Software Version: 23.06.1602

FR1 N77 MIMO-ANT3

Frequency Stability

NR Band	SCS (kHz)	Bandwidth (MHz)	Arfcn	Freq (MHz)	Modulation	RB	Deviation (ppm)	Verdict	Environment
77	30	20	656000	3840.0	CP-OFDM QPSK	51@0	0.0064	**PASS**	NV
77	30	20	656000	3840.0	CP-OFDM QPSK	51@0	0.0066	**PASS**	LV
77	30	20	656000	3840.0	CP-OFDM QPSK	51@0	0.0055	**PASS**	HV
77	30	20	656000	3840.0	CP-OFDM QPSK	51@0	0.0054	**PASS**	-30℃
77	30	20	656000	3840.0	CP-OFDM QPSK	51@0	0.0024	**PASS**	-20℃
77	30	20	656000	3840.0	CP-OFDM QPSK	51@0	0.0047	**PASS**	-10℃
77	30	20	656000	3840.0	CP-OFDM QPSK	51@0	0.0047	**PASS**	0℃
77	30	20	656000	3840.0	CP-OFDM QPSK	51@0	0.0057	**PASS**	10℃
77	30	20	656000	3840.0	CP-OFDM QPSK	51@0	0.0064	**PASS**	20℃
77	30	20	656000	3840.0	CP-OFDM QPSK	51@0	0.0028	**PASS**	30℃
77	30	20	656000	3840.0	CP-OFDM QPSK	51@0	0.0049	**PASS**	40℃
77	30	20	656000	3840.0	CP-OFDM QPSK	51@0	0.0060	**PASS**	50℃

Peak to Average Ratio

NR Band	SCS (kHz)	Bandwidth (MHz)	Arfcn	Freq (MHz)	Modulation	RB	Result (dB)	Limit (dB)	Verdict
77	30	20	656000	3840.0	CP-OFDM QPSK	51@0	6.89	13	**PASS**

N77(20M)_CP-OFDM_QPSK_Outer_Full_Mid_CH

Occupied Bandwidth

NR Band	SCS (kHz)	Bandwidth (MHz)	Arfcn	Freq (MHz)	Modulation	RB	OBW (MHz)	26dB BW (MHz)
77	30	10	656000	3840.0	CP-OFDM QPSK	24@0	8.6017	9.615
77	30	10	656000	3840.0	CP-OFDM 16 QAM	24@0	8.5612	9.247
77	30	10	656000	3840.0	CP-OFDM 64 QAM	24@0	8.5827	9.626
77	30	10	656000	3840.0	CP-OFDM 256 QAM	24@0	8.5695	9.506
77	30	15	656000	3840.0	CP-OFDM QPSK	38@0	13.585	14.46
77	30	15	656000	3840.0	CP-OFDM 16 QAM	38@0	13.55	14.59
77	30	15	656000	3840.0	CP-OFDM 64 QAM	38@0	13.59	14.73
77	30	15	656000	3840.0	CP-OFDM 256 QAM	38@0	13.563	14.78
77	30	20	656000	3840.0	CP-OFDM QPSK	51@0	18.156	19.3
77	30	20	656000	3840.0	CP-OFDM 16 QAM	51@0	18.178	18.88
77	30	20	656000	3840.0	CP-OFDM 64 QAM	51@0	18.224	19.31
77	30	20	656000	3840.0	CP-OFDM 256 QAM	51@0	18.177	19.26
77	30	30	656000	3840.0	CP-OFDM QPSK	78@0	27.806	29.17
77	30	30	656000	3840.0	CP-OFDM 16 QAM	78@0	27.871	29.27
77	30	30	656000	3840.0	CP-OFDM 64 QAM	78@0	27.811	29.45
77	30	30	656000	3840.0	CP-OFDM 256 QAM	78@0	27.86	29.63
77	30	40	656000	3840.0	CP-OFDM QPSK	106@0	37.793	39.5
77	30	40	656000	3840.0	CP-OFDM 16 QAM	106@0	37.748	39.53
77	30	40	656000	3840.0	CP-OFDM 64 QAM	106@0	37.735	39.15
77	30	40	656000	3840.0	CP-OFDM 256 QAM	106@0	37.861	39.52
77	30	50	656000	3840.0	CP-OFDM QPSK	133@0	47.419	48.92
77	30	50	656000	3840.0	CP-OFDM 16 QAM	133@0	47.395	49.07
77	30	50	656000	3840.0	CP-OFDM 64 QAM	133@0	47.533	49.55
77	30	50	656000	3840.0	CP-OFDM 256 QAM	133@0	47.542	49.02
77	30	60	656000	3840.0	CP-OFDM QPSK	162@0	57.622	59.86
77	30	60	656000	3840.0	CP-OFDM 16 QAM	162@0	57.81	59.92
77	30	60	656000	3840.0	CP-OFDM 64 QAM	162@0	57.8	59.68
77	30	60	656000	3840.0	CP-OFDM 256 QAM	162@0	57.658	59.86
77	30	70	656000	3840.0	CP-OFDM QPSK	189@0	67.476	69.85
77	30	70	656000	3840.0	CP-OFDM 16 QAM	189@0	67.482	69.83
77	30	70	656000	3840.0	CP-OFDM 64 QAM	189@0	67.401	69.69
77	30	70	656000	3840.0	CP-OFDM 256 QAM	189@0	67.46	69.76
77	30	80	656000	3840.0	CP-OFDM QPSK	217@0	77.332	79.91
77	30	80	656000	3840.0	CP-OFDM 16 QAM	217@0	77.498	79.99
77	30	80	656000	3840.0	CP-OFDM 64 QAM	217@0	77.53	79.94
77	30	80	656000	3840.0	CP-OFDM 256 QAM	217@0	77.573	79.93
77	30	90	656000	3840.0	CP-OFDM QPSK	245@0	87.405	90.28
77	30	90	656000	3840.0	CP-OFDM 16 QAM	245@0	87.291	90.2
77	30	90	656000	3840.0	CP-OFDM 64 QAM	245@0	87.401	90.2

77	30	90	656000	3840.0	CP-OFDM 256 QAM	245@0	87.568	90.44
77	30	100	656000	3840.0	CP-OFDM QPSK	273@0	97.359	100.5
77	30	100	656000	3840.0	CP-OFDM 16 QAM	273@0	97.457	100.8
77	30	100	656000	3840.0	CP-OFDM 64 QAM	273@0	97.612	100.6
77	30	100	656000	3840.0	CP-OFDM 256 QAM	273@0	97.301	100.7

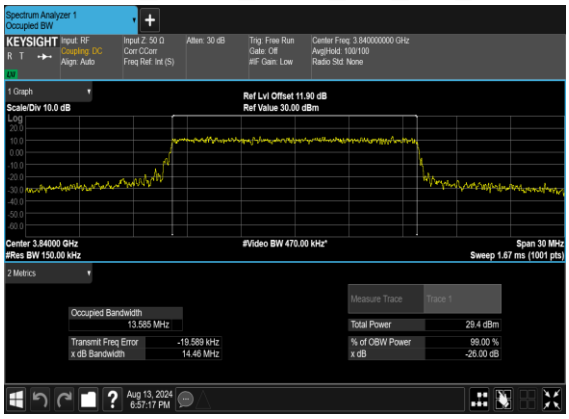
N77(10M)_CP-OFDM_QPSK_Outer_Full_Mid_CH

N77(10M)_CP-OFDM_16 QAM_Outer_Full_Mid_CH

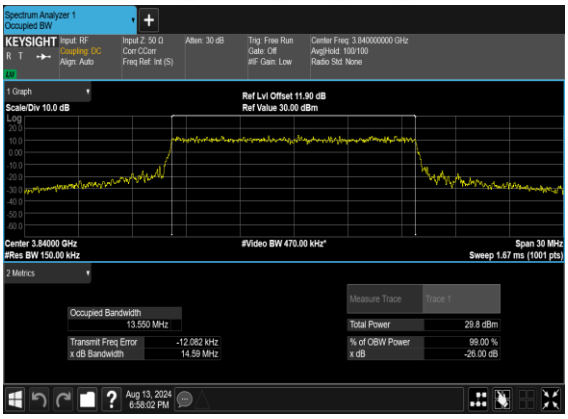
N77(10M)_CP-OFDM_64 QAM_Outer_Full_Mid_CH

N77(10M)_CP-OFDM_256 QAM_Outer_Full_Mid_CH

N77(15M)_CP-OFDM_QPSK_Outer_Full_Mid_CH



N77(15M)_CP-OFDM_16 QAM_Outer_Full_Mid_CH

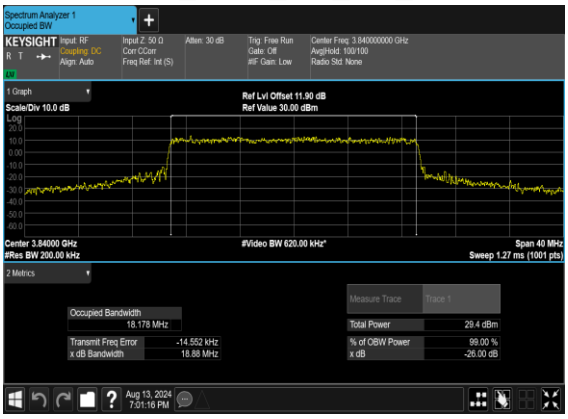


N77(15M)_CP-OFDM_64 QAM_Outer_Full_Mid_CH

N77(15M)_CP-OFDM_256 QAM_Outer_Full_Mid_CH

N77(20M)_CP-OFDM_QPSK_Outer_Full_Mid_CH

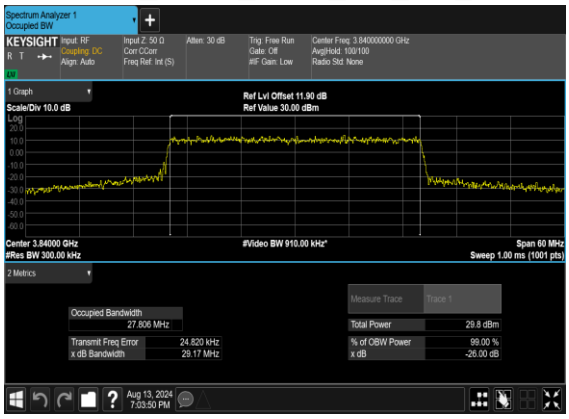
N77(20M)_CP-OFDM_16 QAM_Outer_Full_Mid_CH



N77(20M)_CP-OFDM_64 QAM_Outer_Full_Mid_CH

N77(20M)_CP-OFDM_256 QAM_Outer_Full_Mid_CH

N77(30M)_CP-OFDM_QPSK_Outer_Full_Mid_CH

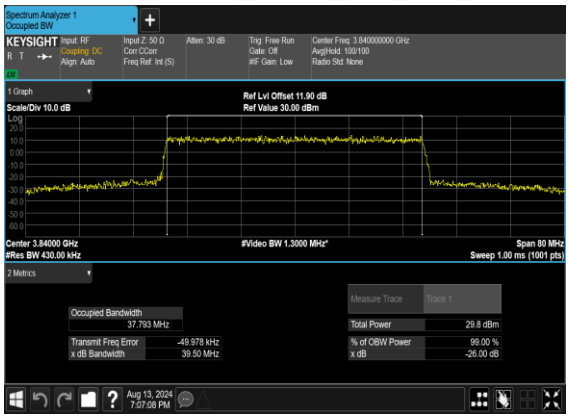


N77(30M)_CP-OFDM_16 QAM_Outer_Full_Mid_CH

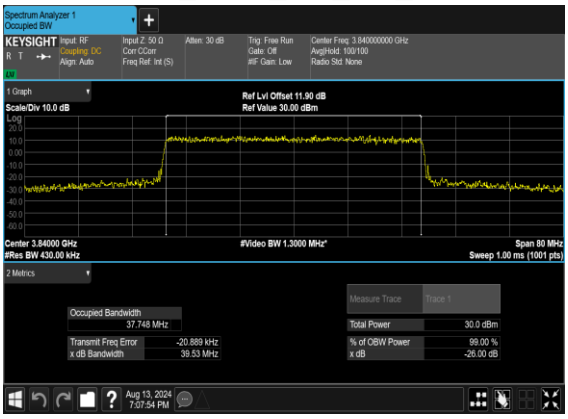
N77(30M)_CP-OFDM_64 QAM_Outer_Full_Mid_CH

N77(30M)_CP-OFDM_256 QAM_Outer_Full_Mid_CH

N77(40M)_CP-OFDM_QPSK_Outer_Full_Mid_CH

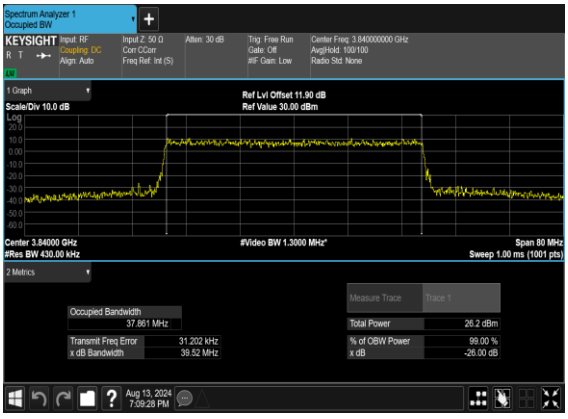


N77(40M)_CP-OFDM_16 QAM_Outer_Full_Mid_CH

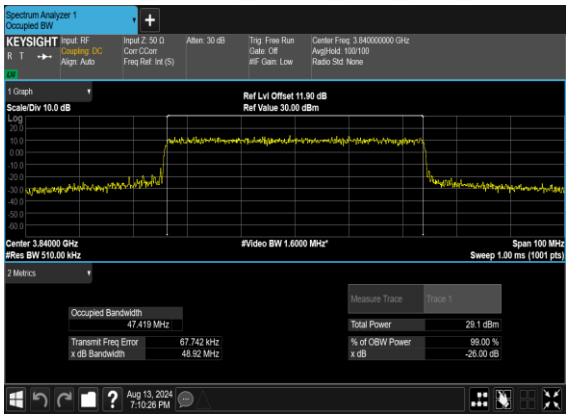


N77(40M)_CP-OFDM_64 QAM_Outer_Full_Mid_CH

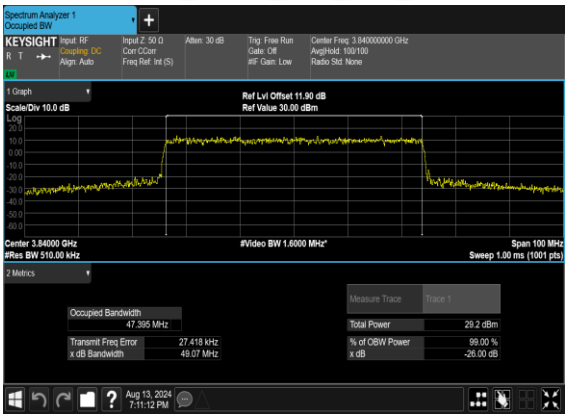
N77(40M)_CP-OFDM_256 QAM_Outer_Full_Mid_CH



N77(50M)_CP-OFDM_QPSK_Outer_Full_Mid_CH



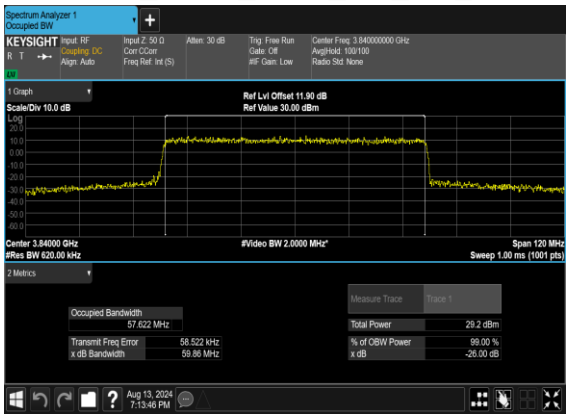
N77(50M)_CP-OFDM_16 QAM_Outer_Full_Mid_CH



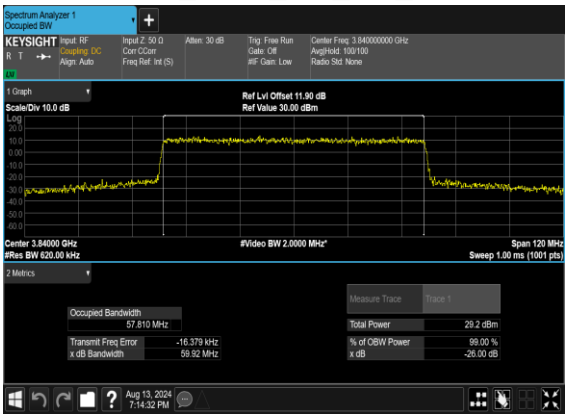
N77(50M)_CP-OFDM_64 QAM_Outer_Full_Mid_CH

N77(50M)_CP-OFDM_256 QAM_Outer_Full_Mid_CH

N77(60M)_CP-OFDM_QPSK_Outer_Full_Mid_CH

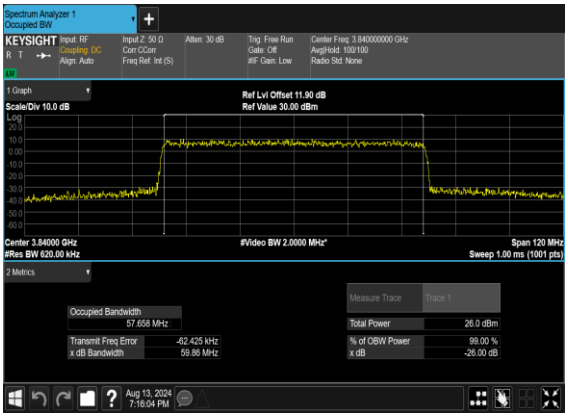


N77(60M)_CP-OFDM_16 QAM_Outer_Full_Mid_CH

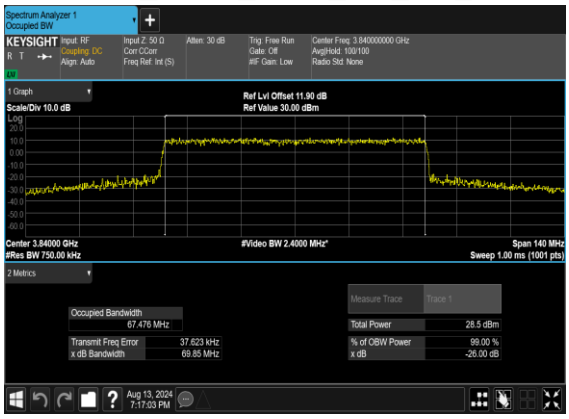


N77(60M)_CP-OFDM_64 QAM_Outer_Full_Mid_CH

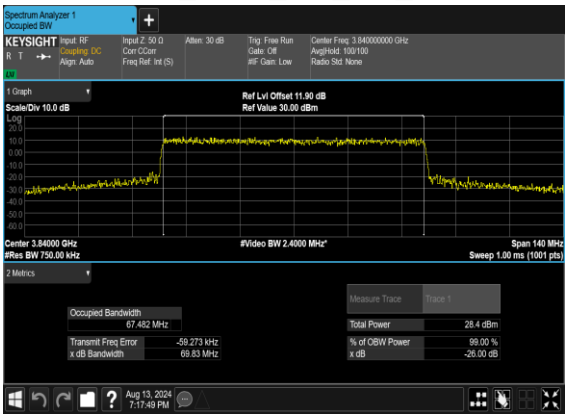
N77(60M)_CP-OFDM_256 QAM_Outer_Full_Mid_CH



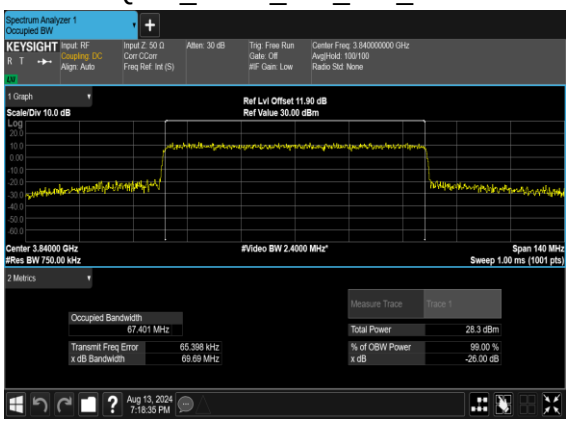
N77(70M)_CP-OFDM_QPSK_Outer_Full_Mid_CH



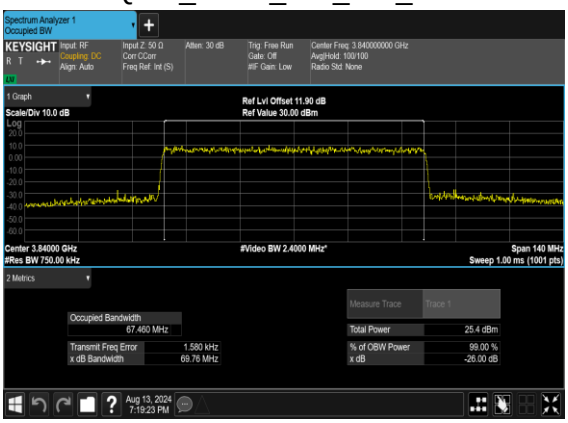
N77(70M)_CP-OFDM_16 QAM_Outer_Full_Mid_CH



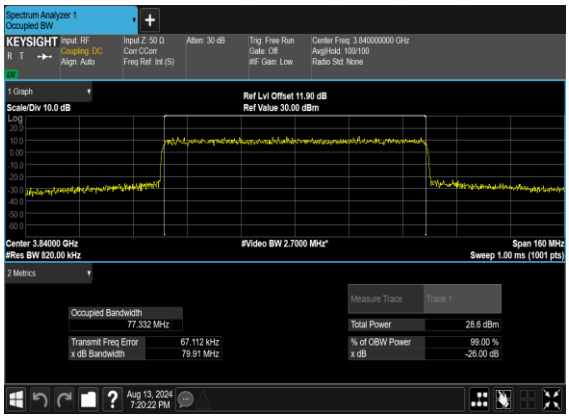
N77(70M)_CP-OFDM_64 QAM_Outer_Full_Mid_CH



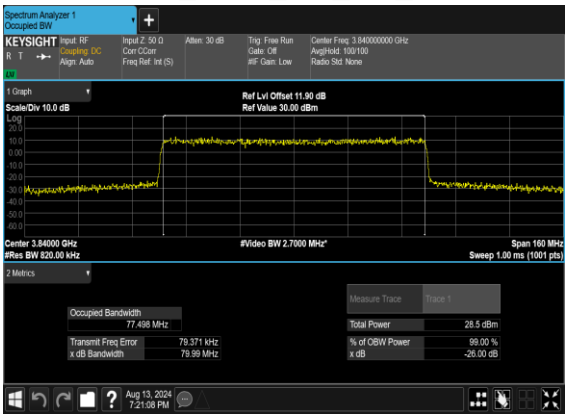
N77(70M)_CP-OFDM_256 QAM_Outer_Full_Mid_CH



N77(80M)_CP-OFDM_QPSK_Outer_Full_Mid_CH



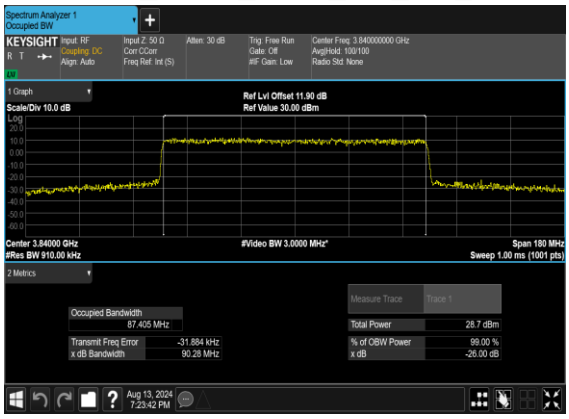
N77(80M)_CP-OFDM_16 QAM_Outer_Full_Mid_CH



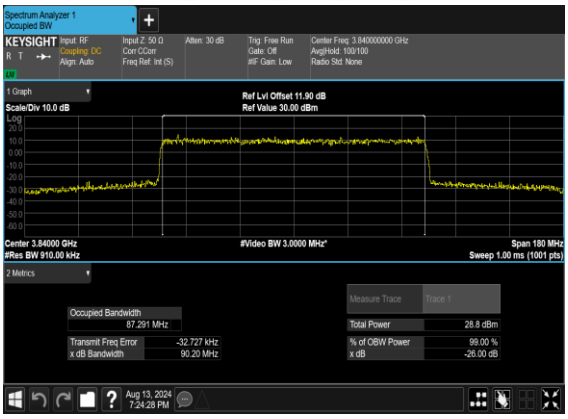
N77(80M)_CP-OFDM_64 QAM_Outer_Full_Mid_CH

N77(80M)_CP-OFDM_256 QAM_Outer_Full_Mid_CH

N77(90M)_CP-OFDM_QPSK_Outer_Full_Mid_CH

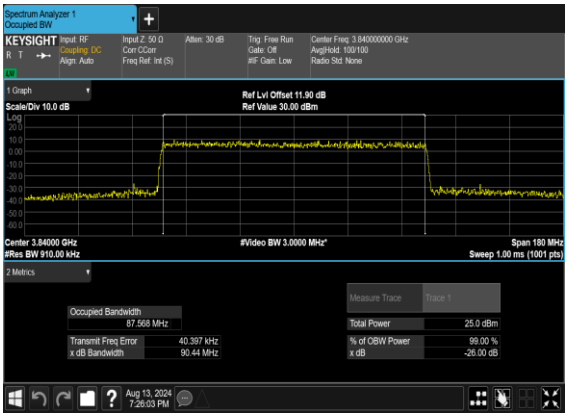


N77(90M)_CP-OFDM_16 QAM_Outer_Full_Mid_CH

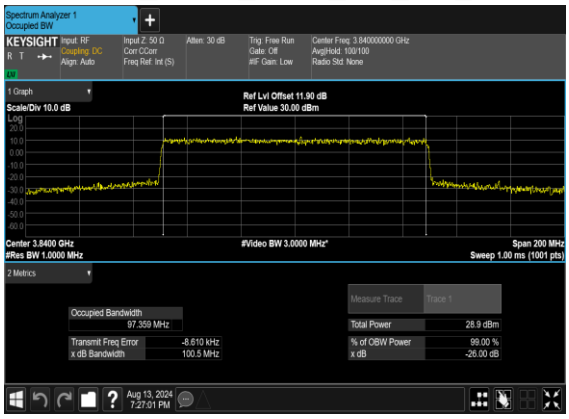


N77(90M)_CP-OFDM_64 QAM_Outer_Full_Mid_CH

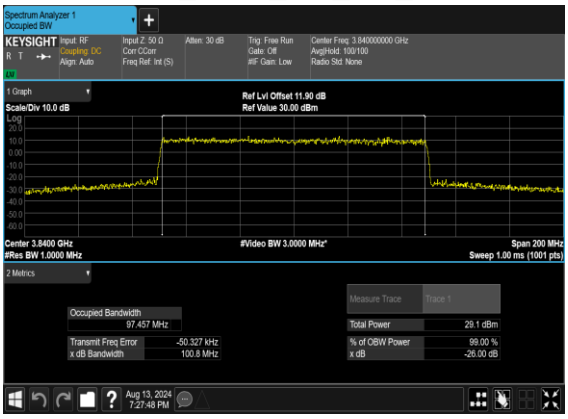
N77(90M)_CP-OFDM_256 QAM_Outer_Full_Mid_CH



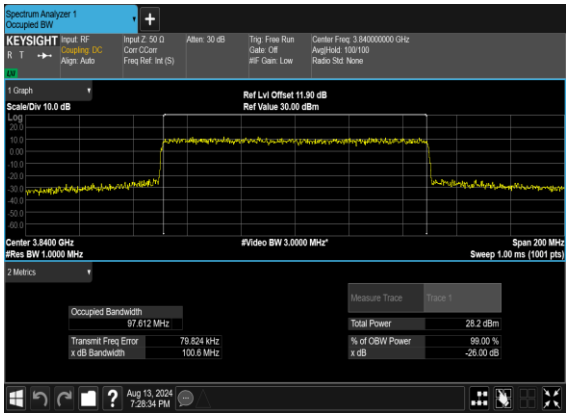
N77(100M)_CP-OFDM_QPSK_Outer_Full_Mid_CH



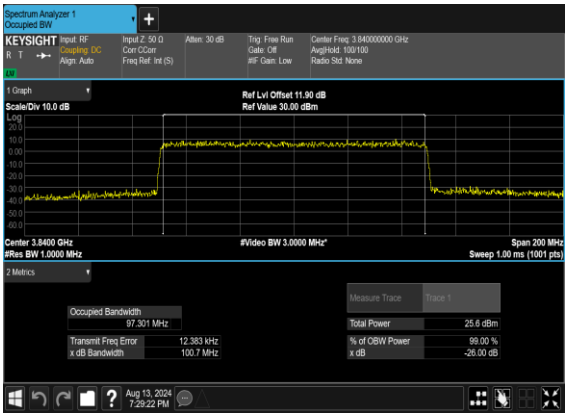
N77(100M)_CP-OFDM_16 QAM_Outer_Full_Mid_CH



N77(100M)_CP-OFDM_64 QAM_Outer_Full_Mid_CH



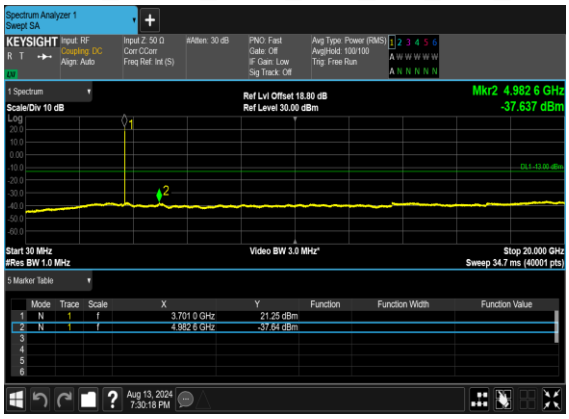
N77(100M)_CP-OFDM_256 QAM_Outer_Full_Mid_CH



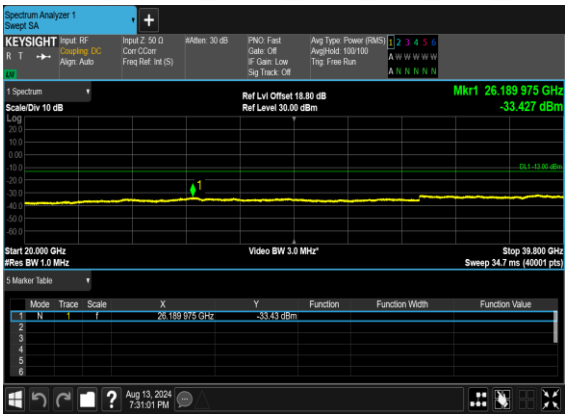
Conducted Spurious Emissions

NR Band	SCS (kHz)	Bandwidth (MHz)	Arfcn	Freq (MHz)	Modulation	RB	Result	Verdict
77	30	10	647000	3705.0	CP-OFDM QPSK	1@0	see graph	**---**
77	30	10	647000	3705.0	CP-OFDM QPSK	1@0	see graph	**PASS**
77	30	10	647000	3705.0	CP-OFDM QPSK	1@0	see graph	**PASS**
77	30	10	656000	3840.0	CP-OFDM QPSK	1@0	see graph	**---**
77	30	10	656000	3840.0	CP-OFDM QPSK	1@0	see graph	**PASS**
77	30	10	656000	3840.0	CP-OFDM QPSK	1@0	see graph	**PASS**
77	30	10	665000	3975.0	CP-OFDM QPSK	1@0	see graph	**---**
77	30	10	665000	3975.0	CP-OFDM QPSK	1@0	see graph	**PASS**
77	30	10	665000	3975.0	CP-OFDM QPSK	1@0	see graph	**PASS**
77	30	50	648334	3725.01	CP-OFDM QPSK	1@0	see graph	**---**
77	30	50	648334	3725.01	CP-OFDM QPSK	1@0	see graph	**PASS**
77	30	50	648334	3725.01	CP-OFDM QPSK	1@0	see graph	**PASS**
77	30	50	656000	3840.0	CP-OFDM QPSK	1@0	see graph	**---**
77	30	50	656000	3840.0	CP-OFDM QPSK	1@0	see graph	**PASS**
77	30	50	656000	3840.0	CP-OFDM QPSK	1@0	see graph	**PASS**
77	30	50	663666	3954.99	CP-OFDM QPSK	1@0	see graph	**---**
77	30	50	663666	3954.99	CP-OFDM QPSK	1@0	see graph	**PASS**
77	30	50	663666	3954.99	CP-OFDM QPSK	1@0	see graph	**PASS**
77	30	100	650000	3750.0	CP-OFDM QPSK	1@0	see graph	**---**
77	30	100	650000	3750.0	CP-OFDM QPSK	1@0	see graph	**PASS**
77	30	100	650000	3750.0	CP-OFDM QPSK	1@0	see graph	**PASS**
77	30	100	656000	3840.0	CP-OFDM QPSK	1@0	see graph	**---**
77	30	100	656000	3840.0	CP-OFDM QPSK	1@0	see graph	**PASS**
77	30	100	656000	3840.0	CP-OFDM QPSK	1@0	see graph	**PASS**
77	30	100	662000	3930.0	CP-OFDM QPSK	1@0	see graph	**---**
77	30	100	662000	3930.0	CP-OFDM QPSK	1@0	see graph	**PASS**
77	30	100	662000	3930.0	CP-OFDM QPSK	1@0	see graph	**PASS**

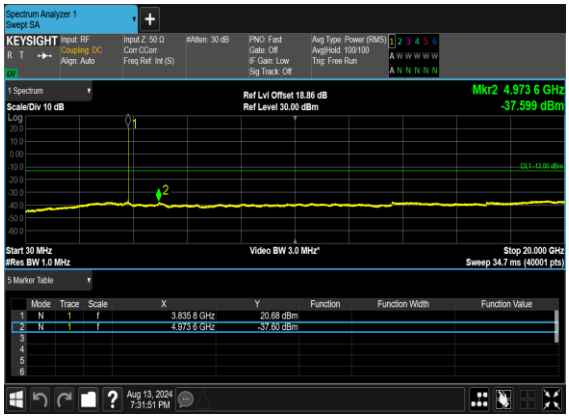
N77(10M)_CP-OFDM_QPSK_Edge_1RB_Left_Low_CH



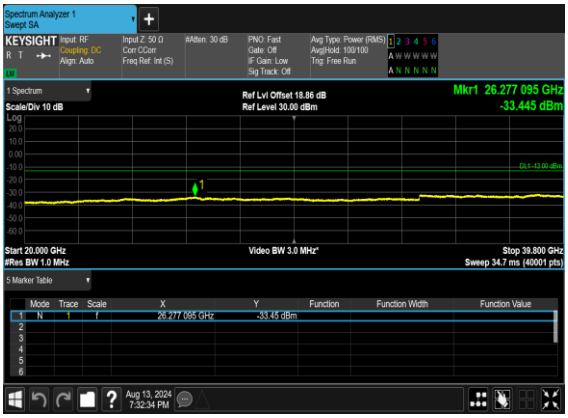
N77(10M)_CP-OFDM_QPSK_Edge_1RB_Left_Low_CH



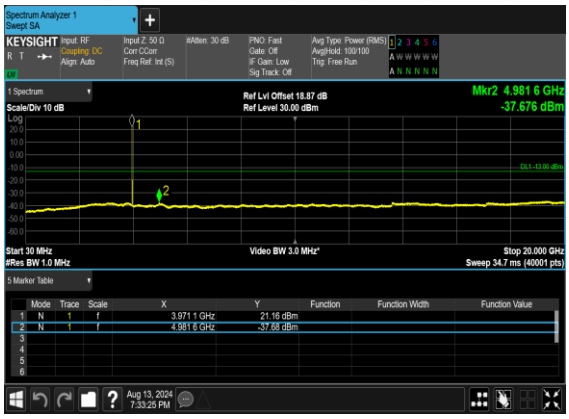
N77(10M)_CP-OFDM_QPSK_Edge_1RB_Left_Mid_CH



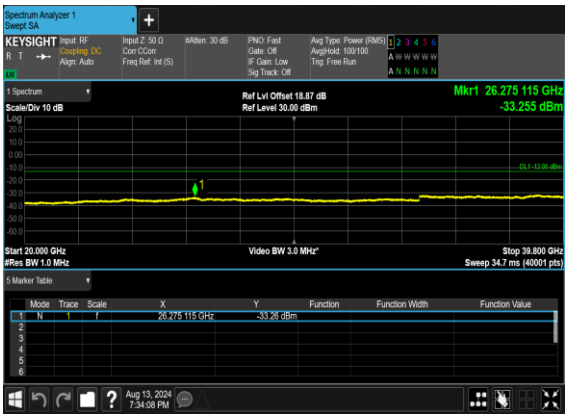
N77(10M)_CP-OFDM_QPSK_Edge_1RB_Left_Mid_CH



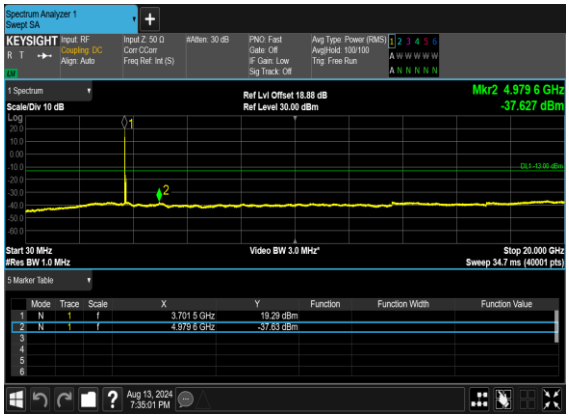
N77(10M)_CP-OFDM_QPSK_Edge_1RB_Left_High_CH



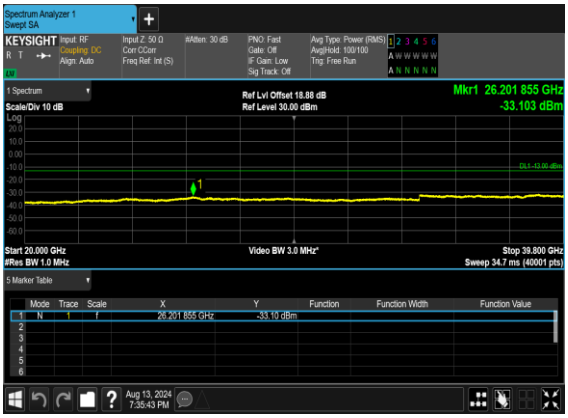
N77(10M)_CP-OFDM_QPSK_Edge_1RB_Left_High_CH



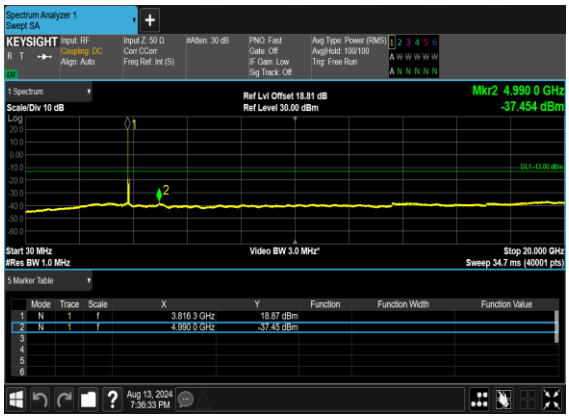
N77(50M)_CP-OFDM_QPSK_Edge_1RB_Left_Low_CH



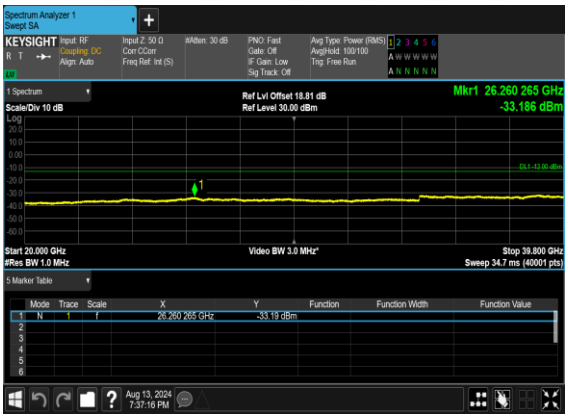
N77(50M)_CP-OFDM_QPSK_Edge_1RB_Left_Low_CH



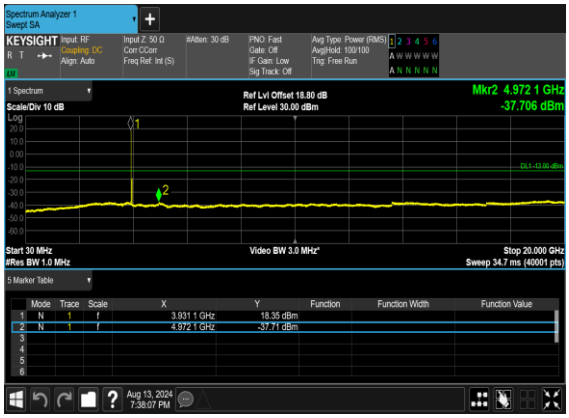
N77(50M)_CP-OFDM_QPSK_Edge_1RB_Left_Mid_CH



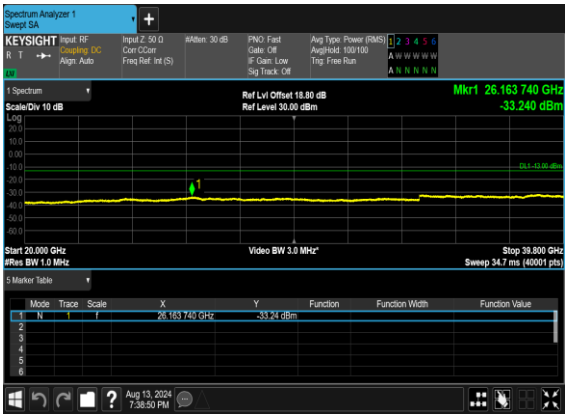
N77(50M)_CP-OFDM_QPSK_Edge_1RB_Left_Mid_CH



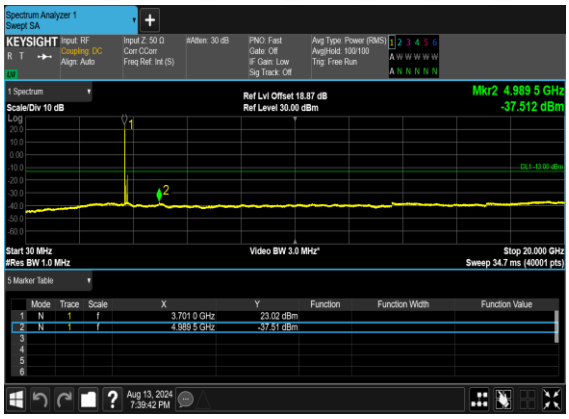
N77(50M)_CP-OFDM_QPSK_Edge_1RB_Left_High_CH



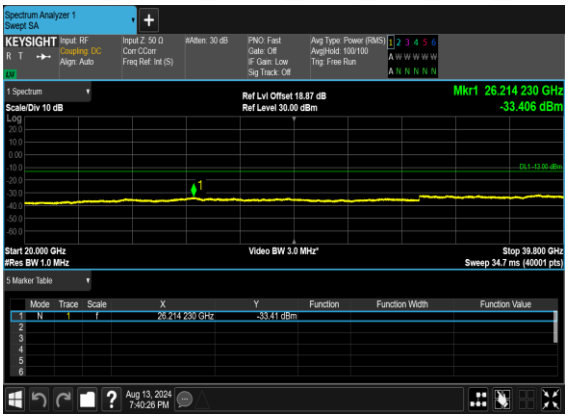
N77(50M)_CP-OFDM_QPSK_Edge_1RB_Left_High_CH



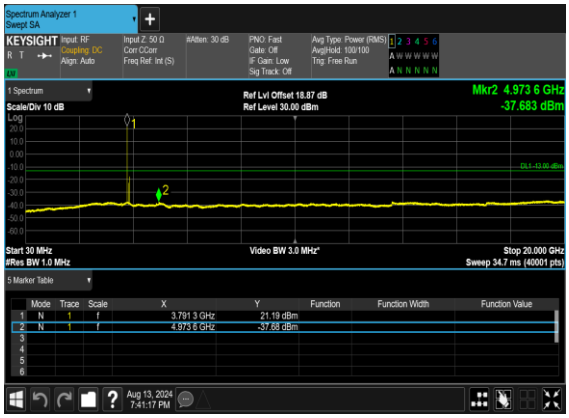
N77(100M)_CP-OFDM_QPSK_Edge_1RB_Left_Low_CH



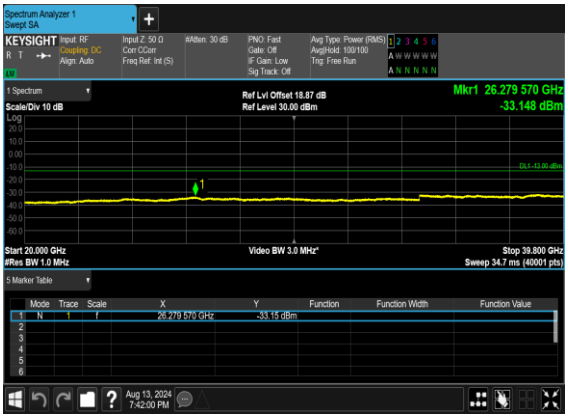
N77(100M)_CP-OFDM_QPSK_Edge_1RB_Left_Low_CH



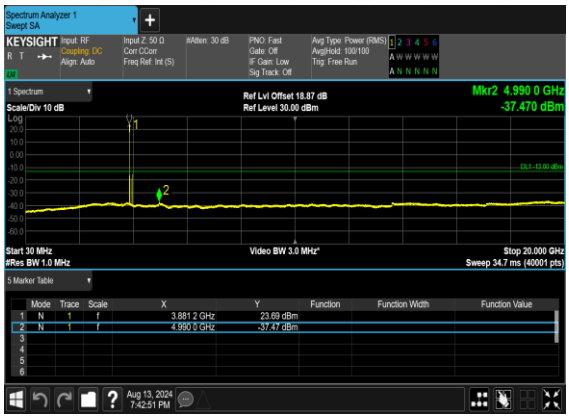
N77(100M)_CP-OFDM_QPSK_Edge_1RB_Left_Mid_CH



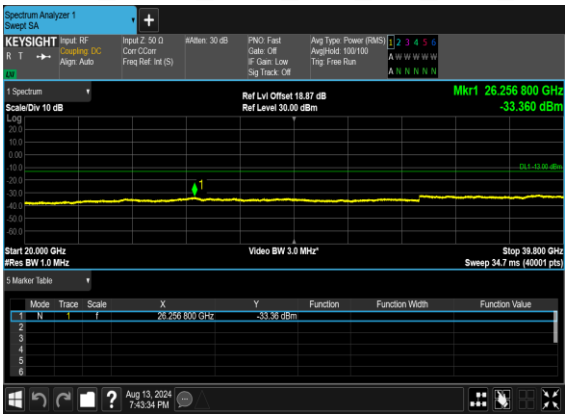
N77(100M)_CP-OFDM_QPSK_Edge_1RB_Left_Mid_CH



N77(100M)_CP-OFDM_QPSK_Edge_1RB_Left_High_CH



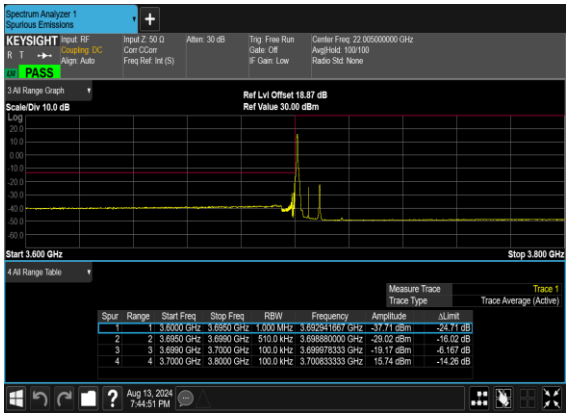
N77(100M)_CP-OFDM_QPSK_Edge_1RB_Left_High_CH



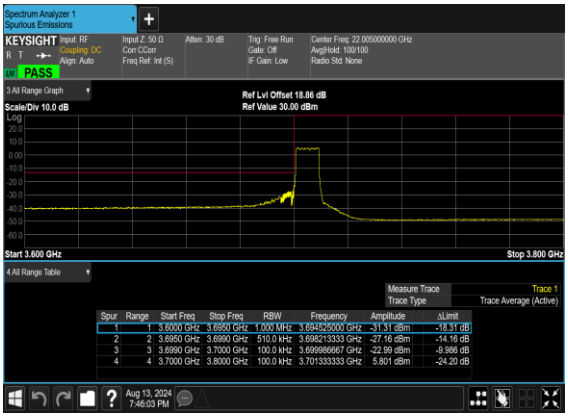
Conducted Band Edge

NR Band	SCS (kHz)	Bandwidth (MHz)	Arfcn	Freq (MHz)	Modulation	RB	Result	Verdict
77	30	10	647000	3705.0	CP-OFDM QPSK	1@0	see graph	**PASS**
77	30	10	647000	3705.0	CP-OFDM QPSK	24@0	see graph	**PASS**
77	30	10	665000	3975.0	CP-OFDM QPSK	1@23	see graph	**PASS**
77	30	10	665000	3975.0	CP-OFDM QPSK	24@0	see graph	**PASS**
77	30	50	648334	3725.01	CP-OFDM QPSK	1@0	see graph	**PASS**
77	30	50	648334	3725.01	CP-OFDM QPSK	133@0	see graph	**PASS**
77	30	50	663666	3954.99	CP-OFDM QPSK	1@132	see graph	**PASS**
77	30	50	663666	3954.99	CP-OFDM QPSK	133@0	see graph	**PASS**
77	30	100	650000	3750.0	CP-OFDM QPSK	1@0	see graph	**PASS**
77	30	100	650000	3750.0	CP-OFDM QPSK	273@0	see graph	**PASS**
77	30	100	662000	3930.0	CP-OFDM QPSK	1@272	see graph	**PASS**
77	30	100	662000	3930.0	CP-OFDM QPSK	273@0	see graph	**PASS**

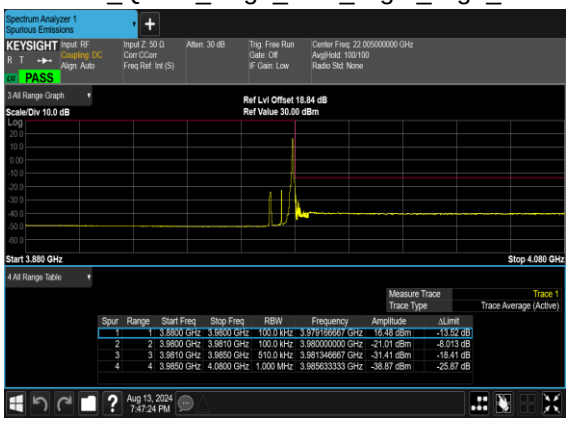
N77(10M)_CP-OFDM_QPSK_Edge_1RB_Left_Low_CH



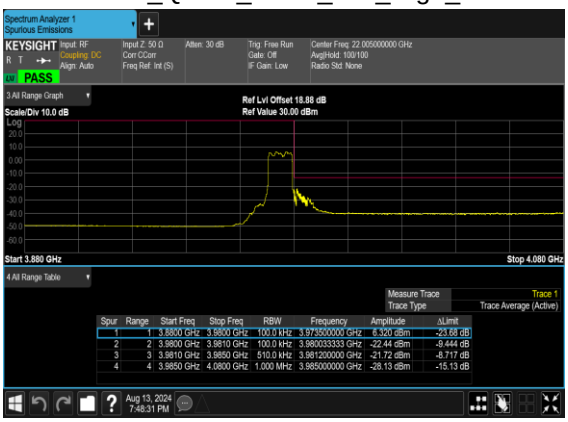
N77(10M)_CP-OFDM_QPSK_Outer_Full_Low_CH



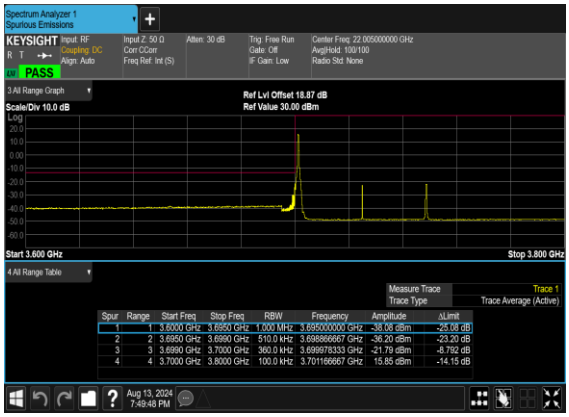
N77(10M)_CP-OFDM_QPSK_Edge_1RB_Right_High_CH



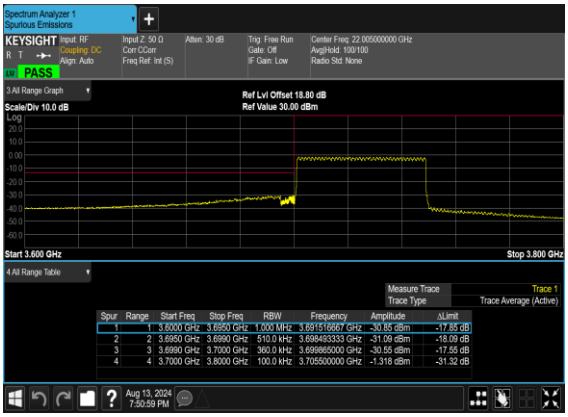
N77(10M)_CP-OFDM_QPSK_Outer_Full_High_CH



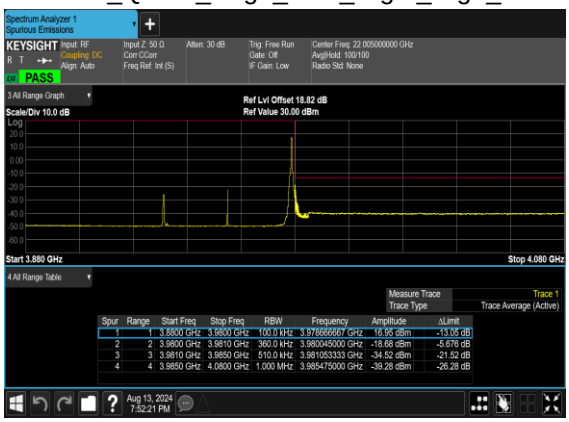
N77(50M)_CP-OFDM_QPSK_Edge_1RB_Left_Low_CH



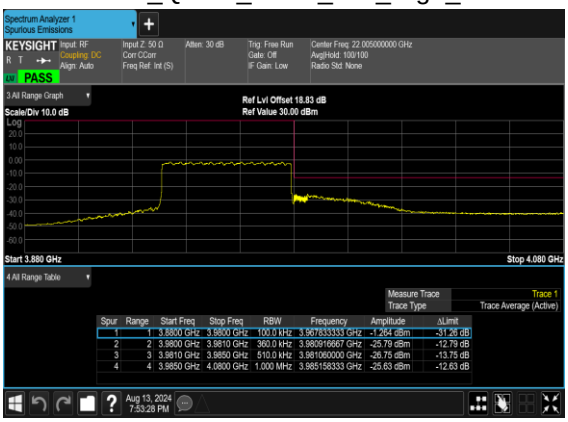
N77(50M)_CP-OFDM_QPSK_Outer_Full_Low_CH



N77(50M)_CP-OFDM_QPSK_Edge_1RB_Right_High_CH

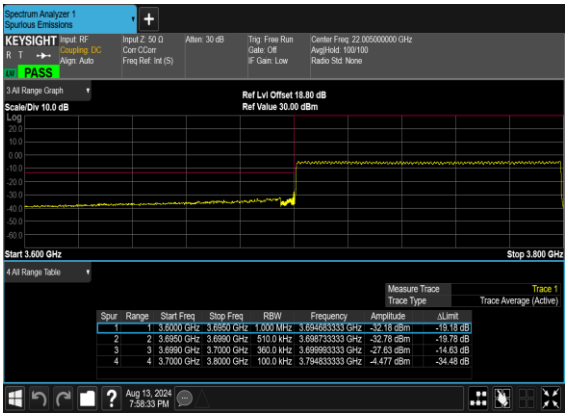


N77(50M)_CP-OFDM_QPSK_Outer_Full_High_CH

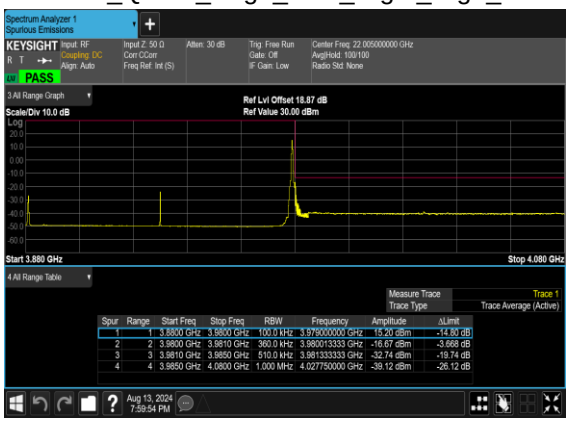


N77(100M)_CP-OFDM_QPSK_Edge_1RB_Left_Low_CH

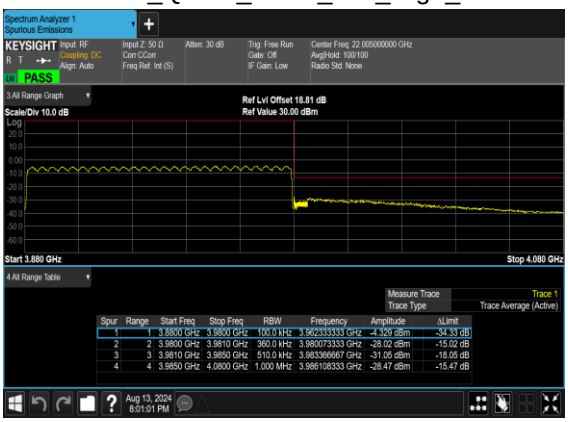
N77(100M)_CP-OFDM_QPSK_Outer_Full_Low_CH



N77(100M)_CP-OFDM_QPSK_Edge_1RB_Right_High_CH



N77(100M)_CP-OFDM_QPSK_Outer_Full_High_CH



Appendix B. Test Results of Radiated Test

Radiated Spurious Emission

Test Engineer :	Zhaohui Liang	Temperature :	22~25℃
		Relative Humidity :	48~52%

RSE pre-scanned harmonic for different antennas, choose the worst antenna perform final test and record in the report.

N77 SA / NR 100MHz / QPSK(ANT3)									
Channel	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)
Middle	7582.36	-50.24	-13	-37.24	-58.55	-53.54	8.30	11.60	H
	11373.54	-51.50	-13	-38.50	-65.84	-53.02	10.48	12.00	H
	15164.72	-51.98	-13	-38.98	-70.07	-53.68	11.80	13.50	H
	7582.36	-40.87	-13	-27.87	-49.18	-44.17	8.30	11.60	V
	11373.54	-30.60	-13	-17.60	-49.02	-32.12	10.48	12.00	V
	15164.72	-52.12	-13	-39.12	-70.20	-53.82	11.80	13.50	V

Remark: Spurious emissions within 30-1000MHz were found more than 20dB below limit line.

EN-DC_30A_n77A / LTE 10MHz + NR 100MHz / QPSK (ANT0+3)									
Channel	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)
NR n77 Middle	7582.36	-56.49	-13	-43.49	-63.08	-59.79	8.30	11.60	H
	11373.54	-55.49	-13	-42.49	-69.38	-57.01	10.48	12.00	H
	15164.72	-53.11	-13	-40.11	-70.89	-54.81	11.80	13.50	H
	7582.36	-60.22	-13	-47.22	-66.81	-63.52	8.30	11.60	V
	11373.54	-45.13	-13	-32.13	-63.1	-46.65	10.48	12.00	V
	15164.72	-53.14	-13	-40.14	-70.91	-54.84	11.80	13.50	V
LTE Band30 Middle	4611.00	-55.99	-40	-15.99	-60.94	-62.24	6.45	12.70	H
	6916.50	-59.31	-40	-19.31	-64.73	-62.71	8.40	11.80	H
	9222.00	-60.85	-40	-20.85	-69.14	-63.20	9.65	12.00	H
	11527.50	-54.76	-40	-14.76	-68.84	-55.84	11.12	12.20	H
	4611.00	-52.07	-40	-12.07	-57.15	-58.32	6.45	12.70	V
	6916.50	-58.66	-40	-18.66	-65.18	-62.06	8.40	11.80	V
	9222.00	-54.62	-40	-14.62	-65.14	-56.97	9.65	12.00	V
	11527.50	-43.06	-40	-3.06	-59.82	-44.14	11.12	12.20	V

Remark: Spurious emissions within 30-1000MHz were found more than 20dB below limit line.

n77 UL MIMO / NR 100+100MHz / QPSK(ANT0+3)									
Channel	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)
Middle	7582.36	-56.64	-13	-43.64	-63.23	-59.94	8.30	11.60	H
	11373.54	-55.12	-13	-42.12	-69.01	-56.64	10.48	12.00	H
	15164.72	-52.14	-13	-39.14	-69.92	-53.84	11.80	13.50	H
	7582.36	-51.66	-13	-38.66	-58.25	-54.96	8.30	11.60	V
	11373.54	-48.46	-13	-35.46	-66.43	-49.98	10.48	12.00	V
	15164.72	-52.51	-13	-39.51	-70.28	-54.21	11.80	13.50	V

Remark: Spurious emissions within 30-1000MHz were found more than 20dB below limit line.