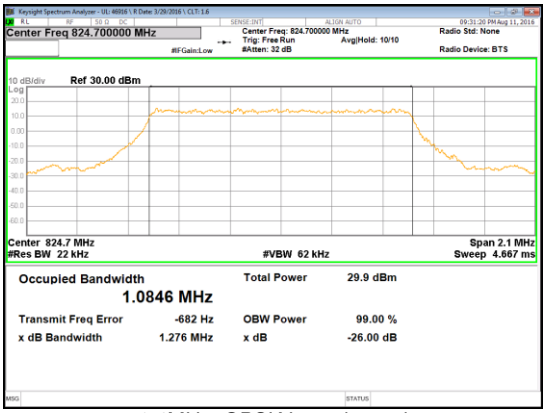
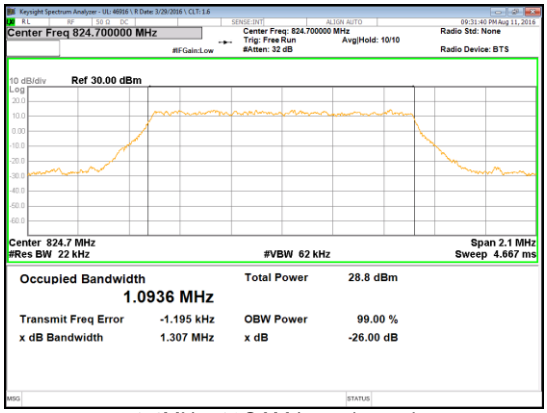
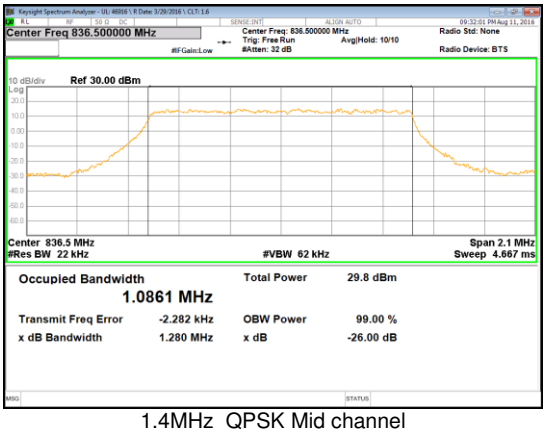
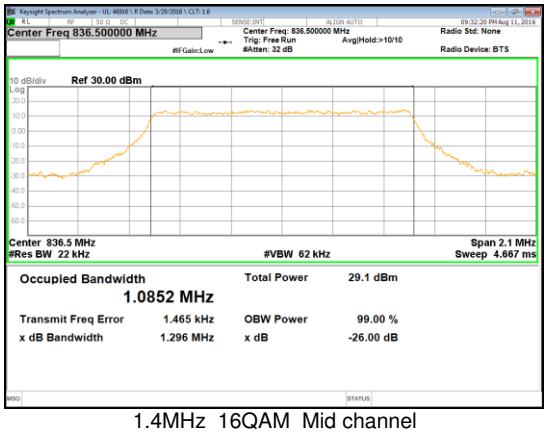
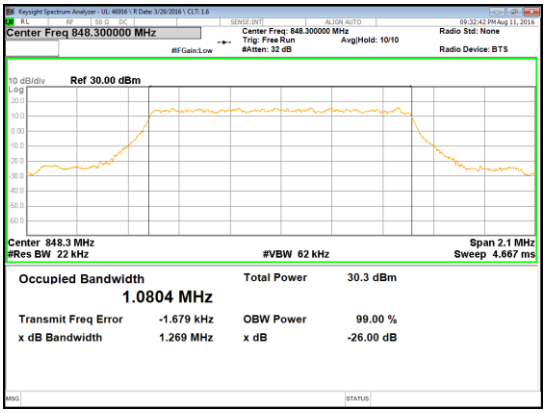
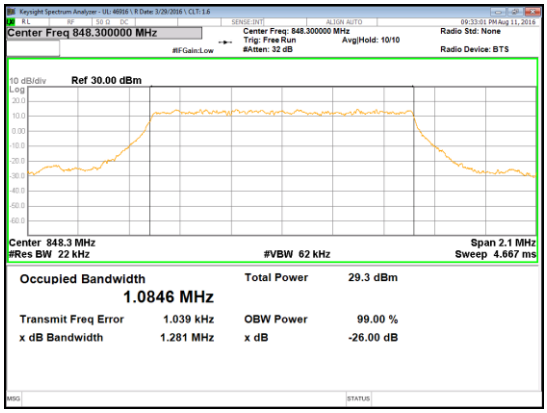
Band 5 1.4MHz	 1.4MHz QPSK Low channel	 1.4MHz 16QAM Low channel
	 1.4MHz QPSK Mid channel	 1.4MHz 16QAM Mid channel
	 1.4MHz QPSK High channel	 1.4MHz 16QAM High channel

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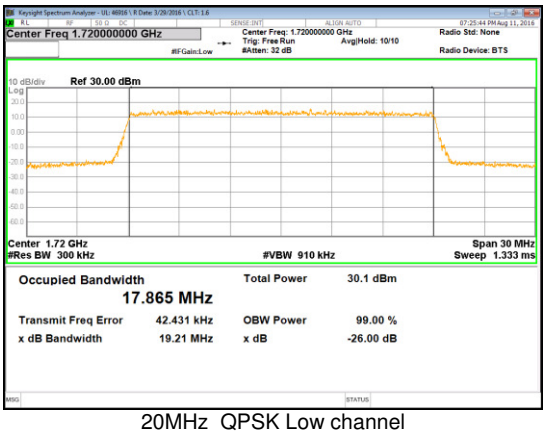
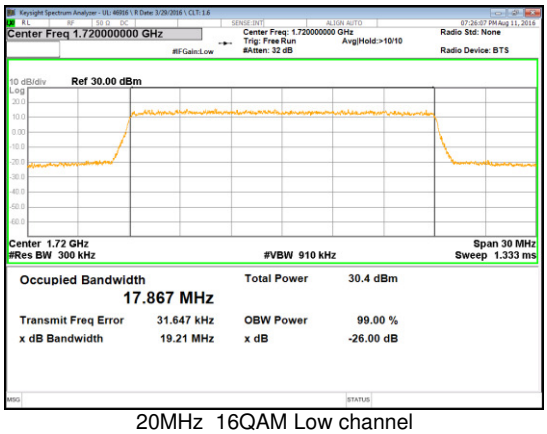
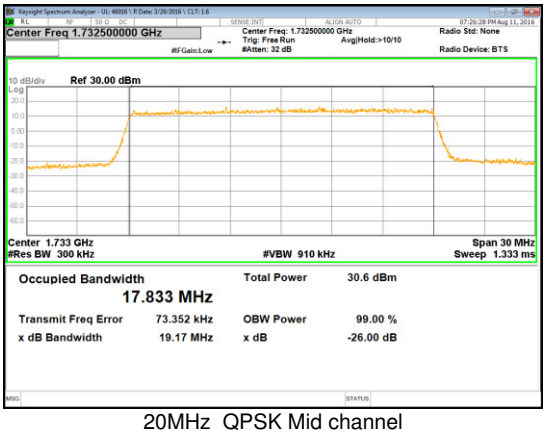
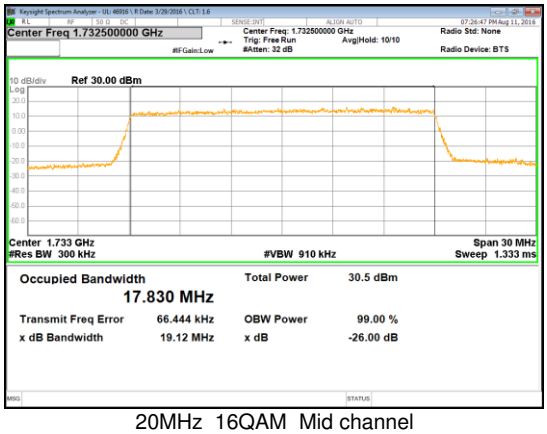
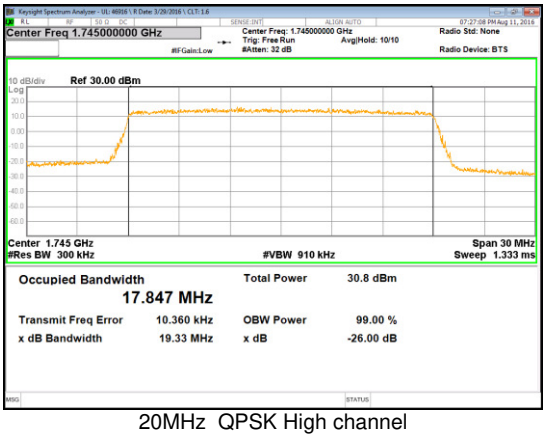
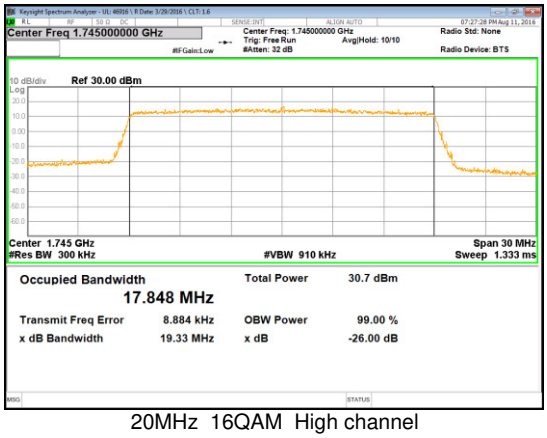
LTE Band 4

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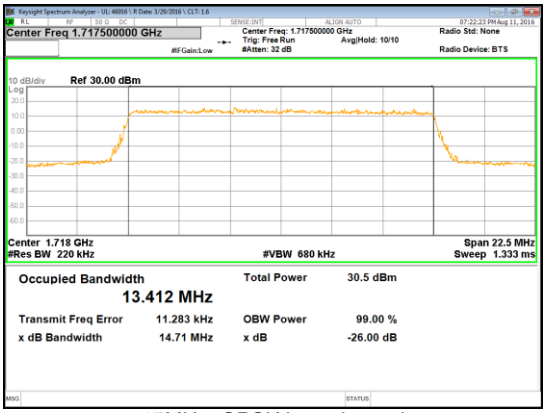
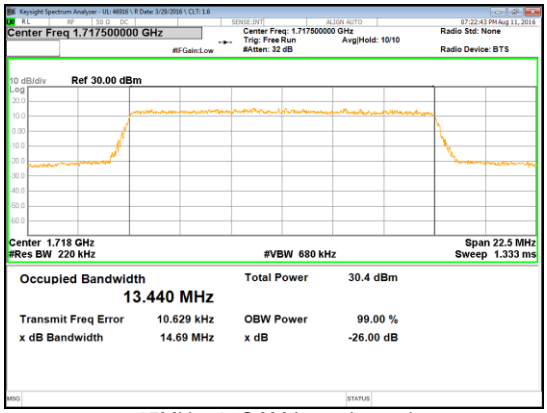
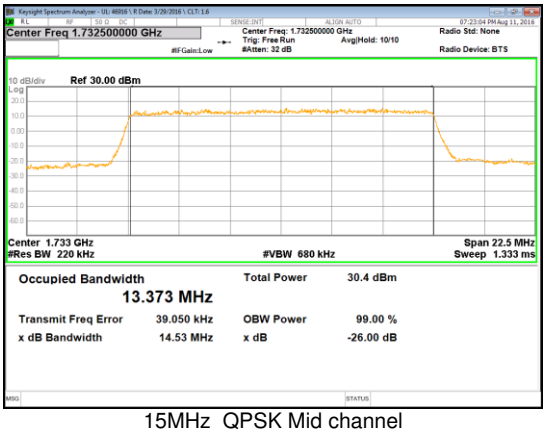
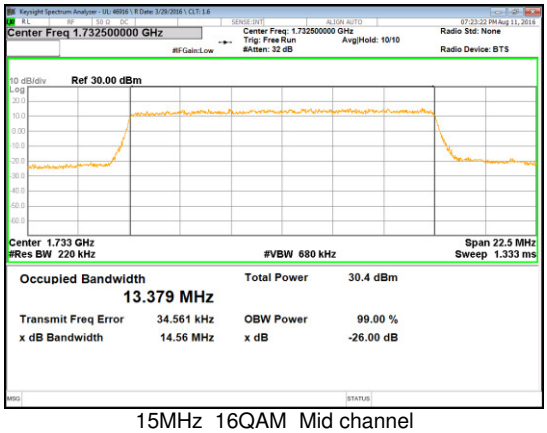
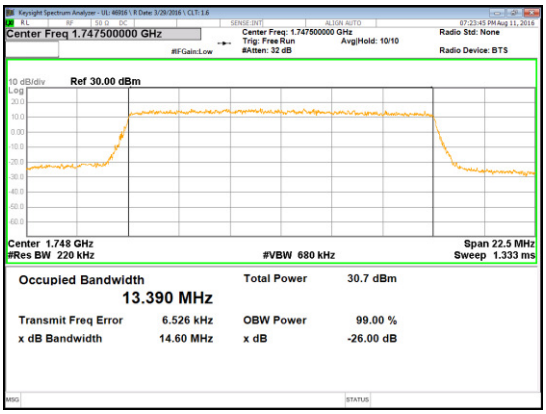
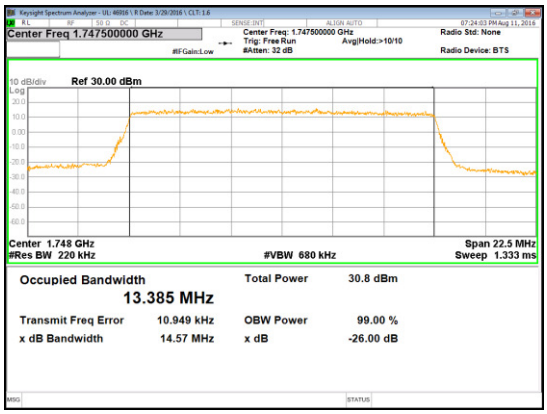
Band 4 15MHz	 15MHz QPSK Low channel	 15MHz 16QAM Low channel
	 15MHz QPSK Mid channel	 15MHz 16QAM Mid channel
	 15MHz QPSK High channel	 15MHz 16QAM High channel

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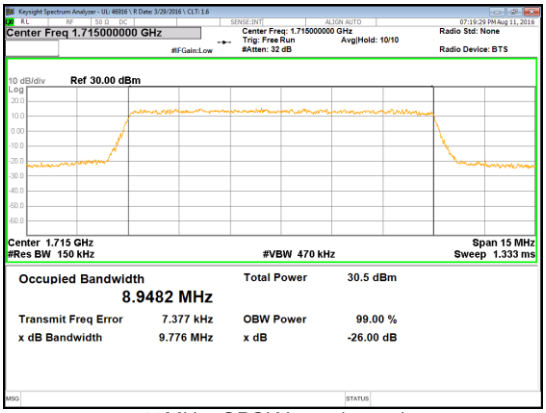
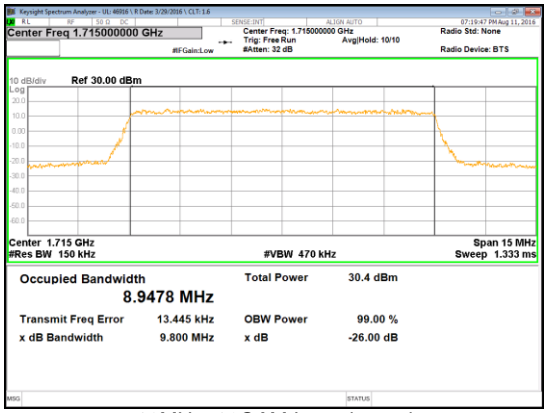
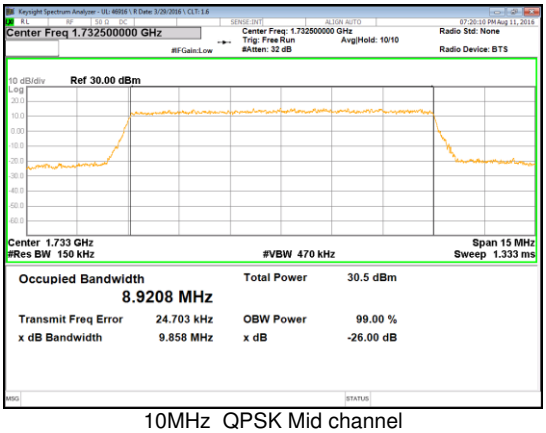
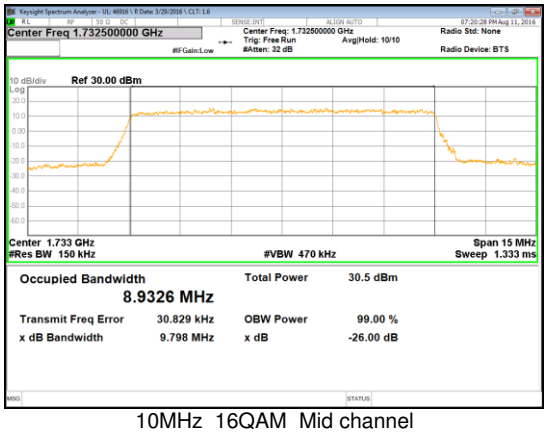
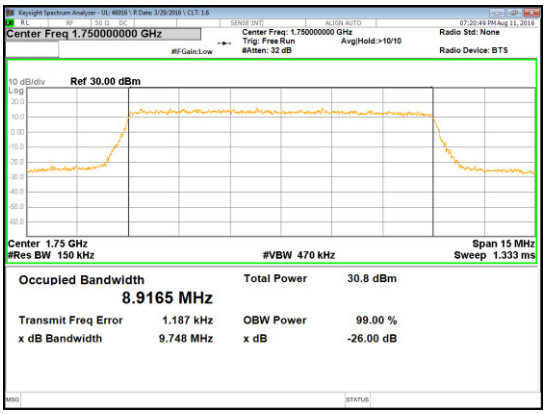
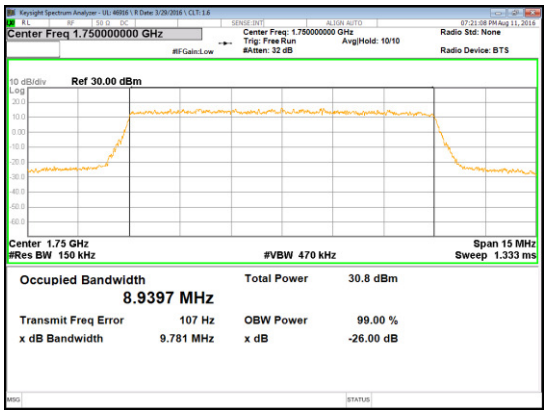
Band 4 10MHz	 10MHz QPSK Low channel	 10MHz 16QAM Low channel
	 10MHz QPSK Mid channel	 10MHz 16QAM Mid channel
	 10MHz QPSK High channel	 10MHz 16QAM High channel

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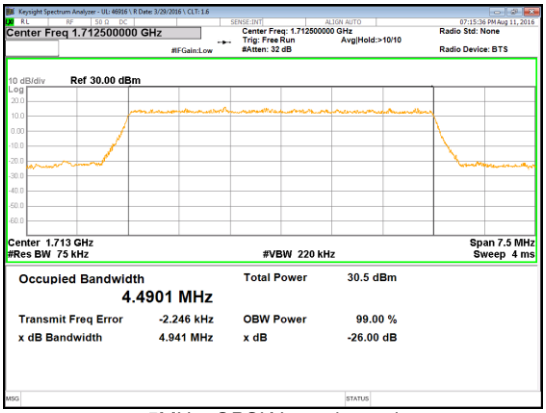
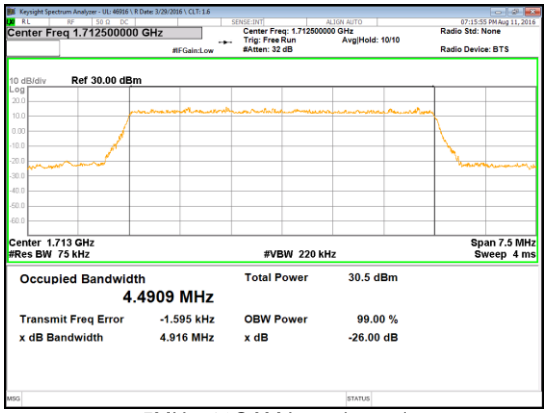
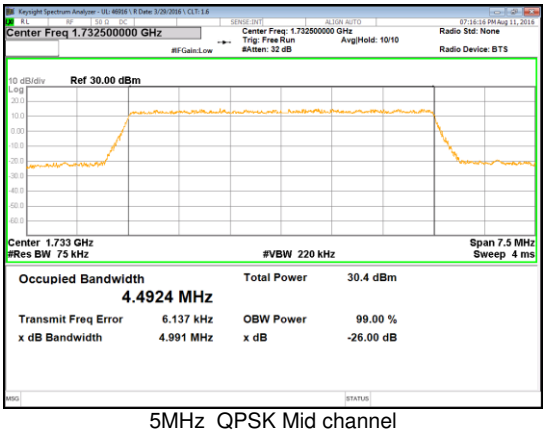
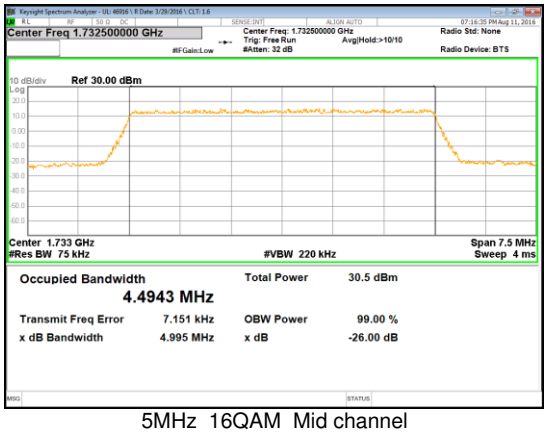
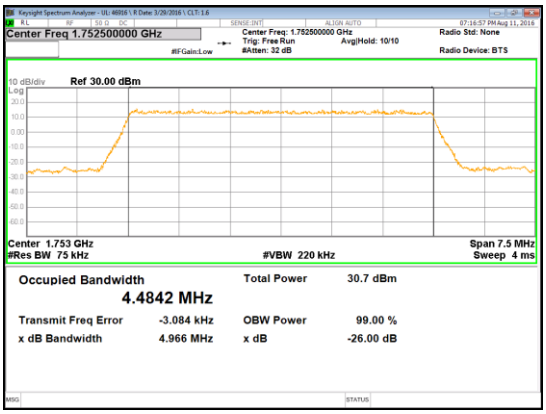
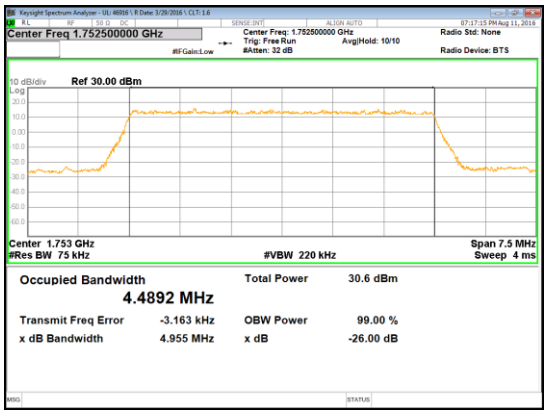
Band 4 5MHz	 5MHz QPSK Low channel	 5MHz 16QAM Low channel
	 5MHz QPSK Mid channel	 5MHz 16QAM Mid channel
	 5MHz QPSK High channel	 5MHz 16QAM High channel

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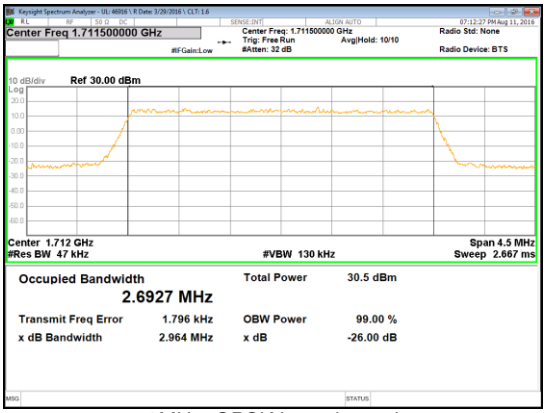
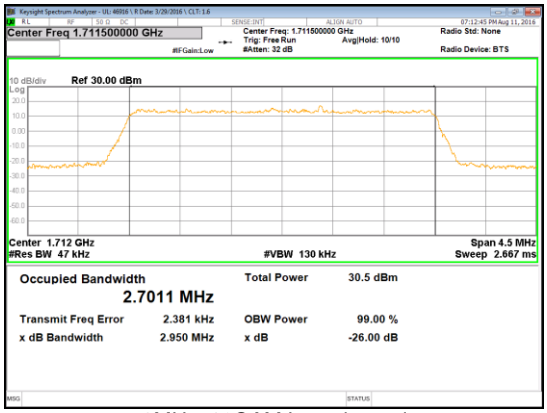
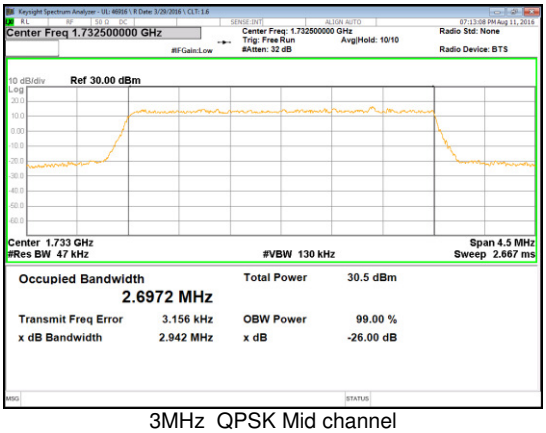
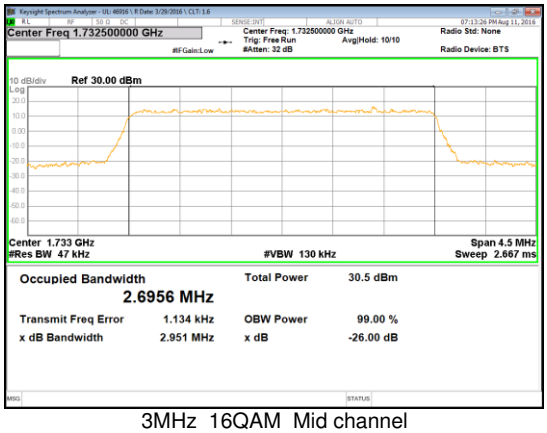
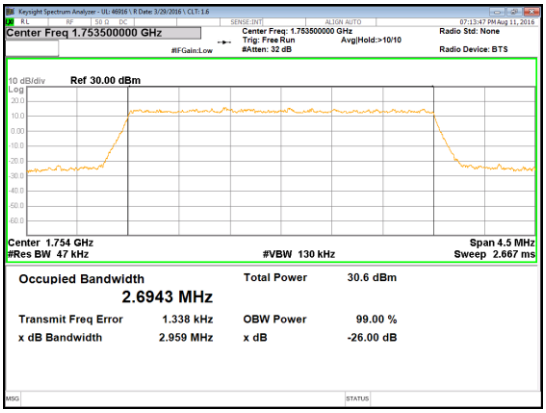
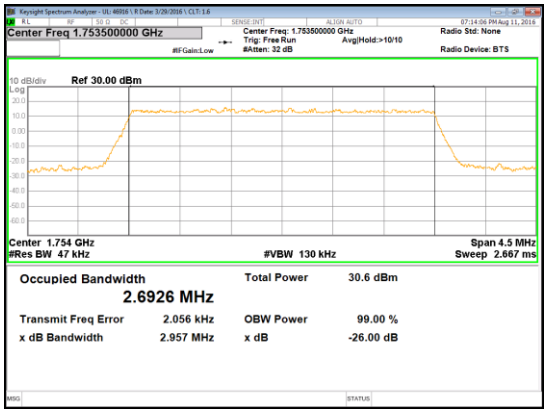
	 3MHz QPSK Low channel	 3MHz 16QAM Low channel
Band 4 3MHz	 3MHz QPSK Mid channel	 3MHz 16QAM Mid channel
	 3MHz QPSK High channel	 3MHz 16QAM High channel

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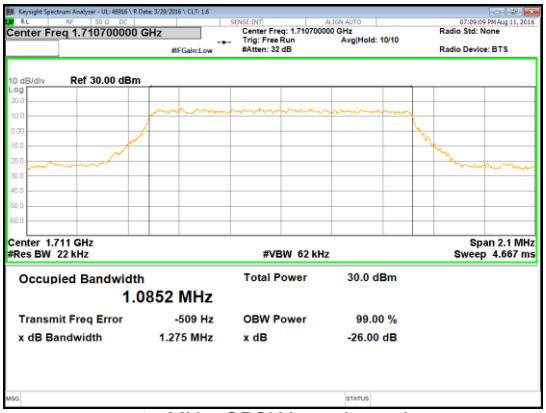
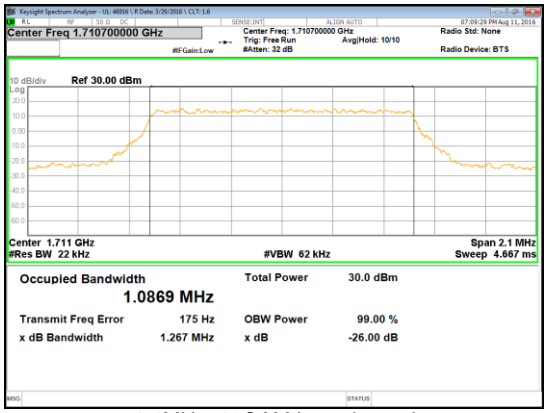
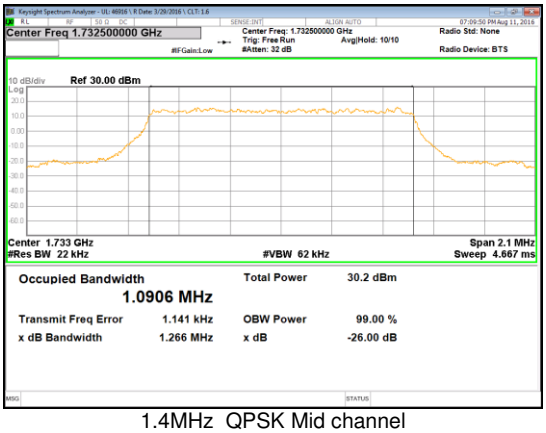
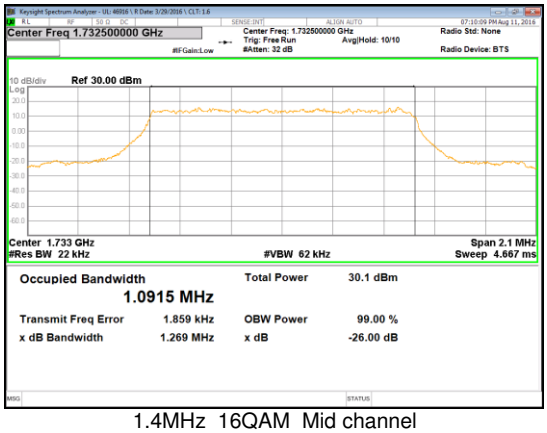
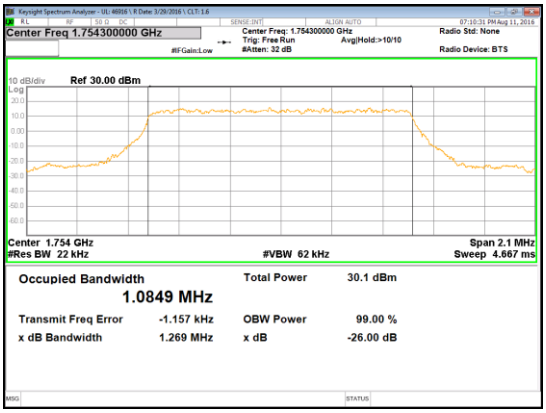
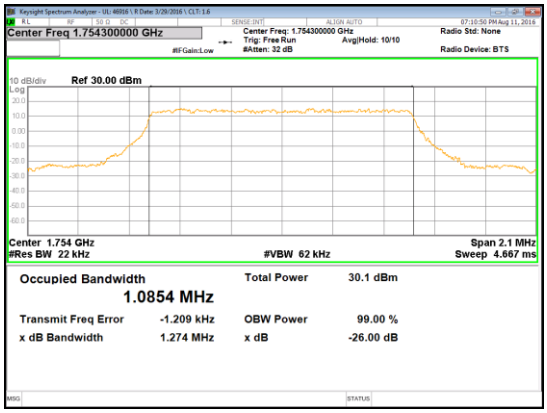
Band 4 1.4MHz	 1.4MHz QPSK Low channel	 1.4MHz 16QAM Low channel
	 1.4MHz QPSK Mid channel	 1.4MHz 16QAM Mid channel
	 1.4MHz QPSK High channel	 1.4MHz 16QAM High channel

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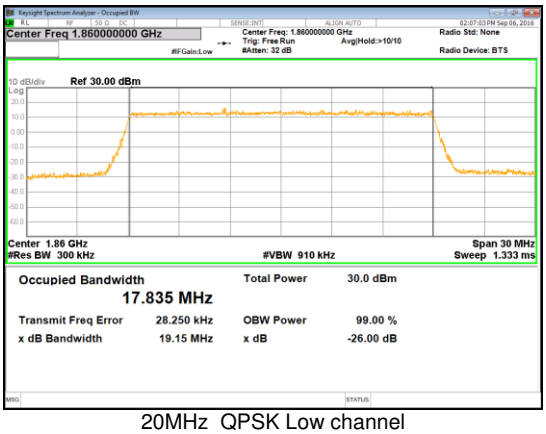
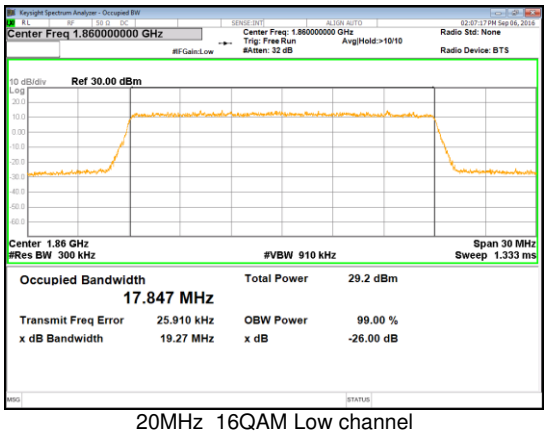
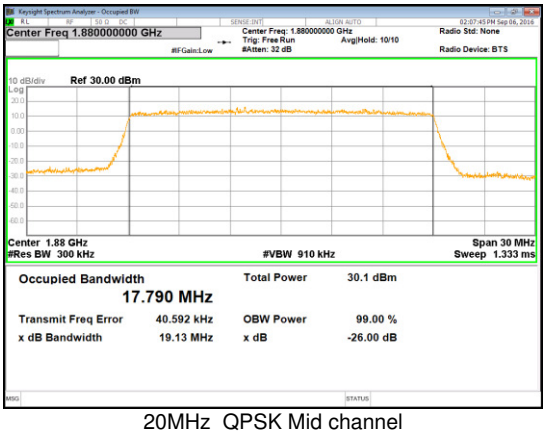
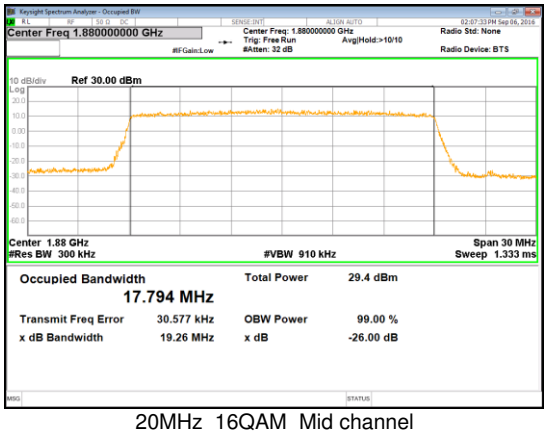
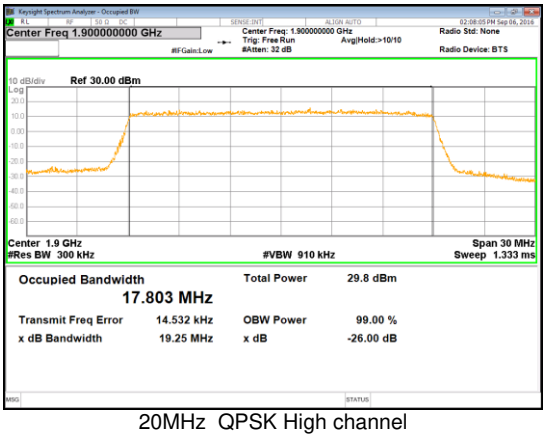
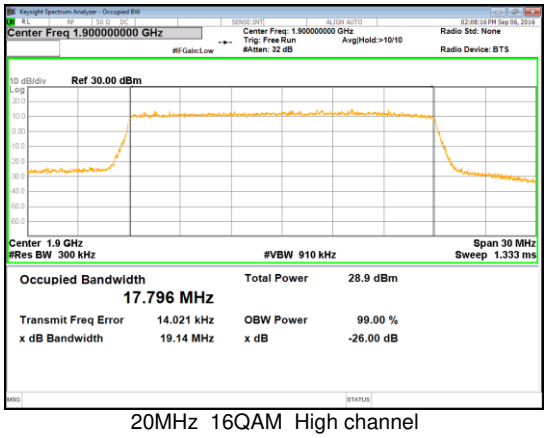
LTE Band 2

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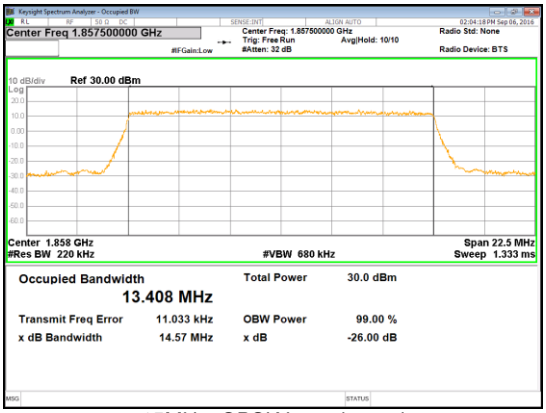
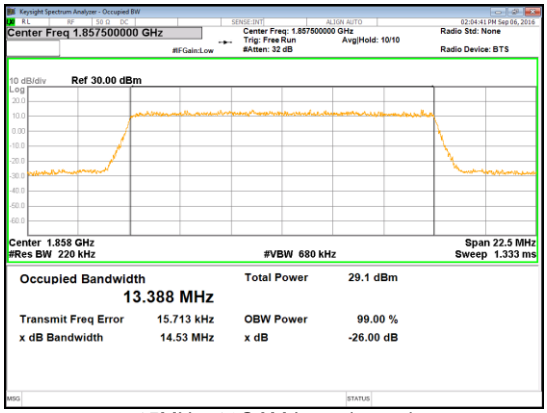
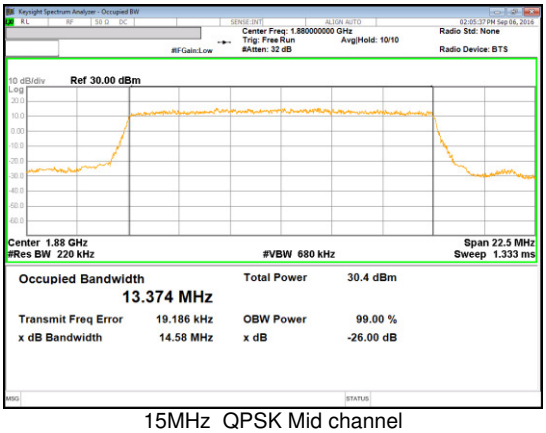
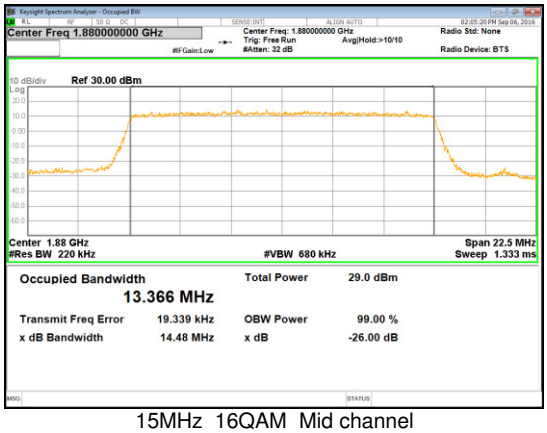
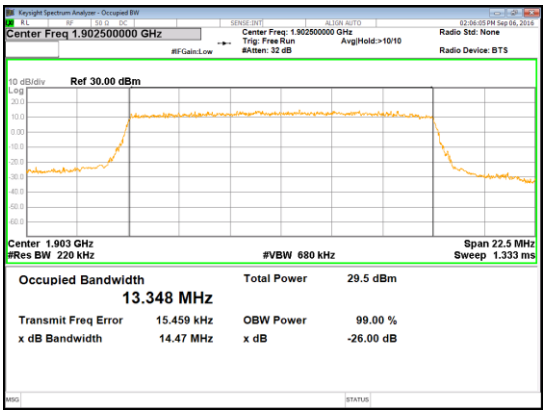
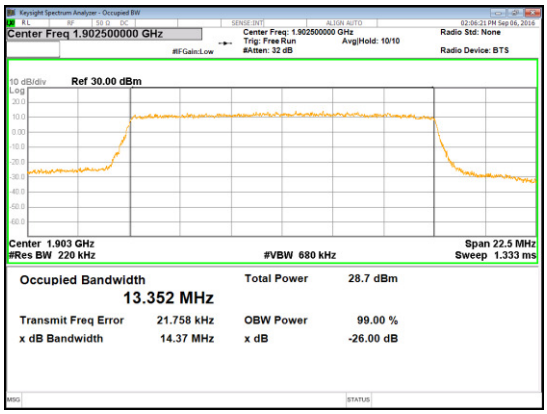
Band 2 15MHz	 15MHz QPSK Low channel	 15MHz 16QAM Low channel
	 15MHz QPSK Mid channel	 15MHz 16QAM Mid channel
	 15MHz QPSK High channel	 15MHz 16QAM High channel

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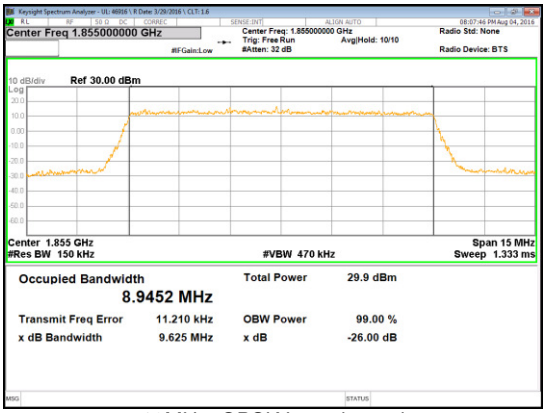
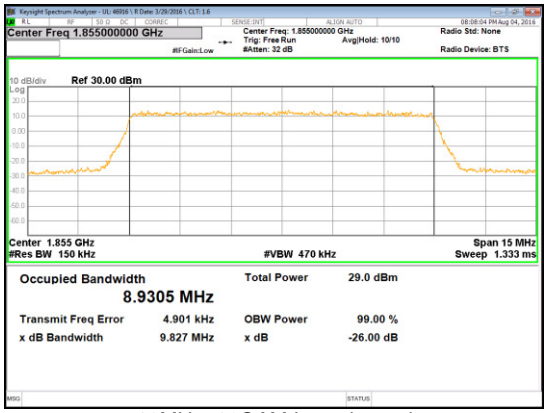
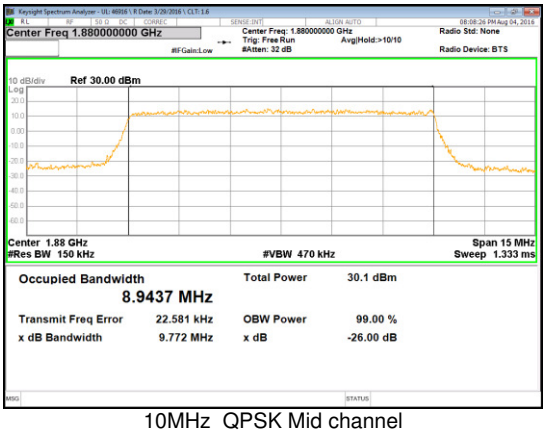
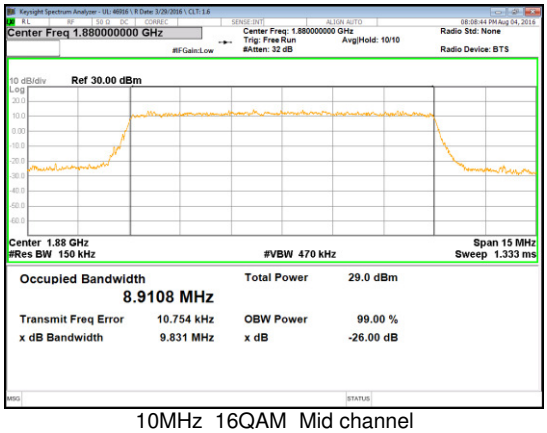
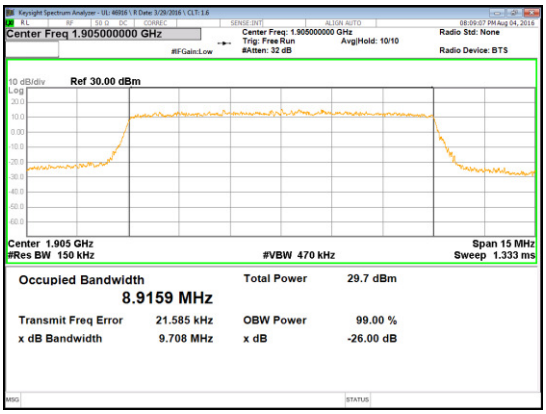
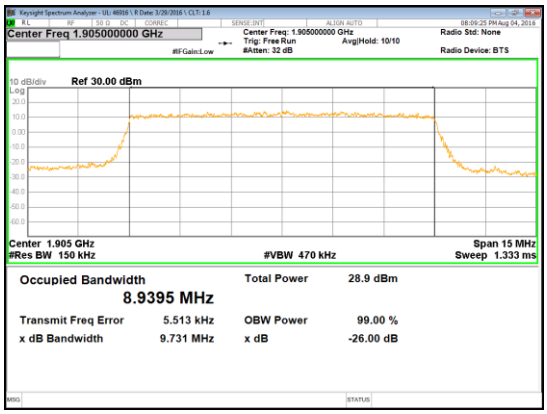
	 10MHz QPSK Low channel	 10MHz 16QAM Low channel
Band 2 10MHz	 10MHz QPSK Mid channel	 10MHz 16QAM Mid channel
	 10MHz QPSK High channel	 10MHz 16QAM High channel

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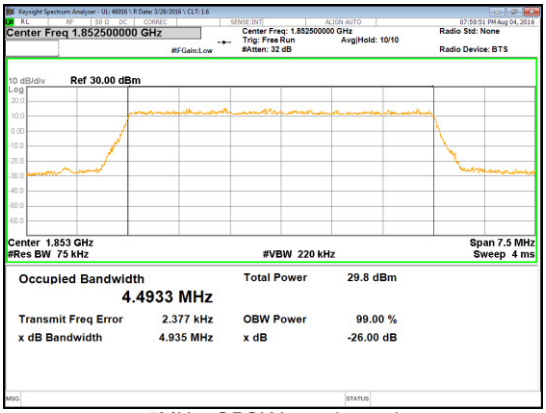
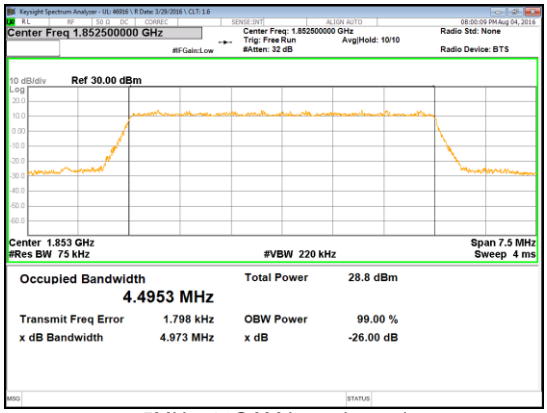
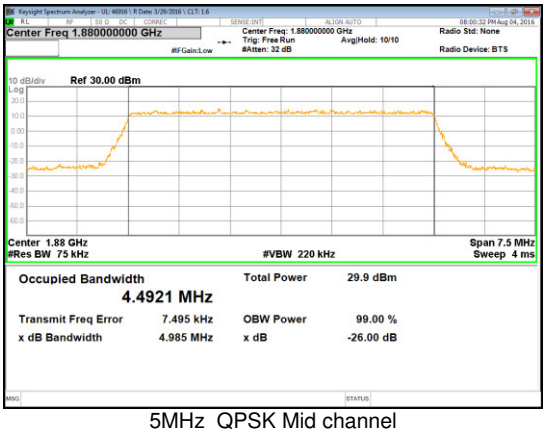
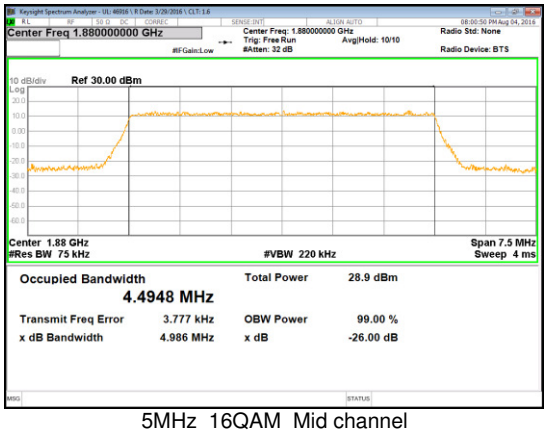
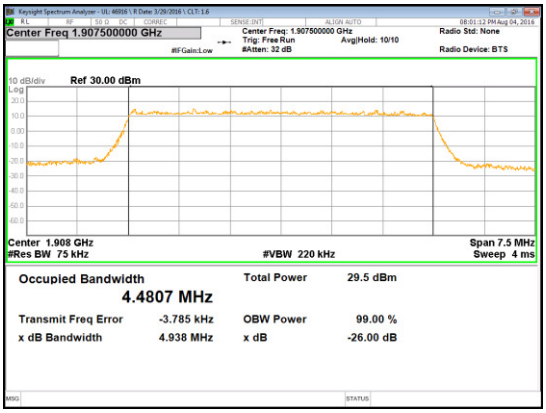
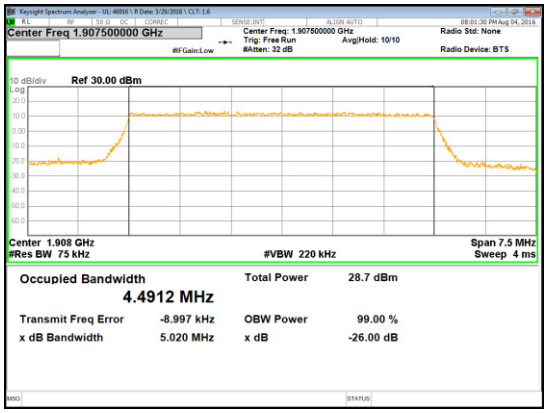
	 5MHz QPSK Low channel	 5MHz 16QAM Low channel
Band 2 5MHz	 5MHz QPSK Mid channel	 5MHz 16QAM Mid channel
	 5MHz QPSK High channel	 5MHz 16QAM High channel

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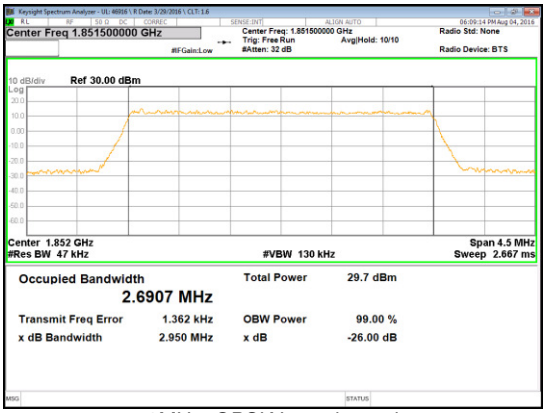
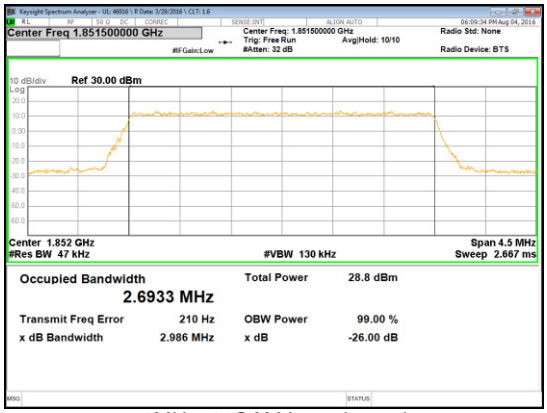
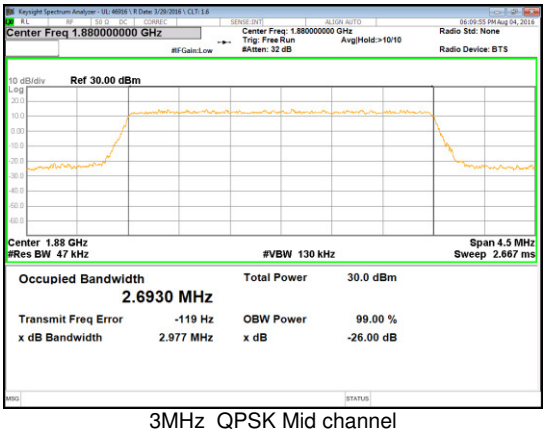
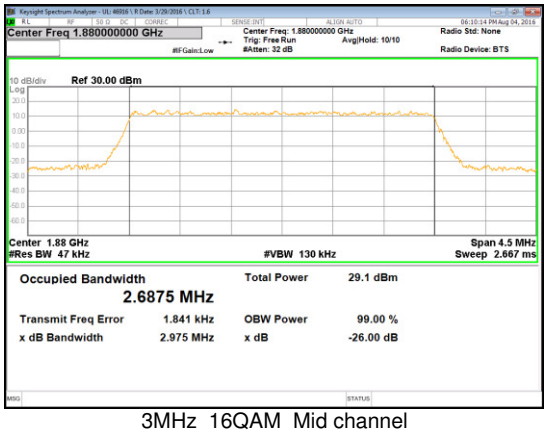
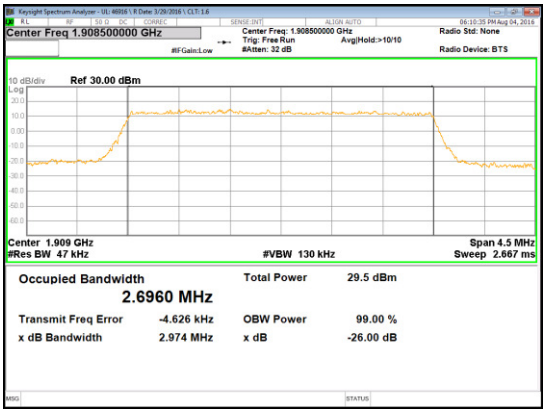
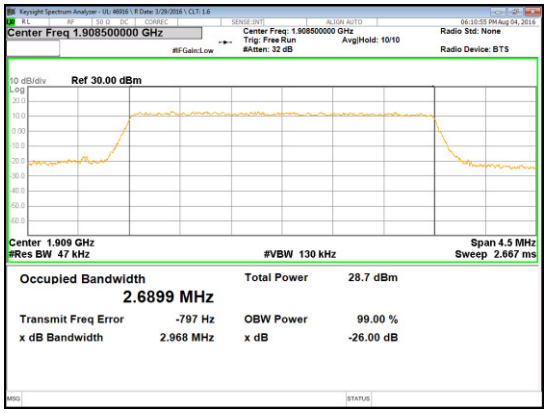
	 3MHz QPSK Low channel	 3MHz 16QAM Low channel
Band 2 3MHz	 3MHz QPSK Mid channel	 3MHz 16QAM Mid channel
	 3MHz QPSK High channel	 3MHz 16QAM High channel

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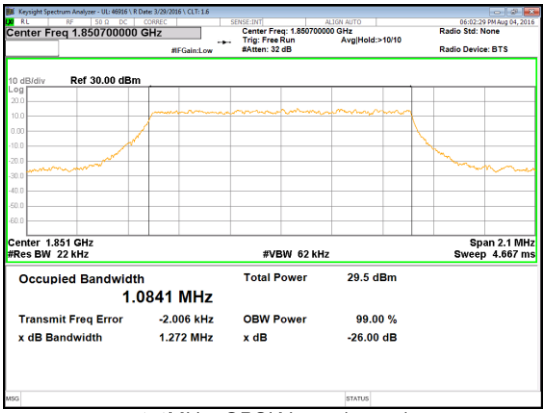
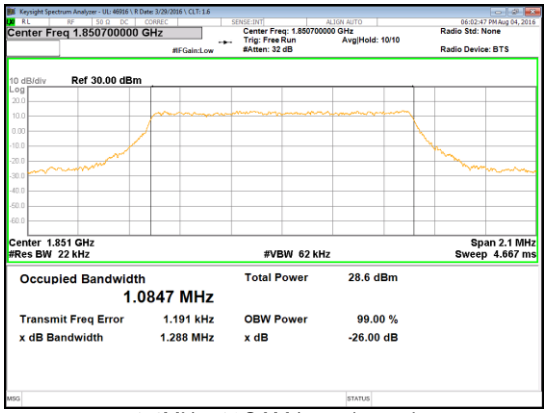
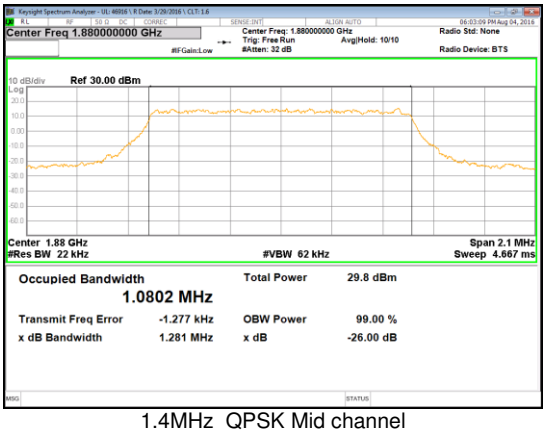
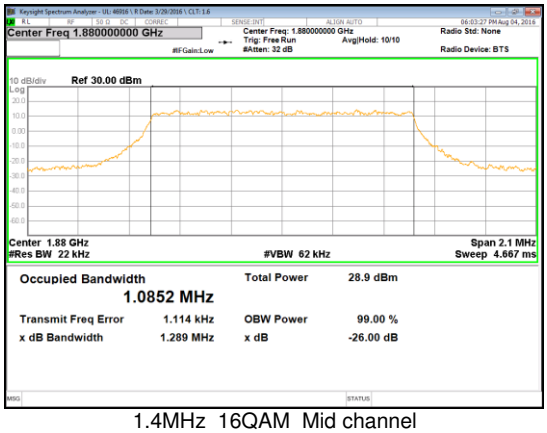
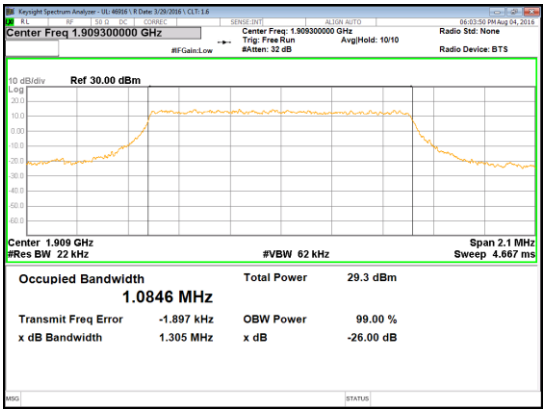
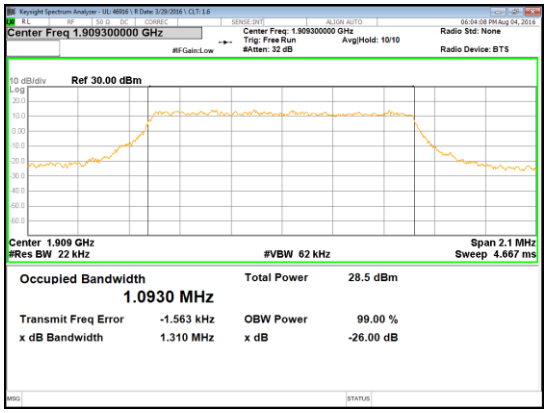
Band 2 1.4MHz	 1.4MHz QPSK Low channel	 1.4MHz 16QAM Low channel
	 1.4MHz QPSK Mid channel	 1.4MHz 16QAM Mid channel
	 1.4MHz QPSK High channel	 1.4MHz 16QAM High channel

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10.2. BAND EDGE EMISSIONS

RULE PART(S)

FCC: §22.359, §24.238 and §27. 53

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.

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.

GSM

a) Set the RBW = 1 ~ 5% of OBW(GSM850 – 8.2KHz, GSM1900 – 9.1KHz)

b) Set VBW ≥ 3 × RBW;

c) Set span ≥ 1.5 times the OBW;

d) Sweep time = 1S ;

e) Detector = RMS;

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

g) Trace mode = Average(100);

h) Add duty cycle correction factor (9dB)

WCDMA/LTE

b) 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);

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RESULTS

GSM

Band	Mode	Side	f [MHz]	Level [dBm]	Limit [dBm]
GSM850	GPRS	Lower	823.977	-16.166	-13.00
		Upper	849.023	-15.911	
GSM1900	GPRS	Lower	1849.987	-18.870	
		Upper	1910.018	-18.372	

WCDMA

Band	Mode	Side	f [MHz]	Level [dBm]	Limit [dBm]
Band 5	REL99	Lower	824.000	-25.861	-13.00
		Upper	849.000	-28.204	
	HSDPA	Lower	824.000	-27.933	
		Upper	849.000	-29.115	
Band 4	REL99	Lower	1710.000	-25.746	
		Upper	1755.000	-26.773	
	HSDPA	Lower	1710.000	-28.515	
		Upper	1755.000	-29.220	
Band 2	REL99	Lower	1850.000	-25.795	
		Upper	1910.000	-23.894	
	HSDPA	Lower	1850.000	-30.293	
		Upper	1910.000	-28.963	

UL Korea, Ltd. Suwon Laboratory FORM ID: FCC_22/24/27
218 Maeyeong-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 16675, Korea TEL: (031) 337-9902 FAX: (031) 213-5433
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LTE 5

Bandwidth	Mode	Side	RB Status	f [MHz]	Level [dBm]	Limit [dBm]
10 MHz	QPSK	Lower	1RB	824.000	-26.527	-13.00
			FRB	824.000	-28.026	
		Upper	1RB	849.000	-25.680	
			FRB	849.000	-26.937	
	16QAM	Lower	1RB	824.000	-29.043	
			FRB	824.000	-30.798	
		Upper	1RB	849.000	-31.442	
			FRB	849.000	-28.935	
5 MHz	QPSK	Lower	1RB	824.000	-20.275	
			FRB	824.000	-25.321	
		Upper	1RB	849.000	-20.968	
			FRB	849.000	-28.270	
	16QAM	Lower	1RB	824.000	-23.222	
			FRB	824.000	-27.815	
		Upper	1RB	849.000	-22.731	
			FRB	849.000	-27.846	
3 MHz	QPSK	Lower	1RB	824.000	-19.586	
			FRB	824.000	-24.306	
		Upper	1RB	849.000	-18.745	
			FRB	849.000	-27.281	
	16QAM	Lower	1RB	824.000	-19.097	
			FRB	824.000	-27.500	
		Upper	1RB	849.000	-19.521	
			FRB	849.000	-26.110	
1.4 MHz	QPSK	Lower	1RB	824.000	-24.076	
			FRB	824.000	-26.879	
		Upper	1RB	849.000	-22.539	
			FRB	849.000	-28.326	
	16QAM	Lower	1RB	824.000	-24.346	
			FRB	824.000	-29.028	
		Upper	1RB	849.000	-24.571	
			FRB	849.000	-30.512	

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LTE 4

Bandwidth	Mode	Side	RB Status	f [MHz]	Level [dBm]	Limit [dBm]
20 MHz	QPSK	Lower	1RB	1710.000	-29.415	-13.00
			FRB	1710.000	-28.591	
		Upper	1RB	1755.000	-30.711	
			FRB	1755.000	-32.092	
	16QAM	Lower	1RB	1710.000	-34.245	
			FRB	1710.000	-28.322	
		Upper	1RB	1755.000	-27.496	
			FRB	1755.000	-32.326	
15 MHz	QPSK	Lower	1RB	1710.000	-26.300	
			FRB	1710.000	-28.905	
		Upper	1RB	1755.000	-25.359	
			FRB	1755.000	-30.839	
	16QAM	Lower	1RB	1710.000	-26.898	
			FRB	1710.000	-28.664	
		Upper	1RB	1755.000	-32.637	
			FRB	1755.000	-31.361	
10 MHz	QPSK	Lower	1RB	1710.000	-31.428	
			FRB	1710.000	-27.929	
		Upper	1RB	1755.000	-27.741	
			FRB	1755.000	-29.804	
	16QAM	Lower	1RB	1710.000	-33.004	
			FRB	1710.000	-27.590	
		Upper	1RB	1755.000	-28.956	
			FRB	1755.000	-30.429	
5 MHz	QPSK	Lower	1RB	1710.000	-21.651	
			FRB	1710.000	-26.404	
		Upper	1RB	1755.000	-19.189	
			FRB	1755.000	-28.622	
	16QAM	Lower	1RB	1710.000	-21.362	
			FRB	1710.000	-24.920	
		Upper	1RB	1755.000	-20.147	
			FRB	1755.000	-27.993	

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Bandwidth	Mode	Side	RB Status	f [MHz]	Level [dBm]	Limit [dBm]
3 MHz	QPSK	Lower	1RB	1710.000	-19.872	-13.00
			FRB	1710.000	-26.400	
		Upper	1RB	1755.000	-19.791	
			FRB	1755.000	-26.936	
	16QAM	Lower	1RB	1710.000	-18.758	
			FRB	1710.000	-25.787	
		Upper	1RB	1755.000	-18.962	
			FRB	1755.000	-27.176	
1.4 MHz	QPSK	Lower	1RB	1710.000	-22.140	
			FRB	1710.000	-26.982	
		Upper	1RB	1755.000	-22.882	
			FRB	1755.000	-28.336	
	16QAM	Lower	1RB	1710.000	-23.523	
			FRB	1710.000	-27.497	
		Upper	1RB	1755.000	-24.219	
			FRB	1755.000	-29.501	

LTE 2

Bandwidth	Mode	Side	RB Status	f [MHz]	Level [dBm]	Limit [dBm]
20 MHz	QPSK	Lower	1RB	1850.000	-30.529	-13.00
			FRB	1850.000	-31.027	
		Upper	1RB	1910.000	-28.421	
			FRB	1910.000	-33.572	
	16QAM	Lower	1RB	1850.000	-28.818	
			FRB	1850.000	-30.531	
		Upper	1RB	1910.000	-32.127	
			FRB	1910.000	-34.818	
15 MHz	QPSK	Lower	1RB	1850.000	-27.040	
			FRB	1850.000	-30.917	
		Upper	1RB	1910.000	-28.120	
			FRB	1910.000	-33.050	
	16QAM	Lower	1RB	1850.000	-30.182	
			FRB	1850.000	-31.217	
		Upper	1RB	1910.000	-31.687	
			FRB	1910.000	-35.350	

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Bandwidth	Mode	Side	RB Status	f [MHz]	Level [dBm]	Limit [dBm]
10 MHz	QPSK	Lower	1RB	1850.000	-27.539	-13.00
			FRB	1850.000	-28.508	
		Upper	1RB	1910.000	-32.674	
			FRB	1910.000	-31.920	
	16QAM	Lower	1RB	1850.000	-29.327	
			FRB	1850.000	-30.882	
		Upper	1RB	1910.000	-35.314	
			FRB	1910.000	-33.804	
5 MHz	QPSK	Lower	1RB	1850.000	-18.667	
			FRB	1850.000	-25.606	
		Upper	1RB	1910.000	-21.608	
			FRB	1910.000	-29.432	
	16QAM	Lower	1RB	1850.000	-17.615	
			FRB	1850.000	-26.506	
		Upper	1RB	1910.000	-21.961	
			FRB	1910.000	-27.982	
3 MHz	QPSK	Lower	1RB	1850.000	-16.735	
			FRB	1850.000	-26.407	
		Upper	1RB	1910.000	-21.126	
			FRB	1910.000	-27.999	
	16QAM	Lower	1RB	1850.000	-18.521	
			FRB	1850.000	-26.521	
		Upper	1RB	1910.000	-21.154	
			FRB	1910.000	-29.339	
1.4 MHz	QPSK	Lower	1RB	1850.000	-21.215	
			FRB	1850.000	-27.221	
		Upper	1RB	1910.000	-24.634	
			FRB	1910.000	-29.772	
	16QAM	Lower	1RB	1850.000	-22.570	
			FRB	1850.000	-28.399	
		Upper	1RB	1910.000	-26.045	
			FRB	1910.000	-30.683	

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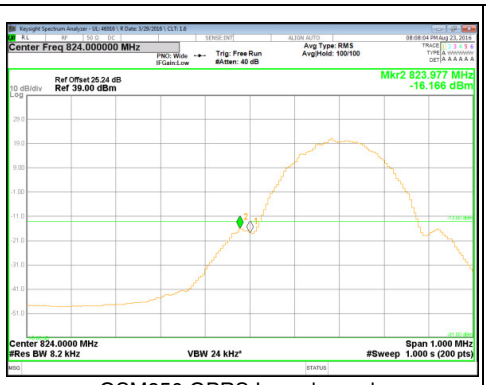
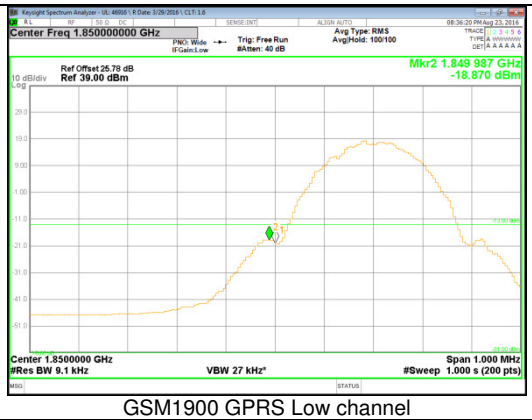
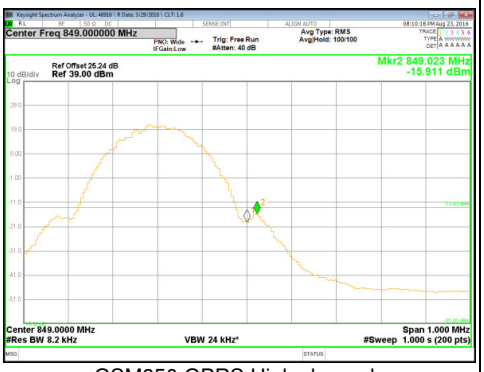
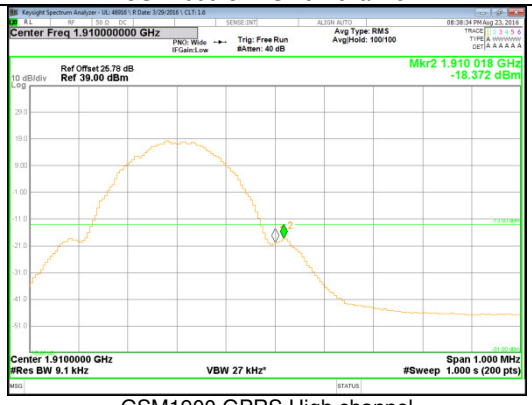
10.2.1. BAND EDGE PLOTS

GSM

GSM 850	 GSM850 GPRS Low channel	GSM 1900	 GSM1900 GPRS Low channel
	 GSM850 GPRS High channel		 GSM1900 GPRS High channel

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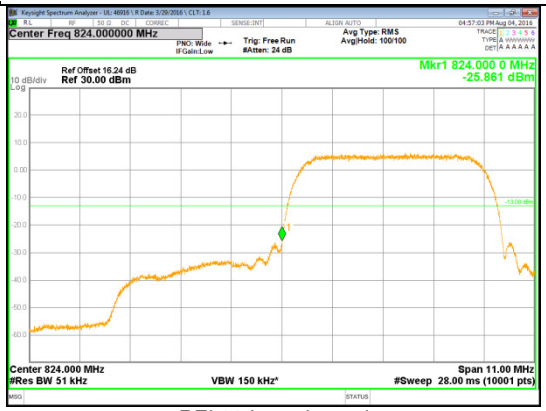
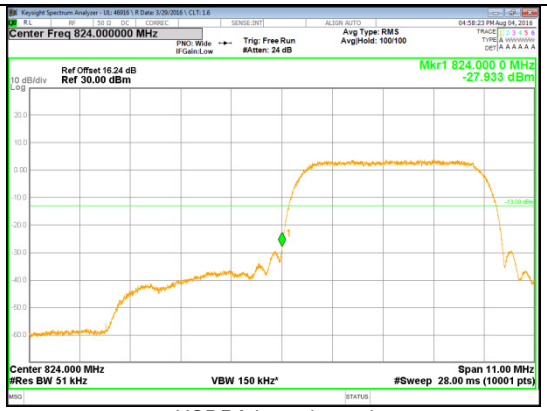
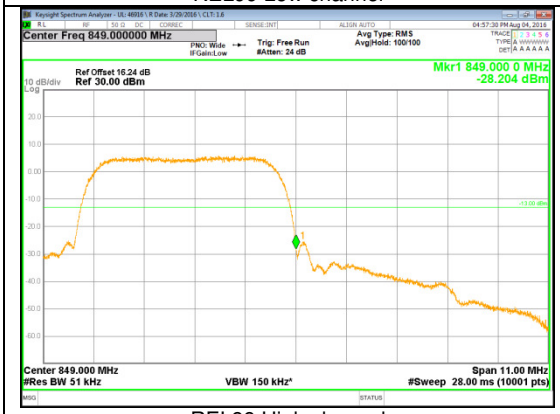
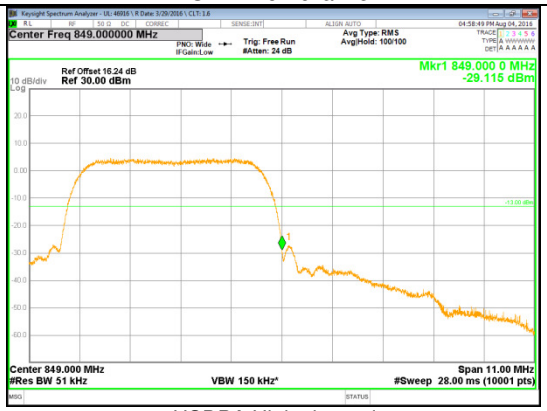
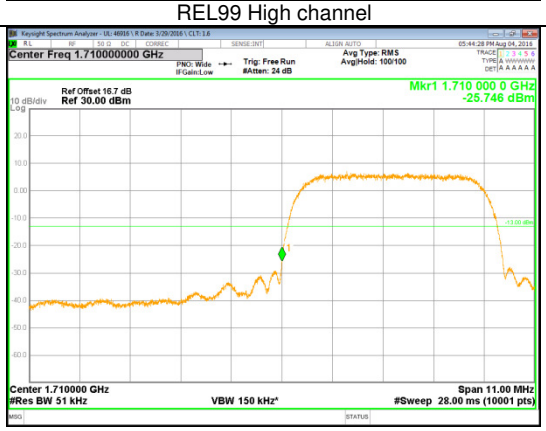
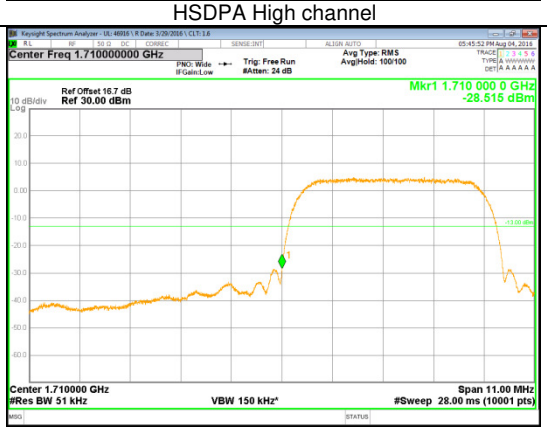
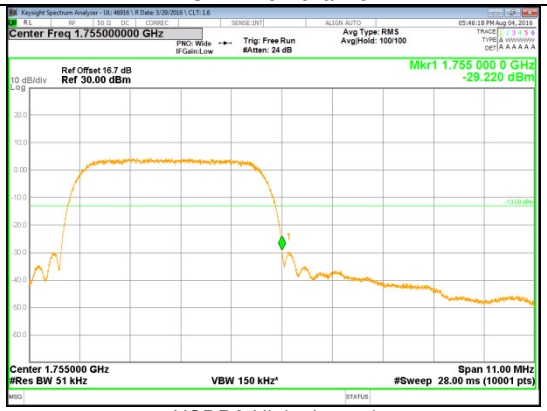
WCDMA

Band 5	 REL99 Low channel	 HSDPA Low channel
	 REL99 High channel	 HSDPA High channel
Band 4	 REL99 Low channel	 HSDPA Low channel
	REL99 High channel	 HSDPA High channel

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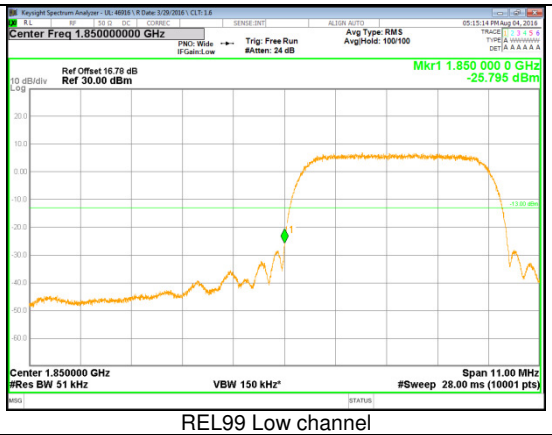
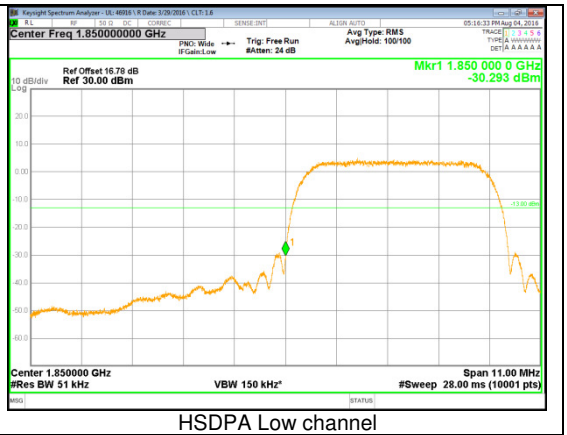
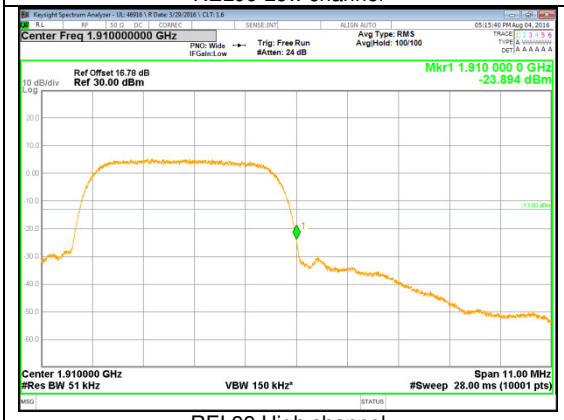
Band 2	 REL99 Low channel	 HSDPA Low channel
	 REL99 High channel	 HSDPA High channel

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