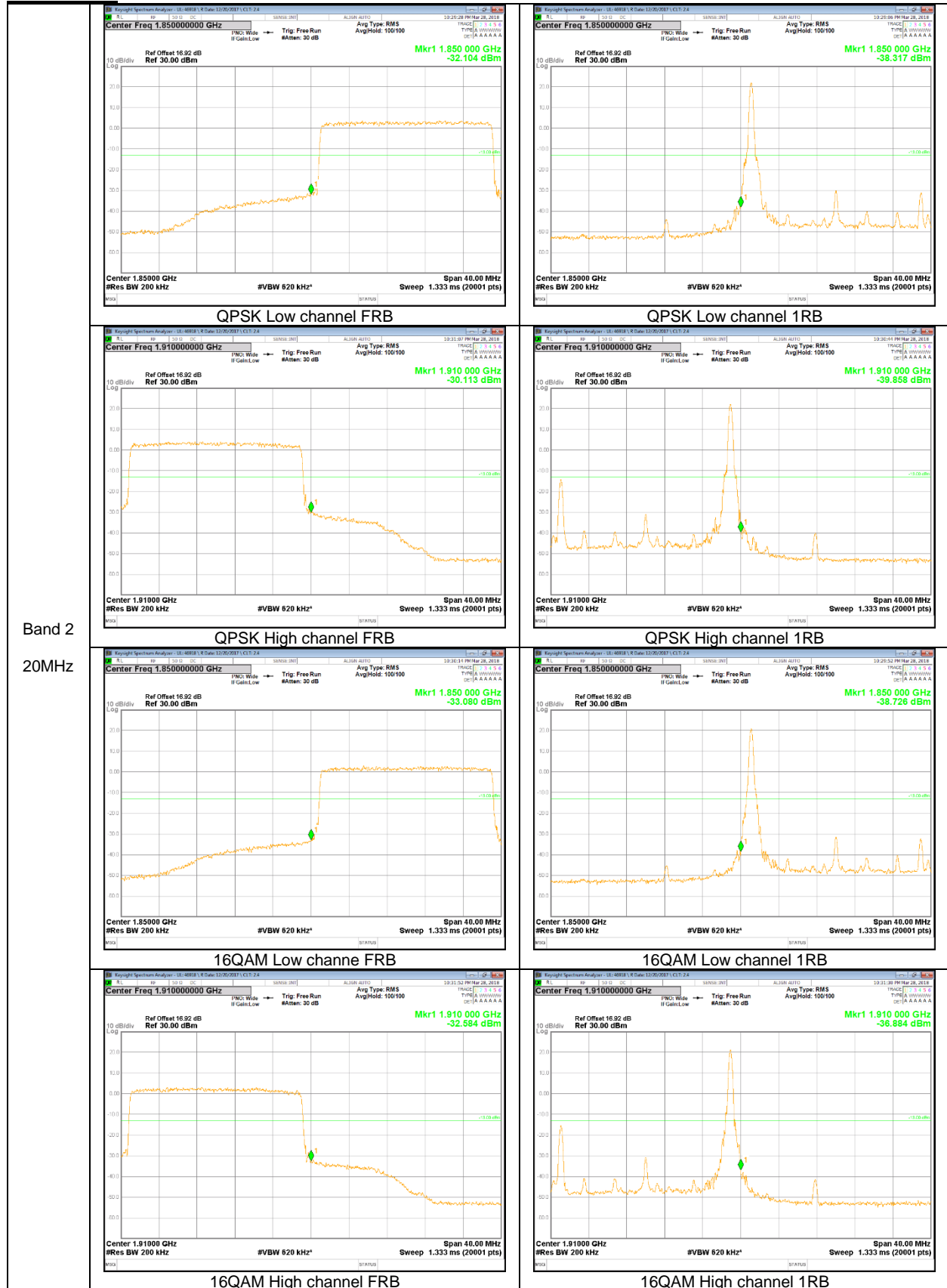
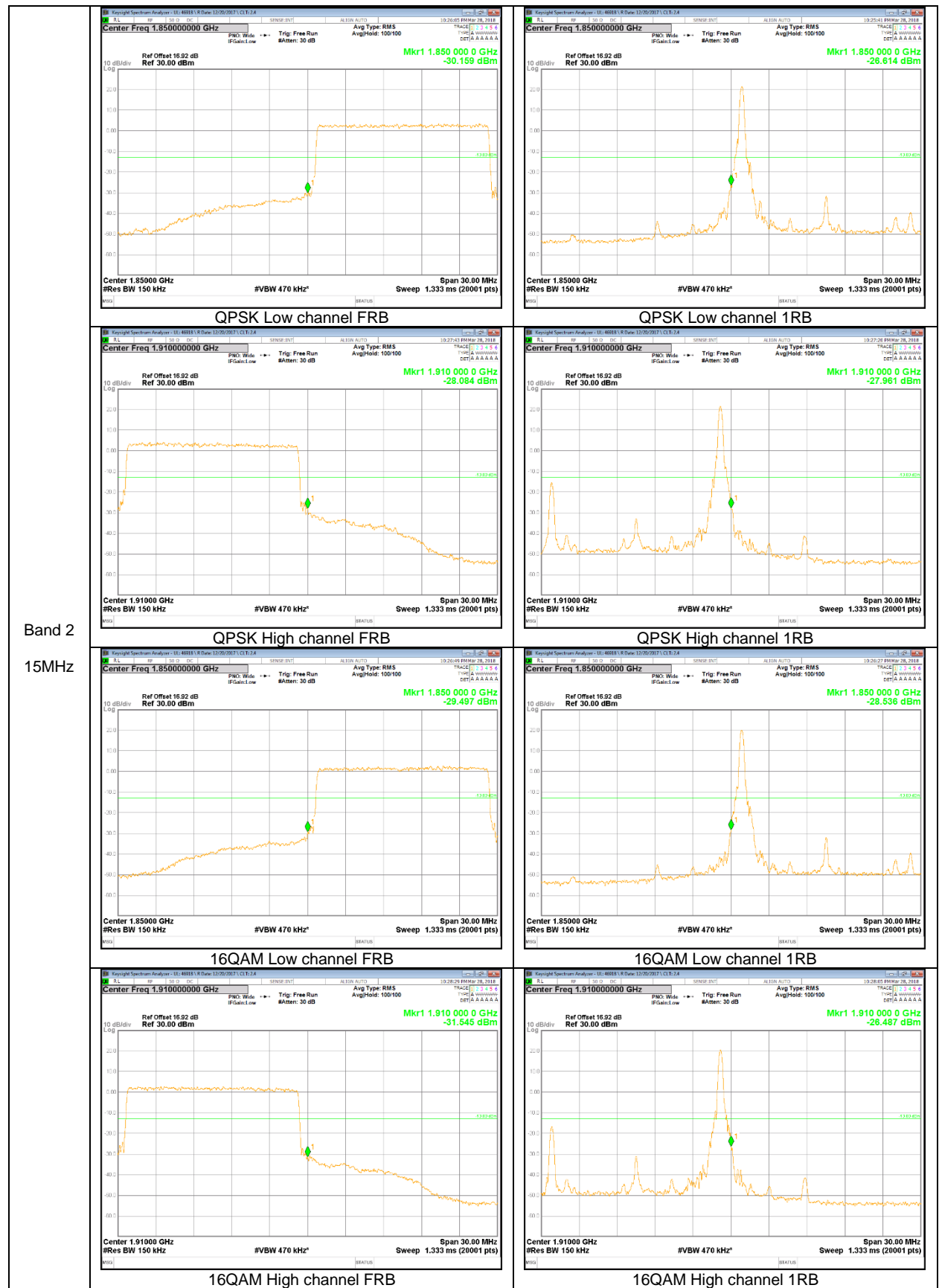


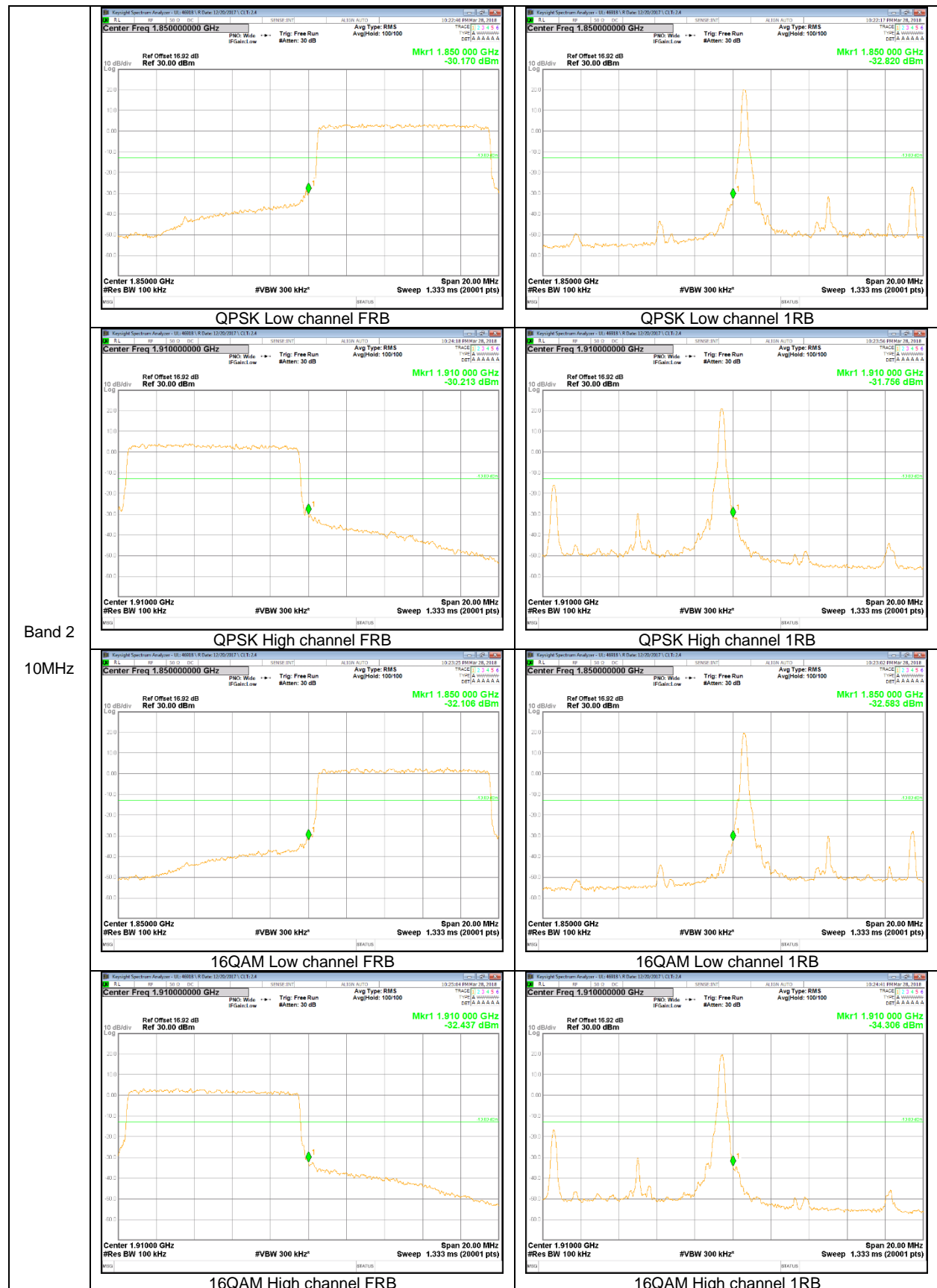
LTE Band 2



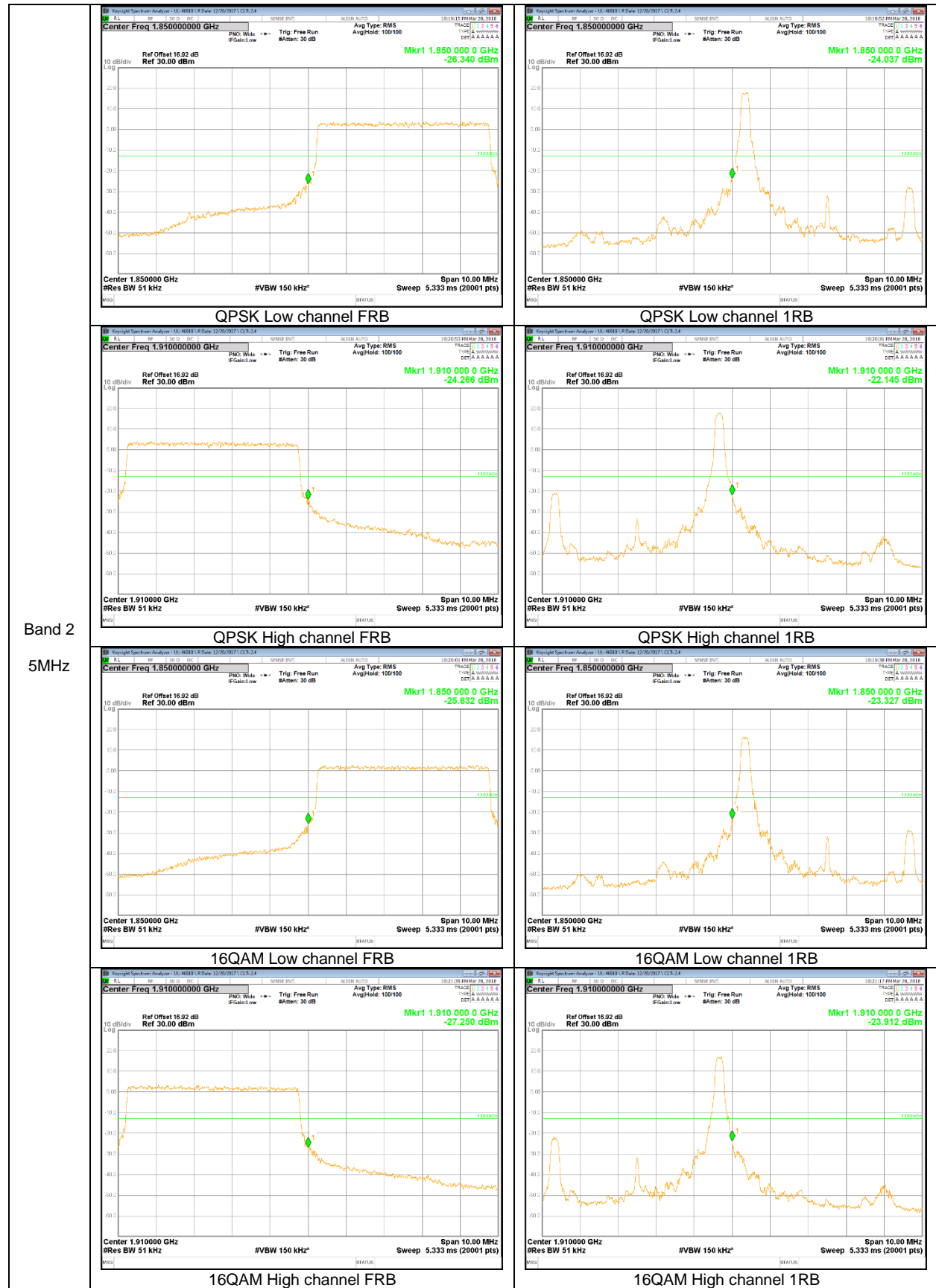
Band 2
20MHz

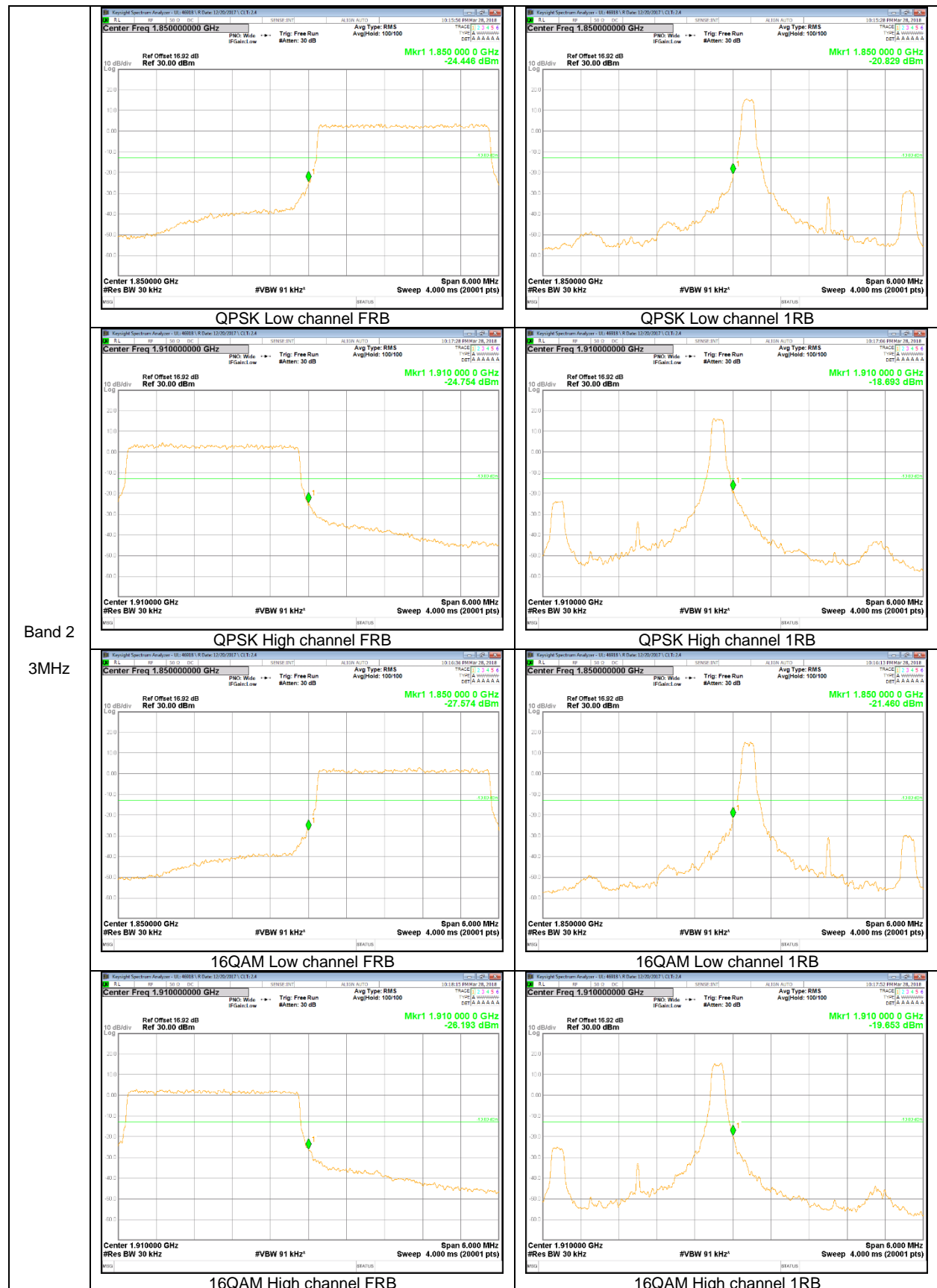


Band 2
15MHz

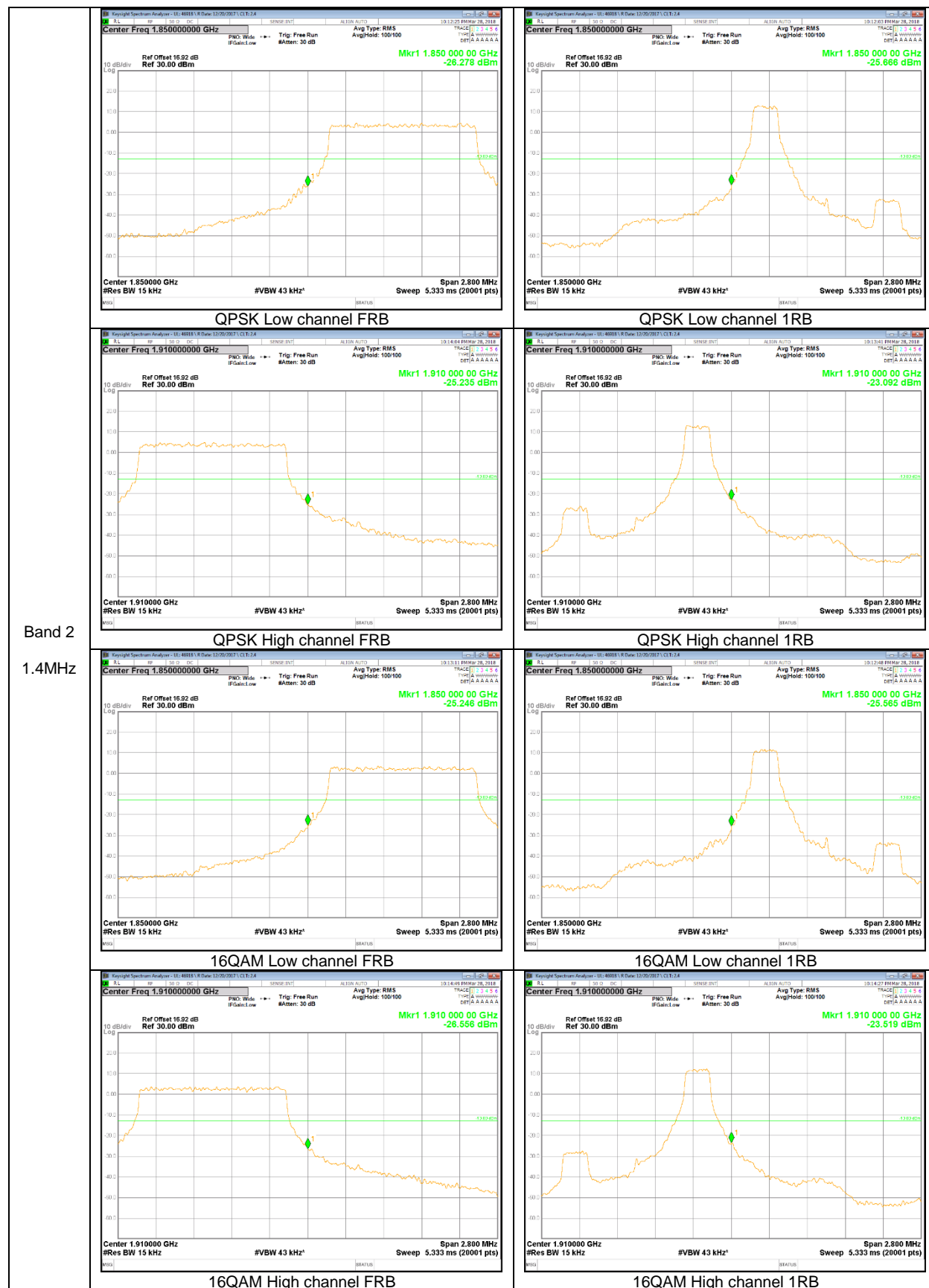


Band 2
 10MHz

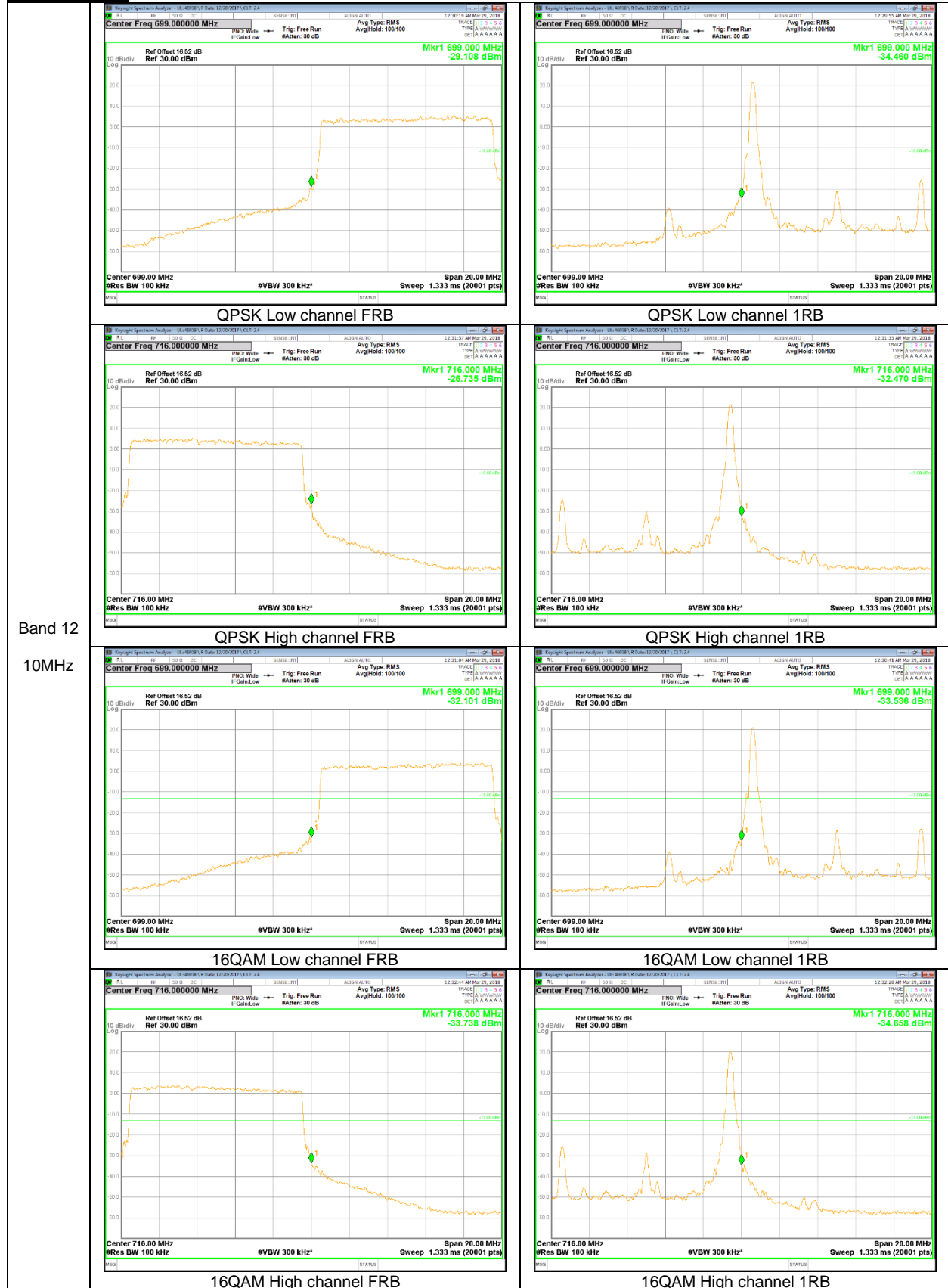




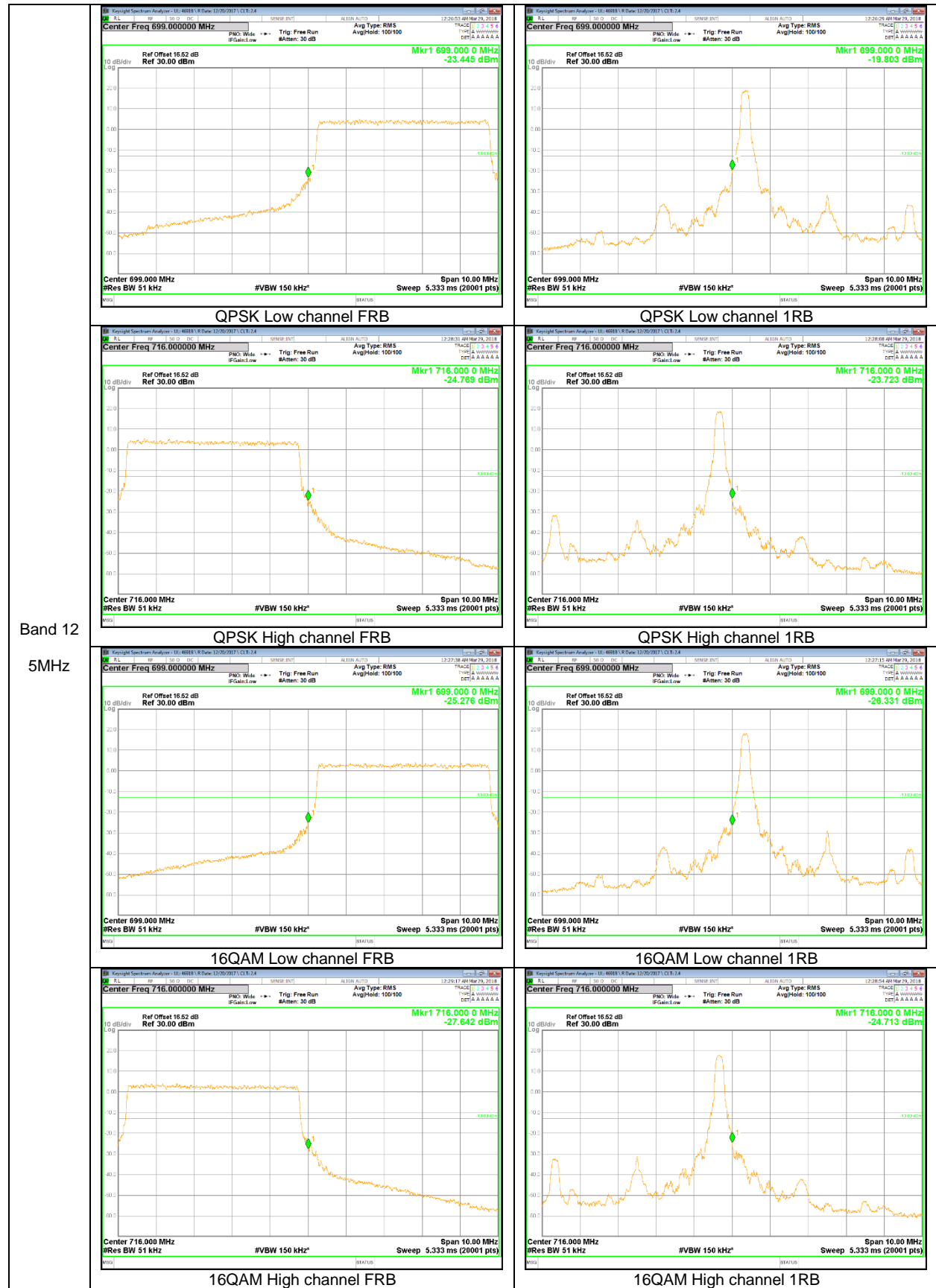
Band 2
 3MHz

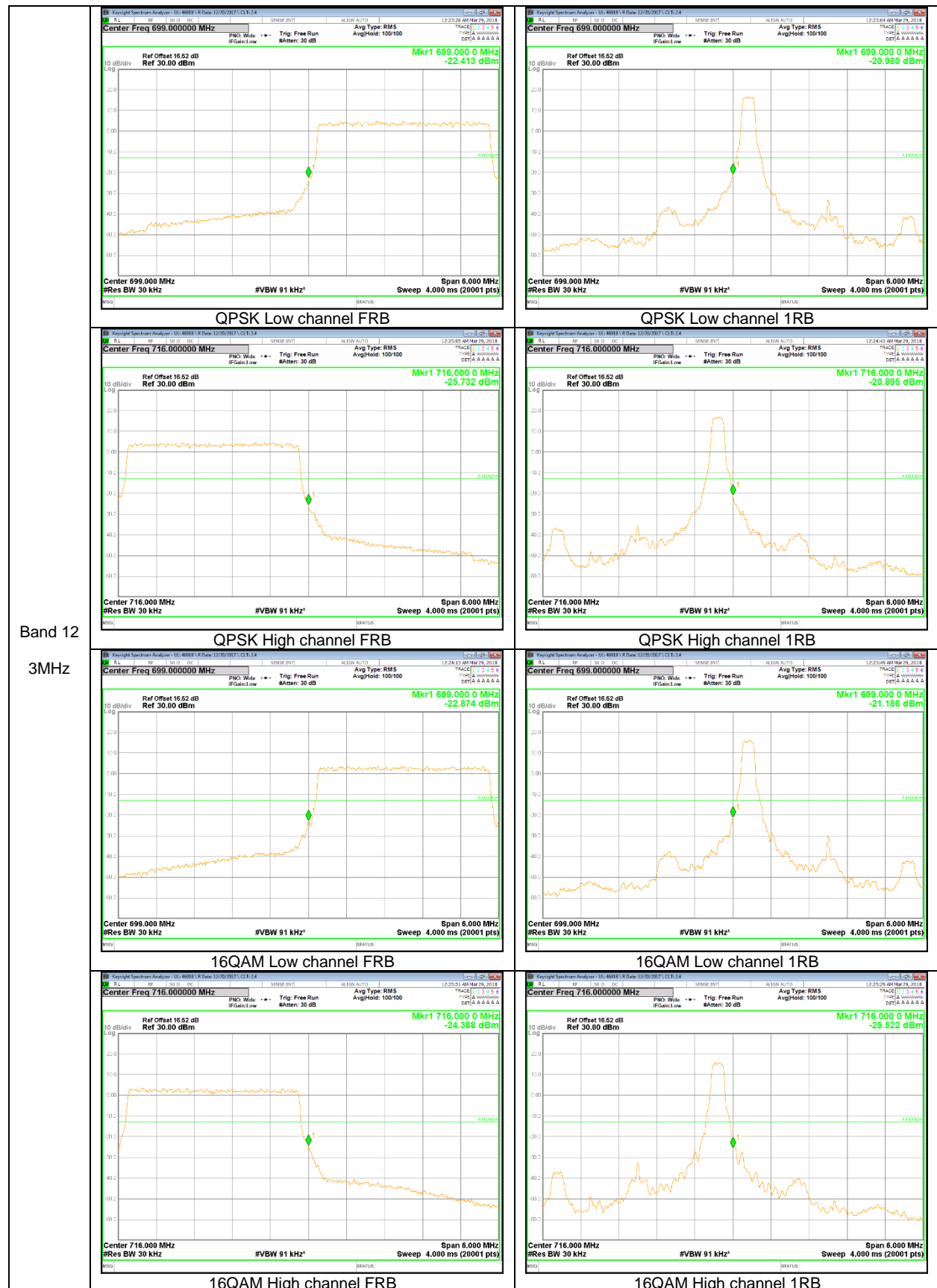


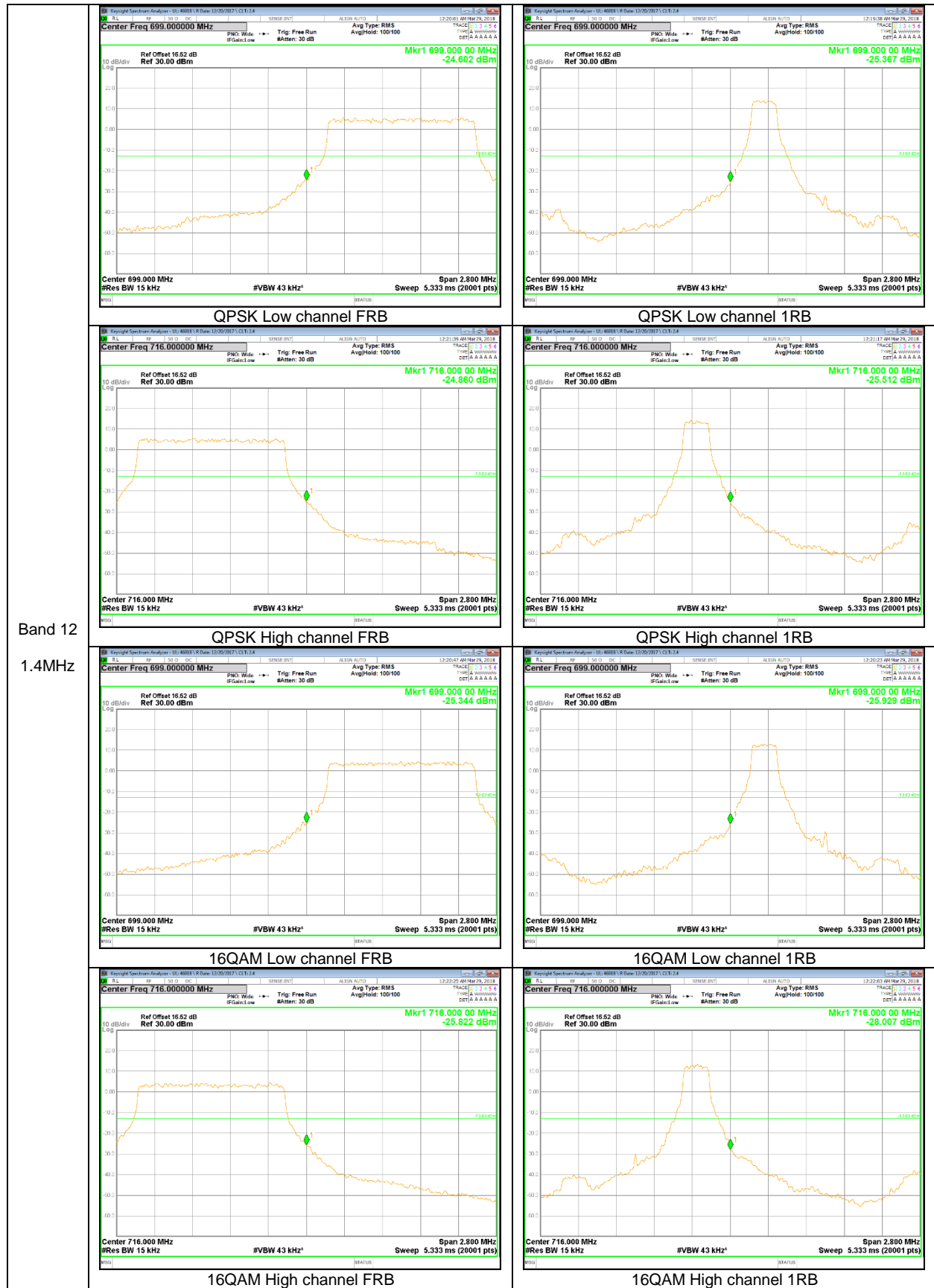
LTE Band 12



Band 12
10MHz







Band 12
1.4MHz

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	-21.26	-13.00
		836.6	-22.37	
		848.8	-22.57	
	EGPRS	824.2	-22.56	
		836.6	-21.96	
		848.8	-22.19	
GSM1900	GPRS	1850.2	-22.05	
		1880.0	-21.36	
		1909.8	-22.10	
	EGPRS	1850.2	-22.52	
		1880.0	-21.06	
		1909.8	-21.91	

WCDMA

Band	Mode	f [MHz]	Spurious [dBm]	Limit [dBm]
Band 5	REL99	826.4	-32.15	-13.00
		836.6	-32.63	
		846.6	-32.57	
	HSDPA	826.4	-32.47	
		836.6	-33.14	
		846.6	-32.70	
Band 4	REL99	1712.4	-31.91	
		1732.6	-32.34	
		1752.6	-31.98	
	HSDPA	1712.4	-31.84	
		1732.6	-31.74	
		1752.6	-32.23	
Band 2	REL99	1852.4	-32.16	
		1880.0	-32.59	
		1907.6	-32.09	
	HSDPA	1852.4	-31.97	
		1880.0	-32.18	
		1907.6	-32.79	

LTE 5

Bandwidth	Mode	f [MHz]	Spurious [dBm]	Limit [dBm]
10 MHz	QPSK	829.0	-30.00	-13.00
		836.5	-30.80	
		844.0	-31.29	
	16QAM	829.0	-31.38	
		836.5	-30.63	
		844.0	-31.20	
5 MHz	QPSK	826.5	-31.27	
		836.5	-30.80	
		846.5	-31.08	
	16QAM	826.5	-30.68	
		836.5	-30.06	
		846.5	-31.04	
3 MHz	QPSK	825.5	-31.35	
		836.5	-31.05	
		847.5	-31.41	
	16QAM	825.5	-31.23	
		836.5	-31.01	
		847.5	-30.76	
1.4 MHz	QPSK	824.7	-31.25	
		836.5	-31.22	
		848.3	-30.75	
	16QAM	824.7	-30.53	
		836.5	-31.07	
		848.3	-31.04	

LTE 66

Bandwidth	Mode	f [MHz]	Spurious [dBm]	Limit [dBm]
20 MHz	QPSK	1720.0	-28.47	-13.00
		1745.0	-28.44	
		1770.0	-28.25	
	16QAM	1720.0	-28.46	
		1745.0	-29.04	
		1770.0	-28.74	
15 MHz	QPSK	1717.5	-28.70	
		1745.0	-28.18	
		1772.5	-28.46	
	16QAM	1717.5	-29.35	
		1745.0	-28.83	
		1772.5	-27.97	
10 MHz	QPSK	1715.0	-28.67	
		1745.0	-27.87	
		1775.0	-28.65	
	16QAM	1715.0	-29.11	
		1745.0	-28.93	
		1775.0	-28.20	
5 MHz	QPSK	1712.5	-28.24	
		1745.0	-28.21	
		1777.5	-28.04	
	16QAM	1712.5	-29.03	
		1745.0	-28.64	
		1777.5	-28.02	
3 MHz	QPSK	1711.5	-28.78	
		1745.0	-28.24	
		1778.5	-27.87	
	16QAM	1711.5	-28.47	
		1745.0	-29.08	
		1778.5	-28.88	
1.4 MHz	QPSK	1710.7	-28.55	
		1745.0	-28.90	
		1779.3	-28.11	
	16QAM	1710.7	-28.34	
		1745.0	-28.77	
		1779.3	-28.76	

LTE 2

Bandwidth	Mode	f [MHz]	Spurious [dBm]	Limit [dBm]
20 MHz	QPSK	1860.0	-28.66	-13.00
		1880.0	-28.24	
		1900.0	-28.66	
	16QAM	1860.0	-28.58	
		1880.0	-28.98	
		1900.0	-28.78	
15 MHz	QPSK	1857.5	-29.36	
		1880.0	-27.38	
		1902.5	-28.58	
	16QAM	1857.5	-28.72	
		1880.0	-28.64	
		1902.5	-28.55	
10 MHz	QPSK	1855.0	-27.73	
		1880.0	-28.83	
		1905.0	-27.87	
	16QAM	1855.0	-29.02	
		1880.0	-28.40	
		1905.0	-28.80	
5 MHz	QPSK	1852.5	-29.27	
		1880.0	-29.02	
		1907.5	-28.74	
	16QAM	1852.5	-28.78	
		1880.0	-28.55	
		1907.5	-29.16	
3 MHz	QPSK	1851.5	-29.29	
		1880.0	-28.91	
		1908.5	-28.75	
	16QAM	1851.5	-28.80	
		1880.0	-28.84	
		1908.5	-28.07	
1.4 MHz	QPSK	1850.7	-28.61	
		1880.0	-28.33	
		1909.3	-28.06	
	16QAM	1850.7	-28.46	
		1880.0	-28.20	
		1909.3	-28.91	

LTE 12

Bandwidth	Mode	f [MHz]	Spurious [dBm]	Limit [dBm]
10 MHz	QPSK	704.0	-31.22	-13.00
		707.5	-31.23	
		711.0	-30.62	
	16QAM	704.0	-30.88	
		707.5	-31.80	
		711.0	-31.37	
5 MHz	QPSK	701.5	-31.08	
		707.5	-30.10	
		713.5	-30.82	
	16QAM	701.5	-31.18	
		707.5	-31.28	
		713.5	-31.55	
3 MHz	QPSK	700.5	-31.16	
		707.5	-31.27	
		714.5	-30.80	
	16QAM	700.5	-31.60	
		707.5	-31.56	
		714.5	-31.09	
1.4 MHz	QPSK	699.7	-30.92	
		707.5	-31.82	
		715.3	-31.27	
	16QAM	699.7	-30.58	
		707.5	-31.16	
		715.3	-31.28	

LTE Band 4

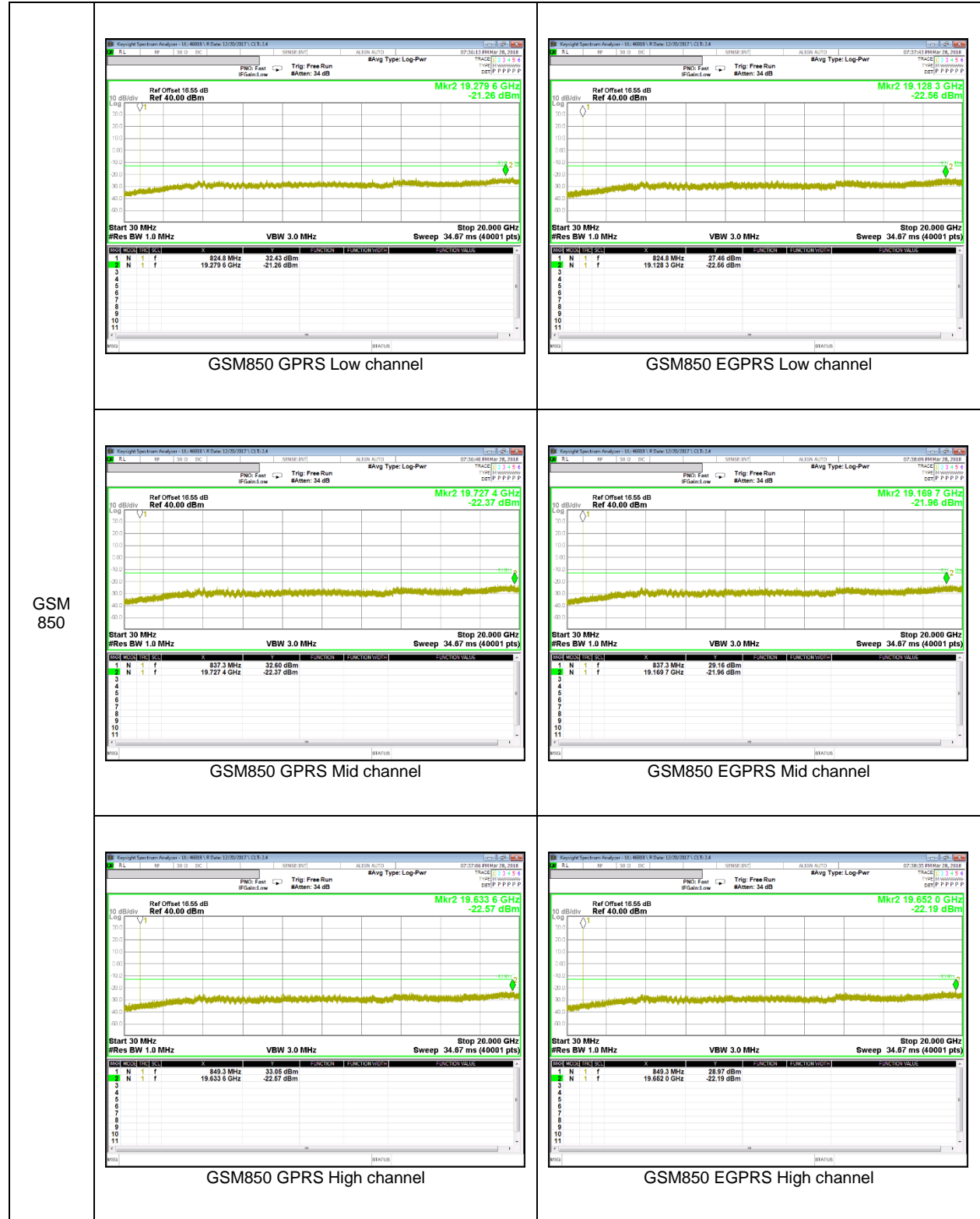
LTE Band 4 (Frequency range: 1710-1755 MHz) is covered by LTE Band 66 (Frequency range: 1710-1780 MHz) due to overlapping frequency range, same maximum tune-up limit and same channel bandwidth.

LTE Band 17

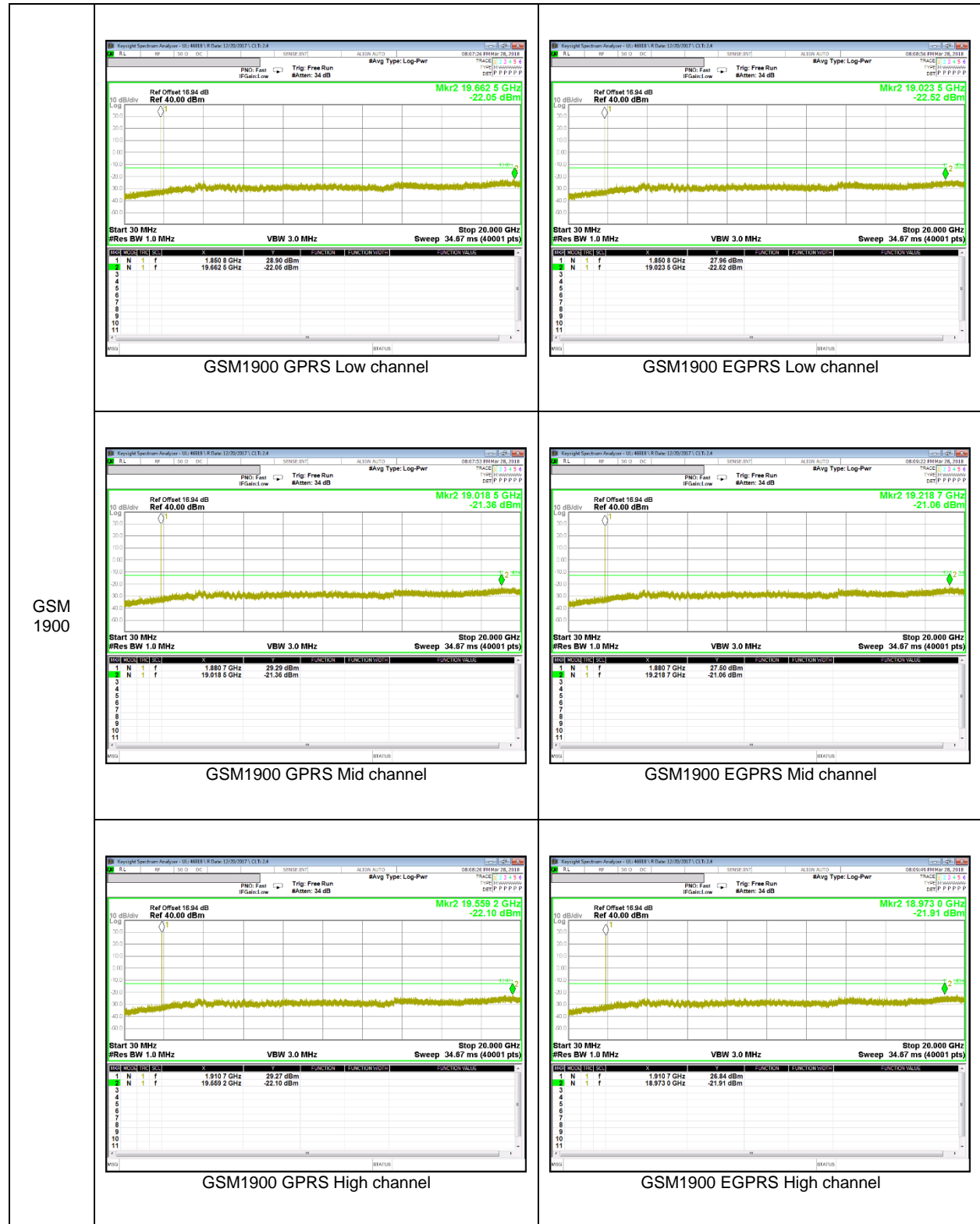
LTE Band 17 (Frequency range: 704-716 MHz) is covered by LTE Band 12 (Frequency range: 699-716 MHz) due to overlapping frequency range, same maximum tune-up limit and same channel bandwidth.

9.3.1. OUT OF BAND EMISSIONS PLOTS

GSM 850

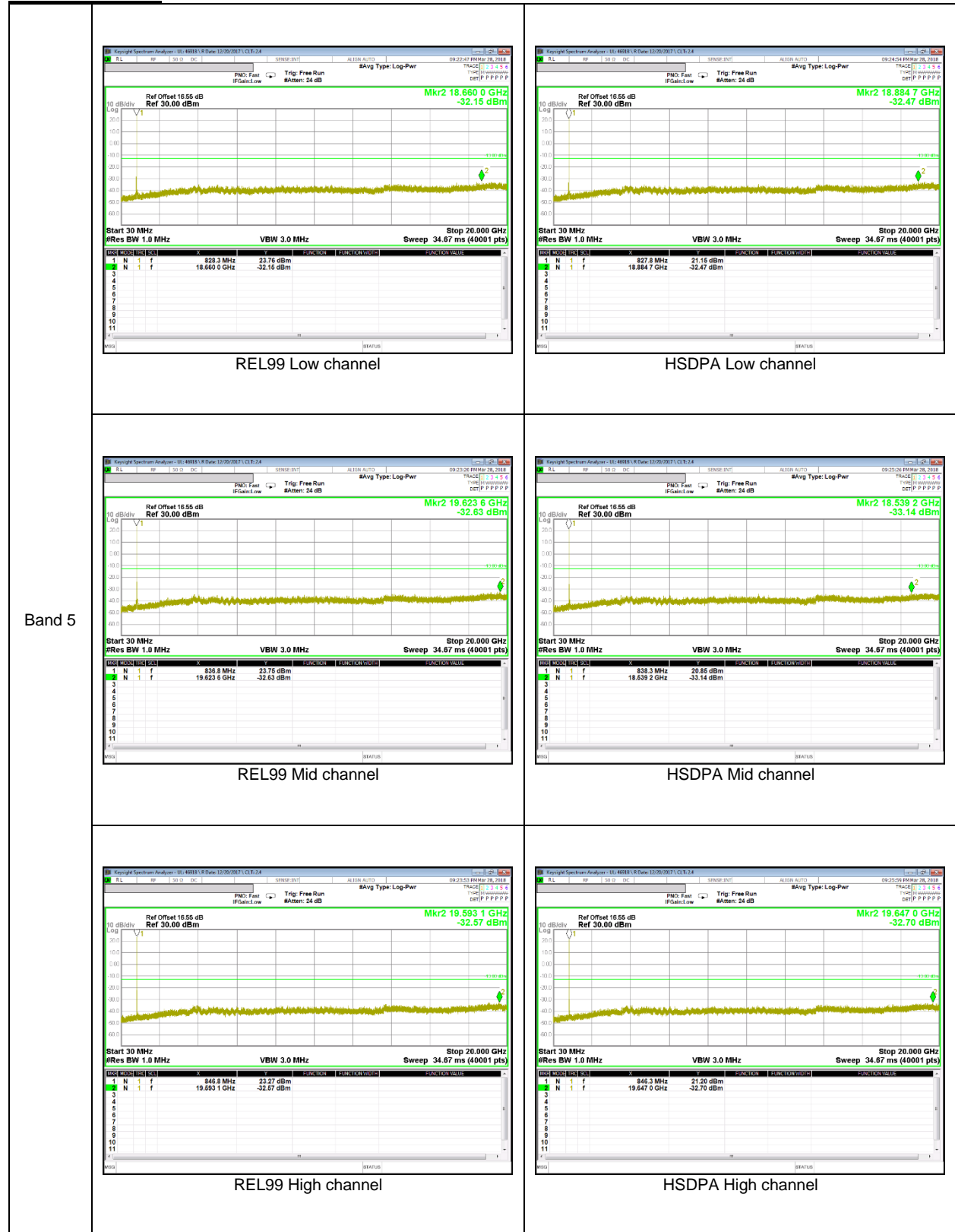


GSM 1900

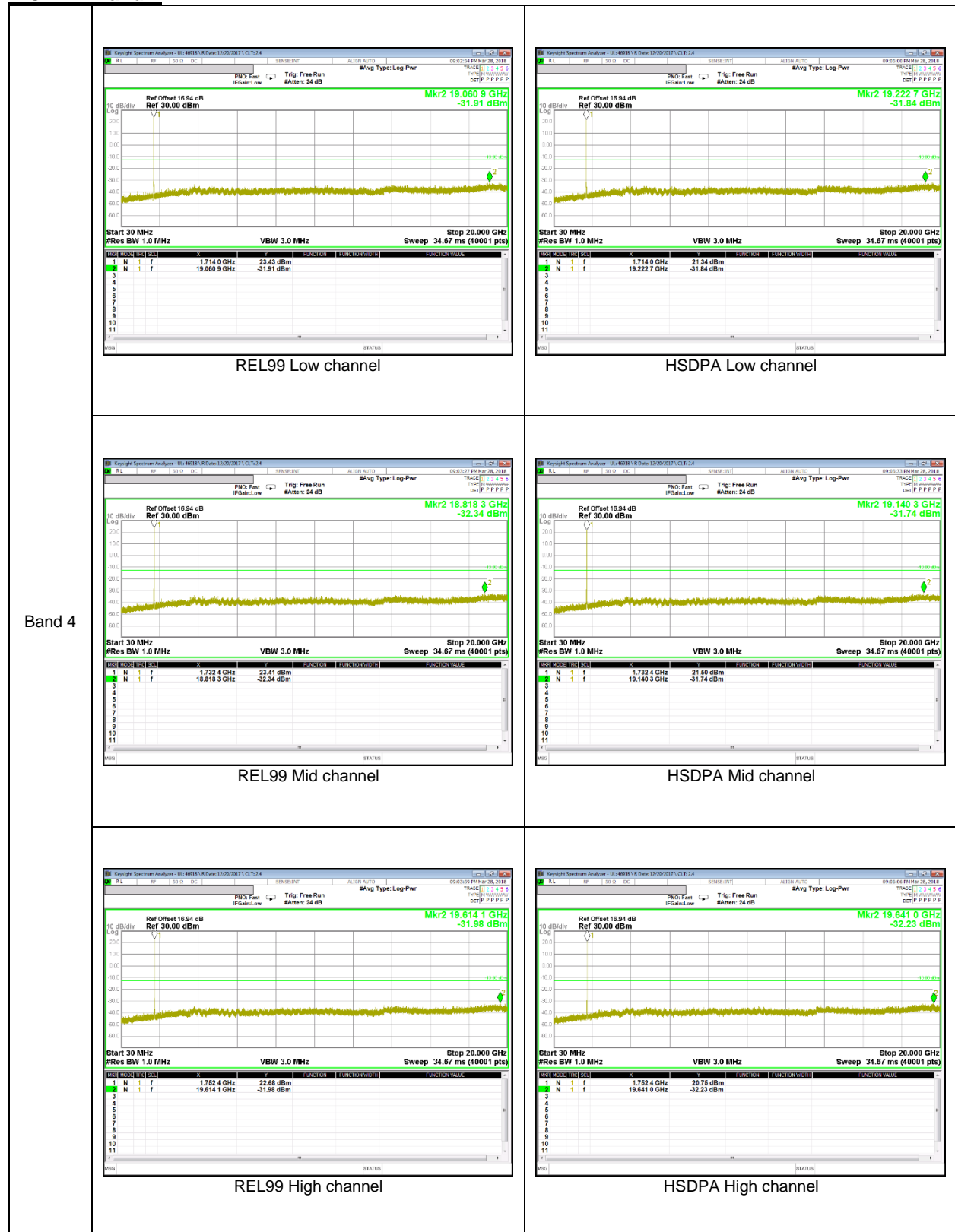


GSM 1900

WCDMA Band 5

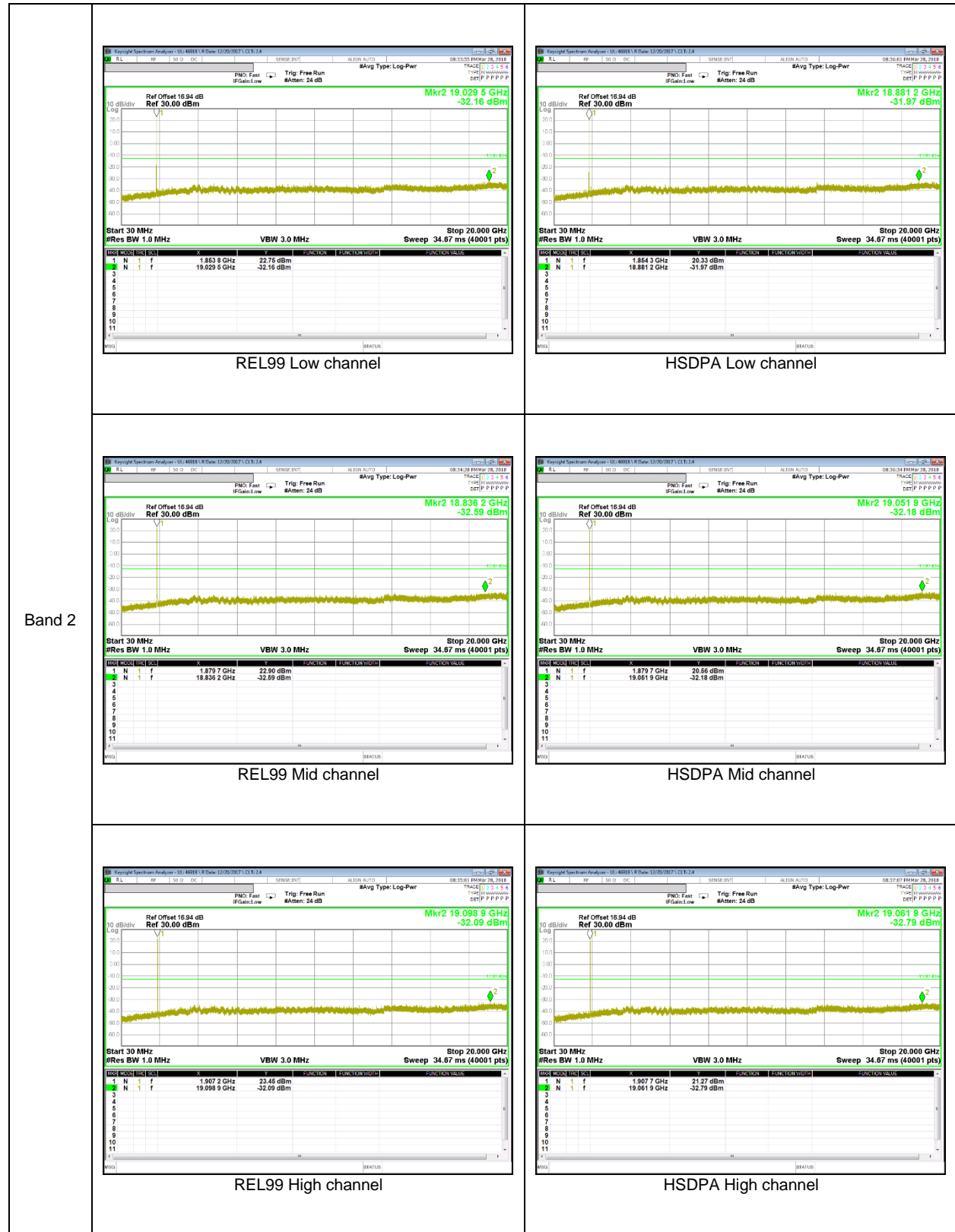


WCDMA Band 4

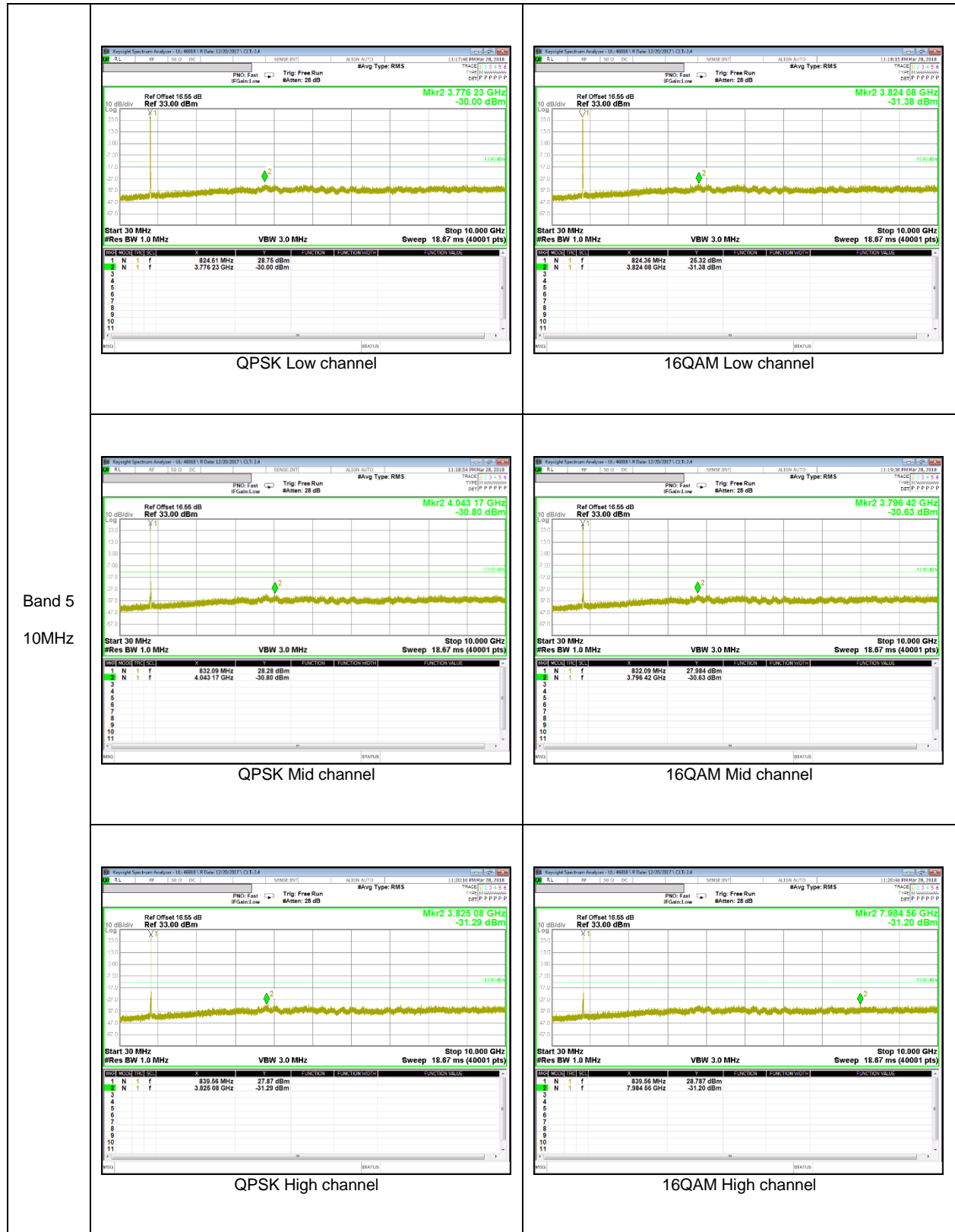


Band 4

WCDMA Band 2



LTE Band 5



Band 5
10MHz