m)(4) For mobile digital stations, the attenuation factor shall be not less than 40 + 10 log (P) dB on all frequencies between the channel edge and 5 megahertz from the channel edge, 43 + 10 log (P) dB on all frequencies between 5 megahertz and X megahertz from the channel edge, and 55 + 10 log (P) dB on all frequencies more than X megahertz from the channel edge, where X is the greater of 6 megahertz or the actual emission bandwidth as defined in paragraph (m)(6) of this section. In addition, the attenuation factor shall not be less that 43 + 10 log (P) dB on all frequencies between 2490.5 MHz and 2496 MHz and 55 + 10 log (P) dB at or below 2490.5 MHz. Mobile Satellite Service licensees operating on frequencies below 2495 MHz may also submit a documented interference complaint against BRS licensees operating on channel BRS Channel 1 on the same terms and conditions as adjacent channel BRS or EBS licensees.

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TEST PROCEDURE

The transmitter output was connected to a CMW500Test Set and configured to operate at maximum power. The band edge emissions were measured at the required operating frequencies in each band on the Spectrum Analyzer.

For each band edge measurement:

1. Set the spectrum analyzer span to include the block edge frequency.
2. Set a marker to point the corresponding band edge frequency in each test case.
3. Set display line at -13 dBm
4. Set resolution bandwidth to at least 1% of emission bandwidth.

TEST PROCEDURE (LTE BAND 14)

(b)ACP measurement procedure. The following are the procedures for making the transmitter ACP measurements. For all measurements modulate the transmitter as it would be modulated in normal operating conditions. For time division multiple access (TDMA) systems, the measurements are to be made under TDMA operation only during time slots when the transmitter is active. All measurements are made at the transmitter's output port. If a transmitter has an integral antenna, a suitable power coupling device shall be used to couple the RF signal to the measurement instrument. The coupling device shall substantially maintain the proper transmitter load impedance. The ACP measurements may be made with a spectrum analyzer capable of making direct ACP measurements. “Measurement bandwidth”, as used for non-swept measurements, implies an instrument that measures the power in many narrow bandwidths equal to the nominal resolution bandwidth and integrates these powers to determine the total power in the specified measurement bandwidth.

(1)Setting reference level. Set transmitter to maximum output power. Using a spectrum analyzer capable of ACP measurements, set the measurement bandwidth to the channel size. For example, for a 6.25 kHz transmitter set the measurement bandwidth to 6.25 kHz. Set the frequency offset of the measurement bandwidth to zero and adjust the center frequency of the instrument to the assigned center frequency to measure the average power level of the transmitter. Record this power level in dBm as the “reference power level.”

(2)Non-swept power measurement. Using a spectrum analyzer capable of ACP measurements, set the mesurement bandwidth and frequency offset from the assigned center frequency as shown in the tables in §90.543 (a) above. Any value of resolution bandwidth may be used as long as it does not exceed 2 percent of the specified measurement bandwidth. Measure the power level in dBm. These measurements should be made at maximum power. Calculate ACP by substracting the reference power level measured in (b)(1) from the measurements made in this step. The absolute value of the calculated ACP must be greater than or equal to the absolute value of the ACP given in the table for each condition above.

(3)Swept power measurement. Set a spectrum analyzer to 30 kHz resolution bandwidth, 1 MHz video bandwidth and average, sample, or RMS detection. Set the reference level of the spectrum analyzer to the RMS value of the transmitter power. Sweep above and below the carrier frequency to the limits defined in the tables. Calculate ACP by substracting the reference power level measured in (b)(1) from the measurements made in this step. The absolute value of the calculated ACP must be greater than or equal to the absolute value of the ACP given in the table for each condition above.

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TEST PROCEDURE (LTE BAND 7, 41)

(m)(6) Measurement procedure. Compliance with these rules is based on the use of measurement instrumentation employing a resolution bandwidth of 1 megahertz or greater. However, in the 1 MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed; for mobile digital stations, in the 1 megahertz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least two percent may be employed, except when the 1 megahertz band is 2495-2496 MHz, in which case a resolution bandwidth of at least one percent may be employed. A narrower resolution bandwidth is permitted in all cases to improve measurement accuracy provided the measured power is integrated over the full required measurement bandwidth (i.e. 1 megahertz or 1 percent of emission bandwidth, as specified; or 1 megahertz or 2 percent for mobile digital stations, except in the band 2495-2496 MHz). The emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emissions are attenuated at least 26 dB below the transmitter power. With respect to television operations, measurements must be made of the separate visual and aural operating powers at sufficiently frequent intervals to ensure compliance with the rules.

TEST PROCEDURE (LTE BAND 30)

(5) Measurement procedure. Compliance with these rules is based on the use of measurement instrumentation employing a resolution bandwidth of 1 MHz or greater. However, in the 1 MHz bands immediately outside and adjacent to the channel blocks at 2305, 2310, 2315, 2320, 2345, 2350, 2355, and 2360 MHz, a resolution bandwidth of at least 1 percent of the emission bandwidth of the fundamental emission of the transmitter may be employed. A narrower resolution bandwidth is permitted in all cases to improve measurement accuracy provided the measured power is integrated over the full required measurement bandwidth (*i.e.,* 1 MHz). The emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emissions are attenuated at least 26 dB below the transmitter power.

MODES TESTED

- LTE Band 2
- LTE Band 5
- LTE Band 7
- LTE Band 12
- LTE Band 13
- LTE Band 14
- LTE Band 17
- LTE Band 25
- LTE Band 26
- LTE Band 30
- LTE Band 41
- LTE Band 66

RESULTS

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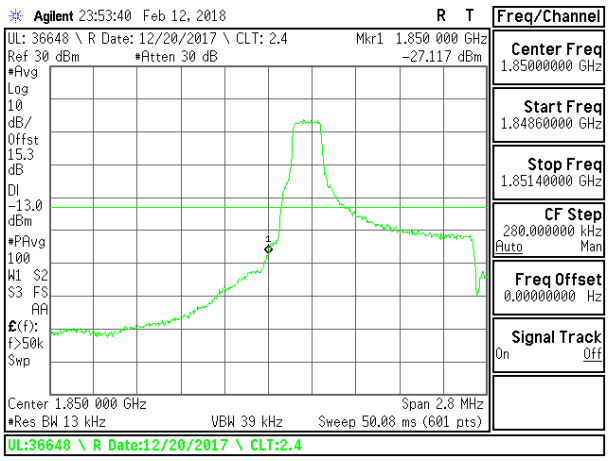
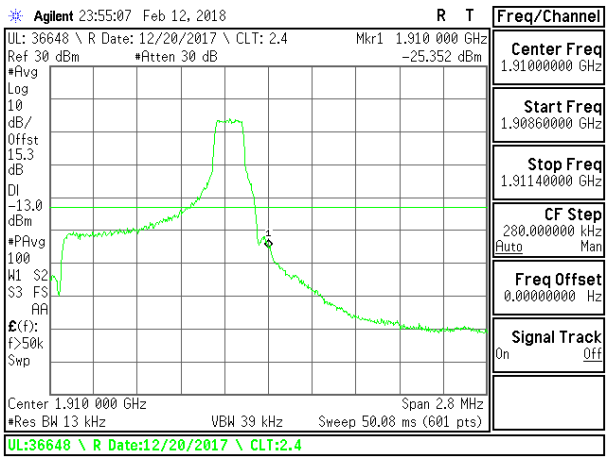
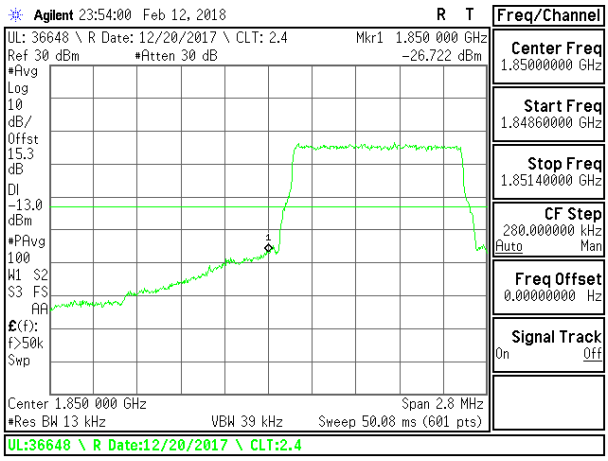
8.2.1. LTE BAND 2 BANDEDGE



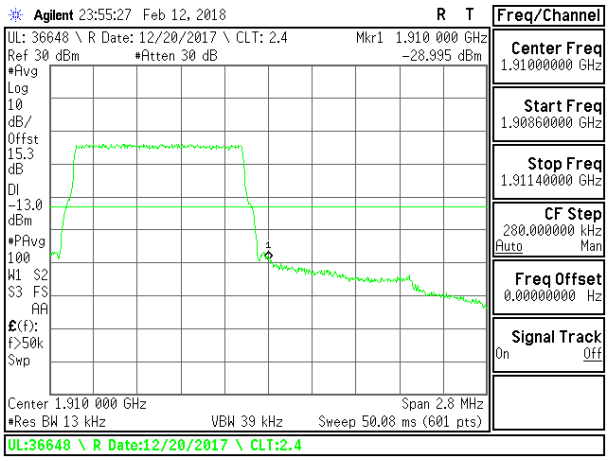
LTE B2 1.4MHz QPSK Low Channel RB1-0



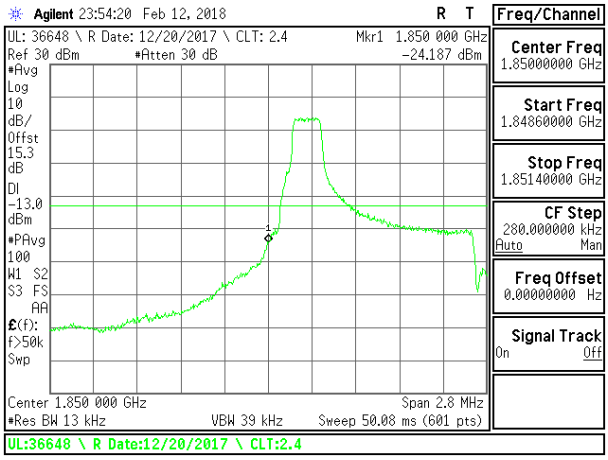
LTE B2 1.4MHz QPSK High Channel RB1-5



LTE B2 1.4MHz QPSK Low Channel RB6-0



LTE B2 1.4MHz QPSK High Channel RB6-0



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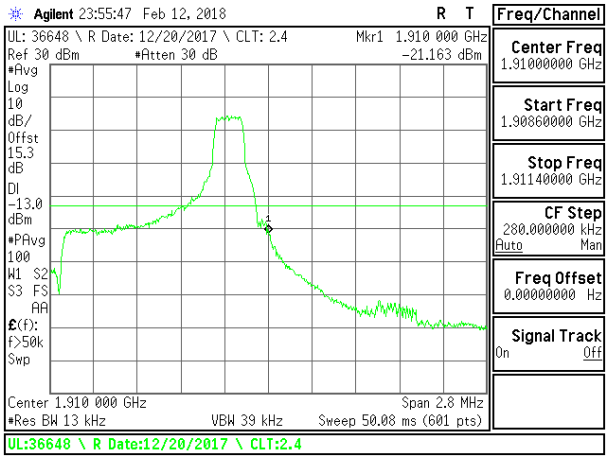

LTE B2 1.4MHz 16QAM High Channel RB1-5

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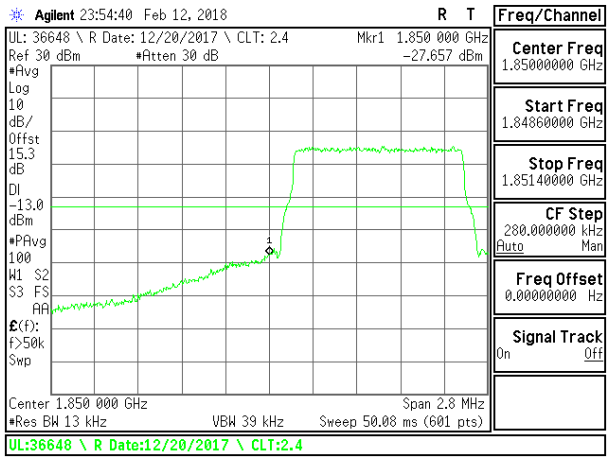

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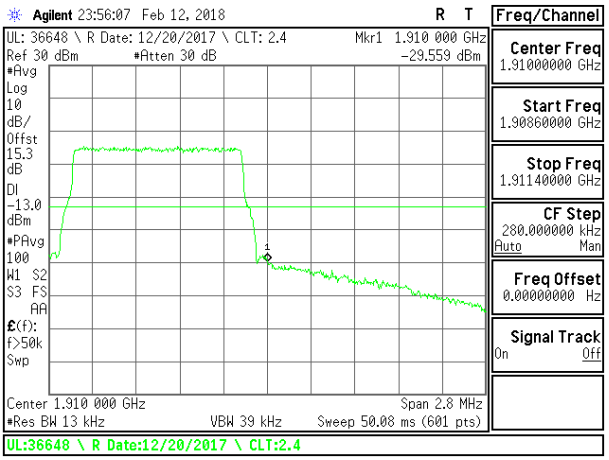
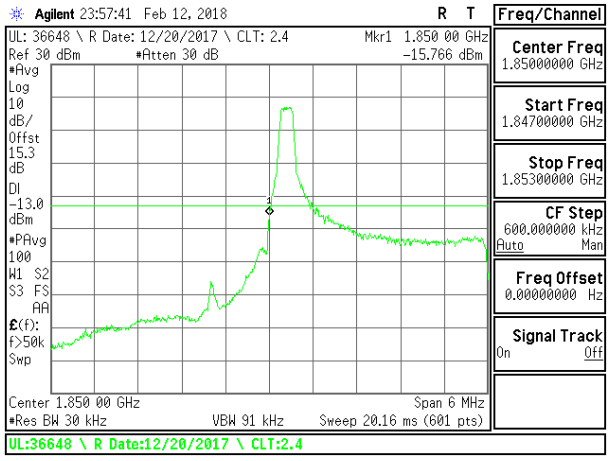


LTE B2 1.4MHz 16QAM High Channel RB6-0



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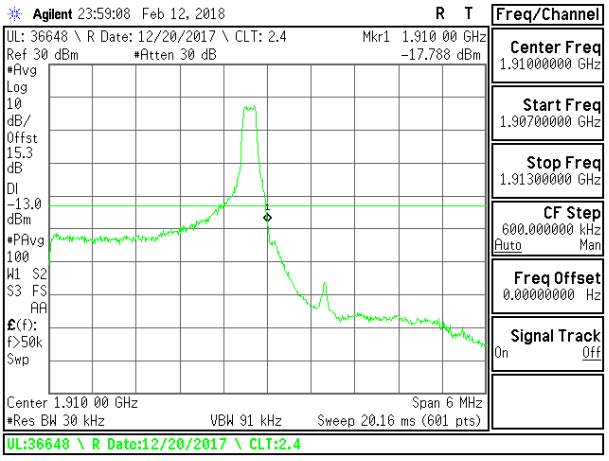

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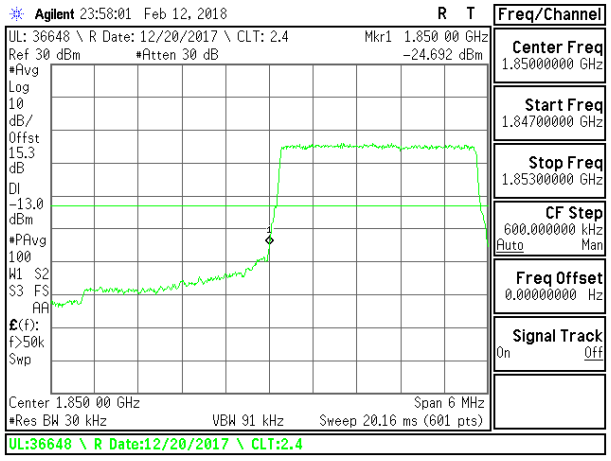

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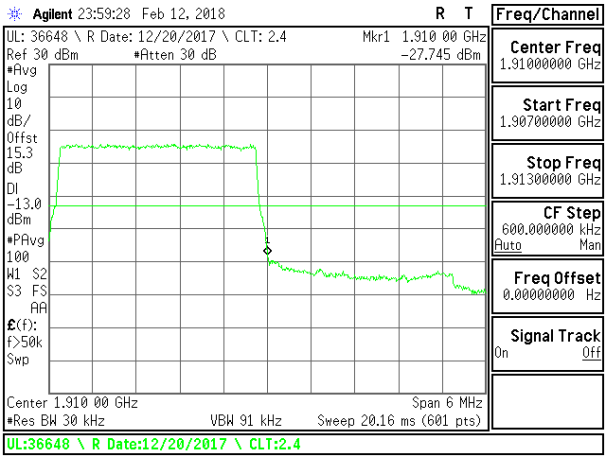

LTE B2 3MHz QPSK High Channel RB15-0

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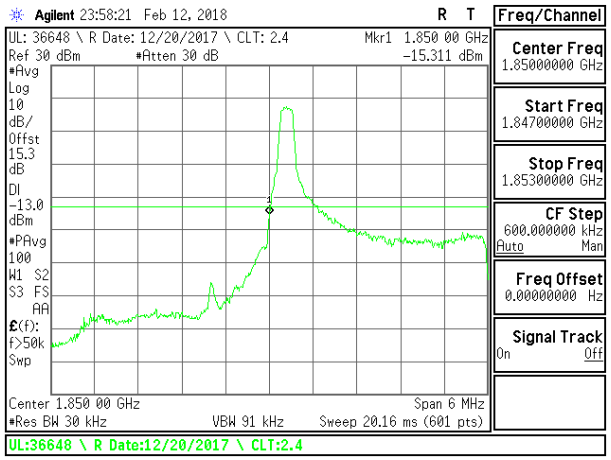

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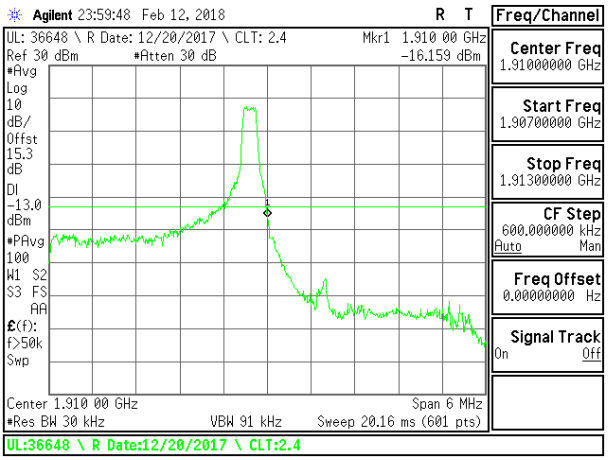
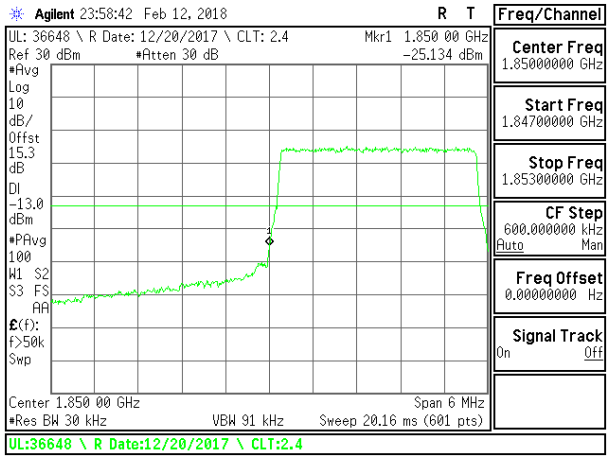


LTE B2 3MHz 16QAM High Channel RB1-14



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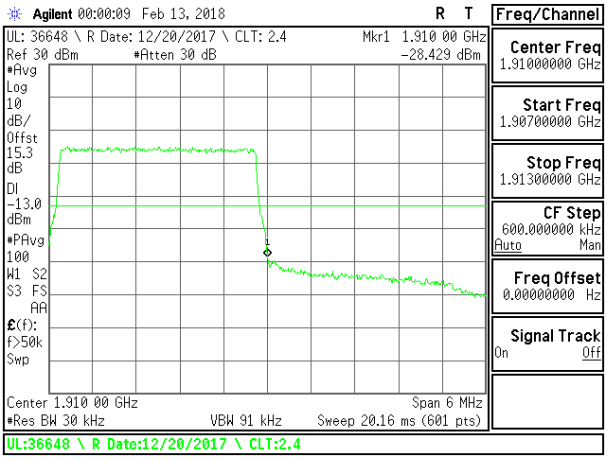
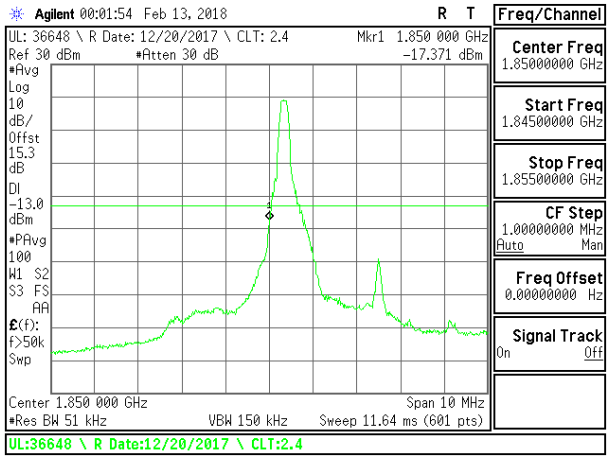
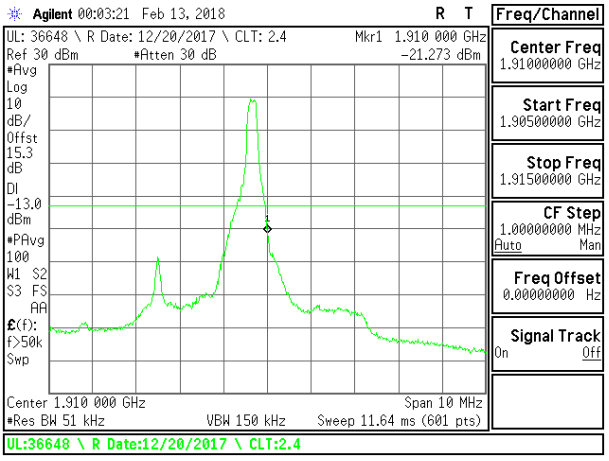


LTE B2 3MHz 16QAM High Channel RB15-0



LTE B2 5MHz QPSK Low Channel RB1-0



LTE B2 5MHz QPSK High Channel RB1-24

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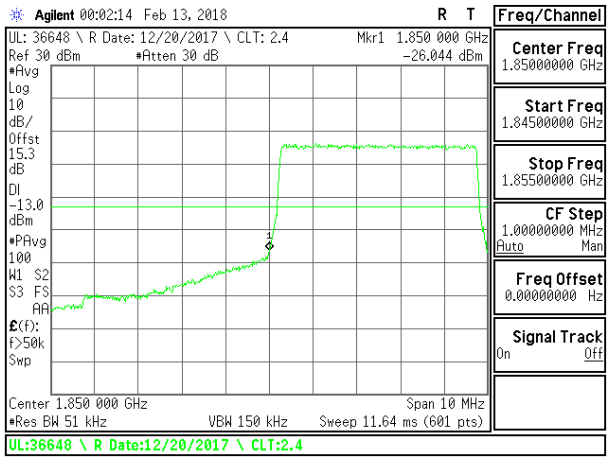
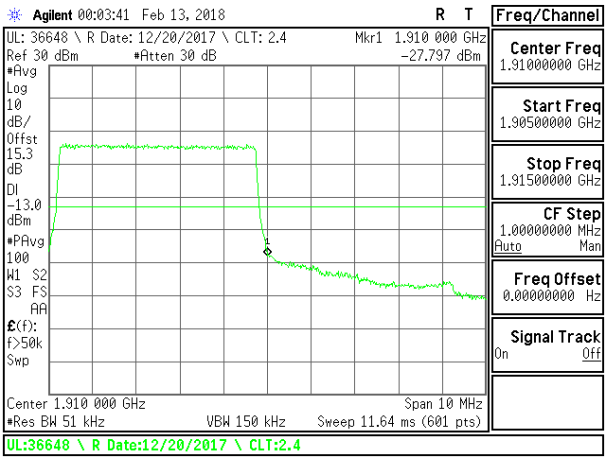


LTE B2 5MHz QPSK Low Channel RB25-0



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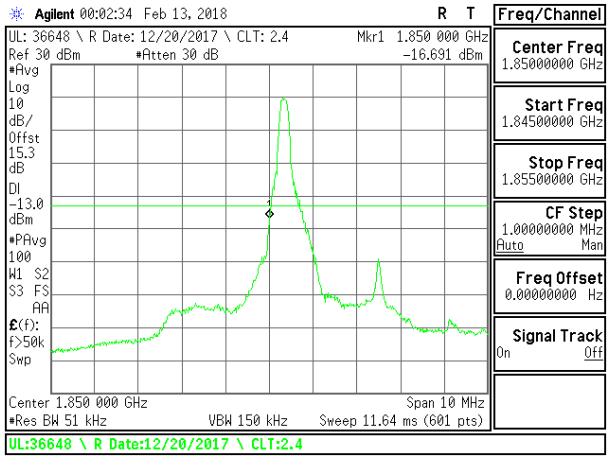
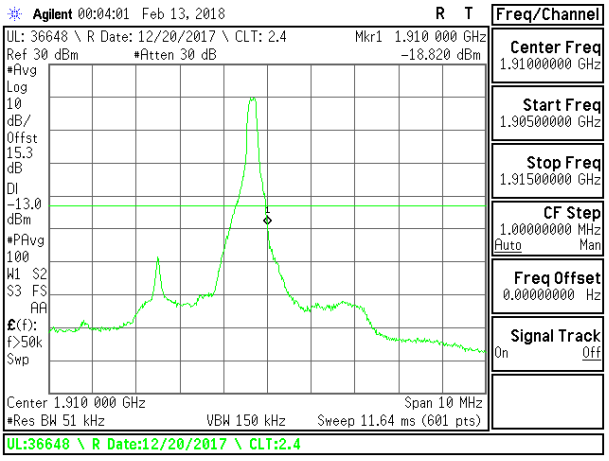
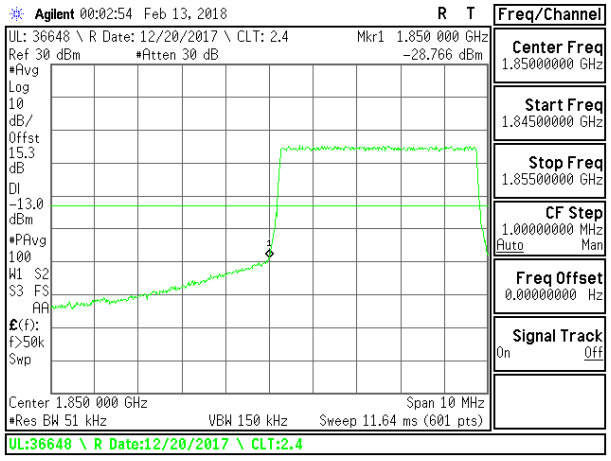


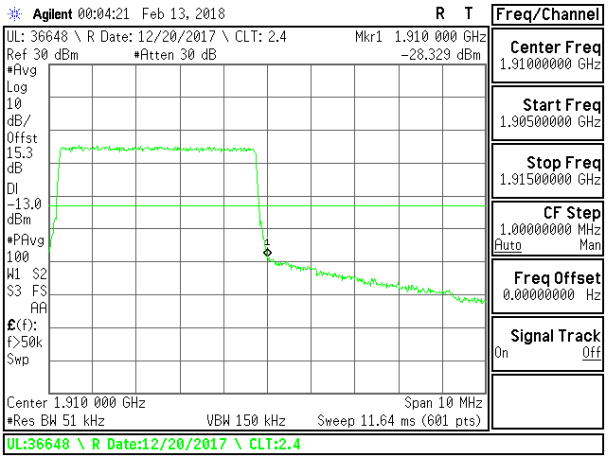
LTE B2 5MHz 16QAM Low Channel RB1-0



LTE B2 5MHz 16QAM High Channel RB1-24



LTE B2 5MHz 16QAM Low Channel RB25-0



LTE B2 5MHz 16QAM High Channel RB25-0

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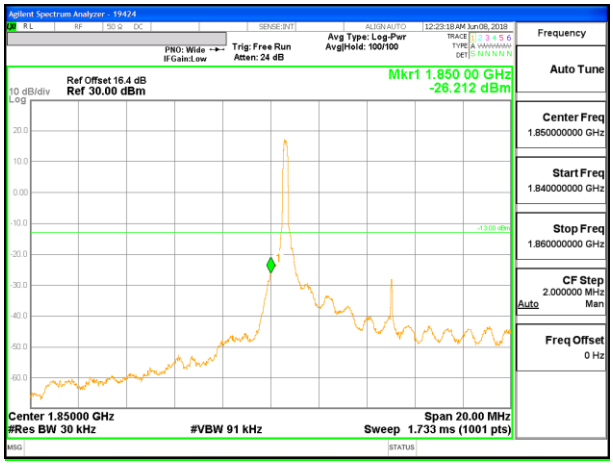
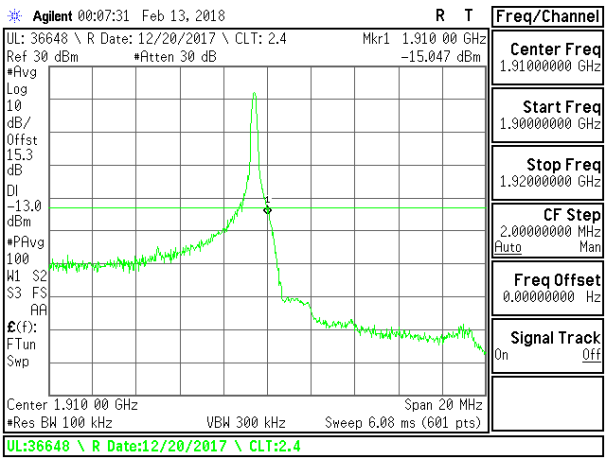
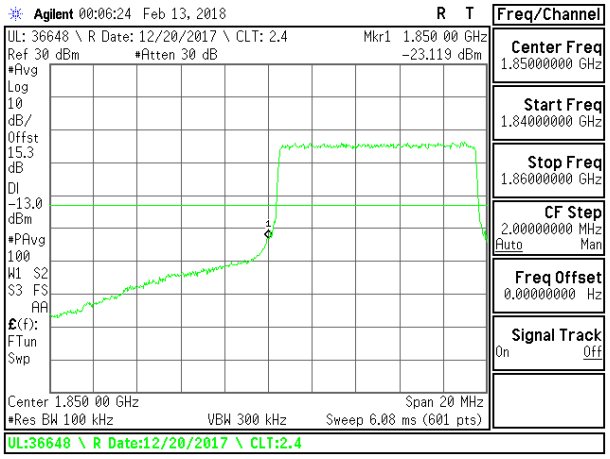


LTE B2 10MHz QPSK Low Channel RB1-0



LTE B2 10MHz QPSK High Channel RB1-49



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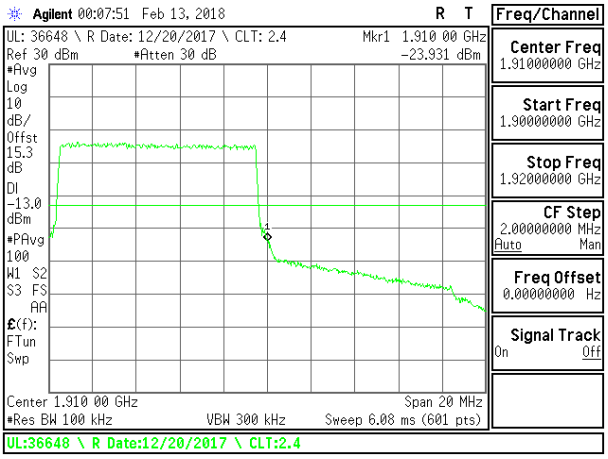
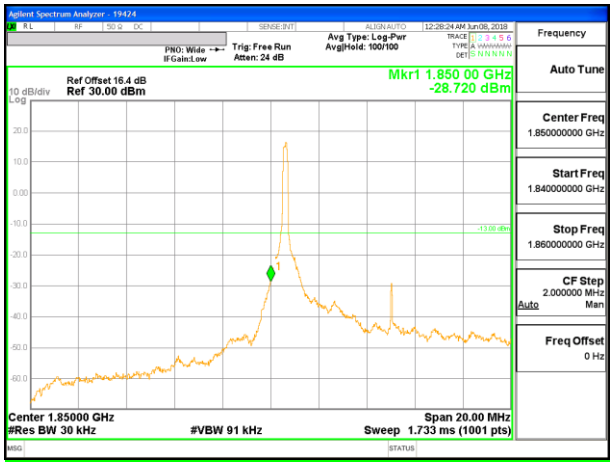
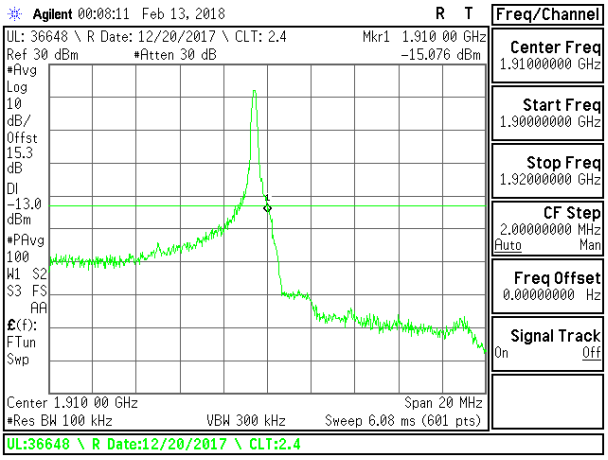


LTE B2 10MHz QPSK High Channel RB50-0



LTE B2 10MHz 16QAM Low Channel RB1-0



LTE B2 10MHz 16QAM High Channel RB1-49

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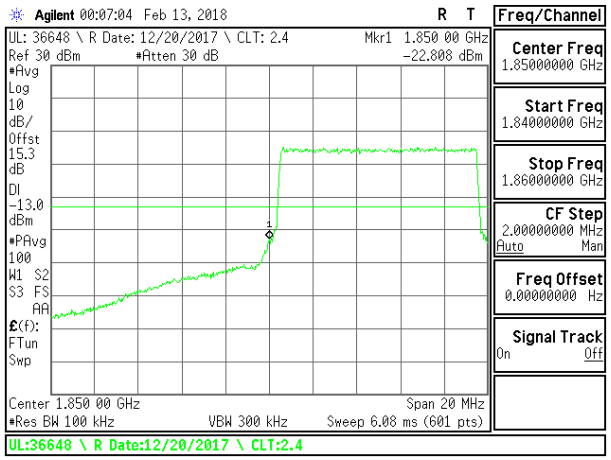
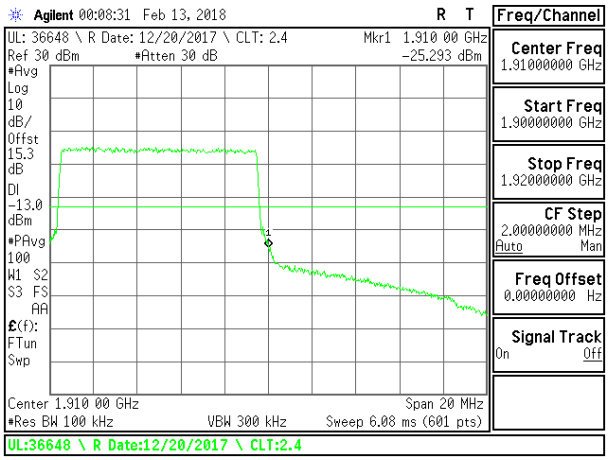
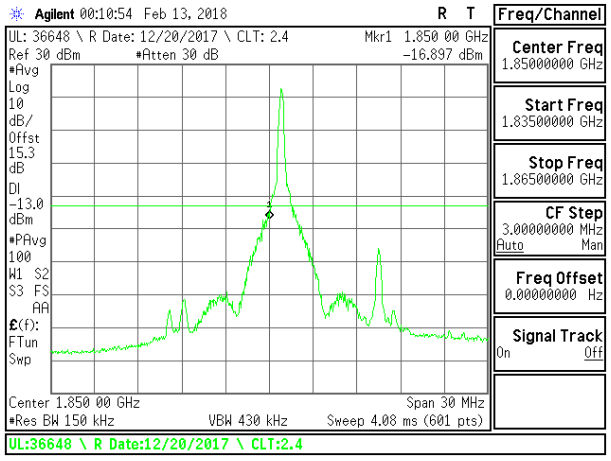


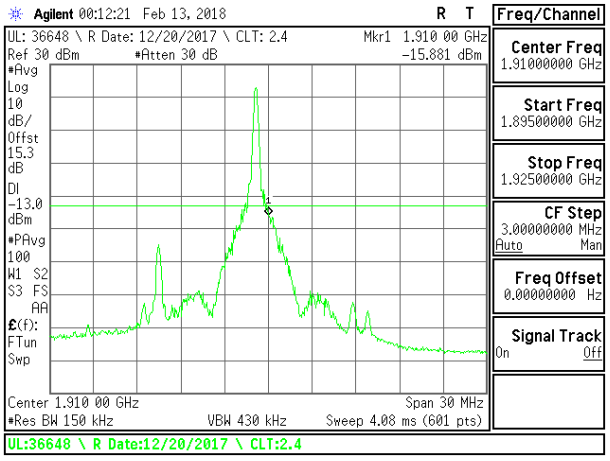
LTE B2 10MHz 16QAM Low Channel RB50-0



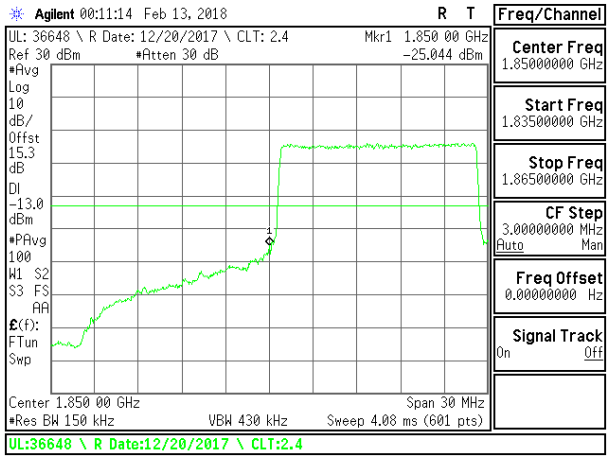
LTE B2 10MHz 16QAM High Channel RB50-0



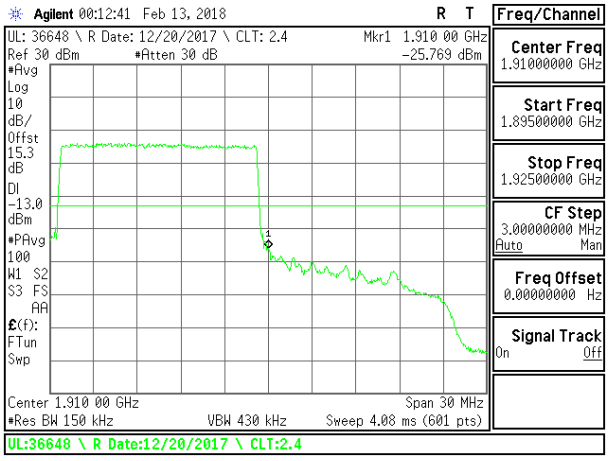
LTE B2 15MHz QPSK Low Channel RB1-0



LTE B2 15MHz QPSK High Channel RB1-74



LTE B2 15MHz QPSK Low Channel RB75-0



LTE B2 15MHz QPSK High Channel RB75-0

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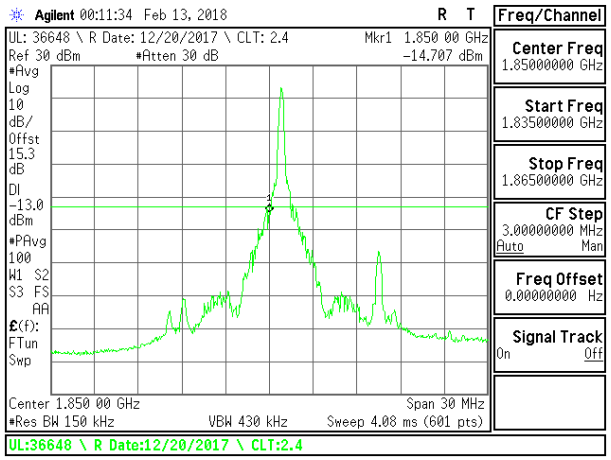
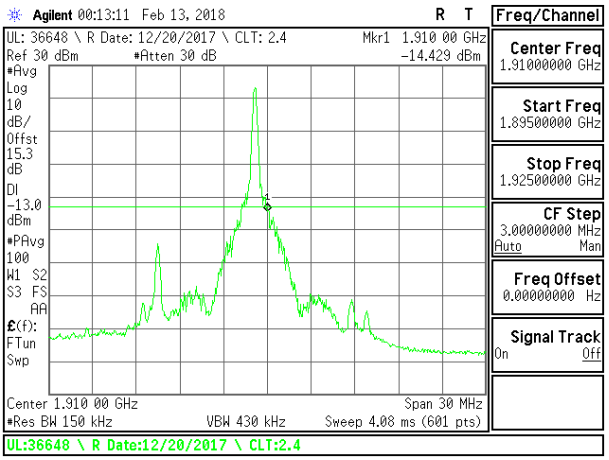
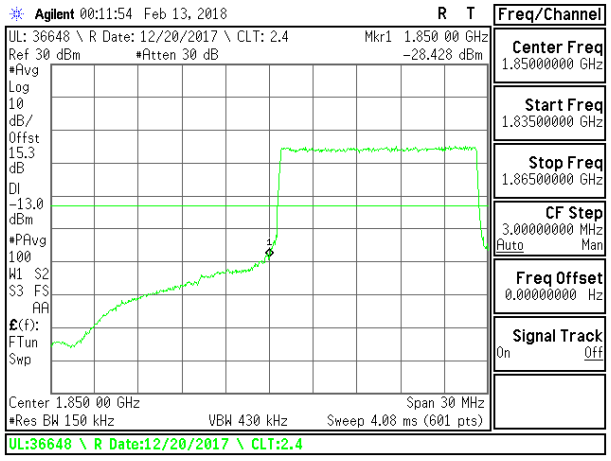


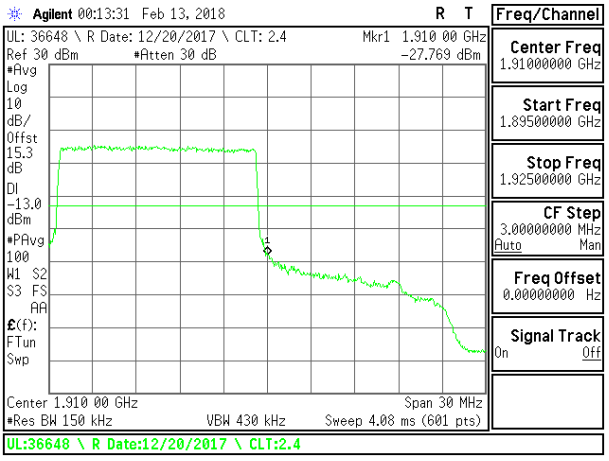
LTE B2 15MHz 16QAM Low Channel RB1-0



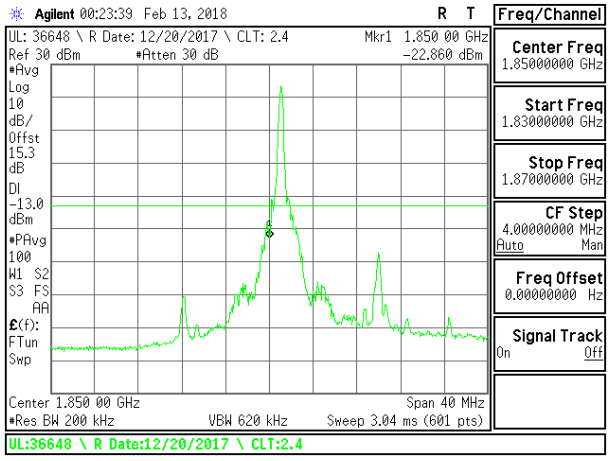
LTE B2 15MHz 16QAM High Channel RB1-74



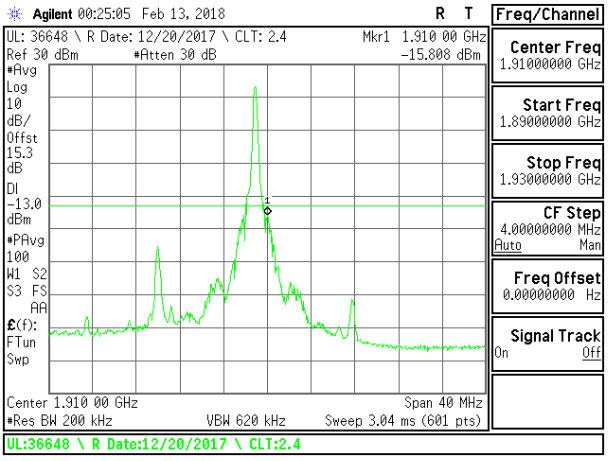
LTE B2 15MHz 16QAM Low Channel RB75-0



LTE B2 15MHz 16QAM High Channel RB75-0



LTE B2 20MHz QPSK Low Channel RB1-0



LTE B2 20MHz QPSK High Channel RB1-99

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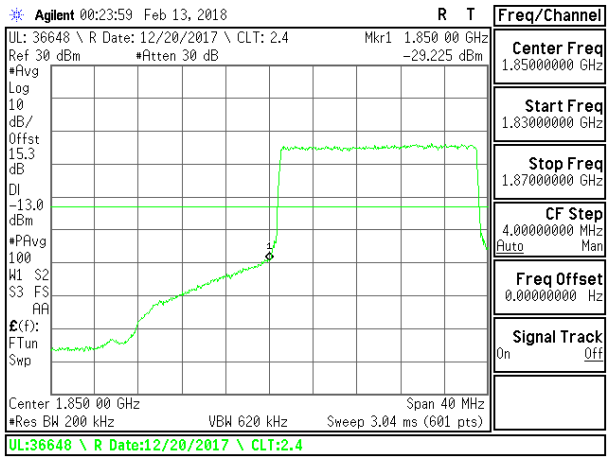
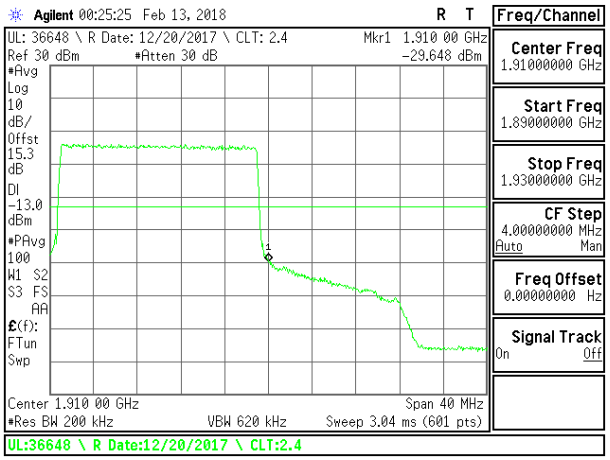
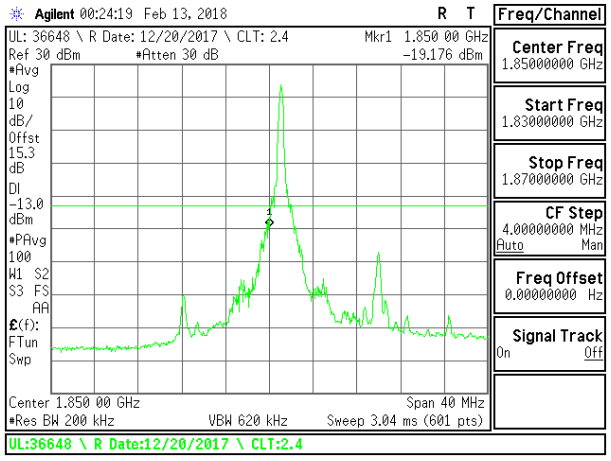


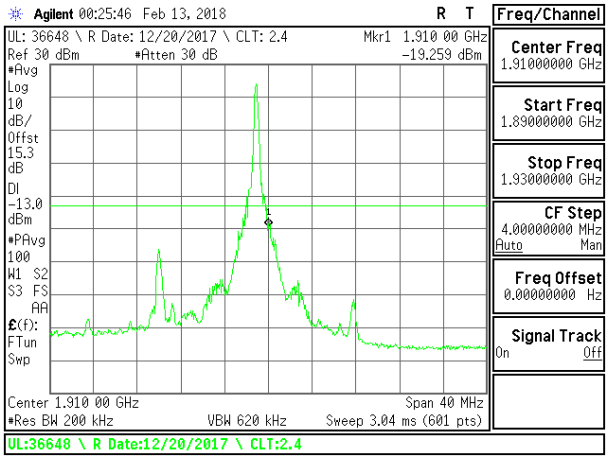
LTE B2 20MHz QPSK Low Channel RB100-0



LTE B2 20MHz QPSK High Channel RB100-0



LTE B2 20MHz 16QAM Low Channel RB1-0



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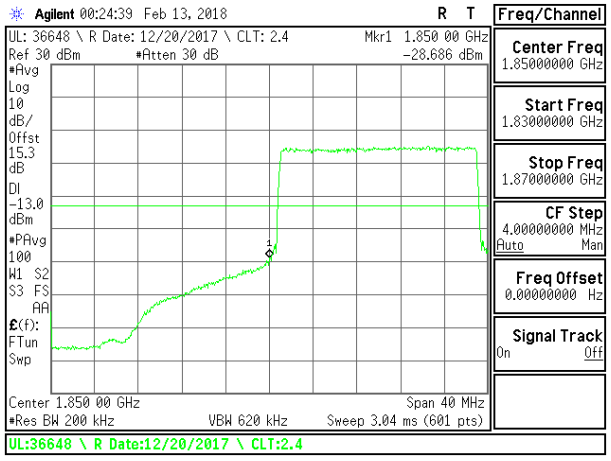
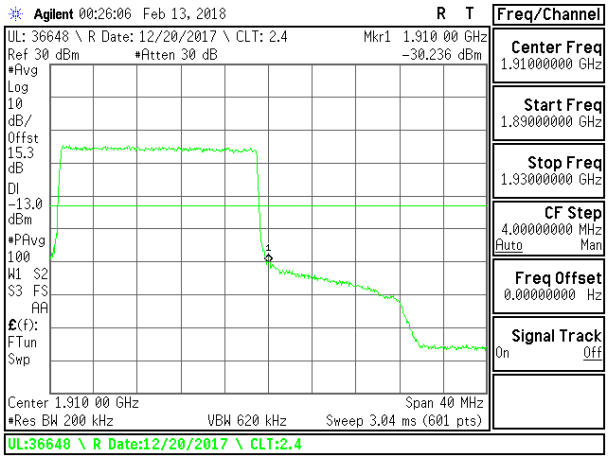


LTE B2 20MHz 16QAM Low Channel RB100-0



LTE B2 20MHz 16QAM High Channel RB100-0

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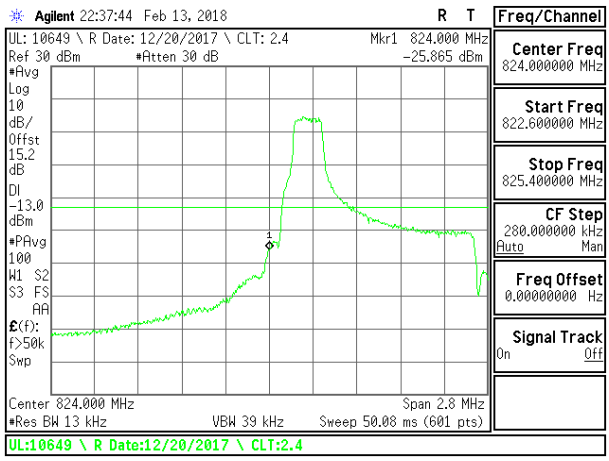
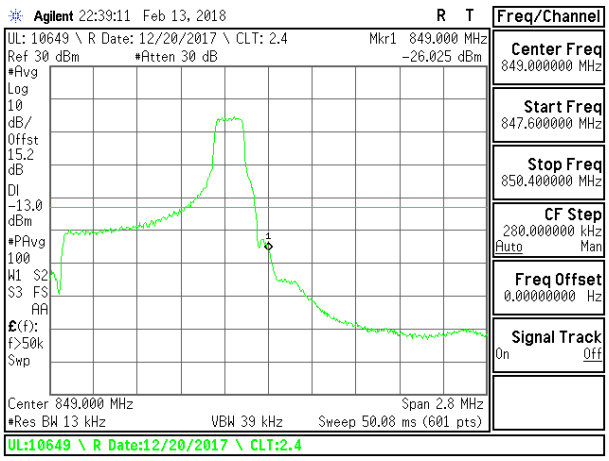
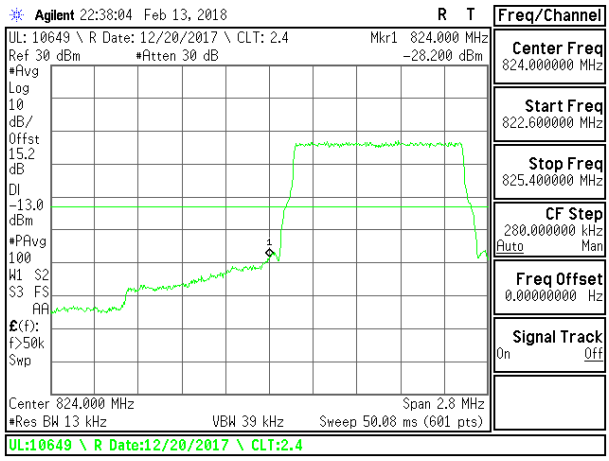
8.2.2. LTE BAND 5 BANDEDGE



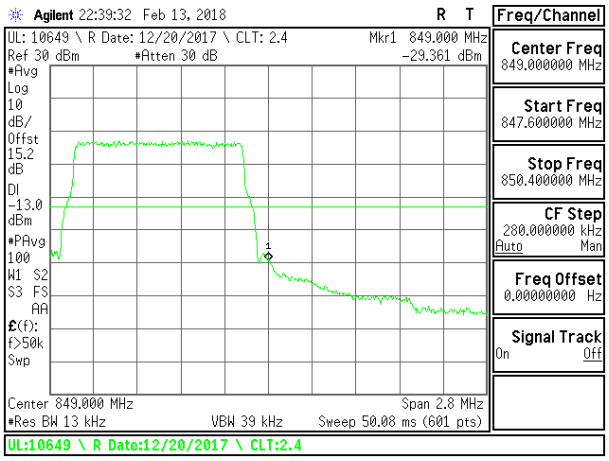
LTE B5 1.4MHz QPSK Low Channel RB1-0



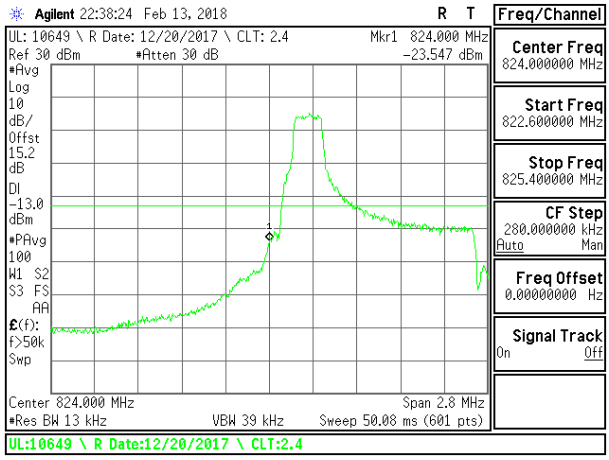
LTE B5 1.4MHz QPSK High Channel RB1-5



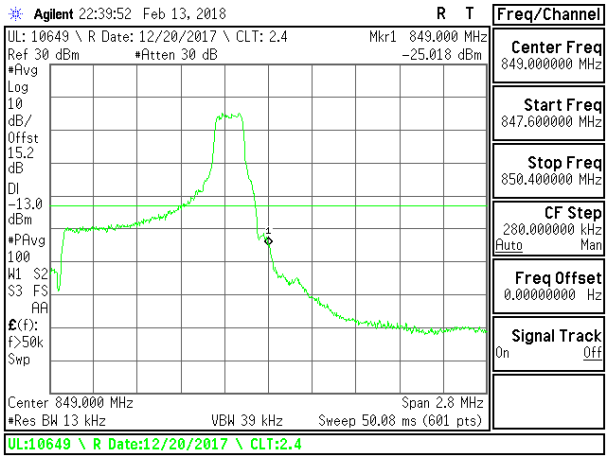
LTE B5 1.4MHz QPSK Low Channel RB6-0



LTE B5 1.4MHz QPSK High Channel RB6-0



LTE B5 1.4MHz 16QAM Low Channel RB1-0



LTE B5 1.4MHz 16QAM High Channel RB1-5

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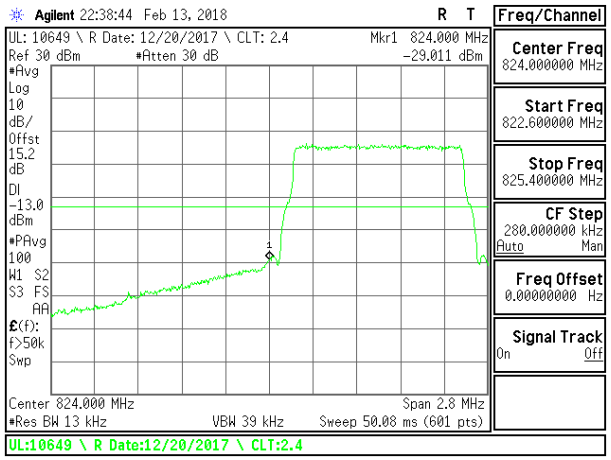
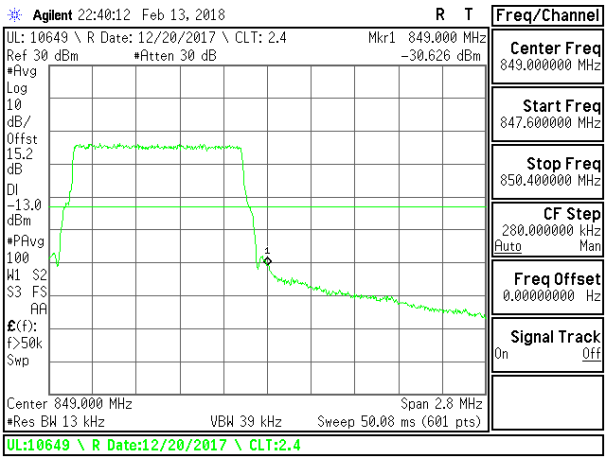
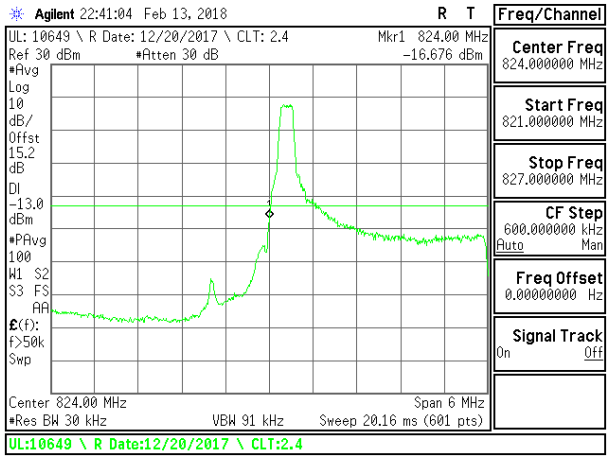


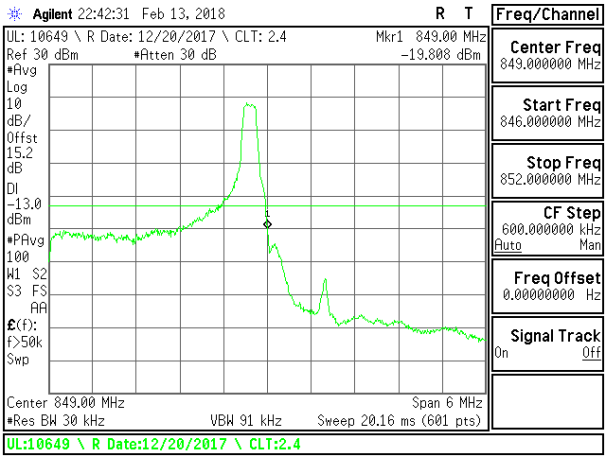
LTE B5 1.4MHz 16QAM Low Channel RB6-0



LTE B5 1.4MHz 16QAM High Channel RB6-0



LTE B5 3MHz QPSK Low Channel RB1-0



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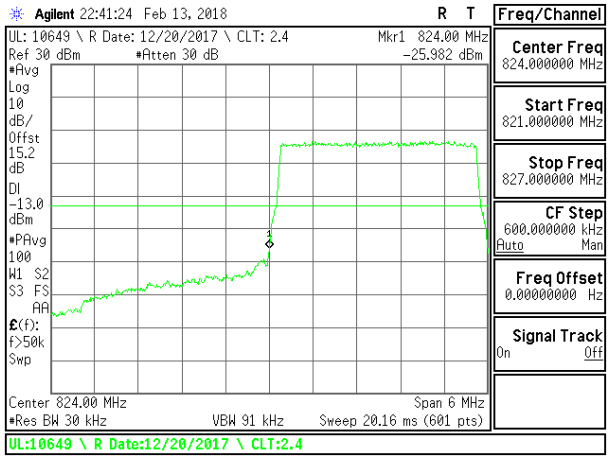
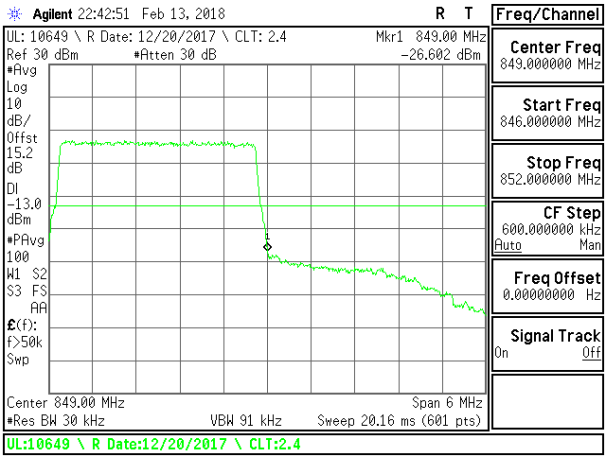


LTE B5 3MHz QPSK Low Channel RB15-0



LTE B5 3MHz QPSK High Channel RB15-0

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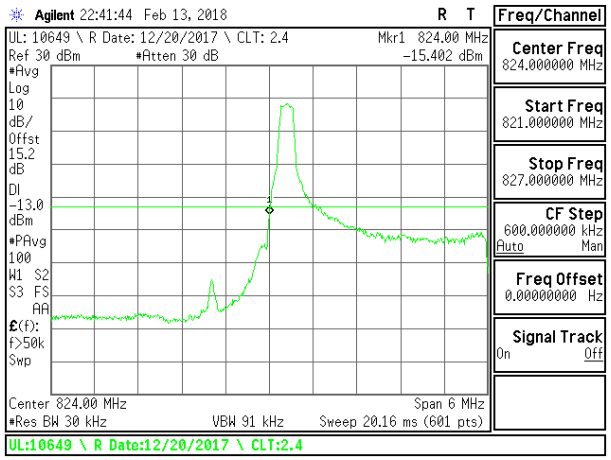
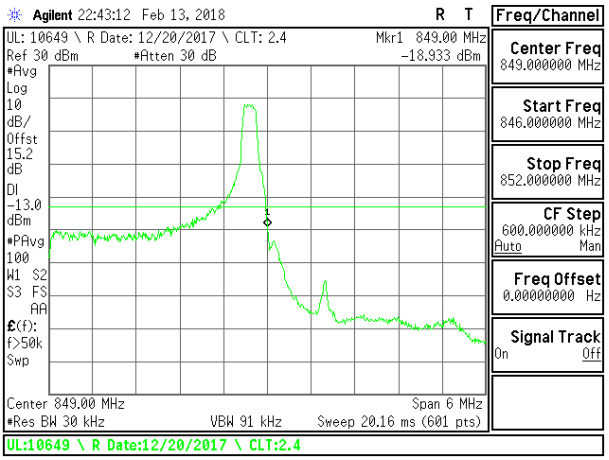


LTE B5 3MHz 16QAM Low Channel RB1-0



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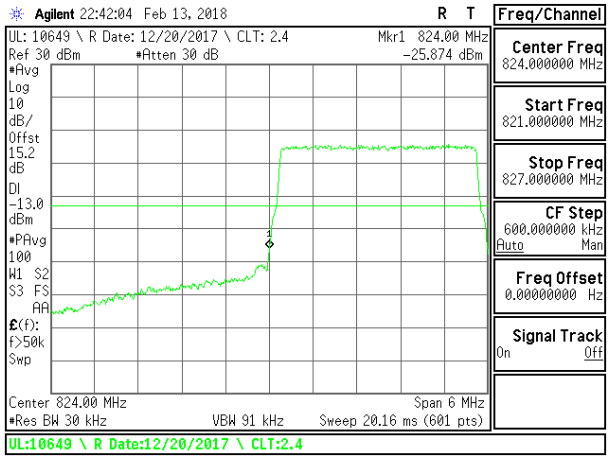

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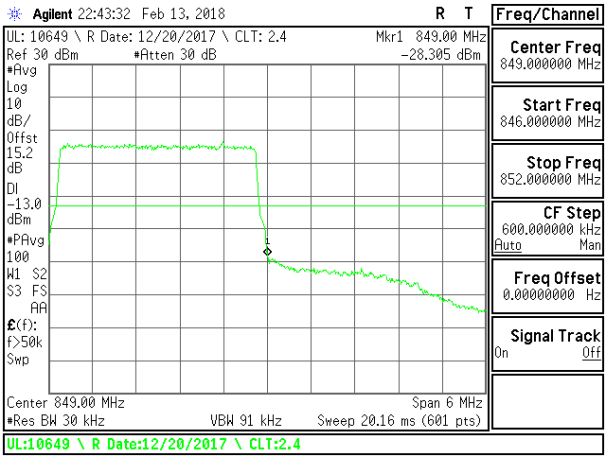
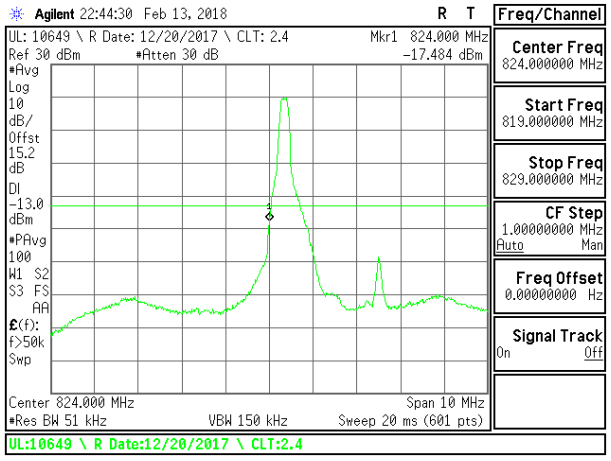
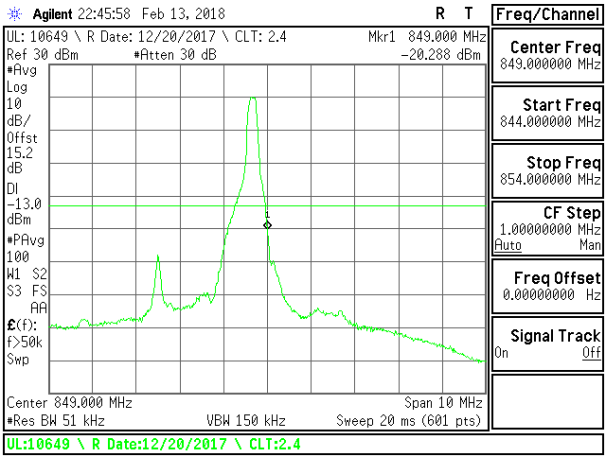


LTE B5 3MHz 16QAM High Channel RB15-0



LTE B5 5MHz QPSK Low Channel RB1-0



LTE B5 5MHz QPSK High Channel RB1-24

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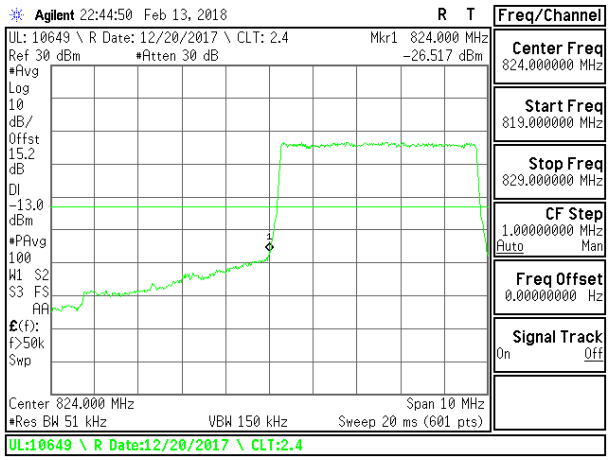
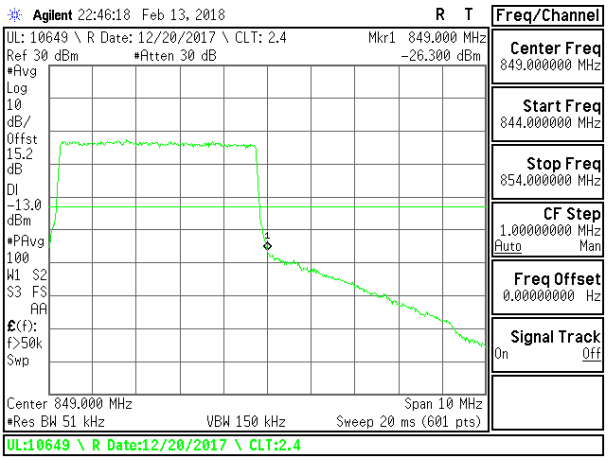
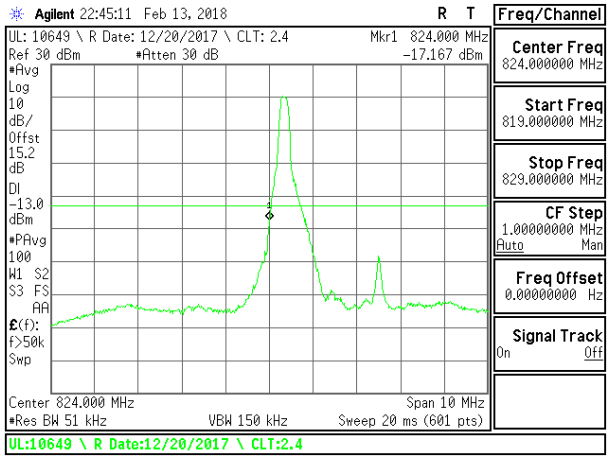


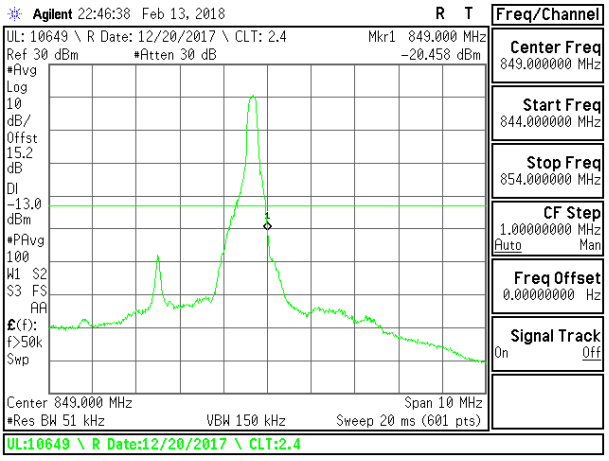
LTE B5 5MHz QPSK Low Channel RB25-0



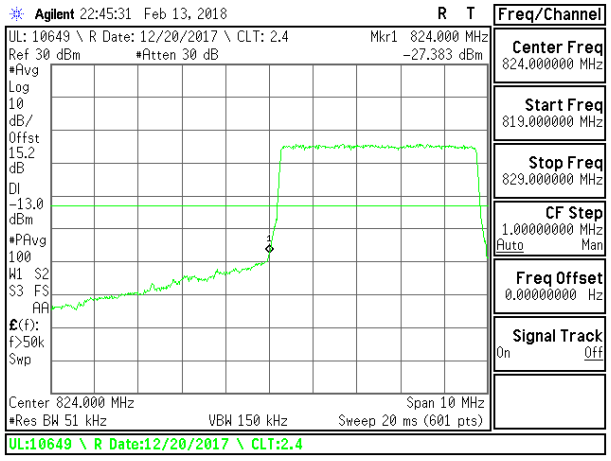
LTE B5 5MHz QPSK High Channel RB25-0



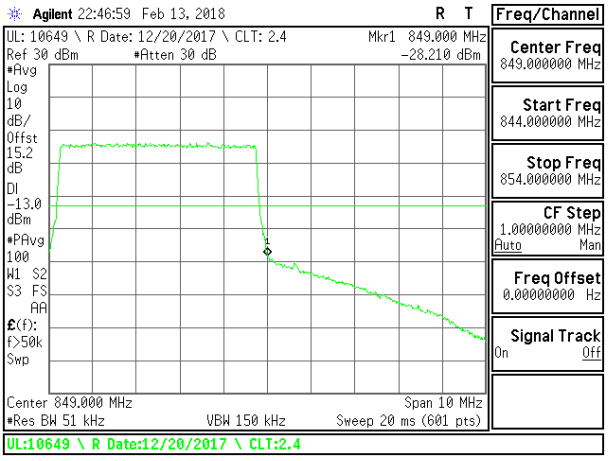
LTE B5 5MHz 16QAM Low Channel RB1-0



LTE B5 5MHz 16QAM High Channel RB1-24



LTE B5 5MHz 16QAM Low Channel RB25-0



LTE B5 5MHz 16QAM High Channel RB25-0

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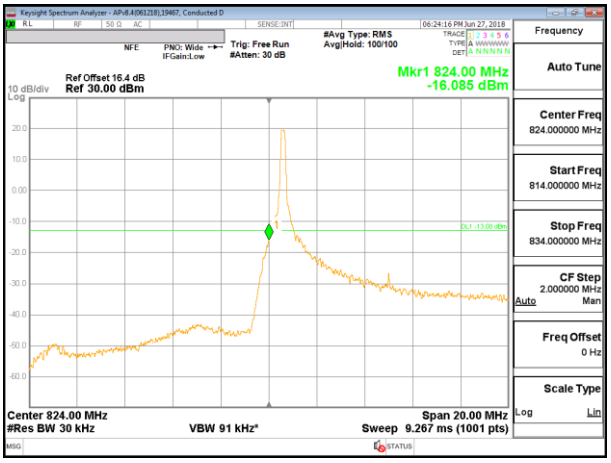
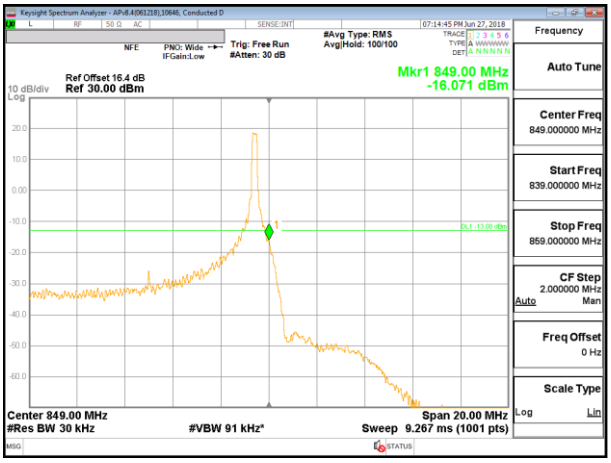
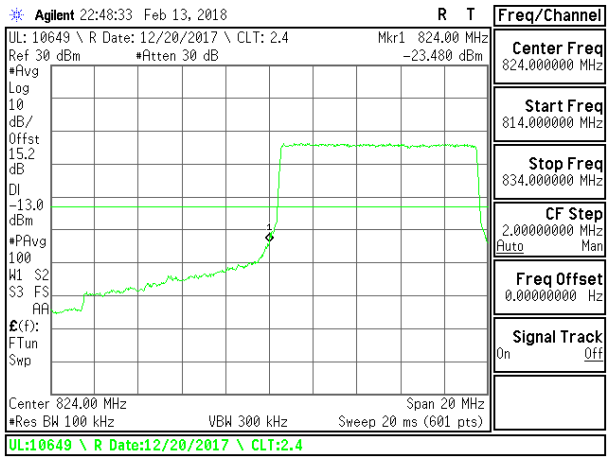


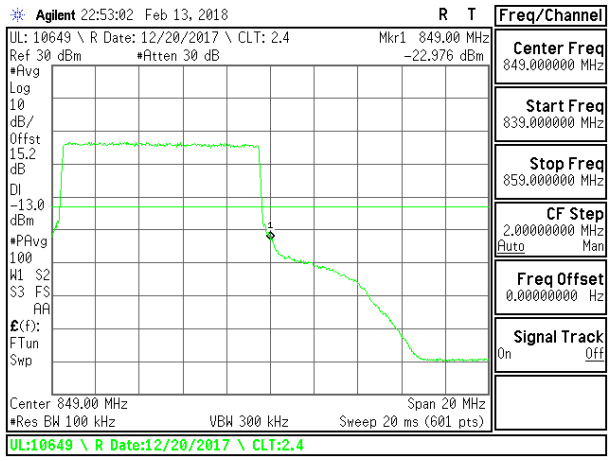
LTE B5 10MHz QPSK Low Channel RB1-0



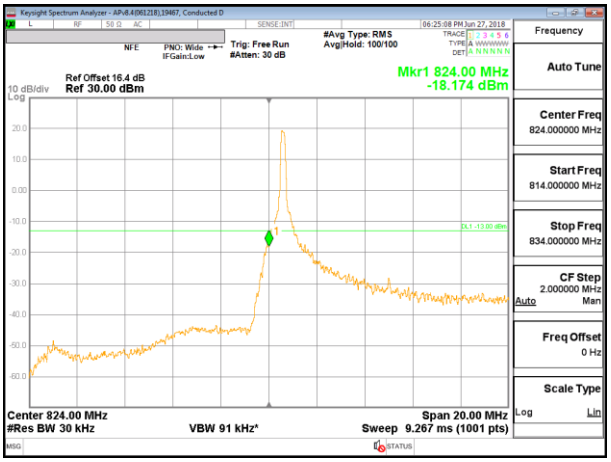
LTE B5 10MHz QPSK High Channel RB1-49



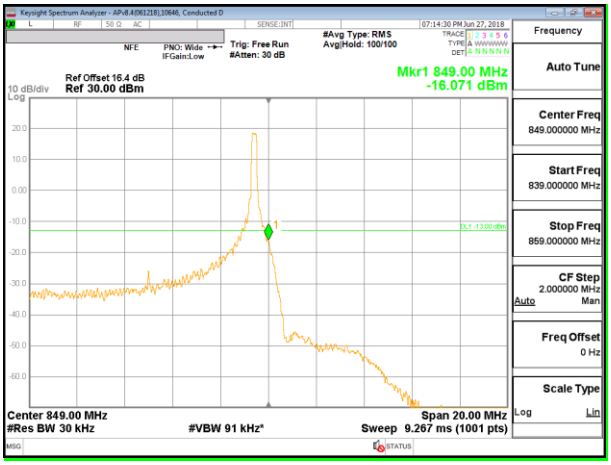
LTE B5 10MHz QPSK Low Channel RB50-0



LTE B5 10MHz QPSK High Channel RB50-0



LTE B5 10MHz 16QAM Low Channel RB1-0



LTE B5 10MHz 16QAM High Channel RB1-49

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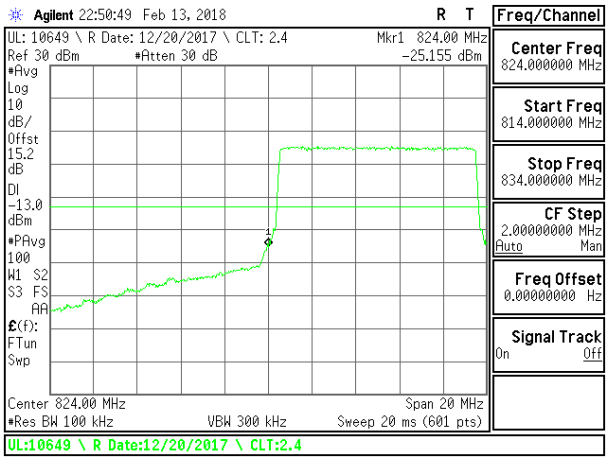
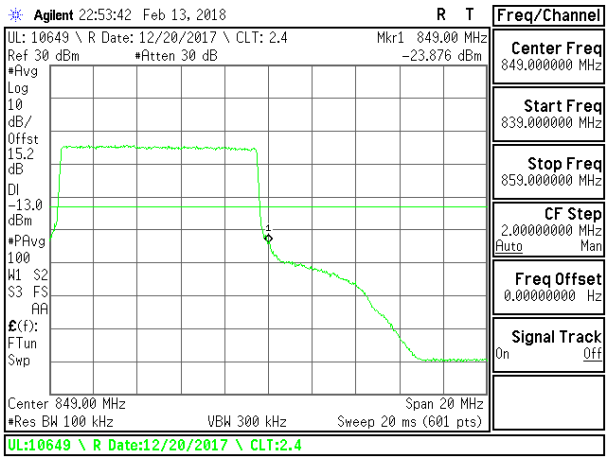


LTE B5 10MHz 16QAM Low Channel RB50-0



LTE B5 10MHz 16QAM High Channel RB50-0

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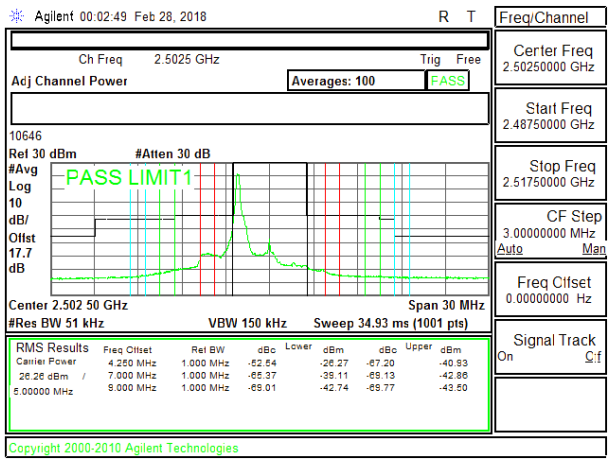
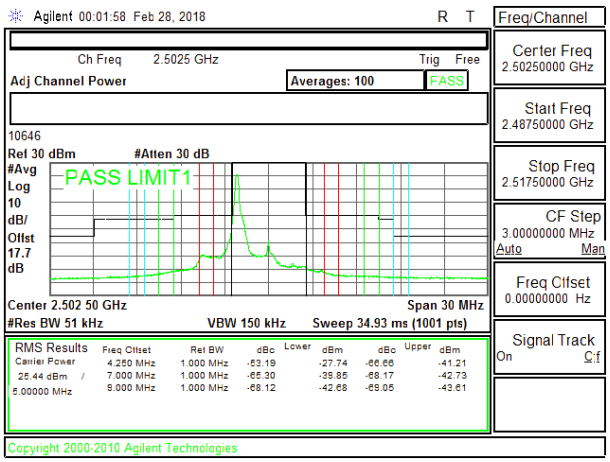
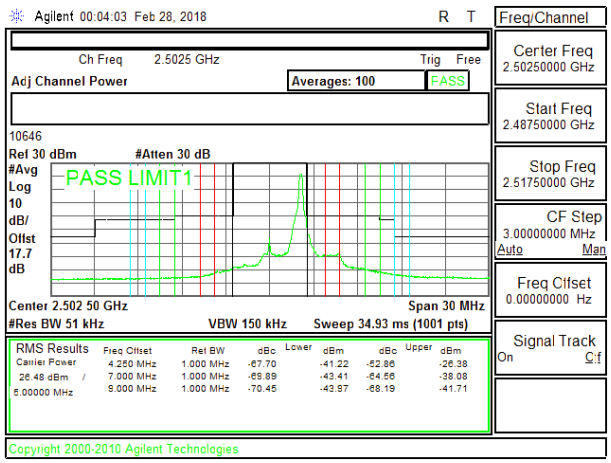
8.2.3. LTE BAND 7 ADJACENT CHANNEL POWER



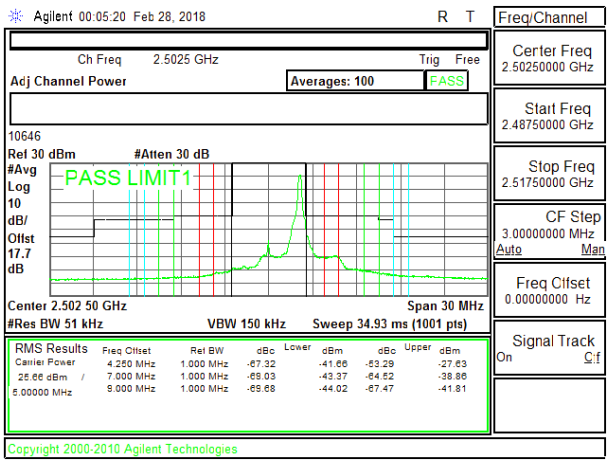
LTE B7 5MHz QPSK Low Channel RB1-0



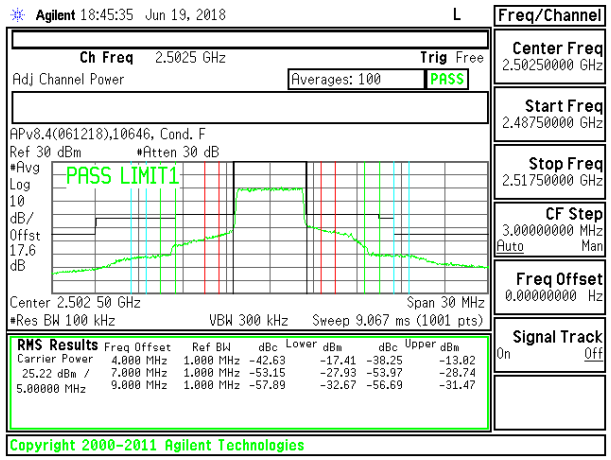
LTE B7 5MHz 16QAM Low Channel RB1-0



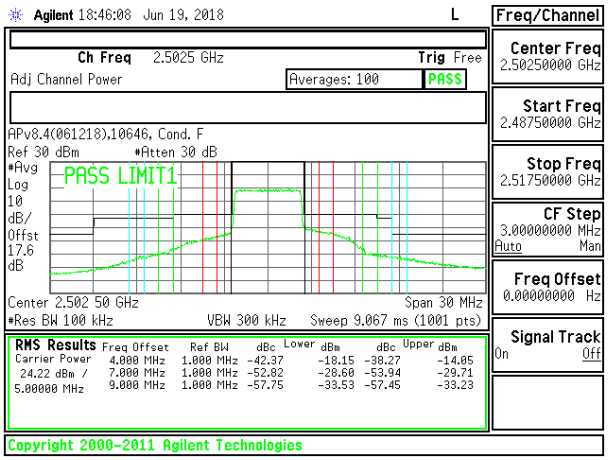
LTE B7 5MHz QPSK Low Channel RB1-24



LTE B7 5MHz 16QAM Low Channel RB1-24



LTE B7 5MHz QPSK Low Channel RB25-0



LTE B7 5MHz 16QAM Low Channel RB25-0

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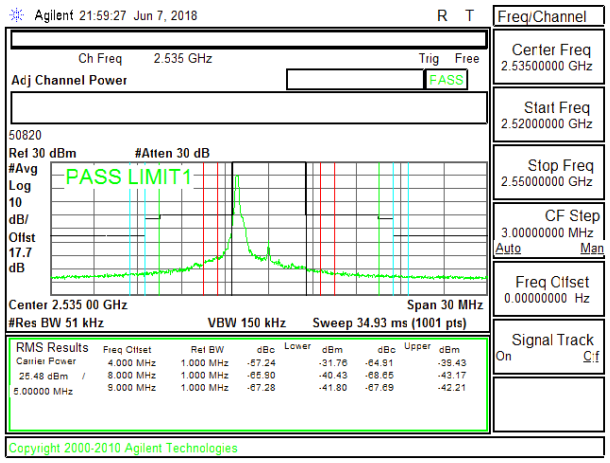
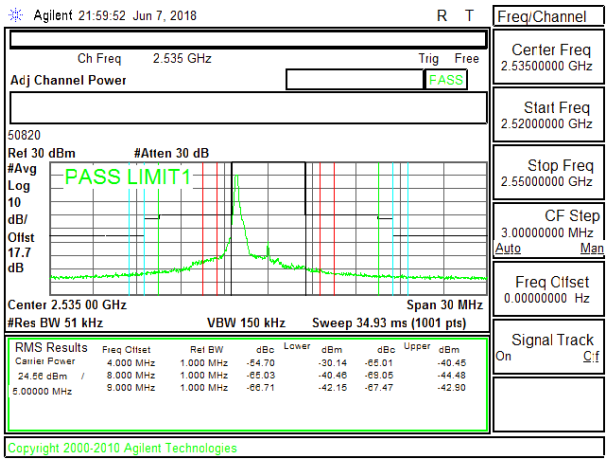
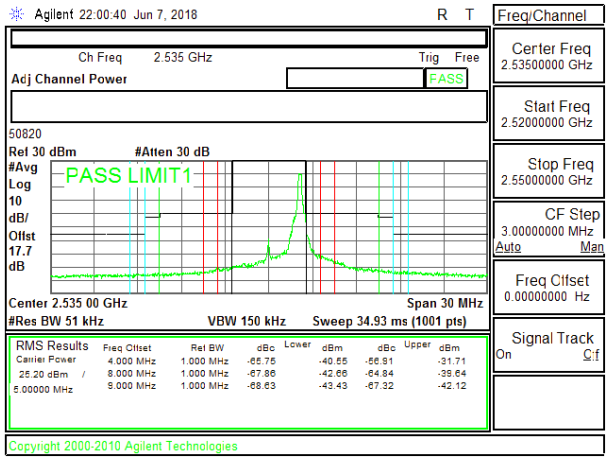


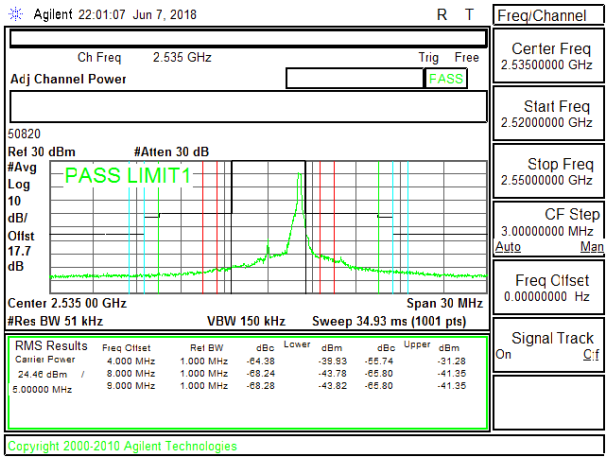
LTE B7 5MHz QPSK Middle Channel RB1-0



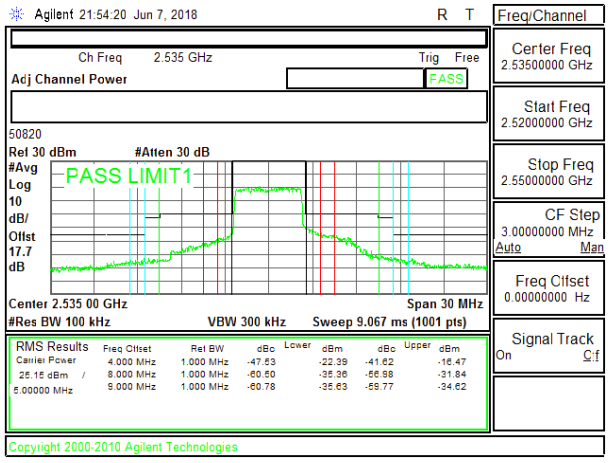
LTE B7 5MHz 16QAM Middle Channel RB1-0



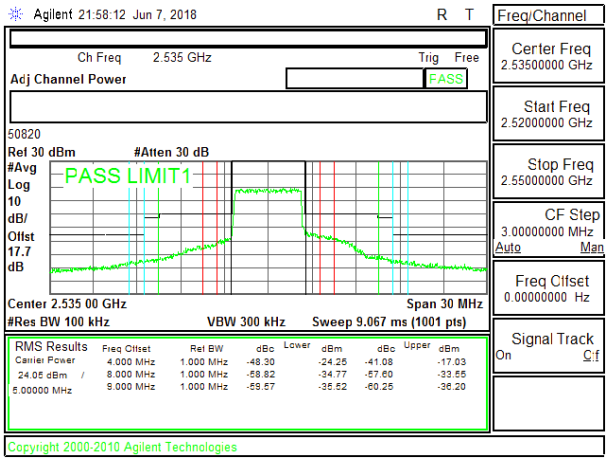
LTE B7 5MHz QPSK Middle Channel RB1-24



LTE B7 5MHz 16QAM Middle Channel RB1-24



LTE B7 5MHz QPSK Middle Channel RB25-0



LTE B7 5MHz 16QAM Middle Channel RB25-0

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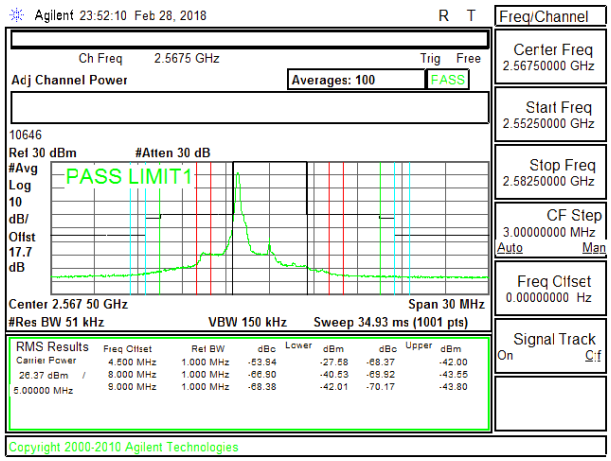
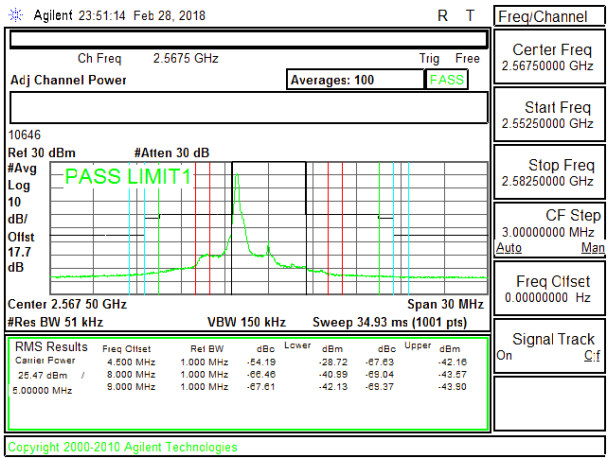
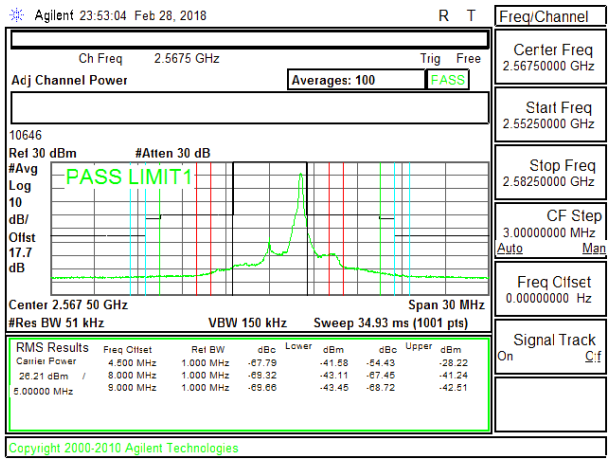


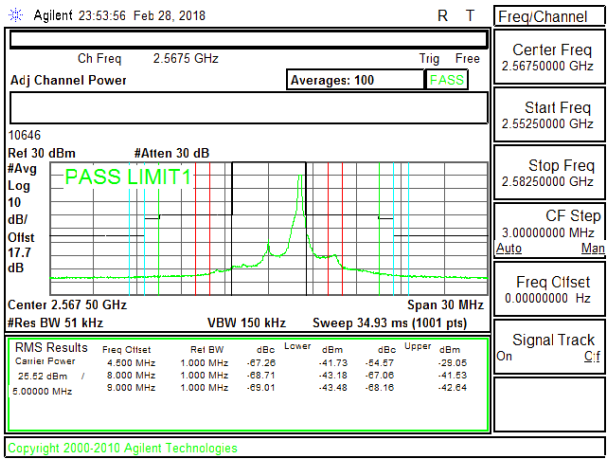
LTE B7 5MHz QPSK High Channel RB1-0



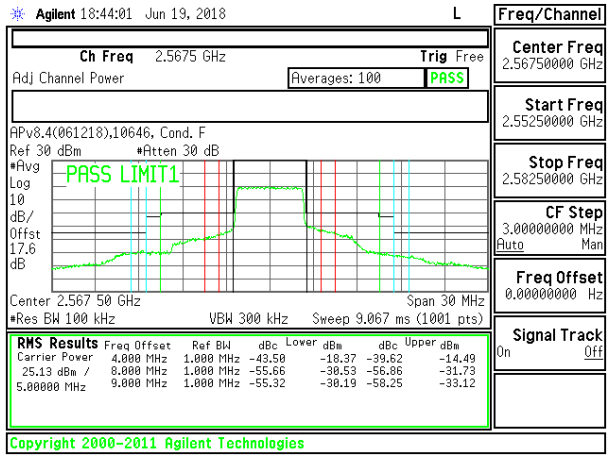
LTE B7 5MHz 16QAM High Channel RB1-0



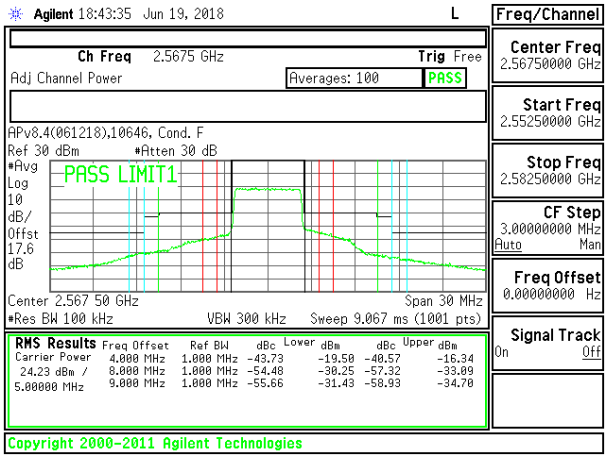
LTE B7 5MHz QPSK High Channel RB1-24



LTE B7 5MHz 16QAM High Channel RB1-24



LTE B7 5MHz QPSK High Channel RB25-0



LTE B7 5MHz 16QAM High Channel RB25-0

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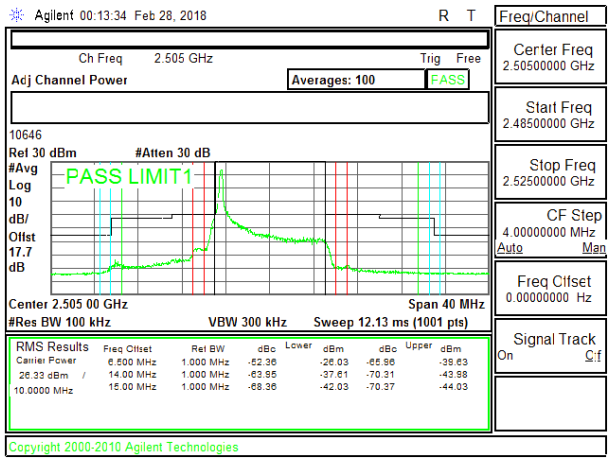
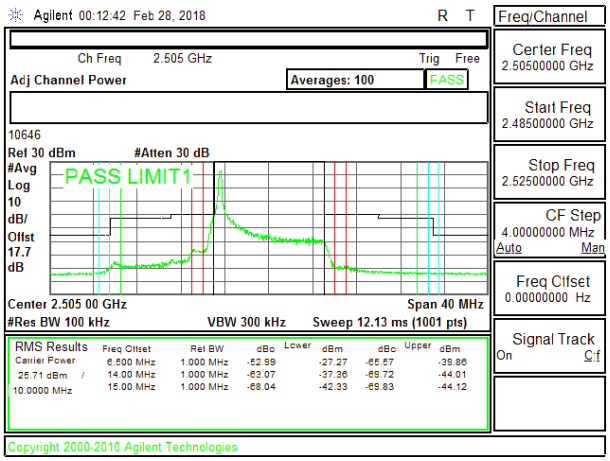
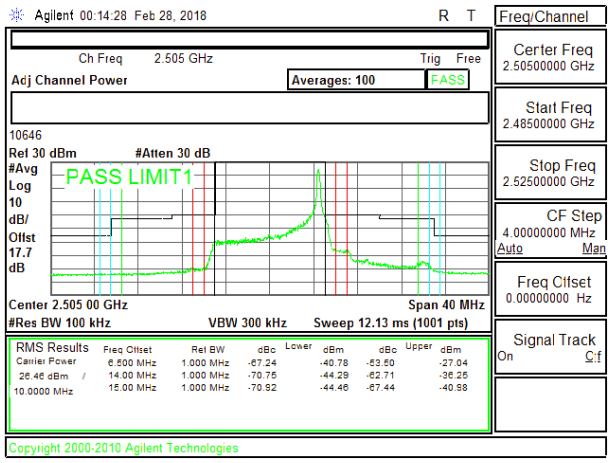


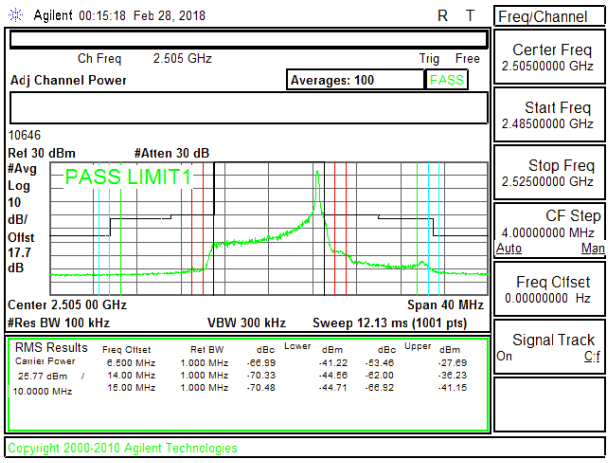
LTE B7 10MHz QPSK Low Channel RB1-0



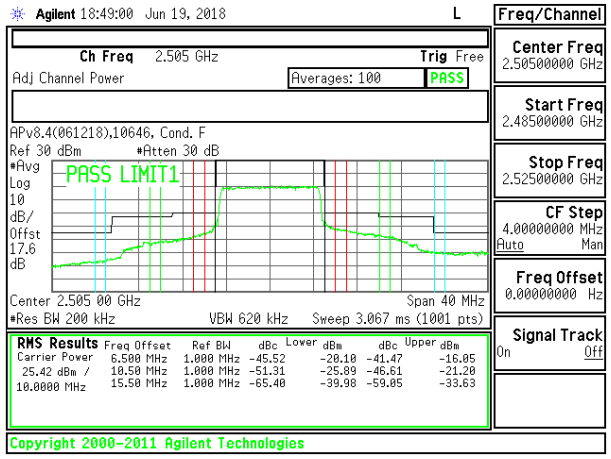
LTE B7 10MHz 16QAM Low Channel RB1-0



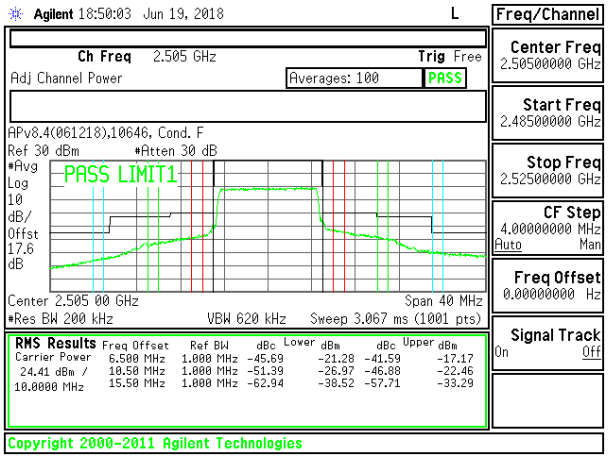
LTE B7 10MHz QPSK Low Channel RB1-49



LTE B7 10MHz 16QAM Low Channel RB1-49



LTE B7 10MHz QPSK Low Channel RB50-0



LTE B7 10MHz 16QAM Low Channel RB50-0

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