

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.

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.

- c) 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

10.3.1. OUT OF BAND EMISSIONS RESULT

GSM

Band	Mode	f [MHz]	Spurious [dBm]	Limit [dBm]
GSM850	GPRS	824.2	-22.15	-13.00
		836.6	-22.95	
		848.8	-22.74	
GSM1900	GPRS	1850.2	-22.40	-13.00
		1880.0	-22.55	
		1909.8	-22.39	

WCDMA

Band	Mode	f [MHz]	Spurious [dBm]	Limit [dBm]
Band 5	REL99	826.4	-32.09	-13.00
		836.6	-32.17	
		846.6	-32.30	
	HSDPA	826.4	-31.53	
		836.6	-31.26	
		846.6	-31.64	
Band 4	REL99	1712.4	-31.54	-13.00
		1732.6	-32.79	
		1752.6	-31.40	
	HSDPA	1712.4	-32.10	
		1732.6	-32.41	
		1752.6	-30.89	
Band 2	REL99	1852.4	-31.05	-13.00
		1880.0	-30.45	
		1907.6	-31.08	
	HSDPA	1852.4	-30.97	
		1880.0	-31.55	
		1907.6	-31.71	

LTE 5

Bandwidth	Mode	f [MHz]	Spurious [dBm]	Limit [dBm]
10 MHz	QPSK	829.0	-27.33	-13.00
		836.5	-27.32	
		844.0	-27.46	
	16QAM	829.0	-27.25	
		836.5	-27.35	
		844.0	-27.27	
5 MHz	QPSK	826.5	-27.59	-13.00
		836.5	-27.89	
		846.5	-26.73	
	16QAM	826.5	-27.28	
		836.5	-26.24	
		846.5	-27.21	
3 MHz	QPSK	825.5	-27.89	-13.00
		836.5	-28.00	
		847.5	-26.89	
	16QAM	825.5	-26.57	
		836.5	-27.13	
		847.5	-27.09	
1.4 MHz	QPSK	824.7	-26.34	-13.00
		836.5	-27.00	
		848.3	-27.61	
	16QAM	824.7	-27.39	
		836.5	-27.22	
		848.3	-27.46	

LTE 4

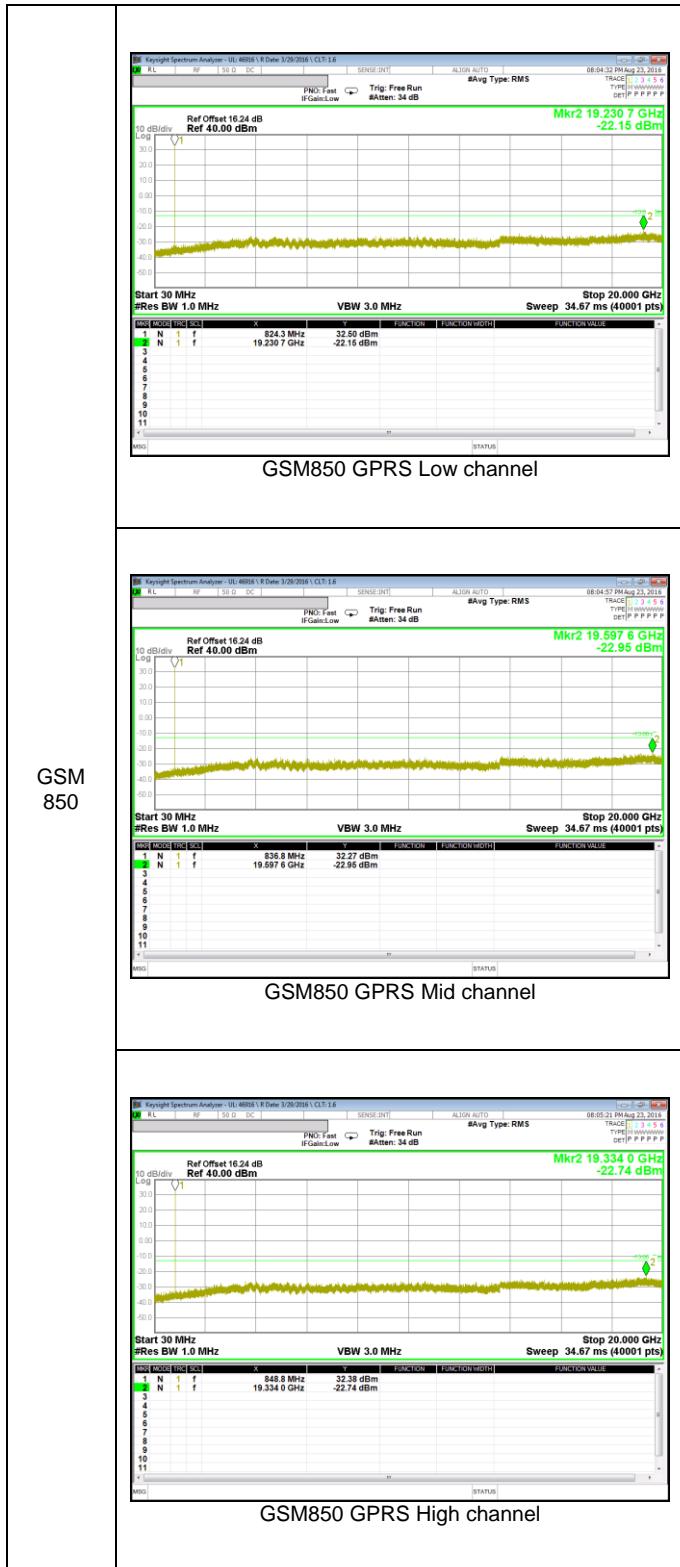
Bandwidth	Mode	f [MHz]	Spurious [dBm]	Limit [dBm]
20 MHz	QPSK	1720.0	-28.14	-13.00
		1732.5	-27.96	
		1745.0	-28.72	
	16QAM	1720.0	-28.97	
		1732.5	-28.65	
		1745.0	-28.51	
15 MHz	QPSK	1717.5	-29.07	-13.00
		1732.5	-28.66	
		1747.5	-28.87	
	16QAM	1717.5	-28.94	
		1732.5	-29.01	
		1747.5	-28.78	
10 MHz	QPSK	1715.0	-28.58	-13.00
		1732.5	-28.40	
		1750.0	-28.65	
	16QAM	1715.0	-28.91	
		1732.5	-28.61	
		1750.0	-28.47	
5 MHz	QPSK	1712.5	-28.74	-13.00
		1732.5	-28.69	
		1752.5	-28.76	
	16QAM	1712.5	-28.47	
		1732.5	-28.20	
		1752.5	-28.51	
3 MHz	QPSK	1711.5	-28.56	-13.00
		1732.5	-28.66	
		1753.5	-28.20	
	16QAM	1711.5	-28.11	
		1732.5	-28.98	
		1753.5	-29.00	
1.4 MHz	QPSK	1710.7	-28.96	-13.00
		1732.5	-28.78	
		1754.3	-28.59	
	16QAM	1710.7	-28.18	
		1732.5	-29.58	
		1754.3	-28.68	

LTE 2

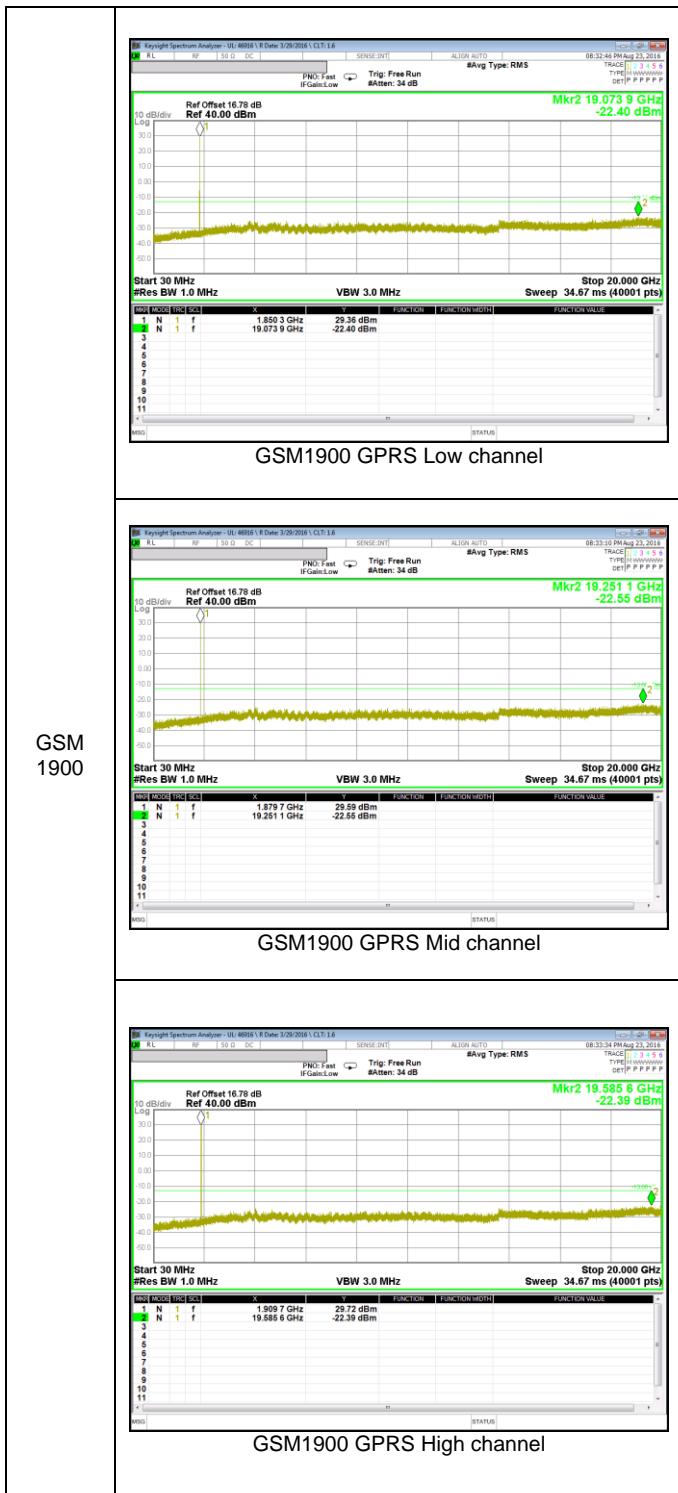
Bandwidth	Mode	f [MHz]	Spurious [dBm]	Limit [dBm]
20 MHz	QPSK	1860.0	-28.58	-13.00
		1880.0	-29.36	
		1900.0	-28.19	
	16QAM	1860.0	-28.49	
		1880.0	-28.76	
		1900.0	-29.09	
15 MHz	QPSK	1857.5	-28.42	-13.00
		1880.0	-28.51	
		1902.5	-29.08	
	16QAM	1857.5	-28.52	
		1880.0	-29.39	
		1902.5	-29.03	
10 MHz	QPSK	1855.0	-28.74	-13.00
		1880.0	-28.73	
		1905.0	-28.87	
	16QAM	1855.0	-28.59	
		1880.0	-28.55	
		1905.0	-28.81	
5 MHz	QPSK	1852.5	-28.89	-13.00
		1880.0	-29.21	
		1907.5	-28.03	
	16QAM	1852.5	-28.73	
		1880.0	-28.14	
		1907.5	-28.87	
3 MHz	QPSK	1851.5	-28.75	-13.00
		1880.0	-28.43	
		1908.5	-28.55	
	16QAM	1851.5	-27.79	
		1880.0	-28.70	
		1908.5	-29.62	
1.4 MHz	QPSK	1850.7	-28.82	-13.00
		1880.0	-29.21	
		1909.3	-28.31	
	16QAM	1850.7	-28.99	
		1880.0	-28.88	
		1909.3	-28.92	

10.3.2. OUT OF BAND EMISSIONS PLOTS

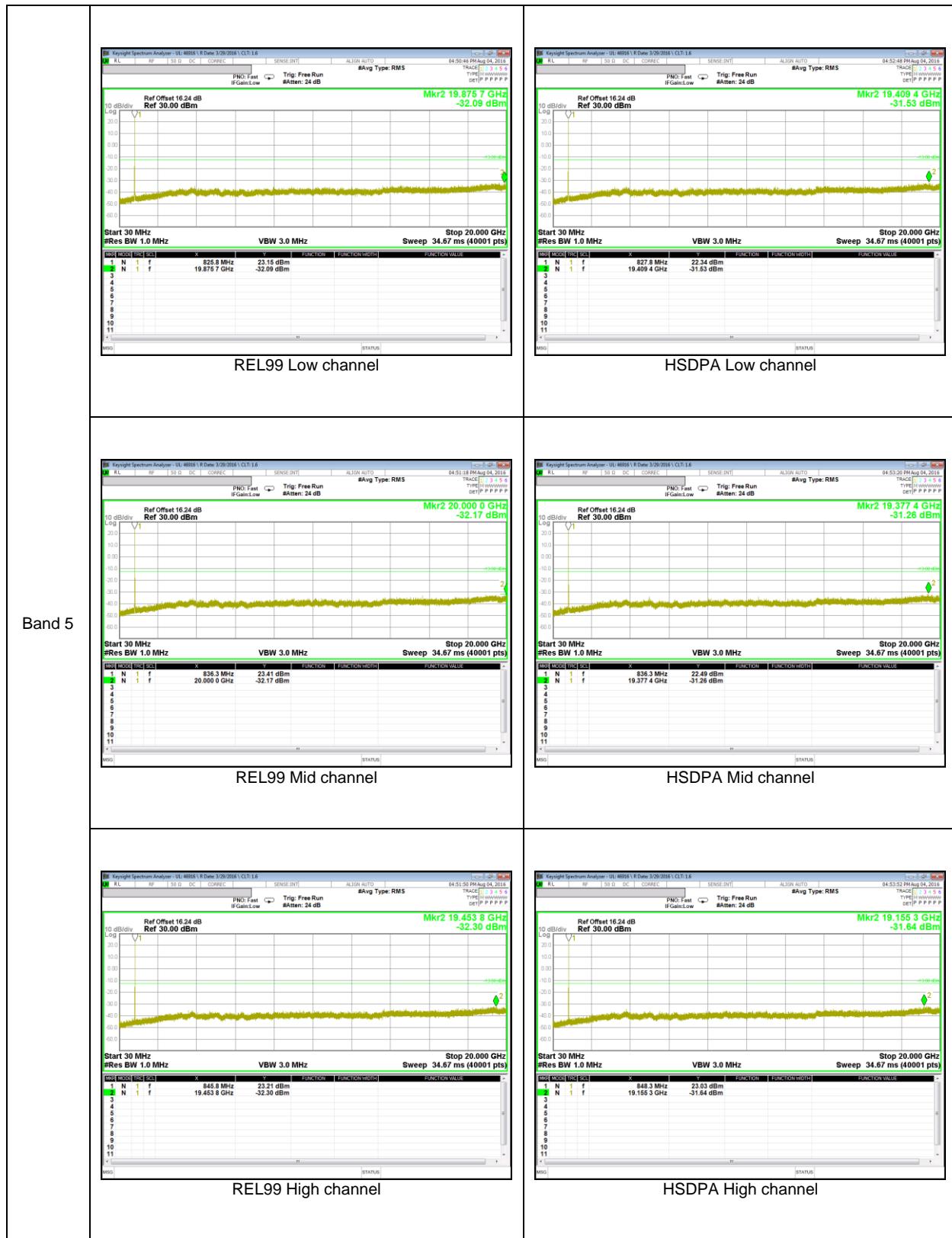
GSM 850



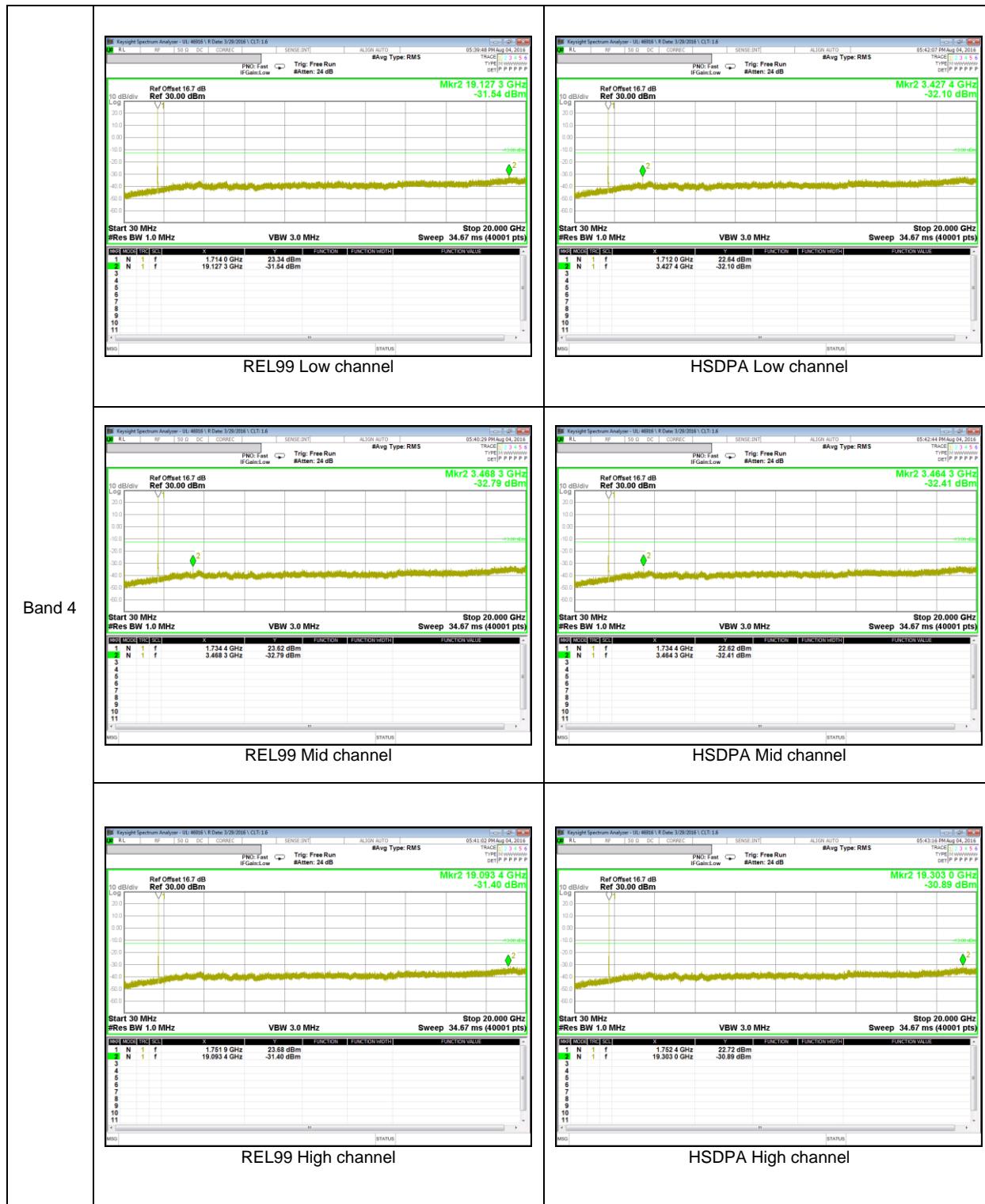
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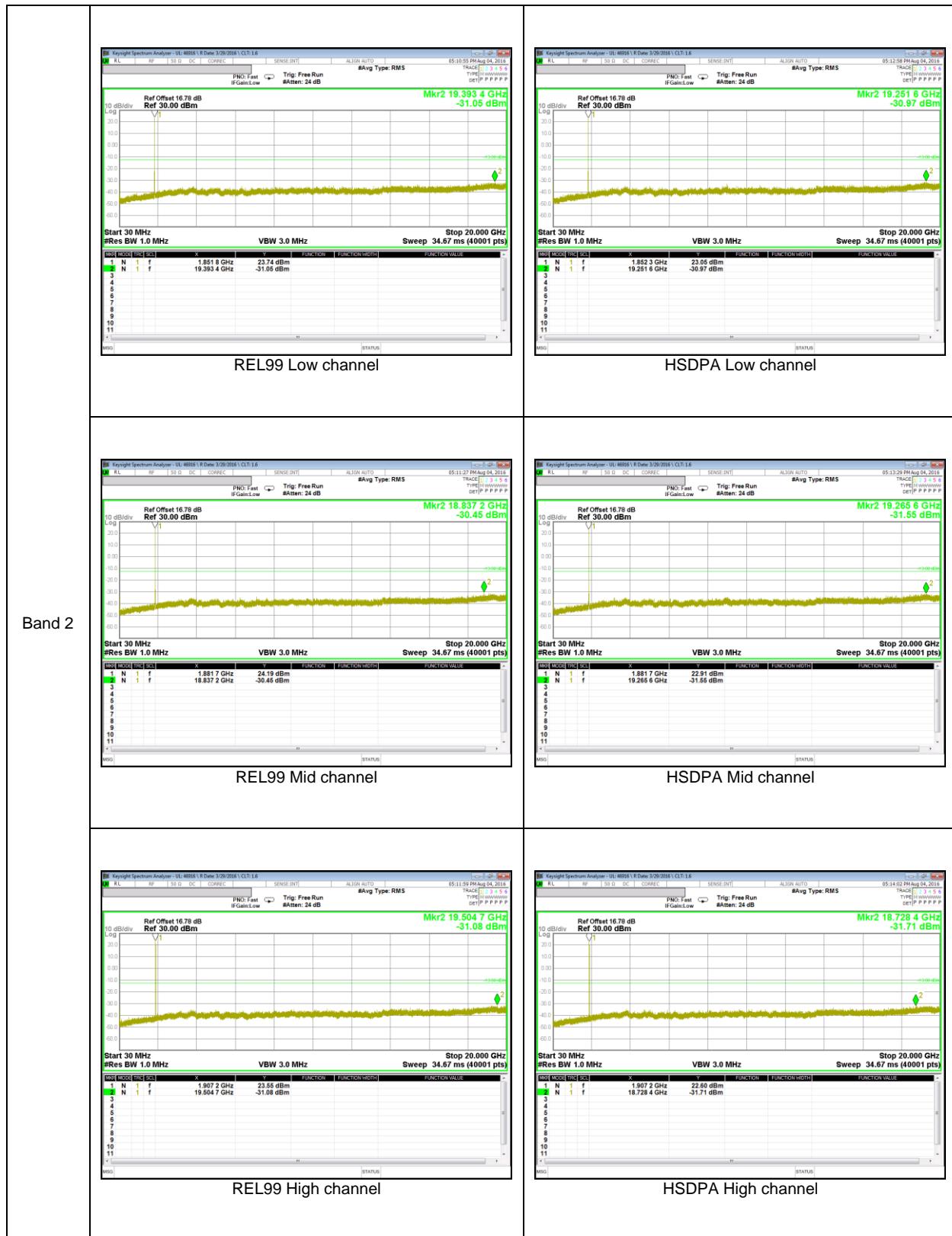
WCDMA B5



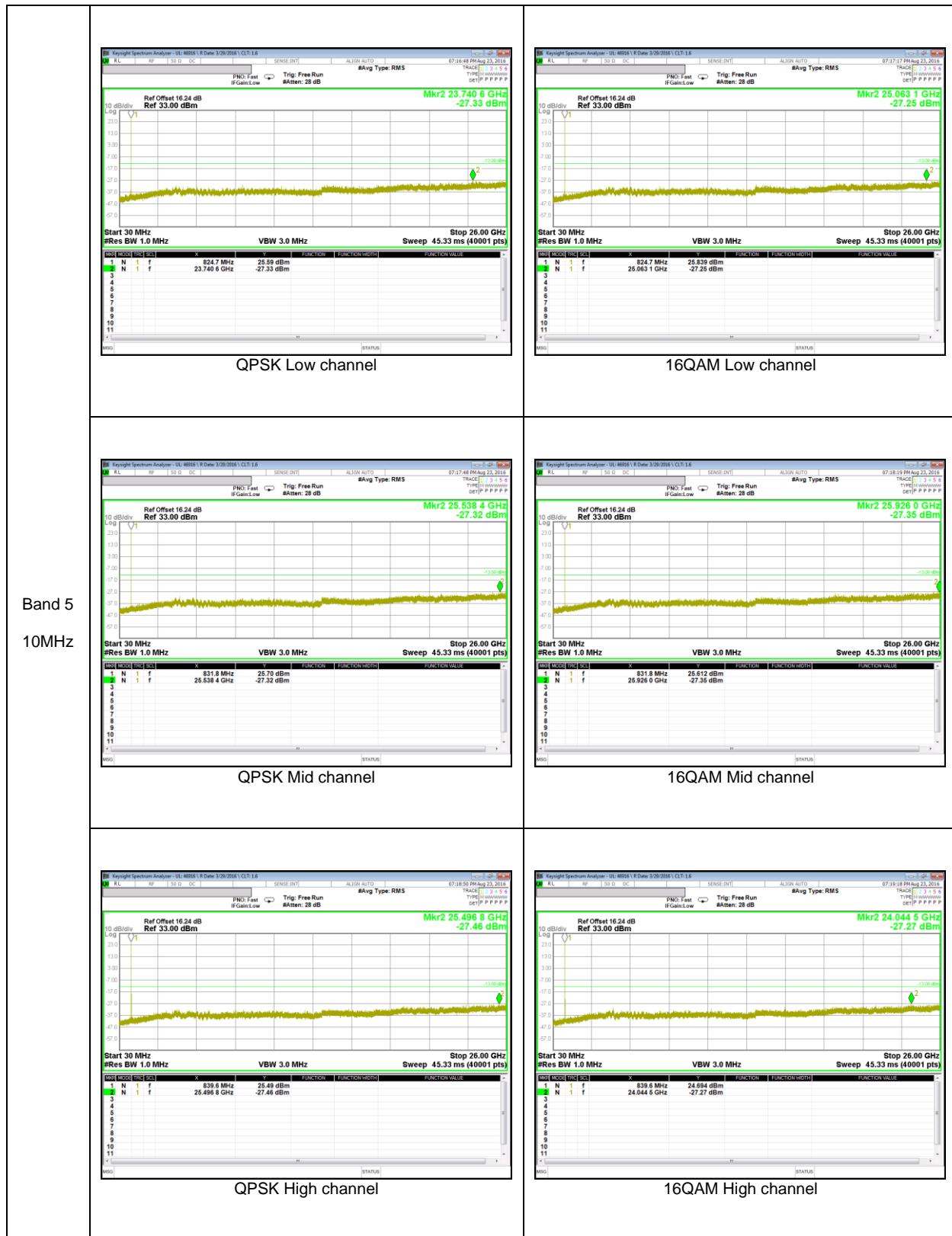
WCDMA B4

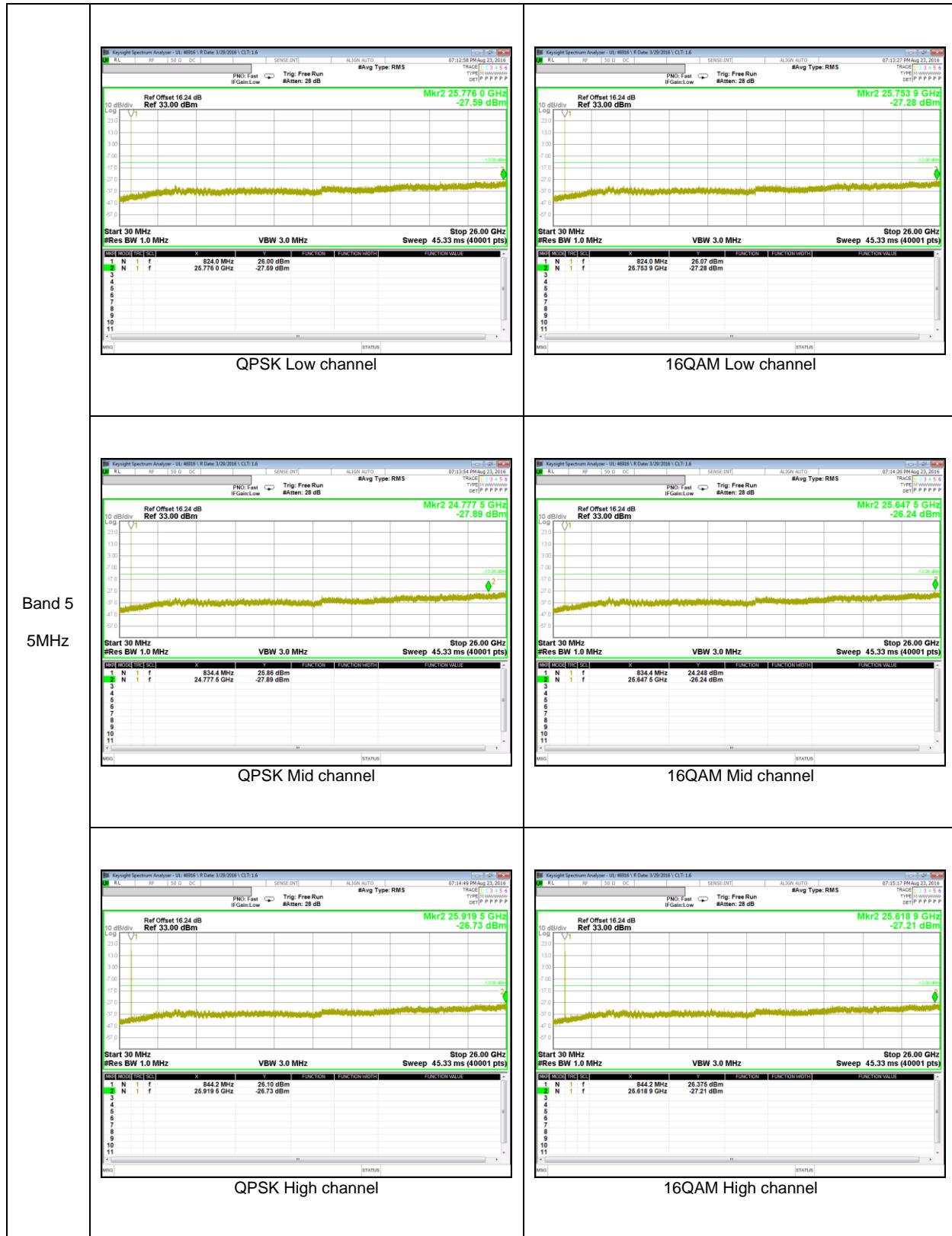


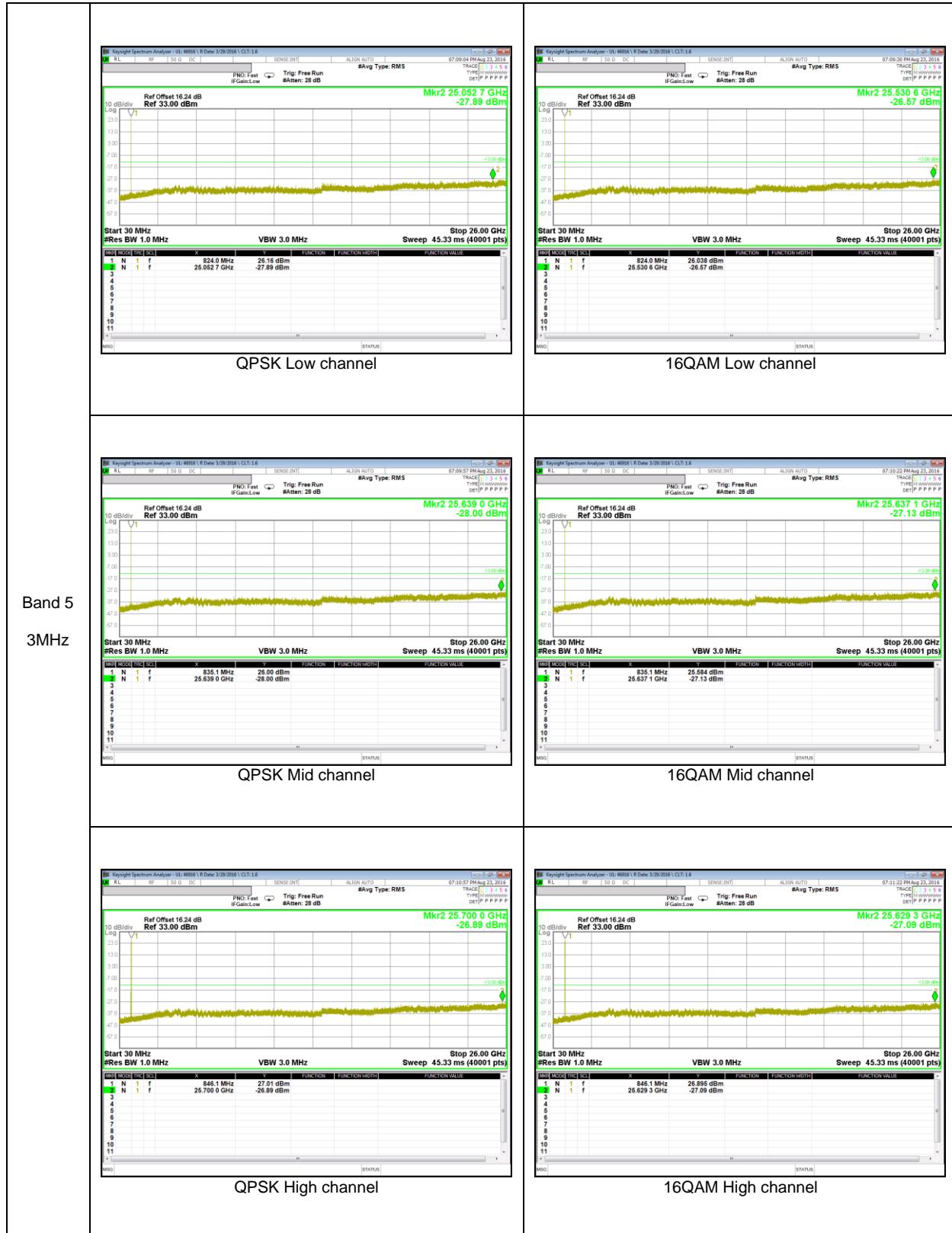
WCDMA B2

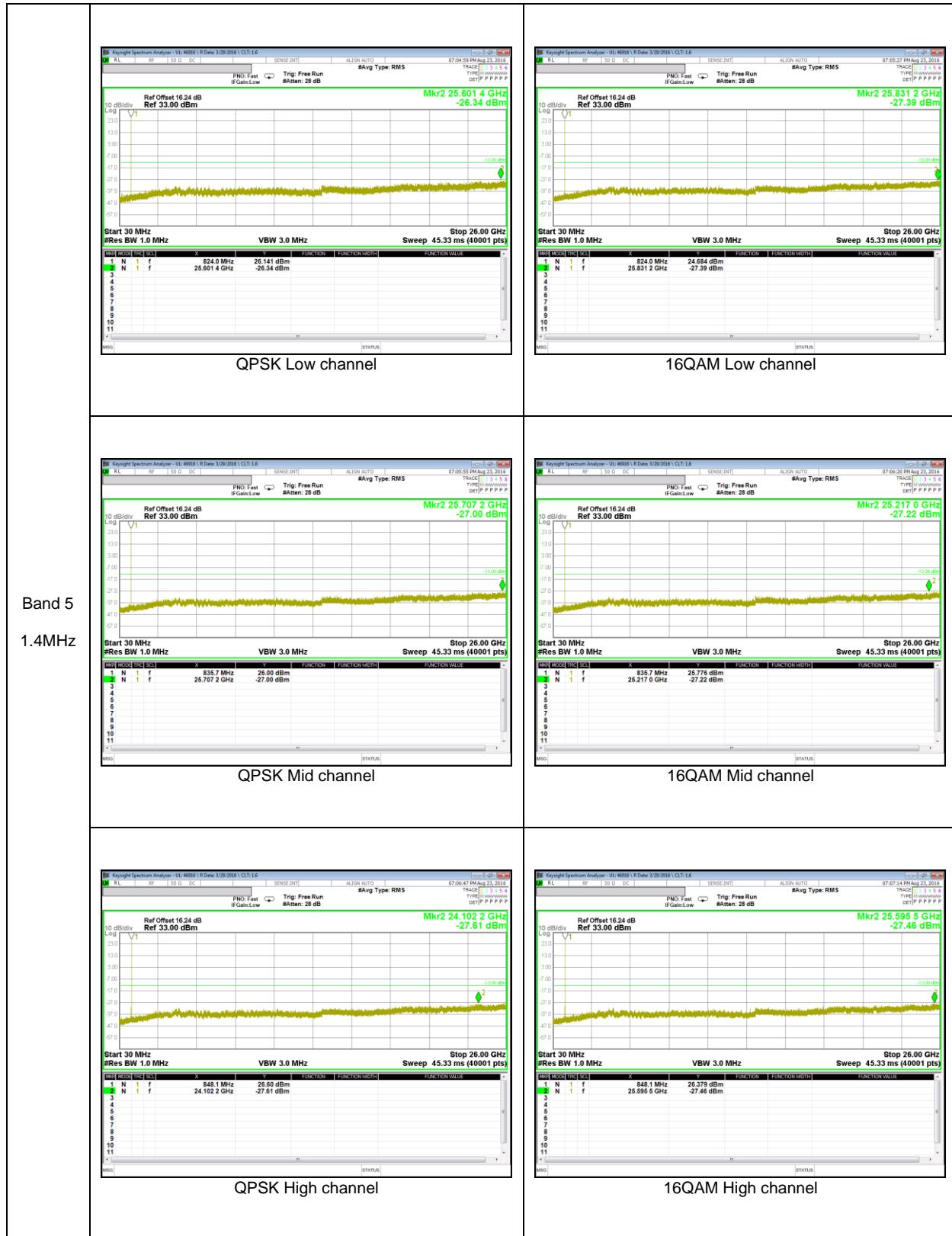


LTE Band 5









LTE Band 4

