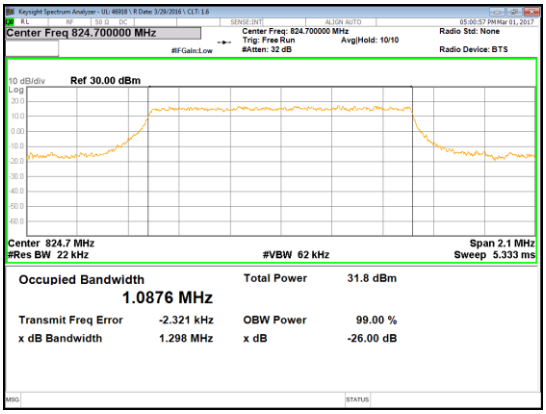
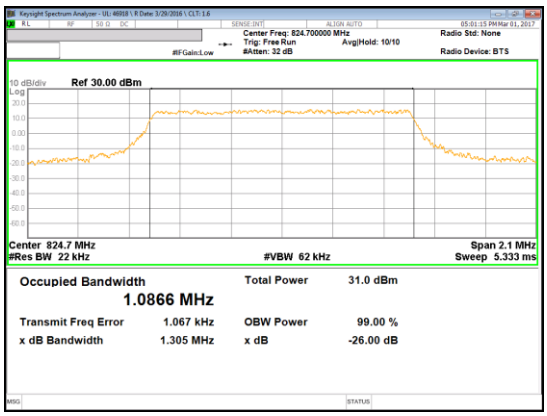
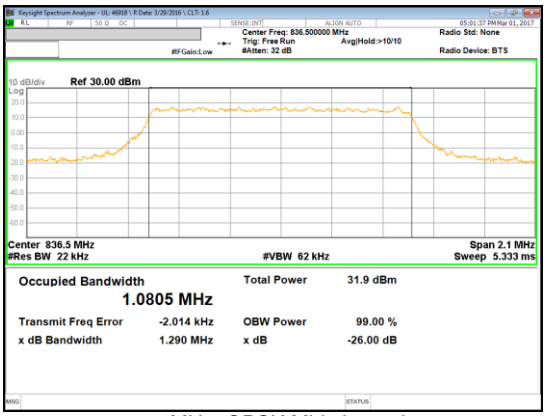
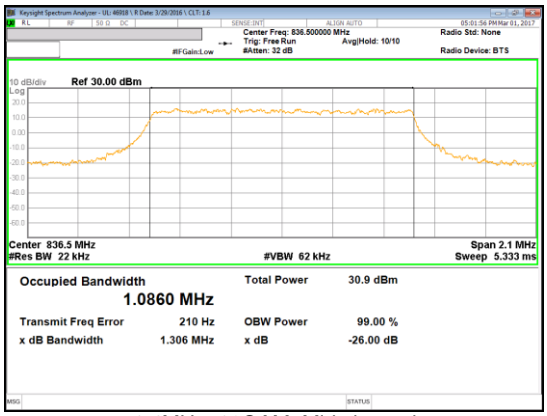
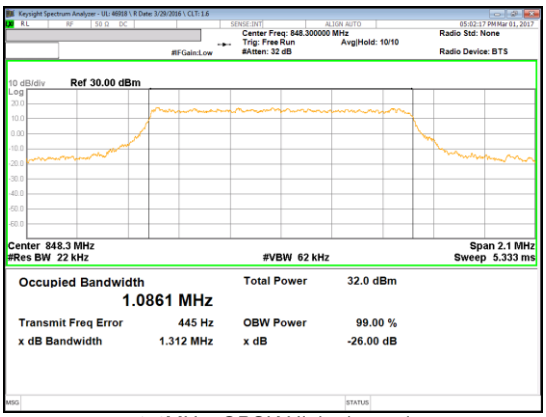
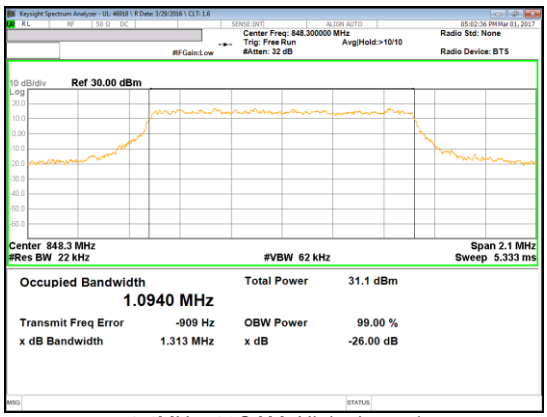
	 1.4MHz QPSK Low channel	 1.4MHz 16QAM Low channel
Band 5 1.4MHz	 1.4MHz QPSK Mid channel	 1.4MHz 16QAM Mid channel
	 1.4MHz QPSK High channel	 1.4MHz 16QAM High channel

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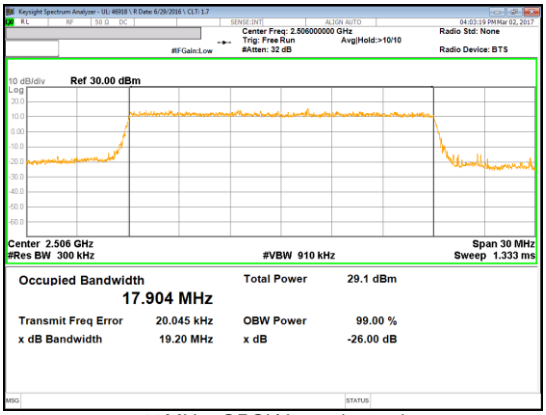
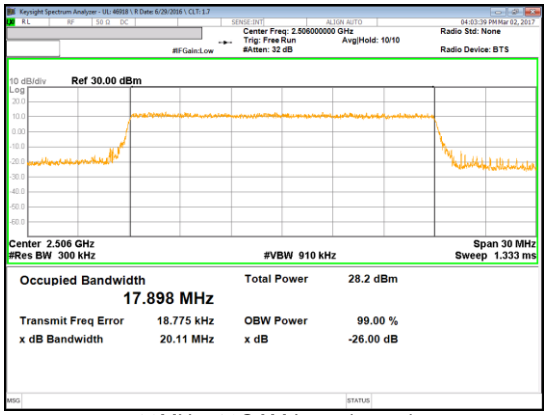
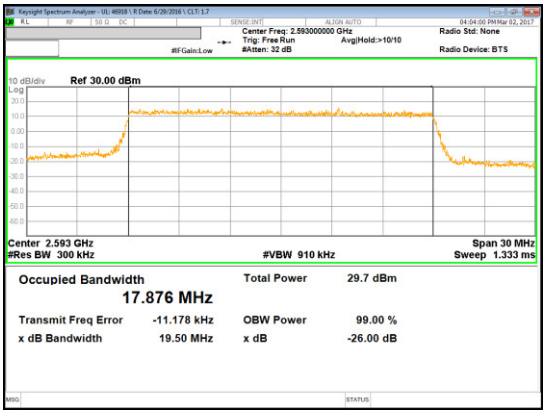
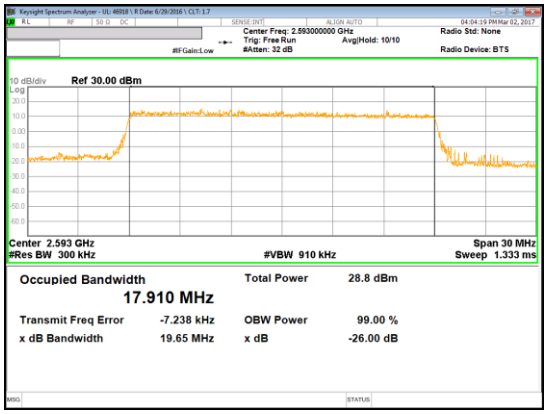
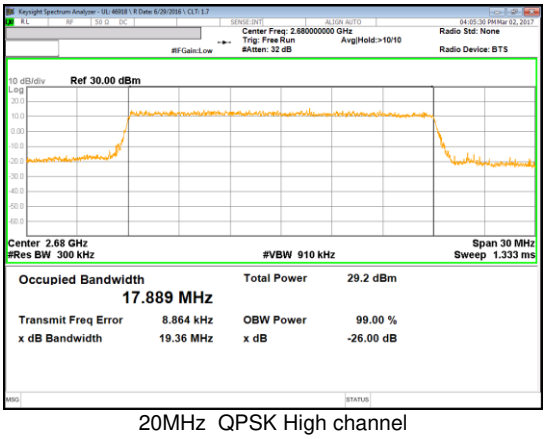
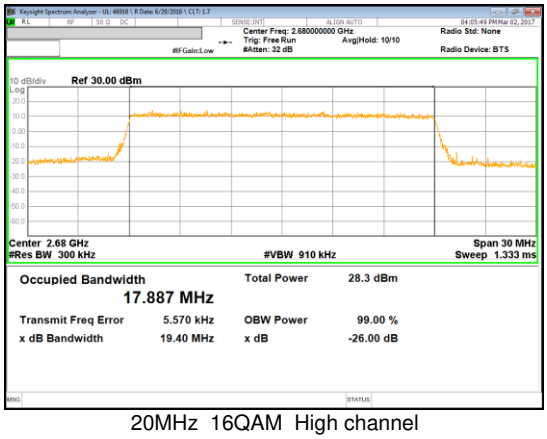
LTE Band 41

Band 41 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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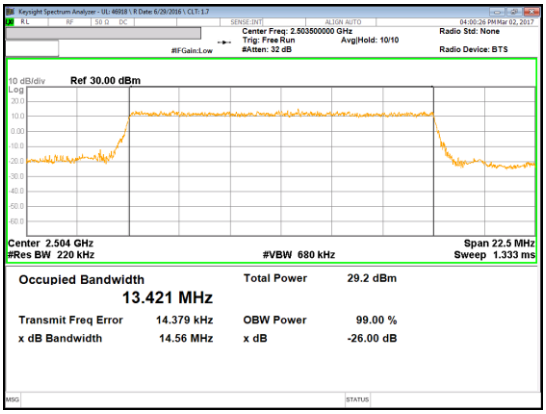
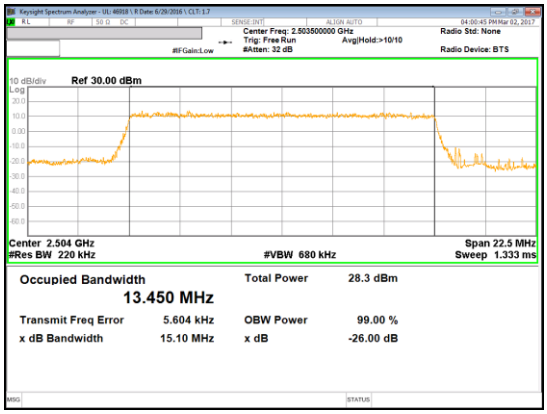
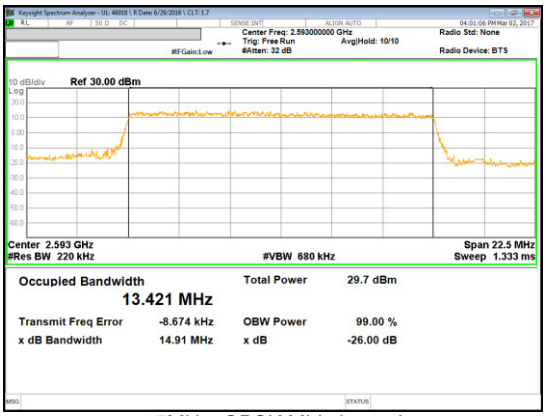
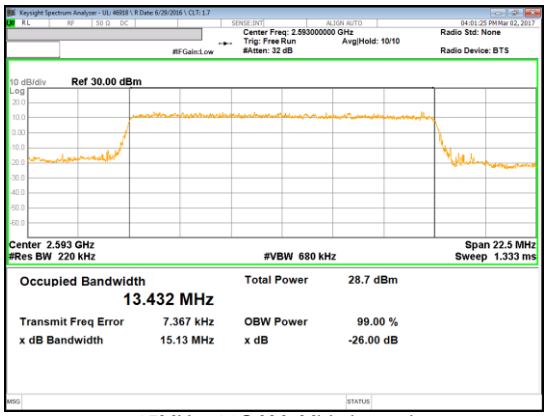
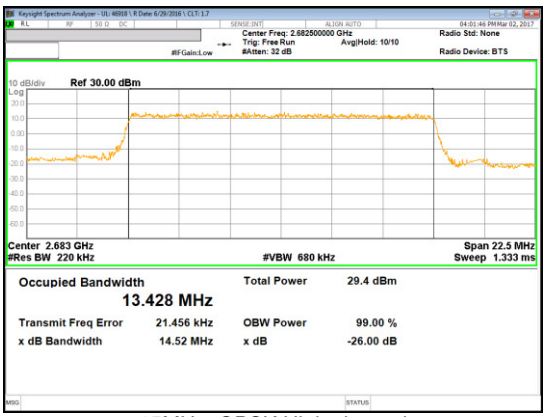
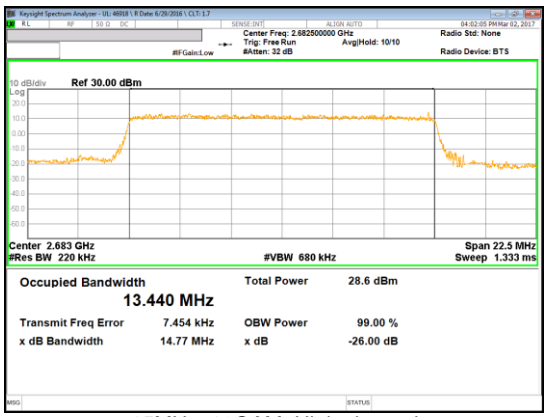
	 15MHz QPSK Low channel	 15MHz 16QAM Low channel
Band 41 15MHz	 15MHz QPSK Mid channel	 15MHz 16QAM Mid channel
	 15MHz QPSK High channel	 15MHz 16QAM High channel

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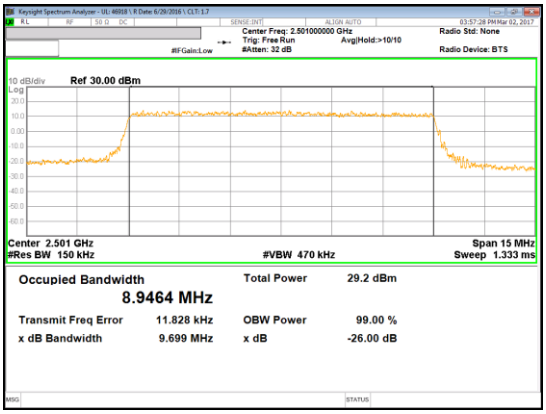
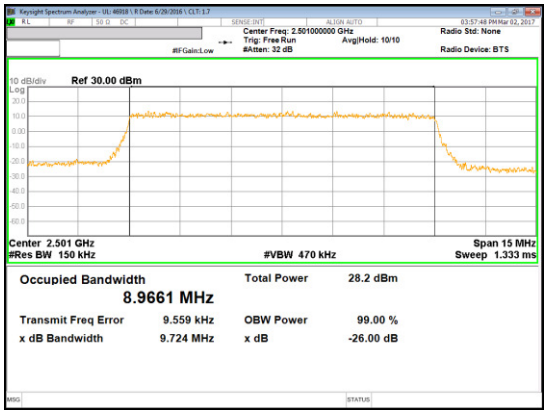
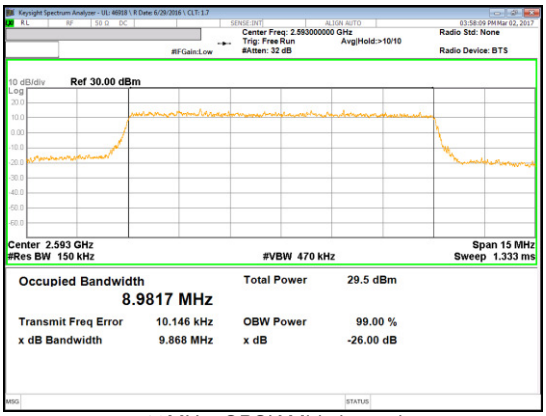
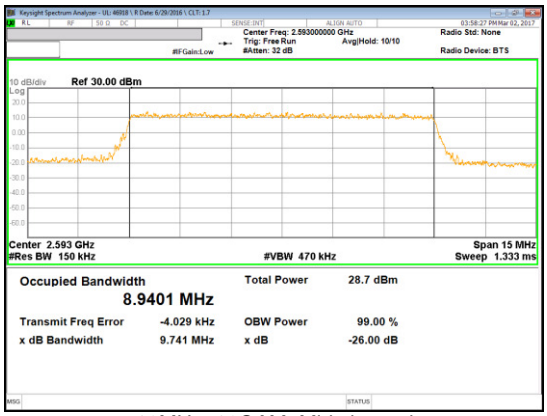
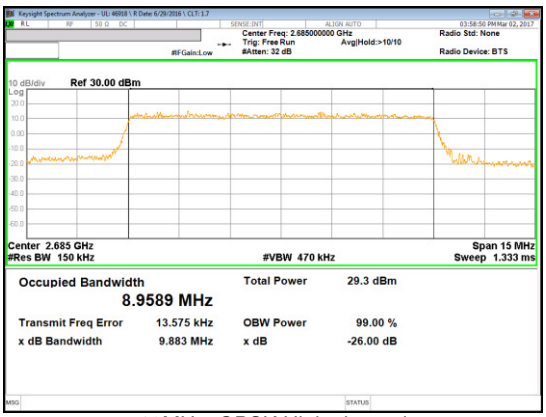
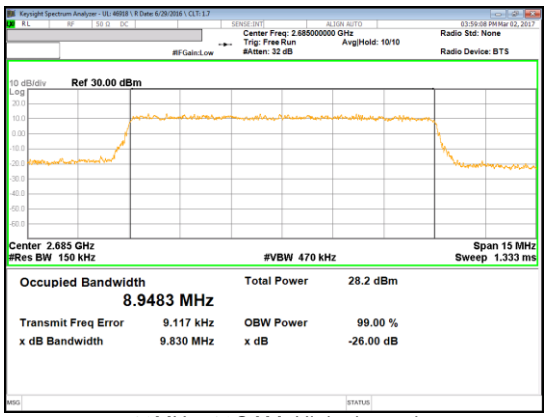
Band 41 10MHz	 10MHz QPSK Low channel	 10MHz 16QAM Low channel
	 10MHz QPSK Mid channel	 10MHz 16QAM Mid channel
	 10MHz QPSK High channel	 10MHz 16QAM High channel

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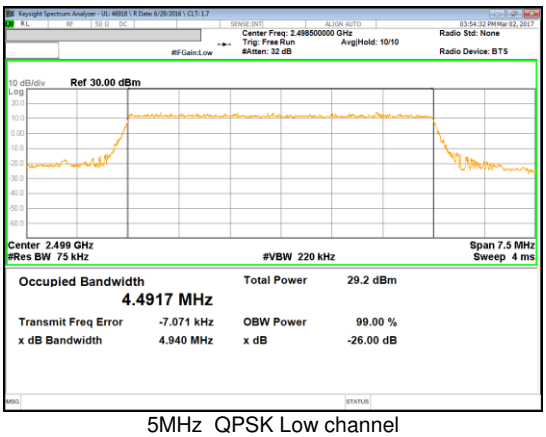
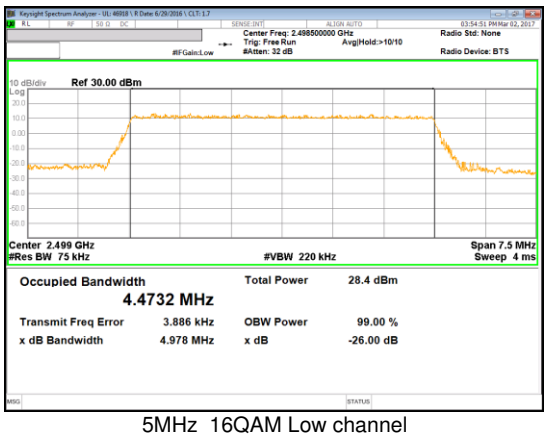
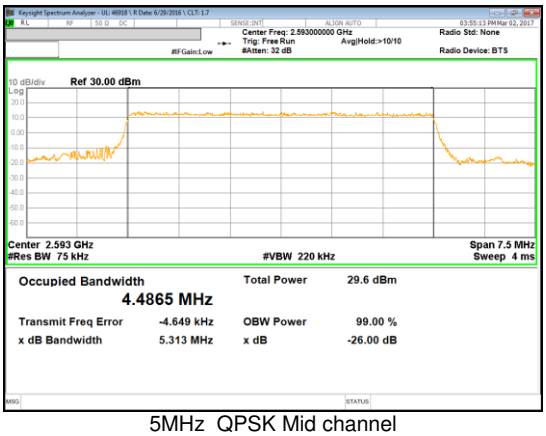
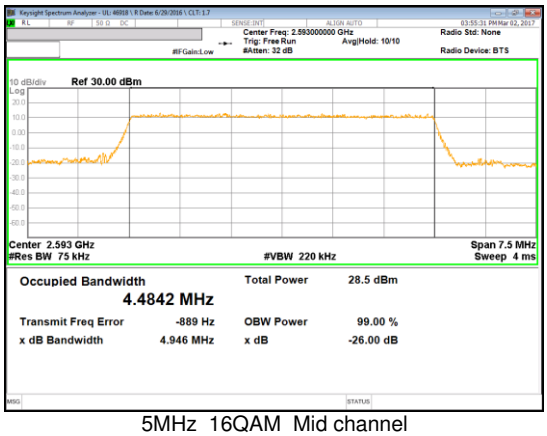
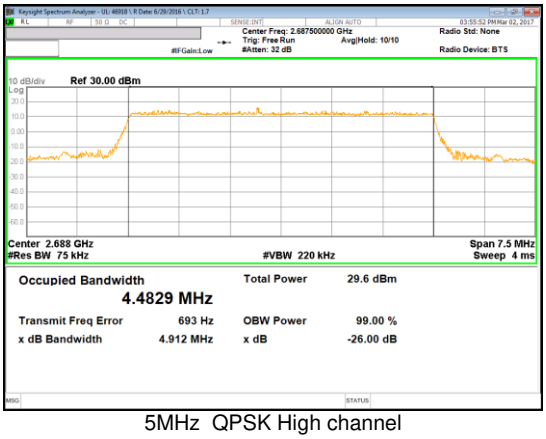
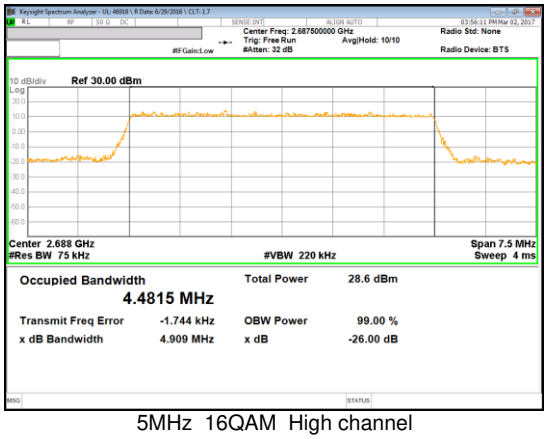
Band 41 5MHz	 5MHz QPSK Low channel	 5MHz 16QAM Low channel
	 5MHz QPSK Mid channel	 5MHz 16QAM Mid channel
	 5MHz QPSK High channel	 5MHz 16QAM High channel

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9.2. BAND EDGE EMISSIONS

RULE PART(S)

FCC: §22.359, §24.238 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.

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.

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)

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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);

NOTE

LTE 41 - Duty cycle factor(2.25dB) already applied on the plot.

RESULTS

GSM

Band	Mode	Side	f [MHz]	Level [dBm]	Limit [dBm]
GSM850	GPRS	Lower	823.977	-15.277	-13.00
		Upper	849.018	-14.954	
	EGPRS	Lower	823.987	-23.590	
		Upper	849.023	-24.491	
GSM1900	GPRS	Lower	1849.982	-17.270	
		Upper	1910.023	-18.027	
	EGPRS	Lower	1849.982	-23.525	
		Upper	1910.023	-24.644	

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WCDMA

Band	Mode	Side	f [MHz]	Level [dBm]	Limit [dBm]
Band 5	REL99	Lower	824	-27.263	-13.00
		Upper	849	-26.369	
	HSDPA	Lower	824	-29.418	
		Upper	849	-26.268	
Band 2	REL99	Lower	1850	-26.608	
		Upper	1910	-27.563	
	HSDPA	Lower	1850	-26.547	
		Upper	1910	-28.176	

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LTE 5(ANT1)

Bandwidth	Mode	Side	RB Status	f [MHz]	Level [dBm]	Limit [dBm]
10 MHz	QPSK	Lower	1RB	824.000	-25.621	-13.00
			FRB	824.000	-26.762	
		Upper	1RB	849.000	-26.485	
			FRB	849.000	-28.018	
	16QAM	Lower	1RB	824.000	-31.895	
			FRB	824.000	-29.385	
		Upper	1RB	849.000	-31.864	
			FRB	849.000	-31.127	
5 MHz	QPSK	Lower	1RB	824.000	-18.157	
			FRB	824.000	-25.083	
		Upper	1RB	849.000	-17.441	
			FRB	849.000	-26.599	
	16QAM	Lower	1RB	824.000	-21.473	
			FRB	824.000	-28.428	
		Upper	1RB	849.000	-18.219	
			FRB	849.000	-29.011	
3 MHz	QPSK	Lower	1RB	824.000	-16.994	
			FRB	824.000	-25.677	
		Upper	1RB	849.000	-14.652	
			FRB	849.000	-25.701	
	16QAM	Lower	1RB	824.000	-18.131	
			FRB	824.000	-25.751	
		Upper	1RB	849.000	-17.485	
			FRB	849.000	-26.798	
1.4 MHz	QPSK	Lower	1RB	824.000	-20.513	
			FRB	824.000	-27.637	
		Upper	1RB	849.000	-19.914	
			FRB	849.000	-27.580	
	16QAM	Lower	1RB	824.000	-22.359	
			FRB	824.000	-27.169	
		Upper	1RB	849.000	-22.146	
			FRB	849.000	-28.759	

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LTE 5(ANT3)

Bandwidth	Mode	Side	RB Status	f [MHz]	Level [dBm]	Limit [dBm]
10 MHz	QPSK	Lower	1RB	824.000	-27.954	-13.00
			FRB	824.000	-26.069	
		Upper	1RB	849.000	-22.023	
			FRB	849.000	-24.333	
	16QAM	Lower	1RB	824.000	-28.249	
			FRB	824.000	-27.855	
		Upper	1RB	849.000	-25.230	
			FRB	849.000	-27.067	
5 MHz	QPSK	Lower	1RB	824.000	-18.338	
			FRB	824.000	-23.753	
		Upper	1RB	849.000	-18.241	
			FRB	849.000	-23.519	
	16QAM	Lower	1RB	824.000	-21.341	
			FRB	824.000	-27.122	
		Upper	1RB	849.000	-17.858	
			FRB	849.000	-26.882	
3 MHz	QPSK	Lower	1RB	824.000	-14.171	
			FRB	824.000	-24.402	
		Upper	1RB	849.000	-14.308	
			FRB	849.000	-23.622	
	16QAM	Lower	1RB	824.000	-19.939	
			FRB	824.000	-25.010	
		Upper	1RB	849.000	-15.347	
			FRB	849.000	-26.072	
1.4 MHz	QPSK	Lower	1RB	824.000	-17.016	
			FRB	824.000	-22.521	
		Upper	1RB	849.000	-17.552	
			FRB	849.000	-20.676	
	16QAM	Lower	1RB	824.000	-19.496	
			FRB	824.000	-23.789	
		Upper	1RB	849.000	-18.408	
			FRB	849.000	-24.100	

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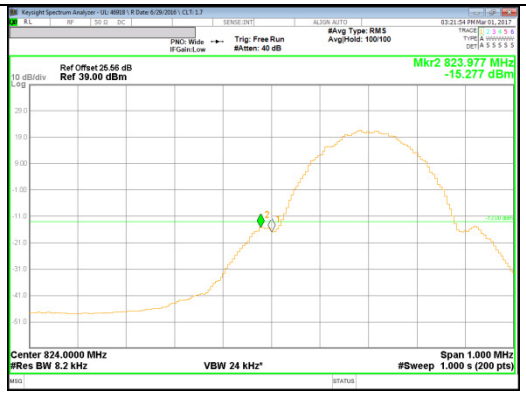
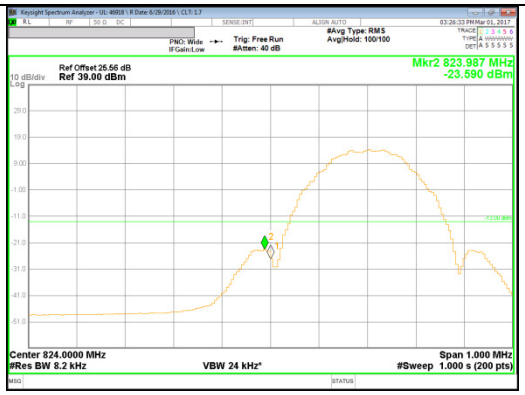
9.2.1. BAND EDGE PLOTS

GSM

GSM 850



GSM850 GPRS Low channel



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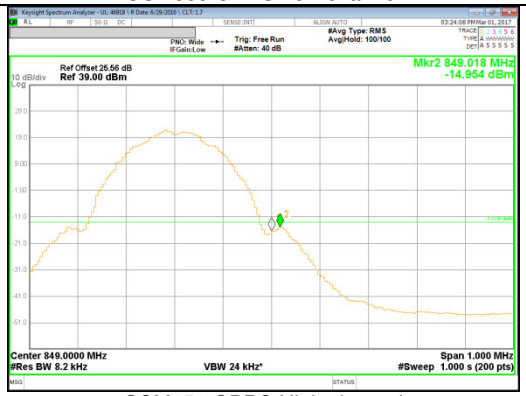
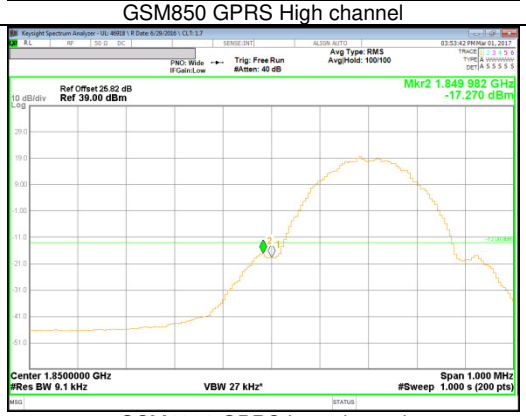


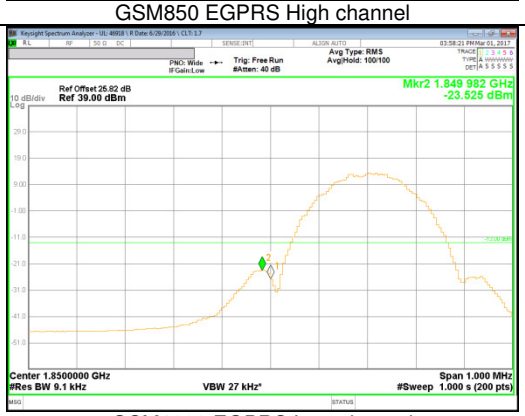
GSM850 GPRS High channel

GSM850 EGPRS High channel

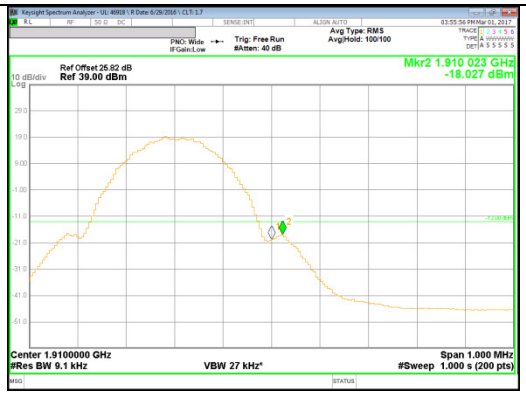
GSM 1900



GSM1900 GPRS Low channel



GSM1900 EGPRS Low channel



GSM1900 GPRS High channel

GSM1900 EGPRS High channel

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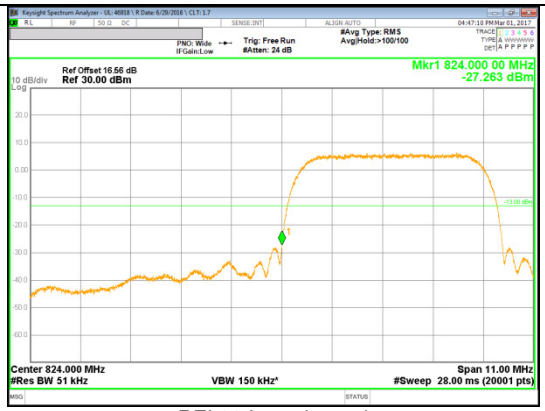
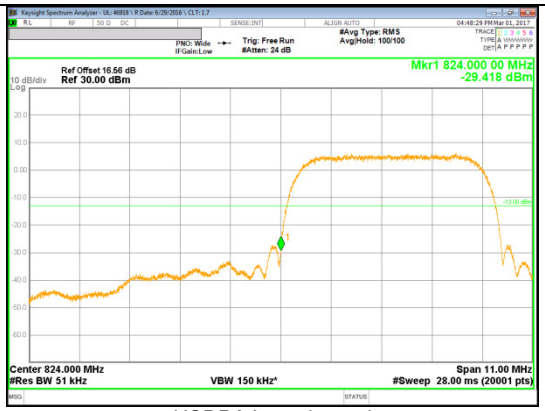
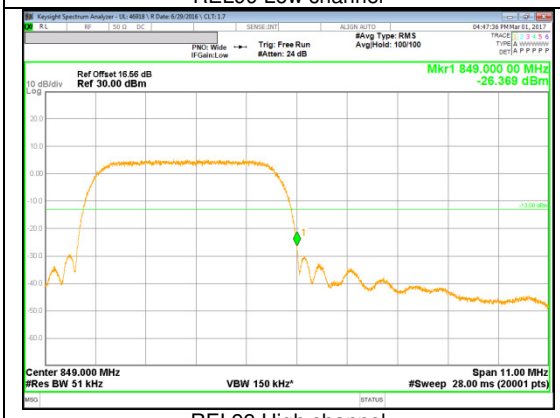
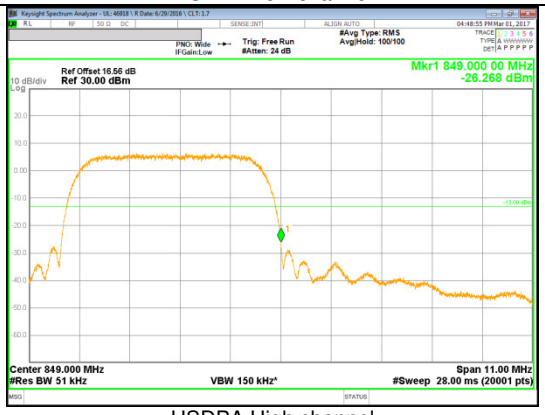
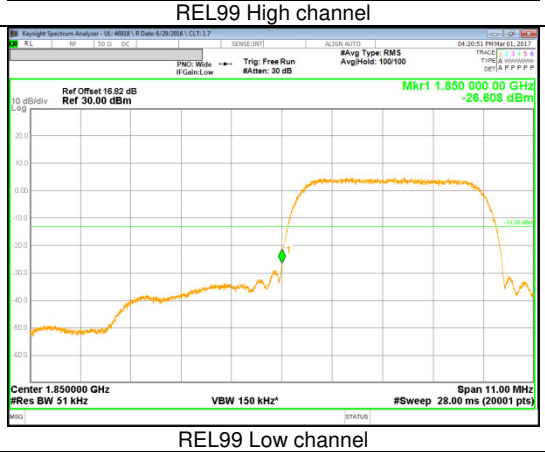
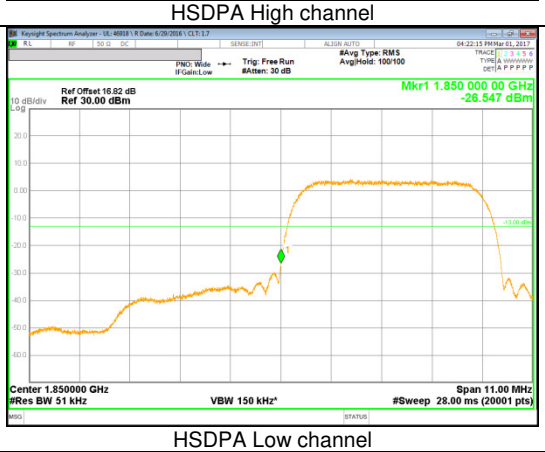
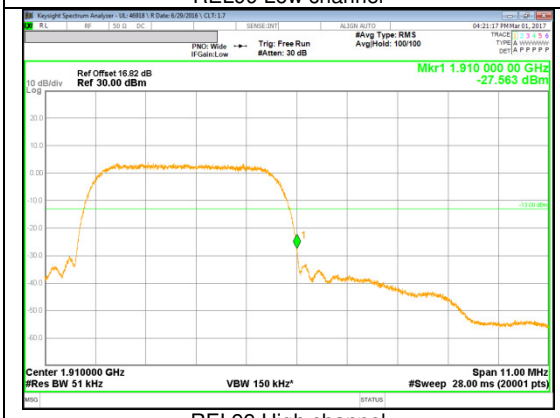
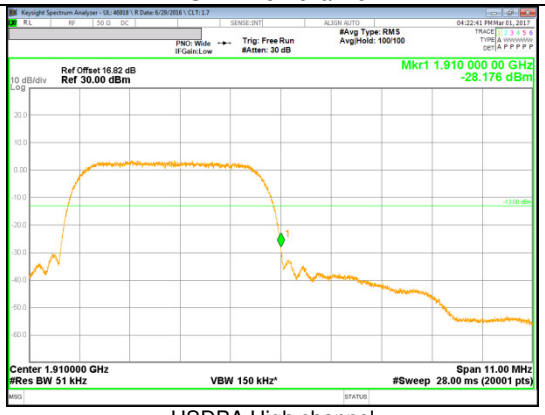
WCDMA

Band 5	 REL99 Low channel	 HSDPA Low channel
	 REL99 High channel	 HSDPA High channel
Band 2	 REL99 Low channel	 HSDPA Low channel
	 REL99 High channel	 HSDPA High channel

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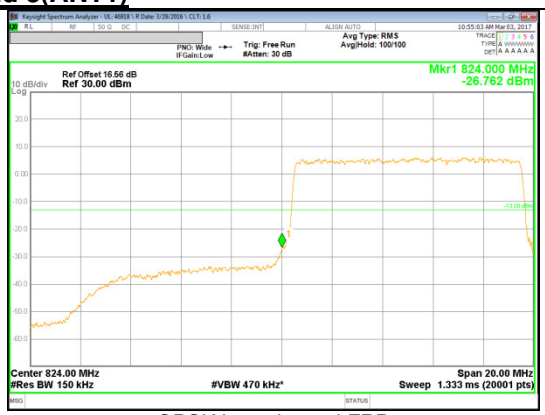
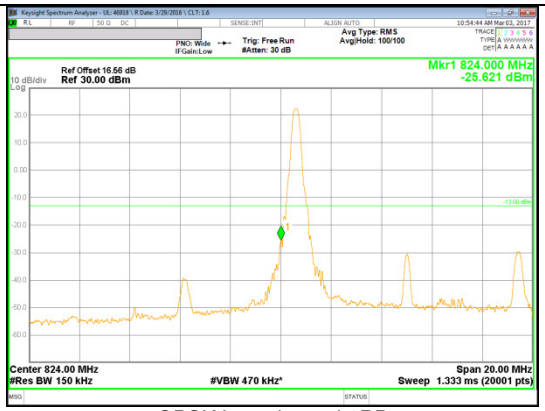
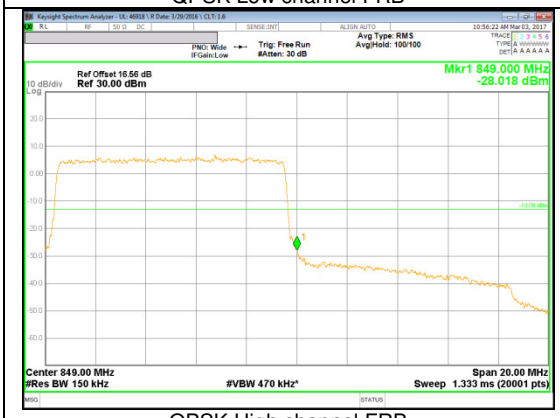
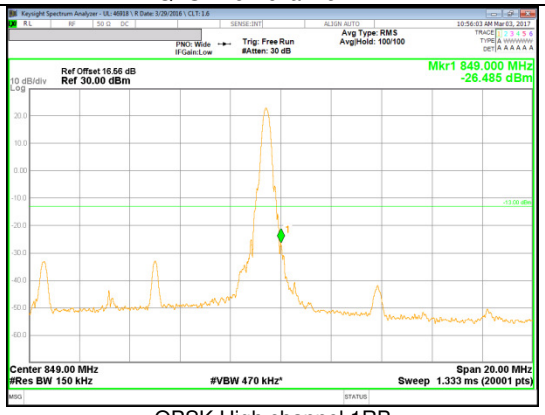
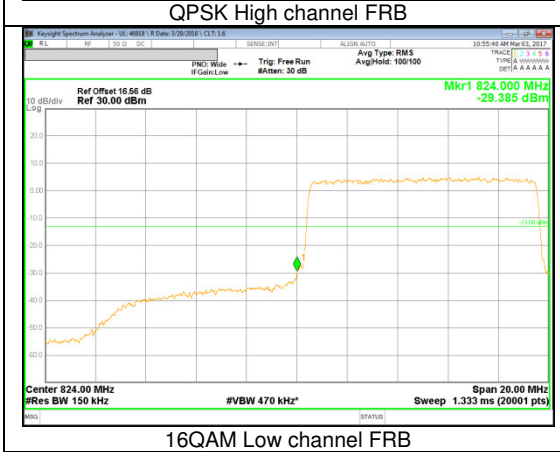
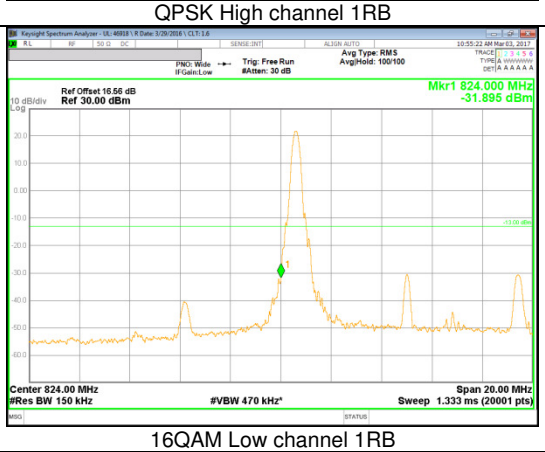
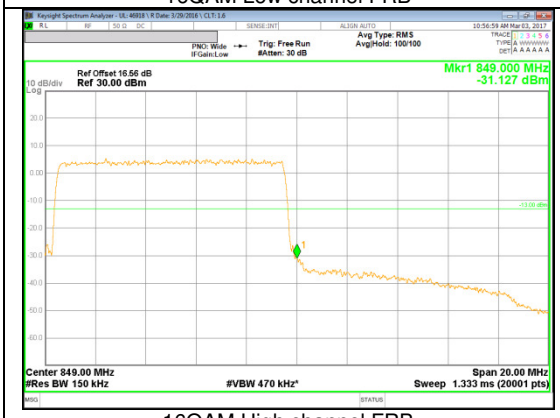
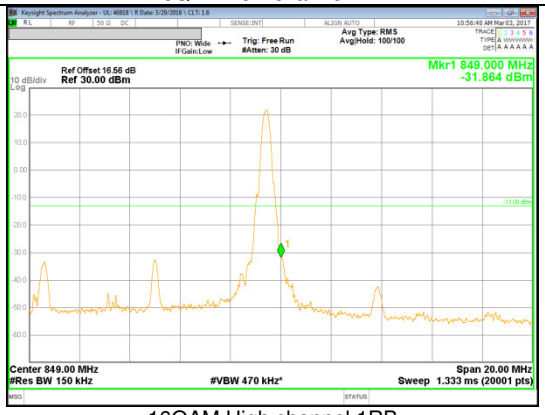
LTE Band 5(ANT1)

Band 5 10MHz	 QPSK Low channel FRB	 QPSK Low channel 1RB
	 QPSK High channel FRB	 QPSK High channel 1RB
	 16QAM Low channel FRB	 16QAM Low channel 1RB
	 16QAM High channel FRB	 16QAM High channel 1RB

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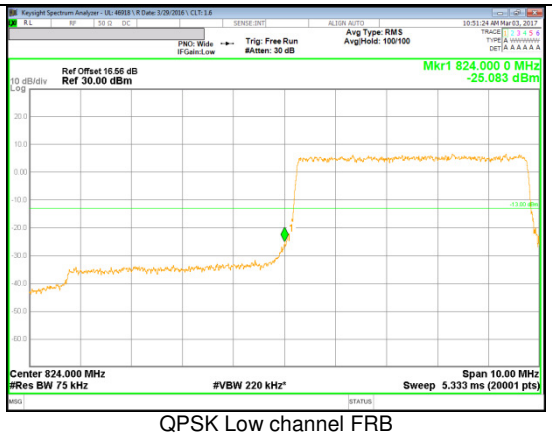
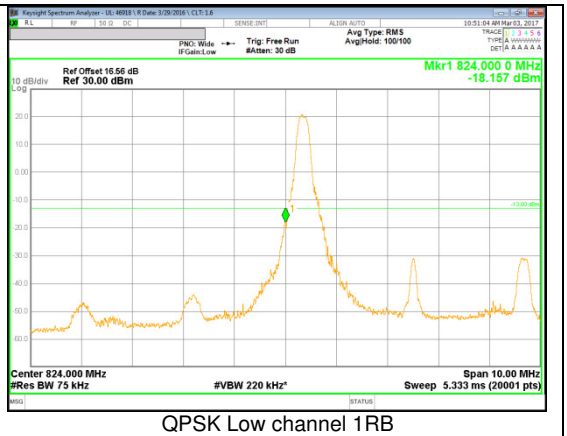
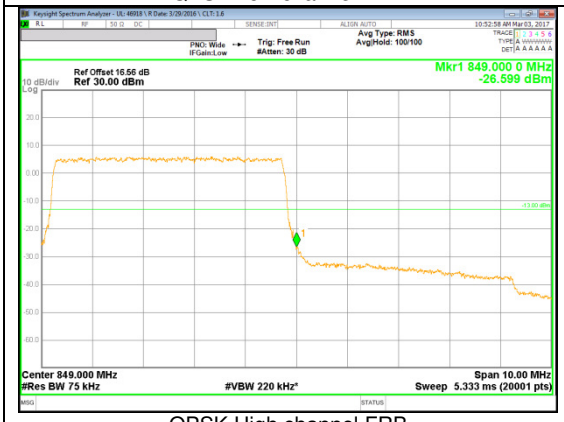
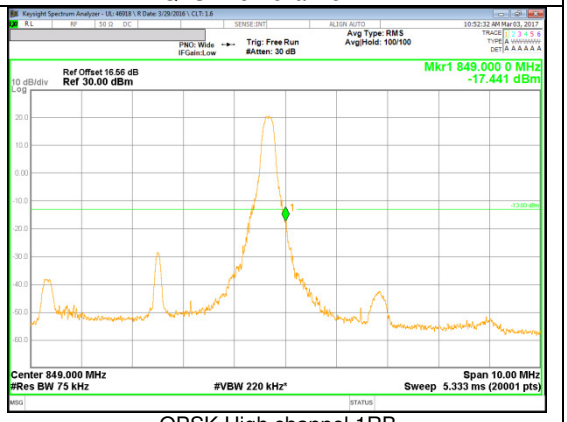
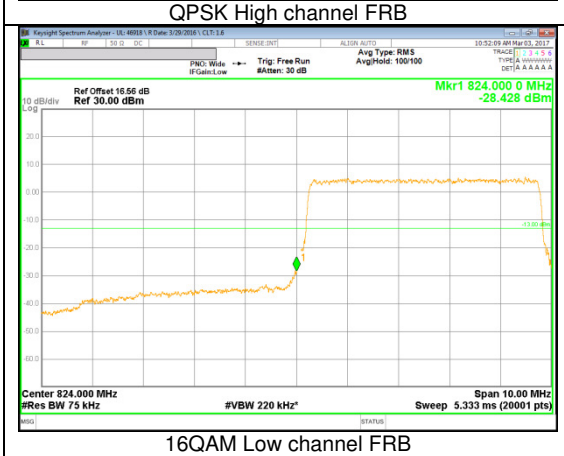
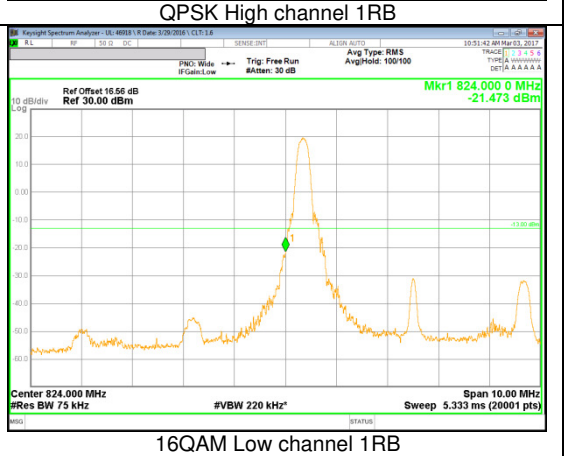
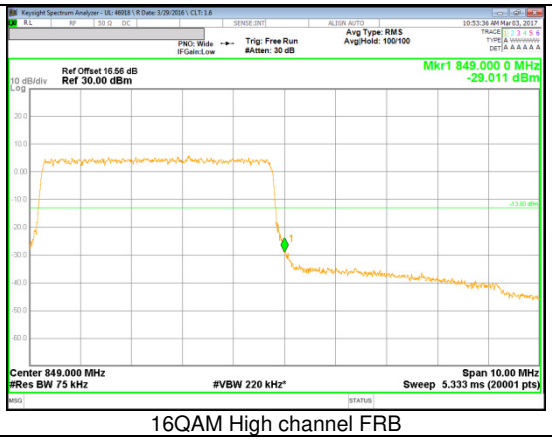
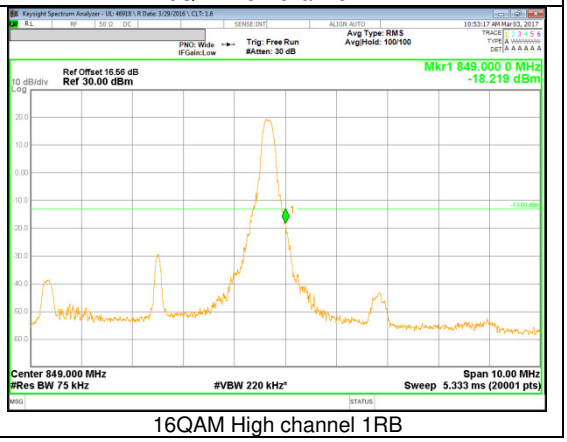
Band 5 5MHz	 QPSK Low channel FRB	 QPSK Low channel 1RB
	 QPSK High channel FRB	 QPSK High channel 1RB
	 16QAM Low channel FRB	 16QAM Low channel 1RB
	 16QAM High channel FRB	 16QAM High channel 1RB

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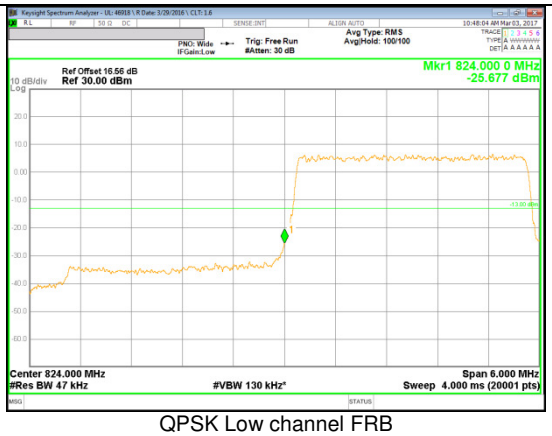
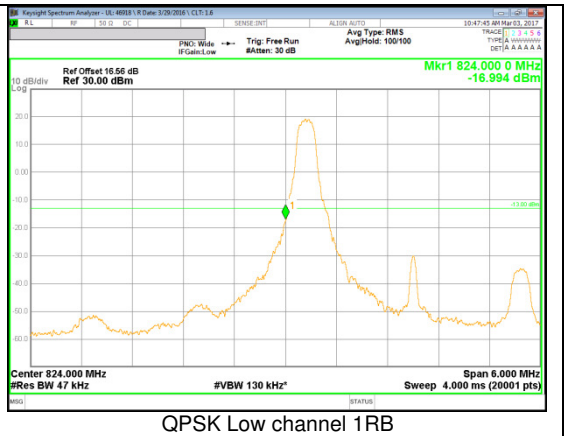
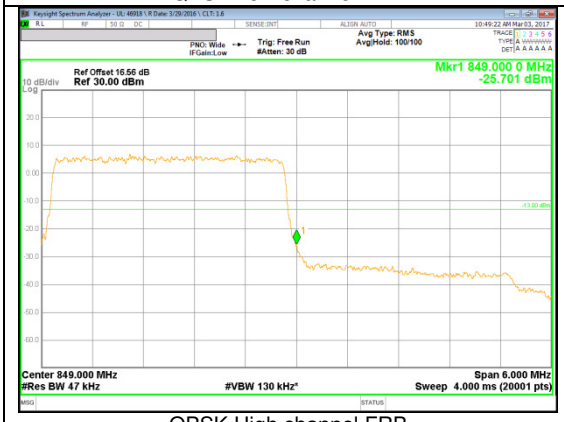
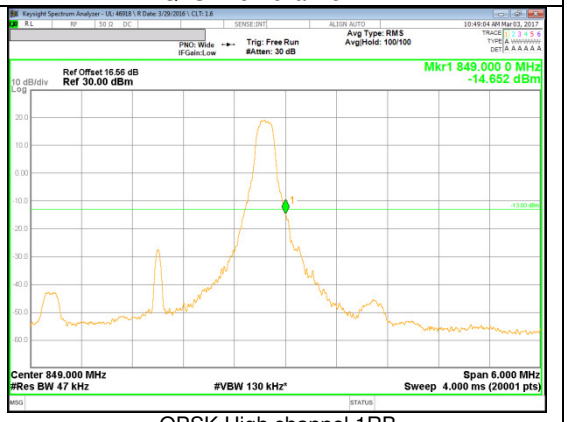
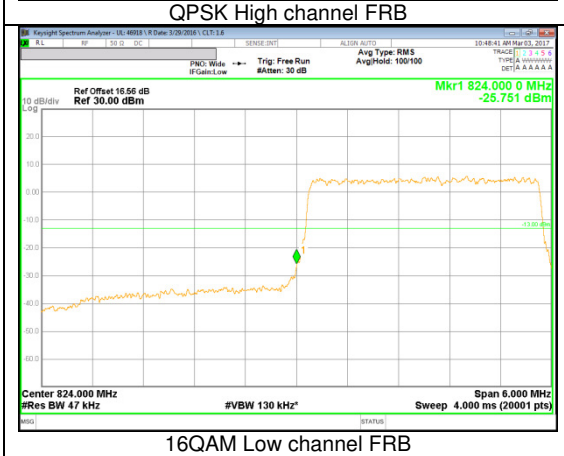
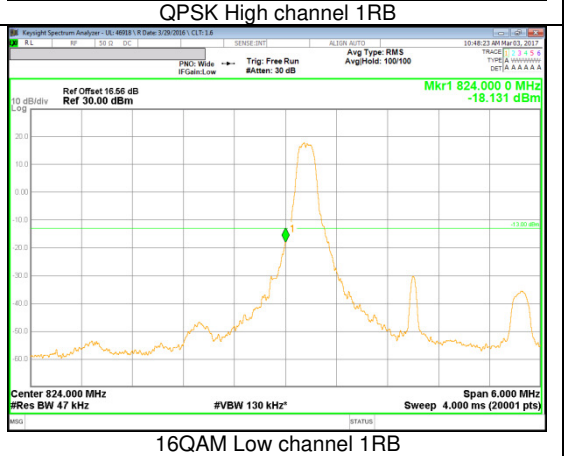
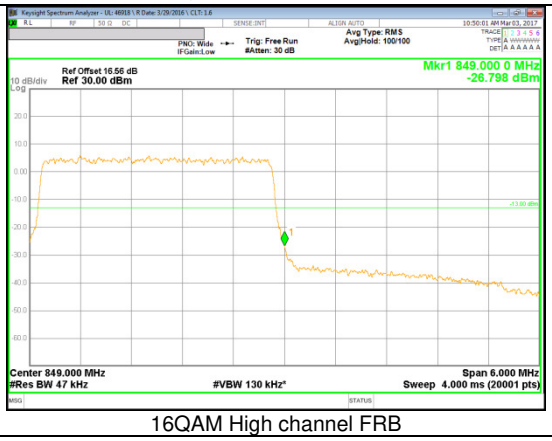
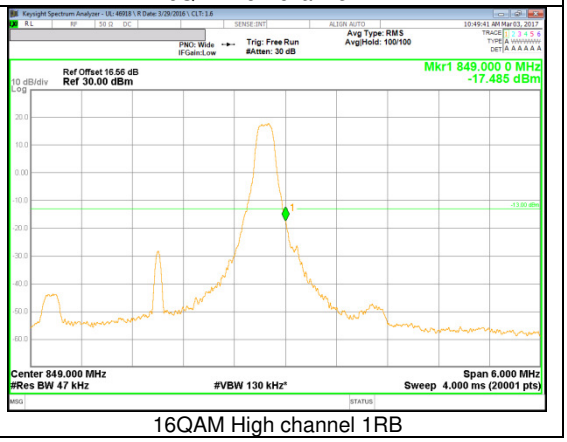
Band 5 3MHz	 QPSK Low channel FRB	 QPSK Low channel 1RB
	 QPSK High channel FRB	 QPSK High channel 1RB
	 16QAM Low channel FRB	 16QAM Low channel 1RB
	 16QAM High channel FRB	 16QAM High channel 1RB

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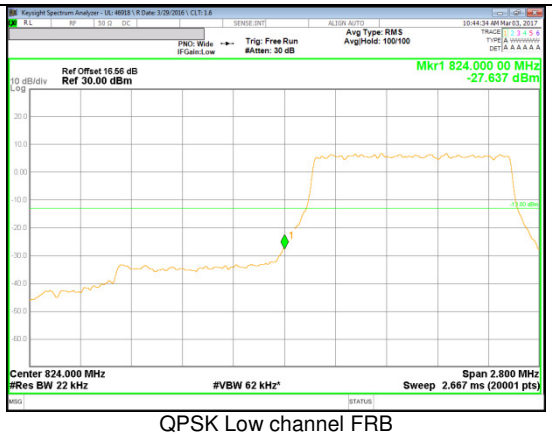
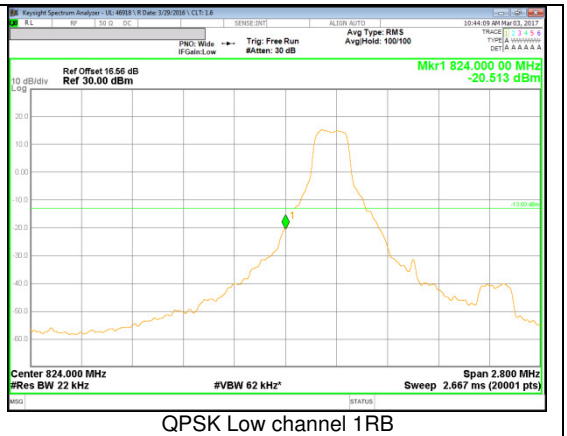
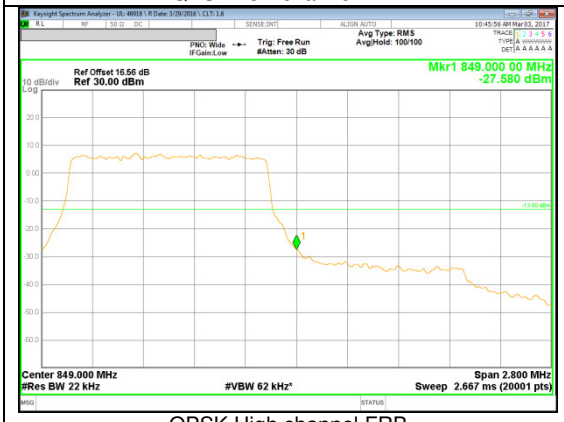
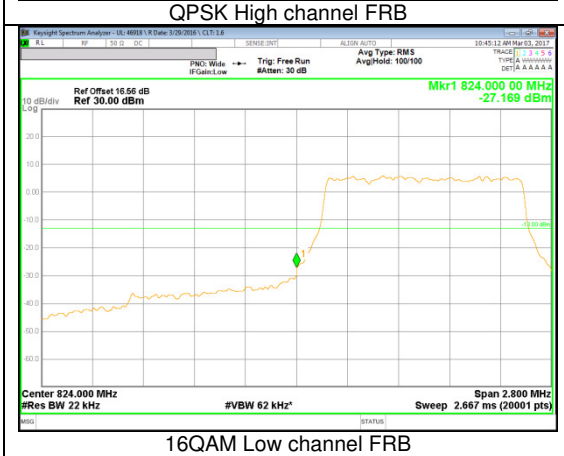
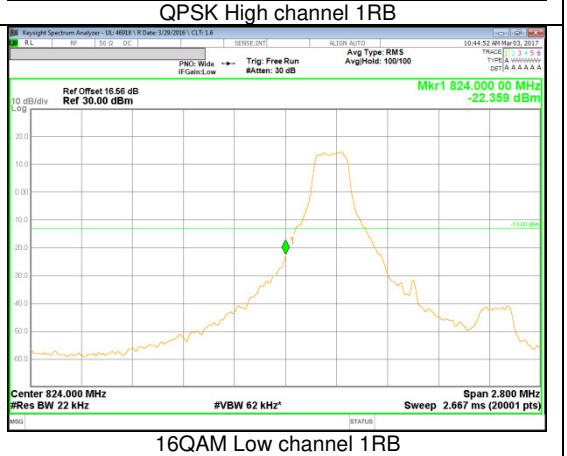
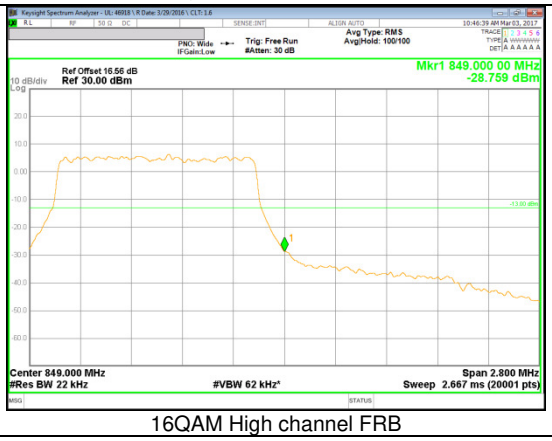
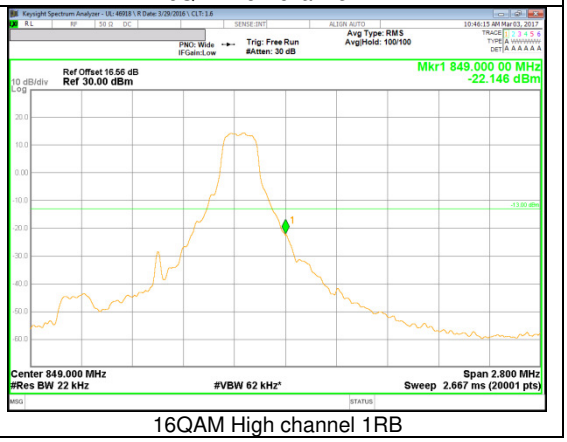
Band 5 1.4MHz	 QPSK Low channel FRB	 QPSK Low channel 1RB
	 QPSK High channel FRB	 QPSK High channel 1RB
	 16QAM Low channel FRB	 16QAM Low channel 1RB
	 16QAM High channel FRB	 16QAM High channel 1RB

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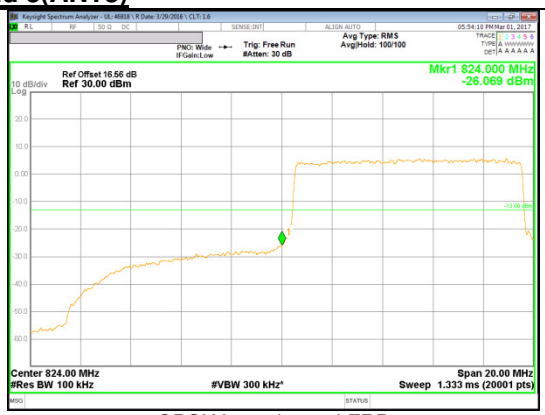
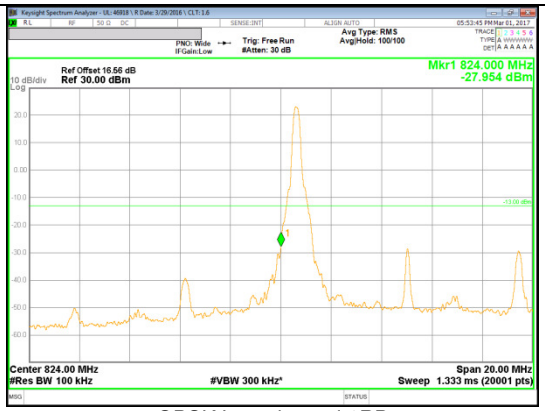
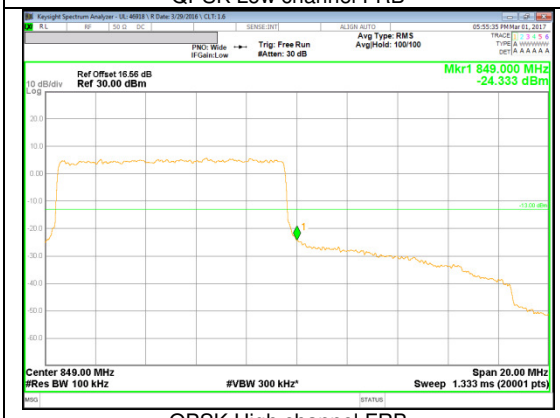
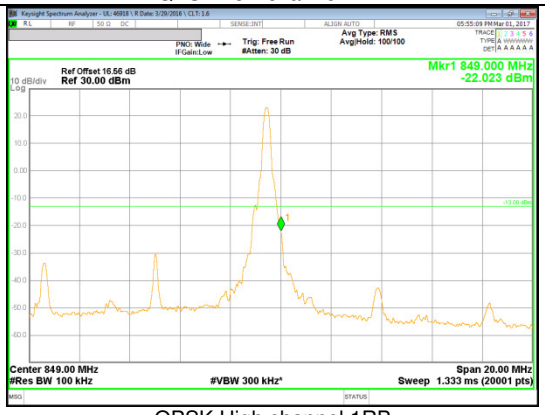
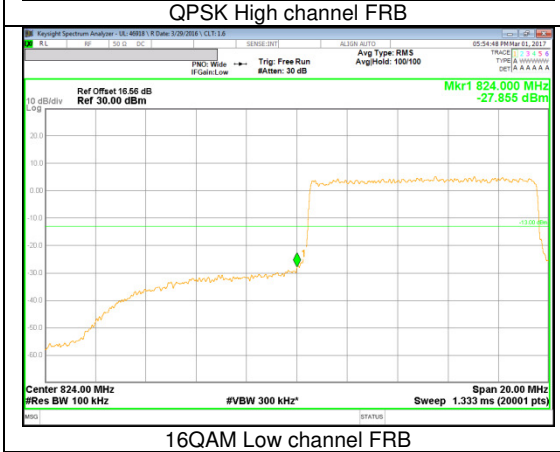
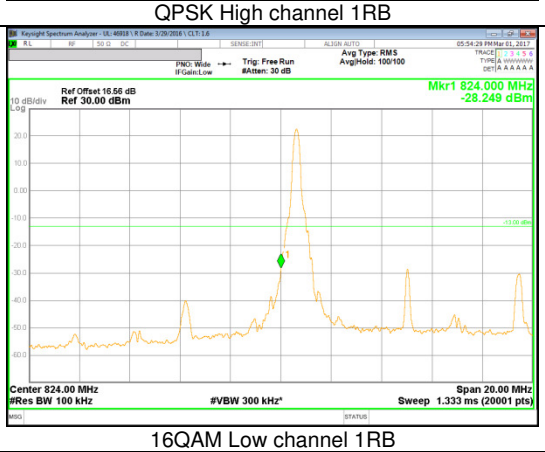
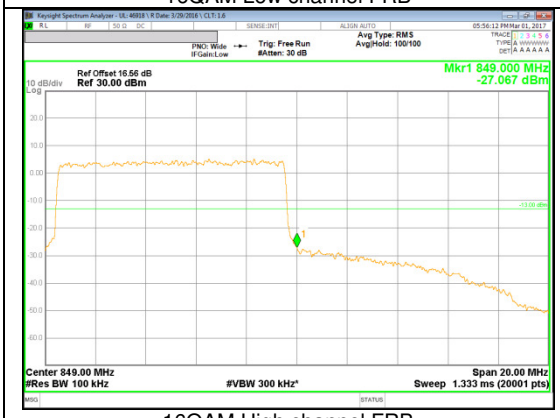
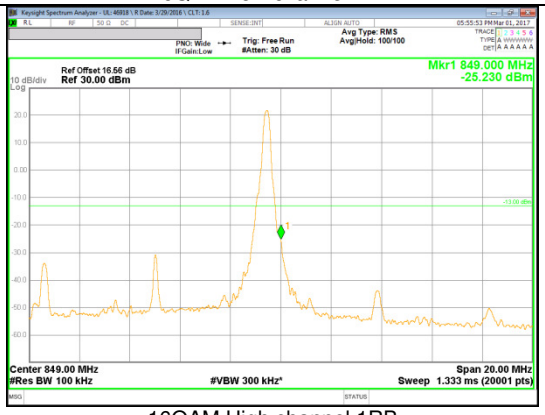
LTE Band 5(ANT3)

Band 5 10MHz	 QPSK Low channel FRB	 QPSK Low channel 1RB
	 QPSK High channel FRB	 QPSK High channel 1RB
	 16QAM Low channel FRB	 16QAM Low channel 1RB
	 16QAM High channel FRB	 16QAM High channel 1RB

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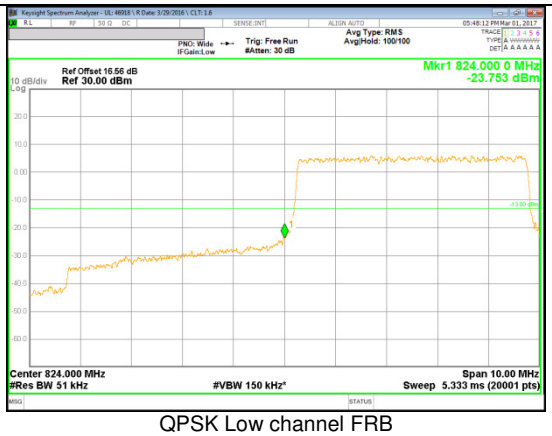
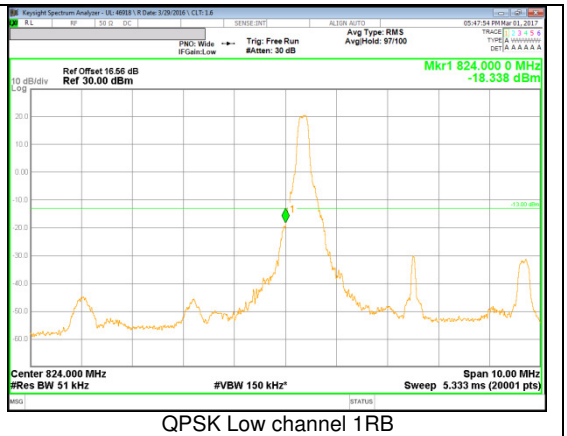
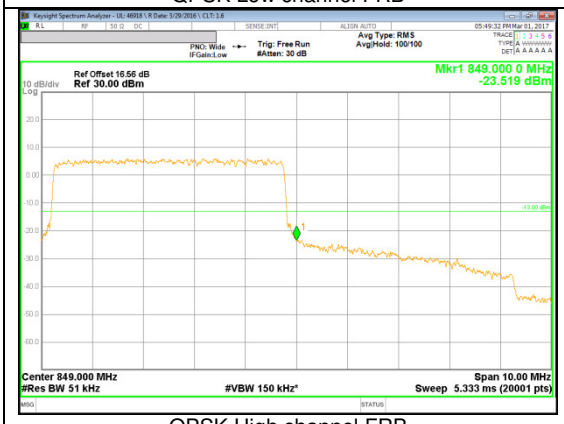
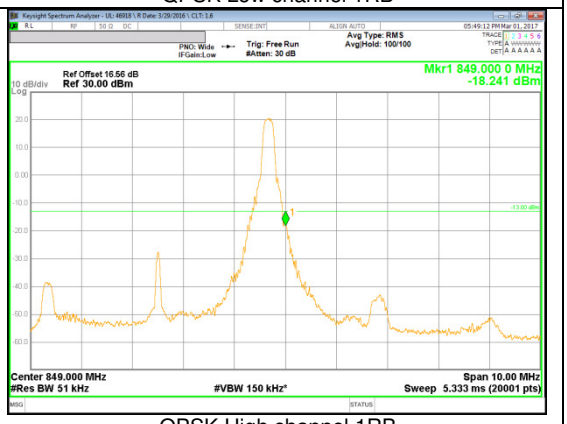
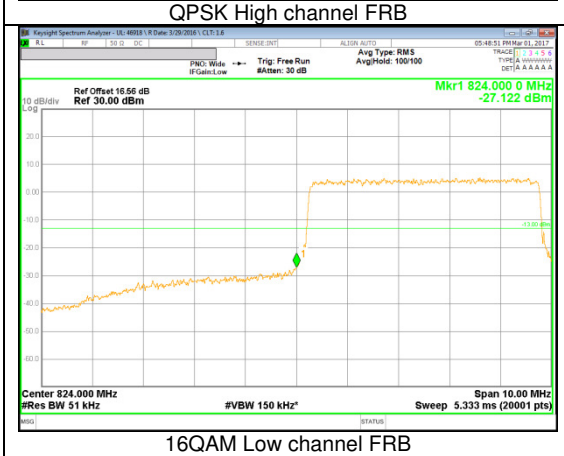
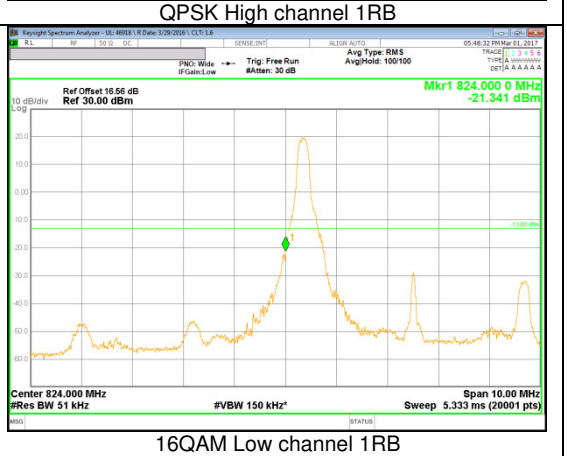
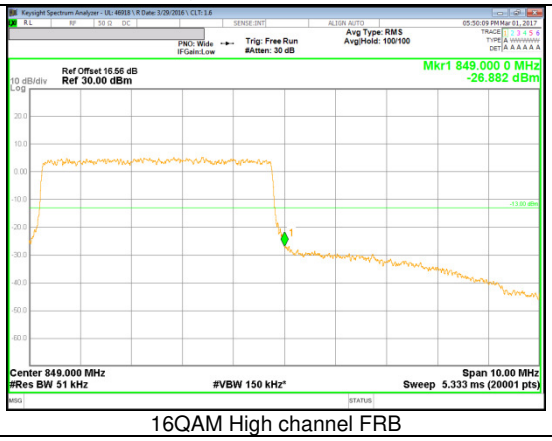
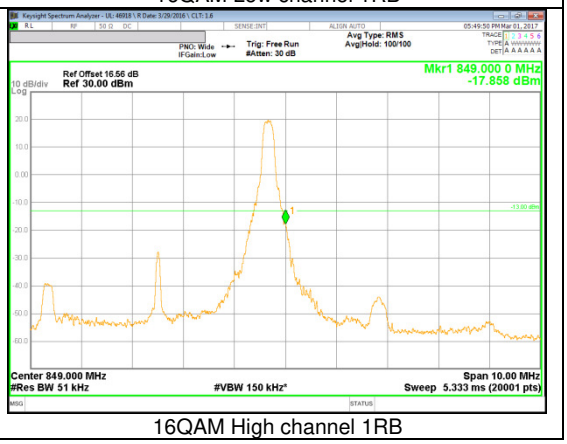
Band 5 5MHz	 QPSK Low channel FRB	 QPSK Low channel 1RB
	 QPSK High channel FRB	 QPSK High channel 1RB
	 16QAM Low channel FRB	 16QAM Low channel 1RB
	 16QAM High channel FRB	 16QAM High channel 1RB

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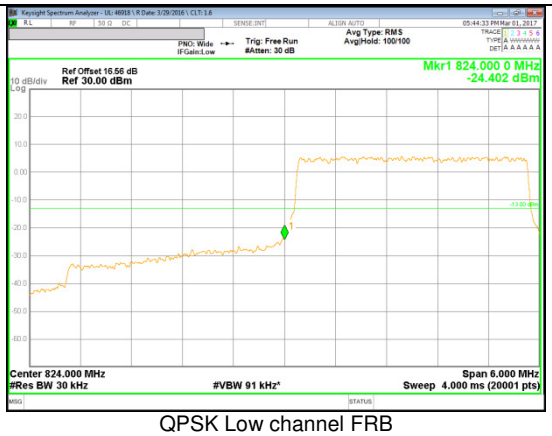
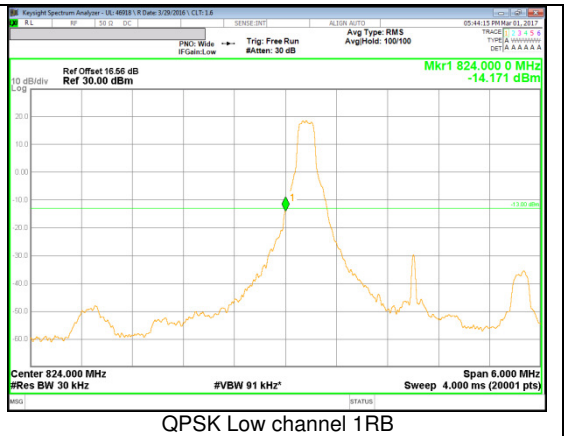
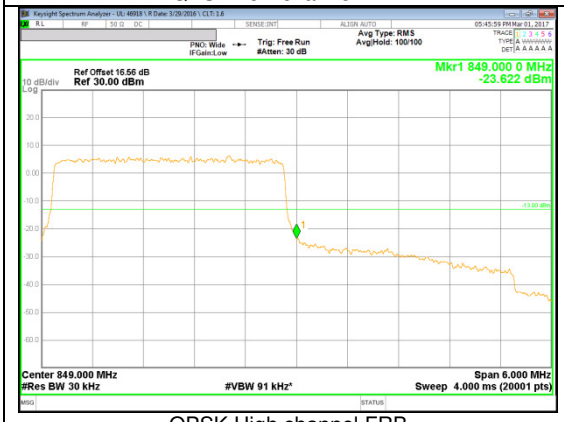
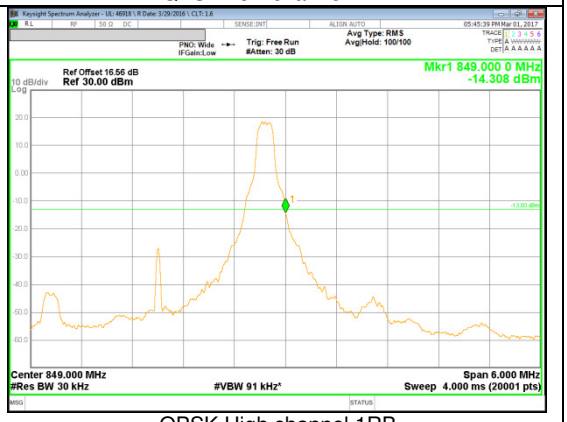
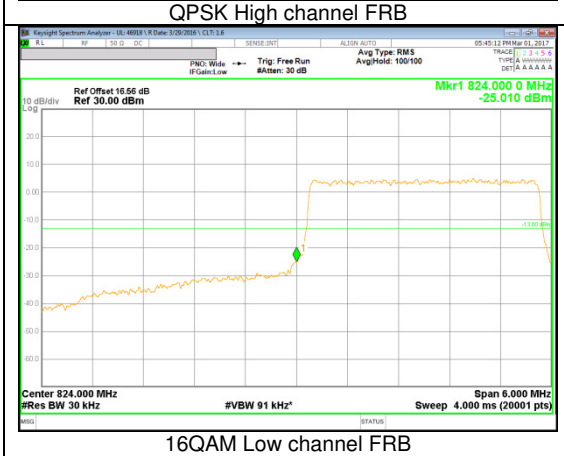
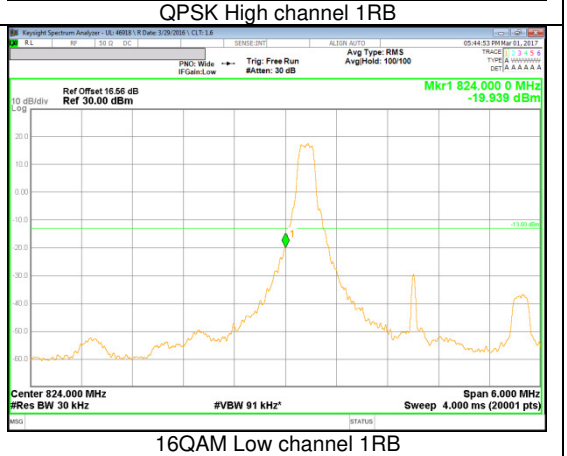
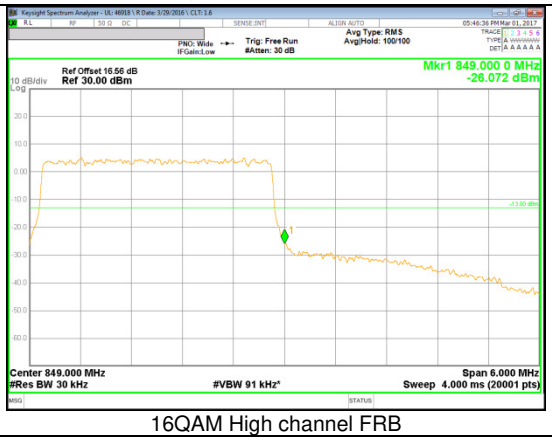
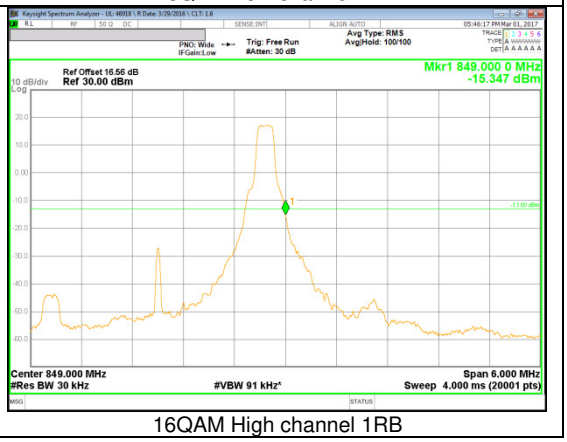
Band 5 3MHz	 QPSK Low channel FRB	 QPSK Low channel 1RB
	 QPSK High channel FRB	 QPSK High channel 1RB
	 16QAM Low channel FRB	 16QAM Low channel 1RB
	 16QAM High channel FRB	 16QAM High channel 1RB

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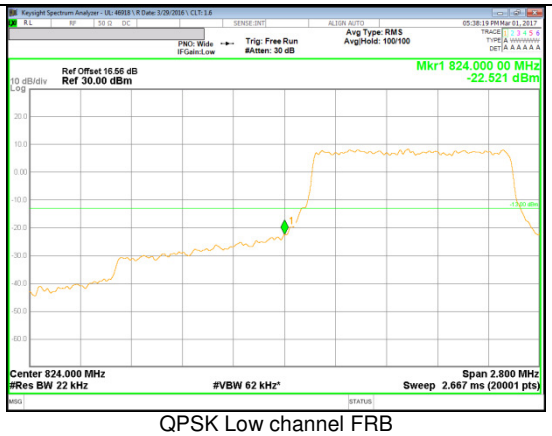
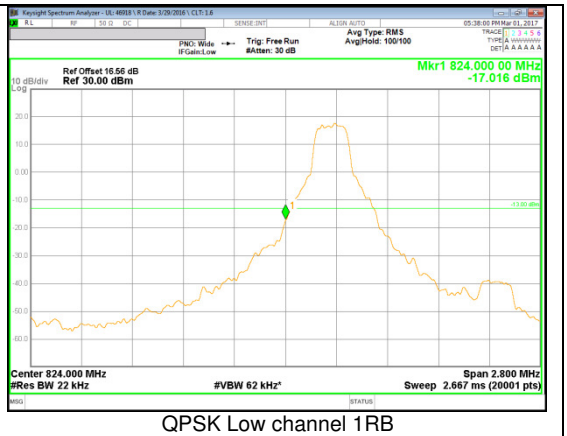
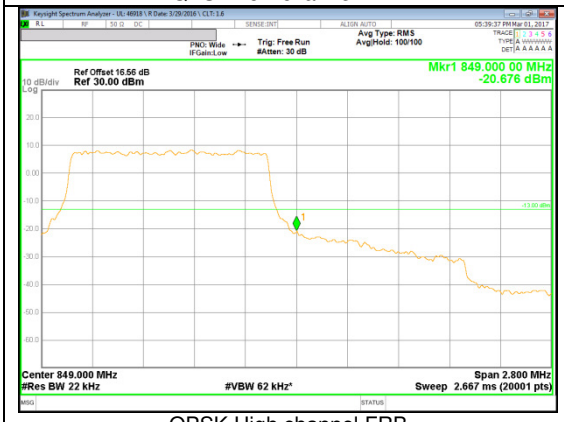
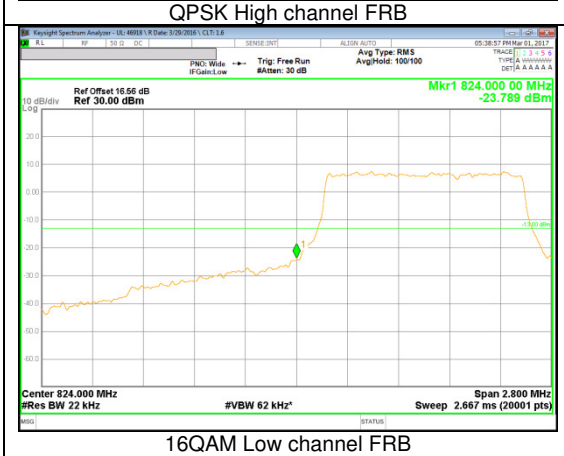
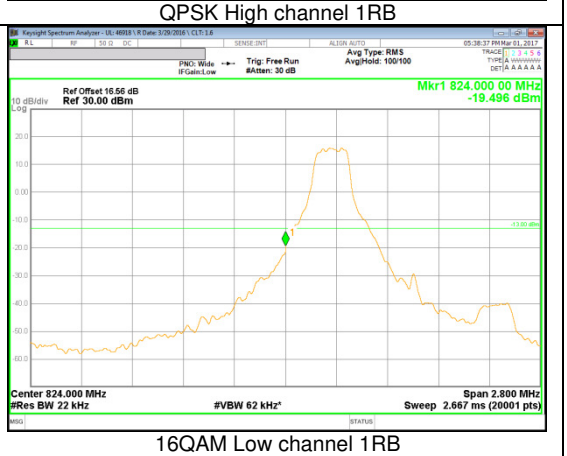
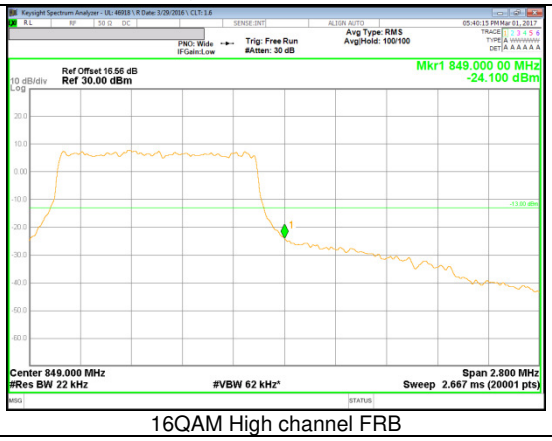
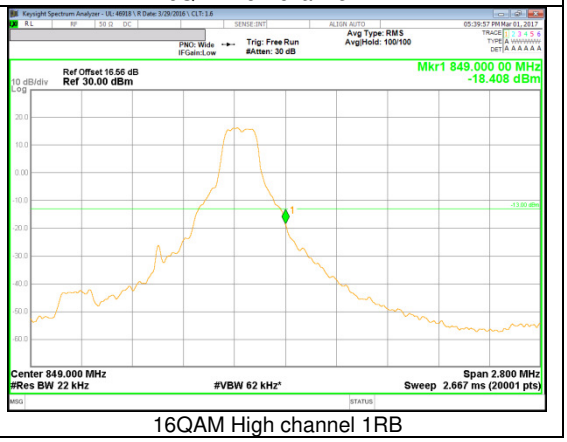
Band 5 1.4MHz	 QPSK Low channel FRB	 QPSK Low channel 1RB
	 QPSK High channel FRB	 QPSK High channel 1RB
	 16QAM Low channel FRB	 16QAM Low channel 1RB
	 16QAM High channel FRB	 16QAM High channel 1RB

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