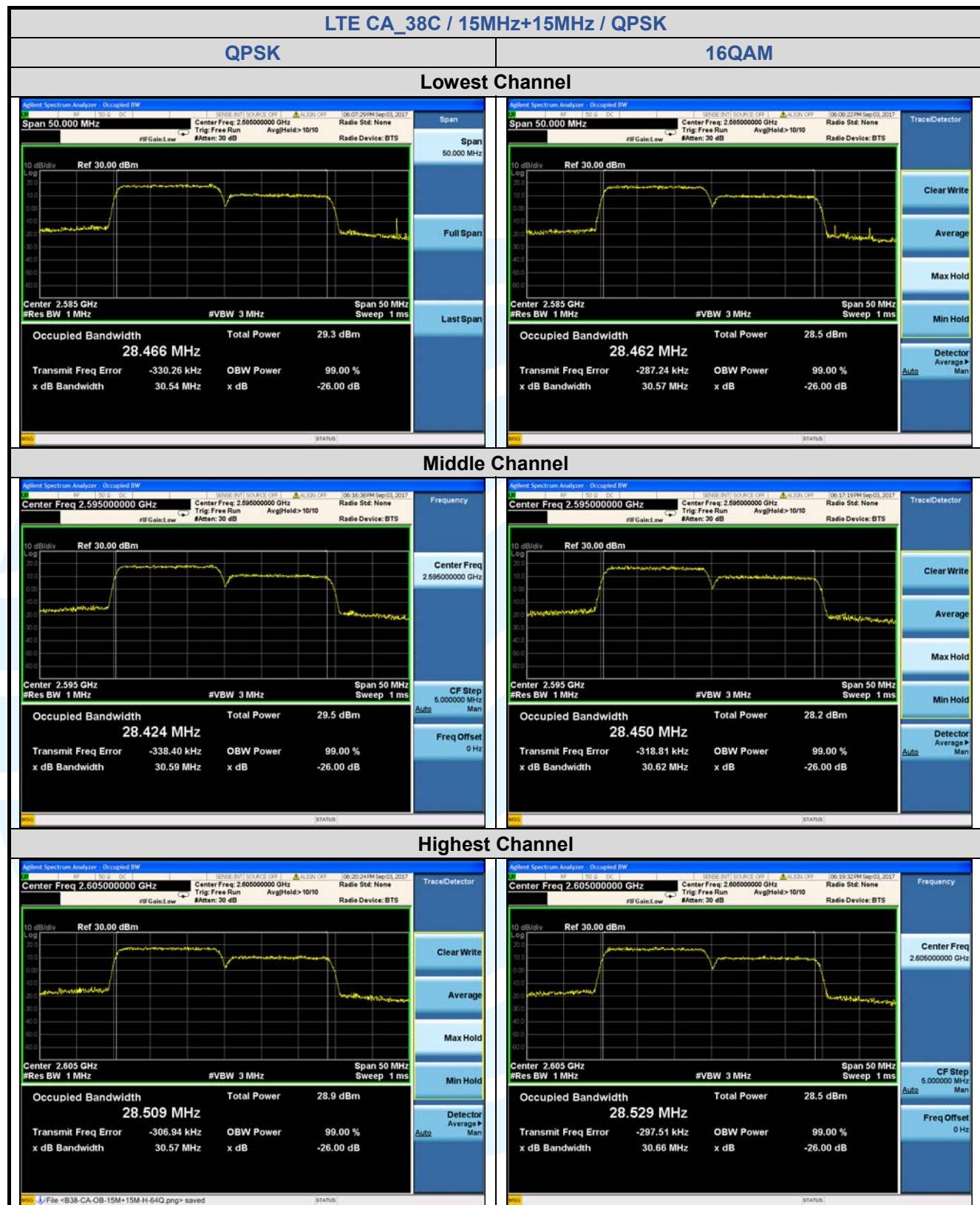
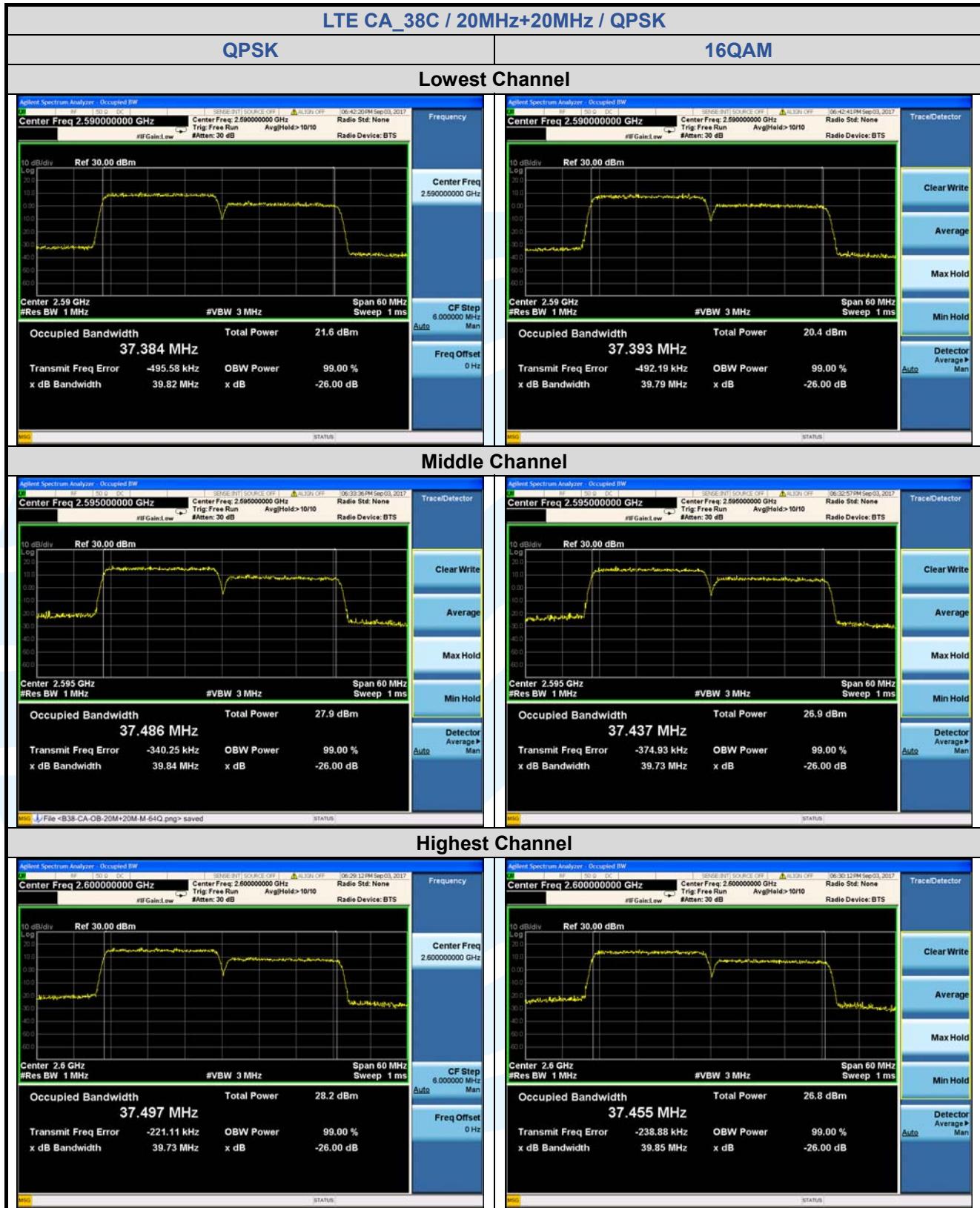
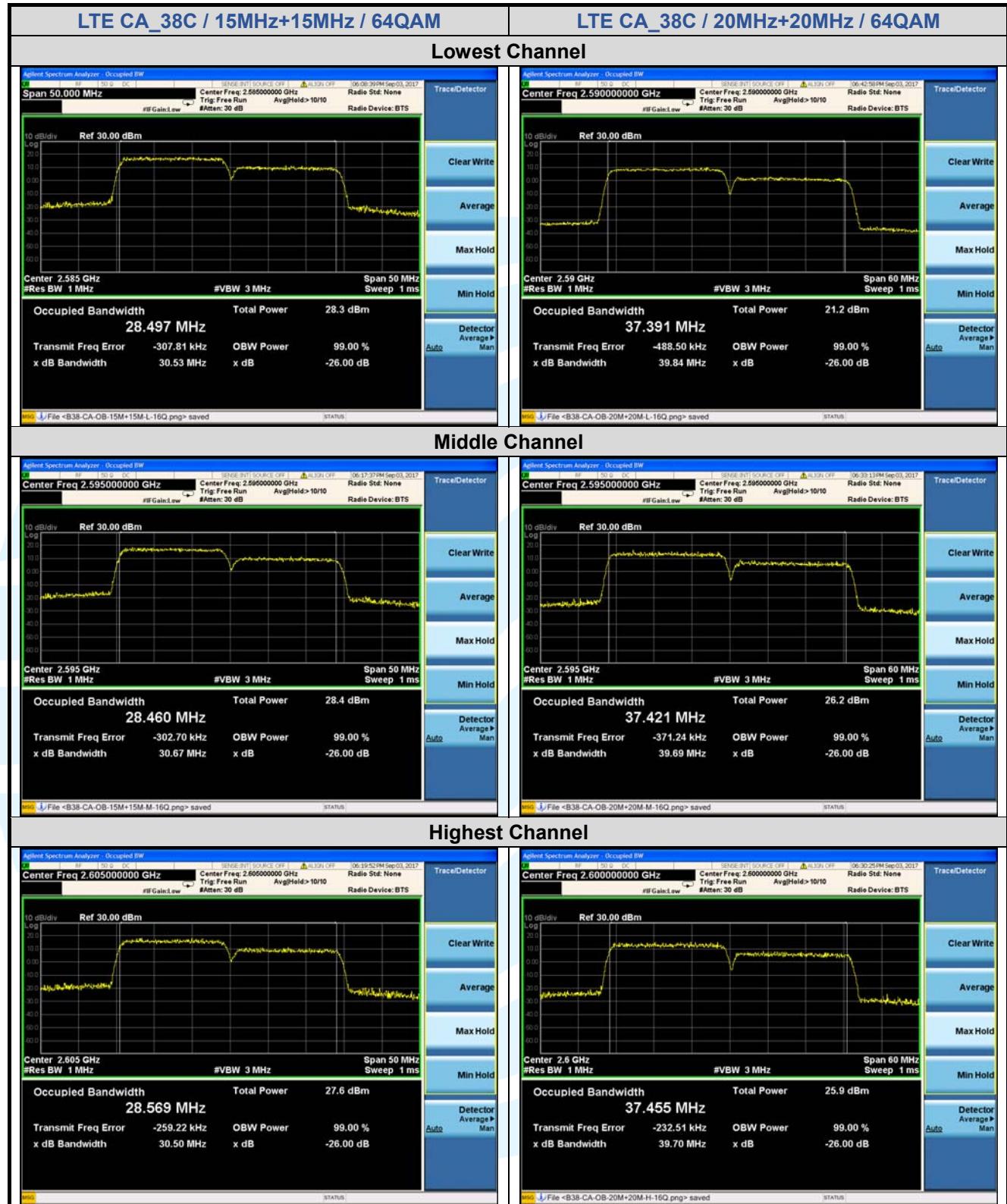


5.5.11 LTE CA_38C

LTE CA_38C							
Channel	RB Configuration	26 dB BW (MHz)			99% BW (MHz)		
		QPSK	16QAM	64QAM	QPSK	16QAM	64QAM
Combination 15MHz+15MHz							
Lowest	Full RB	30.54	30.57	30.53	28.466	28.462	28.497
Middle		30.59	30.62	30.67	28.424	28.450	28.460
Highest		30.57	30.66	30.50	28.509	28.529	28.569
Combination 20MHz+20MHz							
Lowest	Full RB	39.82	39.79	39.84	37.384	37.393	37.391
Middle		39.84	39.73	39.69	37.486	37.437	37.421
Highest		39.73	39.85	39.70	37.497	37.455	37.455

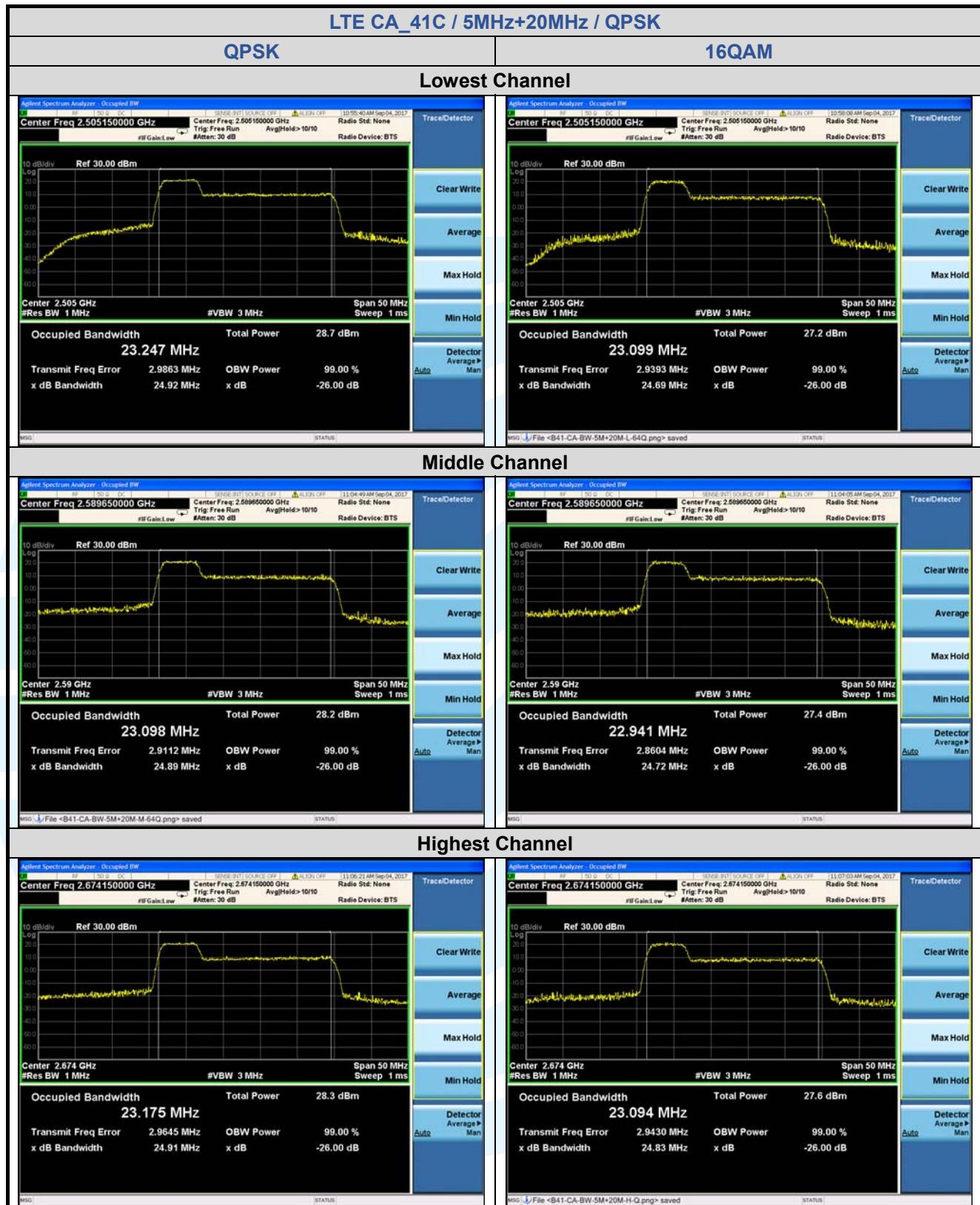


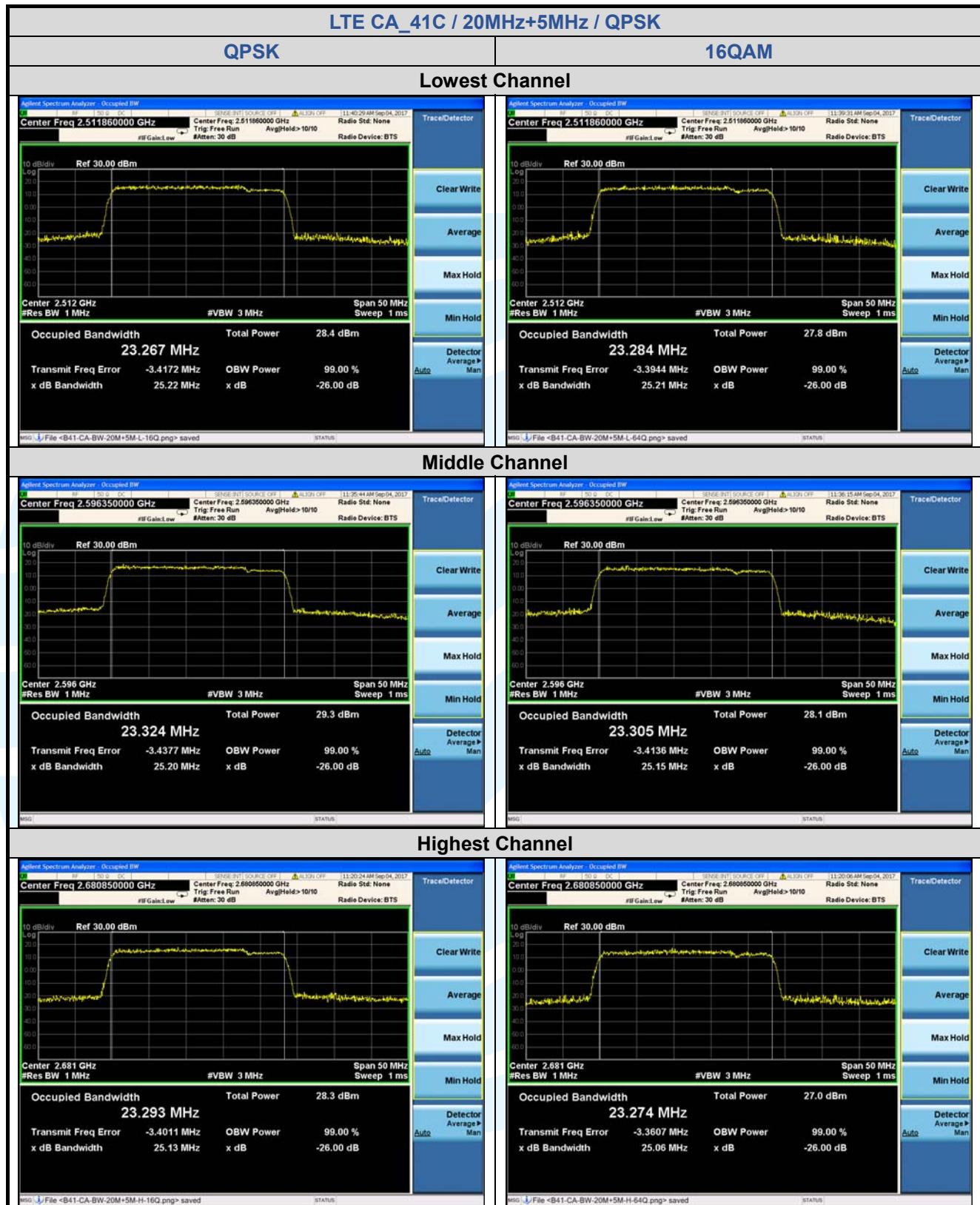


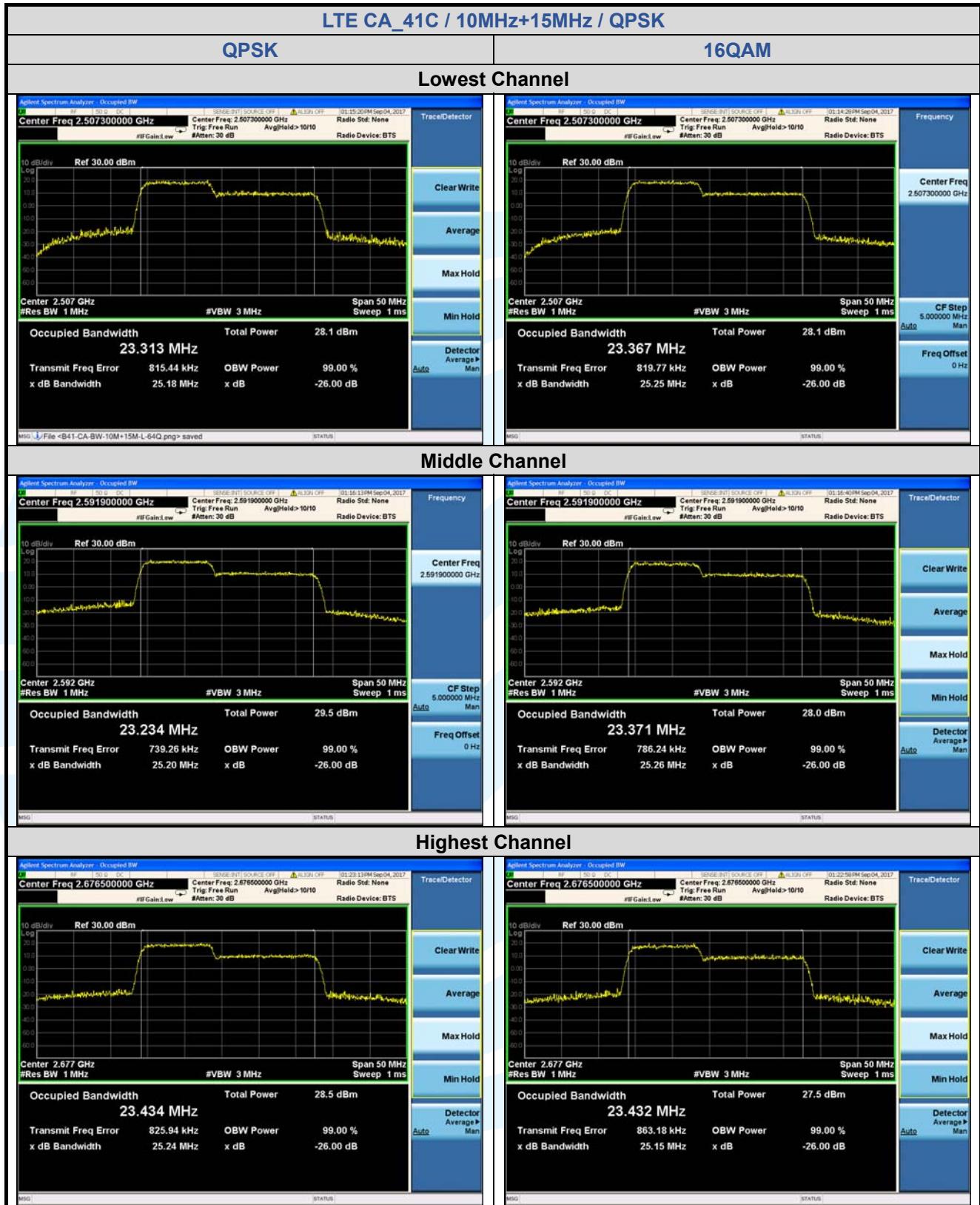


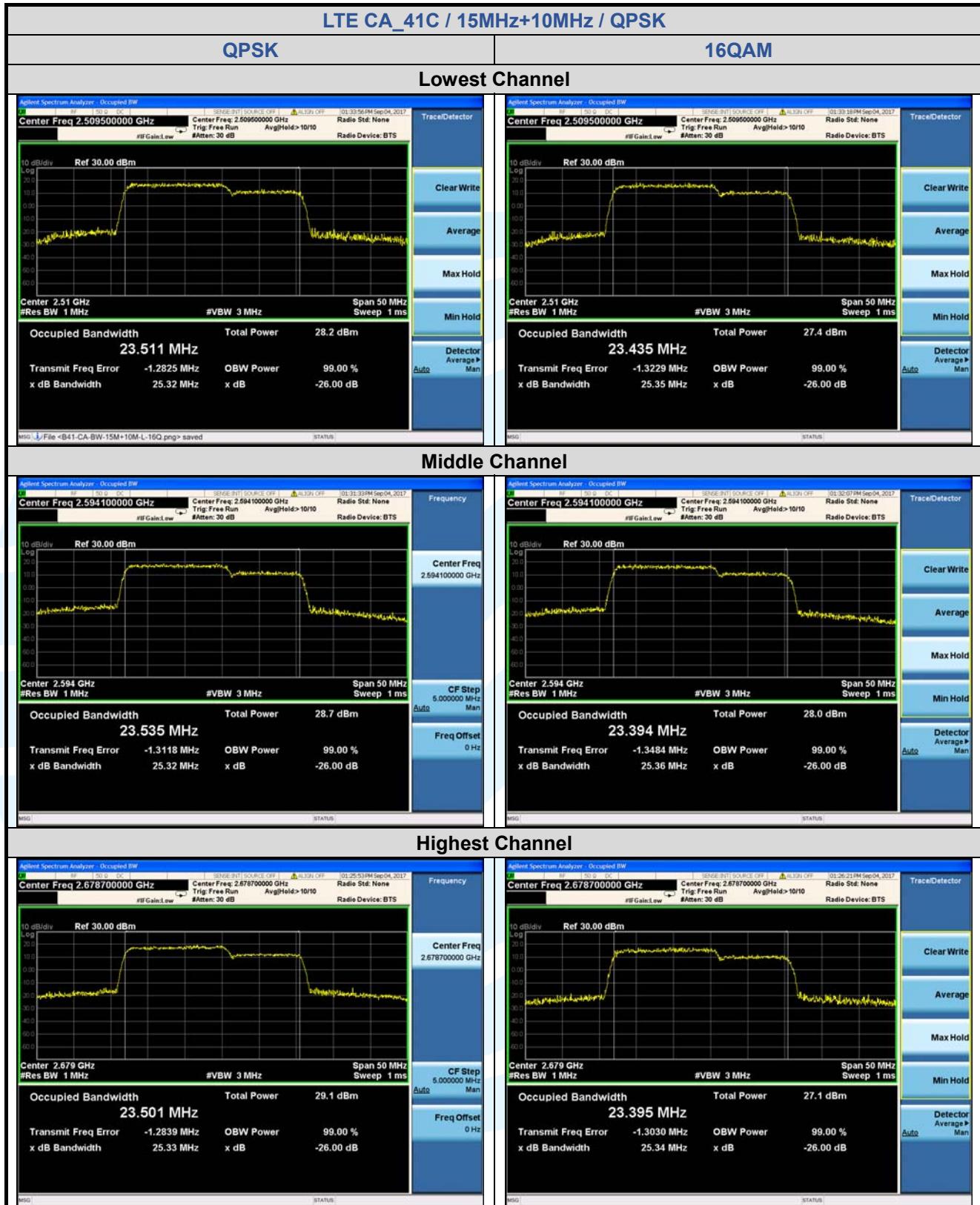
5.5.12 LTE CA_41C

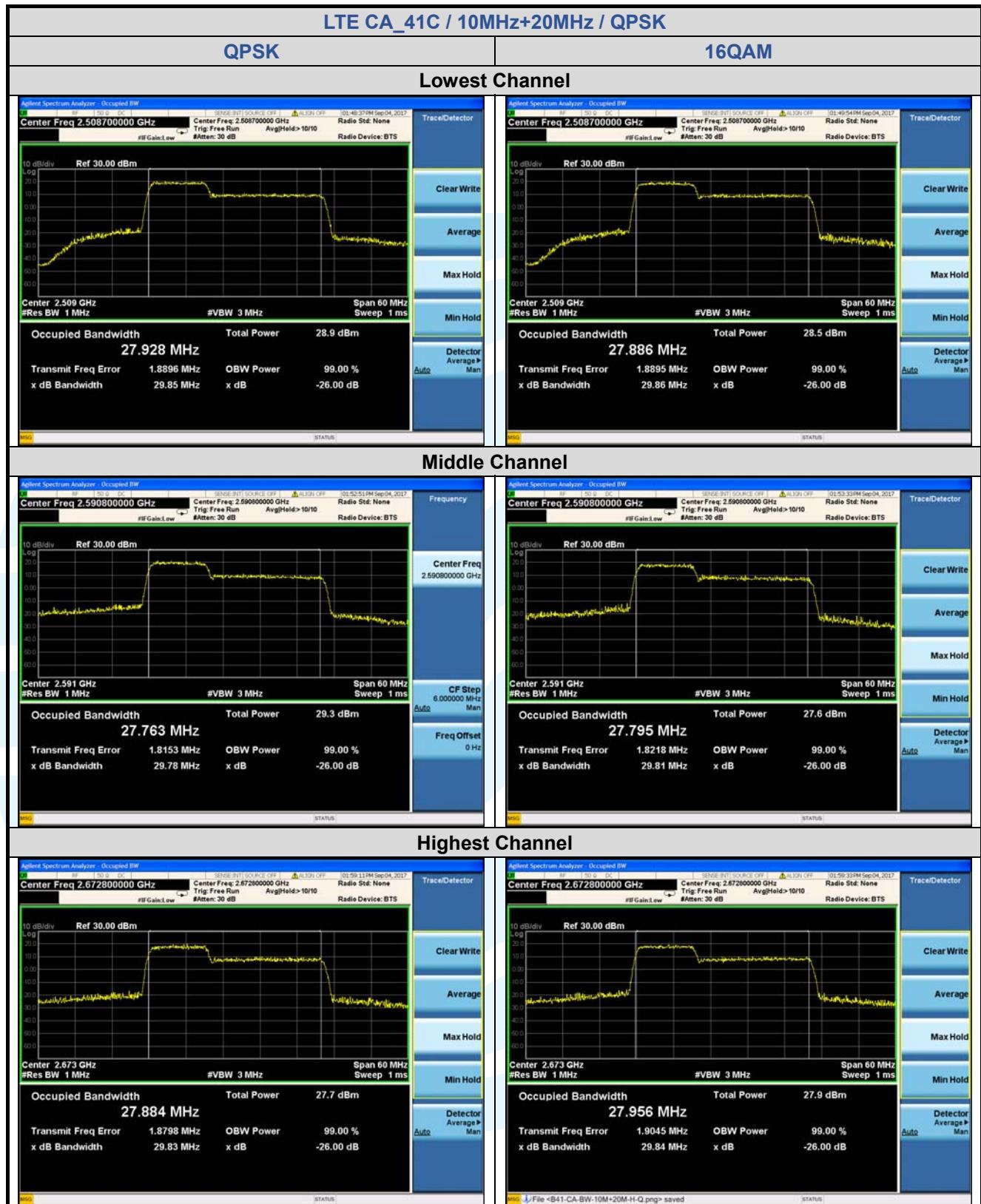
LTE CA_41C							
Channel	RB Configuration	26 dB BW (MHz)			99% BW (MHz)		
		QPSK	16QAM	64QAM	QPSK	16QAM	64QAM
Combination 5MHz+20MHz							
Lowest	Full RB	24.92	24.69	24.66	23.247	23.099	23.059
Middle		24.89	24.72	24.86	23.098	22.941	23.038
Highest		24.91	24.83	24.83	23.175	23.094	23.127
Combination 20MHz+5MHz							
Lowest	Full RB	25.22	25.21	25.12	23.267	23.284	23.307
Middle		25.20	25.15	25.22	23.324	23.305	23.301
Highest		25.13	25.06	25.17	23.293	23.274	23.244
Combination 10MHz+15MHz							
Lowest	Full RB	25.18	25.25	25.23	23.313	23.367	23.393
Middle		25.20	25.26	25.25	23.234	23.371	23.398
Highest		25.24	25.15	25.21	23.434	23.432	23.365
Combination 15MHz+10MHz							
Lowest	Full RB	25.32	25.35	25.28	23.511	23.435	23.346
Middle		25.32	25.36	25.27	23.535	23.394	23.402
Highest		25.33	25.34	25.35	23.501	23.395	23.468
Combination 10MHz+20MHz							
Lowest	Full RB	29.85	29.86	29.86	27.928	27.886	27.862
Middle		29.78	28.91	29.75	27.763	27.795	27.758
Highest		29.83	29.84	29.85	27.884	27.956	27.884
Combination 20MHz+10MHz							
Lowest	Full RB	29.93	30.16	30.03	27.966	27.971	27.894
Middle		30.03	29.96	30.04	28.004	27.952	27.964
Highest		29.90	30.01	30.04	27.905	27.935	27.976
Combination 15MHz+15MHz							
Lowest	Full RB	30.54	30.56	30.60	28.439	28.528	28.545
Middle		30.51	30.53	30.50	28.431	28.456	28.506
Highest		30.49	30.45	30.48	28.546	28.555	28.495
Combination 15MHz+20MHz							
Lowest	Full RB	34.70	34.82	34.89	32.703	32.770	32.725
Middle		34.89	34.89	34.82	32.579	32.654	32.686
Highest		34.77	34.80	34.88	32.749	32.750	32.698
Combination 20MHz+15MHz							
Lowest	Full RB	34.83	34.94	34.90	32.677	32.740	32.791
Middle		34.91	34.99	34.92	32.677	32.730	32.774
Highest		34.87	34.94	34.97	32.805	32.766	32.756
Combination 20MHz+20MHz							
Lowest	Full RB	39.83	39.95	39.78	37.223	37.529	37.523
Middle		39.88	39.80	39.75	37.486	37.391	37.415
Highest		39.79	39.74	39.74	37.696	37.517	37.329

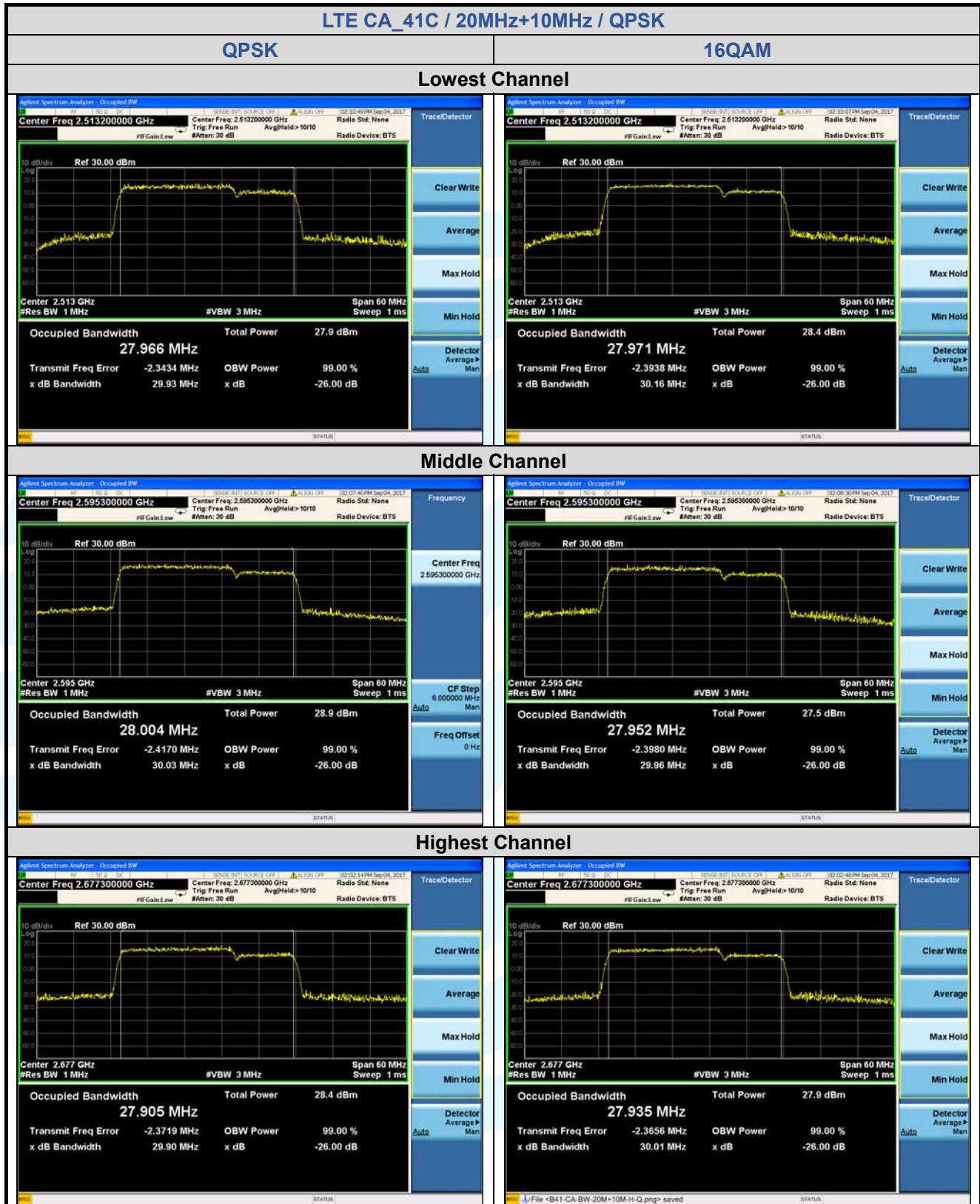


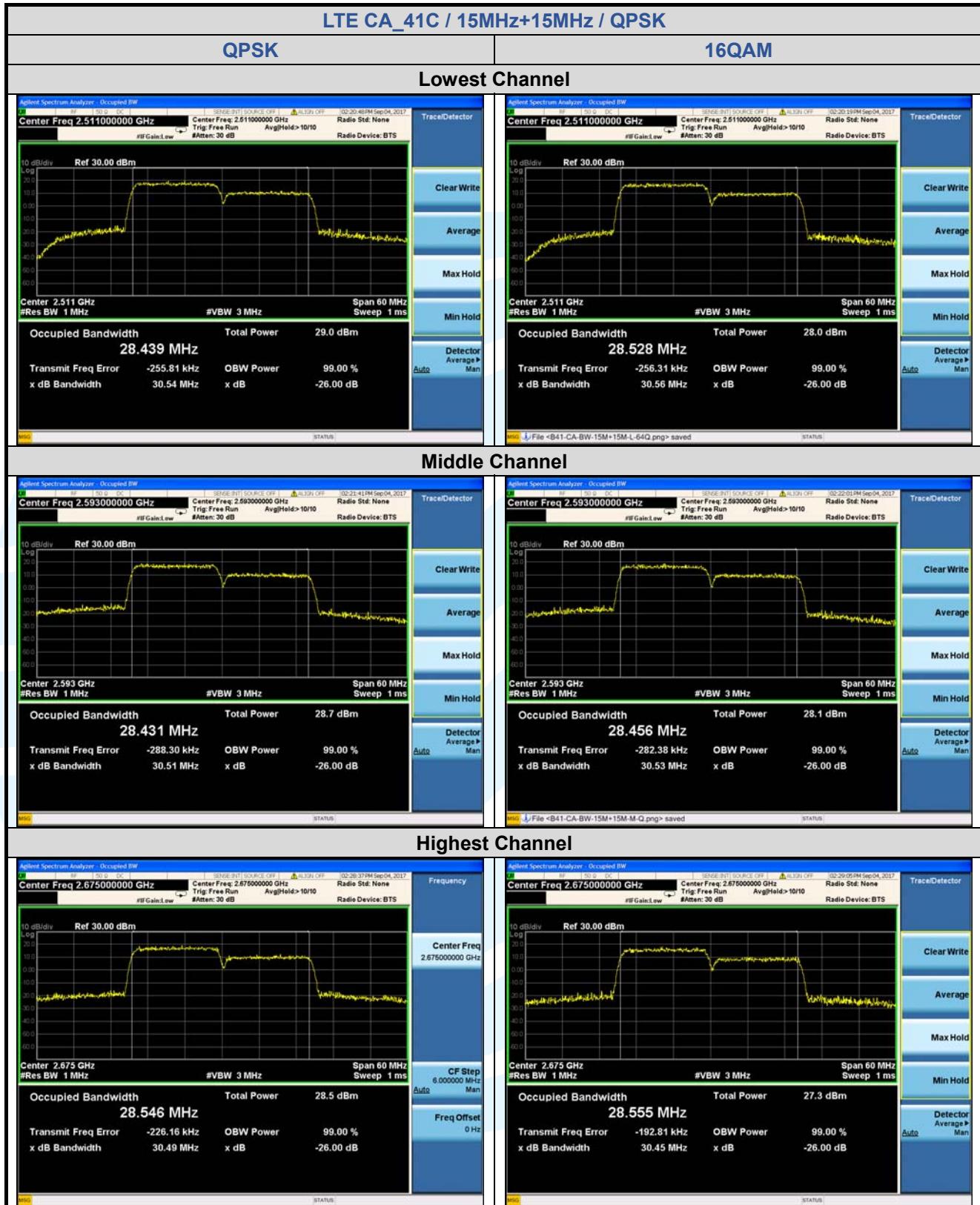


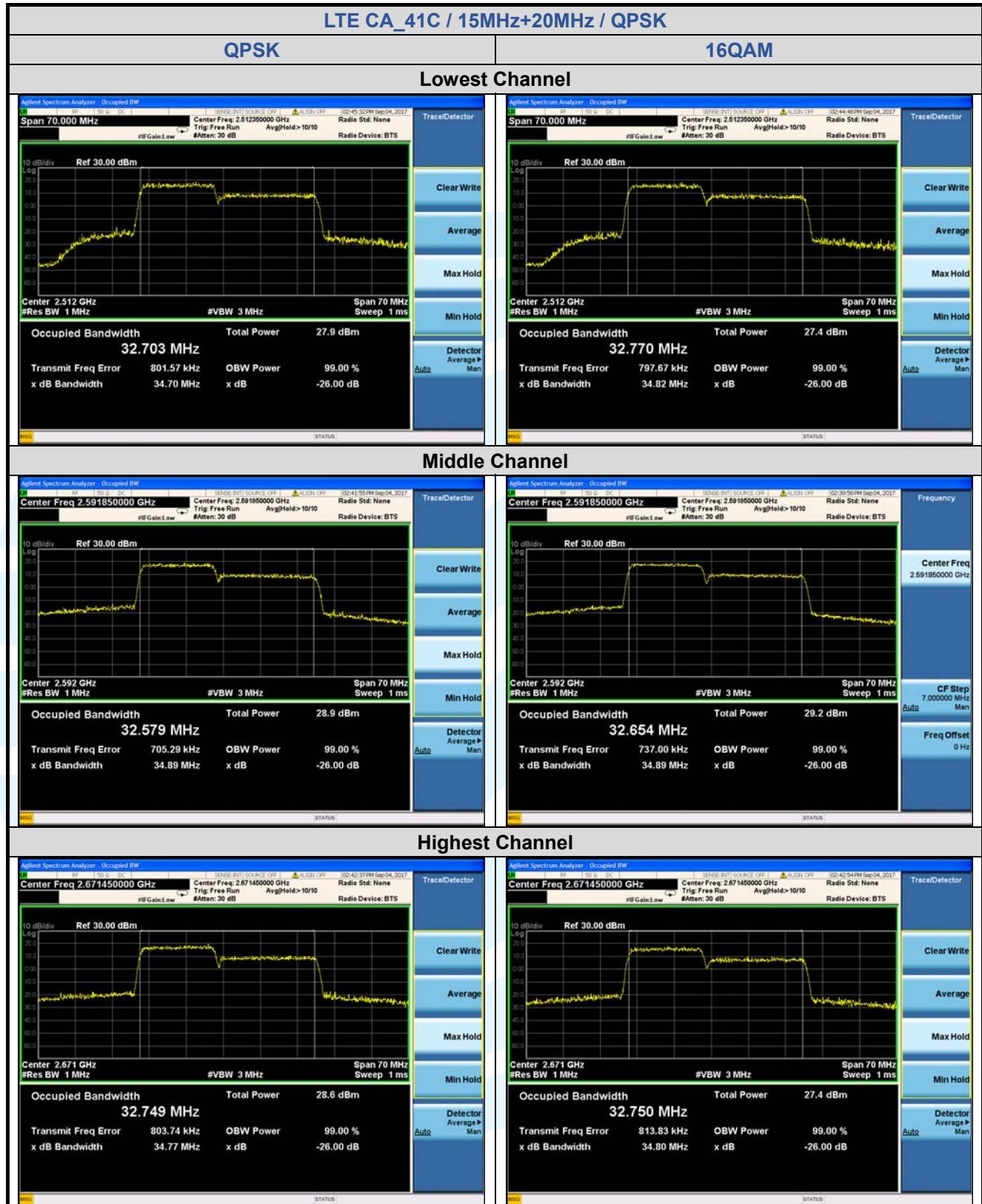


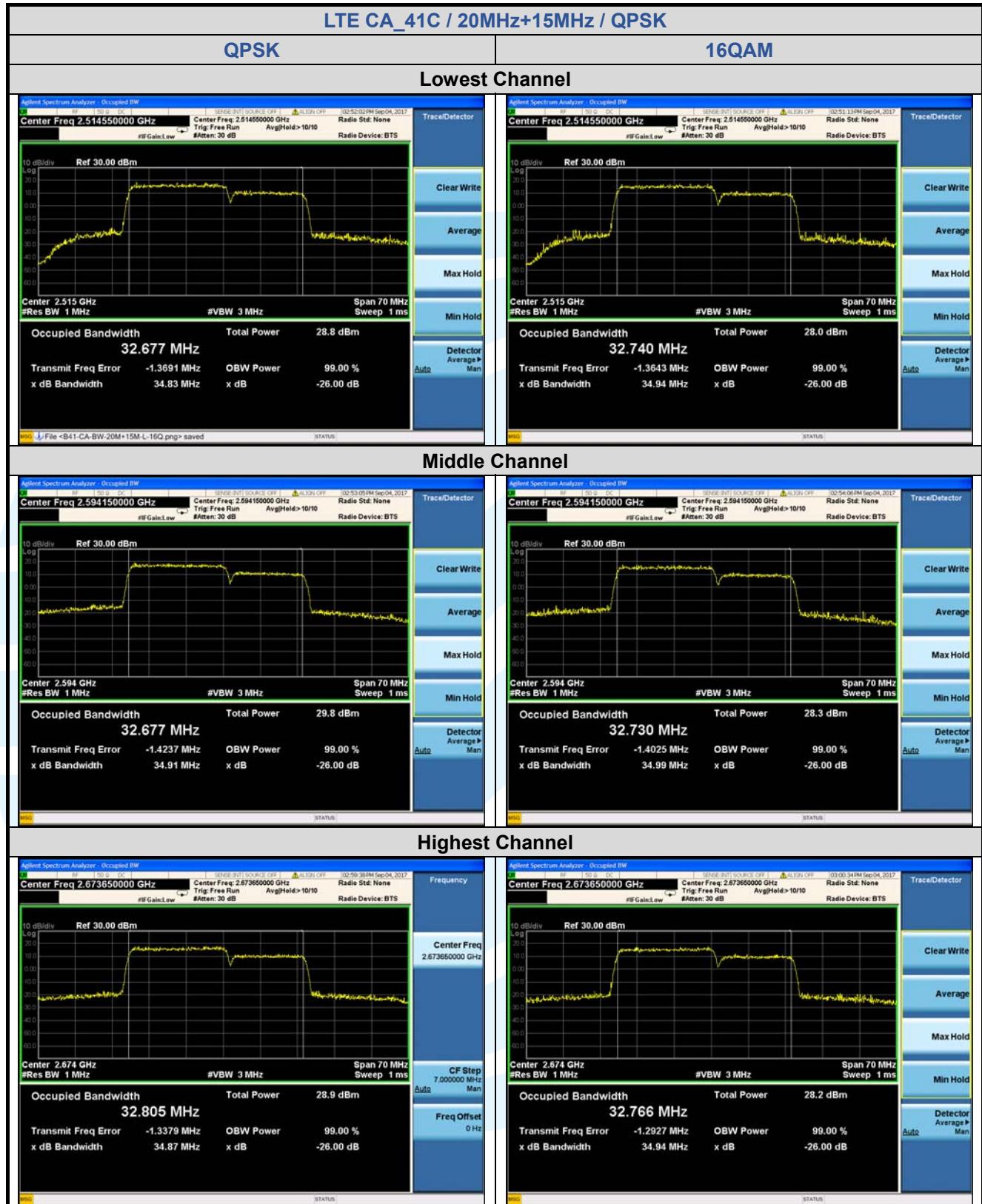


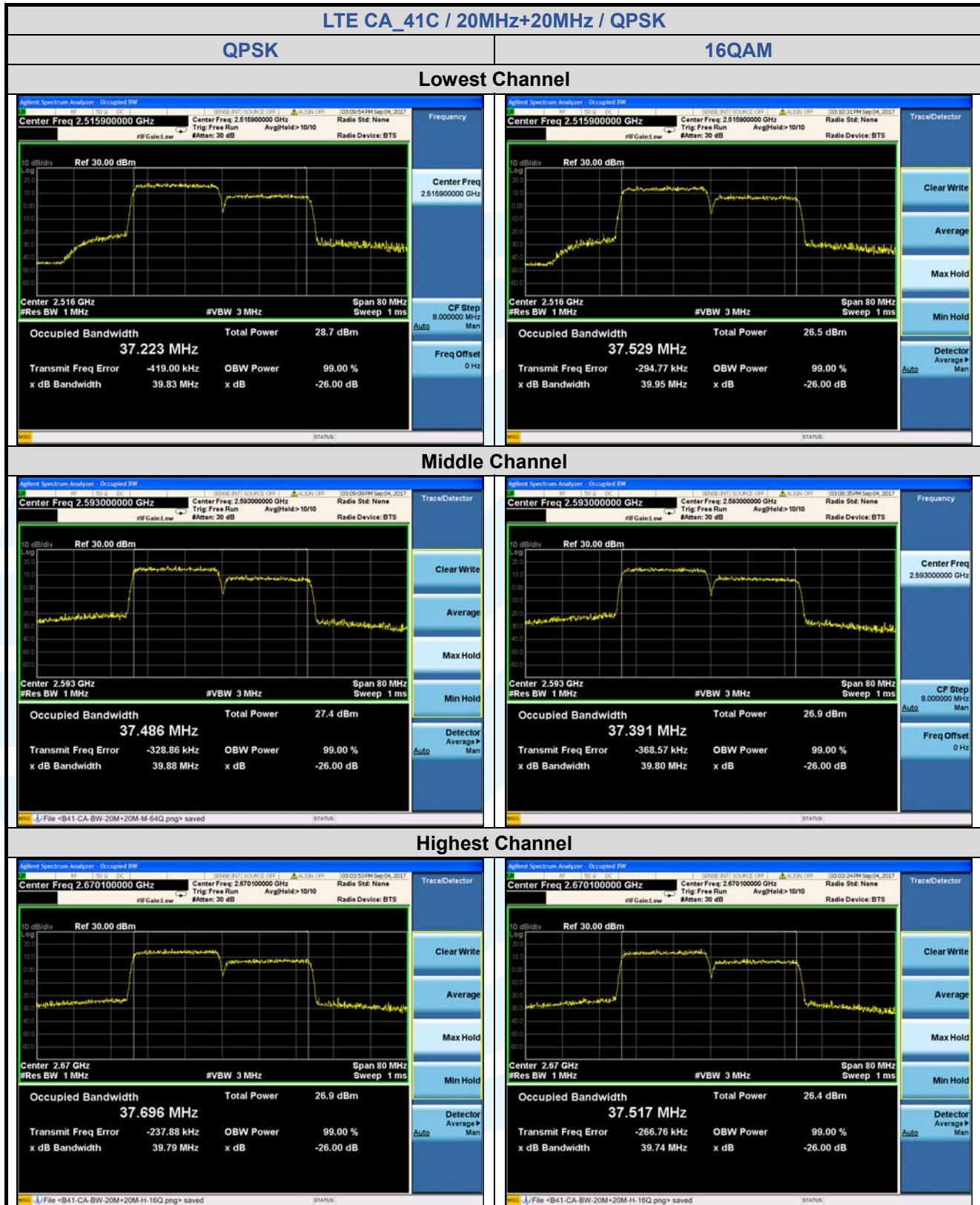


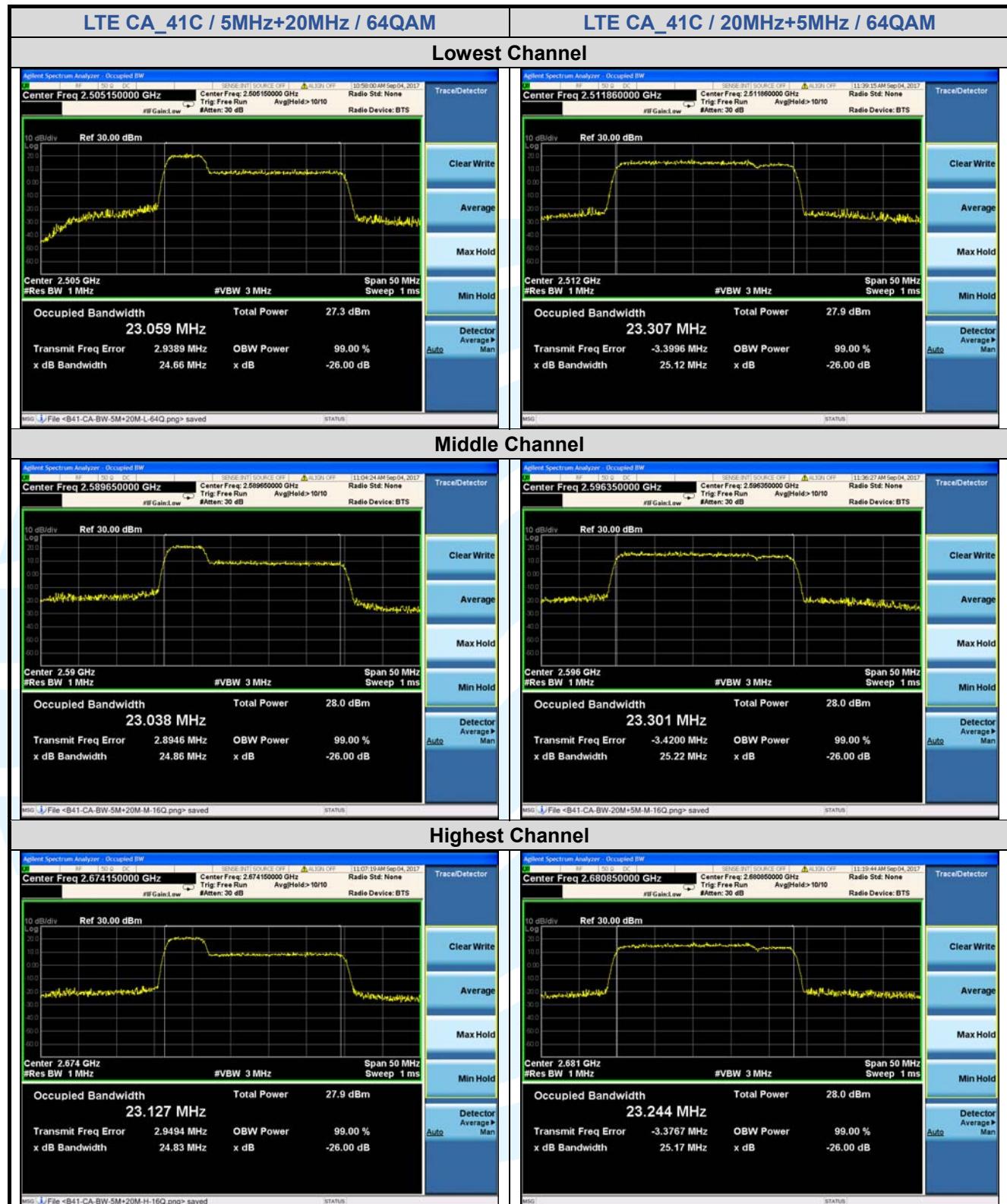


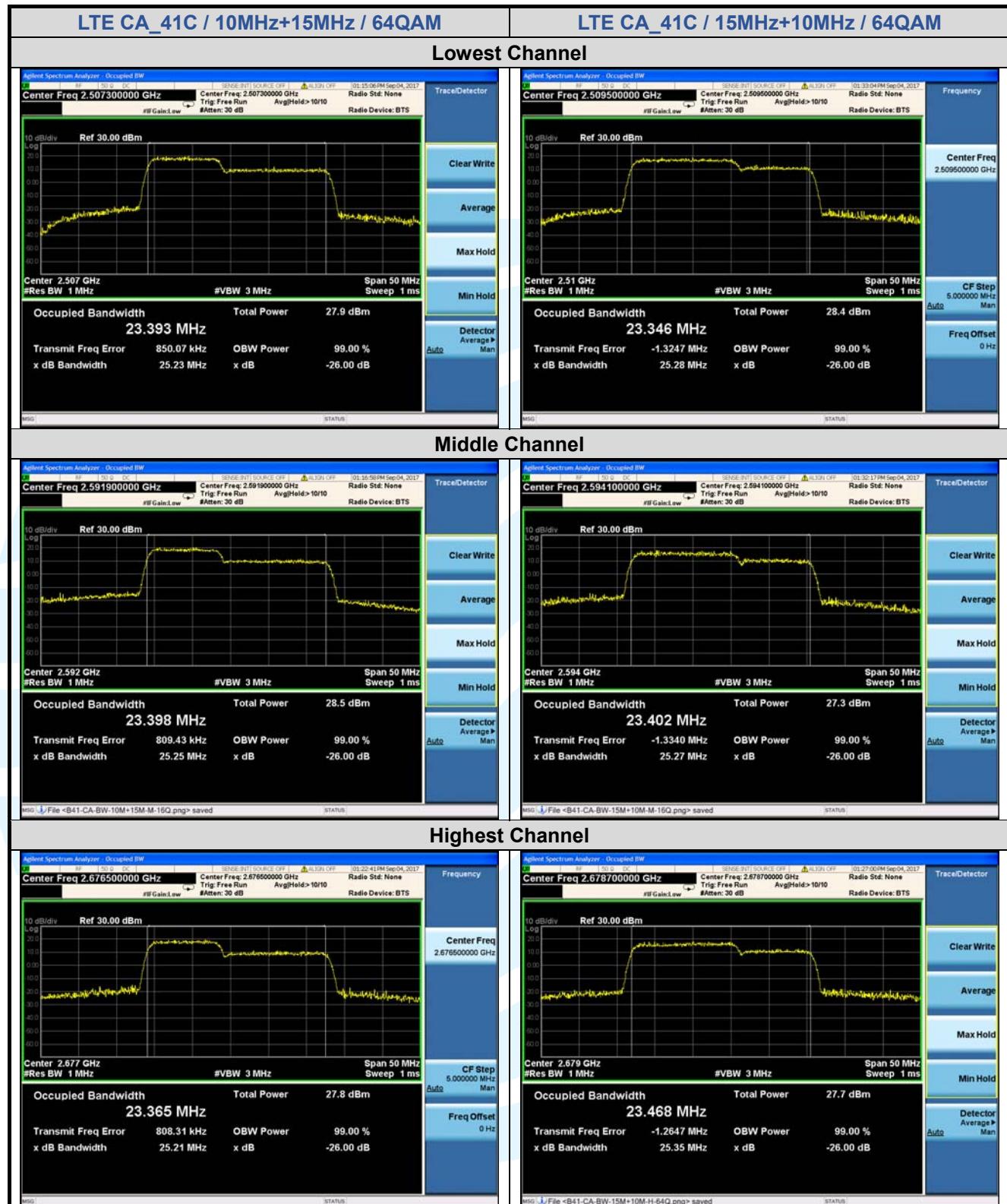


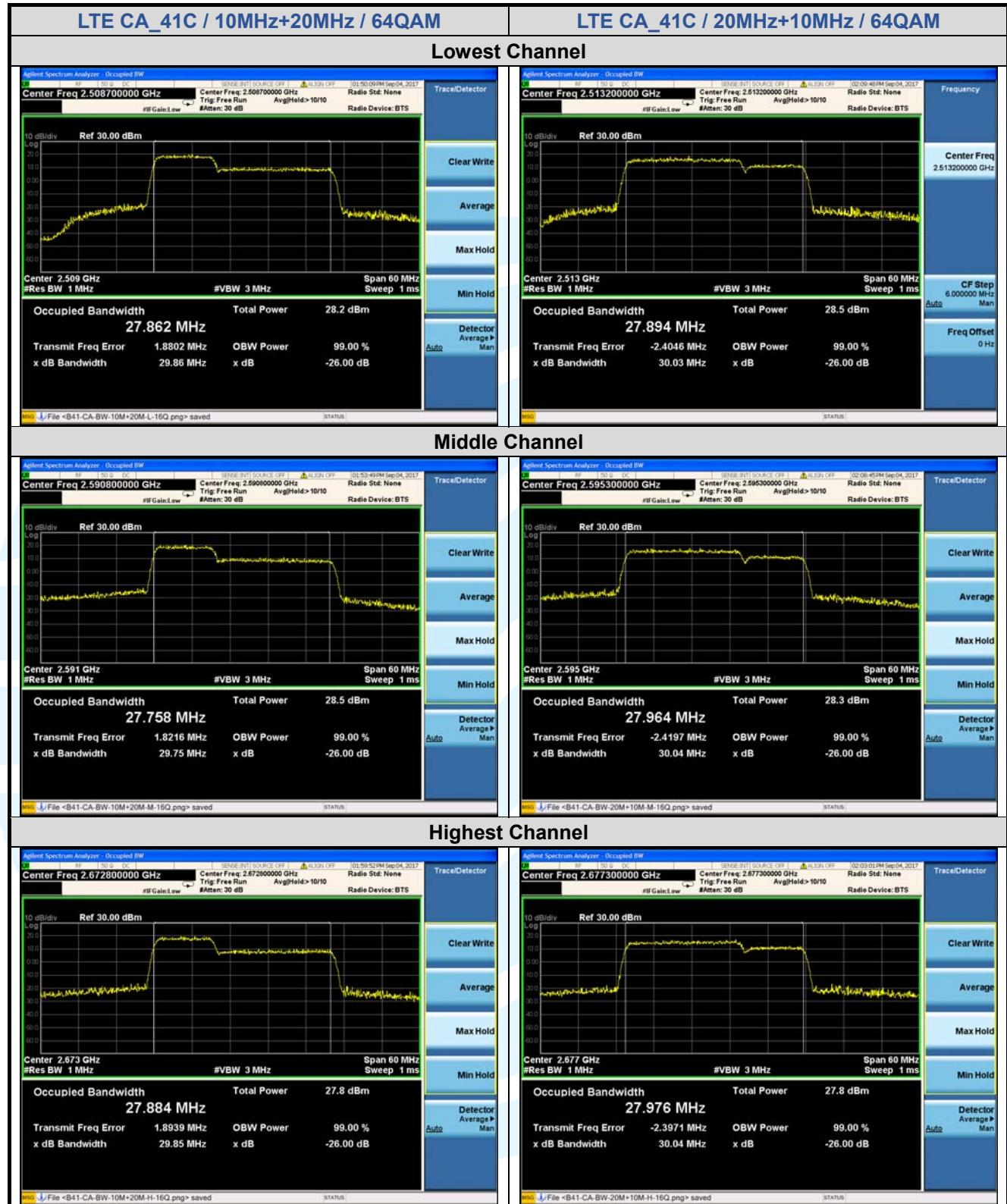


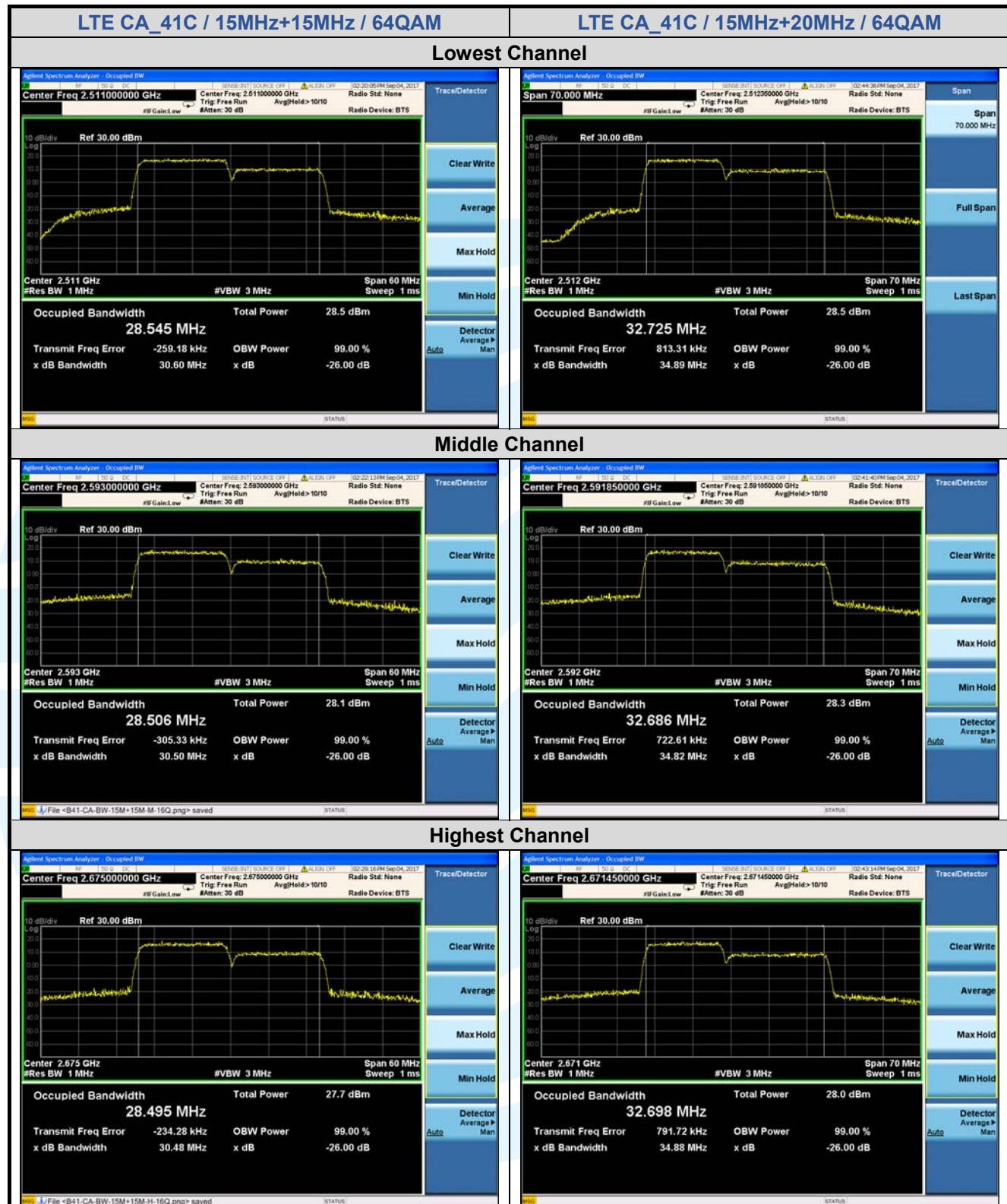


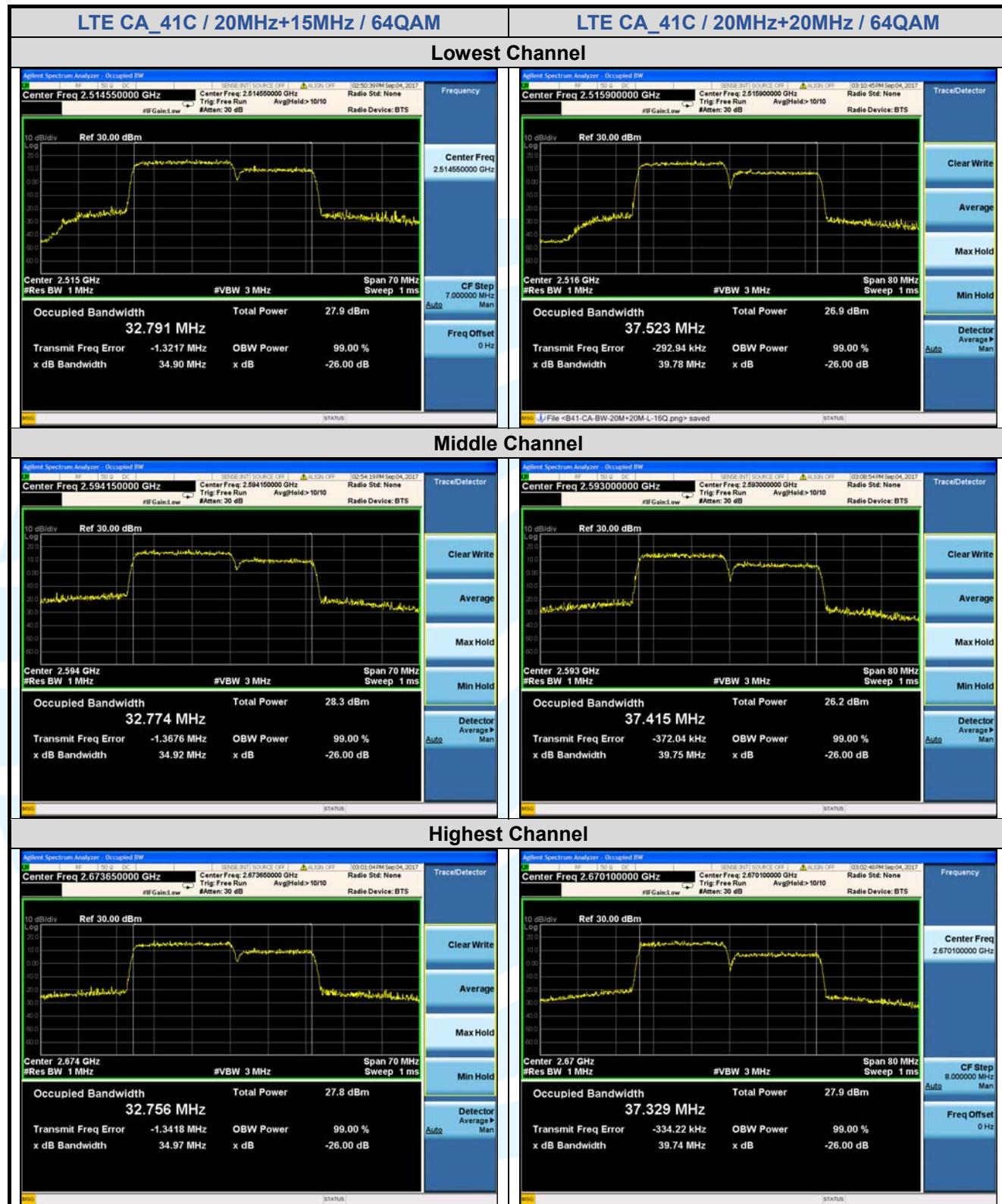












5.6 BAND EDGE AT ANTENNA TERMINALS

Test Requirement: **WCDMA Band IV & LTE Band 4:** FCC 47 CFR Part 27.53(h)(1)
LTE Band 7 & Band 38 & Band 41: FCC 47 CFR Part 27.53(m)(4)
LTE Band 12 & Band 17: FCC 47 CFR Part 27.53(g)
LTE Band 13: FCC 47 CFR Part 27.53(c)(2)
LTE Band 30: FCC 47 CFR Part 27.53(a)(4)

Test Method: ANSI/TIA/EIA-603-D 2010 & KDB 971168 D01v02r02

Limit:

FCC 47 CFR Part 27.53(a)(4): For mobile and portable stations operating in the 2305-2315 MHz and 2350-2360 MHz bands:

- (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 47 CFR Part 27.53(a)(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.

FCC 47 CFR Part 27.53(c)(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;

FCC 47 CFR Part 27.53(g): For operations in the 600 MHz band and the 698-746 MHz band, the power of any emission outside a licensee's frequency band(s) of operation shall be attenuated below the transmitter power (P) within the licensed band(s) of operation, measured in watts, by at least $43 + 10 \log (P)$ dB. Compliance with this provision is based on the use of measurement instrumentation employing a resolution bandwidth of 100 kilohertz or greater. However, in the 100 kilohertz bands immediately outside and adjacent to a licensee's frequency block, a resolution bandwidth of at least 30 kHz may be employed.

FCC 47 CFR Part 27.53(h)(1): Except as otherwise specified below, for operations in the 1695-1710 MHz, 1710-1755 MHz, 1755-1780 MHz, 1915-1920 MHz, 1995-2000 MHz, 2000-2020 MHz, 2110-2155 MHz, 2155-2180 MHz, and 2180-2200 bands, the power of any emission outside a licensee's frequency block shall be attenuated below the transmitter power (P) in watts by at least $43 + 10 \log_{10} (P)$ dB. The emission limit equal to -13 dBm.

FCC 47 CFR Part 27.53(h)(3): Measurement procedure. (i) Compliance with this provision is based on the use of measurement instrumentation employing a resolution bandwidth of 1 megahertz or greater. However, in the 1 megahertz bands immediately outside and adjacent to the licensee's frequency block, a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed. 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.

(ii) When measuring the emission limits, the nominal carrier frequency shall be adjusted as close to the licensee's frequency block edges, both upper and lower, as the design permits.

(iii) The measurements of emission power can be expressed in peak or average values, provided they are expressed in the same parameters as the transmitter power.

FCC 47 CFR Part 27.53(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 than $43 + 10 \log(P)$ 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.

FCC 47 CFR Part 27.53(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:

The transmitter output was connected to a calibrated coaxial cable and coupler, the other end of which was connected to a 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.
- 5) Set spectrum analyzer with RMS detector.
- 6) Record the max trace plot into the test report

Note: The cable loss and attenuator loss were offset into measure device as an amplitude offset.

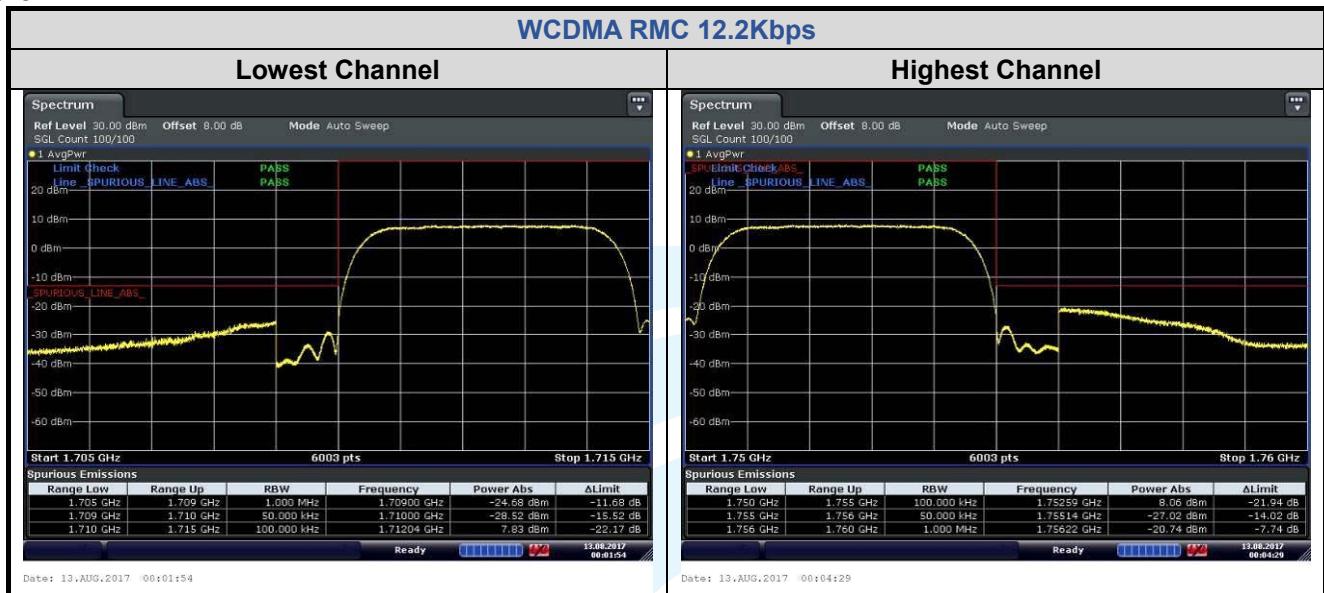
Test Setup: Refer to section 4.2.2 for details.

Instruments Used: Refer to section 3 for details

Test Mode: Link mode

Test Results: Pass

5.6.1 WCDMA IV



5.6.2 LTE Band 4

