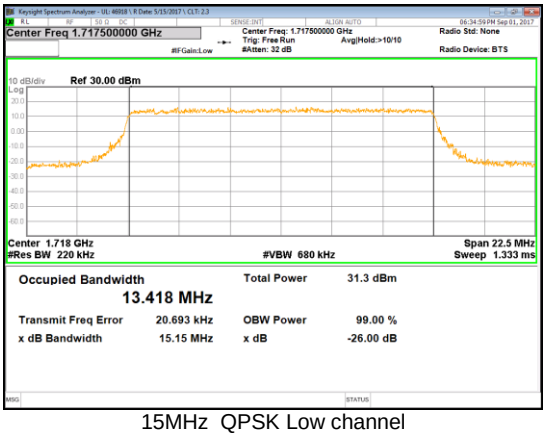
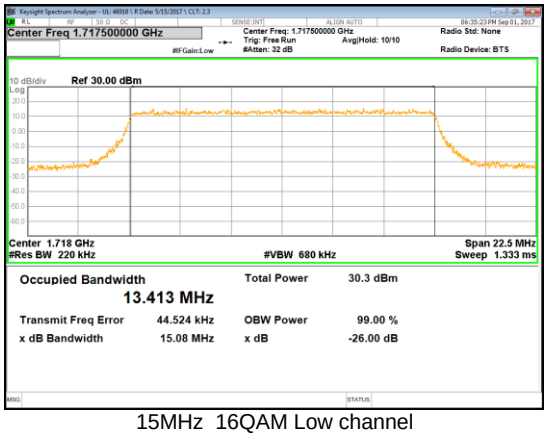
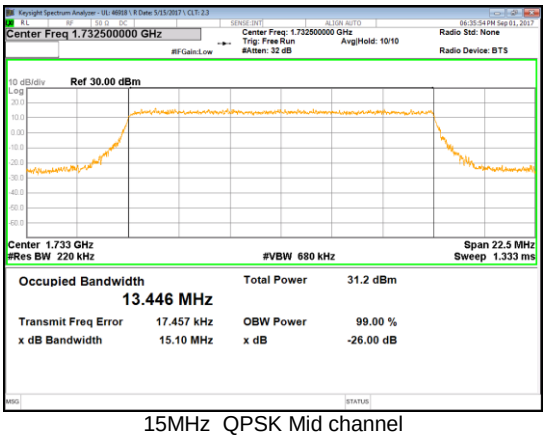
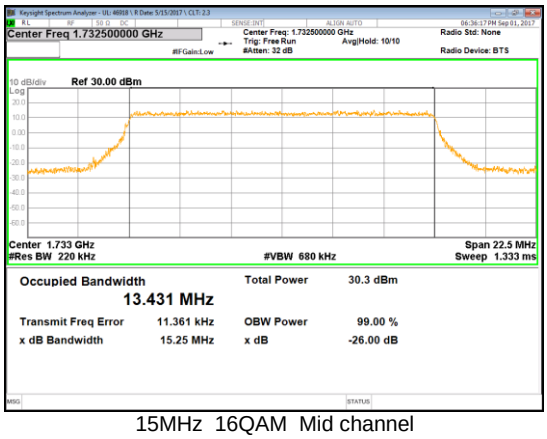
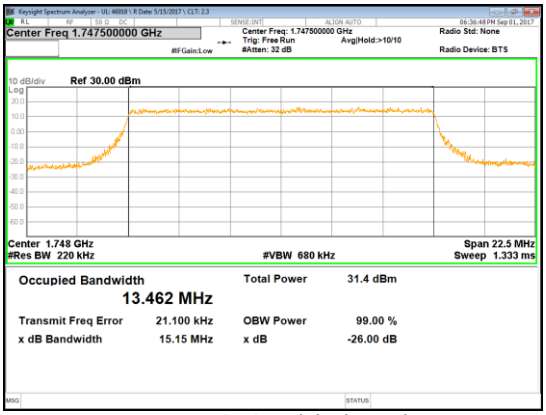
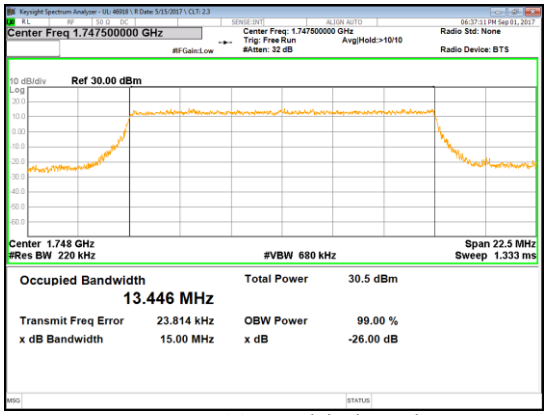
Band 4 15MHz	 15MHz QPSK Low channel	 15MHz 16QAM Low channel
	 15MHz QPSK Mid channel	 15MHz 16QAM Mid channel
	 15MHz QPSK High channel	 15MHz 16QAM High channel

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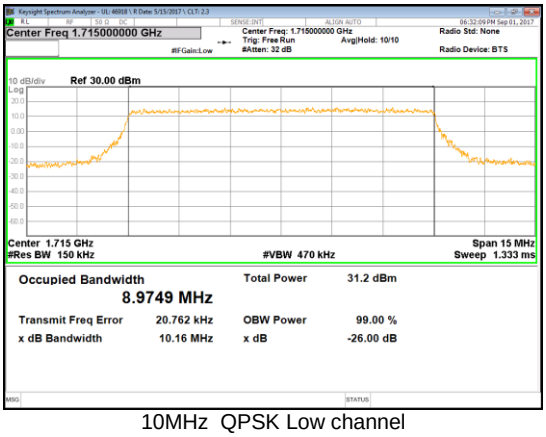
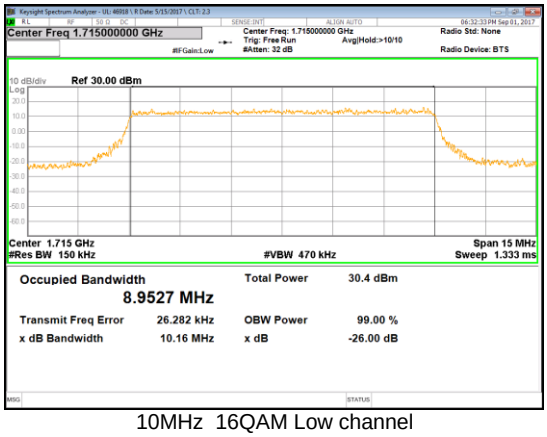
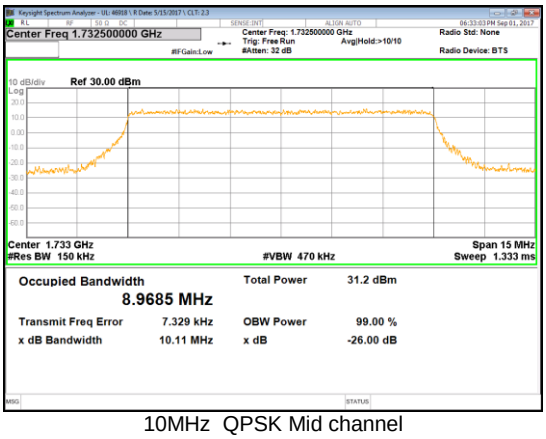
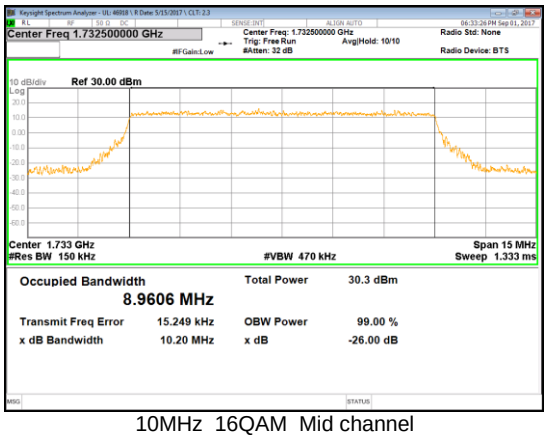
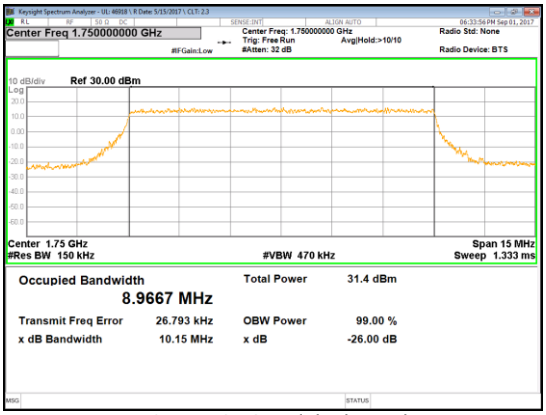
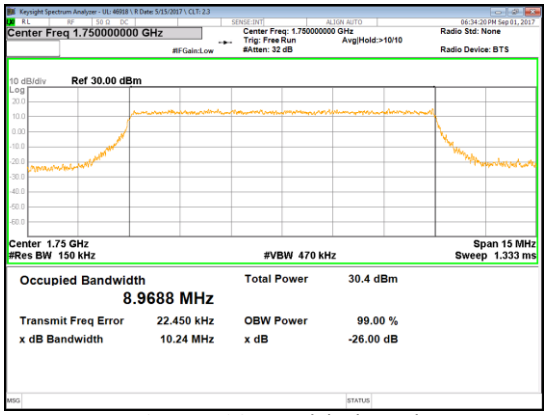
Band 4 10MHz	 10MHz QPSK Low channel	 10MHz 16QAM Low channel
	 10MHz QPSK Mid channel	 10MHz 16QAM Mid channel
	 10MHz QPSK High channel	 10MHz 16QAM High channel

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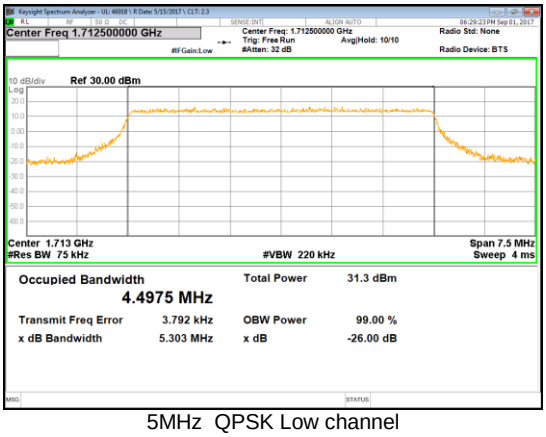
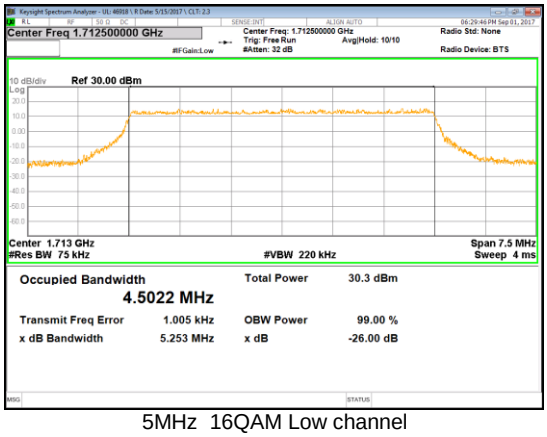
Band 4

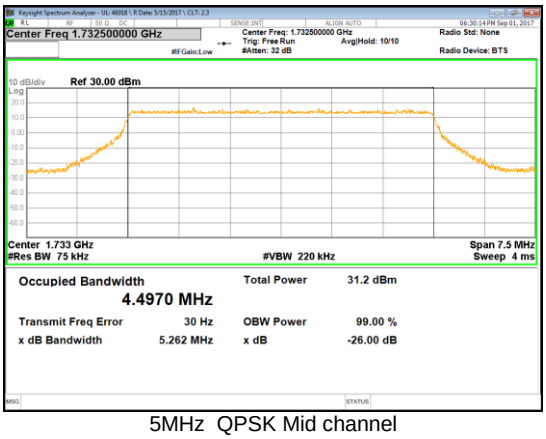
5MHz



5MHz QPSK Low channel



5MHz 16QAM Low channel



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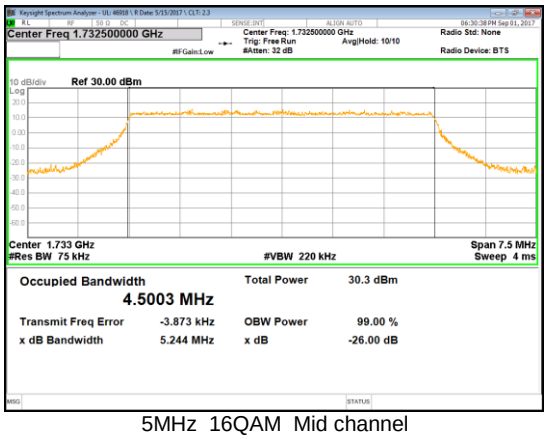
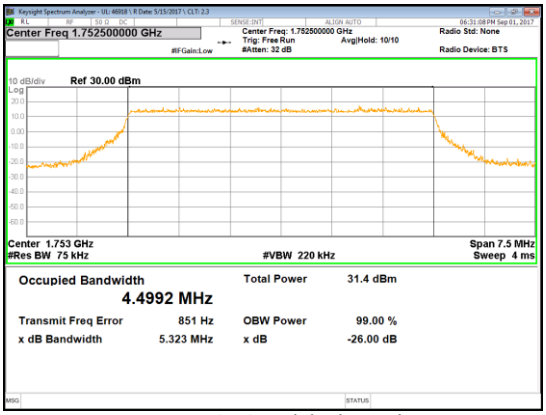
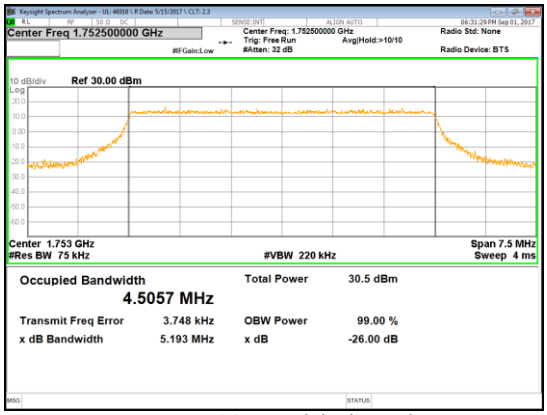


5MHz 16QAM Mid channel



5MHz QPSK High channel



5MHz 16QAM High channel

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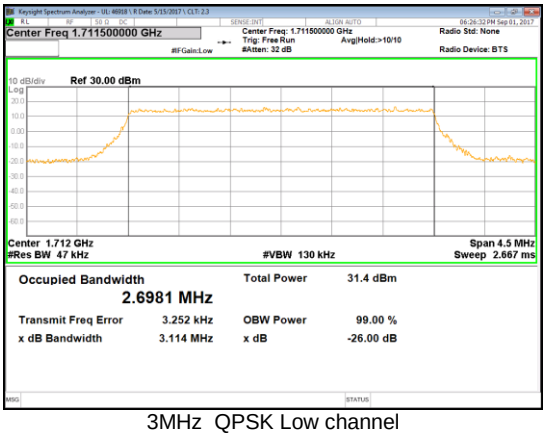
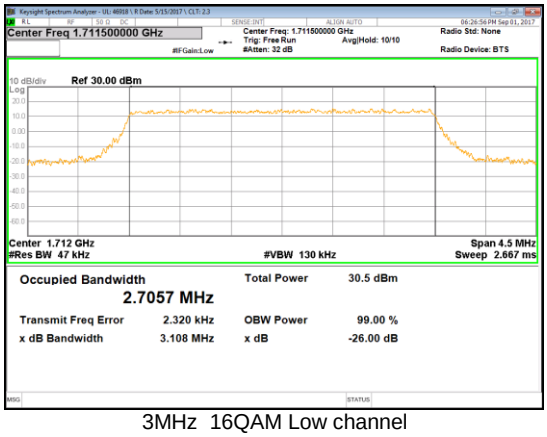
Band 4

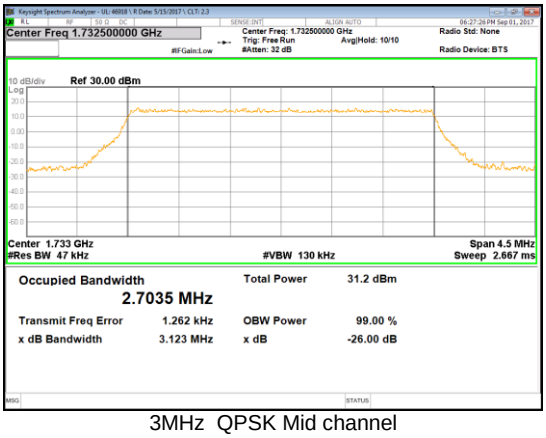
3MHz



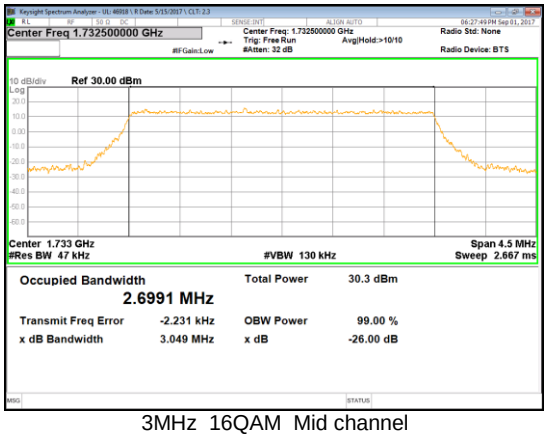
3MHz QPSK Low channel



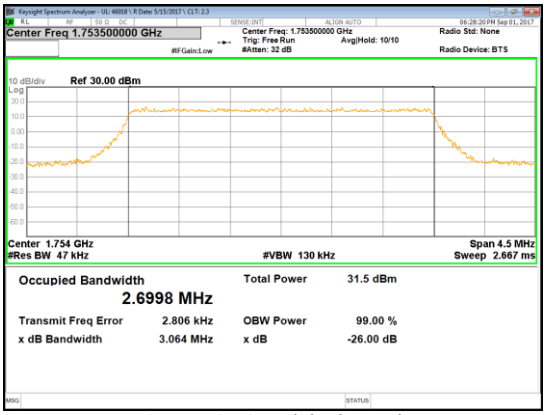
3MHz 16QAM Low channel



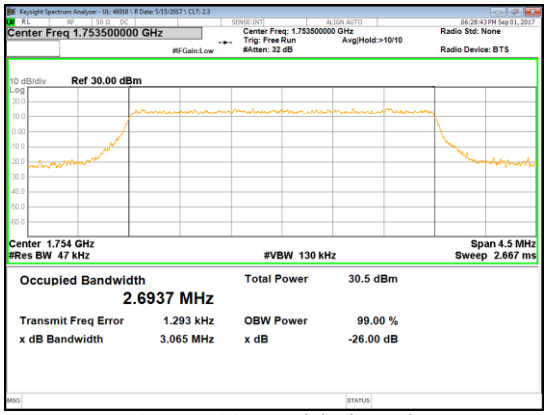
3MHz QPSK Mid channel



3MHz 16QAM Mid channel



3MHz QPSK High channel



3MHz 16QAM High channel

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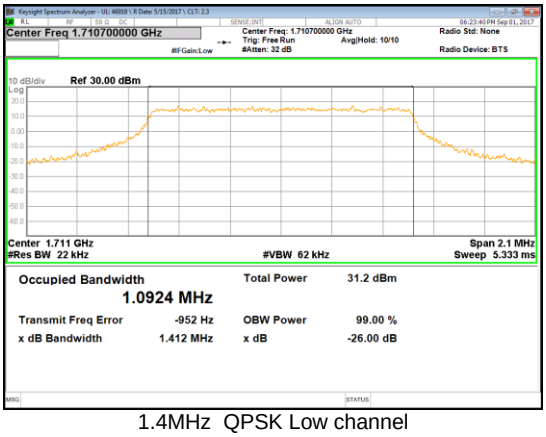
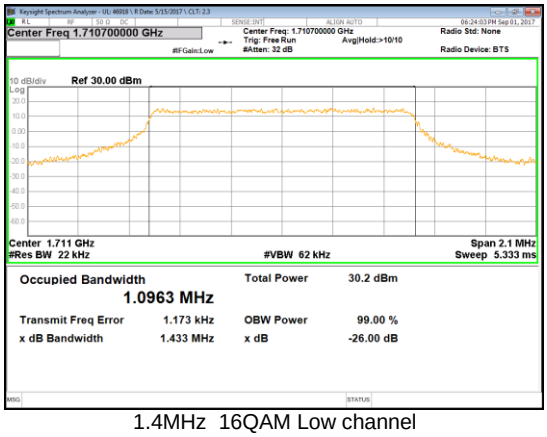
Band 4

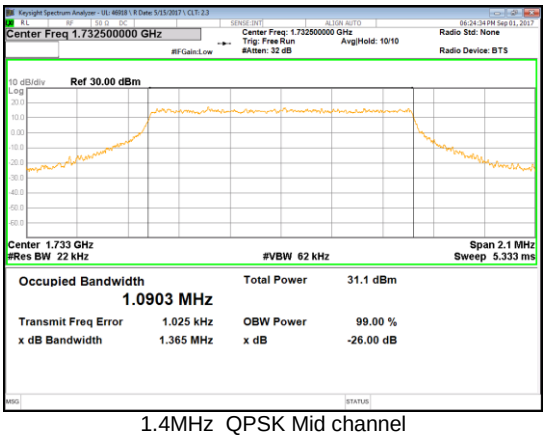
1.4MHz



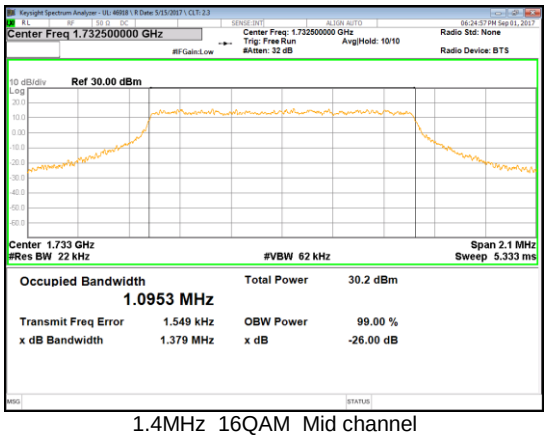
1.4MHz QPSK Low channel



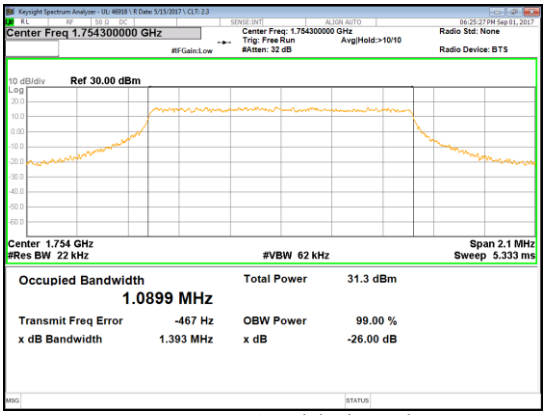
1.4MHz 16QAM Low channel



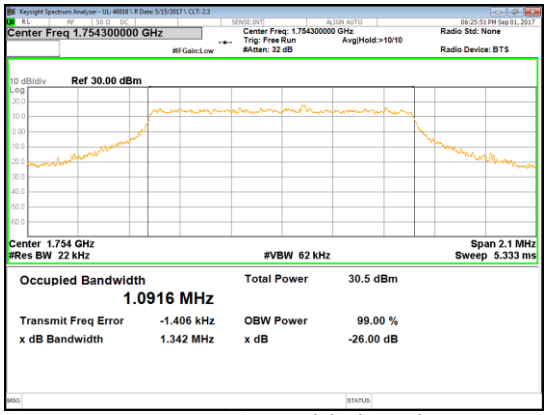
1.4MHz QPSK Mid channel



1.4MHz 16QAM Mid channel



1.4MHz QPSK High channel



1.4MHz 16QAM High channel

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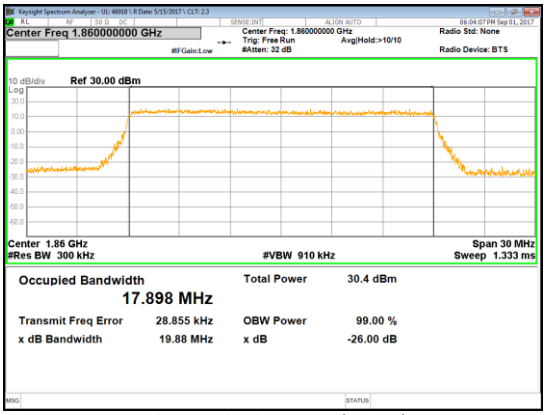
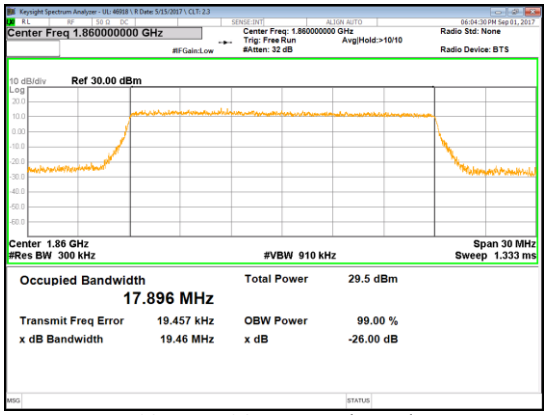
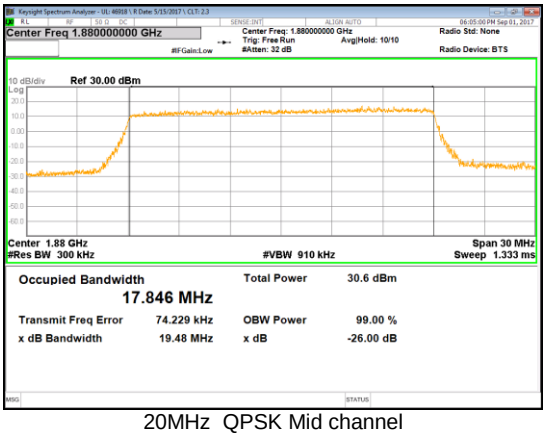
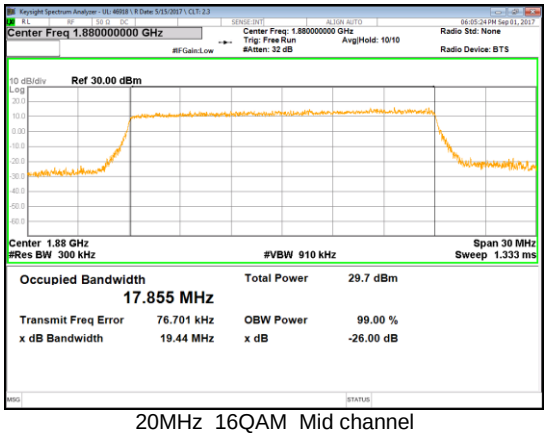
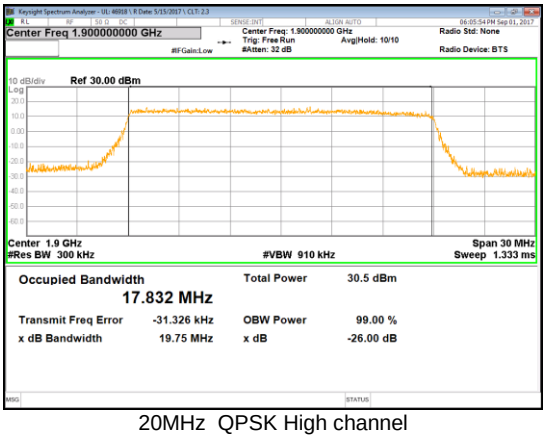
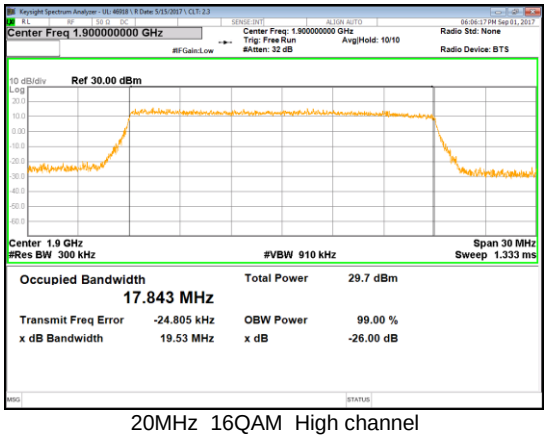
LTE Band 2

Band 2 20MHz	 20MHz QPSK Low channel	 20MHz 16QAM Low channel
	 20MHz QPSK Mid channel	 20MHz 16QAM Mid channel
	 20MHz QPSK High channel	 20MHz 16QAM High channel

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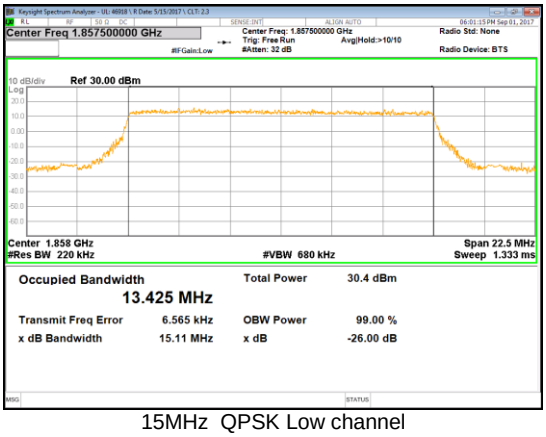
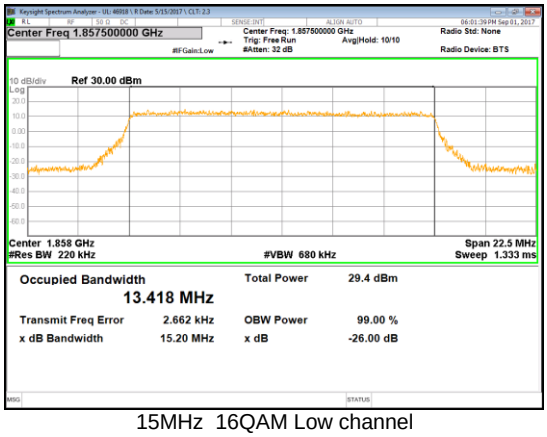
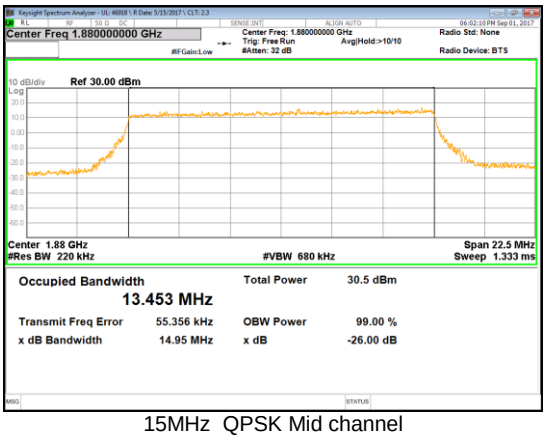
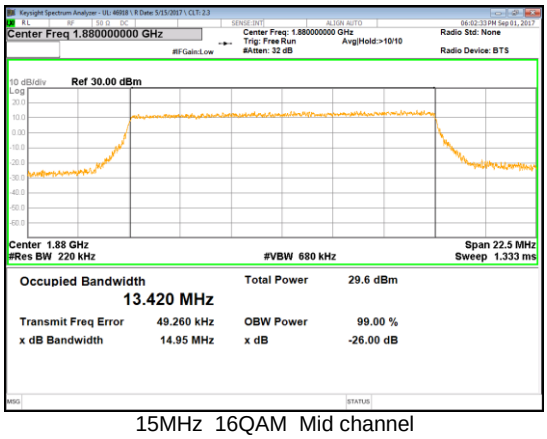
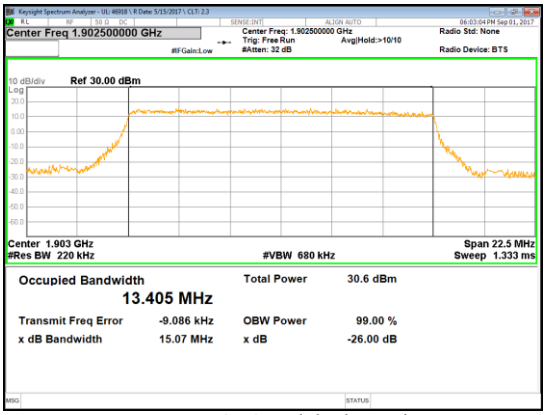
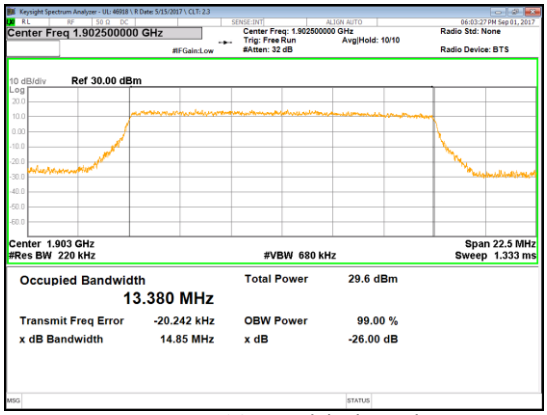
Band 2 15MHz	 15MHz QPSK Low channel	 15MHz 16QAM Low channel
	 15MHz QPSK Mid channel	 15MHz 16QAM Mid channel
	 15MHz QPSK High channel	 15MHz 16QAM High channel

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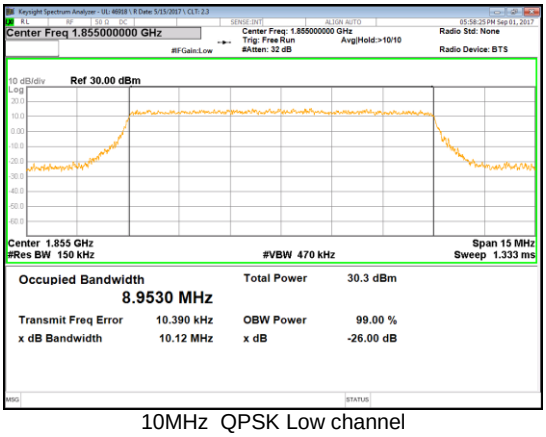
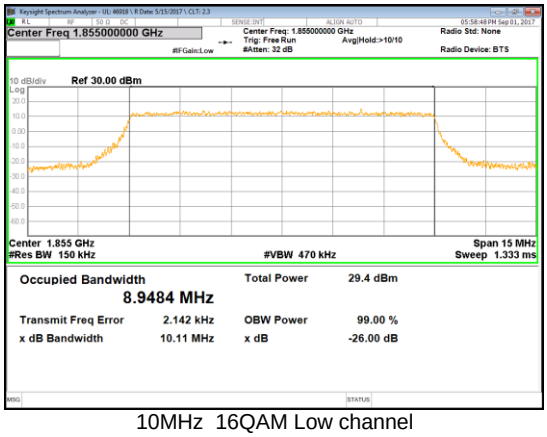
Band 2

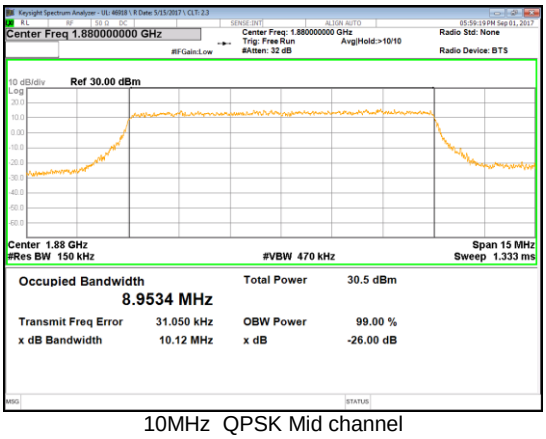
10MHz



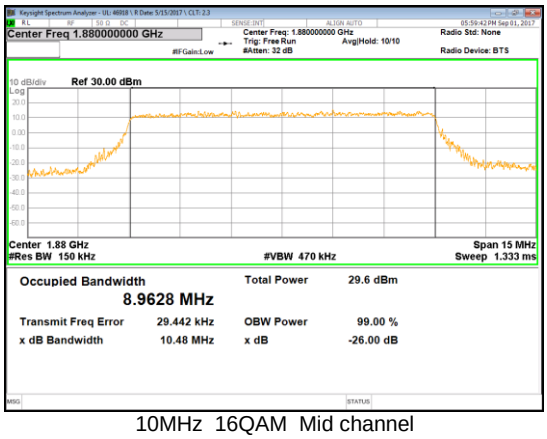
10MHz QPSK Low channel



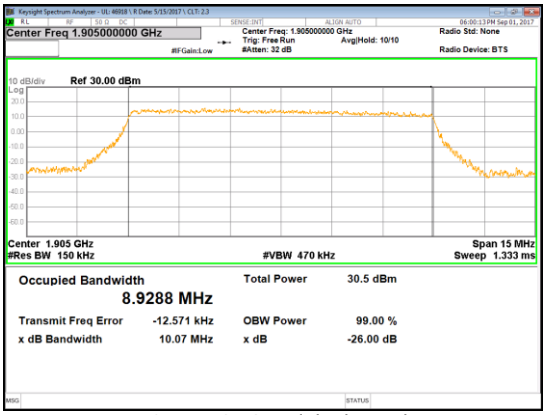
10MHz 16QAM Low channel



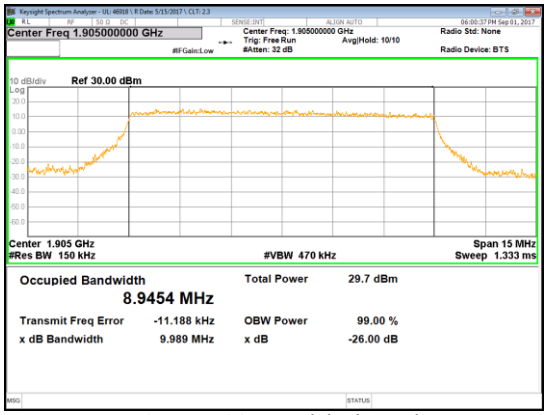
10MHz QPSK Mid channel



10MHz 16QAM Mid channel



10MHz QPSK High channel



10MHz 16QAM High channel

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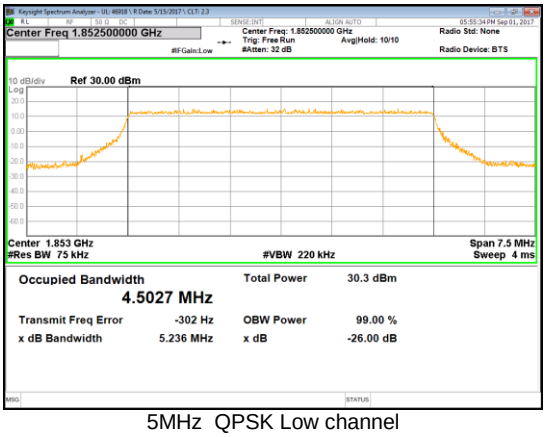
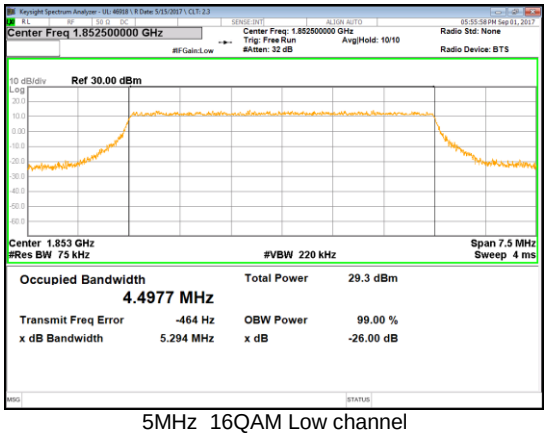
Band 2

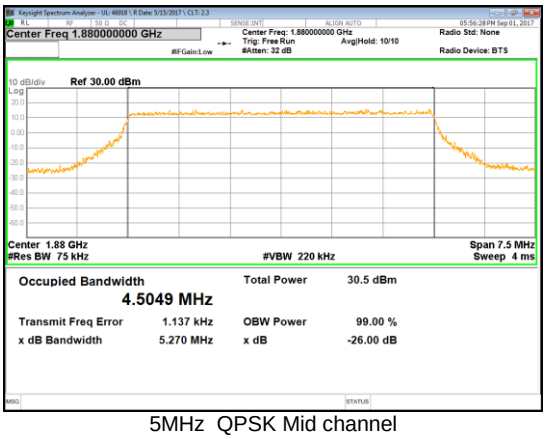
5MHz



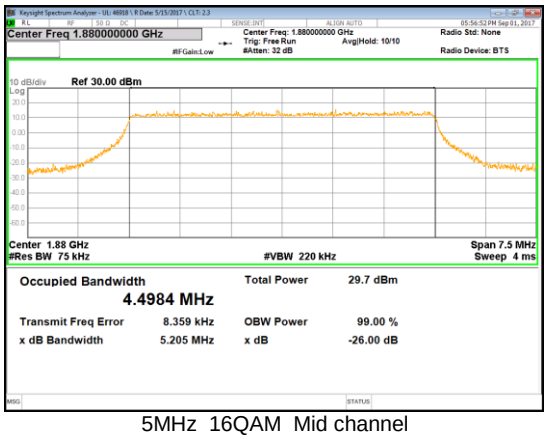
5MHz QPSK Low channel



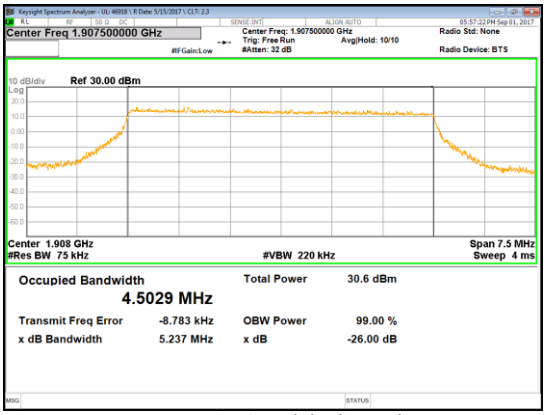
5MHz 16QAM Low channel



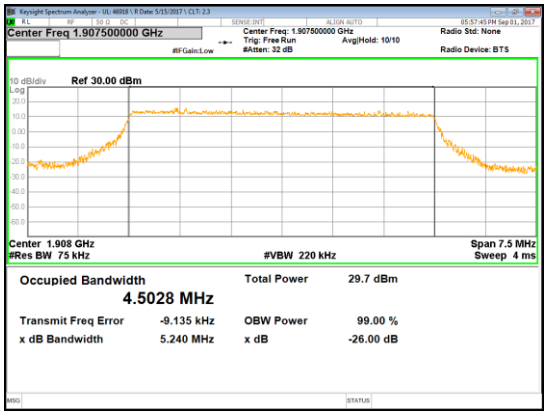
5MHz QPSK Mid channel



5MHz 16QAM Mid channel



5MHz QPSK High channel



5MHz 16QAM High channel

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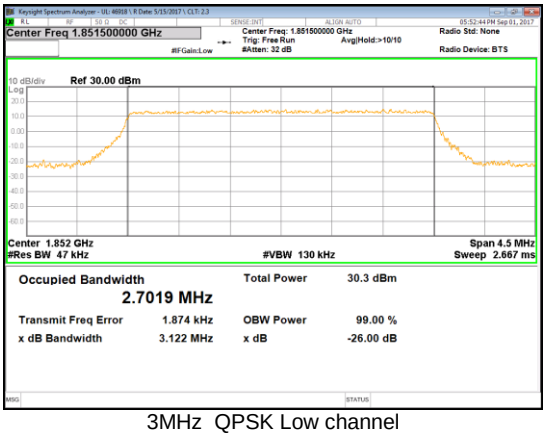
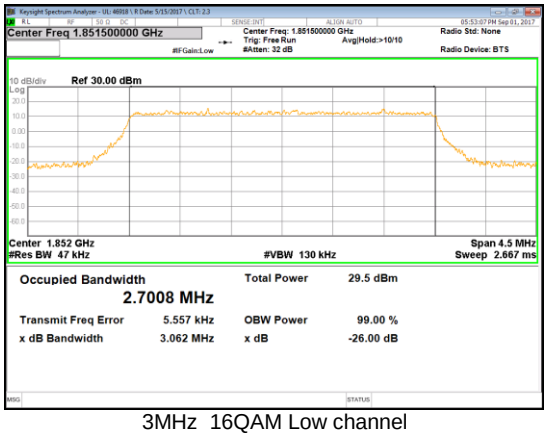
Band 2

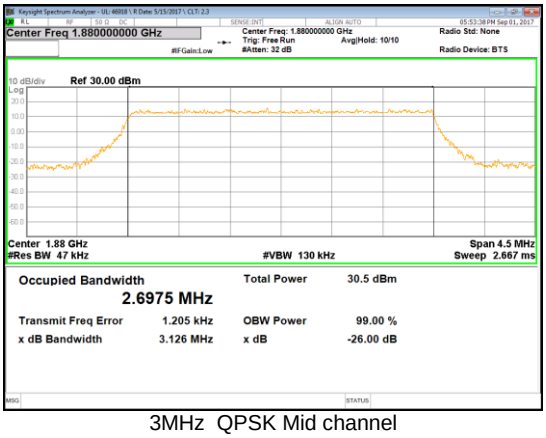
3MHz



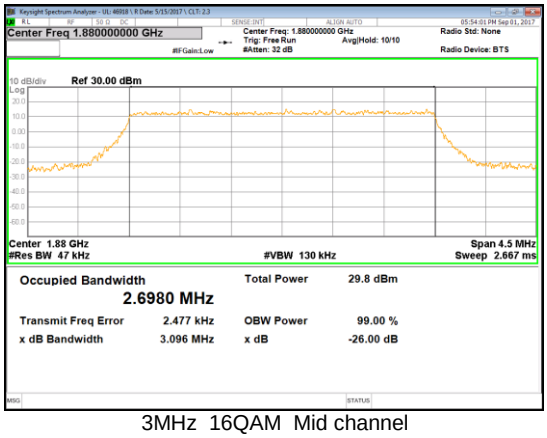
3MHz QPSK Low channel



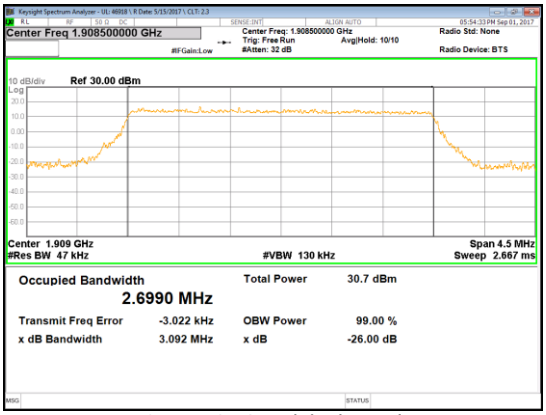
3MHz 16QAM Low channel



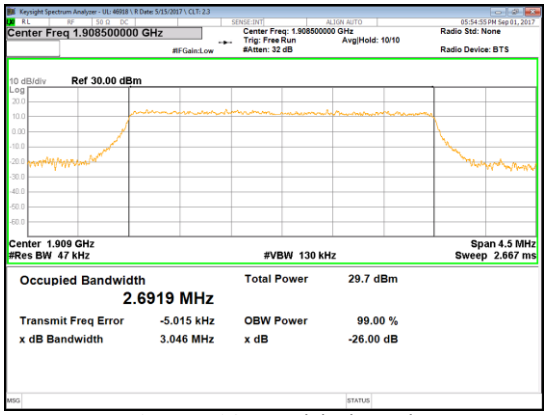
3MHz QPSK Mid channel



3MHz 16QAM Mid channel



3MHz QPSK High channel



3MHz 16QAM High channel

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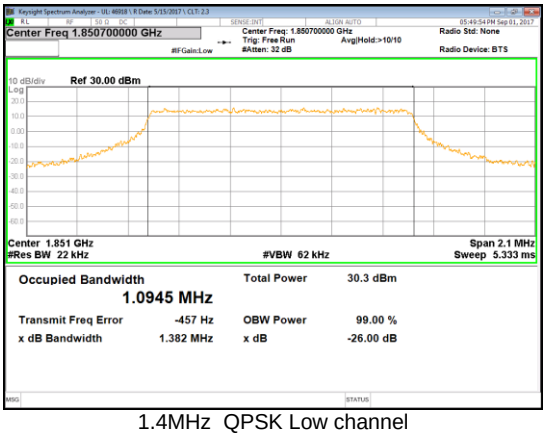
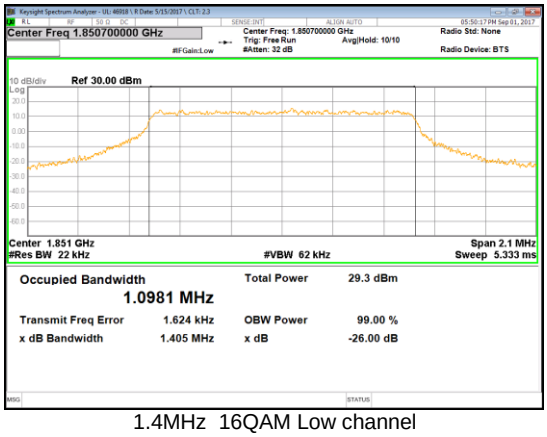
Band 2

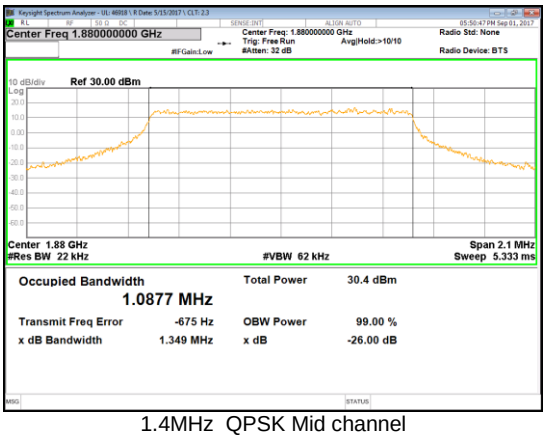
1.4MHz



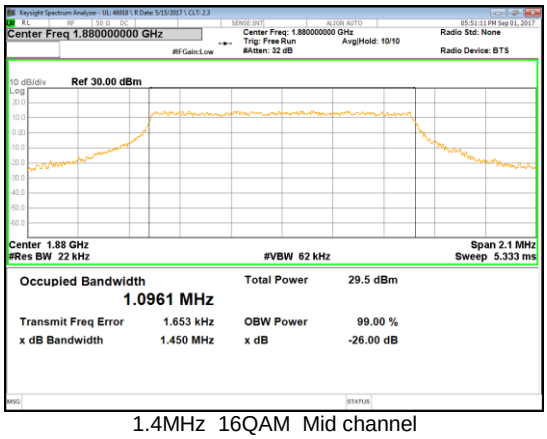
1.4MHz QPSK Low channel



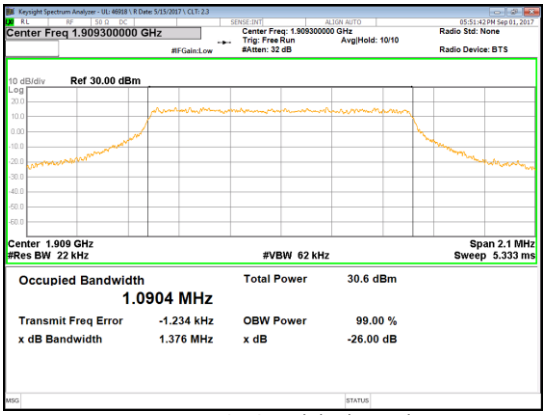
1.4MHz 16QAM Low channel



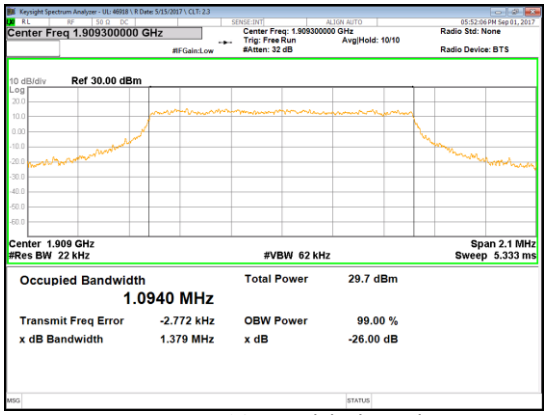
1.4MHz QPSK Mid channel



1.4MHz 16QAM Mid channel



1.4MHz QPSK High channel



1.4MHz 16QAM High channel

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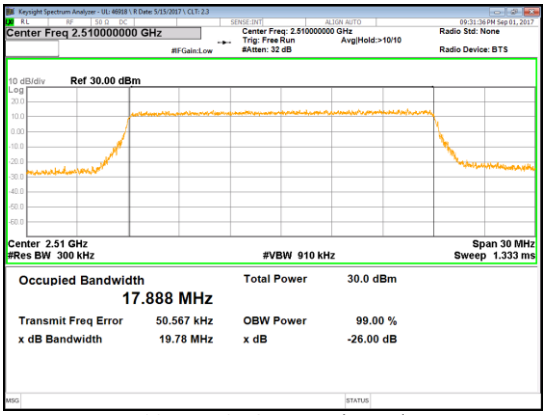
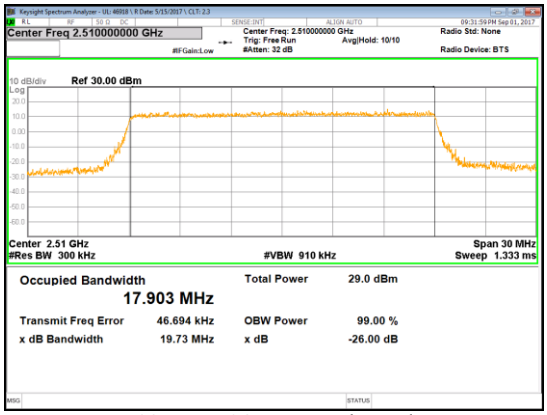
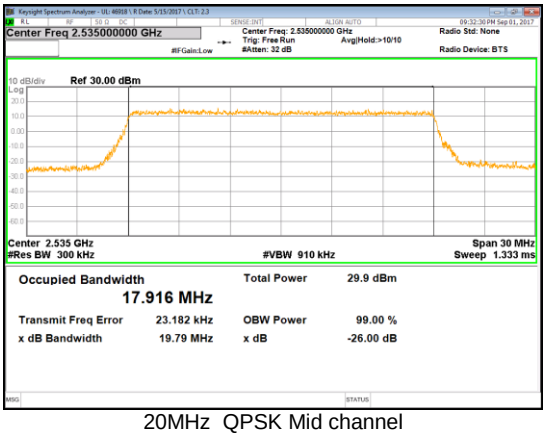
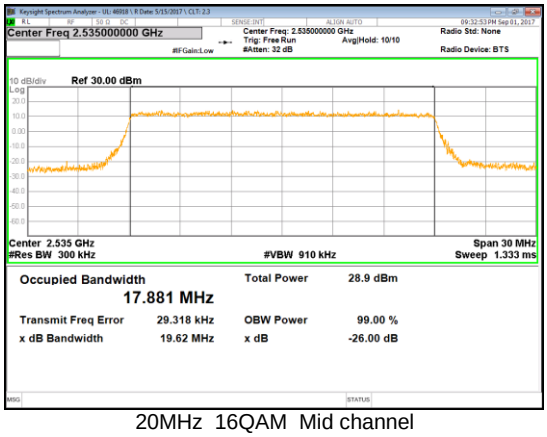
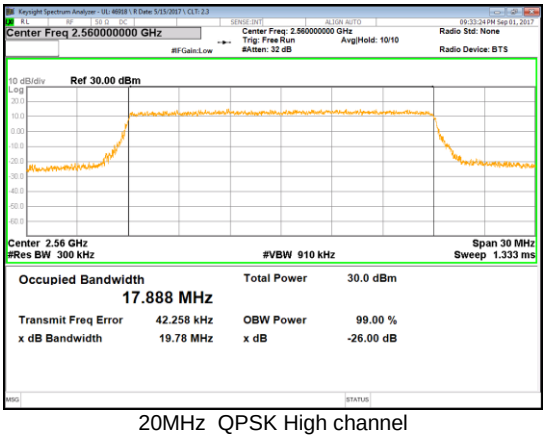
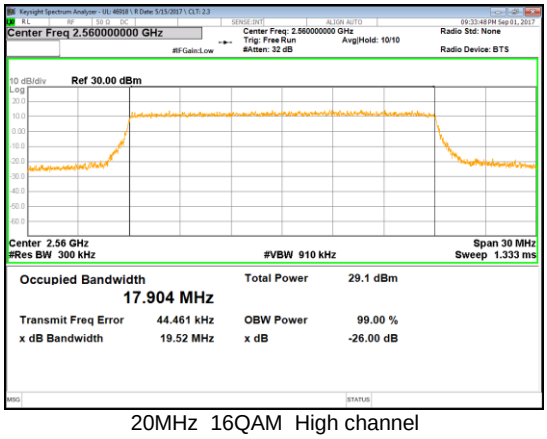
LTE Band 7

Band 7 20MHz	 20MHz QPSK Low channel	 20MHz 16QAM Low channel
	 20MHz QPSK Mid channel	 20MHz 16QAM Mid channel
	 20MHz QPSK High channel	 20MHz 16QAM High channel

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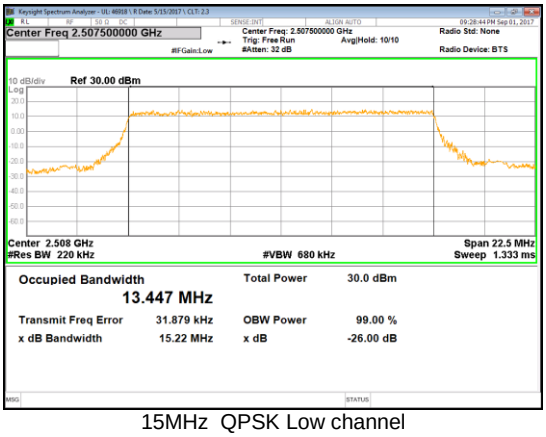
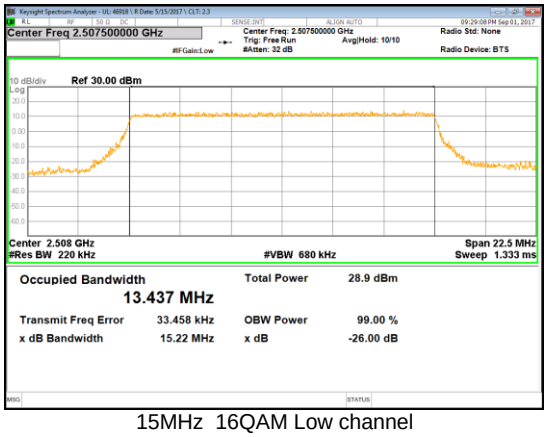
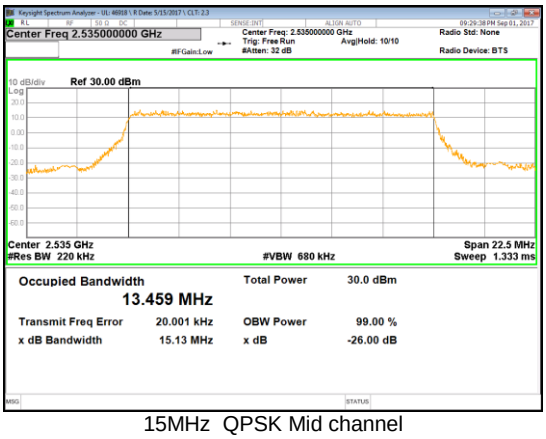
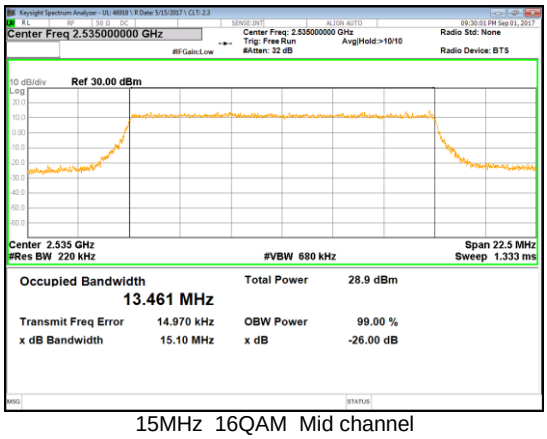
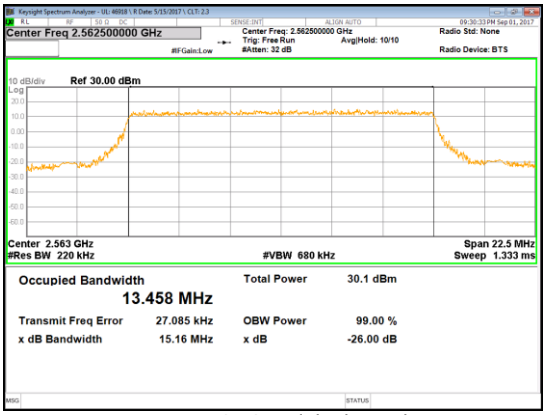
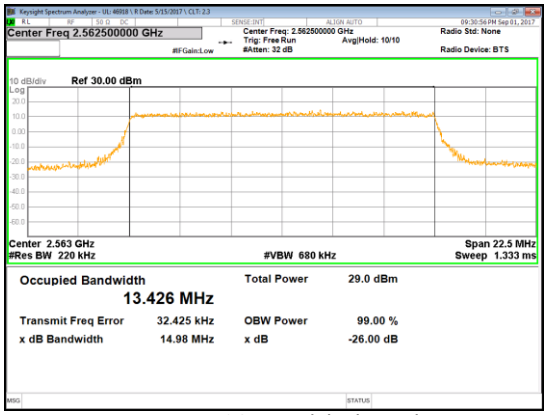
Band 7 15MHz	 15MHz QPSK Low channel	 15MHz 16QAM Low channel
	 15MHz QPSK Mid channel	 15MHz 16QAM Mid channel
	 15MHz QPSK High channel	 15MHz 16QAM High channel

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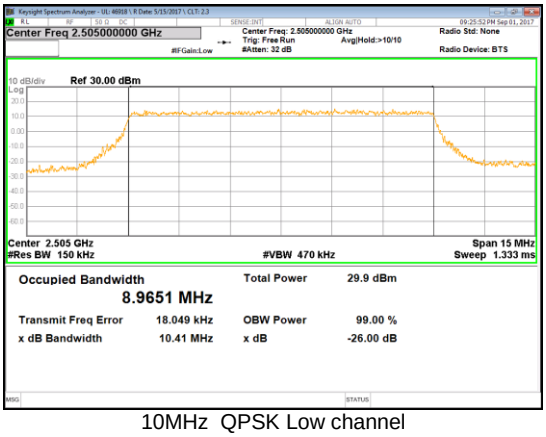
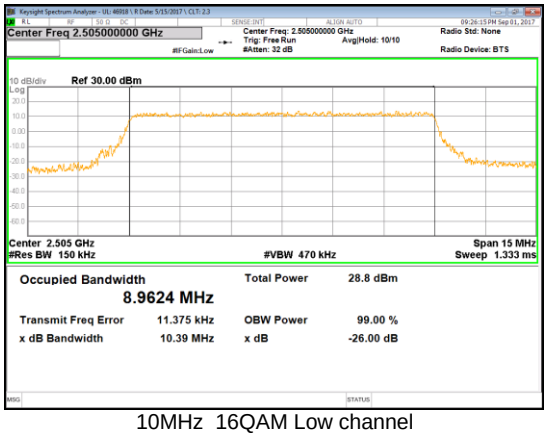
Band 7

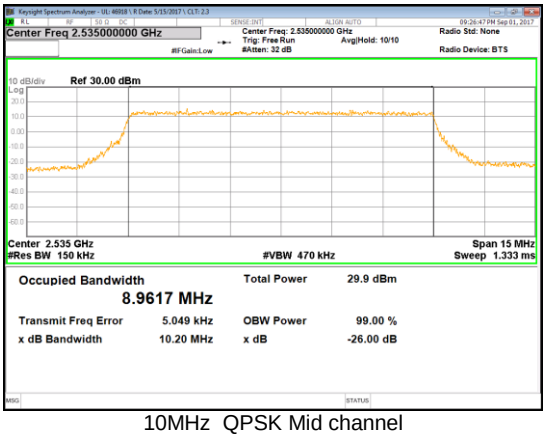
10MHz



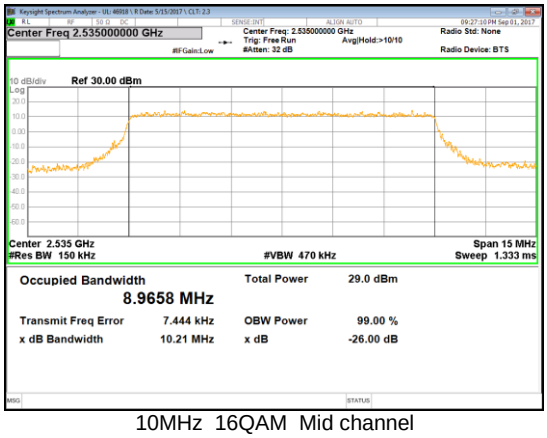
10MHz QPSK Low channel



10MHz 16QAM Low channel



10MHz QPSK Mid channel



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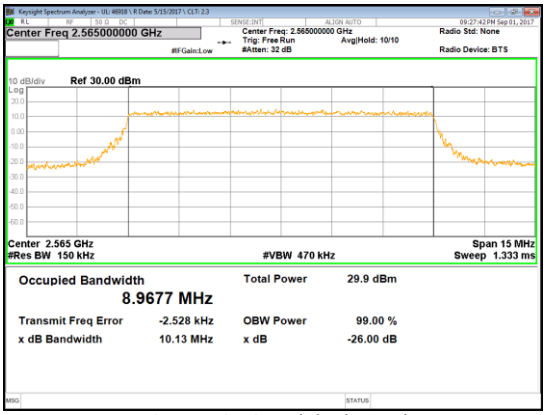
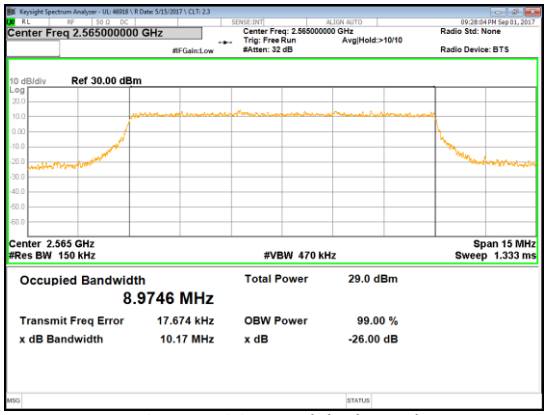


10MHz QPSK High channel



10MHz 16QAM High channel

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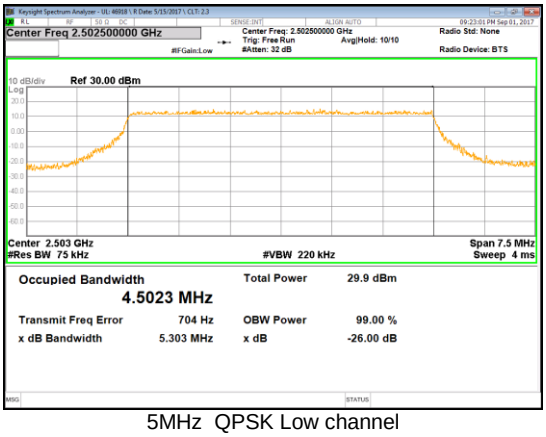
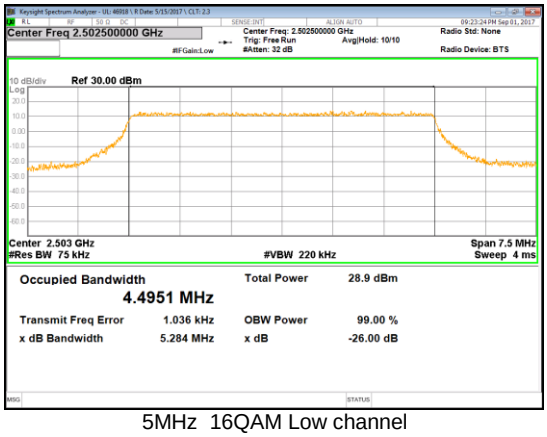
Band 7

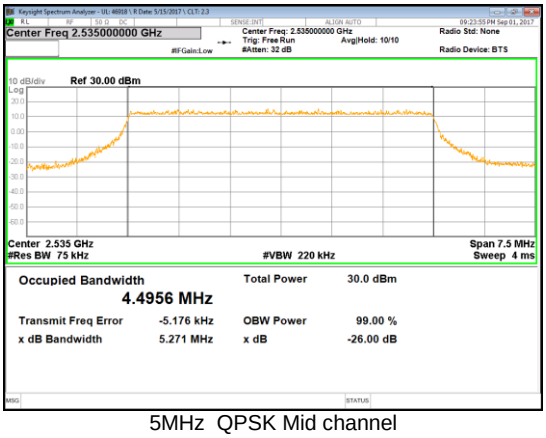
5MHz



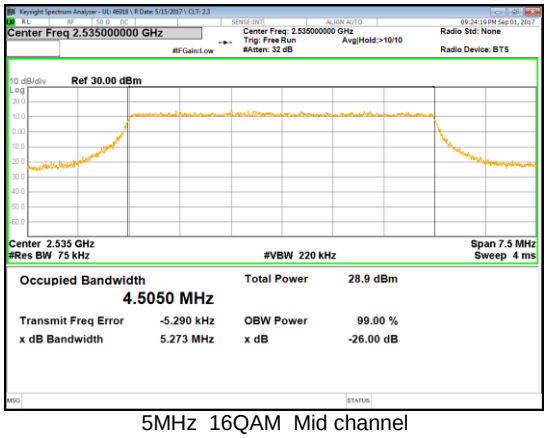
5MHz QPSK Low channel



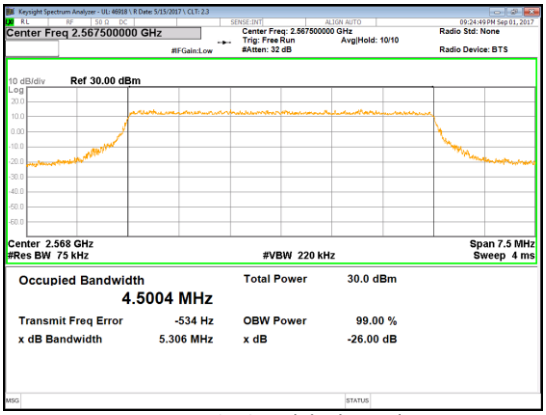
5MHz 16QAM Low channel



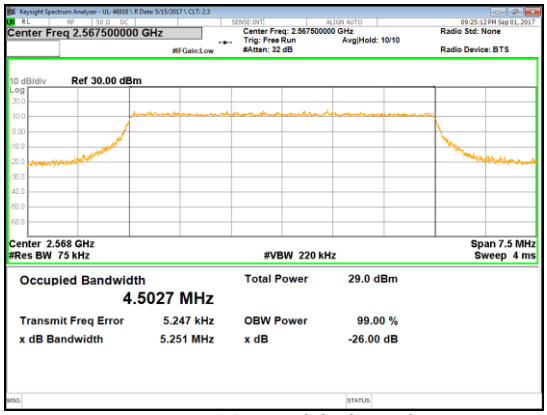
5MHz QPSK Mid channel



5MHz 16QAM Mid channel



5MHz QPSK High channel



5MHz 16QAM High channel

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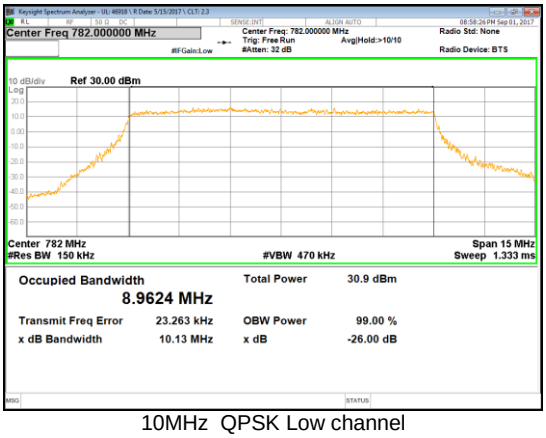
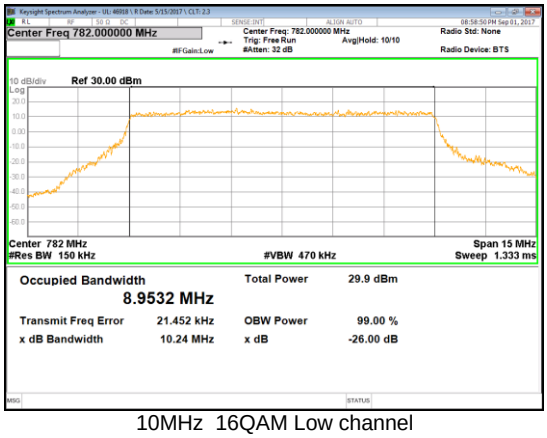
LTE Band 13

Band 13 10MHz	 10MHz QPSK Low channel	 10MHz 16QAM Low channel

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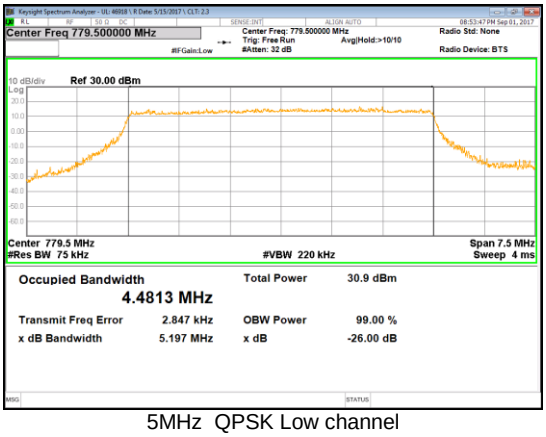
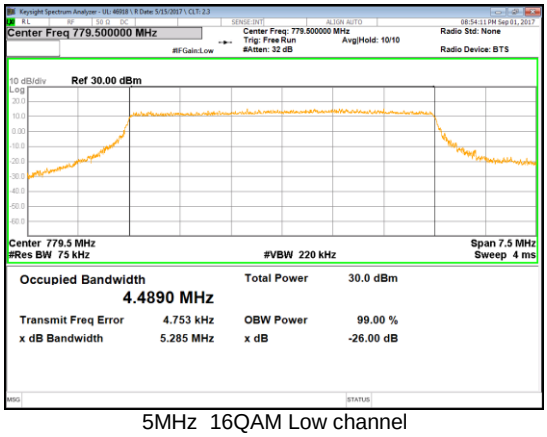
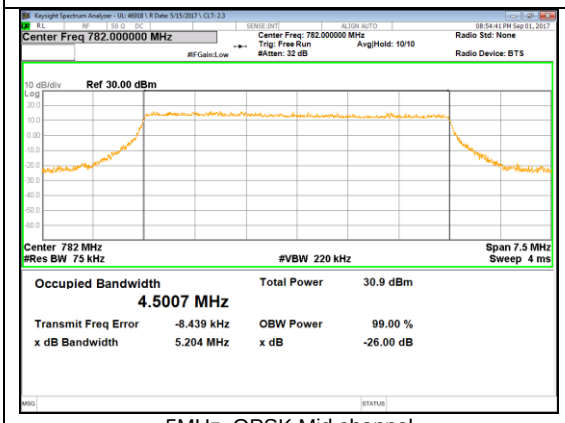
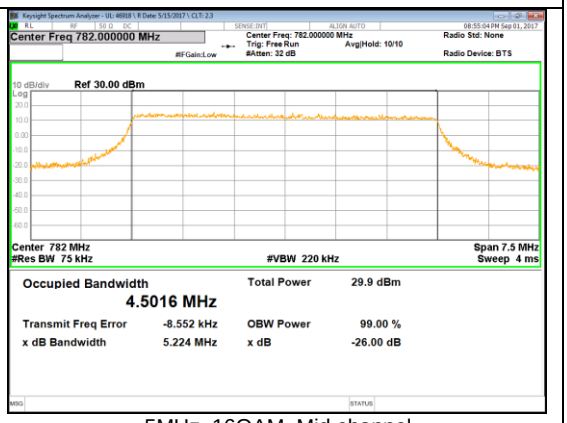
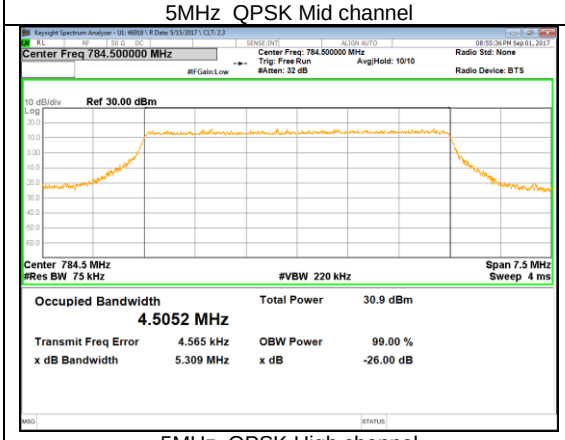
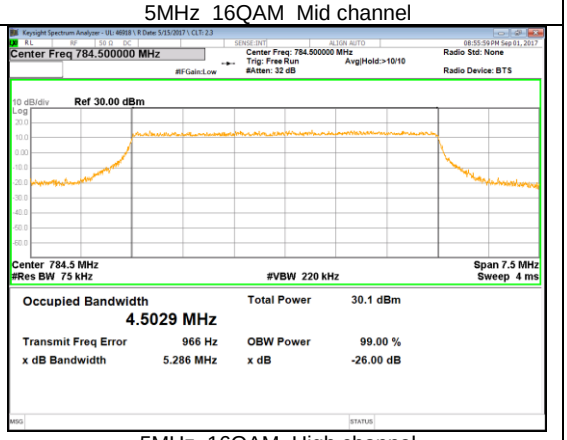
Band 13 5MHz	 5MHz QPSK Low channel	 5MHz 16QAM Low channel
	 5MHz QPSK Mid channel	 5MHz 16QAM Mid channel
	 5MHz QPSK High channel	 5MHz 16QAM High channel

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9.2. BAND EDGE EMISSIONS

RULE PART(S)

FCC: §22.359, §24.238, §27. 53(m) and §27. 53(c)(2),(4)/ (h)

LIMITS

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

Part 27.53(m) 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.

(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;

(h) 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.

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TEST PROCEDURE

Per KDB 971168 D01 Power Meas License Digital Systems v02r02
The transmitter output was connected to a CMW500 Test 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.

WCDMA/LTE

a) Set the RBW = 1 ~ 1.5 % of OBW(Typically limited to a minimum RBW of 1% of the OBW)

b) Set VBW ≥ 3 × RBW;

c) Set span ≥ 1.5 times the OBW;

d) Sweep time = Auto;

e) Detector = RMS;

f) Ensure that the number of measurement points ≥ 2*Span/RBW;

g) Trace mode = Average (100);

Note: For frequency range of 763-775 MHz and 793-805 MHz,

a) Set the RBW = 6.2kHz

b) Set VBW ≥ 3 × RBW;

c) Sweep time = 1 second ;

d) Detector = RMS;

e) Ensure that the number of measurement points ≥ 2*Span/RBW;

f) Trace mode = Maxhold;

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RESULTS

WCDMA

Band	Mode	Side	f [MHz]	Level [dBm]	Limit [dBm]
Band 5	REL99	Lower	824.000	-27.235	-13.00
		Upper	849.000	-27.486	
	HSDPA	Lower	824.000	-28.388	
		Upper	849.000	-28.779	
Band 2	REL99	Lower	1850.000	-21.693	
		Upper	1910.000	-27.260	
	HSDPA	Lower	1850.000	-27.474	
		Upper	1910.000	-28.865	

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LTE 5

Bandwidth	Mode	Side	RB Status	f [MHz]	Level [dBm]	Limit [dBm]
10 MHz	QPSK	Lower	1RB	824.000	-30.677	-13.00
			FRB	824.000	-28.985	
		Upper	1RB	849.000	-30.115	
			FRB	849.000	-26.480	
	16QAM	Lower	1RB	824.000	-32.418	
			FRB	824.000	-28.480	
		Upper	1RB	849.000	-29.838	
			FRB	849.000	-29.928	
5 MHz	QPSK	Lower	1RB	824.000	-20.120	
			FRB	824.000	-25.514	
		Upper	1RB	849.000	-20.482	
			FRB	849.000	-24.192	
	16QAM	Lower	1RB	824.000	-23.352	
			FRB	824.000	-24.876	
		Upper	1RB	849.000	-20.789	
			FRB	849.000	-25.105	
3 MHz	QPSK	Lower	1RB	824.000	-20.004	
			FRB	824.000	-22.636	
		Upper	1RB	849.000	-14.730	
			FRB	849.000	-22.840	
	16QAM	Lower	1RB	824.000	-20.067	
			FRB	824.000	-24.106	
		Upper	1RB	849.000	-17.674	
			FRB	849.000	-23.240	
1.4 MHz	QPSK	Lower	1RB	824.000	-21.691	
			FRB	824.000	-23.745	
		Upper	1RB	849.000	-20.109	
			FRB	849.000	-22.505	
	16QAM	Lower	1RB	824.000	-24.062	
			FRB	824.000	-25.023	
		Upper	1RB	849.000	-21.117	
			FRB	849.000	-23.312	

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LTE 4

Bandwidth	Mode	Side	RB Status	f [MHz]	Level [dBm]	Limit [dBm]
20 MHz	QPSK	Lower	1RB	1710.000	-37.811	-13.00
			FRB	1710.000	-30.849	
		Upper	1RB	1755.000	-31.299	
			FRB	1755.000	-31.404	
	16QAM	Lower	1RB	1710.000	-35.199	
			FRB	1710.000	-33.077	
		Upper	1RB	1755.000	-33.079	
			FRB	1755.000	-32.791	
15 MHz	QPSK	Lower	1RB	1710.000	-24.242	
			FRB	1710.000	-29.425	
		Upper	1RB	1755.000	-21.767	
			FRB	1755.000	-28.141	
	16QAM	Lower	1RB	1710.000	-24.922	
			FRB	1710.000	-29.754	
		Upper	1RB	1755.000	-20.567	
			FRB	1755.000	-29.797	
10 MHz	QPSK	Lower	1RB	1710.000	-33.329	
			FRB	1710.000	-28.437	
		Upper	1RB	1755.000	-30.581	
			FRB	1755.000	-26.579	
	16QAM	Lower	1RB	1710.000	-33.247	
			FRB	1710.000	-30.147	
		Upper	1RB	1755.000	-29.586	
			FRB	1755.000	-28.912	
5 MHz	QPSK	Lower	1RB	1710.000	-22.856	
			FRB	1710.000	-23.593	
		Upper	1RB	1755.000	-21.214	
			FRB	1755.000	-22.882	
	16QAM	Lower	1RB	1710.000	-20.028	
			FRB	1710.000	-24.575	
		Upper	1RB	1755.000	-22.005	
			FRB	1755.000	-22.793	

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Bandwidth	Mode	Side	RB Status	f [MHz]	Level [dBm]	Limit [dBm]
3 MHz	QPSK	Lower	1RB	1710.000	-18.555	-13.00
			FRB	1710.000	-22.429	
		Upper	1RB	1755.000	-16.937	
			FRB	1755.000	-23.616	
	16QAM	Lower	1RB	1710.000	-20.195	
			FRB	1710.000	-22.431	
		Upper	1RB	1755.000	-17.896	
			FRB	1755.000	-24.422	
1.4 MHz	QPSK	Lower	1RB	1710.000	-21.653	
			FRB	1710.000	-22.569	
		Upper	1RB	1755.000	-23.548	
			FRB	1755.000	-23.266	
	16QAM	Lower	1RB	1710.000	-23.960	
			FRB	1710.000	-23.378	
		Upper	1RB	1755.000	-24.382	
			FRB	1755.000	-24.041	

LTE 2

Bandwidth	Mode	Side	RB Status	f [MHz]	Level [dBm]	Limit [dBm]
20 MHz	QPSK	Lower	1RB	1850.000	-37.910	-13.00
			FRB	1850.000	-31.075	
		Upper	1RB	1910.000	-32.955	
			FRB	1910.000	-35.161	
	16QAM	Lower	1RB	1850.000	-40.612	
			FRB	1850.000	-31.824	
		Upper	1RB	1910.000	-34.837	
			FRB	1910.000	-38.247	
15 MHz	QPSK	Lower	1RB	1850.000	-24.306	
			FRB	1850.000	-28.909	
		Upper	1RB	1910.000	-21.819	
			FRB	1910.000	-32.704	
	16QAM	Lower	1RB	1850.000	-23.235	
			FRB	1850.000	-35.433	
		Upper	1RB	1910.000	-24.491	
			FRB	1910.000	-30.937	

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Bandwidth	Mode	Side	RB Status	f [MHz]	Level [dBm]	Limit [dBm]
10 MHz	QPSK	Lower	1RB	1850.000	-30.779	-13.00
			FRB	1850.000	-30.092	
		Upper	1RB	1910.000	-30.821	
			FRB	1910.000	-32.255	
	16QAM	Lower	1RB	1850.000	-33.675	
			FRB	1850.000	-29.787	
		Upper	1RB	1910.000	-32.262	
			FRB	1910.000	-33.967	
5 MHz	QPSK	Lower	1RB	1850.000	-22.442	
			FRB	1850.000	-24.842	
		Upper	1RB	1910.000	-22.170	
			FRB	1910.000	-26.026	
	16QAM	Lower	1RB	1850.000	-25.379	
			FRB	1850.000	-25.631	
		Upper	1RB	1910.000	-23.417	
			FRB	1910.000	-26.296	
3 MHz	QPSK	Lower	1RB	1850.000	-18.875	
			FRB	1850.000	-23.486	
		Upper	1RB	1910.000	-19.543	
			FRB	1910.000	-25.232	
	16QAM	Lower	1RB	1850.000	-22.292	
			FRB	1850.000	-27.065	
		Upper	1RB	1910.000	-19.936	
			FRB	1910.000	-26.530	
1.4 MHz	QPSK	Lower	1RB	1850.000	-23.232	
			FRB	1850.000	-22.772	
		Upper	1RB	1910.000	-22.596	
			FRB	1910.000	-24.029	
	16QAM	Lower	1RB	1850.000	-23.865	
			FRB	1850.000	-24.675	
		Upper	1RB	1910.000	-24.479	
			FRB	1910.000	-25.287	

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LTE 13

Bandwidth	Mode	Side	RB Status	f [MHz]	Level [dBm]	Limit [dBm]
10 MHz	QPSK	Lower	1RB	777.000	-32.759	-13.00
			FRB	777.000	-25.871	
		Upper	1RB	787.000	-28.577	
			FRB	787.000	-25.292	
	16QAM	Lower	1RB	777.000	-31.771	
			FRB	777.000	-30.049	
		Upper	1RB	787.000	-30.739	
			FRB	787.000	-26.961	
5 MHz	QPSK	Lower	1RB	777.000	-21.458	
			FRB	777.000	-24.656	
		Upper	1RB	787.000	-20.375	
			FRB	787.000	-22.854	
	16QAM	Lower	1RB	777.000	-23.156	
			FRB	777.000	-26.048	
		Upper	1RB	787.000	-24.040	
			FRB	787.000	-25.203	

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