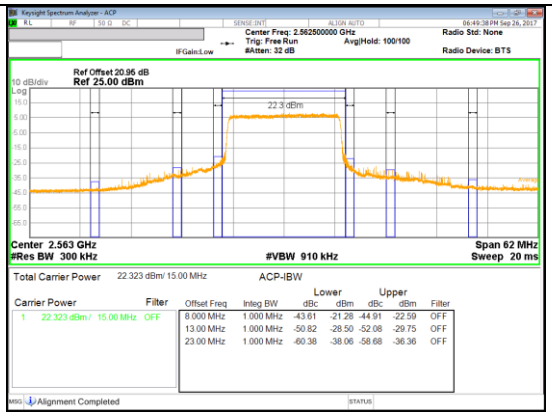
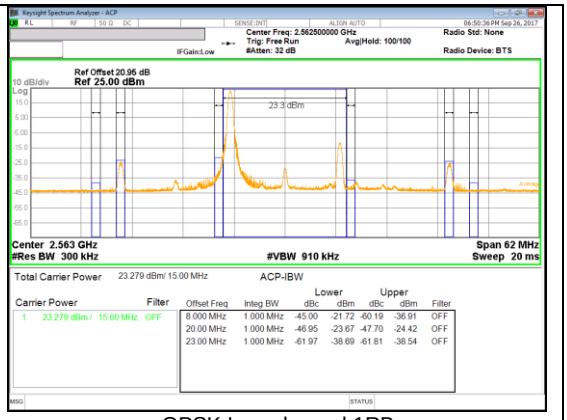
Band 41

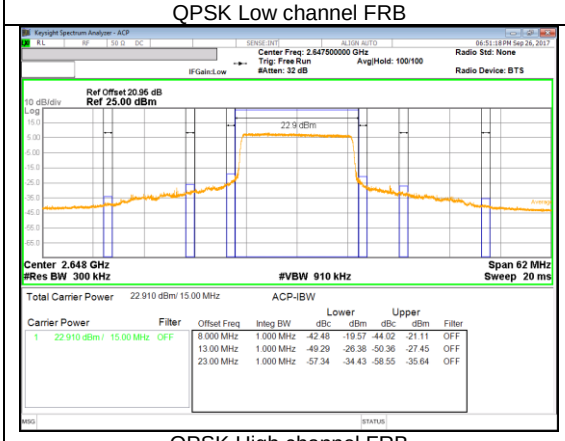
15MHz



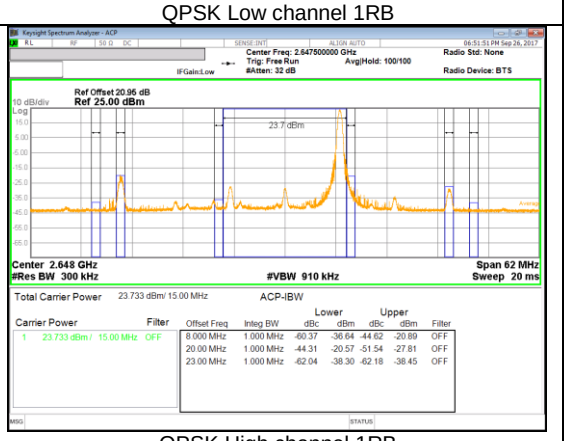
QPSK Low channel FRB



QPSK Low channel 1RB



QPSK High channel FRB



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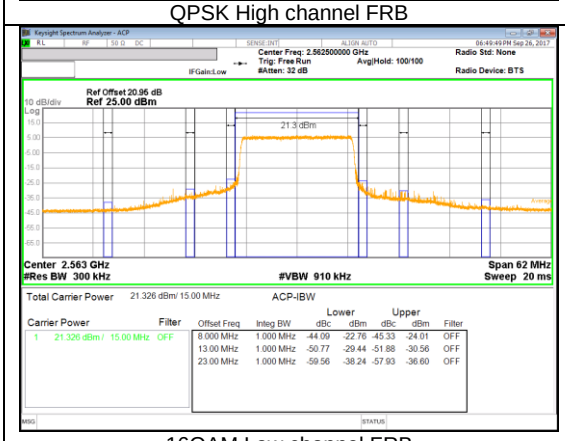
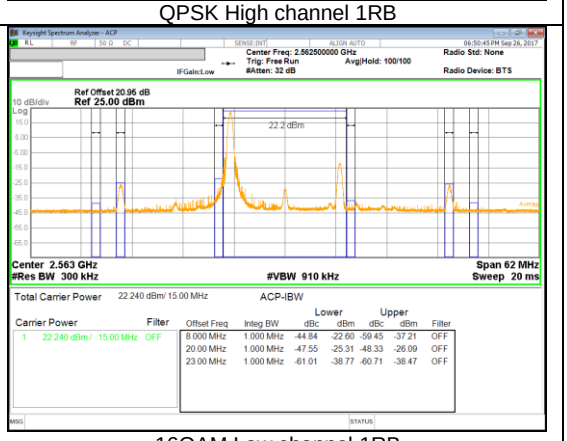


16QAM Low channel FRB



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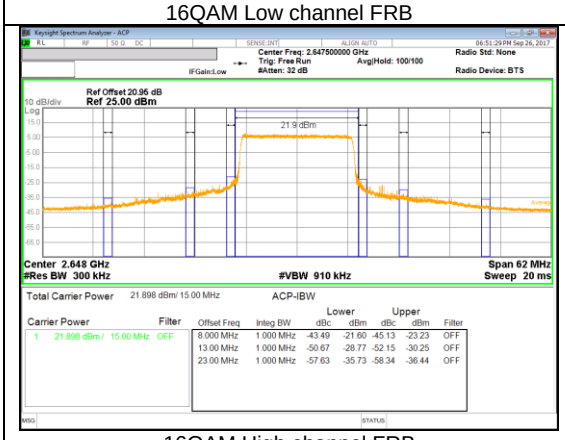

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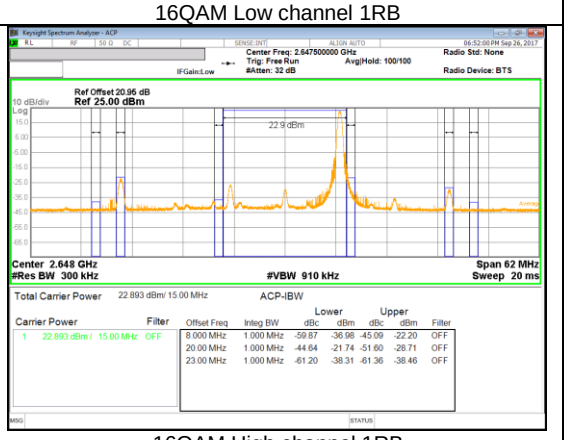

16QAM High channel 1RB

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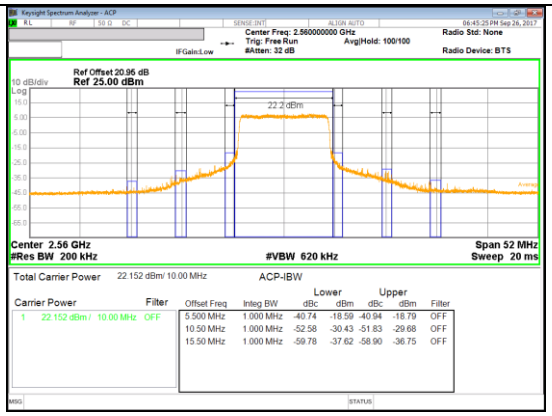
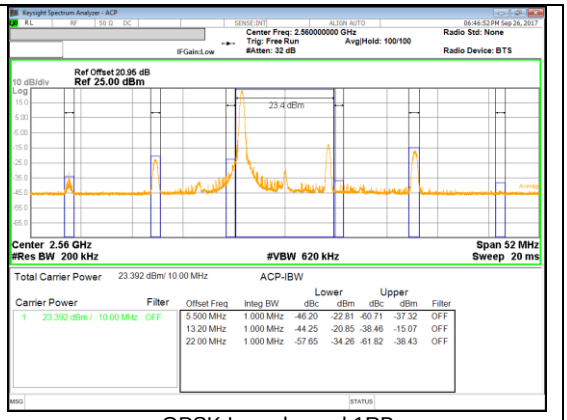
Band 41

10MHz



QPSK Low channel FRB



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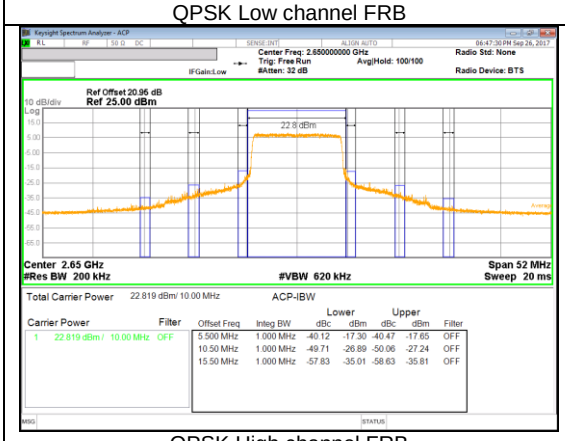

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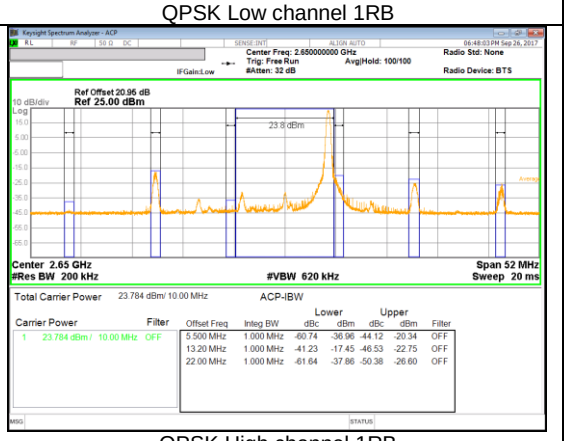

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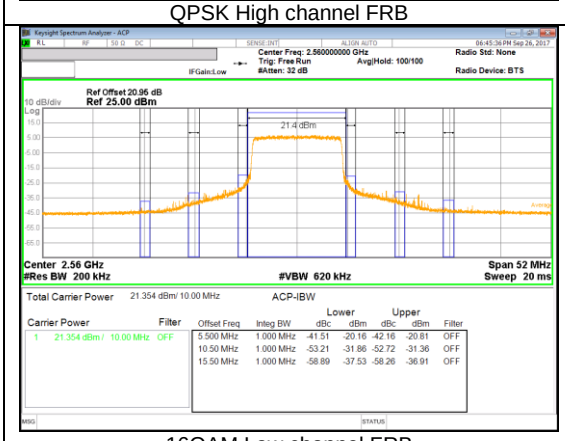

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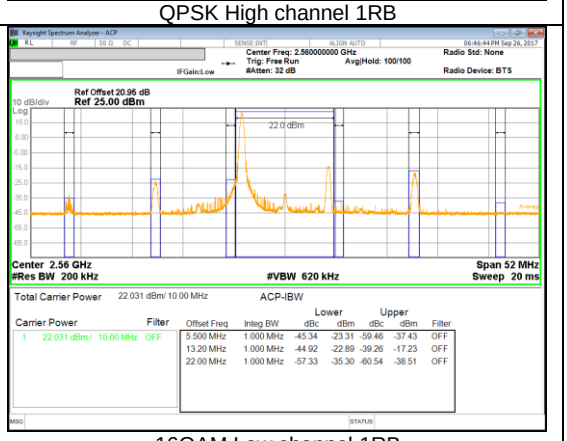

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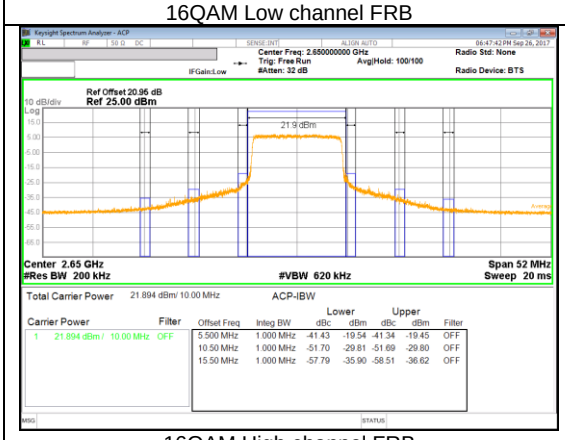

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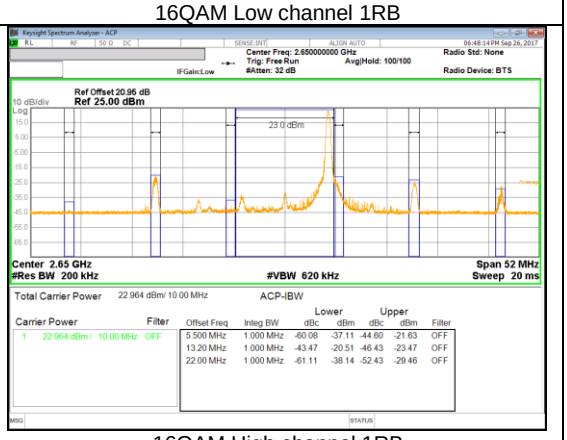

16QAM High channel 1RB

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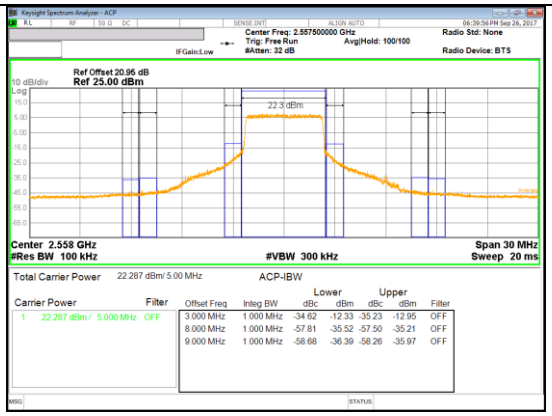
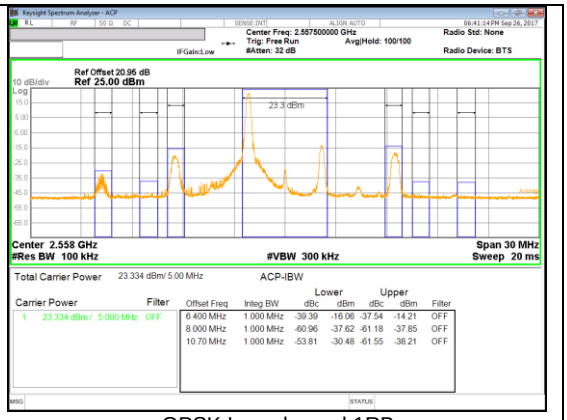
Band 41

5MHz



QPSK Low channel FRB



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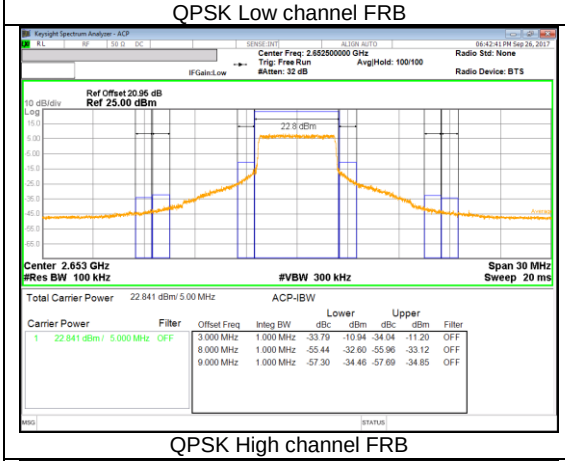

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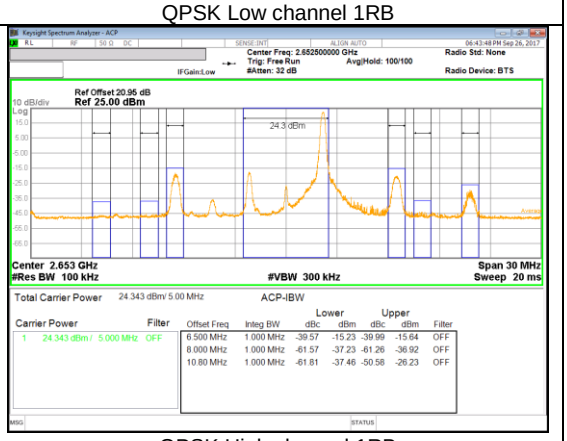

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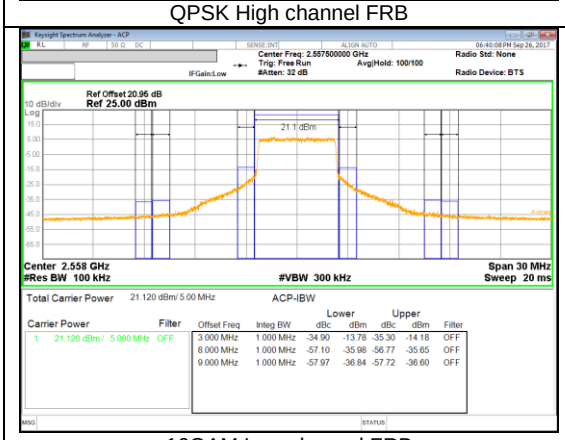

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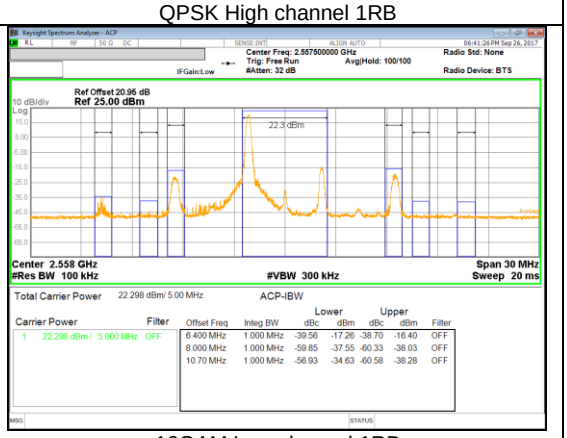

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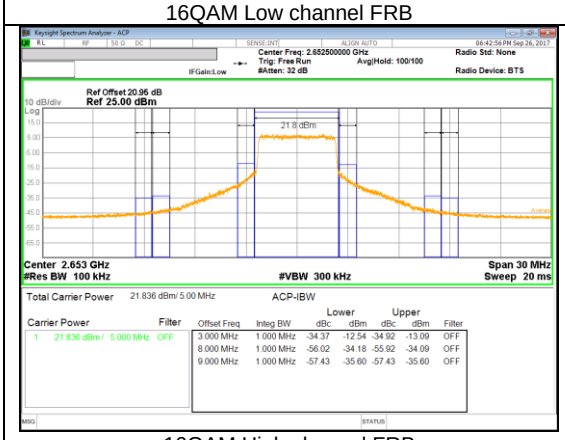

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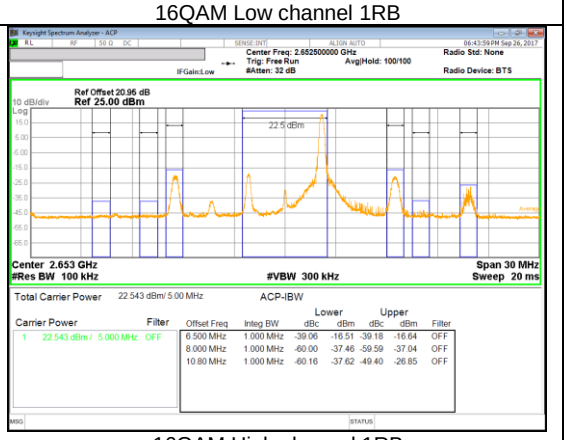

16QAM High channel 1RB

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LTE Band 38

Due to frequency range and same output power setting, test was carried in LTE Band 41 to cover both LTE Band 41 and LTE Band 38.

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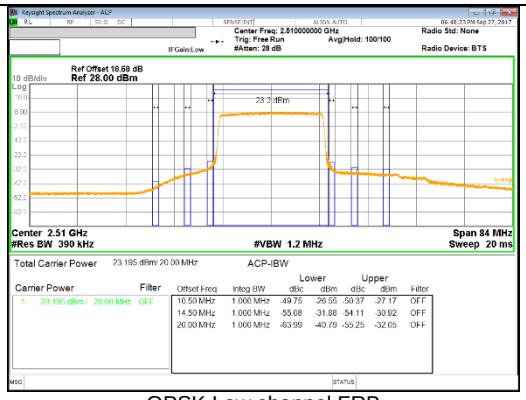
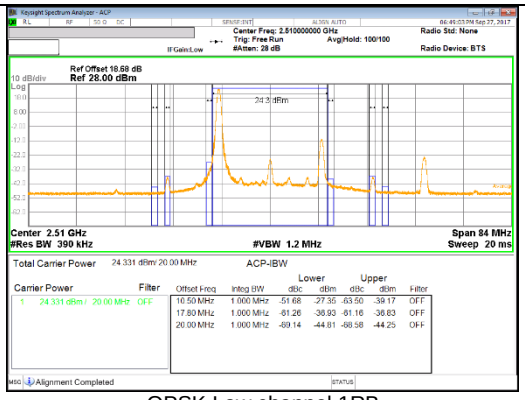
LTE Band 7

Band 7

20MHz



QPSK Low channel FRB



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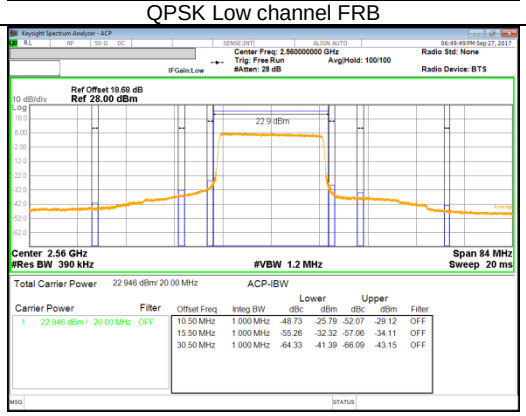

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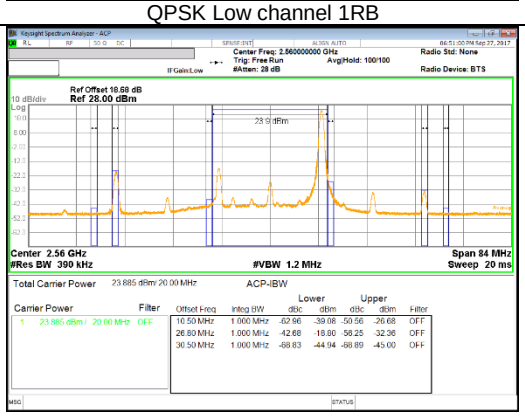

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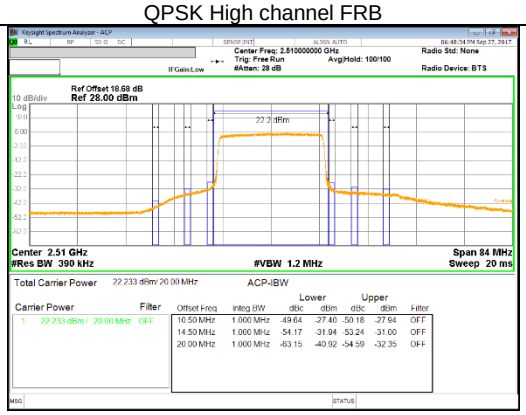

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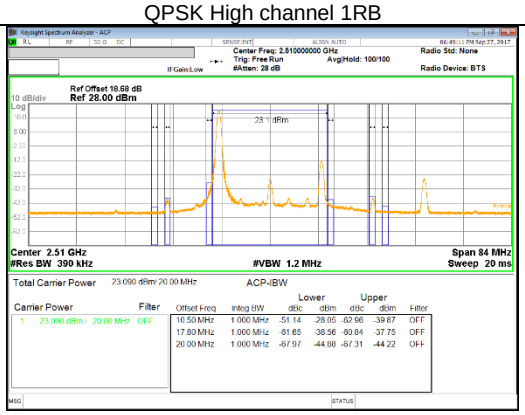

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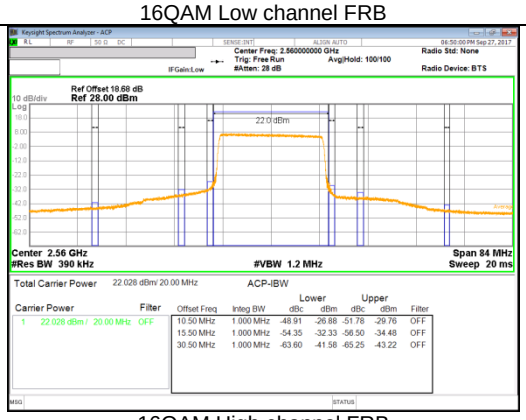

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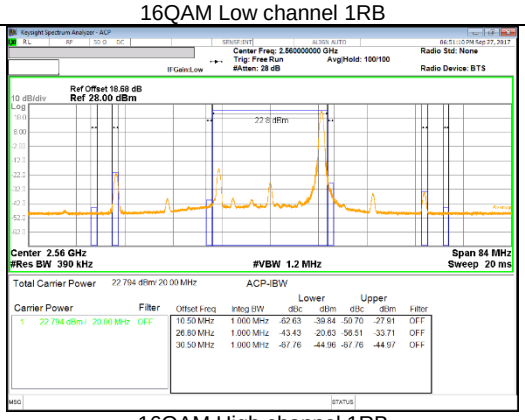

16QAM High channel 1RB

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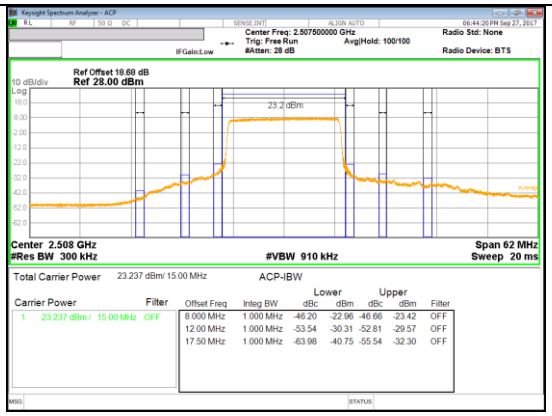
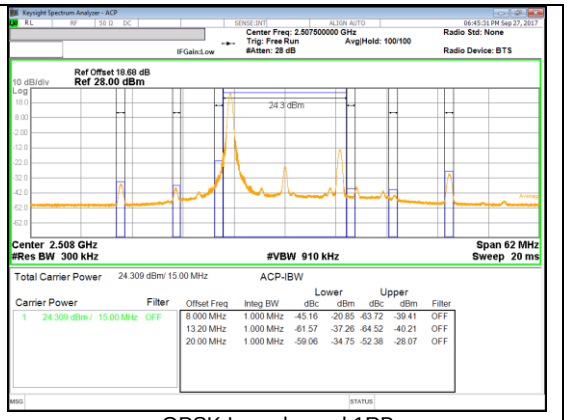
Band 7

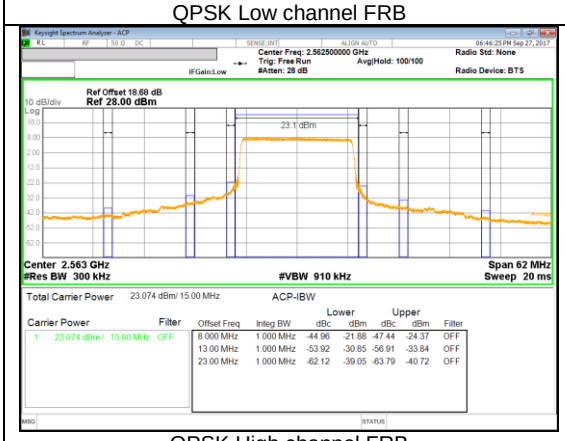
15MHz



QPSK Low channel FRB



QPSK Low channel 1RB



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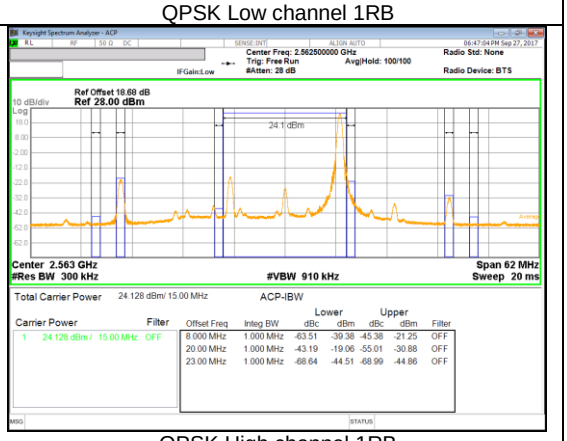

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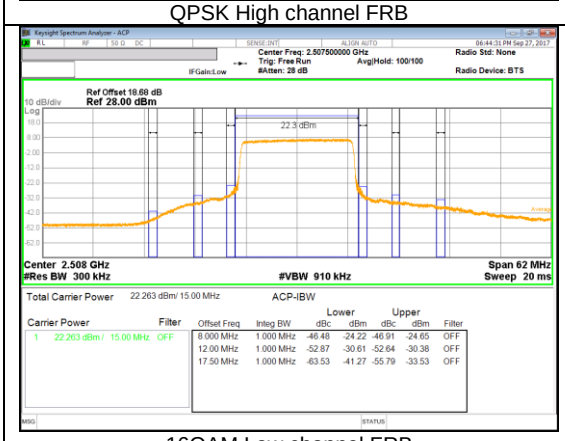

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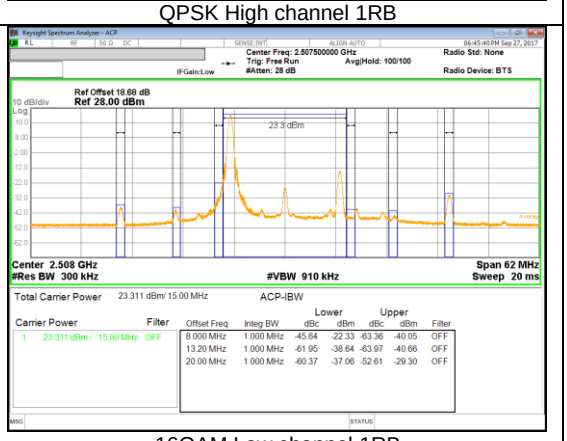

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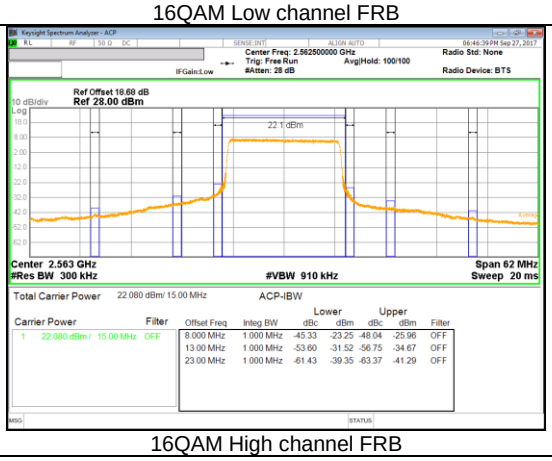

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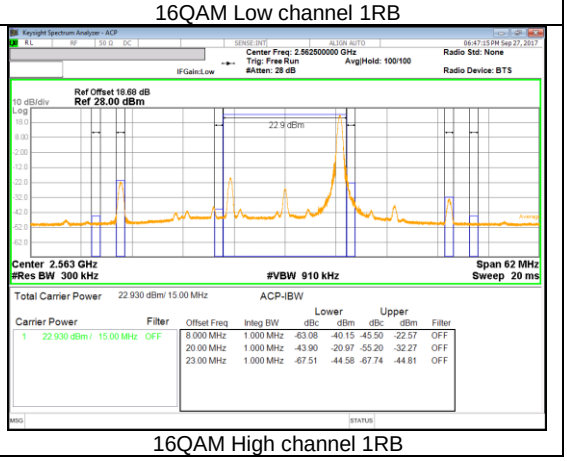

16QAM High channel 1RB

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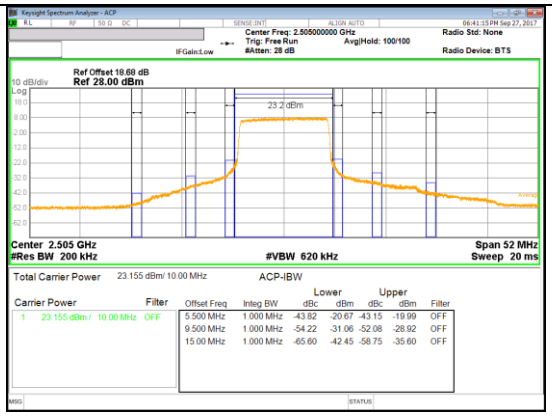
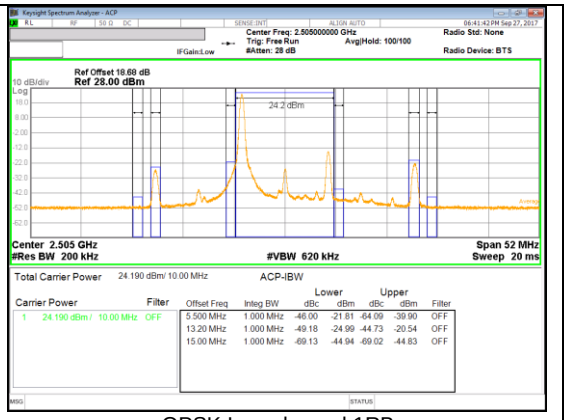
Band 7

10MHz



QPSK Low channel FRB



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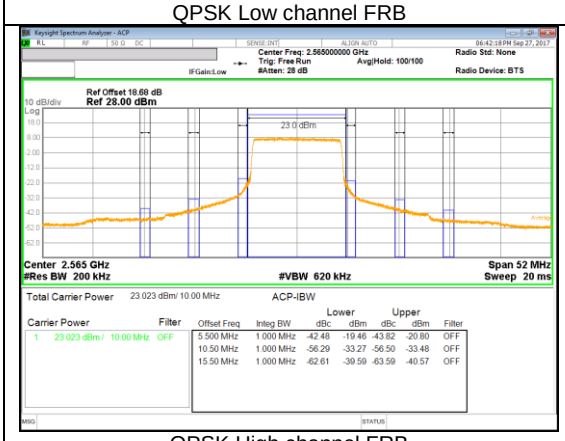

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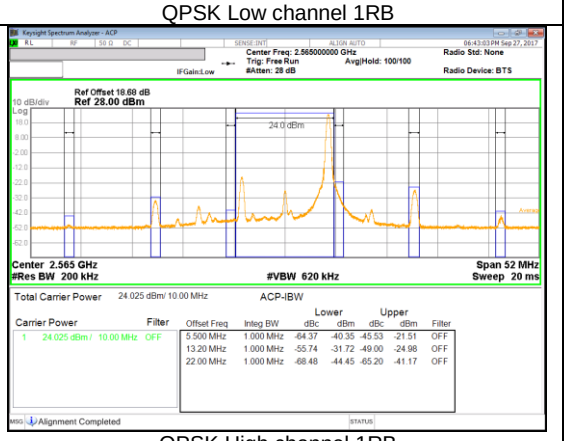

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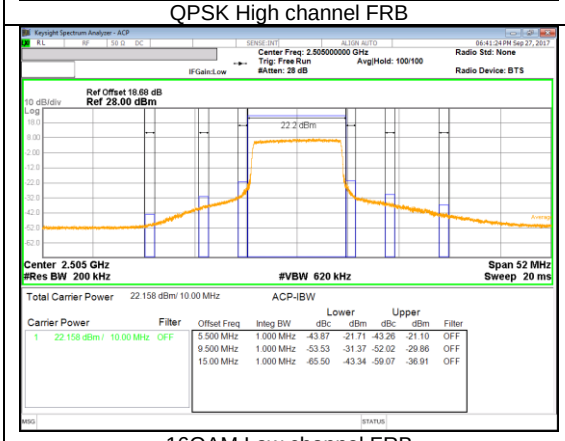

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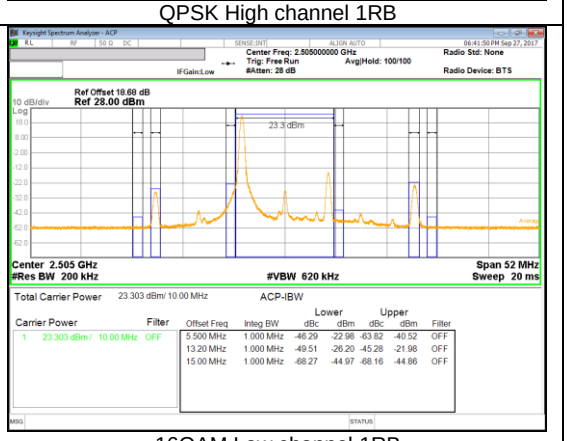

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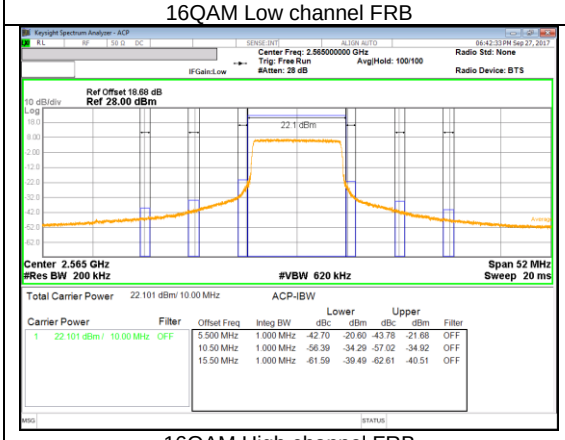

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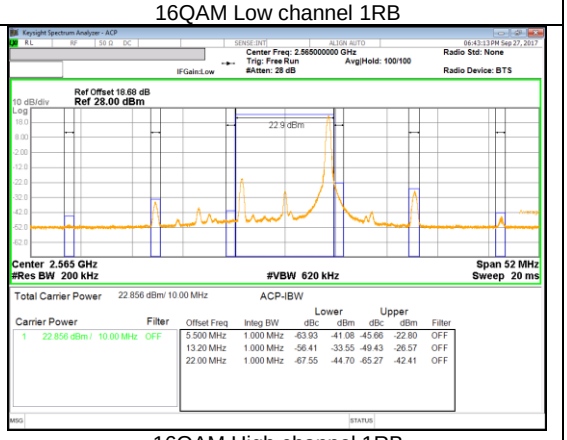

16QAM High channel 1RB

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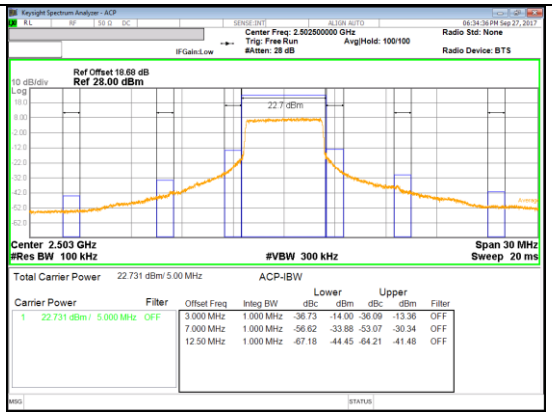
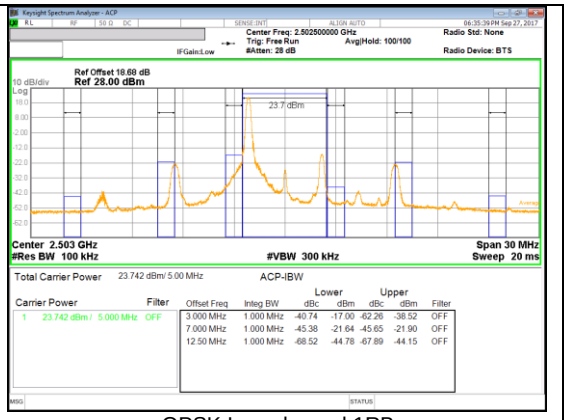
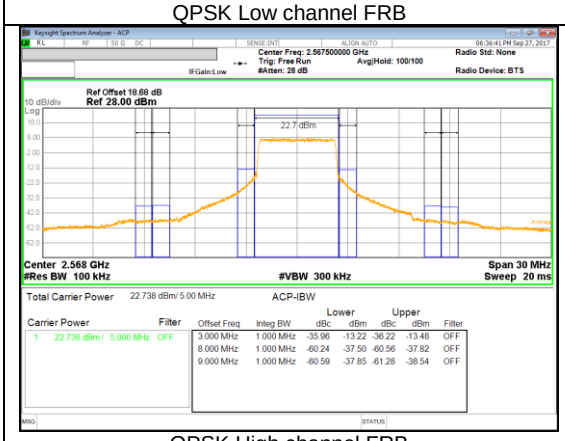
5MHz



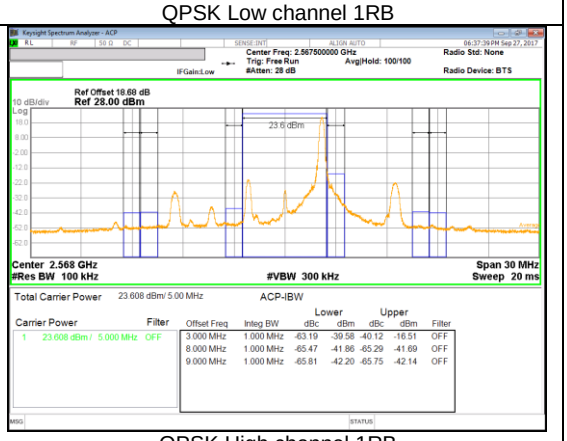
QPSK Low channel FRB



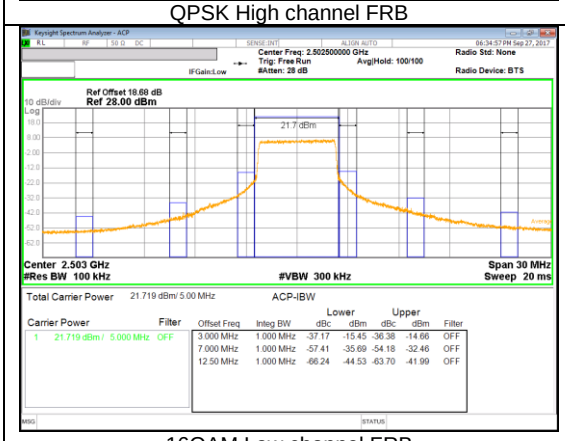
QPSK Low channel 1RB



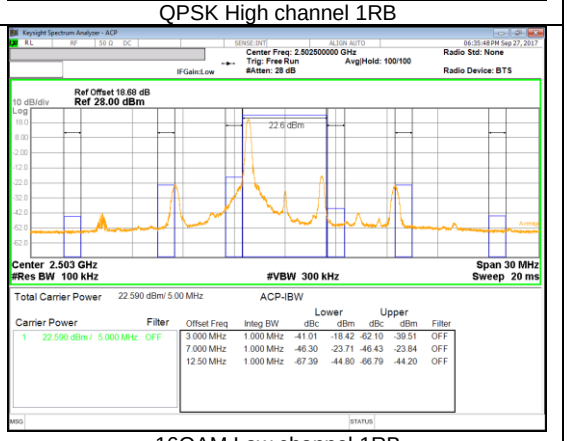
QPSK High channel FRB



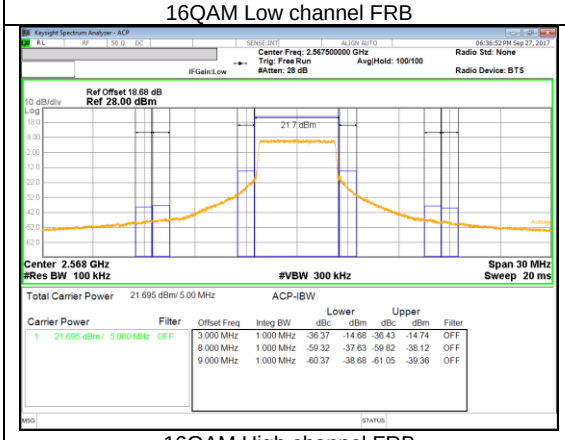
QPSK High channel 1RB



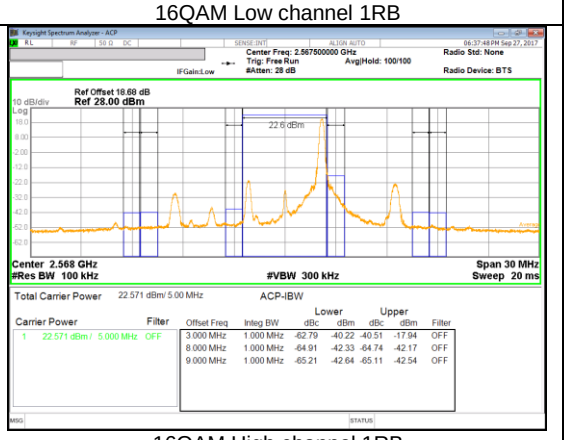
16QAM Low channel FRB



16QAM Low channel 1RB



16QAM High channel FRB



16QAM High channel 1RB

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10.3 OUT OF BAND EMISSIONS

RULE PART(S)

FCC: §2.1051, §22.901, §22.917, §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: (m)(4) For mobile station, the attenuation factor shall be not less than 43 + 10 log (P) dB at the channel edge and (55 + 10 log (P)dB) at the 5.5 MHz from the channel edges.

TEST PROCEDURE

Per KDB 971168 D01 Power Meas License Digital Systems v02r02
The RF output of the transmitter was connected to a spectrum analyzer through a calibrated coaxial cable. Sufficient scans were taken to show the out-of-band Emissions, if any, up to 10th harmonic. Multiple sweeps were recorded in maximum hold mode using a peak detector to ensure that the worst-case emissions were caught.

a) Set the RBW = 100KHz for emission below 1GHz and 1MHz for emissions above 1GHz (Tests were performed 1MHz [Worst case], to sweep 1 time for all frequency range)

b) Set VBW ≥ 3 × RBW;

c) Set span ≥ 1.5 times the OBW;

d) Sweep time = auto couple;

e) Detector = peak;

f) Ensure that the number of measurement points = Max (40001);

g) Trace mode = max hold;

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RESULTS

GSM

Band	Mode	f [MHz]	Spurious [dBm]	Limit [dBm]
GSM850	GPRS	824.2	-20.45	-13.00
		836.6	-21.37	
		848.8	-21.21	
	EGPRS	824.2	-21.56	
		836.6	-20.65	
		848.8	-21.42	
GSM1900	GPRS	1850.2	-20.81	
		1880.0	-21.15	
		1909.8	-20.56	
	EGPRS	1850.2	-20.13	
		1880.0	-20.91	
		1909.8	-20.72	

WCDMA

Band	Mode	f [MHz]	Spurious [dBm]	Limit [dBm]
Band 5	REL99	826.4	-31.68	-13.00
		836.6	-30.86	
		846.6	-31.57	
	HSDPA	826.4	-31.52	
		836.6	-30.67	
		846.6	-30.55	
Band 2	REL99	1852.4	-31.05	
		1880.0	-31.23	
		1907.6	-31.23	
	HSDPA	1852.4	-30.13	
		1880.0	-31.00	
		1907.6	-30.91	

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LTE 5

Bandwidth	Mode	f [MHz]	Spurious [dBm]	Limit [dBm]
10 MHz	QPSK	829.0	-29.59	-13.00
		836.5	-29.47	
		844.0	-28.69	
	16QAM	829.0	-29.58	
		836.5	-29.58	
		844.0	-29.68	
5 MHz	QPSK	826.5	-29.57	
		836.5	-30.25	
		846.5	-29.71	
	16QAM	826.5	-29.69	
		836.5	-30.04	
		846.5	-29.81	
3 MHz	QPSK	825.5	-28.89	
		836.5	-29.73	
		847.5	-29.97	
	16QAM	825.5	-29.92	
		836.5	-30.12	
		847.5	-29.38	
1.4 MHz	QPSK	824.7	-29.38	
		836.5	-29.65	
		848.3	-29.30	
	16QAM	824.7	-29.54	
		836.5	-29.22	
		848.3	-29.22	

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LTE 41

Bandwidth	Mode	f [MHz]	Spurious [dBm]	Limit [dBm]
20 MHz	QPSK	2565.0	-29.58	-25.00
		2605.0	-29.01	
		2645.0	-29.26	
	16QAM	2565.0	-29.30	
		2605.0	-29.49	
		2645.0	-29.79	
15 MHz	QPSK	2562.5	-28.99	
		2605.0	-28.88	
		2647.5	-29.84	
	16QAM	2562.5	-28.73	
		2605.0	-29.13	
		2647.5	-29.71	
10 MHz	QPSK	2560.0	-29.68	
		2605.0	-29.16	
		2650.0	-30.05	
	16QAM	2560.0	-29.63	
		2605.0	-29.66	
		2650.0	-29.62	
5 MHz	QPSK	2557.5	-29.38	
		2605.0	-28.86	
		2652.5	-28.43	
	16QAM	2557.5	-29.12	
		2605.0	-29.48	
		2652.5	-29.14	

LTE Band 38

Due to frequency range and same output power setting, test was carried in LTE Band 41 to cover both LTE Band 41 and LTE Band 38.

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LTE 7

Bandwidth	Mode	f [MHz]	Spurious [dBm]	Limit [dBm]
20 MHz	QPSK	2510.0	-30.07	-25.00
		2535.0	-30.24	
		2560.0	-29.70	
	16QAM	2510.0	-29.85	
		2535.0	-29.90	
		2560.0	-30.19	
15 MHz	QPSK	2507.5	-29.70	
		2535.0	-29.95	
		2562.5	-30.28	
	16QAM	2507.5	-29.38	
		2535.0	-29.42	
		2562.5	-28.97	
10 MHz	QPSK	2505.0	-30.18	
		2535.0	-29.90	
		2565.0	-30.03	
	16QAM	2505.0	-29.50	
		2535.0	-29.75	
		2565.0	-30.32	
5 MHz	QPSK	2502.5	-29.96	
		2535.0	-29.75	
		2567.5	-30.46	
	16QAM	2502.5	-30.57	
		2535.0	-29.88	
		2567.5	-30.46	

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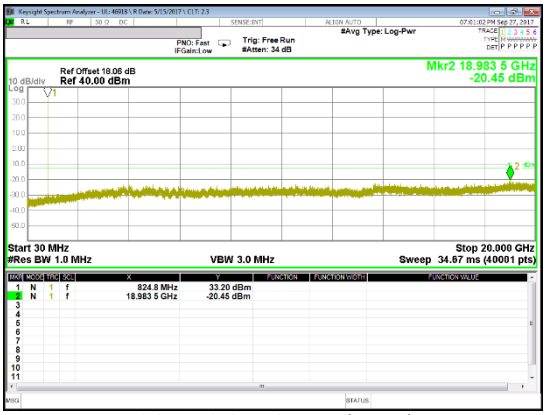
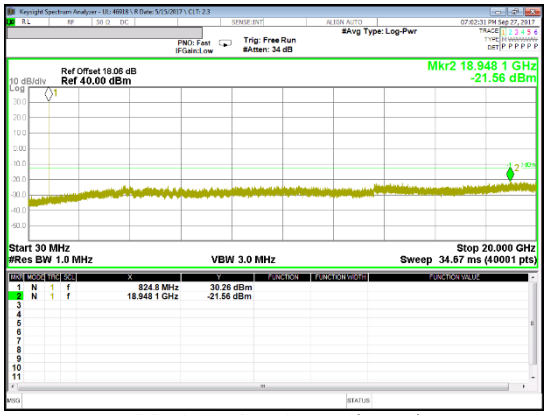
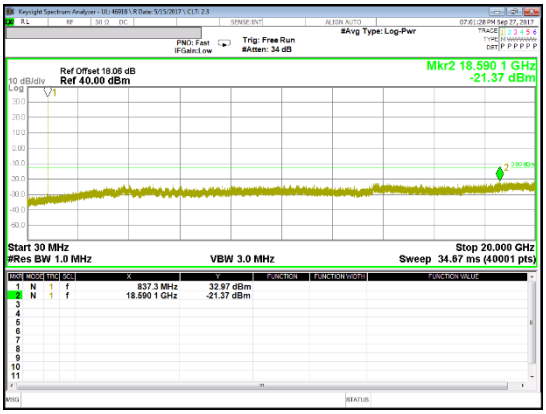
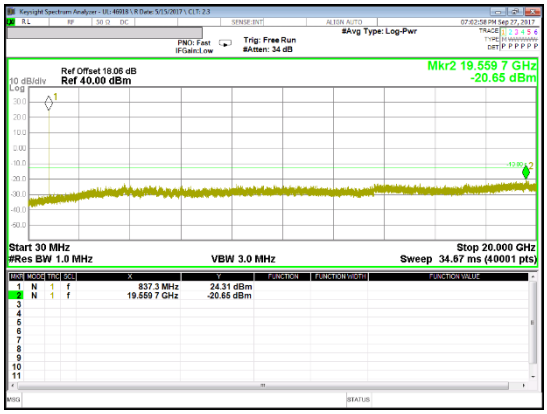
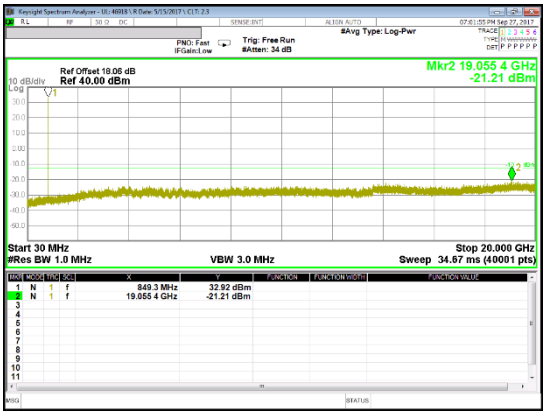
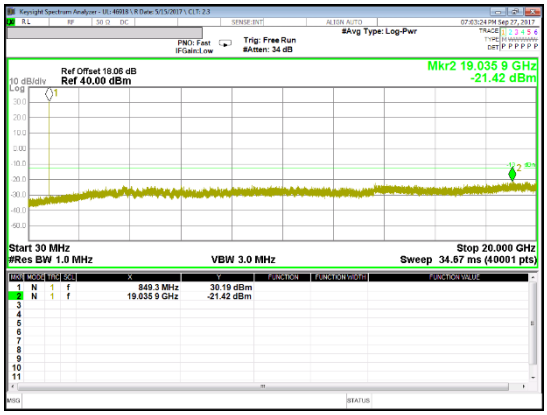
9.3.1. OUT OF BAND EMISSIONS PLOTS

GSM 850

GSM 850	 GSM850 GPRS Low channel	 GSM850 EGPRS Low channel
	 GSM850 GPRS Mid channel	 GSM850 EGPRS Mid channel
	 GSM850 GPRS High channel	 GSM850 EGPRS High channel

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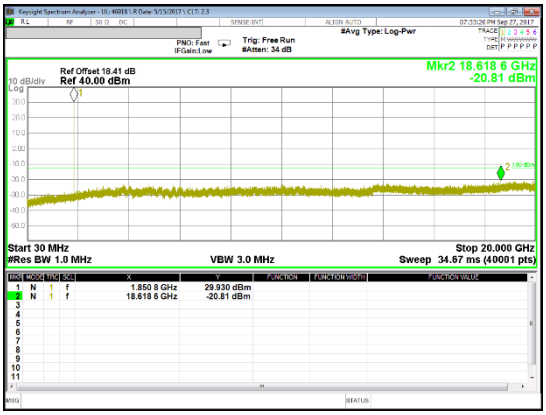
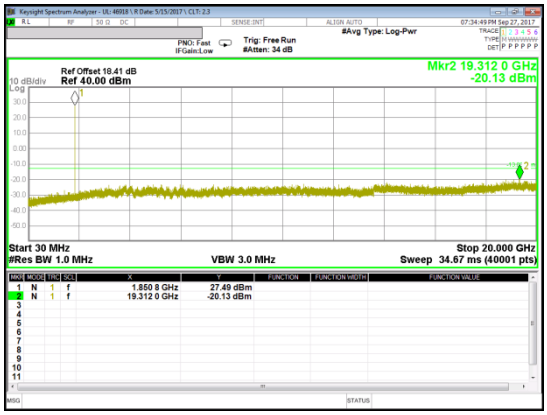
GSM 1900

GSM 1900



GSM1900 GPRS Low channel



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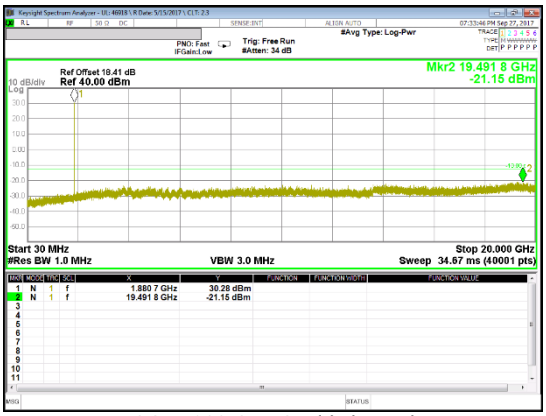
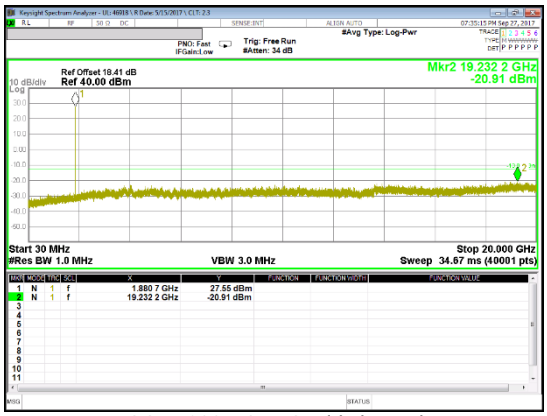


GSM1900 GPRS Mid channel



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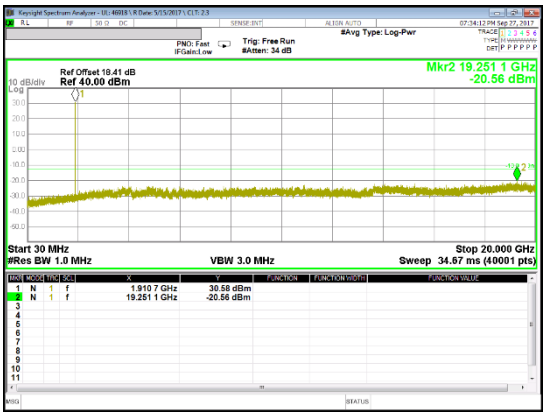
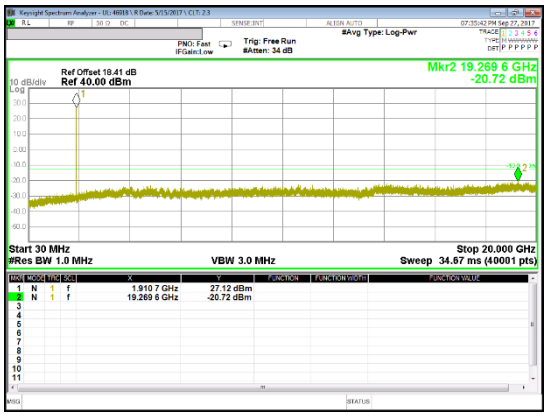


GSM1900 GPRS High channel



GSM1900 EGPRS High channel

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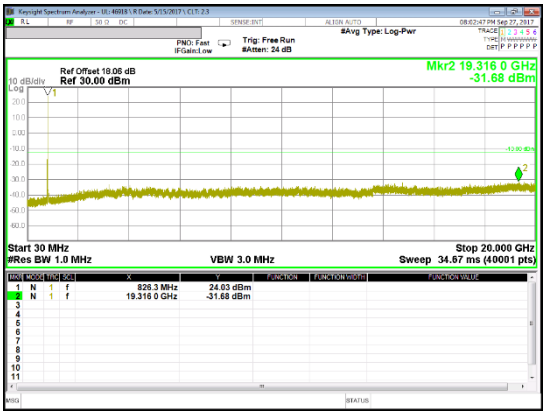
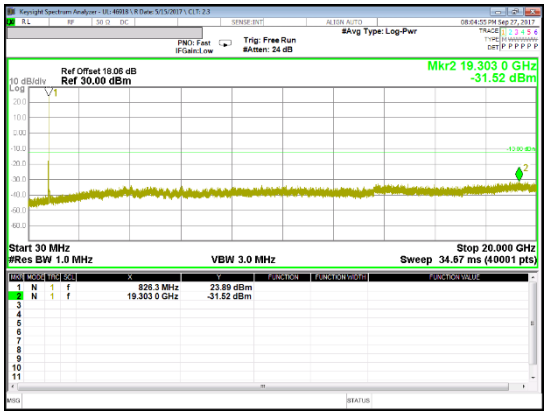
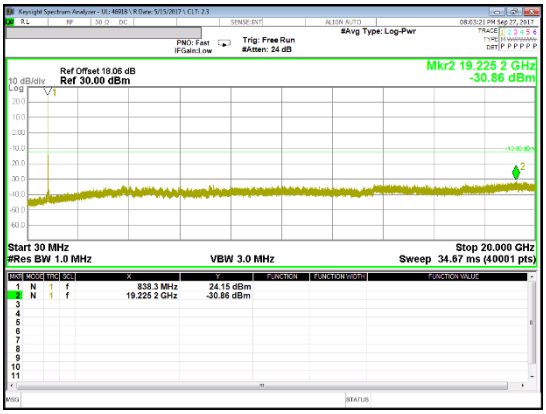
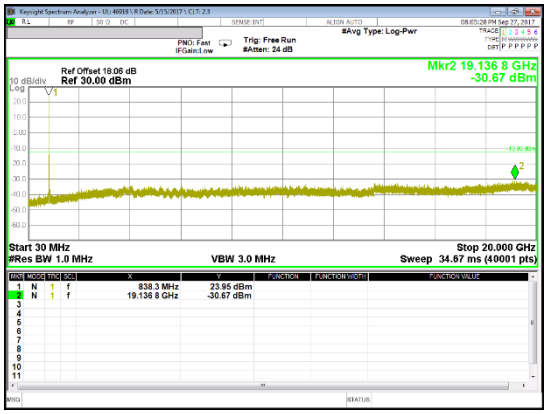
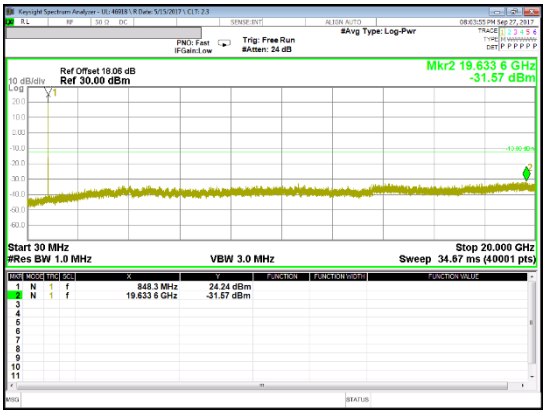
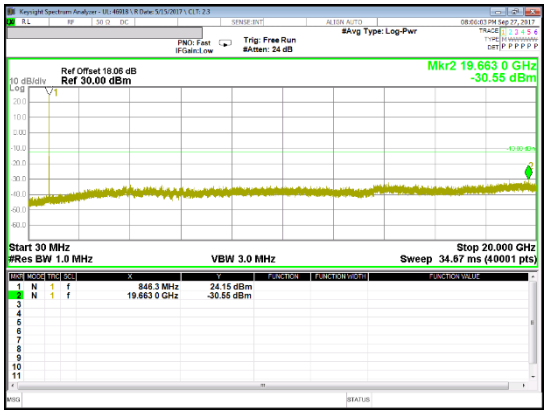
WCDMA Band 5

Band 5	 REL99 Low channel	 HSDPA Low channel
	 REL99 Mid channel	 HSDPA Mid channel
	 REL99 High channel	 HSDPA High channel

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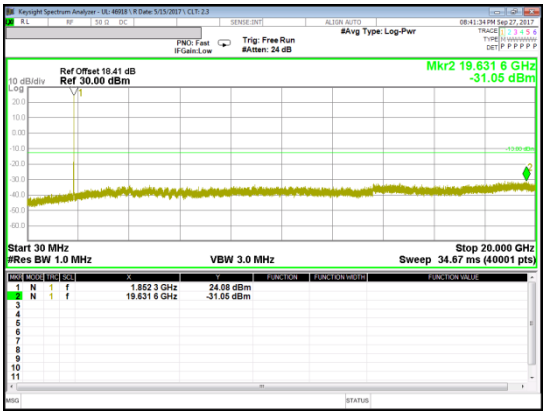
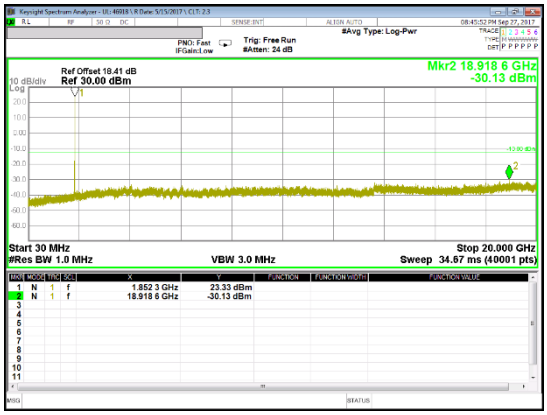
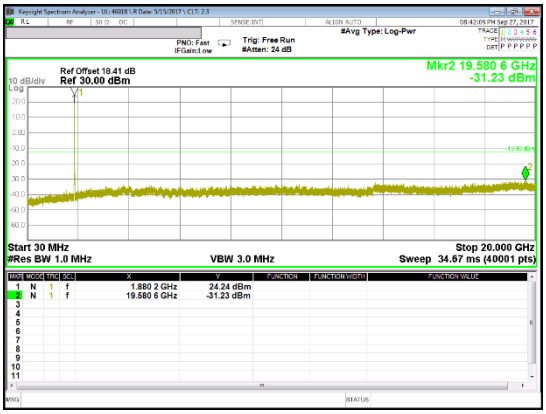
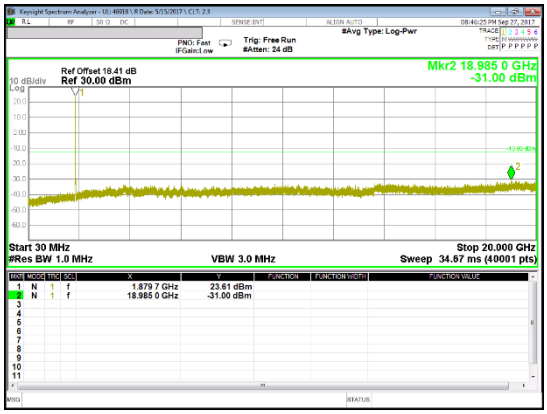
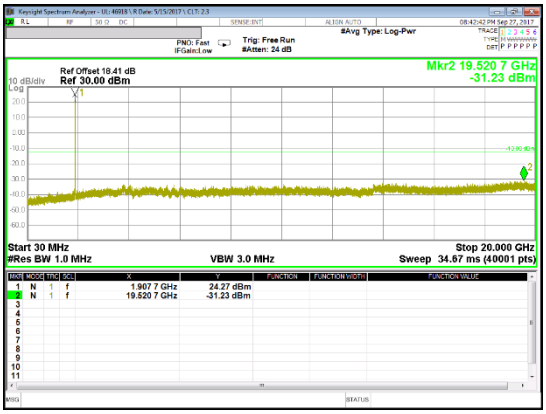
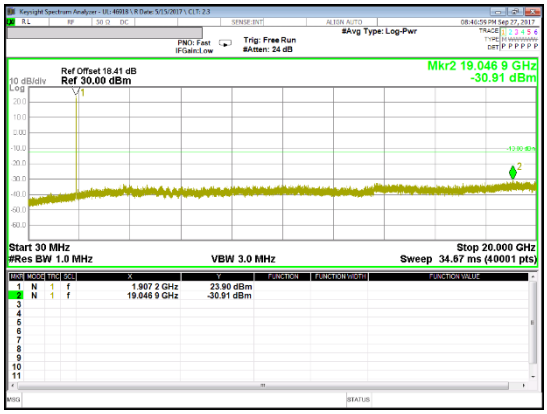
WCDMA Band 2

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

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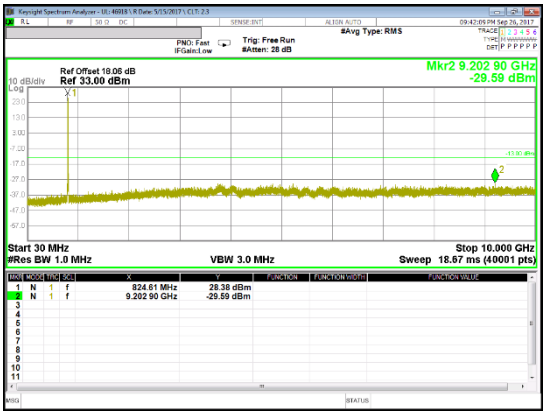
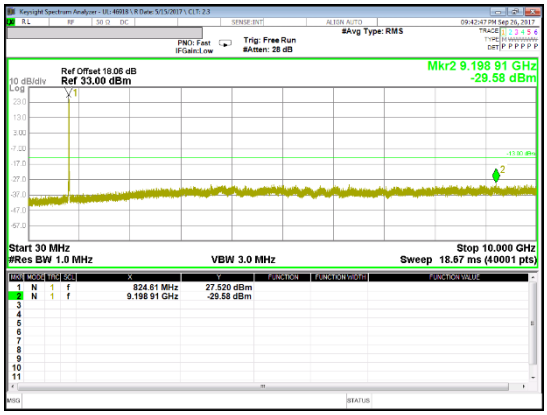
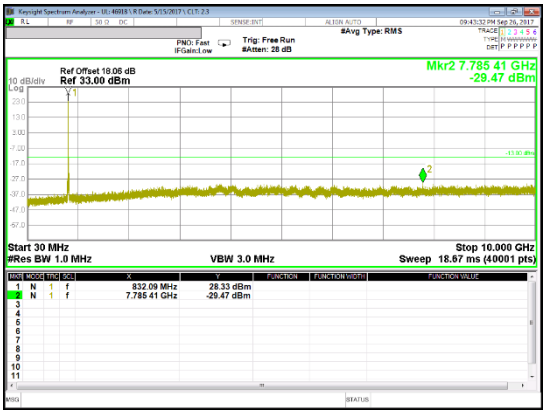
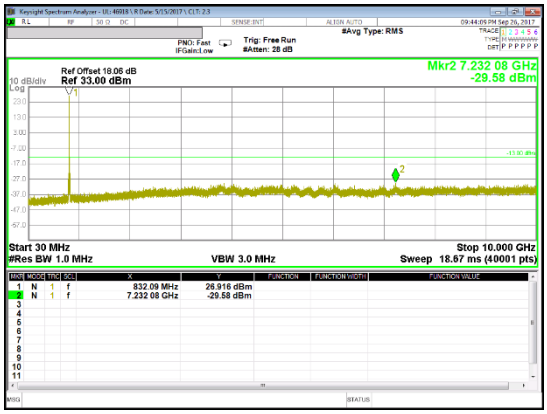
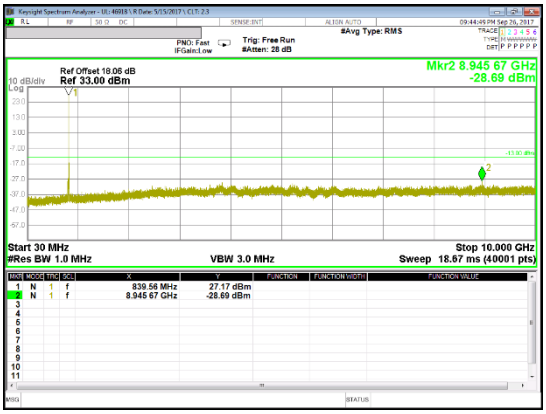
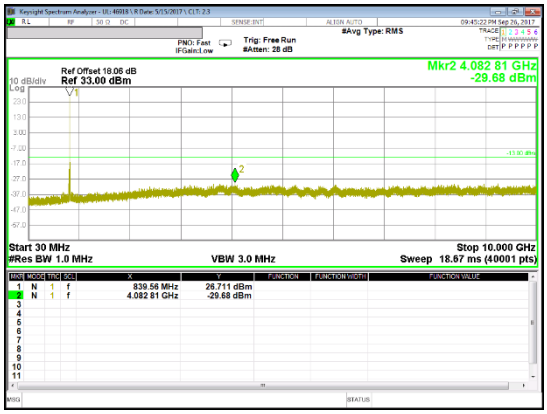
LTE Band 5

Band 5 10MHz	 QPSK Low channel	 16QAM Low channel
	 QPSK Mid channel	 16QAM Mid channel
	 QPSK High channel	 16QAM High channel

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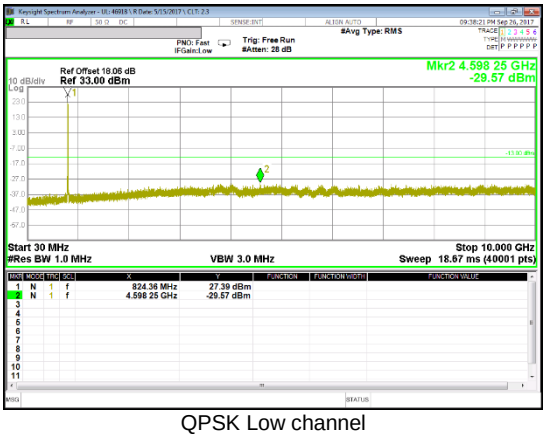
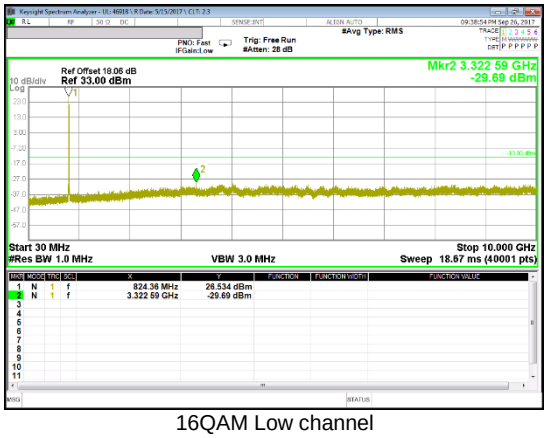
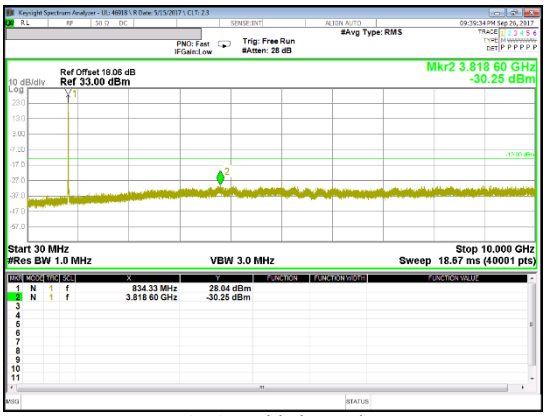
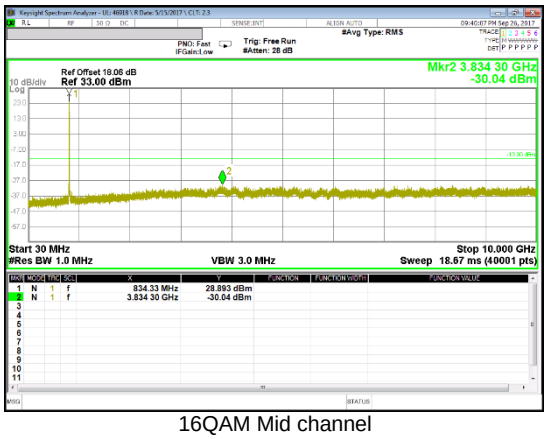
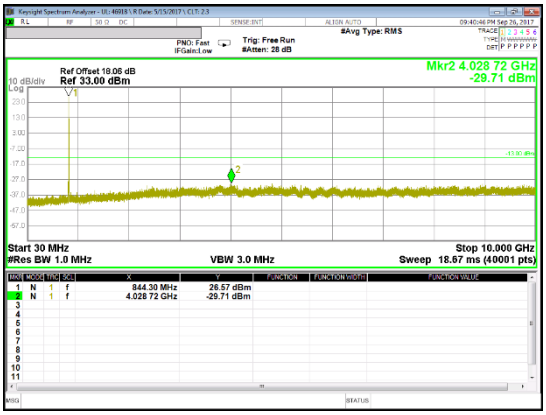
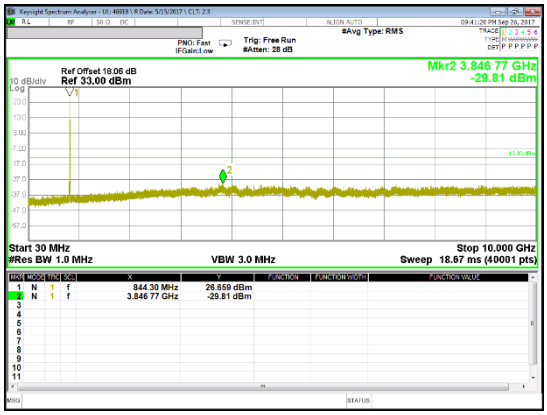
Band 5 5MHz	 QPSK Low channel	 16QAM Low channel
	 QPSK Mid channel	 16QAM Mid channel
	 QPSK High channel	 16QAM High channel

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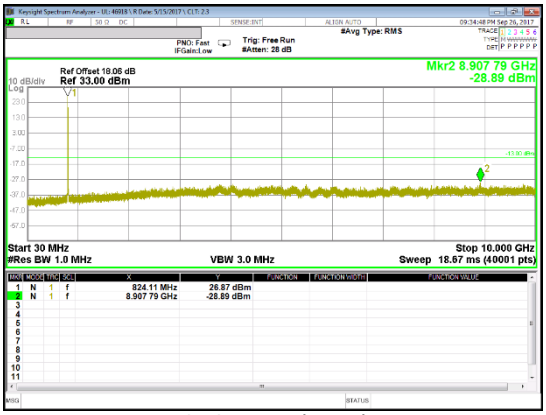
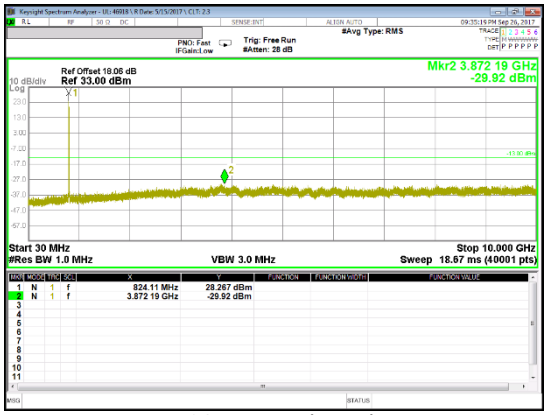
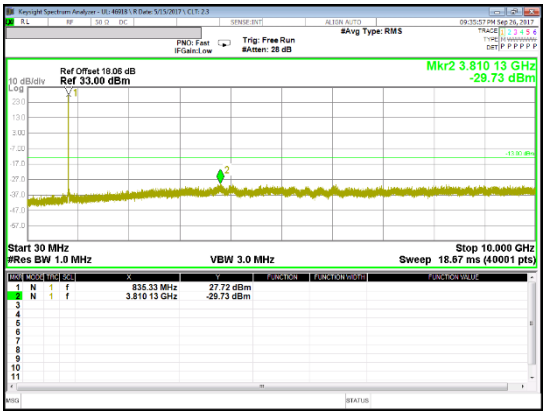
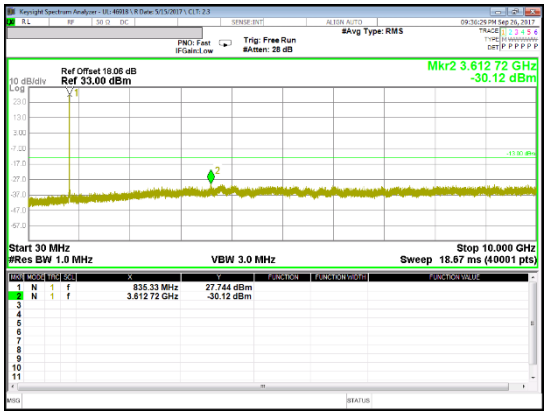
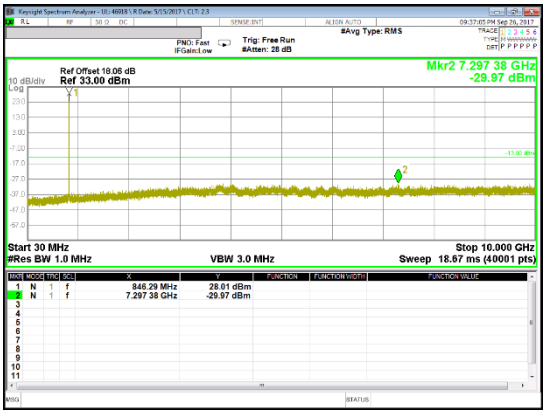
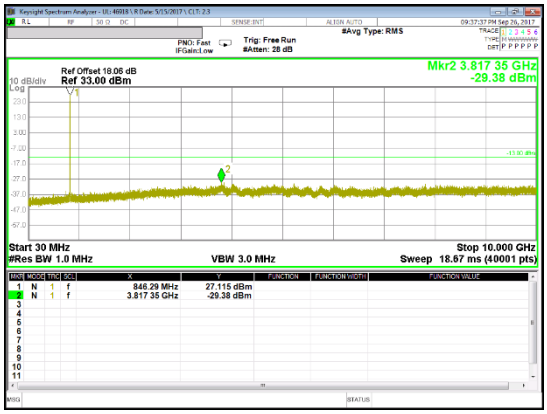
Band 5 3MHz	 QPSK Low channel	 16QAM Low channel
	 QPSK Mid channel	 16QAM Mid channel
	 QPSK High channel	 16QAM High channel

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