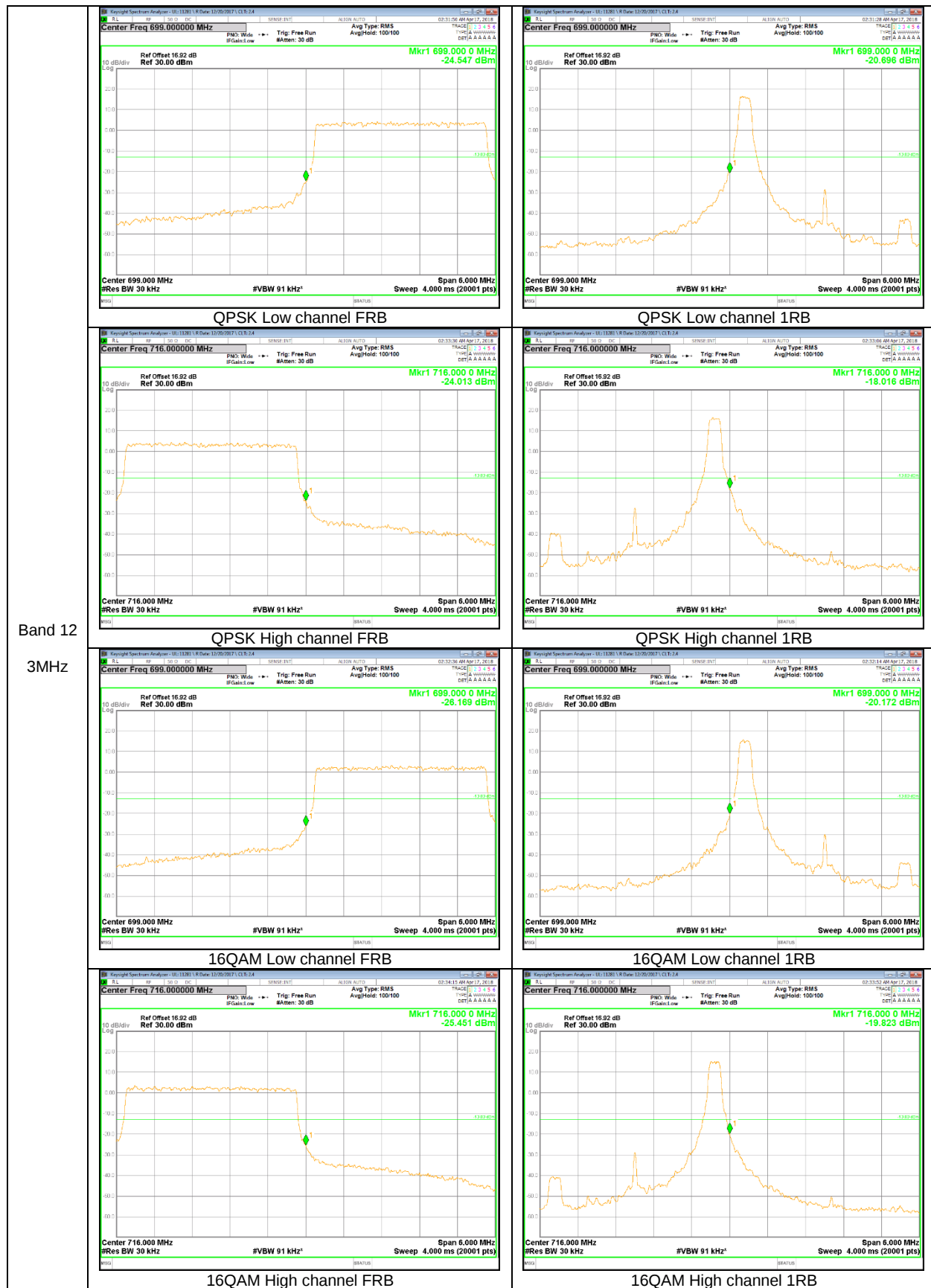
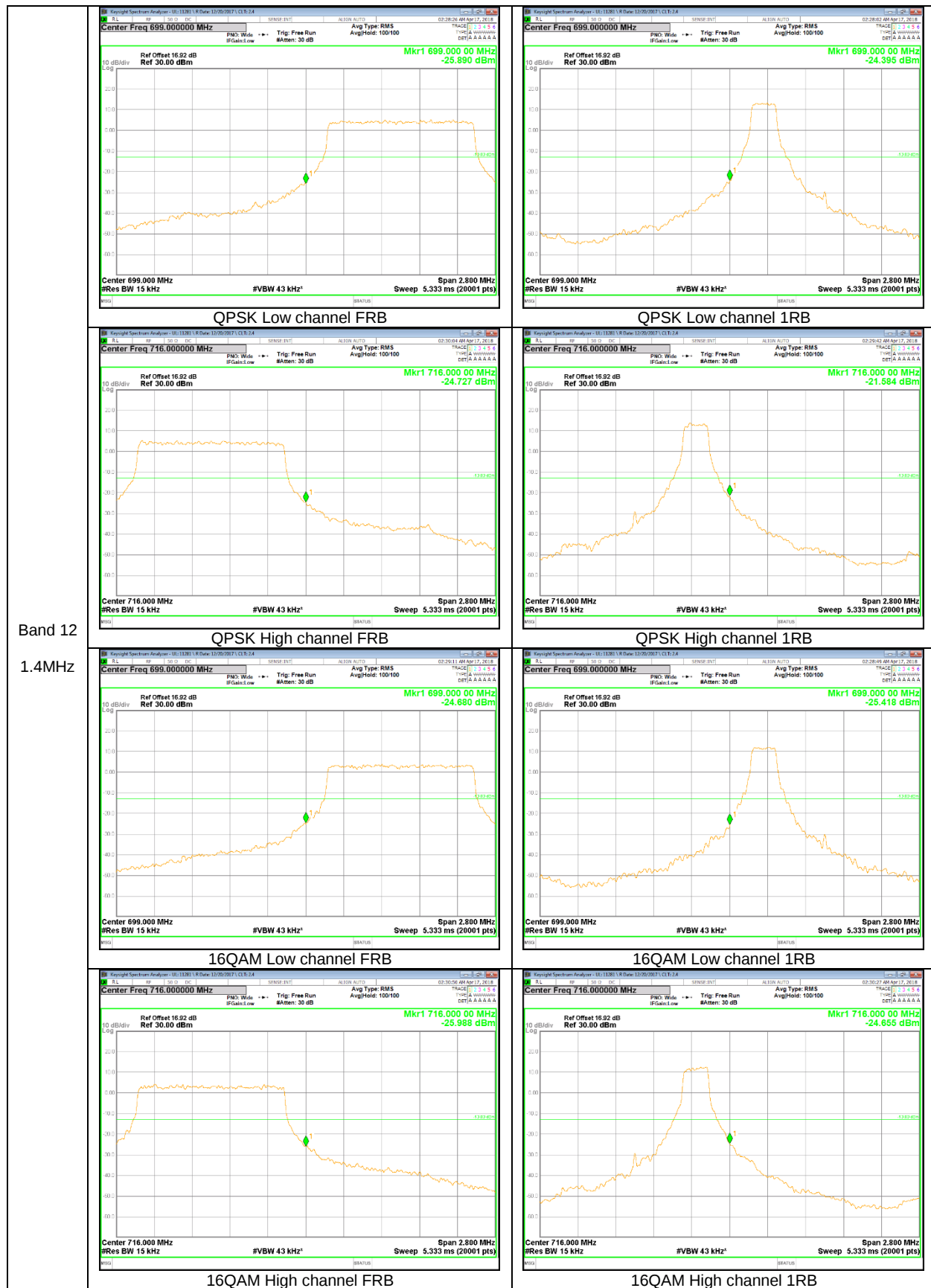
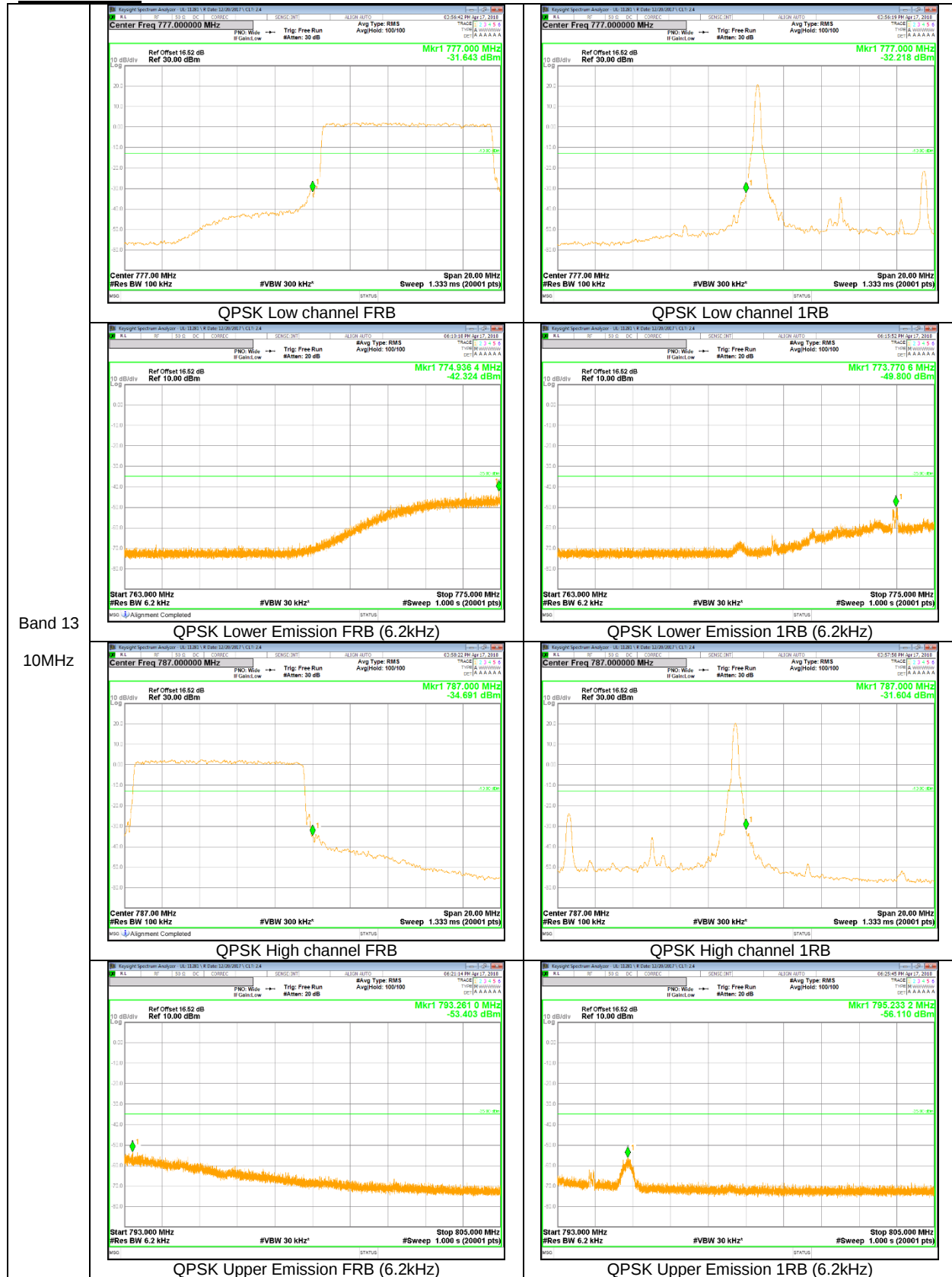


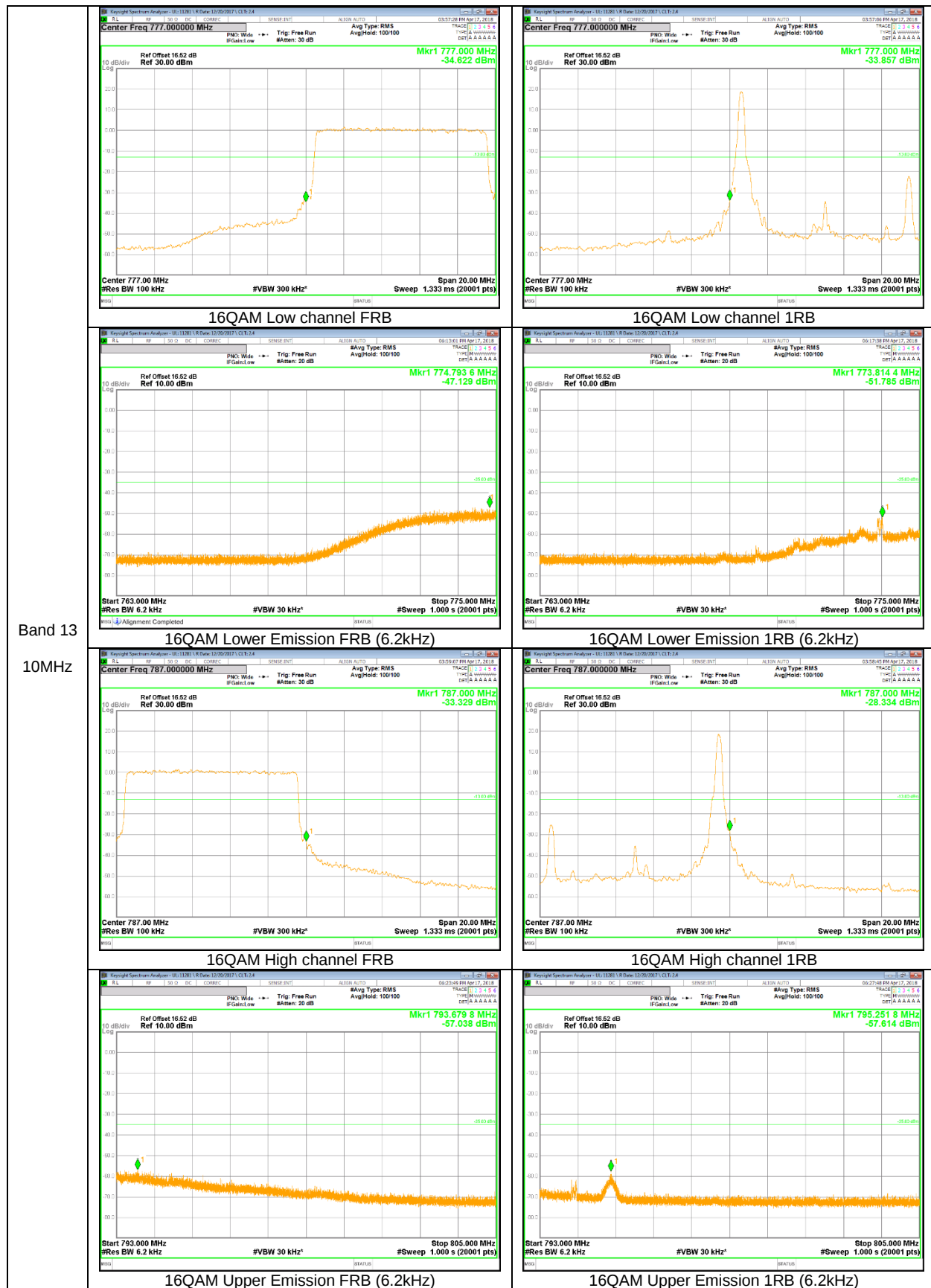


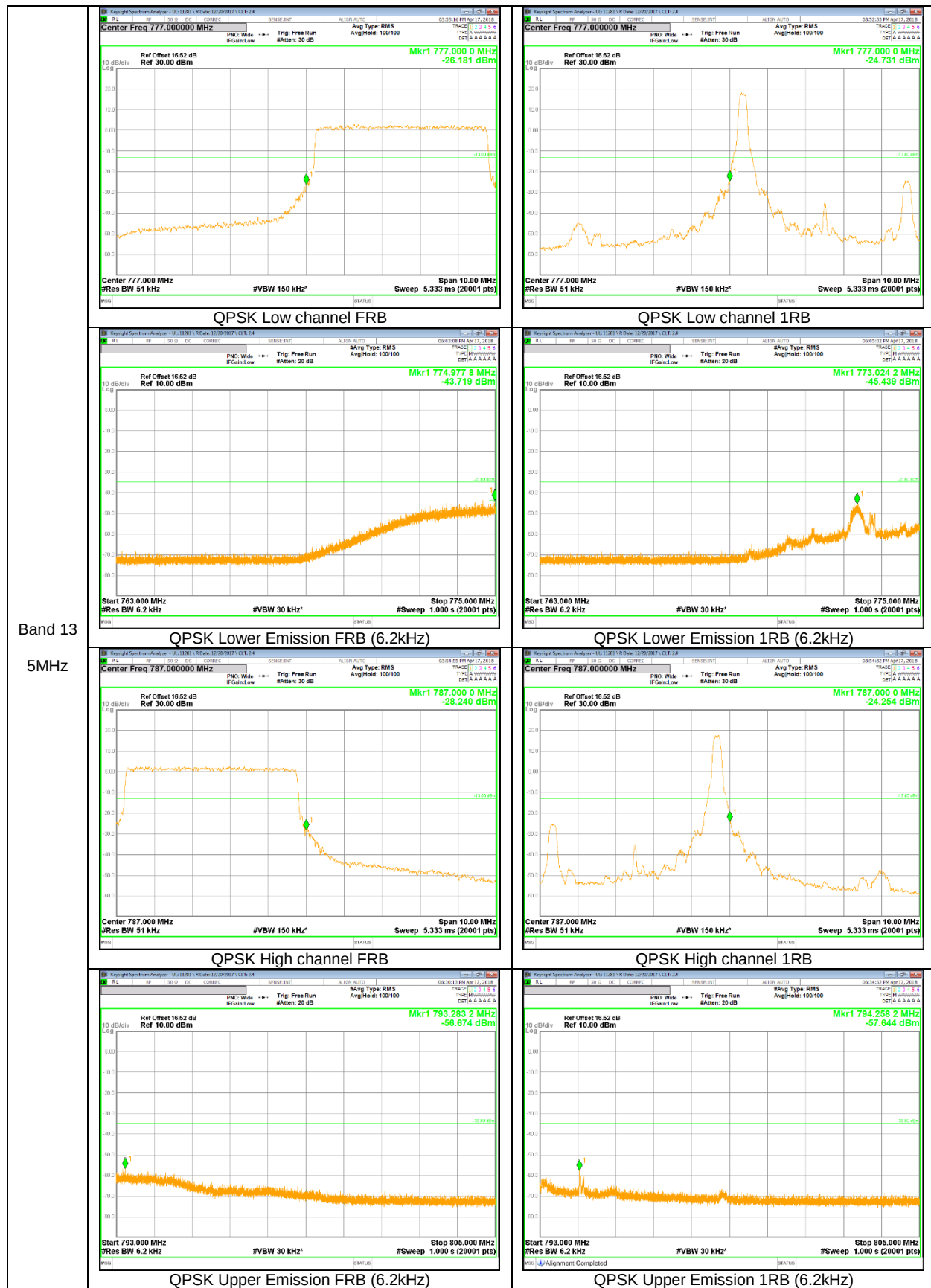


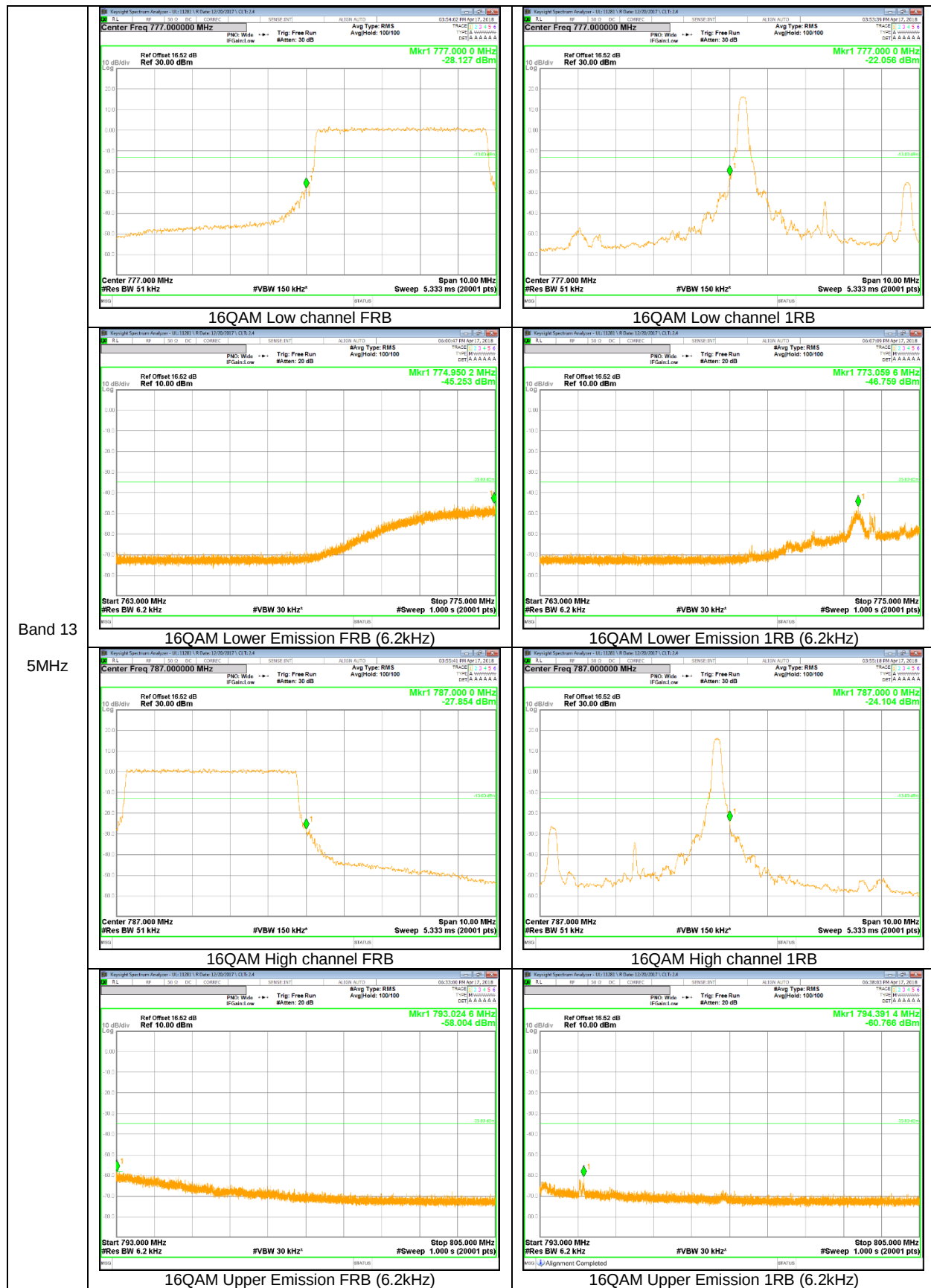
LTE Band 13



Band 13
10MHz

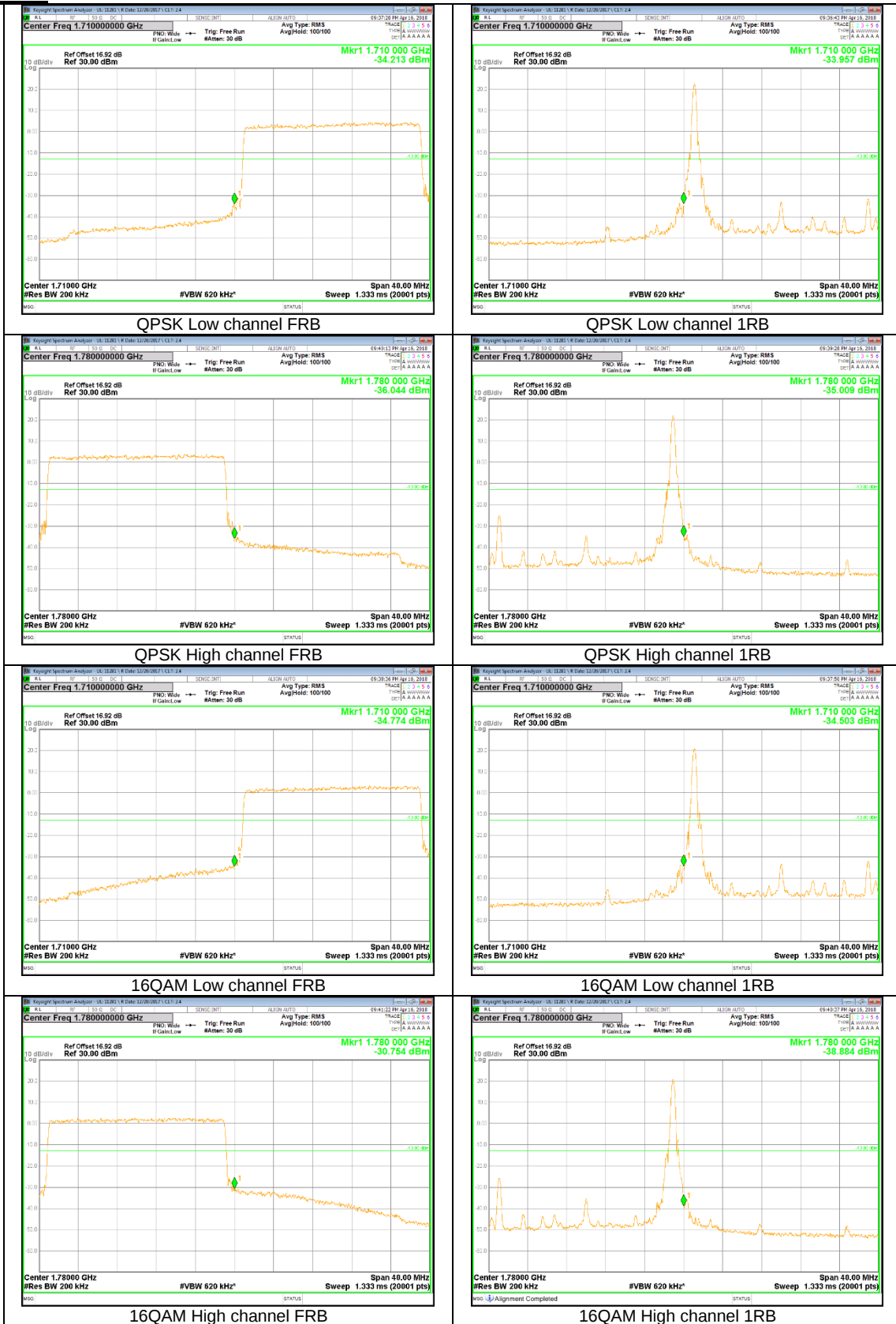


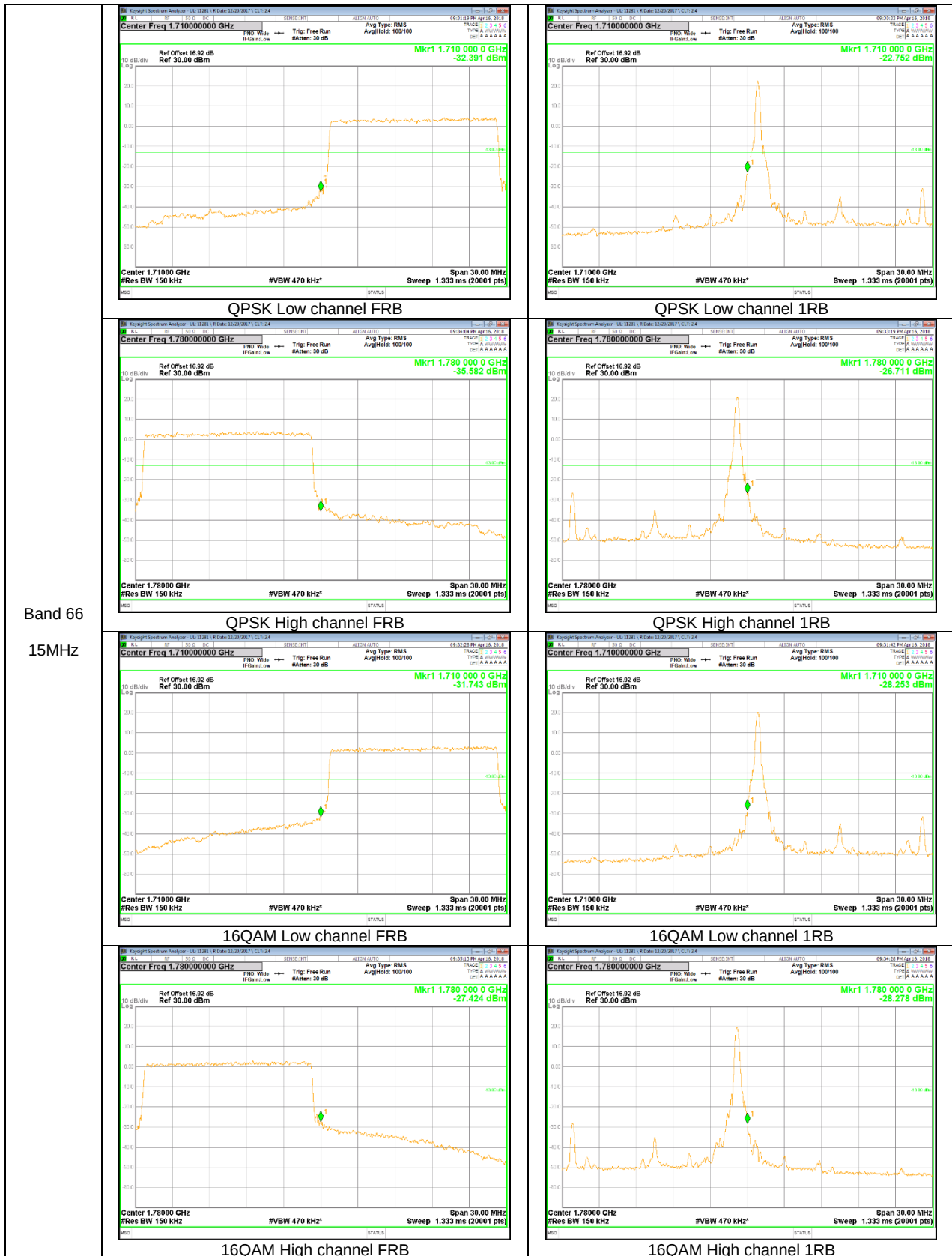


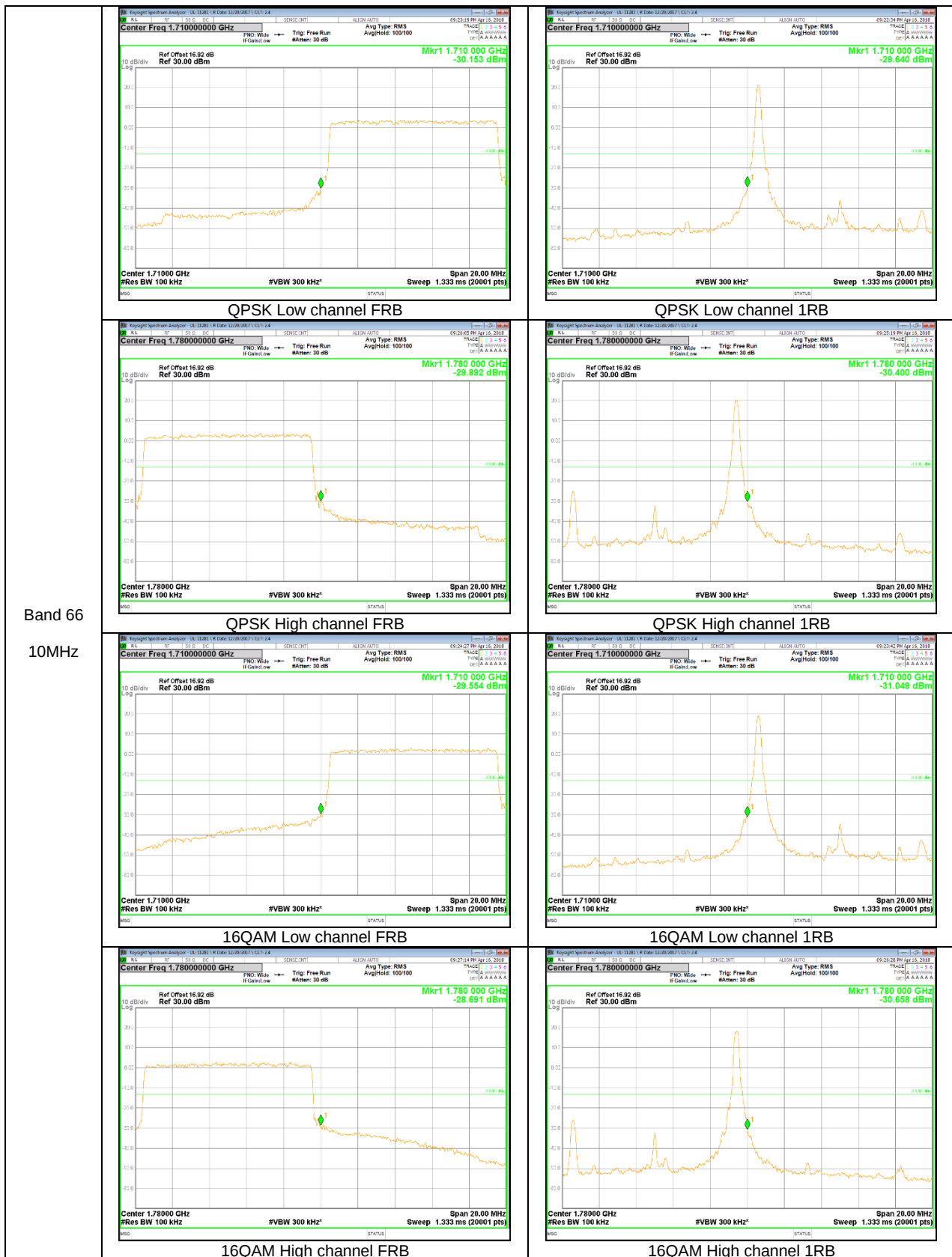


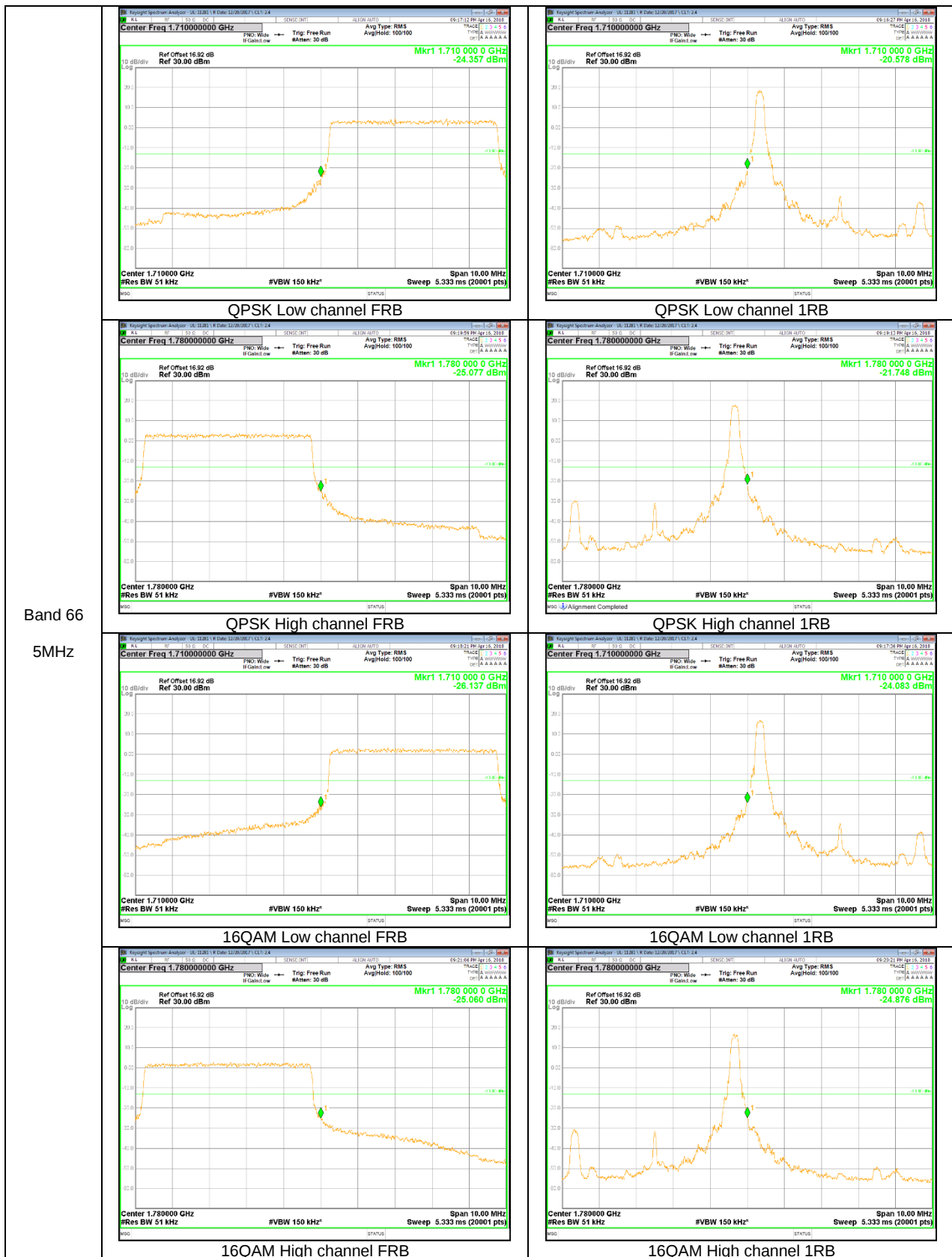
LTE Band 66

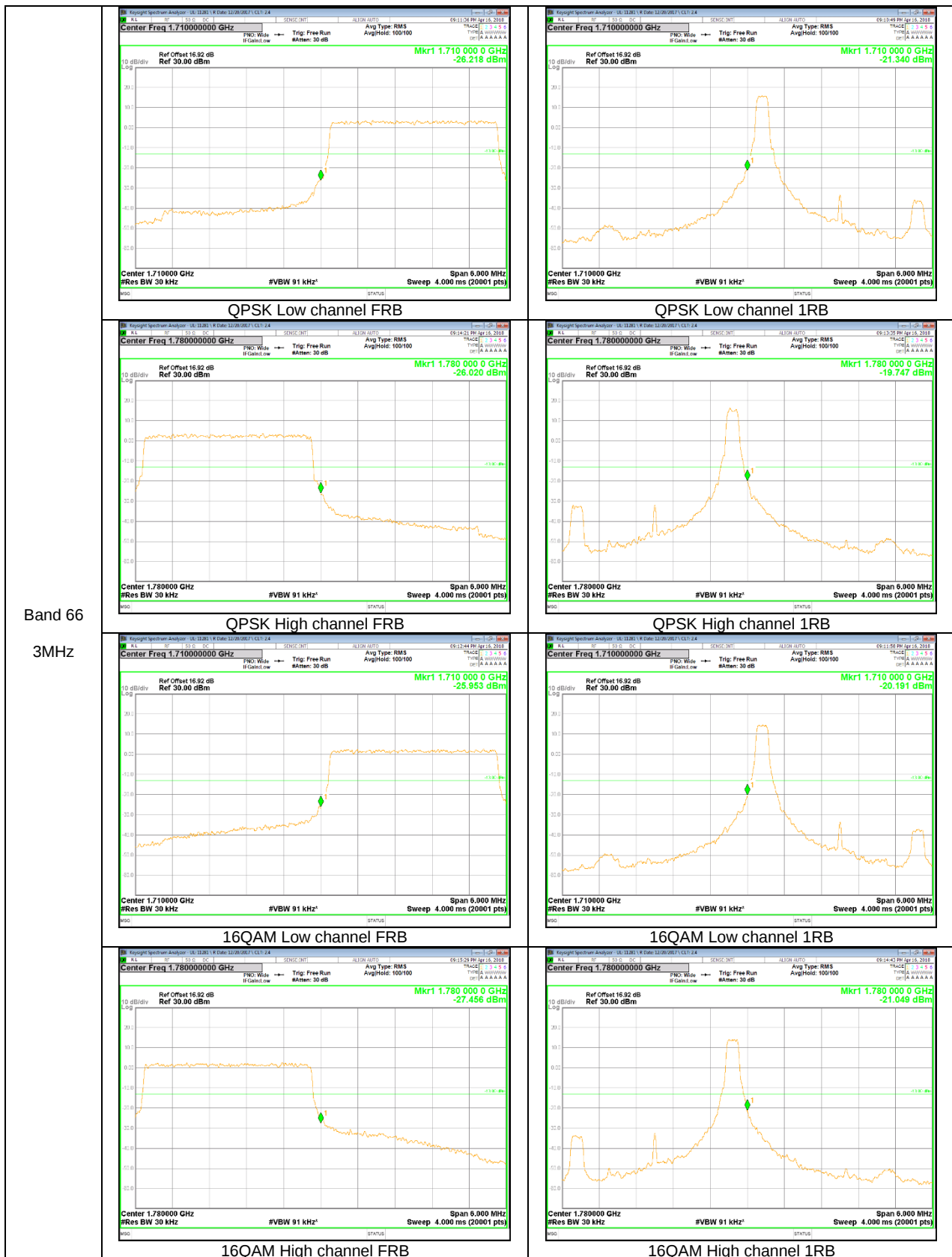
Band 66
20MHz

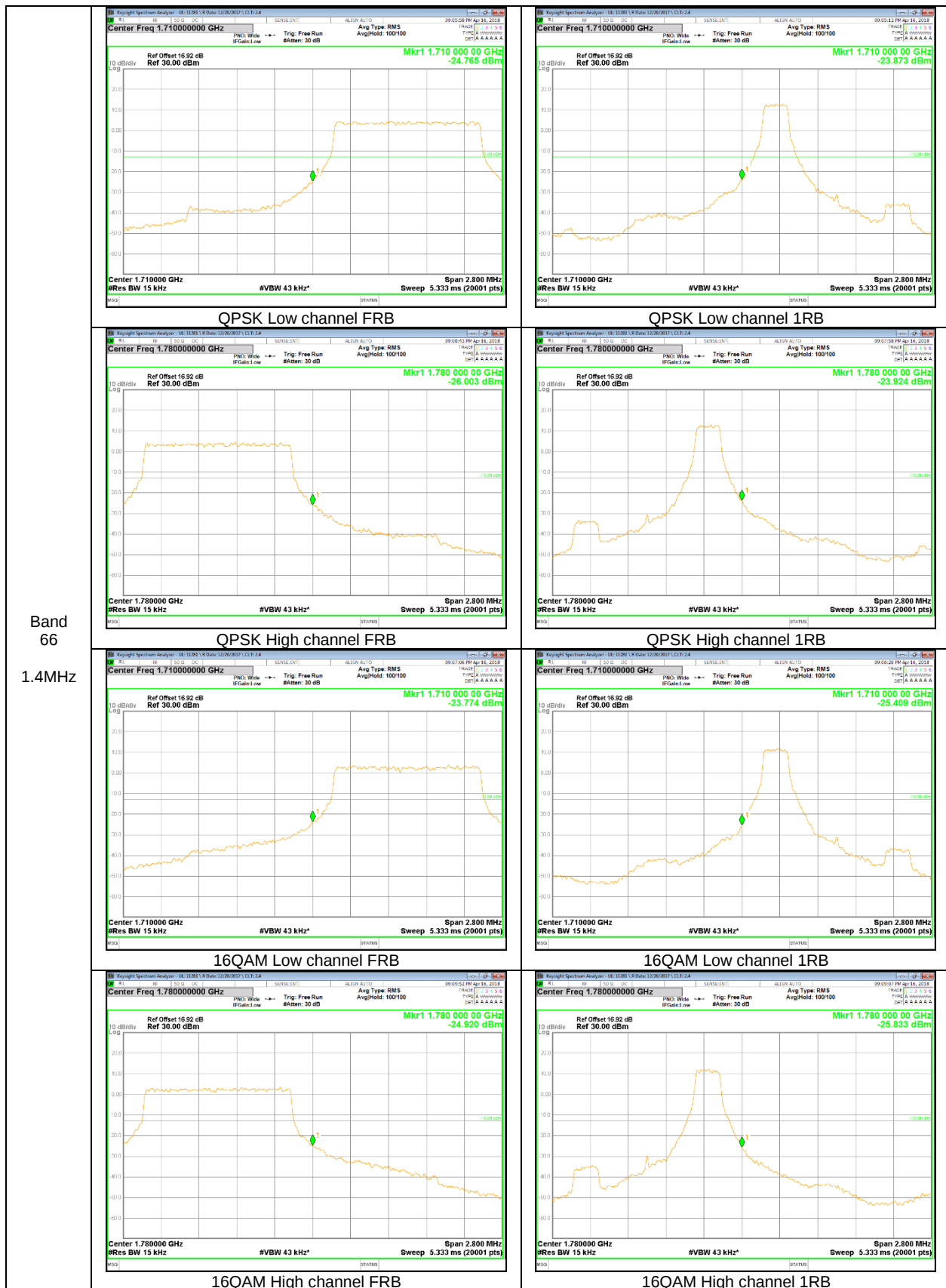












9.3. OUT OF BAND EMISSIONS

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.

TEST PROCEDURE

Per KDB 971168 D01 Power Meas License Digital Systems v03

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 $\geq 3 \times$ 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;

RESULTS

GSM

Band	Mode	f [MHz]	Spurious [dBm]	Limit [dBm]
GSM850	GPRS	824.2	-23.01	-13.00
		836.6	-22.39	
		848.8	-22.71	
	EGPRS	824.2	-21.80	
		836.6	-21.96	
		848.8	-22.35	
GSM1900	GPRS	1850.2	-22.28	
		1880.0	-22.24	
		1909.8	-21.53	
	EGPRS	1850.2	-22.46	
		1880.0	-22.70	
		1909.8	-21.93	

WCDMA

Band	Mode	f [MHz]	Spurious [dBm]	Limit [dBm]
Band 5	REL99	826.4	-32.94	-13.00
		836.6	-33.39	
		846.6	-33.08	
	HSDPA	826.4	-32.66	
		836.6	-32.04	
		846.6	-31.49	
Band 4	REL99	1712.4	-32.87	
		1732.6	-32.88	
		1752.6	-32.53	
	HSDPA	1712.4	-32.62	
		1732.6	-32.46	
		1752.6	-32.57	
Band 2	REL99	1852.4	-32.43	
		1880.0	-32.60	
		1907.6	-32.66	
	HSDPA	1852.4	-31.55	
		1880.0	-32.71	
		1907.6	-32.00	

LTE 2

Bandwidth	Mode	f [MHz]	Spurious [dBm]	Limit [dBm]
20 MHz	QPSK	1860.0	-28.25	-13.00
		1880.0	-28.91	
		1900.0	-28.54	
	16QAM	1860.0	-27.92	
		1880.0	-28.59	
		1900.0	-28.68	
15 MHz	QPSK	1857.5	-27.89	
		1880.0	-28.58	
		1902.5	-28.37	
	16QAM	1857.5	-28.83	
		1880.0	-28.04	
		1902.5	-28.56	
10 MHz	QPSK	1855.0	-28.33	
		1880.0	-27.92	
		1905.0	-27.78	
	16QAM	1855.0	-28.88	
		1880.0	-28.37	
		1905.0	-28.39	
5 MHz	QPSK	1852.5	-28.26	
		1880.0	-28.25	
		1907.5	-28.87	
	16QAM	1852.5	-28.76	
		1880.0	-28.44	
		1907.5	-27.63	
3 MHz	QPSK	1851.5	-28.87	
		1880.0	-27.87	
		1908.5	-28.05	
	16QAM	1851.5	-28.30	
		1880.0	-27.53	
		1908.5	-28.69	
1.4 MHz	QPSK	1850.7	-28.74	
		1880.0	-28.60	
		1909.3	-28.24	
	16QAM	1850.7	-28.83	
		1880.0	-28.68	
		1909.3	-27.67	

LTE 5

Bandwidth	Mode	f [MHz]	Spurious [dBm]	Limit [dBm]
10 MHz	QPSK	829.0	-29.86	-13.00
		836.5	-30.11	
		844.0	-28.88	
	16QAM	829.0	-31.16	
		836.5	-30.68	
		844.0	-31.22	
5 MHz	QPSK	826.5	-30.06	
		836.5	-30.29	
		846.5	-29.90	
	16QAM	826.5	-30.66	
		836.5	-29.65	
		846.5	-31.01	
3 MHz	QPSK	825.5	-30.01	
		836.5	-30.10	
		847.5	-30.49	
	16QAM	825.5	-30.75	
		836.5	-30.29	
		847.5	-29.78	
1.4 MHz	QPSK	824.7	-30.12	
		836.5	-29.96	
		848.3	-30.51	
	16QAM	824.7	-30.71	
		836.5	-30.59	
		848.3	-30.26	

LTE 12

Bandwidth	Mode	f [MHz]	Spurious [dBm]	Limit [dBm]
10 MHz	QPSK	704.0	-24.41	-13.00
		707.5	-24.65	
		711.0	-25.02	
	16QAM	704.0	-24.93	
		707.5	-25.23	
		711.0	-25.08	
5 MHz	QPSK	701.5	-24.41	
		707.5	-24.67	
		713.5	-24.96	
	16QAM	701.5	-24.87	
		707.5	-24.96	
		713.5	-25.30	
3 MHz	QPSK	700.5	-24.03	
		707.5	-24.50	
		714.5	-24.06	
	16QAM	700.5	-25.14	
		707.5	-25.22	
		714.5	-24.45	
1.4 MHz	QPSK	699.7	-25.19	
		707.5	-25.12	
		715.3	-25.09	
	16QAM	699.7	-24.66	
		707.5	-25.09	
		715.3	-25.19	

LTE 13

Bandwidth	Mode	f [MHz]	Spurious [dBm]	Limit [dBm]
10 MHz	QPSK	782.0	-30.63	-13.00
	16QAM	782.0	-30.11	
5 MHz	QPSK	779.5	-30.05	
		782.0	-30.75	
		784.5	-29.52	
	16QAM	779.5	-31.02	
		782.0	-30.82	
		784.5	-30.88	

LTE 66

Bandwidth	Mode	f [MHz]	Spurious [dBm]	Limit [dBm]
20 MHz	QPSK	1720.0	-29.618	-13.00
		1745.0	-27.677	
		1770.0	-28.002	
	16QAM	1720.0	-27.978	
		1745.0	-28.056	
		1770.0	-29.376	
15 MHz	QPSK	1717.5	-30.085	
		1745.0	-28.216	
		1772.5	-28.028	
	16QAM	1717.5	-29.616	
		1745.0	-28.075	
		1772.5	-27.980	
10 MHz	QPSK	1715.0	-29.166	
		1745.0	-28.774	
		1775.0	-28.187	
	16QAM	1715.0	-29.872	
		1745.0	-30.060	
		1775.0	-27.124	
5 MHz	QPSK	1712.5	-29.470	
		1745.0	-27.341	
		1777.5	-27.614	
	16QAM	1712.5	-29.347	
		1745.0	-28.000	
		1777.5	-29.780	
3 MHz	QPSK	1711.5	-27.885	
		1745.0	-28.008	
		1778.5	-29.708	
	16QAM	1711.5	-29.483	
		1745.0	-29.386	
		1778.5	-28.080	
1.4 MHz	QPSK	1710.7	-27.622	
		1745.0	-28.138	
		1779.3	-27.559	
	16QAM	1710.7	-28.386	
		1745.0	-28.237	
		1779.3	-29.341	

LTE Band 17

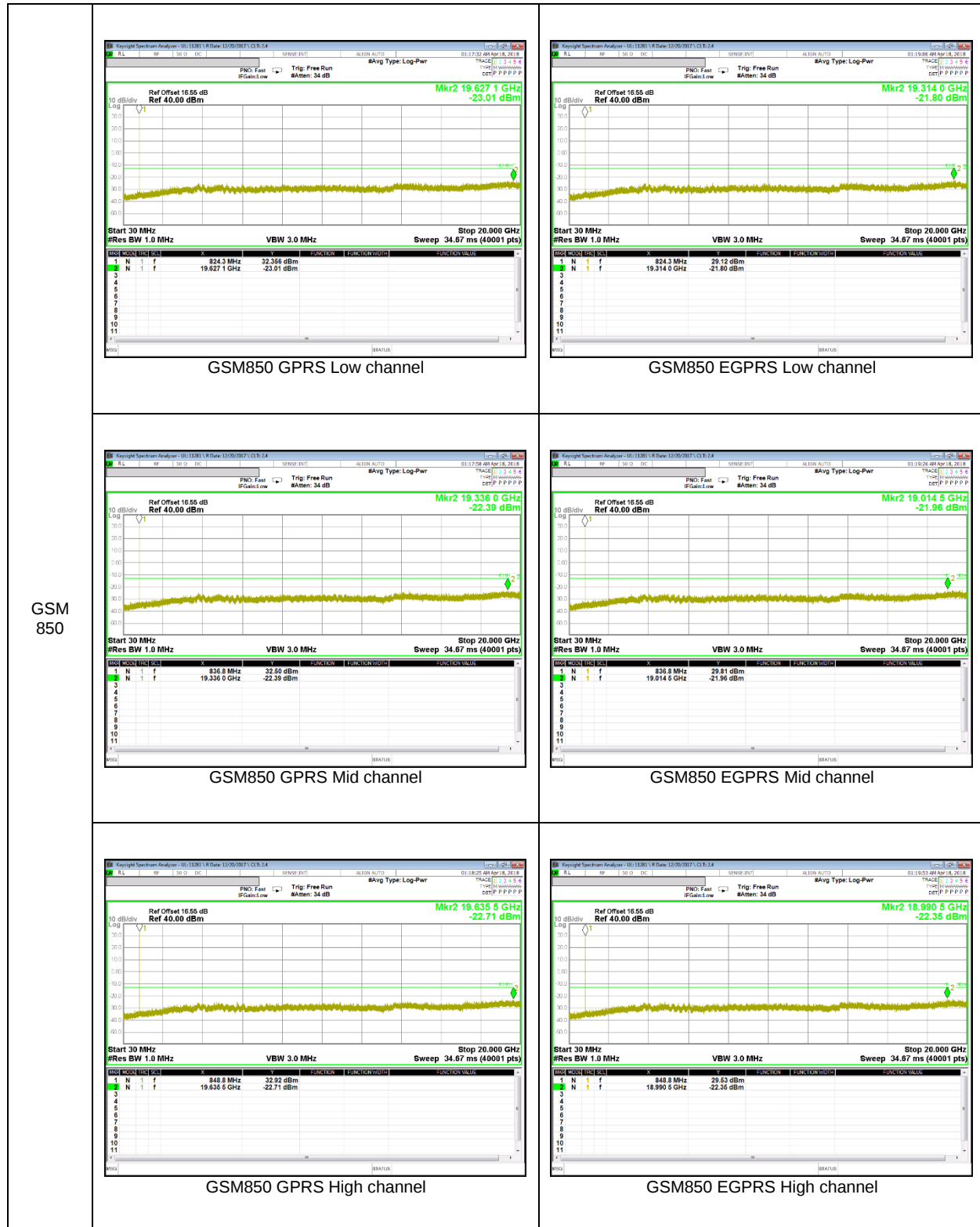
LTE Band 17 (Frequency range: 704-716 MHz) is covered by LTE Band 12 (Frequency range: 699-716 MHz) due to overlapping frequency range, same maximum tune-up limit and same channel bandwidth.

LTE Band 4

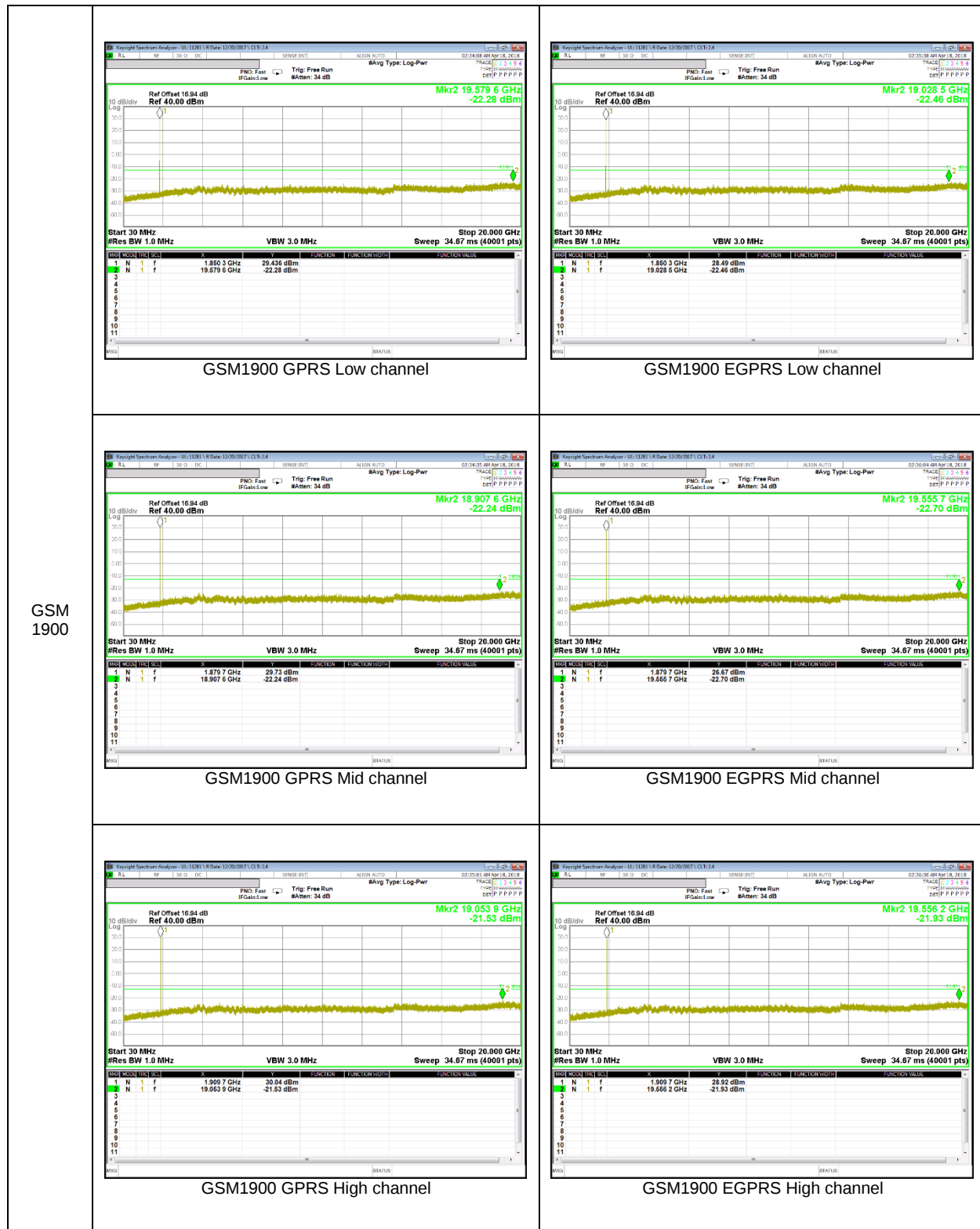
LTE Band 4 (Frequency range: 1710-1755 MHz) is covered by LTE Band 66 (Frequency range: 1710-1780 MHz) due to overlapping frequency range, same maximum tune-up limit and same channel bandwidth.

9.3.1. OUT OF BAND EMISSIONS PLOTS

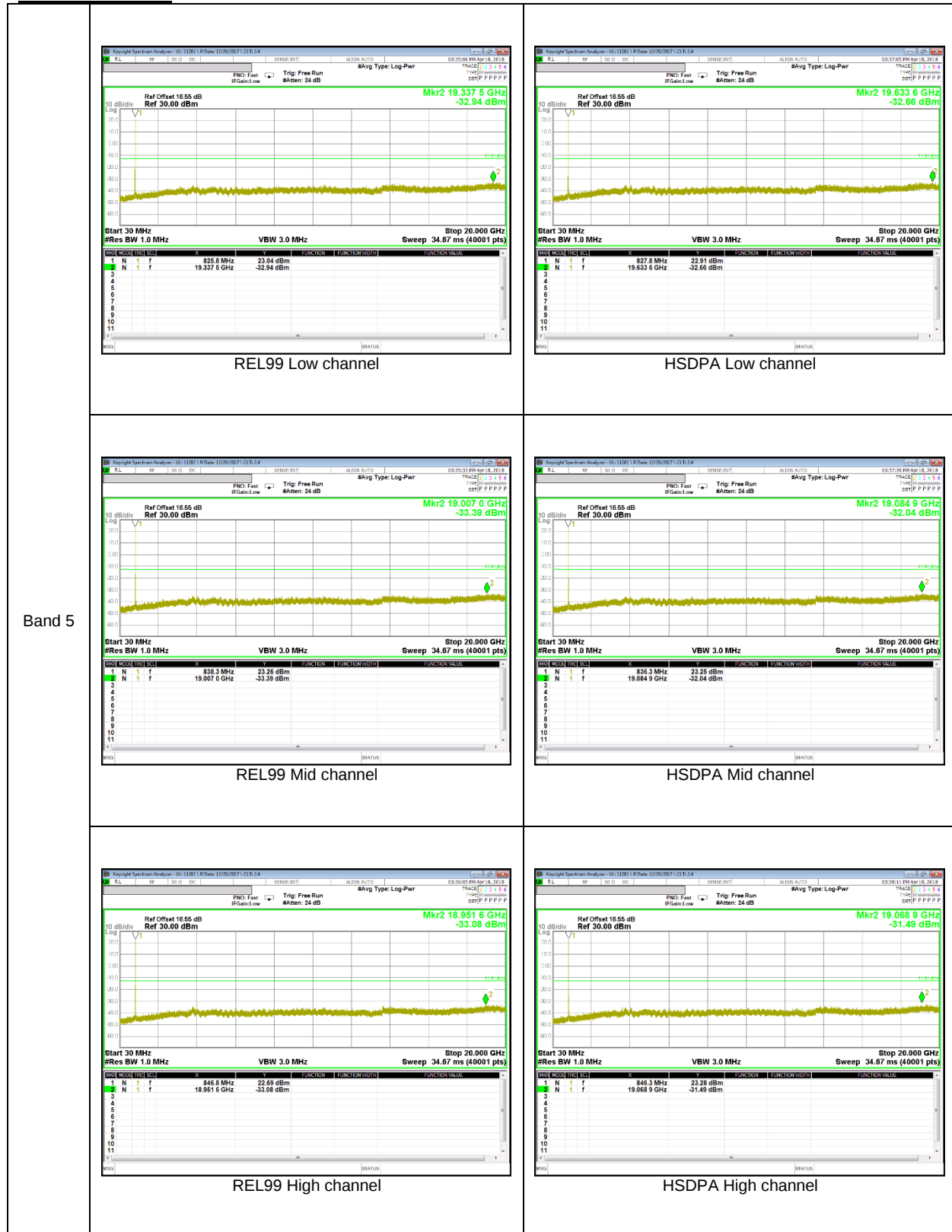
GSM 850



GSM 1900



WCDMA Band 5



WCDMA Band 4

