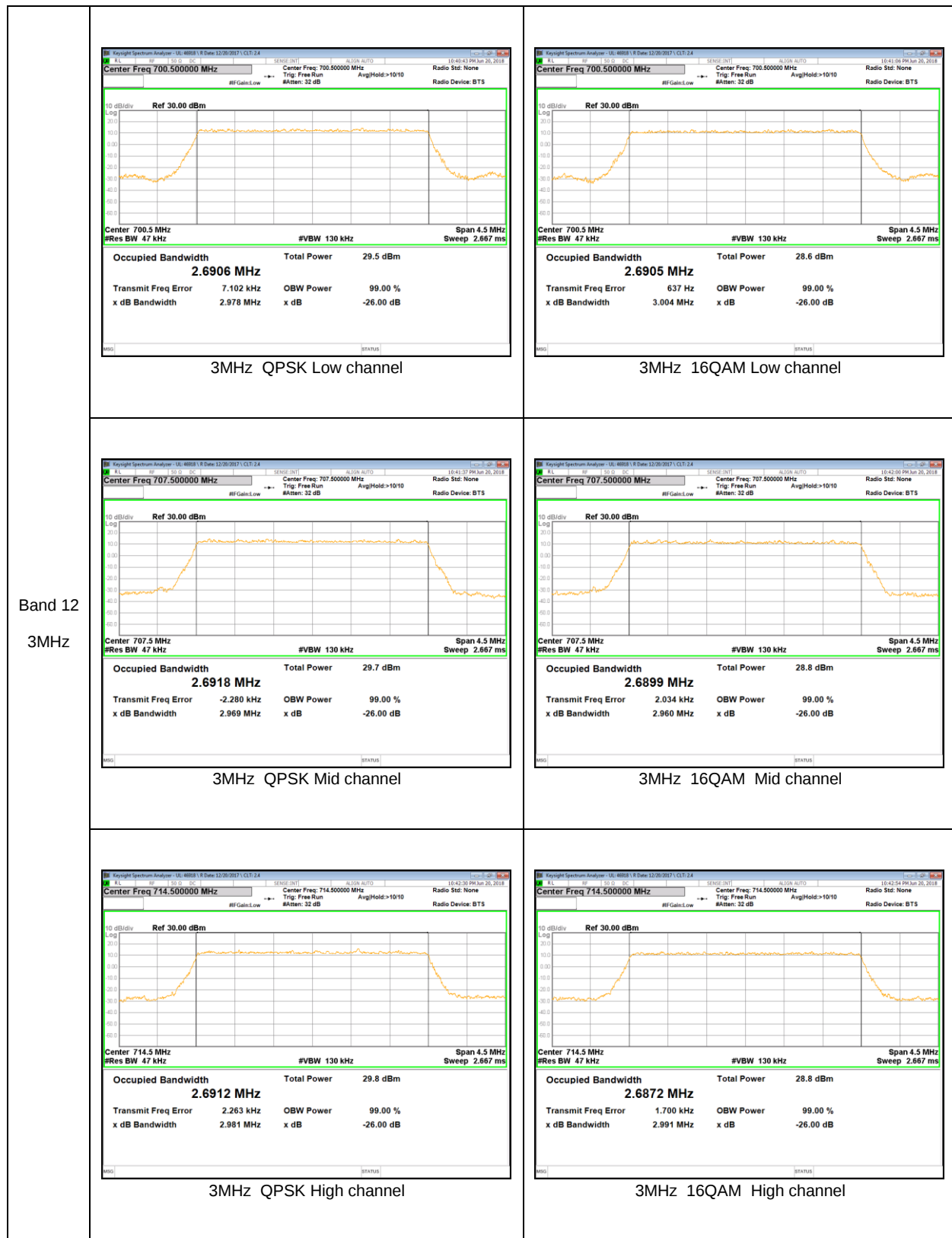
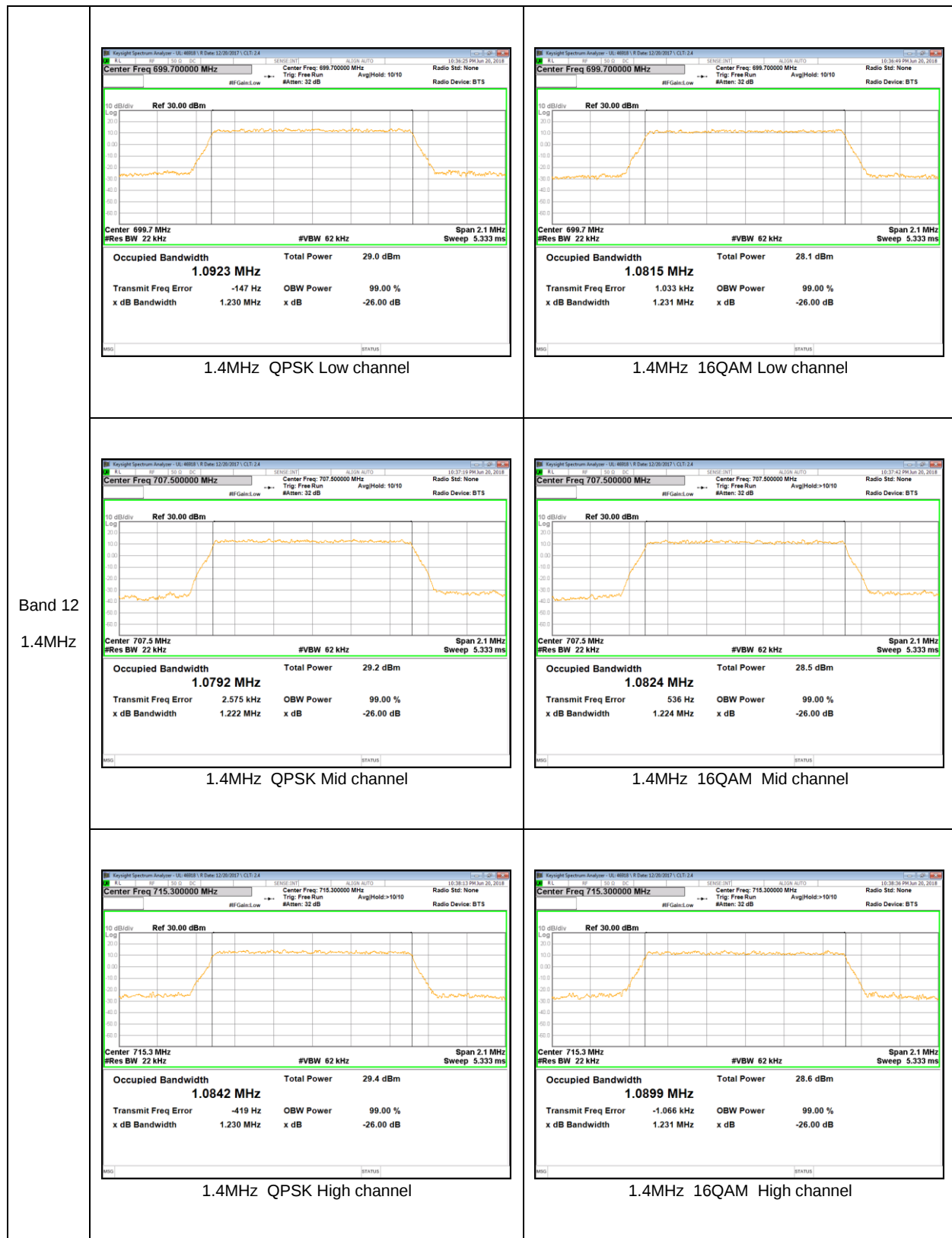
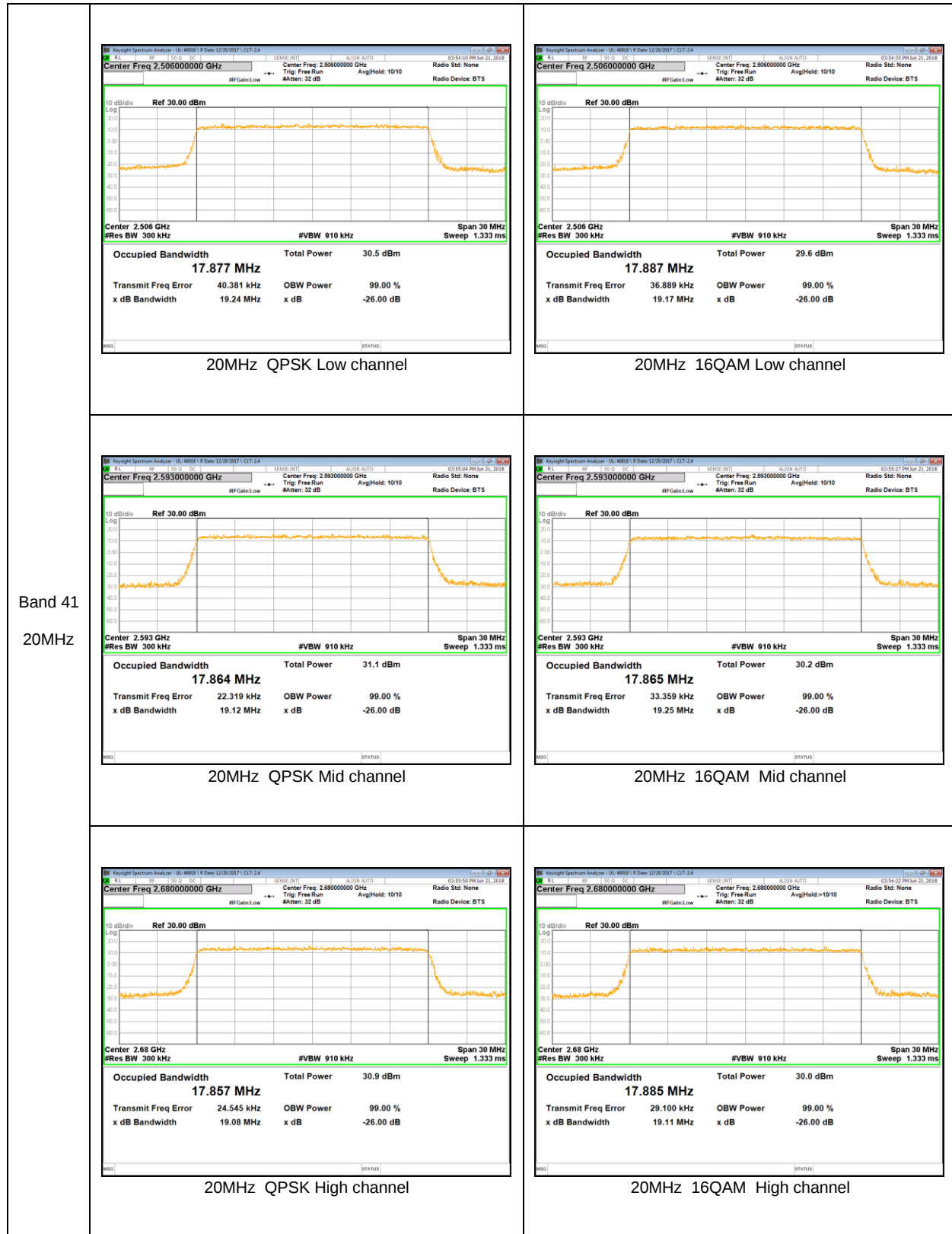
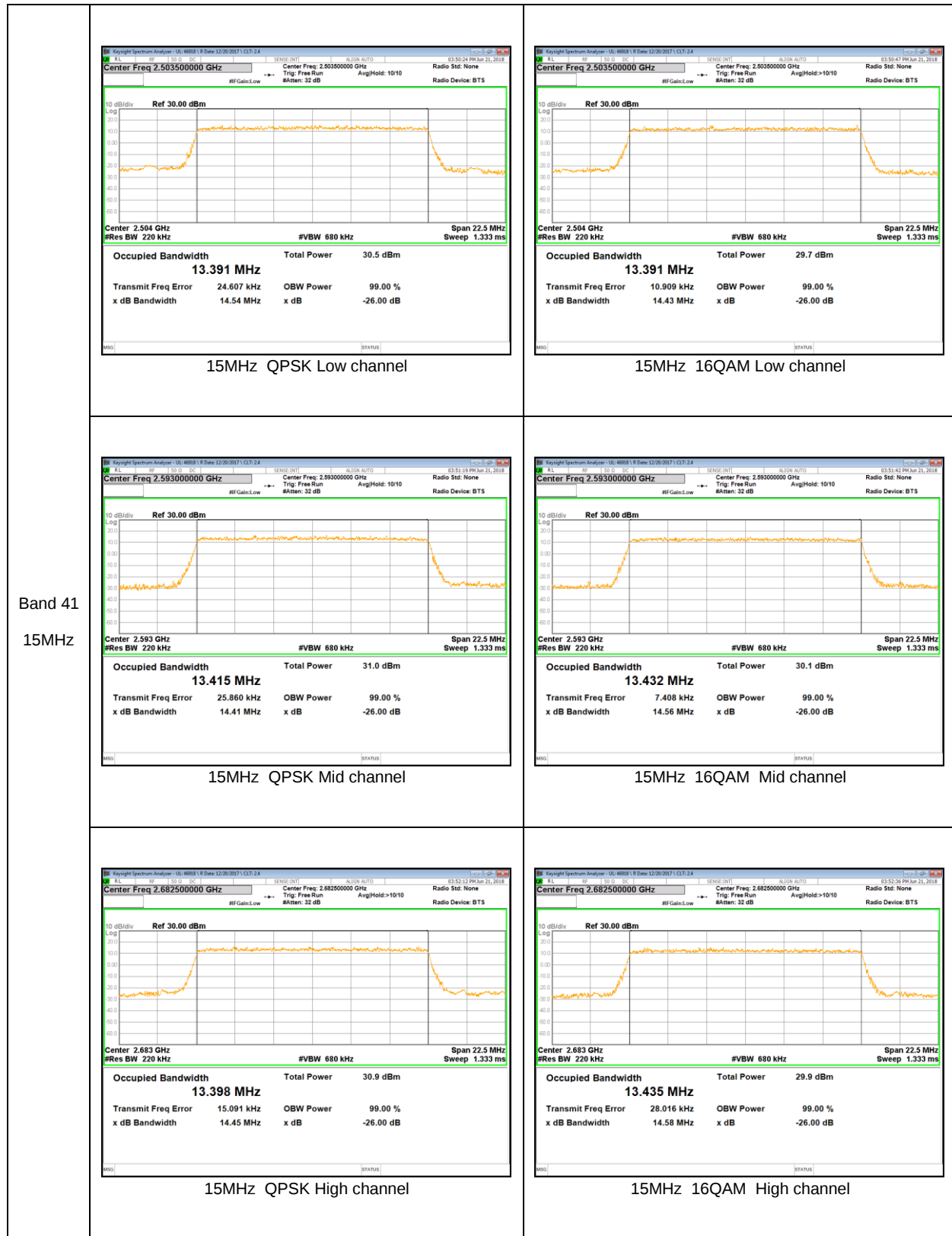


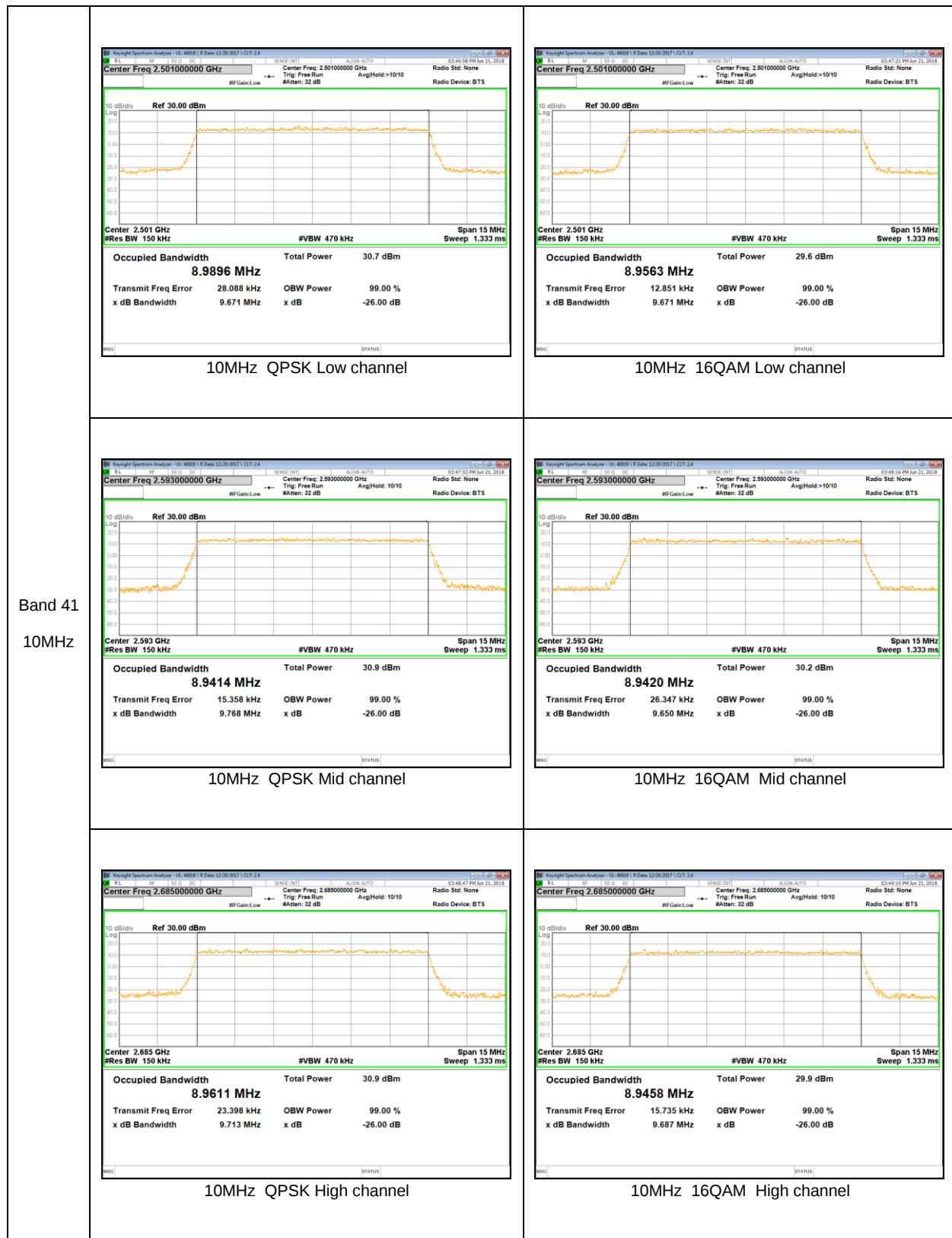


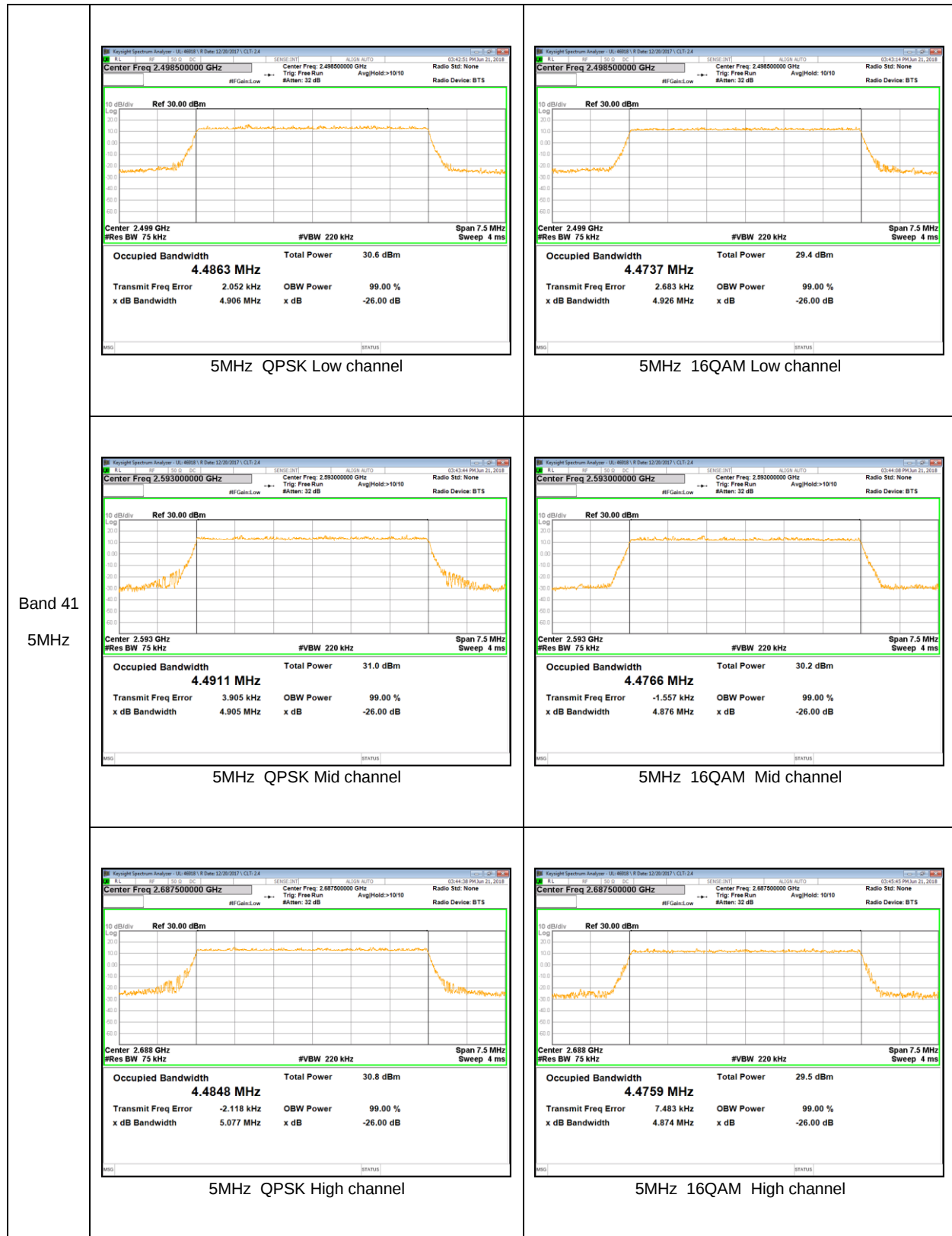


LTE Band 41









9.2. BAND EDGE EMISSIONS

RULE PART(S)

FCC: §22.359, §24.238, §27.53 (g) / (m)

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.

(g) For operations in the 600 MHz band and the 698-746 MHz band, the power of any emission outside a licensee's frequency band(s) of operation shall be attenuated below the transmitter power (P) within the licensed band(s) of operation, measured in watts, by at least $43 + 10 \log (P)$ dB.

TEST PROCEDURE

Per KDB 971168 D01 Power Meas License Digital Systems v03r01

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 $\geq 3 \times$ RBW;
- c) Set span ≥ 1.5 times the OBW;
- d) Sweep time = 1S ;
- e) Detector = RMS;
- f) Ensure that the number of measurement points $\geq 2 \times \text{Span} / \text{RBW}$;
- g) Trace mode = Average(100);
- h) Add duty cycle correction factor (9dB)

WCDMA/LTE

- a) Set the RBW = 1 ~ 1.5 % of OBW(Typically limited to a minimum RBW of 1% of the OBW)
- b) Set VBW $\geq 3 \times$ RBW;
- c) Set span ≥ 1.5 times the OBW;
- d) Sweep time = Auto;
- e) Detector = RMS;
- f) Ensure that the number of measurement points $\geq 2 \times \text{Span} / \text{RBW}$;
- g) Trace mode = Average (100);

NOTE1

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]
GSM850	GPRS	Lower	823.982	-16.261	-13.00
		Upper	849.023	-15.344	
	EGPRS	Lower	823.977	-24.839	
		Upper	849.038	-25.635	
GSM1900	GPRS	Lower	1849.977	-18.686	
		Upper	1910.018	-17.826	
	EGPRS	Lower	1849.987	-25.734	
		Upper	1910.008	-24.652	

WCDMA

Band	Mode	Side	f [MHz]	Level [dBm]	Limit [dBm]
Band 5	REL99	Lower	824.000	-27.445	-13.00
		Upper	849.000	-28.861	
	HSDPA	Lower	824.000	-29.314	
		Upper	849.000	-30.375	
Band 2	REL99	Lower	1850.000	-29.022	
		Upper	1910.000	-28.307	
	HSDPA	Lower	1850.000	-31.806	
		Upper	1910.000	-30.449	

LTE Band 17

LTE Band 17 (Frequency range: 704-716 MHz) is covered by LTE Band 12 (Frequency range: 699-716 MHz) due to overlapping frequency range, same maximum tune-up limit and same channel bandwidth.

LTE 5

Bandwidth	Mode	Side	RB Status	f [MHz]	Level [dBm]	Limit [dBm]
10 MHz	QPSK	Lower	1RB	824.000	-36.028	-13.00
			FRB	849.000	-34.098	
		Upper	1RB	824.000	-32.096	
			FRB	849.000	-34.475	
	16QAM	Lower	1RB	824.000	-36.709	
			FRB	849.000	-35.171	
		Upper	1RB	824.000	-35.901	
			FRB	849.000	-39.674	
5 MHz	QPSK	Lower	1RB	824.000	-24.531	
			FRB	849.000	-30.984	
		Upper	1RB	824.000	-24.364	
			FRB	849.000	-29.916	
	16QAM	Lower	1RB	824.000	-25.316	
			FRB	849.000	-32.380	
		Upper	1RB	824.000	-25.939	
			FRB	849.000	-32.782	
3 MHz	QPSK	Lower	1RB	824.000	-24.048	
			FRB	849.000	-28.092	
		Upper	1RB	824.000	-19.857	
			FRB	849.000	-29.467	
	16QAM	Lower	1RB	824.000	-23.873	
			FRB	849.000	-29.612	
		Upper	1RB	824.000	-21.312	
			FRB	849.000	-31.386	
1.4 MHz	QPSK	Lower	1RB	824.000	-38.562	
			FRB	849.000	-39.887	
		Upper	1RB	824.000	-32.496	
			FRB	849.000	-43.453	
	16QAM	Lower	1RB	824.000	-39.082	
			FRB	849.000	-41.210	
		Upper	1RB	824.000	-34.442	
			FRB	849.000	-44.934	

LTE 12

Bandwidth	Mode	Side	RB Status	f [MHz]	Level [dBm]	Limit [dBm]
10 MHz	QPSK	Lower	1RB	699.000	-39.120	-13.00
			FRB	699.000	-34.906	
		Upper	1RB	716.000	-29.444	
			FRB	716.000	-29.631	
	16QAM	Lower	1RB	699.000	-33.372	
			FRB	699.000	-35.165	
		Upper	1RB	716.000	-33.758	
			FRB	716.000	-32.050	
5 MHz	QPSK	Lower	1RB	699.000	-27.643	
			FRB	699.000	-31.521	
		Upper	1RB	716.000	-22.274	
			FRB	716.000	-32.354	
	16QAM	Lower	1RB	699.000	-27.276	
			FRB	699.000	-34.595	
		Upper	1RB	716.000	-26.023	
			FRB	716.000	-33.296	
3 MHz	QPSK	Lower	1RB	699.000	-21.815	
			FRB	699.000	-28.281	
		Upper	1RB	716.000	-21.764	
			FRB	716.000	-28.074	
	16QAM	Lower	1RB	699.000	-22.950	
			FRB	699.000	-30.195	
		Upper	1RB	716.000	-22.289	
			FRB	716.000	-29.390	
1.4 MHz	QPSK	Lower	1RB	699.000	-37.600	
			FRB	699.000	-39.368	
		Upper	1RB	716.000	-34.794	
			FRB	716.000	-36.271	
	16QAM	Lower	1RB	699.000	-30.407	
			FRB	699.000	-40.970	
		Upper	1RB	716.000	-37.646	
			FRB	716.000	-36.877	

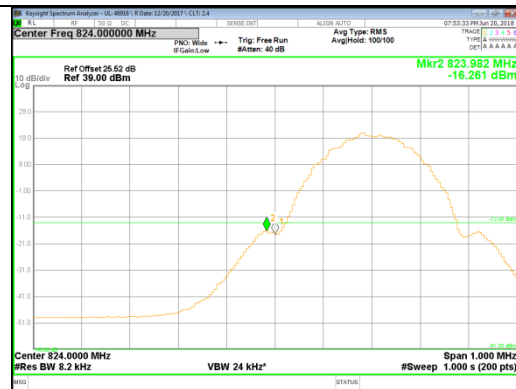
LTE 41

Please refer to Emission Mask Plots.

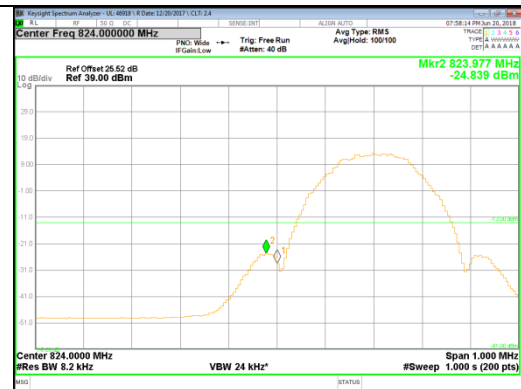
9.2.1. BAND EDGE PLOTS

GSM

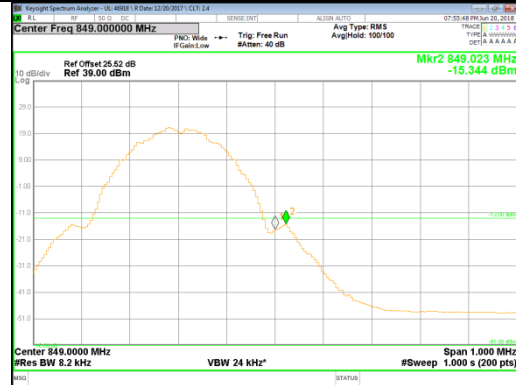
GSM
850



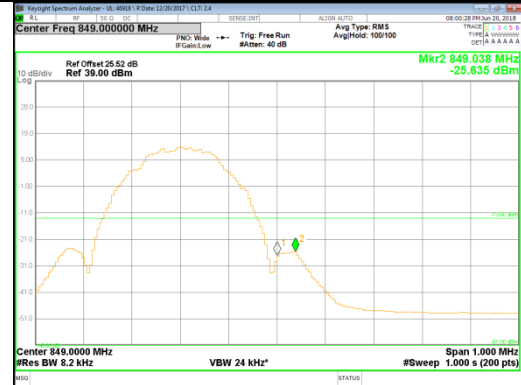
GSM850 GPRS Low channel



GSM850 EGPRS Low channel

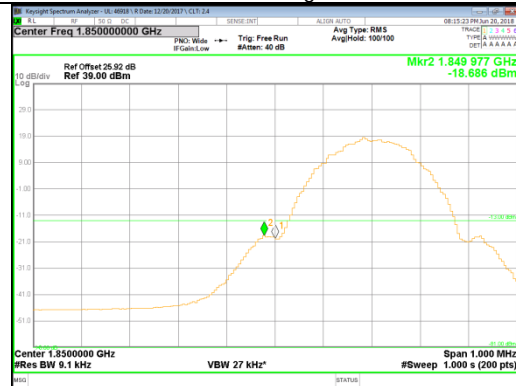


GSM850 GPRS High channel

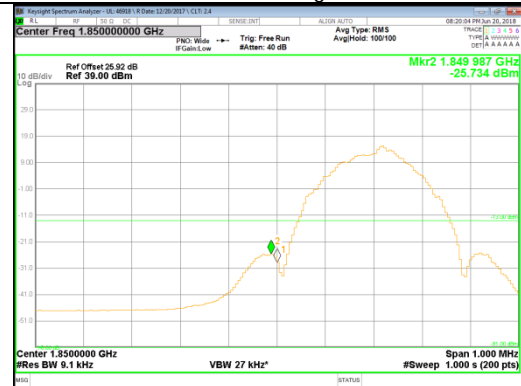


GSM850 EGPRS High channel

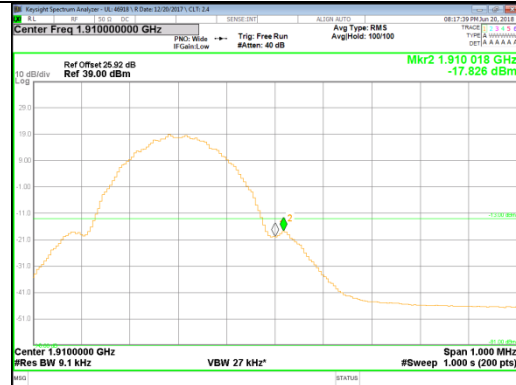
GSM
1900



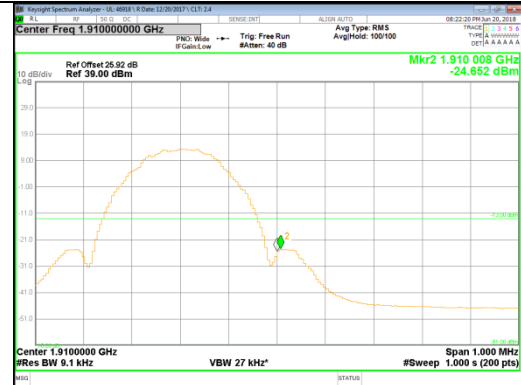
GSM1900 GPRS Low channel



GSM1900 EGPRS Low channel

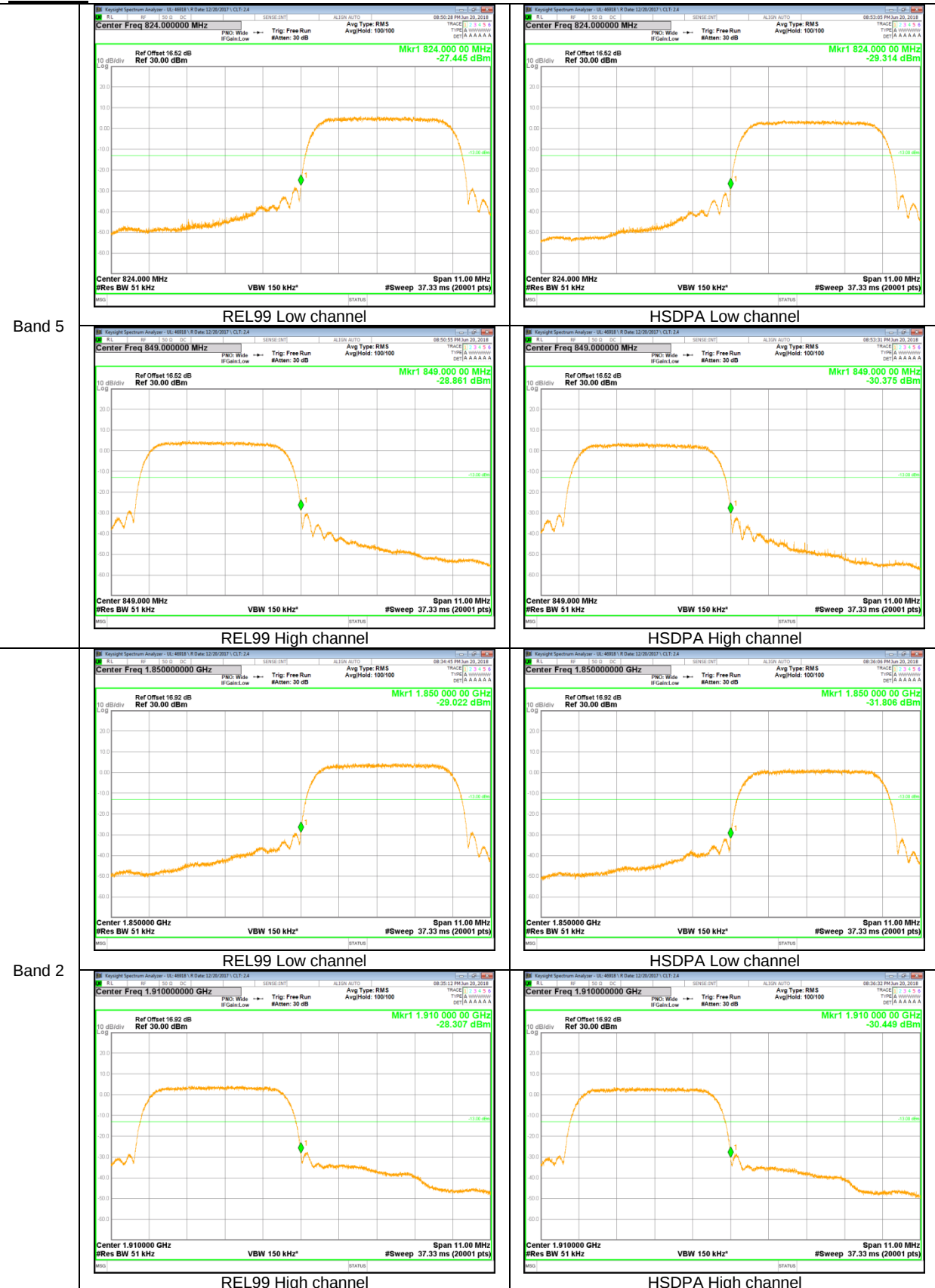


GSM1900 GPRS High channel

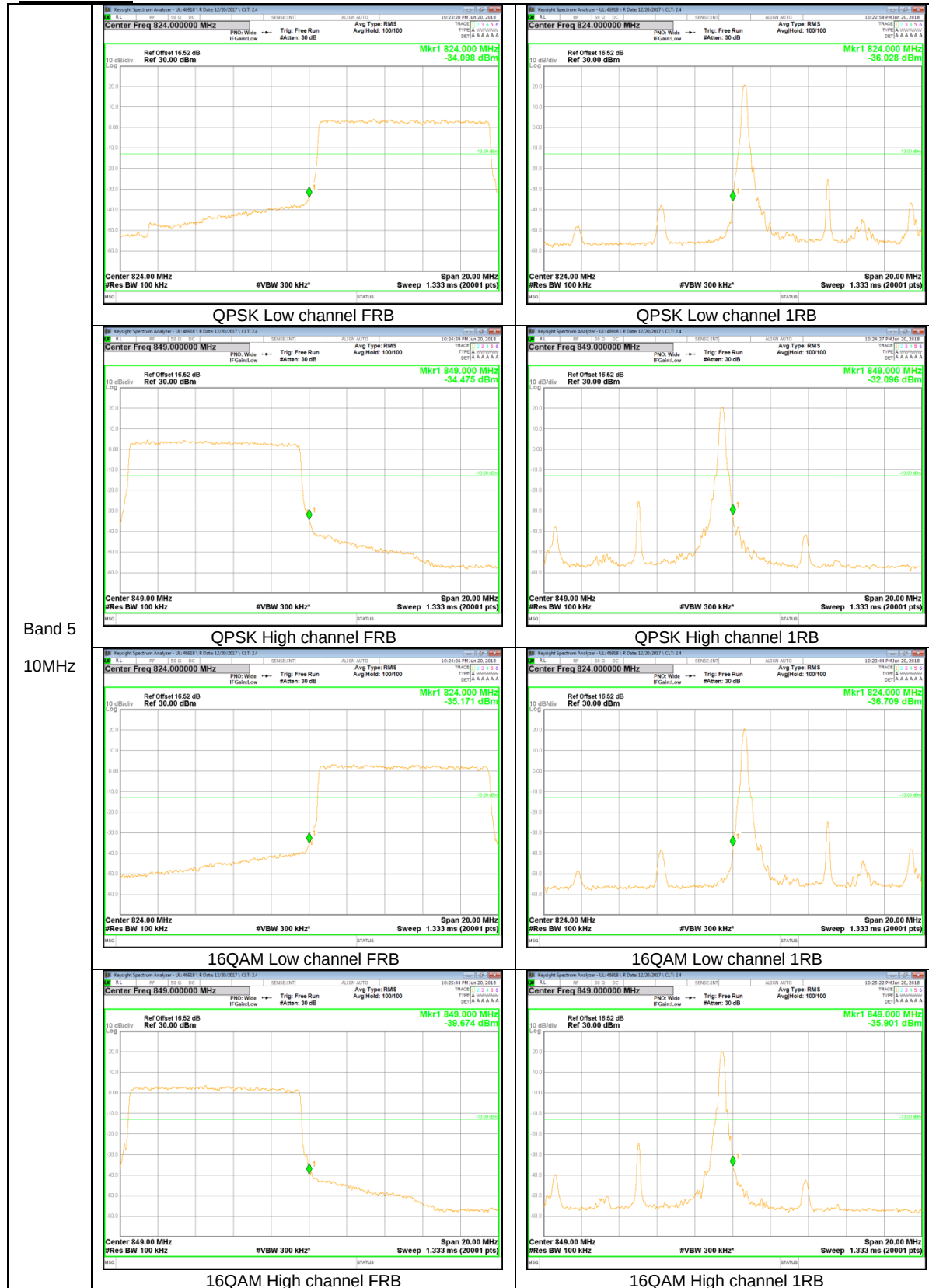


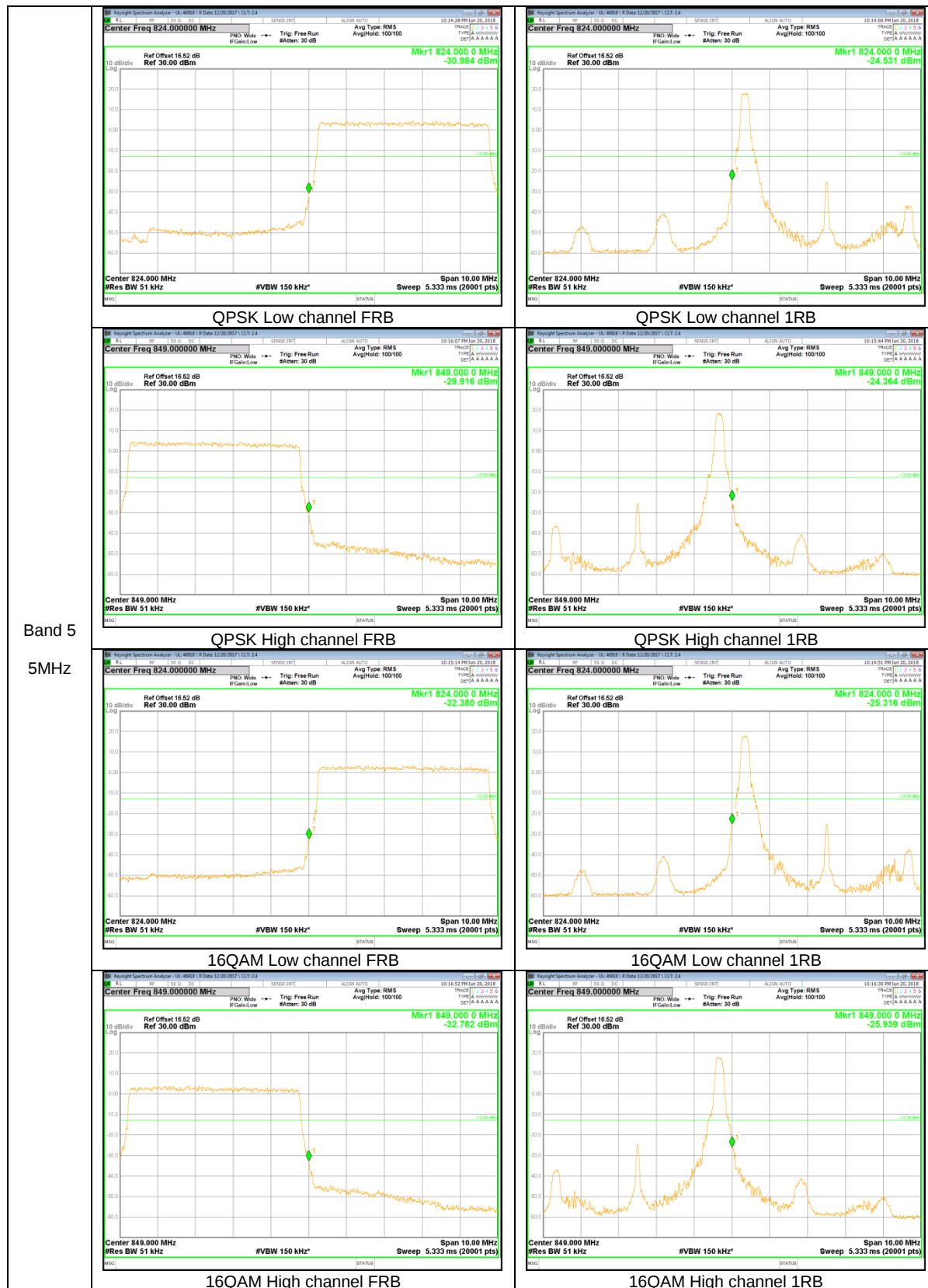
GSM1900 EGPRS High channel

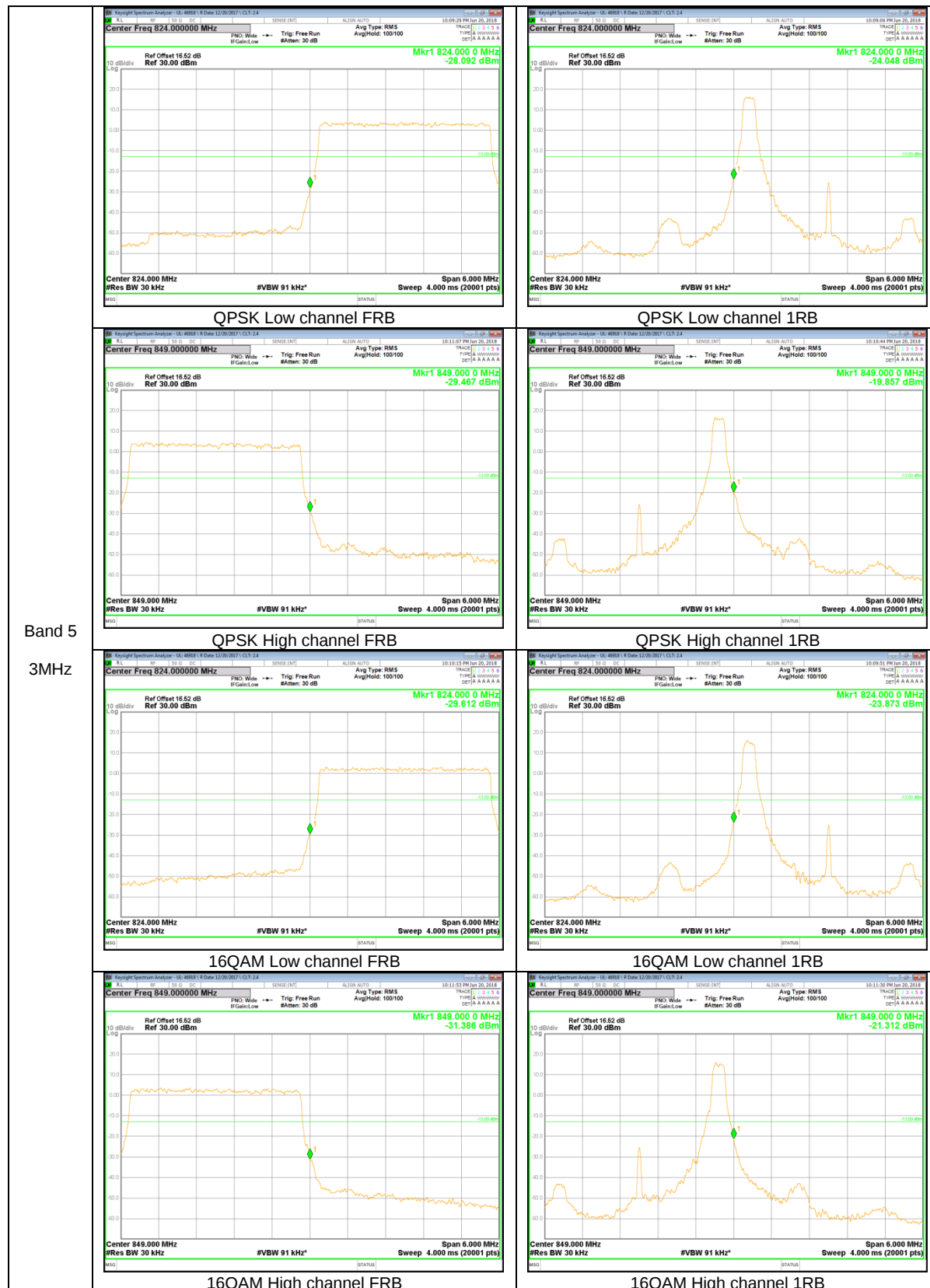
WCDMA

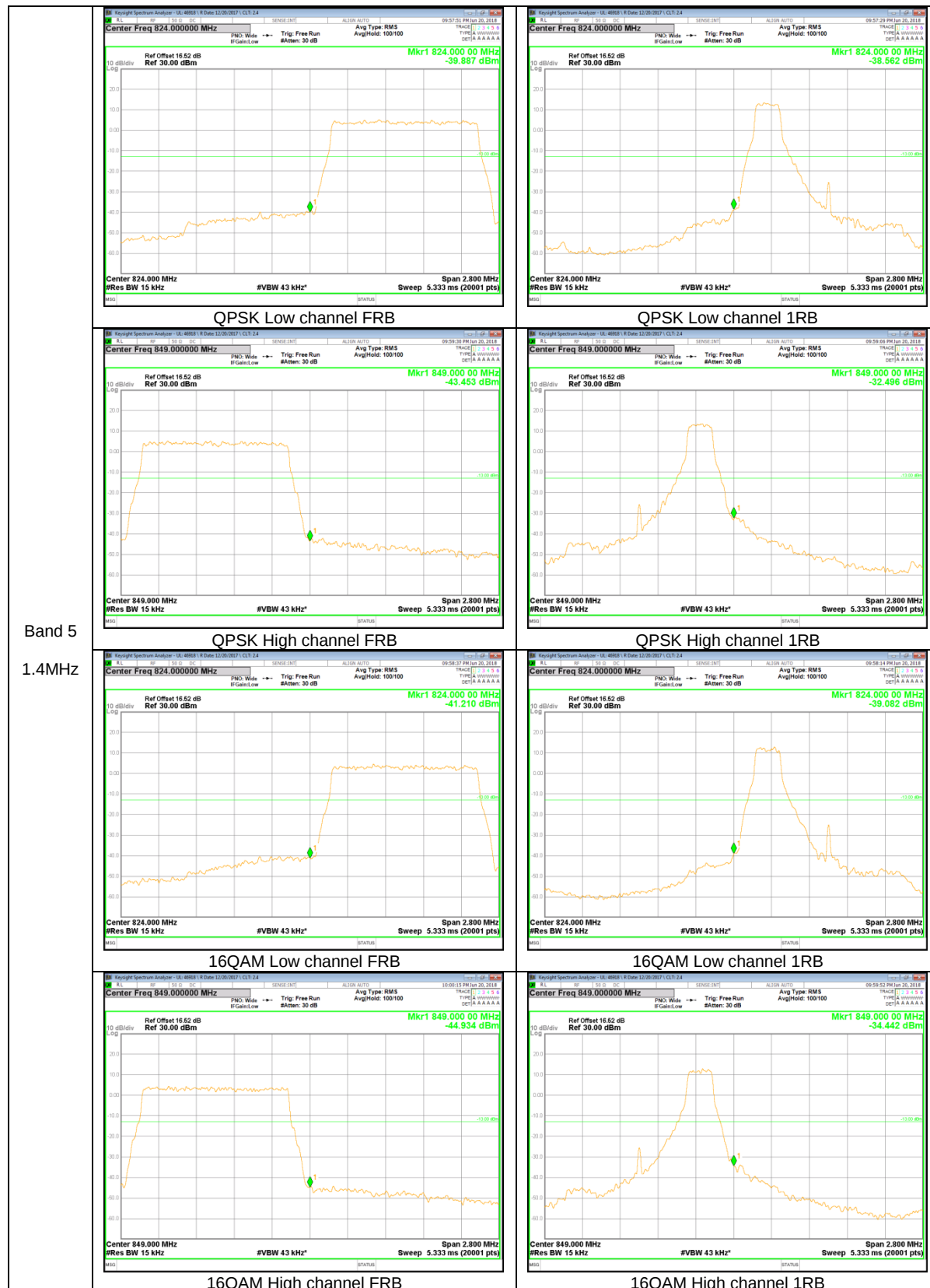


LTE Band 5









LTE Band 12

