

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 than $43 + 10 \log (P)$ dB on all frequencies between 2490.5 MHz and 2496 MHz and $55 + 10 \log (P)$ dB at or below 2490.5 MHz. Mobile Satellite Service licensees operating on frequencies below 2495 MHz may also submit a documented interference complaint against BRS licensees operating on channel BRS Channel 1 on the same terms and conditions as adjacent channel BRS or EBS licensees.

GSM

- a) Set the RBW = 1 ~ 5% of OBW(GSM850 – 8.2KHz, GSM1900 – 9.1KHz)
- b) Set VBW $\geq 3 \times$ RBW;
- c) Set span ≥ 1.5 times the OBW;
- d) Sweep time = 1S ;
- e) Detector = RMS;
- f) Ensure that the number of measurement points $\geq 2 \times$ 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 $\geq 3 \times$ RBW;
- c) Set span ≥ 1.5 times the OBW;
- d) Sweep time = Auto;
- e) Detector = RMS;
- f) Ensure that the number of measurement points $\geq 2 \times$ Span/RBW;
- g) Trace mode = Average (100);

NOTE

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

RESULTS

GSM

Band	Mode	Side	f [MHz]	Level [dBm]	Limit [dBm]
GSM1900	GPRS	Lower	1849.977	-19.612	-13.00
		Upper	1910.023	-18.872	
	EGPRS	Lower	1849.992	-25.644	
		Upper	1910.018	-25.853	

WCDMA

Band	Mode	Side	f [MHz]	Level [dBm]	Limit [dBm]
Band 5	REL99	Lower	824.000	-26.128	-13.00
		Upper	849.000	-26.876	
	HSDPA	Lower	824.000	-28.785	
		Upper	849.000	-28.024	
Band 2	REL99	Lower	1850.000	-29.177	
		Upper	1910.000	-29.644	
	HSDPA	Lower	1850.000	-32.741	
		Upper	1910.000	-31.945	

LTE 5

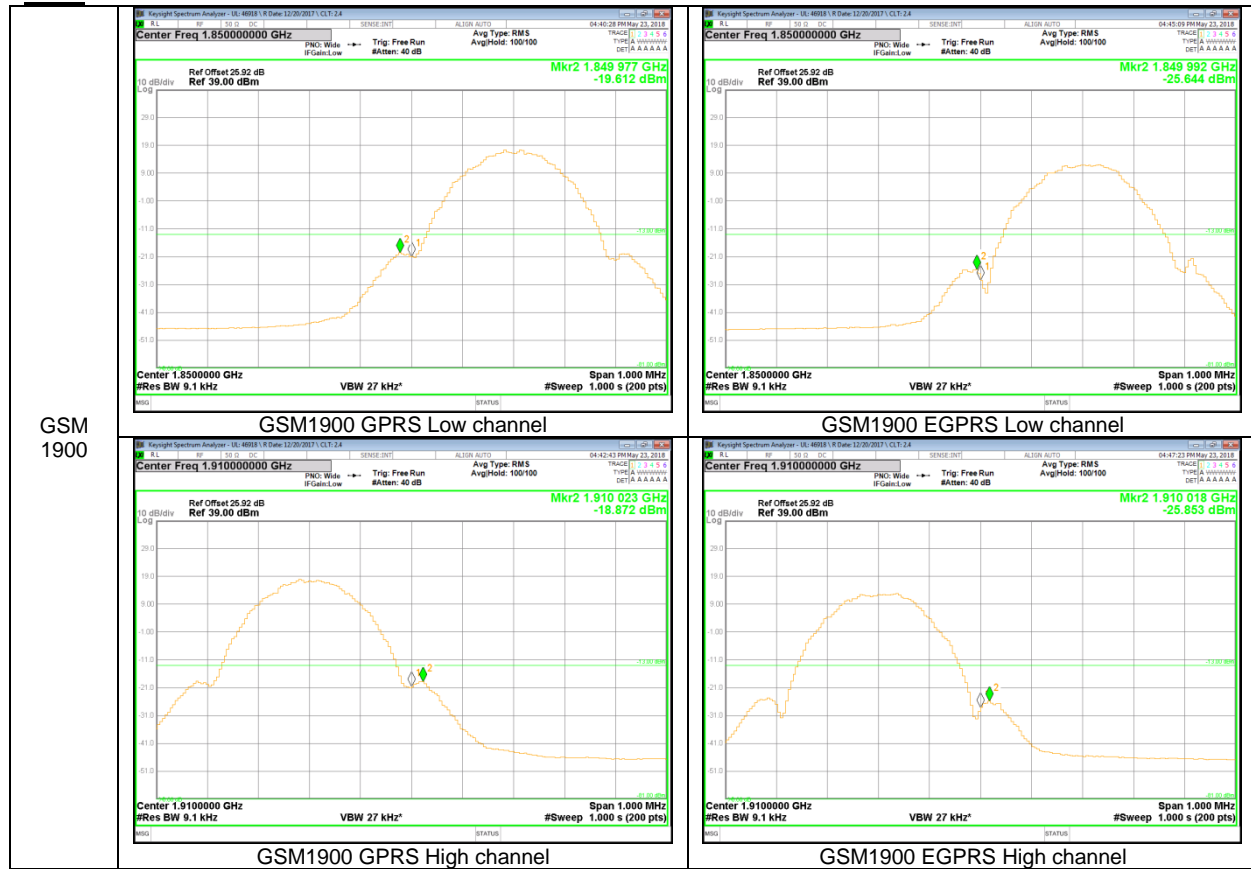
Bandwidth	Mode	Side	RB Status	f [MHz]	Level [dBm]	Limit [dBm]
10 MHz	QPSK	Lower	1RB	824.000	-29.666	-13.00
			FRB	824.000	-32.007	
		Upper	1RB	849.000	-29.025	
			FRB	849.000	-30.974	
	16QAM	Lower	1RB	824.000	-30.350	
			FRB	824.000	-32.407	
		Upper	1RB	849.000	-31.135	
			FRB	849.000	-33.119	
5 MHz	QPSK	Lower	1RB	824.000	-21.725	-13.00
			FRB	824.000	-28.711	
		Upper	1RB	849.000	-20.575	
			FRB	849.000	-28.470	
	16QAM	Lower	1RB	824.000	-22.361	
			FRB	824.000	-32.811	
		Upper	1RB	849.000	-21.221	
			FRB	849.000	-31.134	
3 MHz	QPSK	Lower	1RB	824.000	-19.697	-13.00
			FRB	824.000	-30.350	
		Upper	1RB	849.000	-17.273	
			FRB	849.000	-27.037	
	16QAM	Lower	1RB	824.000	-20.239	
			FRB	824.000	-29.691	
		Upper	1RB	849.000	-19.249	
			FRB	849.000	-29.690	
1.4 MHz	QPSK	Lower	1RB	824.000	-24.205	-13.00
			FRB	824.000	-29.799	
		Upper	1RB	849.000	-21.675	
			FRB	849.000	-29.891	
	16QAM	Lower	1RB	824.000	-23.640	
			FRB	824.000	-32.251	
		Upper	1RB	849.000	-22.246	
			FRB	849.000	-30.375	

LTE 17

Bandwidth	Mode	Side	RB Status	f [MHz]	Level [dBm]	Limit [dBm]
10 MHz	QPSK	Lower	1RB	704.000	-35.371	-13.00
			FRB	704.000	-32.685	
		Upper	1RB	716.000	-35.889	
			FRB	716.000	-34.629	
	16QAM	Lower	1RB	704.000	-32.292	
			FRB	704.000	-34.676	
		Upper	1RB	716.000	-34.453	
			FRB	716.000	-33.692	
5 MHz	QPSK	Lower	1RB	704.000	-22.732	
			FRB	704.000	-32.805	
		Upper	1RB	716.000	-21.476	
			FRB	716.000	-32.168	
	16QAM	Lower	1RB	704.000	-23.114	
			FRB	704.000	-32.854	
		Upper	1RB	716.000	-24.921	
			FRB	716.000	-32.955	

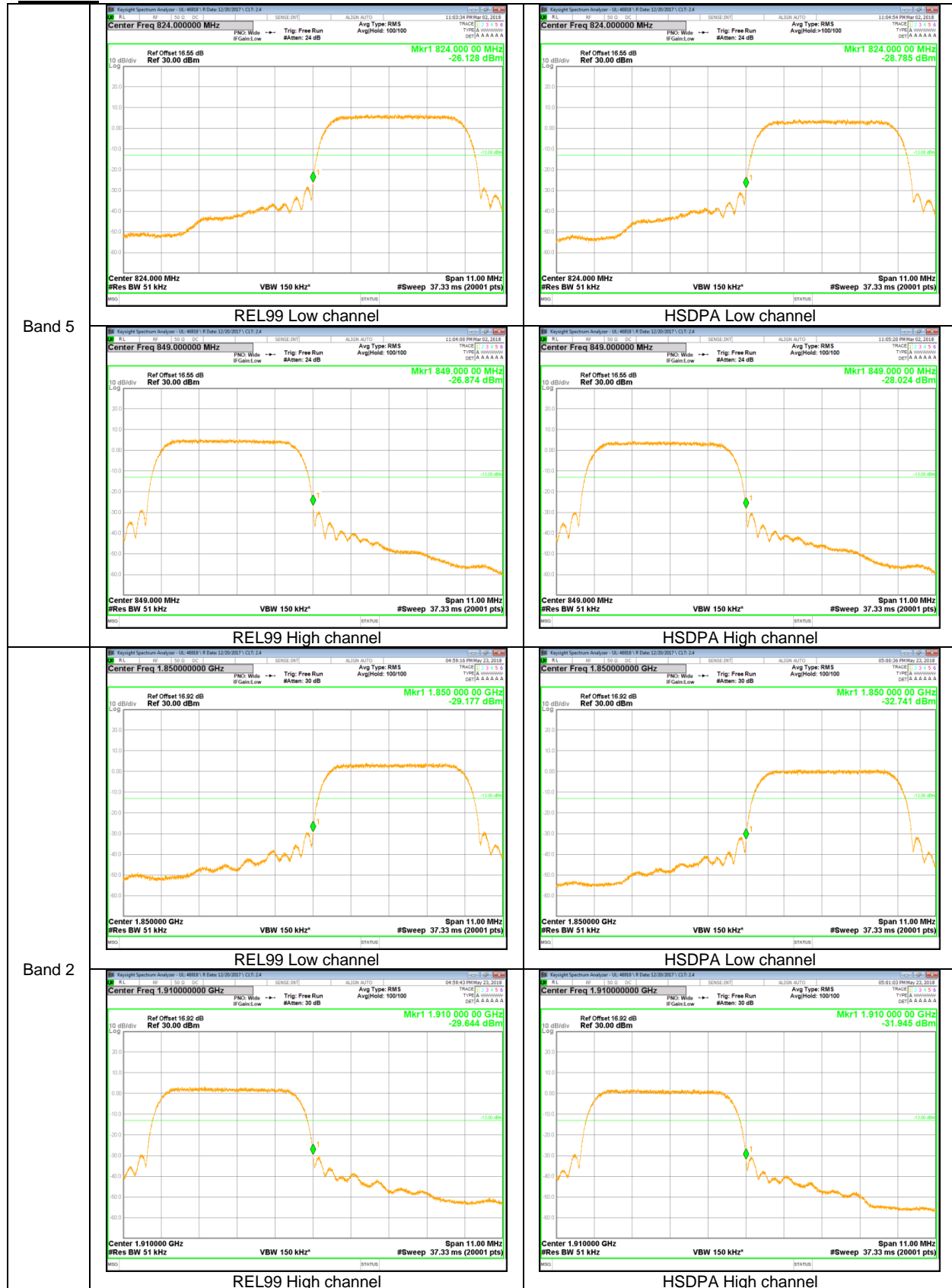
9.2.1. BAND EDGE PLOTS

GSM

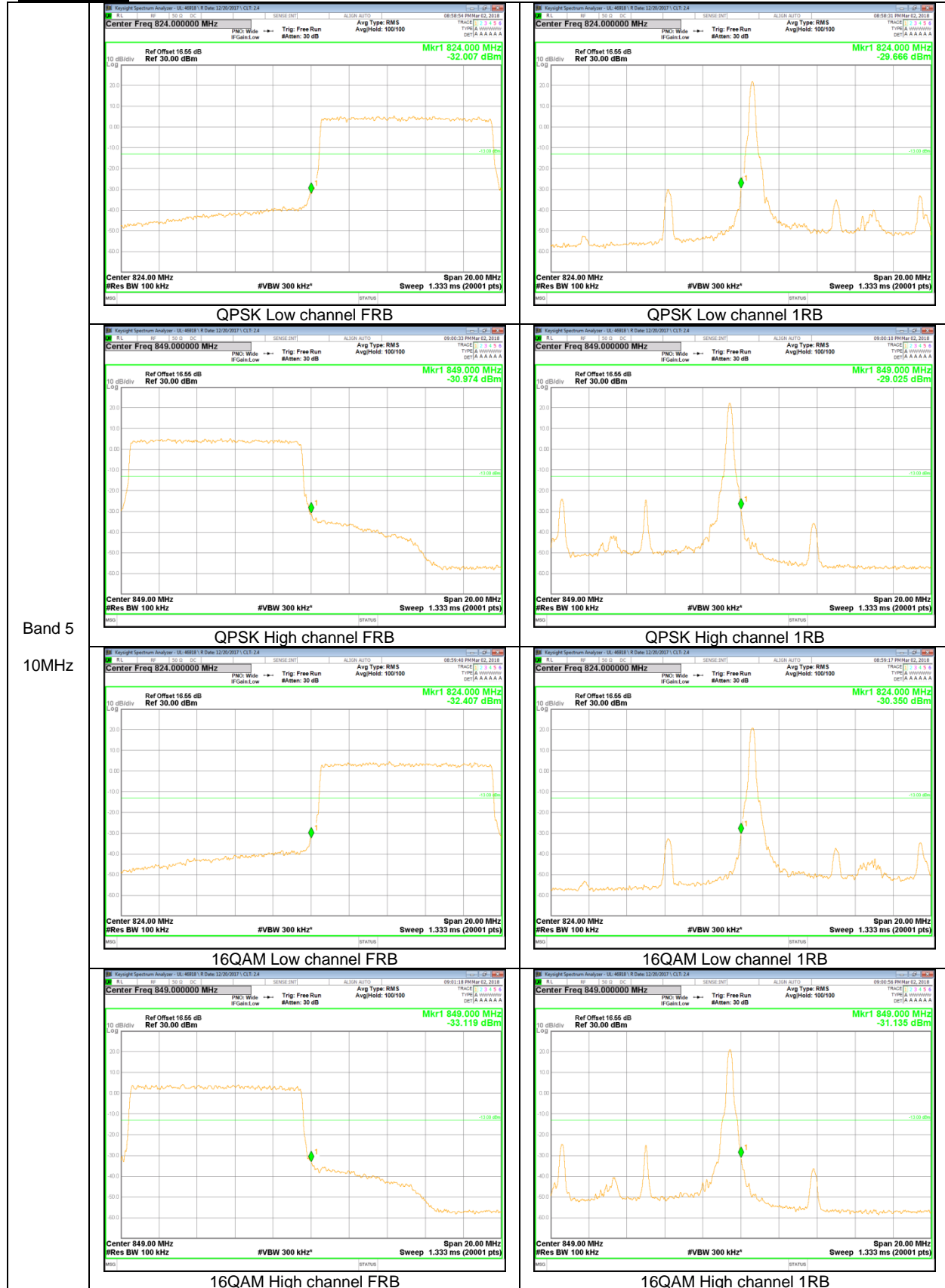


GSM
1900

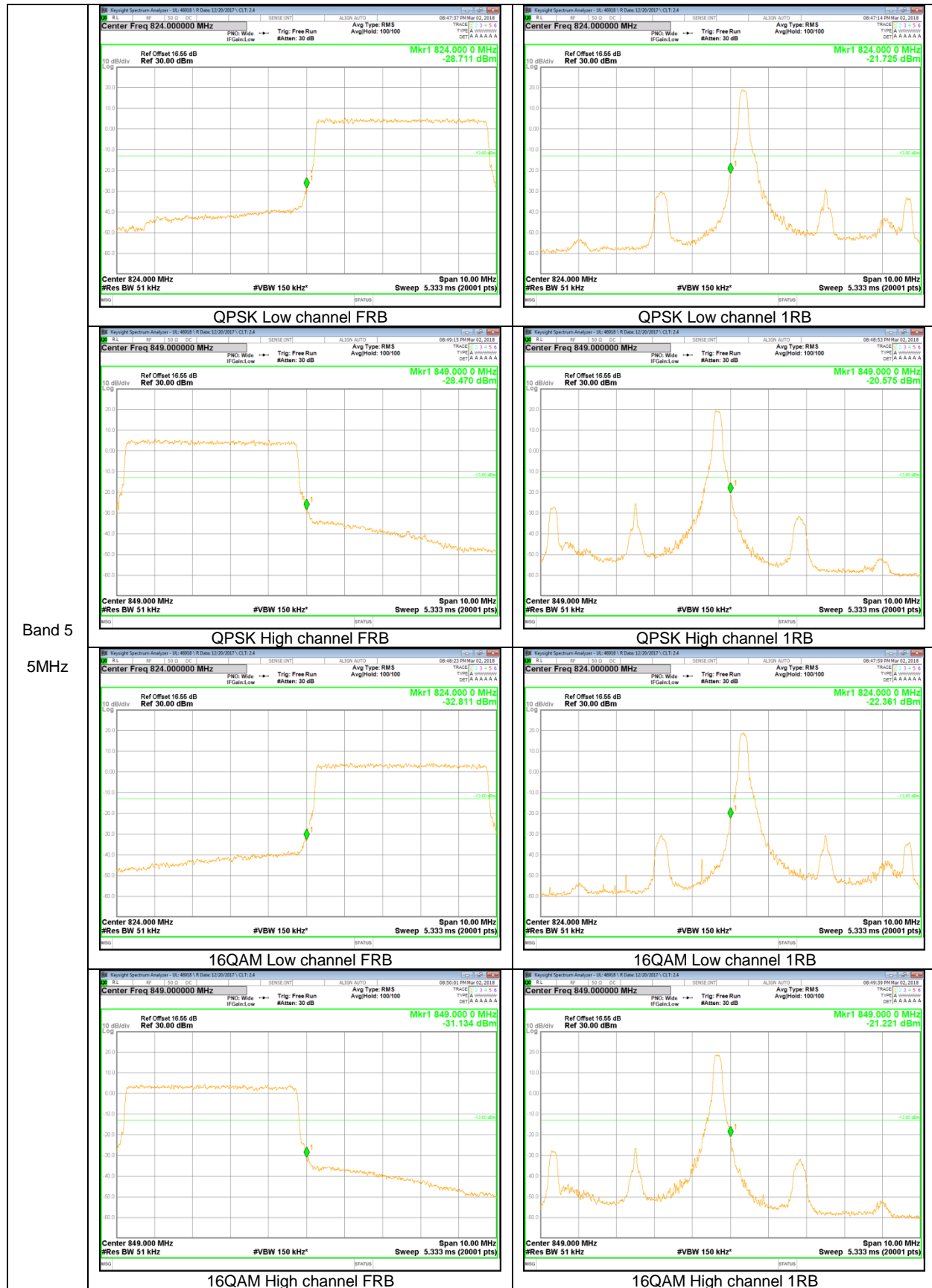
WCDMA



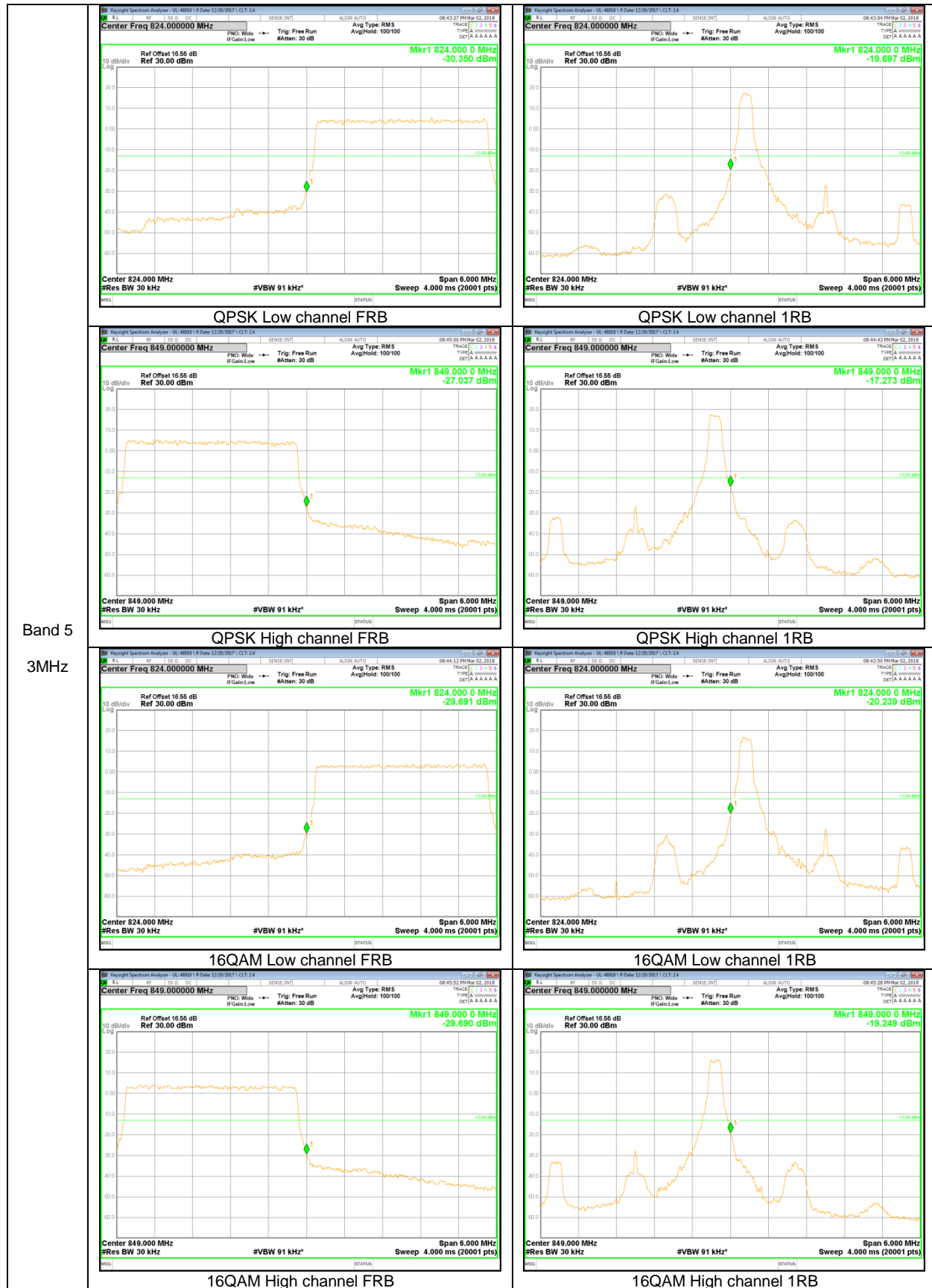
LTE Band 5

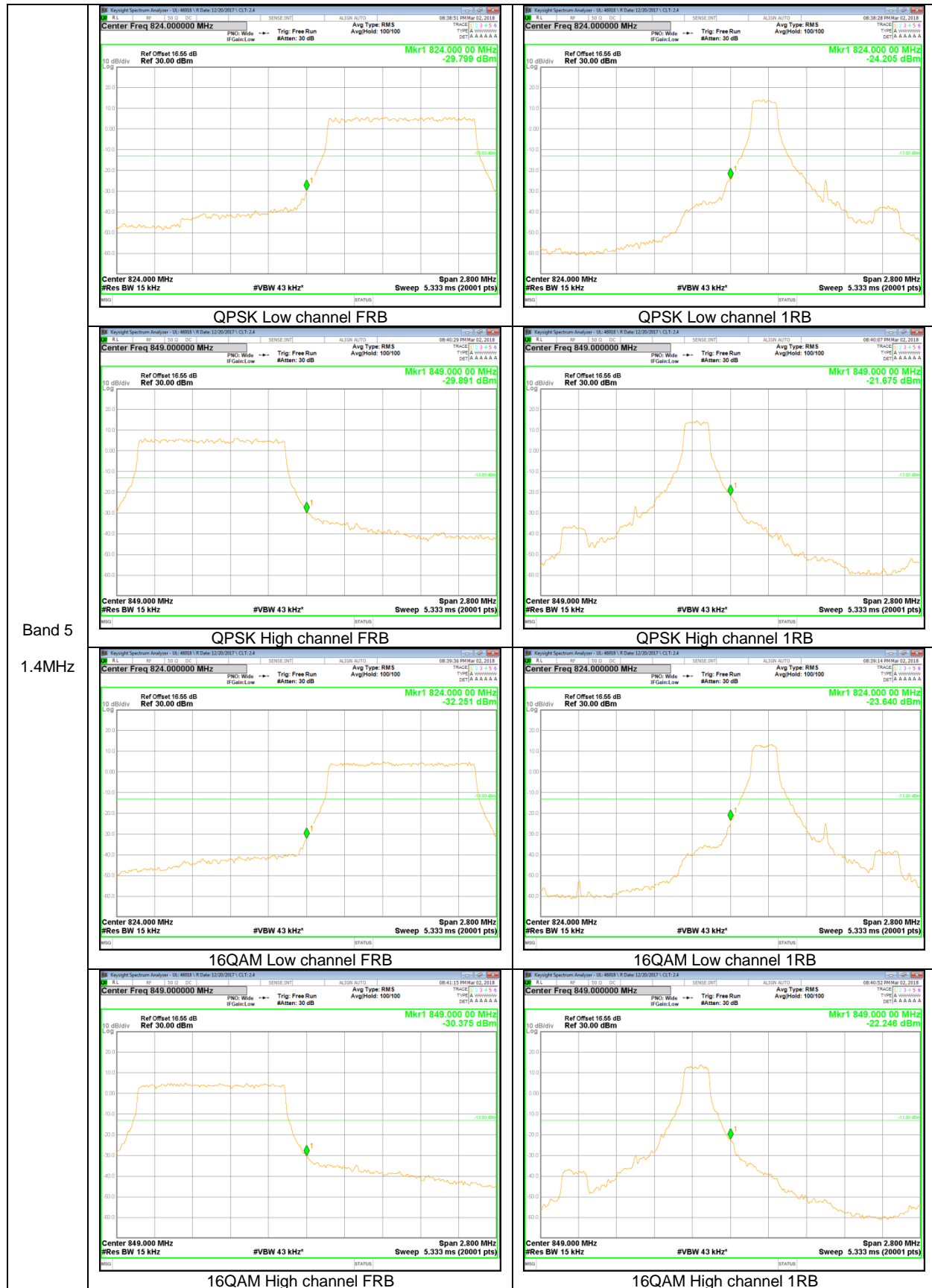


Band 5
10MHz

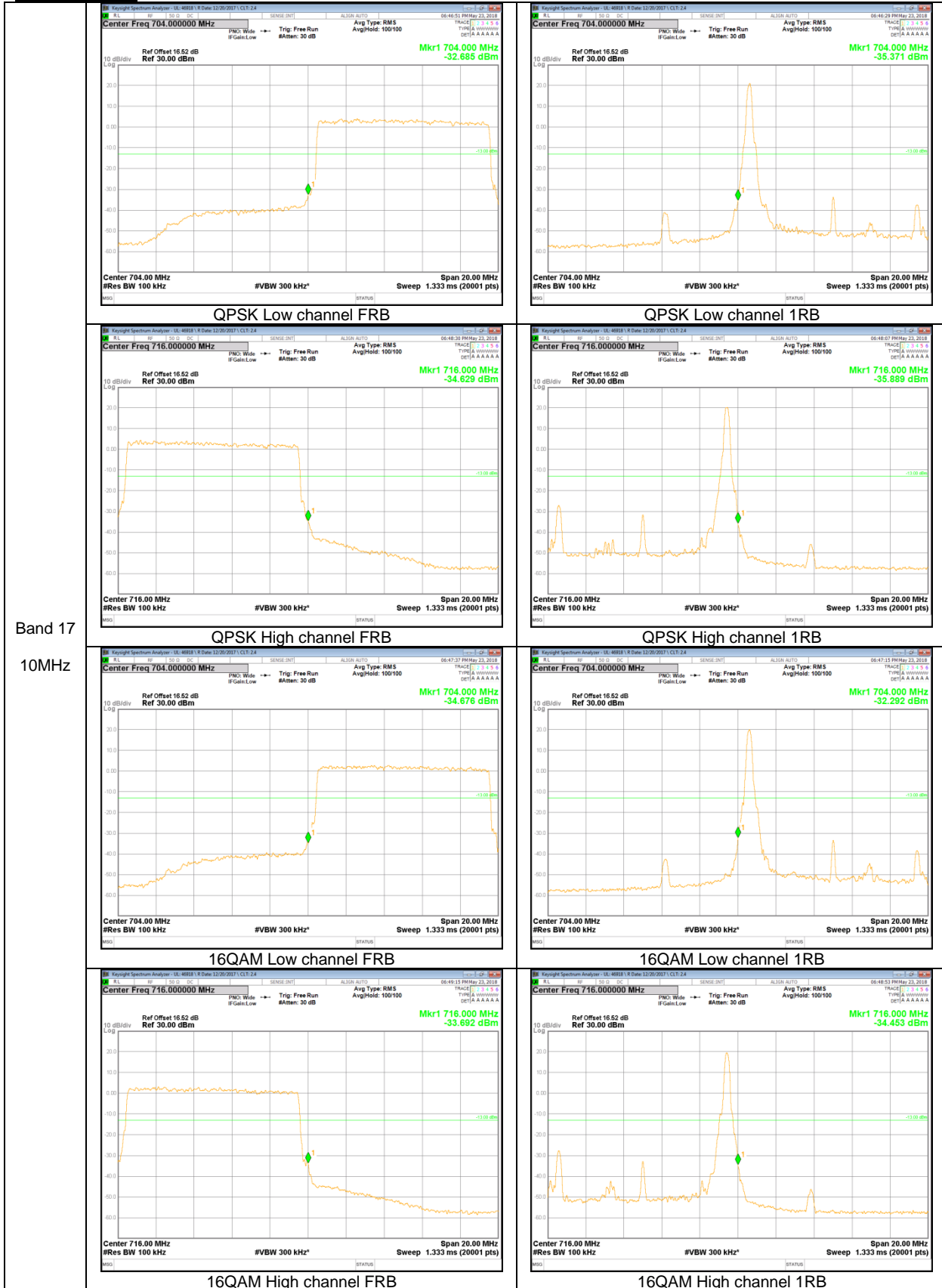


Band 5
5MHz

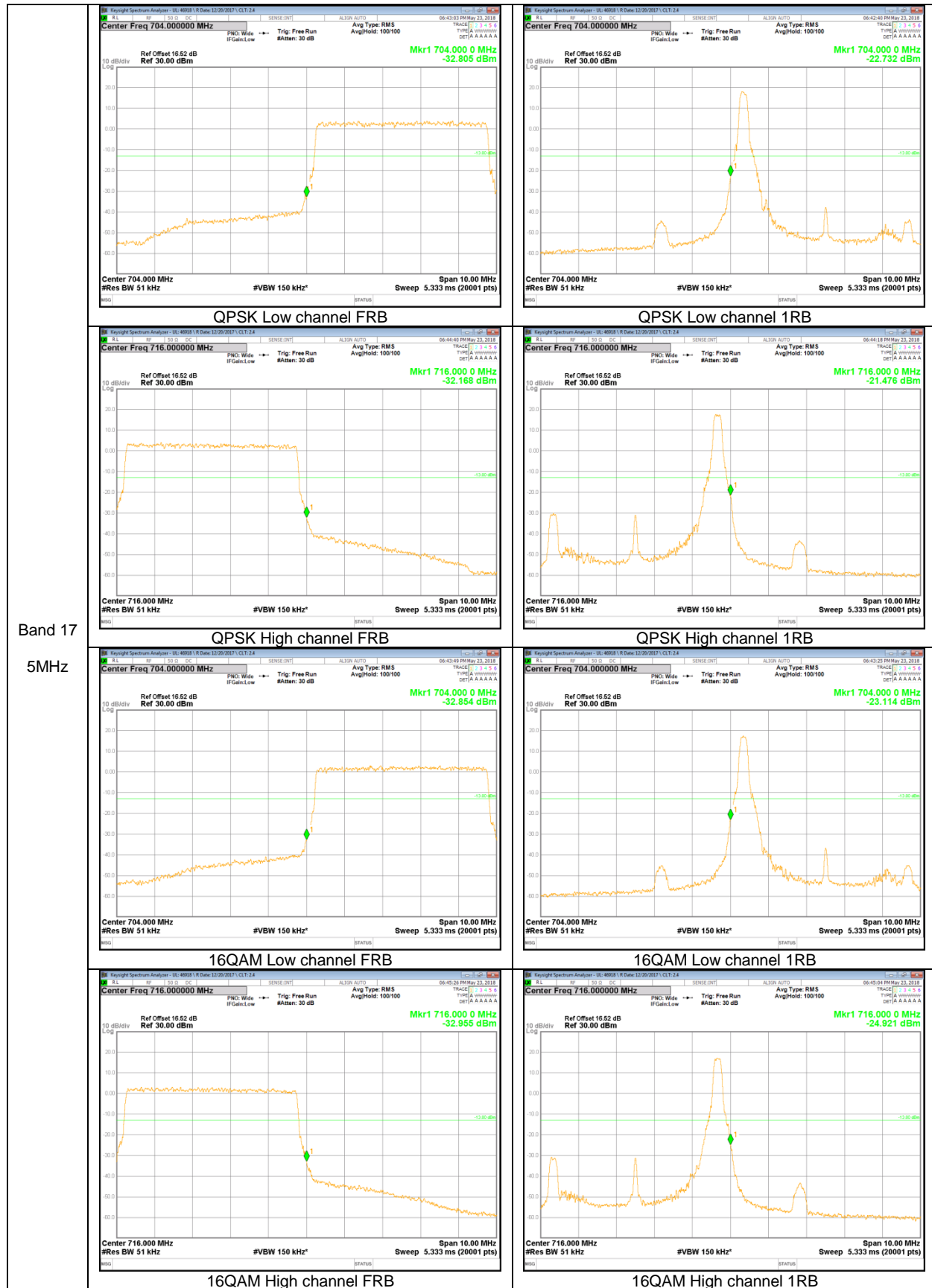




LTE Band 17

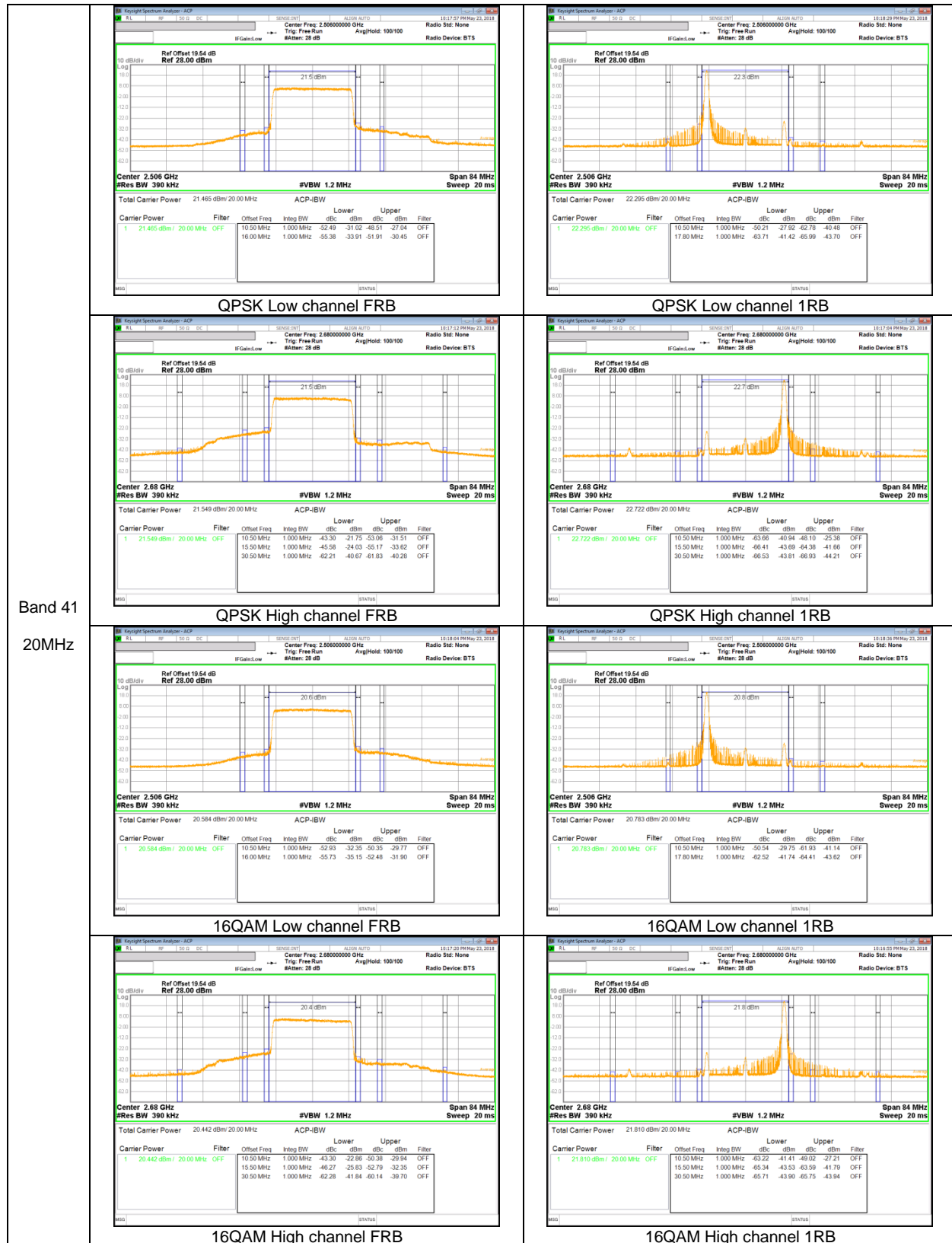


Band 17
 10MHz



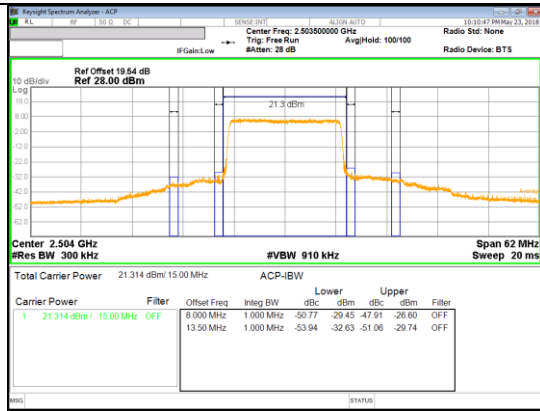
9.2.1. EMISSION MASK PLOTS

LTE Band 41

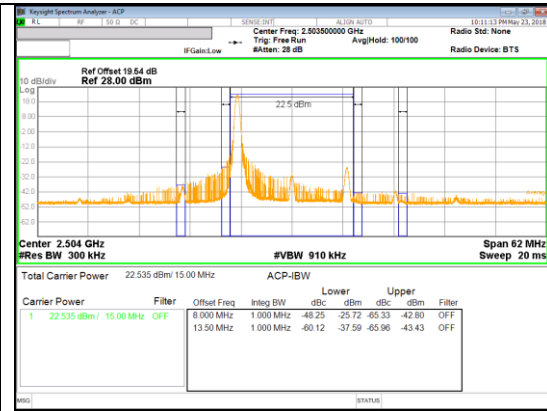


Band 41
20MHz

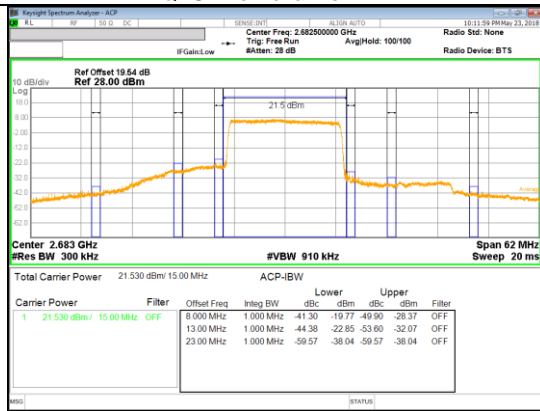
Band 41
 15MHz



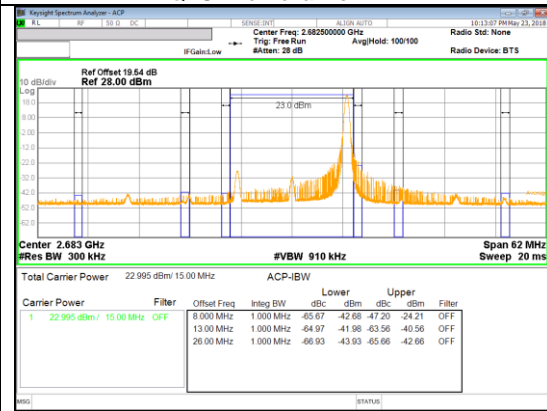
QPSK Low channel FRB



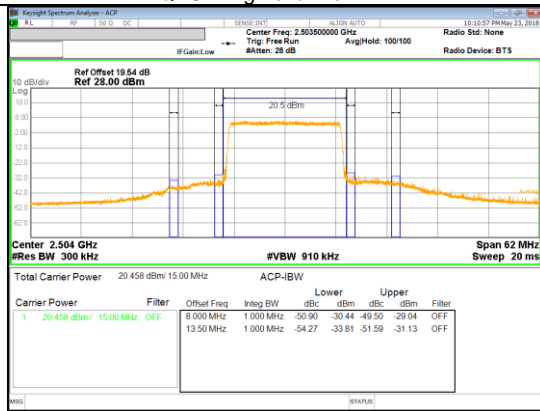
QPSK Low channel 1RB



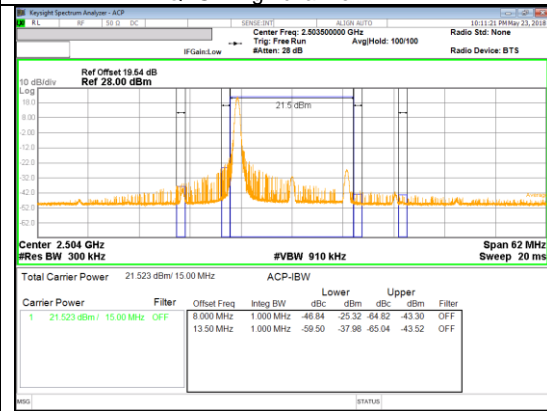
QPSK High channel FRB



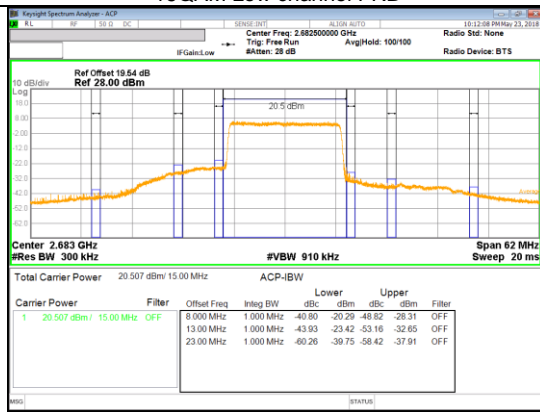
QPSK High channel 1RB



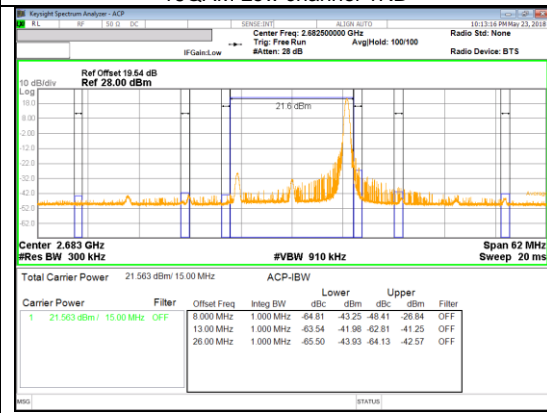
16QAM Low channel FRB



16QAM Low channel 1RB



16QAM High channel FRB



16QAM High channel 1RB