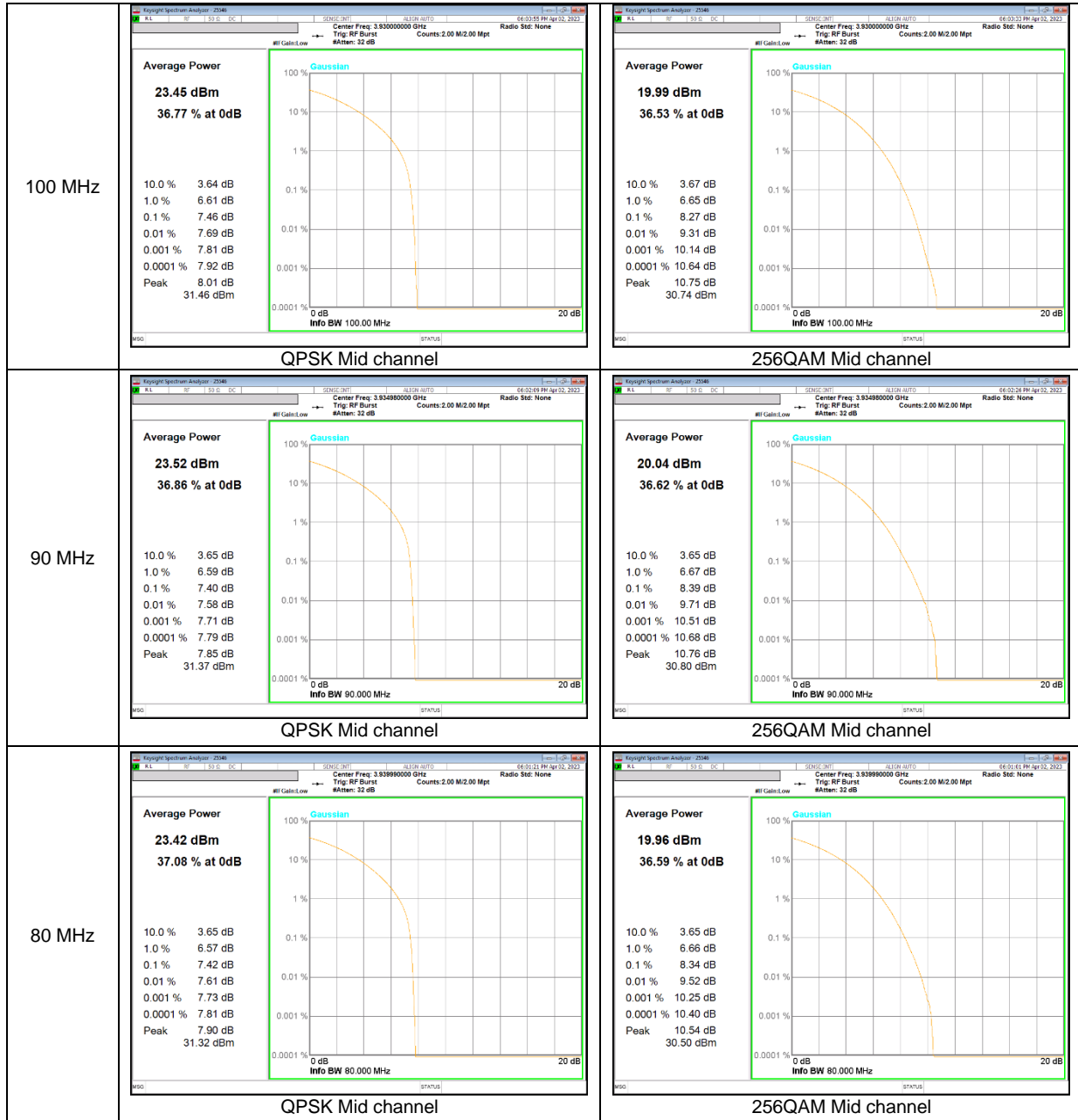
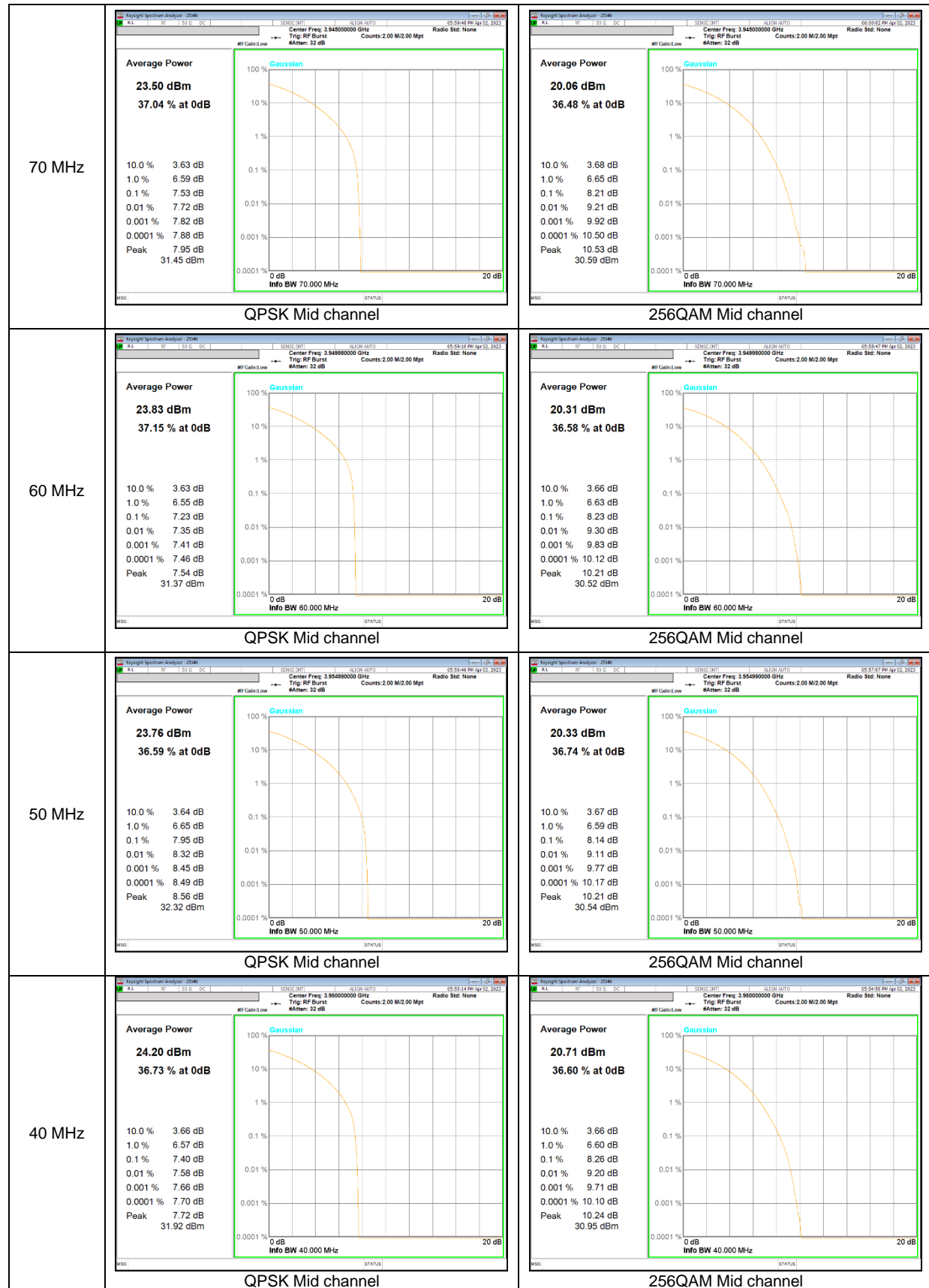
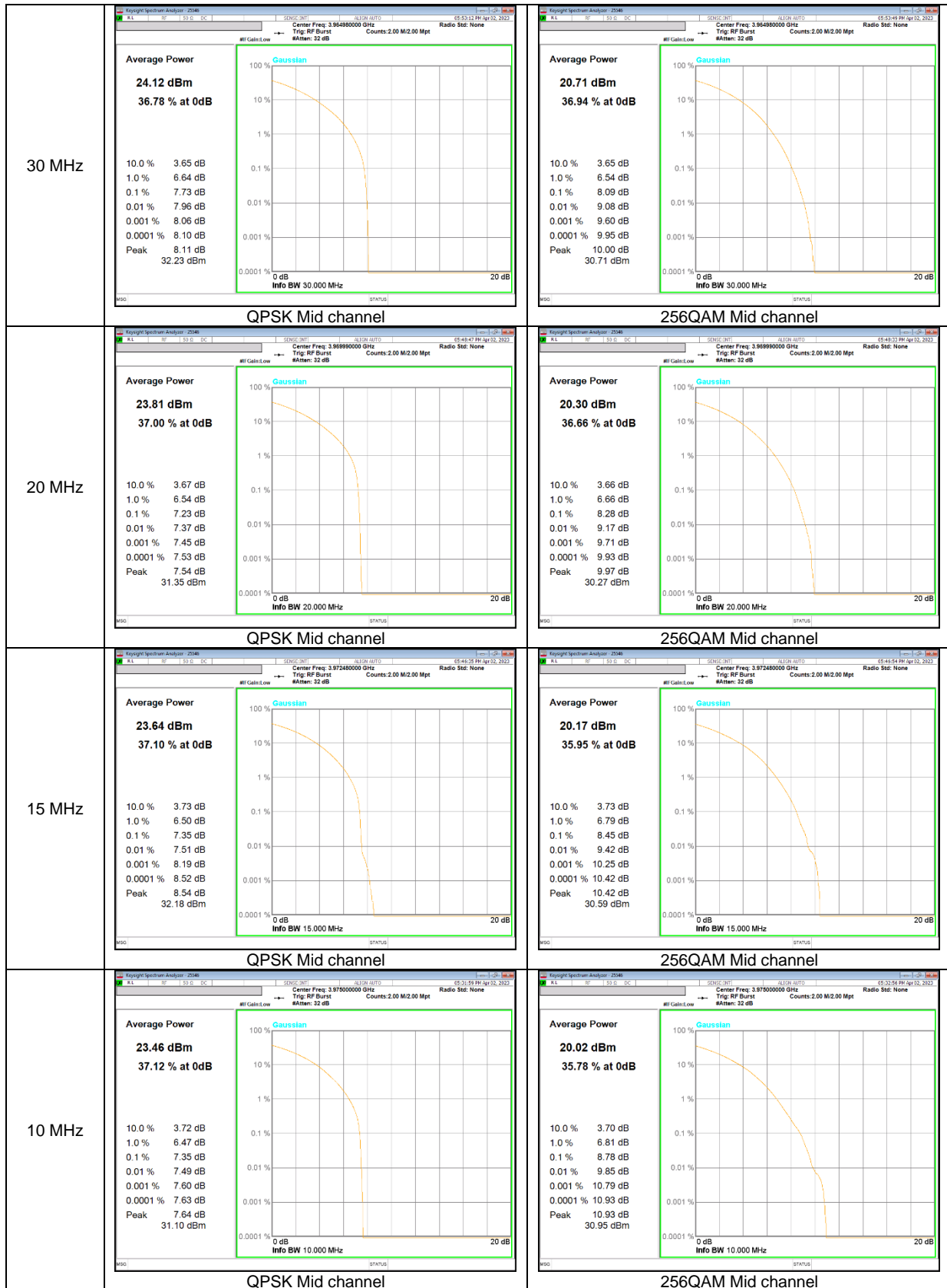


NR Band n77(PC2) CP-OFDM (3700-3980 MHz)







8.3. OCCUPIED BANDWIDTH

RULE PART(S)

FCC: §2.1049

LIMITS

For reporting purposes only

TEST PROCEDURE

The transmitter output was connected to a calibrated coaxial cable and coupler, the other end of which was connected to a spectrum analyzer. The occupied bandwidth was measured with the spectrum analyzer at middle channel in each band. The -26dB bandwidth was also measured and recorded.

(KDB 971168 D01 Power Meas License Digital Systems v03r01)

RESULTS

See the following pages.

- WCDMA

Band	Modulation	f [MHz]	99% BW (MHz)	-26dB BW (MHz)
B4	Rel.99	1732.6	4.155	4.70
	HSDPA		4.151	4.69

- LTE Band 7 ANT B

Band	BW	Modulation	f [MHz]	99% BW (MHz)	-26dB BW (MHz)
LTE B7	20M	QPSK	2535.0	17.929	19.44
		16QAM		17.930	19.44
	15M	QPSK		13.436	14.79
		16QAM		13.433	14.82
	10M	QPSK		8.969	9.96
		16QAM		8.981	9.85
	5M	QPSK		4.498	5.08
		16QAM		4.498	5.03

- LTE Band 7 Upper ANT F

Band	BW	Modulation	f [MHz]	99% BW (MHz)	-26dB BW (MHz)
LTE B7	20M	QPSK	2535.0	17.935	19.75
		16QAM		17.927	19.34
	15M	QPSK		13.475	14.71
		16QAM		13.452	14.81
	10M	QPSK		8.977	10.10
		16QAM		8.974	9.89
	5M	QPSK		4.491	5.07
		16QAM		4.493	5.06

- LTE Band 12

Band	BW	Modulation	f [MHz]	99% BW (MHz)	-26dB BW (MHz)
LTE B12	10M	QPSK	707.5	8.957	9.85
		16QAM		8.937	9.92
	5M	QPSK		4.485	5.08
		16QAM		4.495	5.14
	3M	QPSK		2.701	3.03
		16QAM		2.701	3.08
	1.4M	QPSK		1.092	1.34
		16QAM		1.091	1.33

- LTE Band 13

Band	BW	Modulation	f [MHz]	99% BW (MHz)	-26dB BW (MHz)
LTE B13	10M	QPSK	782.0	8.936	9.73
		16QAM		8.915	9.77
	5M	QPSK		4.510	5.04
		16QAM		4.503	5.09

- LTE Band 30 ANT B

Band	BW	Modulation	f [MHz]	99% BW (MHz)	-26dB BW (MHz)
LTE B30	10M	QPSK	2310.0	8.969	9.97
		16QAM		8.956	9.93
	5M	QPSK		4.491	5.18
		16QAM		4.497	5.14

- LTE Band 30 Upper ANT F

Band	BW	Modulation	f [MHz]	99% BW (MHz)	-26dB BW (MHz)
LTE B30	10M	QPSK	2310.0	8.977	9.82
		16QAM		8.988	10.00
	5M	QPSK		4.495	5.11
		16QAM		4.489	5.04

- LTE Band 41(PC2) ANT B

Band	BW	Modulation	f [MHz]	99% BW (MHz)	-26dB BW (MHz)
LTE B41(PC2)	20M	QPSK	2593.0	17.890	19.39
		16QAM		17.910	19.41
	15M	QPSK		13.451	14.65
		16QAM		13.408	14.55
	10M	QPSK		8.967	9.97
		16QAM		8.975	9.82
	5M	QPSK		4.482	5.04
		16QAM		4.485	5.03

- LTE Band 41(PC2) Upper ANT F

Band	BW	Modulation	f [MHz]	99% BW (MHz)	-26dB BW (MHz)
LTE B41(PC2)	20M	QPSK	2593.0	17.877	19.58
		16QAM		17.909	19.37
	15M	QPSK		13.453	14.54
		16QAM		13.406	14.80
	10M	QPSK		8.962	9.77
		16QAM		8.958	9.82
	5M	QPSK		4.481	5.03
		16QAM		4.499	5.15

- LTE Band 41C(UL CA) ANT B

Band	BW	Modulation	f [MHz]	99% BW (MHz)	-26dB BW (MHz)
41C	20+20	QPSK	2593.0	36.557	39.17
		16QAM		36.612	39.07

- LTE Band 41C(UL CA) Upper ANT F

Band	BW	Modulation	f [MHz]	99% BW (MHz)	-26dB BW (MHz)
41C	20+20	QPSK	2593.0	36.627	38.62
		16QAM		36.664	38.70

- LTE Band 66 ANT B

Band	BW	Modulation	f [MHz]	99% BW (MHz)	-26dB BW (MHz)
LTE B66	20M	QPSK	1745.0	17.915	19.47
		16QAM		17.934	19.59
	15M	QPSK		13.452	14.78
		16QAM		13.444	14.74
	10M	QPSK		8.968	9.86
		16QAM		8.965	9.82
	5M	QPSK		4.498	5.14
		16QAM		4.510	5.14
	3M	QPSK		2.699	3.01
		16QAM		2.705	3.03
	1.4M	QPSK		1.089	1.32
		16QAM		1.093	1.36

- LTE Band 66 Upper ANT F

Band	BW	Modulation	f [MHz]	99% BW (MHz)	-26dB BW (MHz)
LTE B66	20M	QPSK	1745.0	17.911	19.60
		16QAM		17.928	19.54
	15M	QPSK		13.426	14.70
		16QAM		13.444	14.80
	10M	QPSK		8.972	9.91
		16QAM		8.974	9.99
	5M	QPSK		4.497	5.10
		16QAM		4.497	5.07
	3M	QPSK		2.697	3.03
		16QAM		2.695	3.01
	1.4M	QPSK		1.090	1.36
		16QAM		1.091	1.39

- LTE Band 66B(UL CA) ANT B

Band	BW	Modulation	f [MHz]	99% BW (MHz)	-26dB BW (MHz)
66B	20M	QPSK	1745.0	18.728	19.61
		16QAM		18.745	19.62
	15M	QPSK		13.830	14.45
		16QAM		13.787	14.65
	10M	QPSK		9.138	9.76
		16QAM		9.195	9.83

- LTE Band 66B(UL CA) Upper ANT F

Band	BW	Modulation	f [MHz]	99% BW (MHz)	-26dB BW (MHz)
66B	20M	QPSK	1745.0	18.244	19.78
		16QAM		18.306	19.68
	15M	QPSK		13.418	14.36
		16QAM		13.341	14.54
	10M	QPSK		9.027	9.74
		16QAM		8.985	9.74

- LTE Band 66C(UL CA) ANT B

Band	BW	Modulation	f [MHz]	99% BW (MHz)	-26dB BW (MHz)
66C	40M	QPSK	1745.0	37.326	39.38
		16QAM		37.359	39.36

- LTE Band 66C(UL CA) Upper ANT F

Band	BW	Modulation	f [MHz]	99% BW (MHz)	-26dB BW (MHz)
66C	40M	QPSK	1745.0	36.469	38.98
		16QAM		36.490	39.08

- LTE Band 71

Band	BW	Modulation	f [MHz]	99% BW (MHz)	-26dB BW (MHz)
LTE B71	20M	QPSK	680.5	17.882	19.29
		16QAM		17.859	19.30
	15M	QPSK		13.413	14.67
		16QAM		13.437	14.55
	10M	QPSK		8.956	9.65
		16QAM		8.968	9.79
	5M	QPSK		4.490	5.08
		16QAM		4.502	5.11

- NR Band n7 CP-OFDM ANT B

Band	BW	Modulation	f [MHz]	99% BW (MHz)	-26dB BW (MHz)
NR n7	40M	QPSK	2535.0	38.652	40.18
		16QAM		38.541	40.20
	30M	QPSK		28.574	29.93
		16QAM		28.594	29.96
	25M	QPSK		23.747	24.79
		16QAM		23.773	24.96
	20M	QPSK		18.922	19.92
		16QAM		18.927	19.85
	15M	QPSK		14.110	14.98
		16QAM		14.103	14.97
	10M	QPSK		9.293	9.87
		16QAM		9.296	10.00
	5M	QPSK		4.480	5.23
		16QAM		4.466	4.99

- NR Band n7 CP-OFDM Upper ANT F

Band	BW	Modulation	f [MHz]	99% BW (MHz)	-26dB BW (MHz)
NR n7	40M	QPSK	2535.0	38.600	40.26
		16QAM		38.657	40.17
	30M	QPSK		28.551	29.98
		16QAM		28.584	29.90
	25M	QPSK		23.759	24.85
		16QAM		23.768	24.81
	20M	QPSK		18.922	19.98
		16QAM		18.955	19.91
	15M	QPSK		14.108	15.08
		16QAM		14.104	14.99
	10M	QPSK		9.315	10.25
		16QAM		9.293	10.08
	5M	QPSK		4.477	5.05
		16QAM		4.487	5.21

- NR Band n12 CP-OFDM

Band	BW	Modulation	f [MHz]	99% BW (MHz)	-26dB BW (MHz)
NR n12	15M	QPSK	707.5	14.083	14.93
		16QAM		14.082	15.00
	10M	QPSK		9.289	10.04
		16QAM		9.301	10.05
	5M	QPSK		4.495	5.17
		16QAM		4.502	5.25

- NR Band n30 CP-OFDM ANT B

Band	BW	Modulation	f [MHz]	99% BW (MHz)	-26dB BW (MHz)
NR n30	10M	QPSK	2310.0	9.301	10.10
		16QAM		9.304	10.19
	5M	QPSK	2310.0	4.484	5.20
		16QAM		4.518	5.22

- NR Band n30 CP-OFDM Upper ANT F

Band	BW	Modulation	f [MHz]	99% BW (MHz)	-26dB BW (MHz)
NR n30	10M	QPSK	2310.0	9.327	10.15
		16QAM		9.299	10.03
	5M	QPSK	2310.0	4.483	5.16
		16QAM		4.478	5.13

- NR Band n41(PC2) CP-OFDM ANT B

Band	BW	Modulation	f [MHz]	99% BW (MHz)	-26dB BW (MHz)
NR n41	100M	QPSK	2593.0	97.580	100.4
		16QAM		97.476	100.4
	90M	QPSK		87.562	90.10
		16QAM		87.458	90.07
	80M	QPSK		77.477	79.70
		16QAM		77.454	79.89
	70M	QPSK		67.453	69.63
		16QAM		67.510	69.86
	60M	QPSK		57.868	59.97
		16QAM		57.762	59.74
	50M	QPSK		47.520	48.97
		16QAM		47.496	49.67
	40M	QPSK		37.802	39.46
		16QAM		37.855	40.03
	30M	QPSK		27.814	29.50
		16QAM		27.838	29.30
	20M	QPSK		18.174	19.74
		16QAM		18.214	19.18
	15M	QPSK		13.563	14.72
		16QAM		13.587	14.24
10M	QPSK	8.578	9.68		
	16QAM	8.576	9.41		

- NR Band n41(PC2) CP-OFDM, Upper ANT F

Band	BW	Modulation	f [MHz]	99% BW (MHz)	-26dB BW (MHz)
NR n41	100M	QPSK	2593.0	97.450	101.1
		16QAM		97.722	101.2
	90M	QPSK		89.590	90.89
		16QAM		87.600	90.68
	80M	QPSK		77.646	80.64
		16QAM		77.639	80.44
	70M	QPSK		67.558	70.47
		16QAM		67.660	70.22
	60M	QPSK		57.961	60.60
		16QAM		57.835	60.86
	50M	QPSK		47.467	49.66
		16QAM		47.644	49.88
	40M	QPSK		37.905	39.75
		16QAM		37.976	39.74
	30M	QPSK		27.954	29.25
		16QAM		27.939	29.27
	20M	QPSK		18.247	19.62
		16QAM		18.239	19.69
	15M	QPSK		13.562	15.10
		16QAM		13.568	14.80
10M	QPSK	8.577	10.18		
	16QAM	8.583	9.67		

- NR Band n66 CP-OFDM ANT B

Band	BW	Modulation	f [MHz]	99% BW (MHz)	-26dB BW (MHz)
NR n66	40M	QPSK	1745.0	38.570	40.29
		16QAM		38.656	40.32
	30M	QPSK		28.532	29.85
		16QAM		28.635	29.90
	25M	QPSK		23.756	24.88
		16QAM		23.766	24.96
	20M	QPSK		18.938	19.81
		16QAM		18.975	20.10
	15M	QPSK		14.136	15.04
		16QAM		14.121	14.85
	10M	QPSK		9.281	10.12
		16QAM		9.321	10.07
	5M	QPSK		4.478	5.09
		16QAM		4.477	5.12

- NR Band n66 CP-OFDM Upper ANT F

Band	BW	Modulation	f [MHz]	99% BW (MHz)	-26dB BW (MHz)
NR n66	40M	QPSK	1745.0	38.593	40.28
		16QAM		38.540	40.29
	30M	QPSK		28.623	29.91
		16QAM		28.578	29.91
	25M	QPSK		23.773	24.66
		16QAM		23.774	24.83
	20M	QPSK		18.943	19.80
		16QAM		18.944	19.78
	15M	QPSK		14.110	14.79
		16QAM		14.148	14.79
	10M	QPSK		9.306	9.76
		16QAM		9.290	9.75
	5M	QPSK		4.473	4.84
		16QAM		4.472	4.85

- NR Band n71 CP-OFDM

Band	BW	Modulation	f [MHz]	99% BW (MHz)	-26dB BW (MHz)
NR n71	20M	QPSK	680.5	18.893	19.92
		16QAM		18.921	20.11
	15M	QPSK		14.108	14.96
		16QAM		14.082	14.90
	10M	QPSK		9.294	10.11
		16QAM		9.304	10.10
	5M	QPSK		4.481	5.14
		16QAM		4.472	5.21

- NR Band n77(PC2) CP-OFDM (3450 - 3550 MHz)

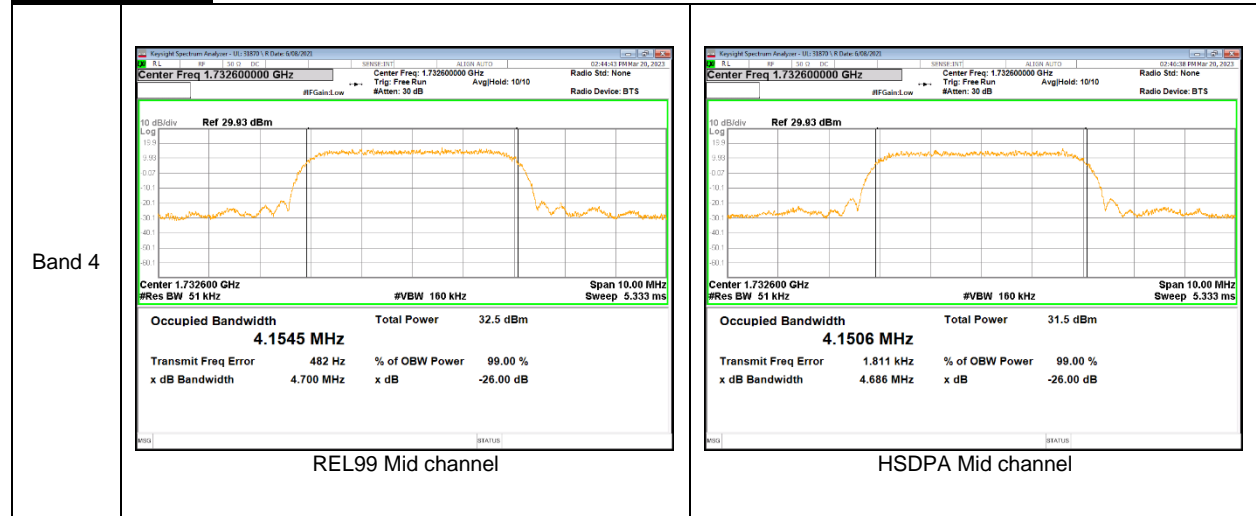
Band	BW	Modulation	f [MHz]	99% BW (MHz)	-26dB BW (MHz)
NR n77(PC2)	100M	QPSK	3500.0	97.753	101.5
		16QAM		97.815	101.4
	90M	QPSK		87.739	91.43
		16QAM		87.953	91.51
	80M	QPSK		77.847	80.73
		16QAM		77.714	80.77
	70M	QPSK		67.698	70.56
		16QAM		67.710	70.32
	60M	QPSK		59.976	60.27
		16QAM		57.976	60.46
	50M	QPSK		47.551	49.52
		16QAM		47.641	49.65
	40M	QPSK		37.814	39.91
		16QAM		37.947	39.51
	30M	QPSK		27.874	29.11
		16QAM		27.880	29.53
	20M	QPSK		18.250	19.61
		16QAM		18.322	19.53
	15M	QPSK		13.576	14.96
		16QAM		13.606	14.84
	10M	QPSK		8.599	9.32
		16QAM		8.561	9.45

- NR Band n77(PC2) CP-OFDM (3700 - 3980 MHz)

Band	BW	Modulation	f [MHz]	99% BW (MHz)	-26dB BW (MHz)
NR n77(PC2)	100M	QPSK	3840.0	97.561	101.5
		16QAM		97.407	101.3
	90M	QPSK		89.795	91.45
		16QAM		87.854	91.41
	80M	QPSK		77.453	80.69
		16QAM		77.629	80.75
	70M	QPSK		67.637	70.56
		16QAM		67.729	70.34
	60M	QPSK		57.925	60.31
		16QAM		57.901	60.28
	50M	QPSK		47.394	49.44
		16QAM		47.542	49.62
	40M	QPSK		37.889	39.42
		16QAM		37.999	39.63
	30M	QPSK		27.820	29.20
		16QAM		27.915	29.51
	20M	QPSK		18.241	19.64
		16QAM		18.229	19.22
	15M	QPSK		13.621	14.63
		16QAM		13.642	14.65
	10M	QPSK		8.581	9.69
		16QAM		8.588	9.61

8.3.1. OCCUPIED BANDWIDTH RESULTS

WCDMA Band 4



LTE Band 7 (ANT B)



LTE Band 7 (ANT F)



LTE Band 12



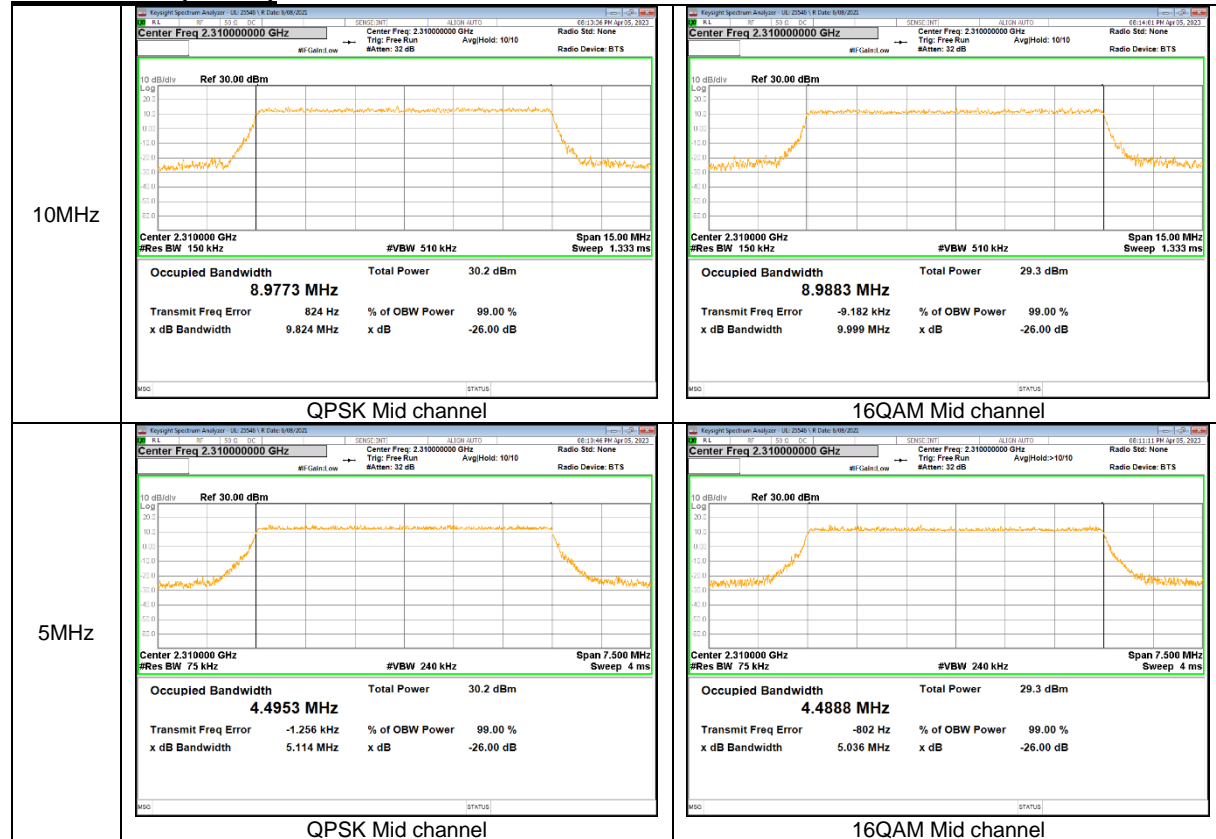
LTE Band 13



LTE Band 30 (ANT B)



LTE Band 30 (ANT F)



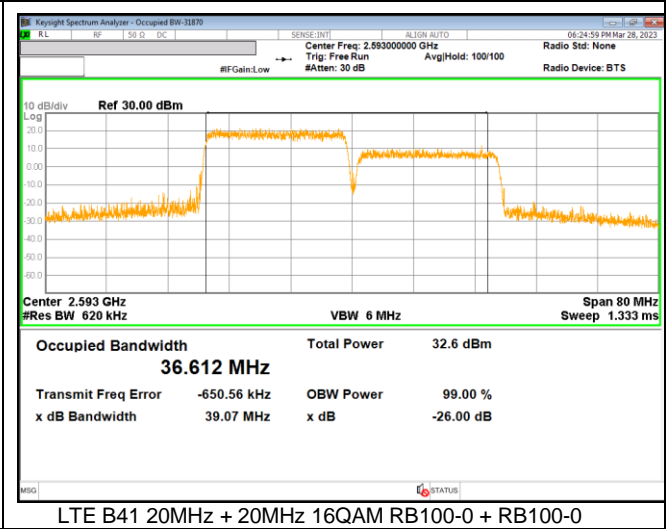
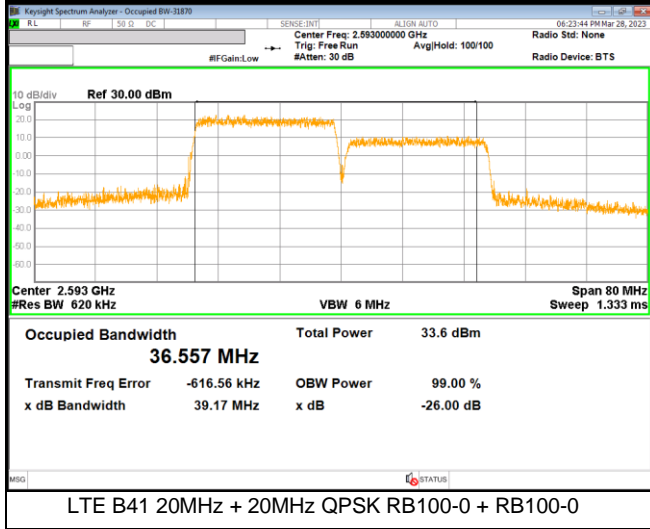
LTE Band 41(PC2) (ANT B)



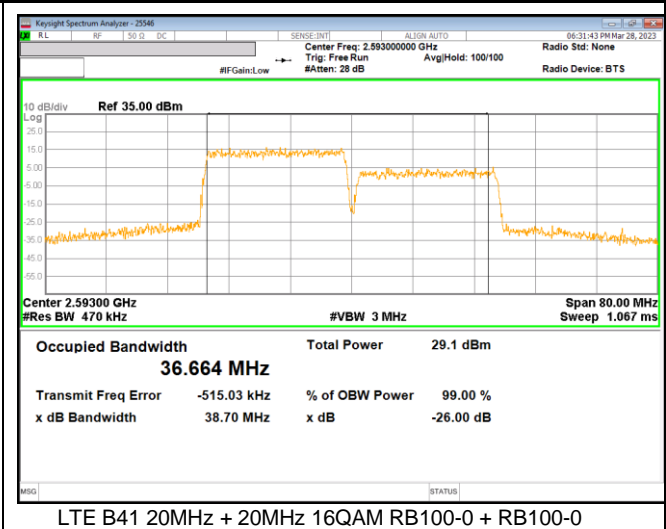
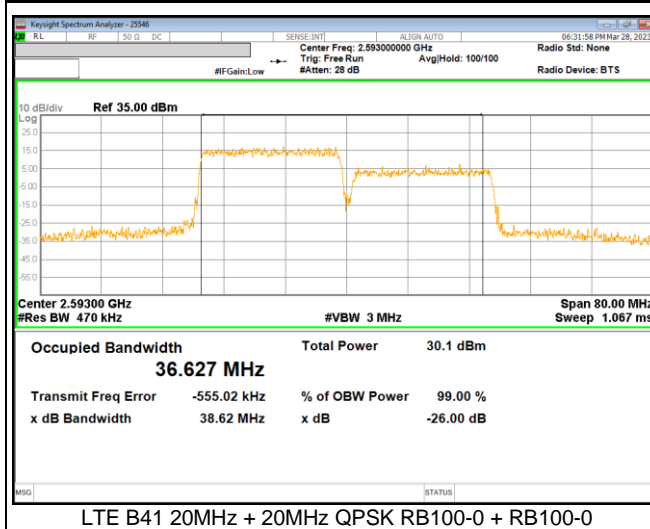
LTE Band 41(PC2) (ANT F)



LTE Band 41C (UL CA) (ANT B)

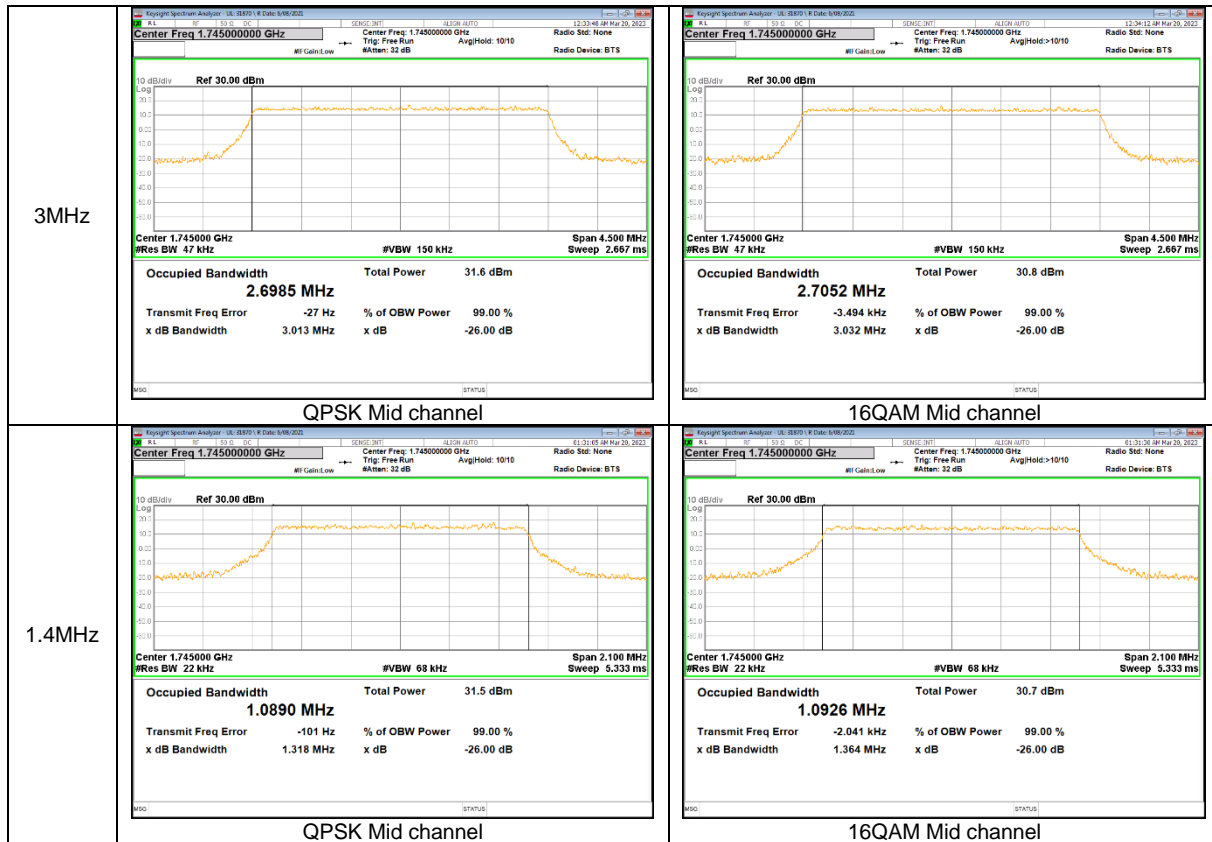


LTE Band 41C (UL CA) (ANT F)



LTE Band 66 (ANT B)





LTE Band 66 (ANT F)



