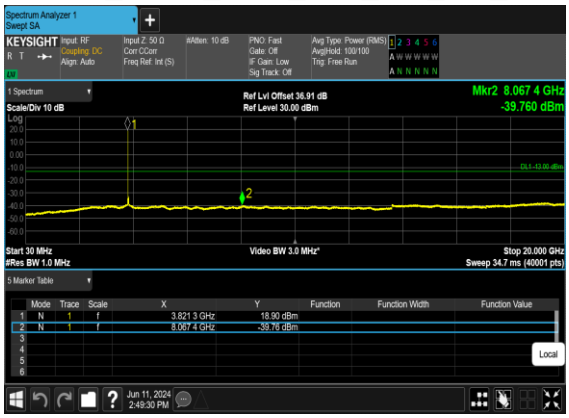
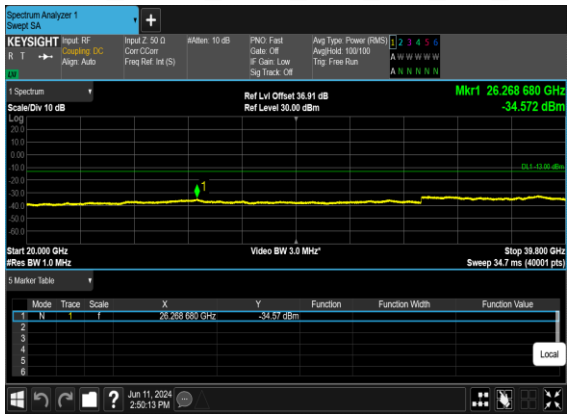
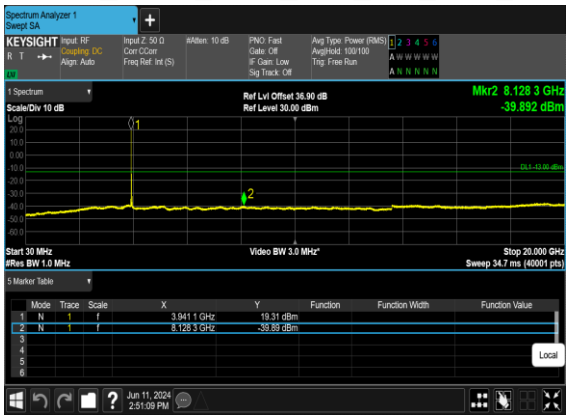
N77(40M)_DFT-s-OFDM_QPSK_Edge_1RB_Left_Mid_CH



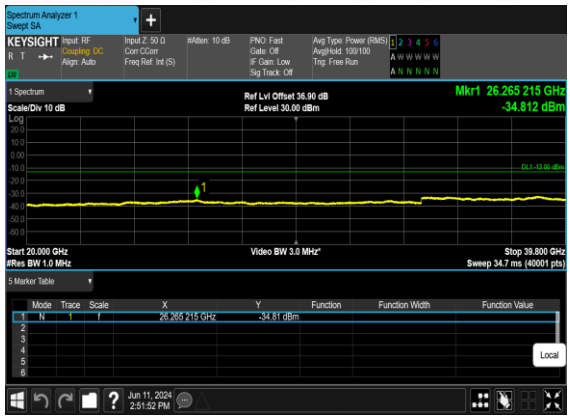
N77(40M)_DFT-s-OFDM_QPSK_Edge_1RB_Left_Mid_CH



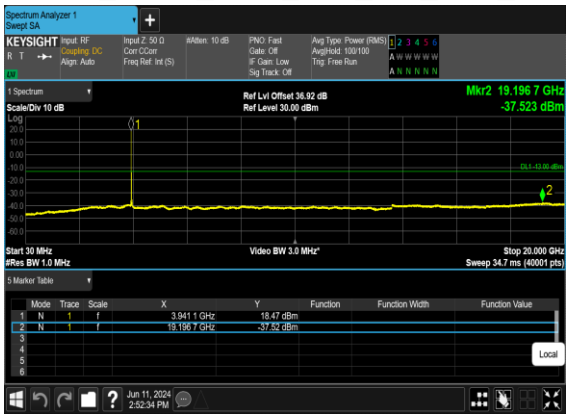
N77(40M)_DFT-s-OFDM_BPSK_Edge_1RB_Left_High_CH



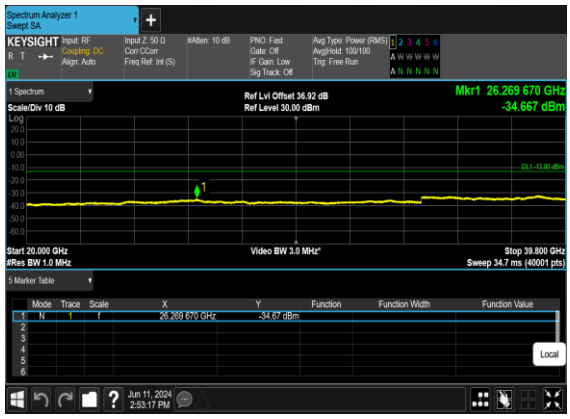
N77(40M)_DFT-s-OFDM_BPSK_Edge_1RB_Left_High_CH



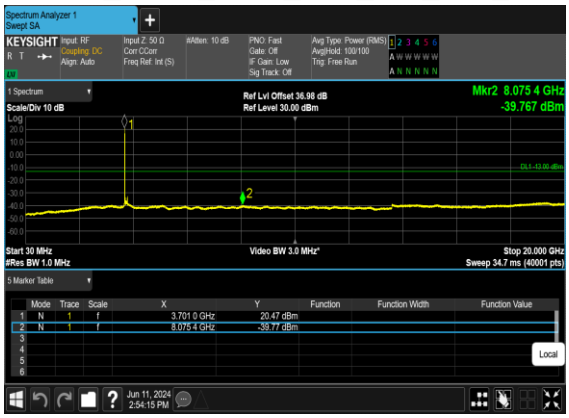
N77(40M)_DFT-s-OFDM_QPSK_Edge_1RB_Left_High_CH



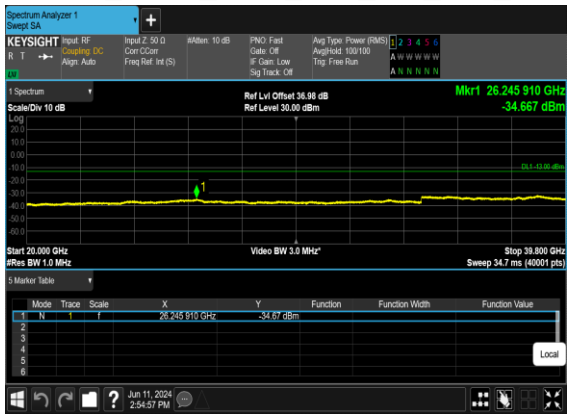
N77(40M)_DFT-s-OFDM_QPSK_Edge_1RB_Left_High_CH



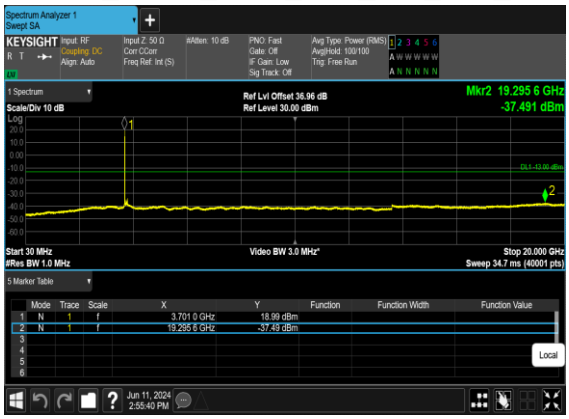
N77(100M)_DFT-s-OFDM_BPSK_Edge_1RB_Left_Low_CH



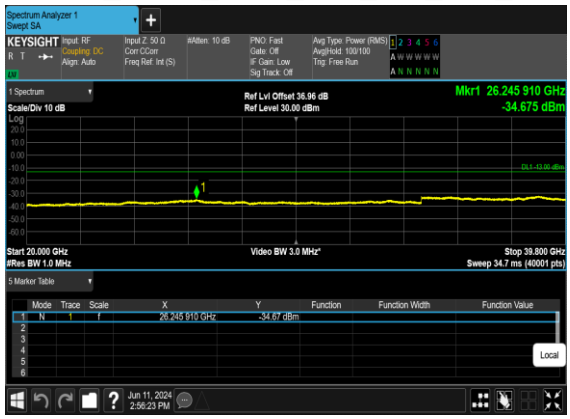
N77(100M)_DFT-s-OFDM_BPSK_Edge_1RB_Left_Low_CH



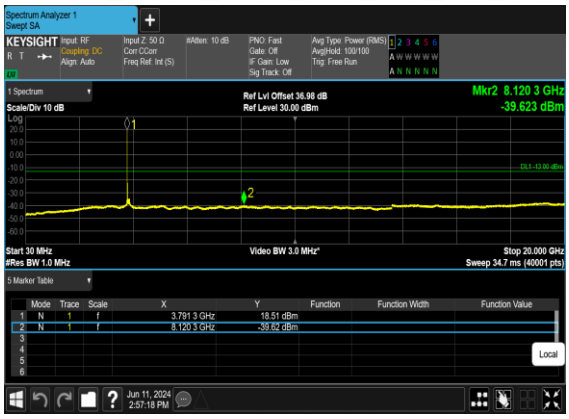
N77(100M)_DFT-s-OFDM_QPSK_Edge_1RB_Left_Low_CH



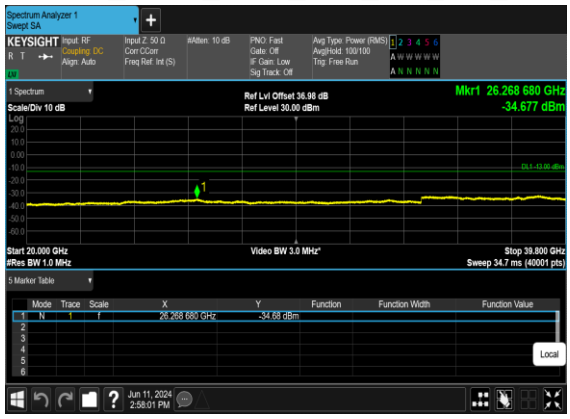
N77(100M)_DFT-s-OFDM_QPSK_Edge_1RB_Left_Low_CH



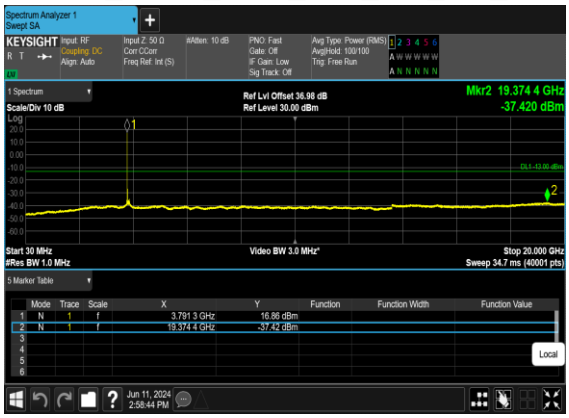
N77(100M)_DFT-s-OFDM_BPSK_Edge_1RB_Left_Mid_CH



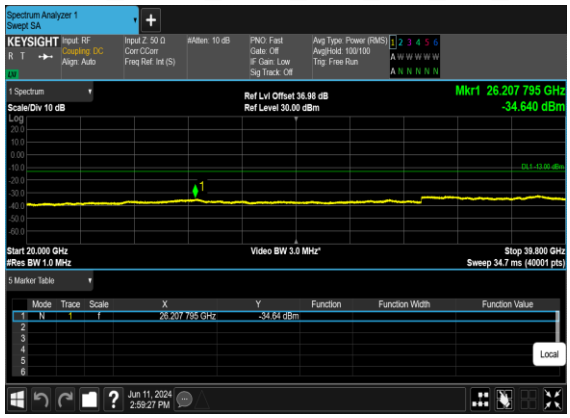
N77(100M)_DFT-s-OFDM_BPSK_Edge_1RB_Left_Mid_CH



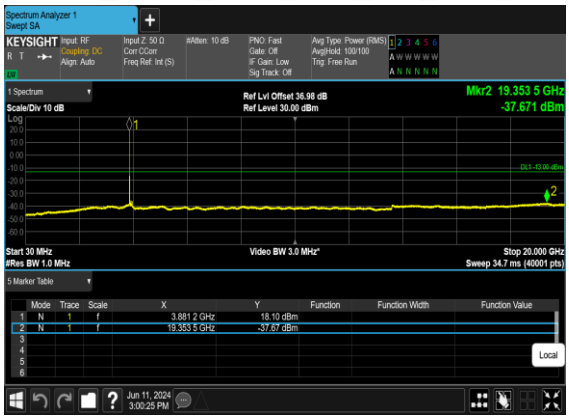
N77(100M)_DFT-s-OFDM_QPSK_Edge_1RB_Left_Mid_CH



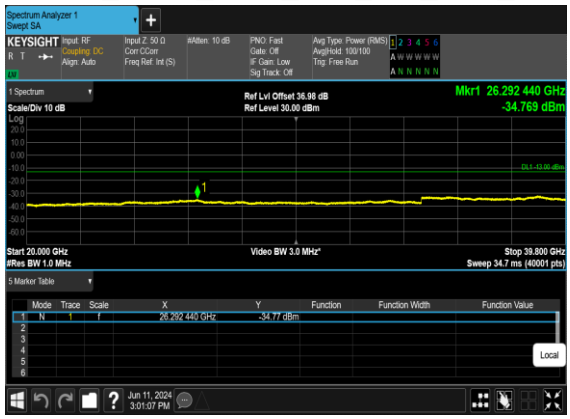
N77(100M)_DFT-s-OFDM_QPSK_Edge_1RB_Left_Mid_CH



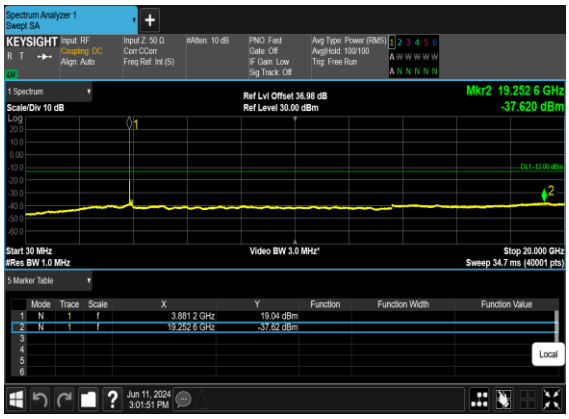
N77(100M)_DFT-s-OFDM_BPSK_Edge_1RB_Left_High_CH



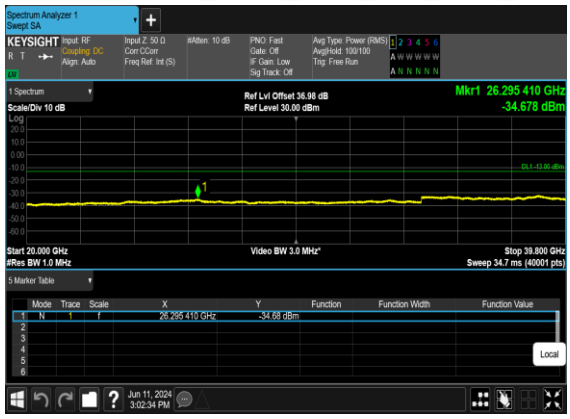
N77(100M)_DFT-s-OFDM_BPSK_Edge_1RB_Left_High_CH



N77(100M)_DFT-s-OFDM_QPSK_Edge_1RB_Left_High_CH



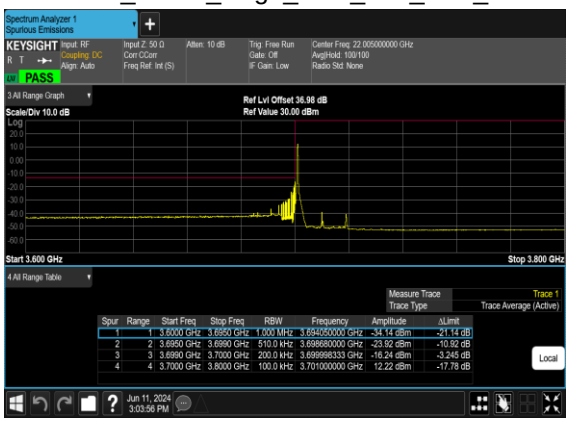
N77(100M)_DFT-s-OFDM_QPSK_Edge_1RB_Left_High_CH



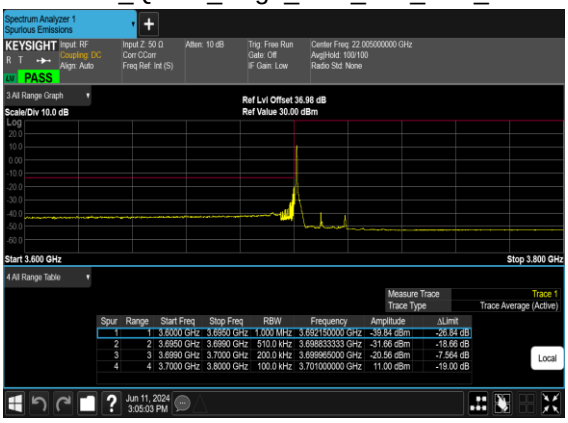
Conducted Band Edge

NR Band	SCS (kHz)	Bandwidth (MHz)	Arfcn	Freq (MHz)	Modulation	RB	Result	Verdict
77	30	20	647334	3710.01	DFT-s-OFDM BPSK	1@0	see graph	**PASS**
77	30	20	647334	3710.01	DFT-s-OFDM QPSK	1@0	see graph	**PASS**
77	30	20	647334	3710.01	DFT-s-OFDM BPSK	50@0	see graph	**PASS**
77	30	20	647334	3710.01	DFT-s-OFDM QPSK	50@0	see graph	**PASS**
77	30	20	664666	3969.99	DFT-s-OFDM BPSK	1@50	see graph	**PASS**
77	30	20	664666	3969.99	DFT-s-OFDM QPSK	1@50	see graph	**PASS**
77	30	20	664666	3969.99	DFT-s-OFDM BPSK	50@0	see graph	**PASS**
77	30	20	664666	3969.99	DFT-s-OFDM QPSK	50@0	see graph	**PASS**
77	30	40	648000	3720.0	DFT-s-OFDM BPSK	1@0	see graph	**PASS**
77	30	40	648000	3720.0	DFT-s-OFDM QPSK	1@0	see graph	**PASS**
77	30	40	648000	3720.0	DFT-s-OFDM BPSK	100@0	see graph	**PASS**
77	30	40	648000	3720.0	DFT-s-OFDM QPSK	100@0	see graph	**PASS**
77	30	40	664000	3960.0	DFT-s-OFDM BPSK	1@105	see graph	**PASS**
77	30	40	664000	3960.0	DFT-s-OFDM QPSK	1@105	see graph	**PASS**
77	30	40	664000	3960.0	DFT-s-OFDM BPSK	100@0	see graph	**PASS**
77	30	40	664000	3960.0	DFT-s-OFDM QPSK	100@0	see graph	**PASS**
77	30	100	650000	3750.0	DFT-s-OFDM BPSK	1@0	see graph	**PASS**
77	30	100	650000	3750.0	DFT-s-OFDM QPSK	1@0	see graph	**PASS**
77	30	100	650000	3750.0	DFT-s-OFDM BPSK	270@0	see graph	**PASS**
77	30	100	650000	3750.0	DFT-s-OFDM QPSK	270@0	see graph	**PASS**
77	30	100	662000	3930.0	DFT-s-OFDM BPSK	1@272	see graph	**PASS**
77	30	100	662000	3930.0	DFT-s-OFDM QPSK	1@272	see graph	**PASS**
77	30	100	662000	3930.0	DFT-s-OFDM BPSK	270@0	see graph	**PASS**
77	30	100	662000	3930.0	DFT-s-OFDM QPSK	270@0	see graph	**PASS**

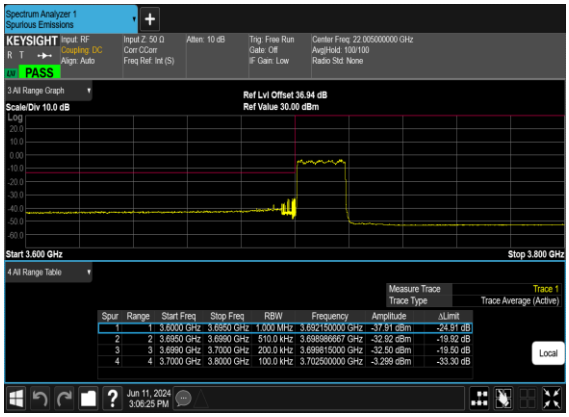
N77(20M)_DFT-s-OFDM_BPSK_Edge_1RB_Left_Low_CH



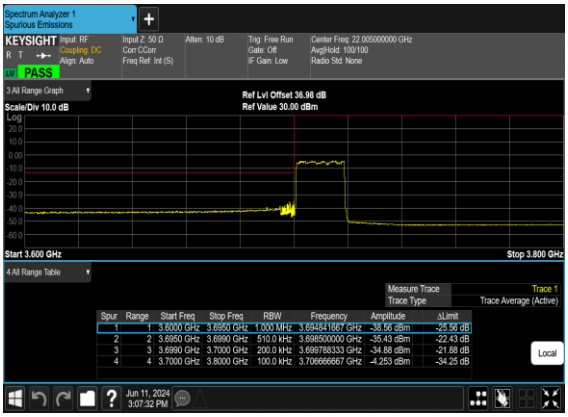
N77(20M)_DFT-s-OFDM_QPSK_Edge_1RB_Left_Low_CH



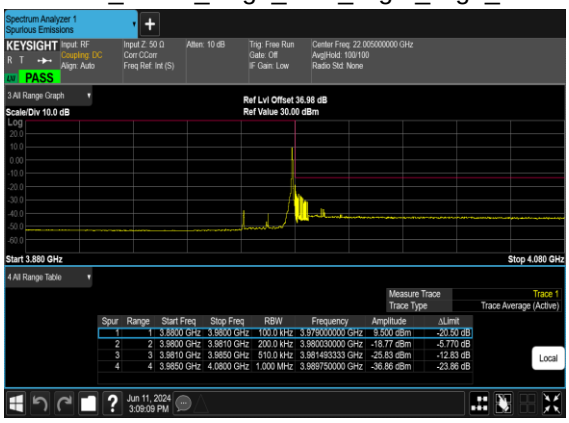
N77(20M)_DFT-s-OFDM_BPSK_Outer_Full_Low_CH



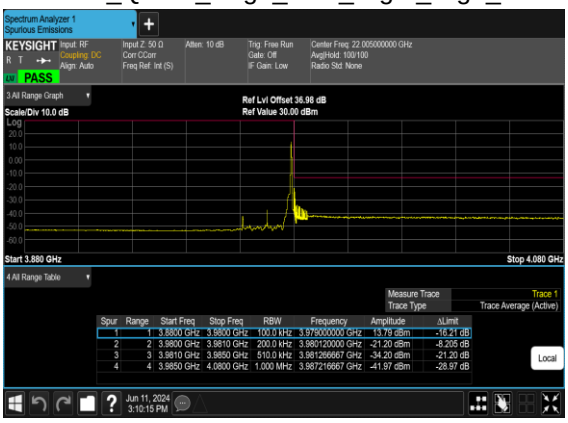
N77(20M)_DFT-s-OFDM_QPSK_Outer_Full_Low_CH



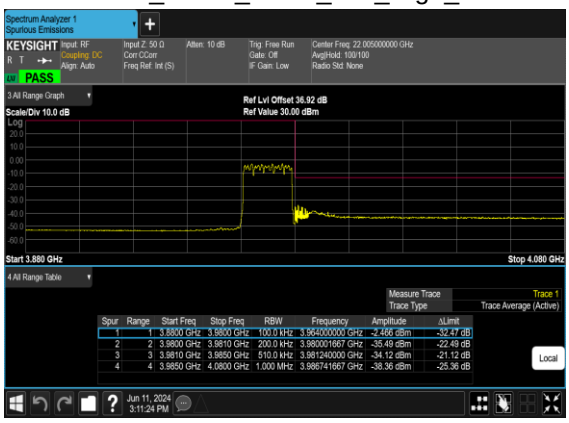
N77(20M)_DFT-s-OFDM_BPSK_Edge_1RB_Right_High_CH



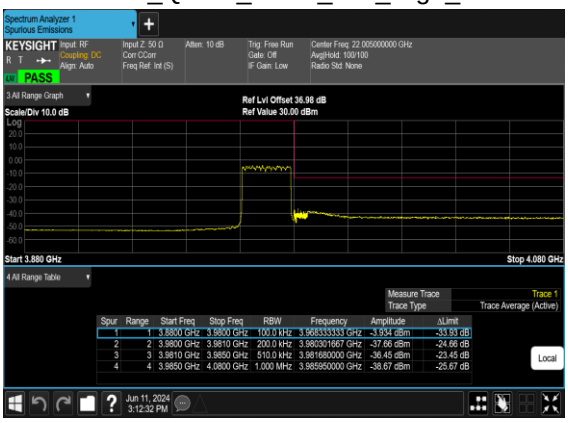
N77(20M)_DFT-s-OFDM_QPSK_Edge_1RB_Right_High_CH



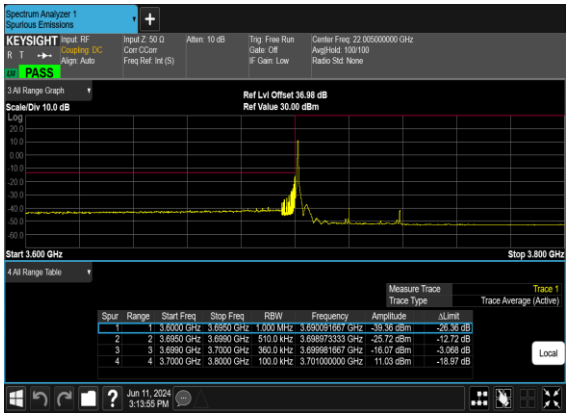
N77(20M)_DFT-s-OFDM_BPSK_Outer_Full_High_CH



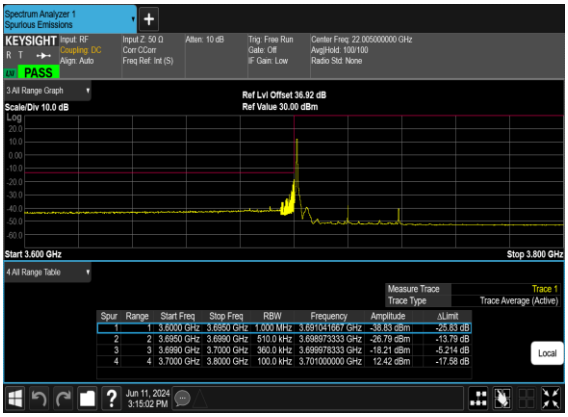
N77(20M)_DFT-s-OFDM_QPSK_Outer_Full_High_CH



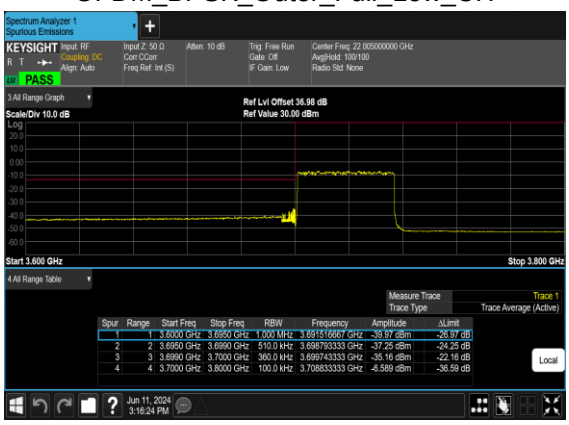
N77(40M)_DFT-s-OFDM_BPSK_Edge_1RB_Left_Low_CH



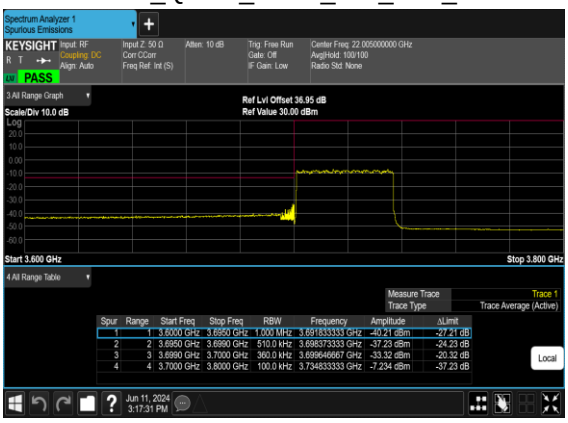
N77(40M)_DFT-s-OFDM_QPSK_Edge_1RB_Left_Low_CH



N77(40M)_DFT-s-OFDM_BPSK_Outer_Full_Low_CH

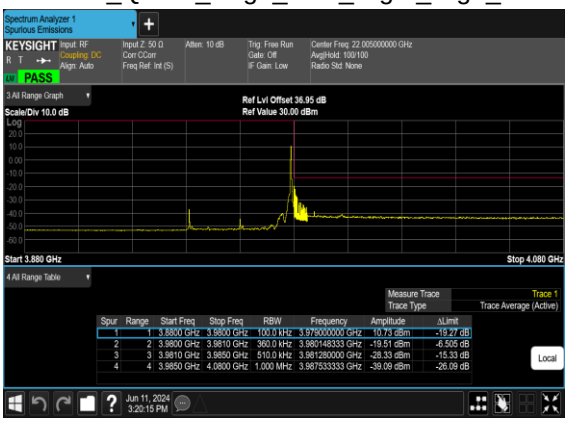


N77(40M)_DFT-s-OFDM_QPSK_Outer_Full_Low_CH

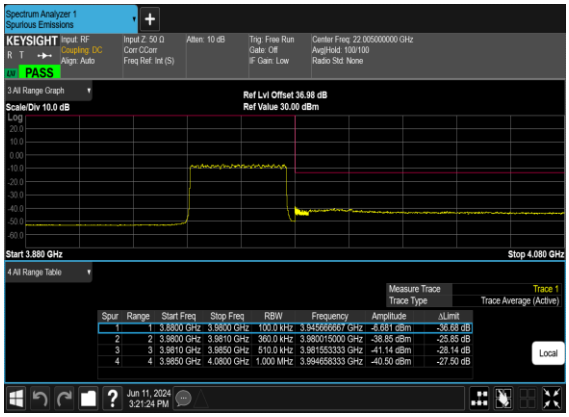


N77(40M)_DFT-s-OFDM_BPSK_Edge_1RB_Right_High_CH

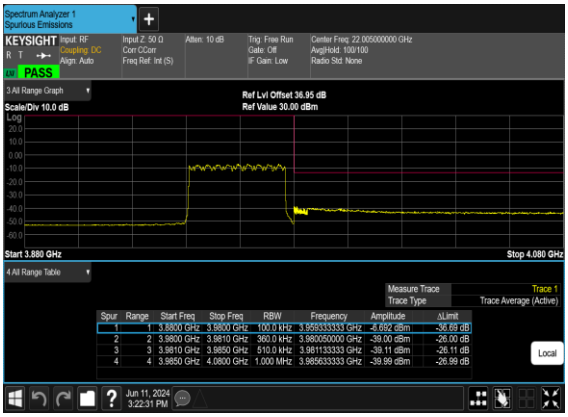
N77(40M)_DFT-s-OFDM_QPSK_Edge_1RB_Right_High_CH



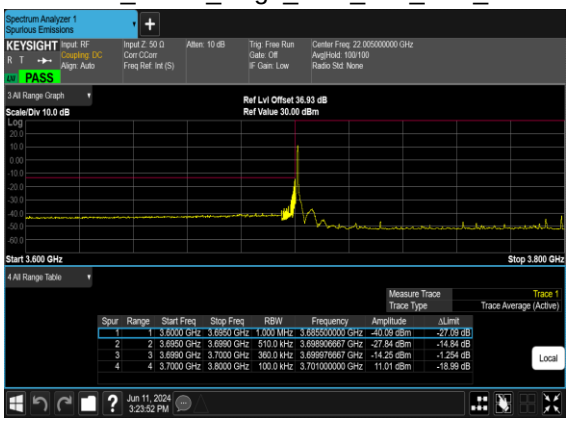
N77(40M)_DFT-s-OFDM_BPSK_Outer_Full_High_CH



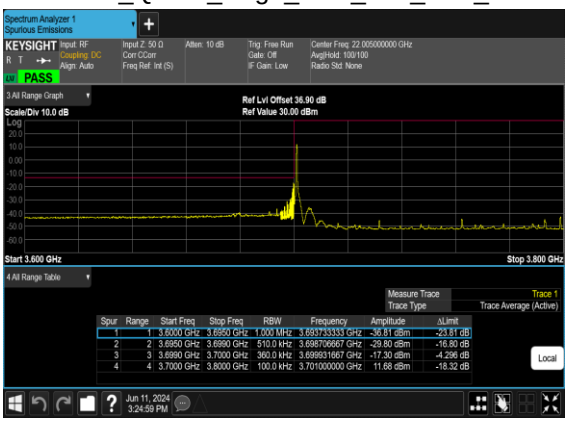
N77(40M)_DFT-s-OFDM_QPSK_Outer_Full_High_CH



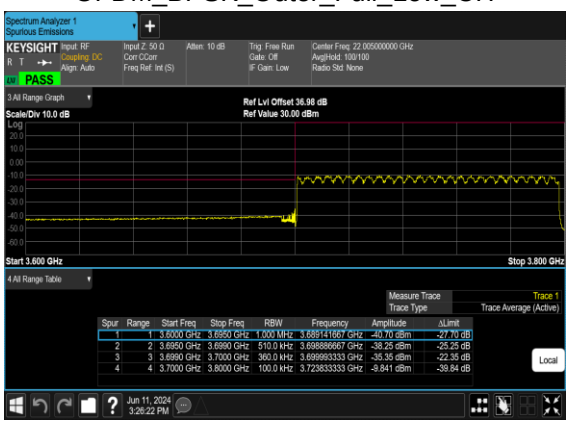
N77(100M)_DFT-s-OFDM_BPSK_Edge_1RB_Left_Low_CH



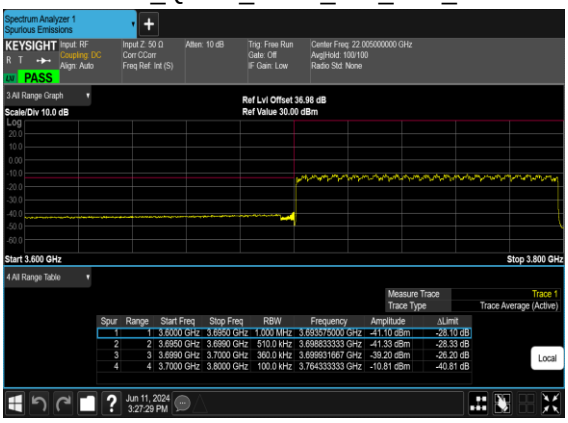
N77(100M)_DFT-s-OFDM_QPSK_Edge_1RB_Left_Low_CH



N77(100M)_DFT-s-OFDM_BPSK_Outer_Full_Low_CH

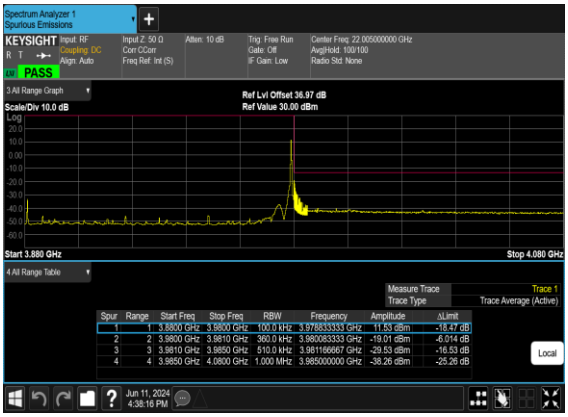


N77(100M)_DFT-s-OFDM_QPSK_Outer_Full_Low_CH

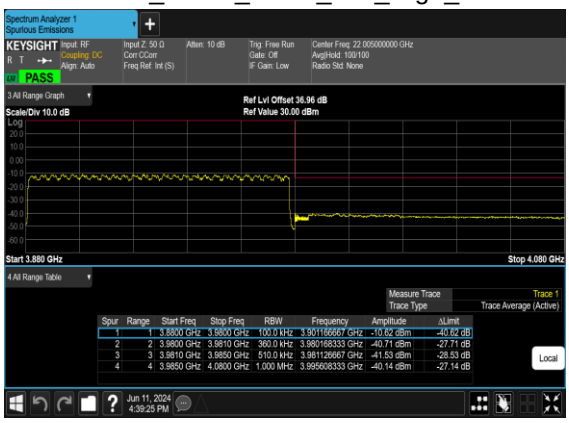


N77(100M)_DFT-s-OFDM_BPSK_Edge_1RB_Right_High_CH

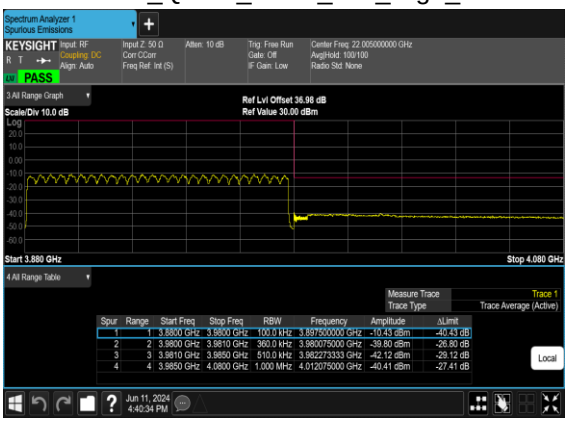
N77(100M)_DFT-s-OFDM_QPSK_Edge_1RB_Right_High_CH



N77(100M)_DFT-s-OFDM_BPSK_Outer_Full_High_CH



N77(100M)_DFT-s-OFDM_QPSK_Outer_Full_High_CH



Software Version: 23.06.1602

FR1 N78

Transmitter Conducted Output Power and EIRP, (G_T - L_C)=-1.8dBi

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	EIRP（dbm）			EIRP（W）		
Channel				-	650000	-	-	M	-	-	M	-
Frequency (MHz)				-	3750	-						
100	PI/2 BPSK	1	1		15.69			13.89			0.0245	
100	PI/2 BPSK	1	137		15.44			13.64			0.0231	
100	PI/2 BPSK	1	271		15.66			13.86			0.0243	
100	PI/2 BPSK	135	0		15.62			13.82			0.0241	
100	PI/2 BPSK	135	69		15.71			13.91			0.0246	
100	PI/2 BPSK	135	138		15.46			13.66			0.0232	
100	PI/2 BPSK	270	0		15.54			13.74			0.0237	
100	QPSK	1	1		15.84			14.04			0.0254	
100	QPSK	1	137		15.62			13.82			0.0241	
100	QPSK	1	271		15.75			13.95			0.0248	
100	QPSK	135	0		15.80			14.00			0.0251	
100	QPSK	135	69		15.75			13.95			0.0248	
100	QPSK	135	138		15.65			13.85			0.0243	
100	QPSK	270	0		15.58			13.78			0.0239	
100	16QAM	1	1		15.78			13.98			0.0250	
100	64QAM	1	1		15.43			13.63			0.0231	
100	256QAM	1	1		15.59			13.79			0.0239	
Channel				649334	650000	650666	L	M	H	L	M	H
Frequency (MHz)				3740.01	3750	3759.99						
80	QPSK	1	1	15.63	15.62	15.73	13.83	13.82	13.93	0.0242	0.0241	0.0247
80	16QAM	1	1	15.55	15.52	15.68	13.75	13.72	13.88	0.0237	0.0236	0.0244
Channel				648000	650000	652000	L	M	H	L	M	H
Frequency (MHz)				3720	3750	3780						
40	QPSK	1	1	15.75	15.73	15.65	13.95	13.93	13.85	0.0248	0.0247	0.0243
40	16QAM	1	1	15.71	15.67	15.61	13.91	13.87	13.81	0.0246	0.0244	0.0240
Channel				647334	650000	652666	L	M	H	L	M	H
Frequency (MHz)				3710.01	3750	3789.99						
20	QPSK	1	1	15.80	15.76	15.62	14.00	13.96	13.82	0.0251	0.0249	0.0241
20	16QAM	1	1	15.78	15.72	15.61	13.98	13.92	13.81	0.0250	0.0247	0.0240

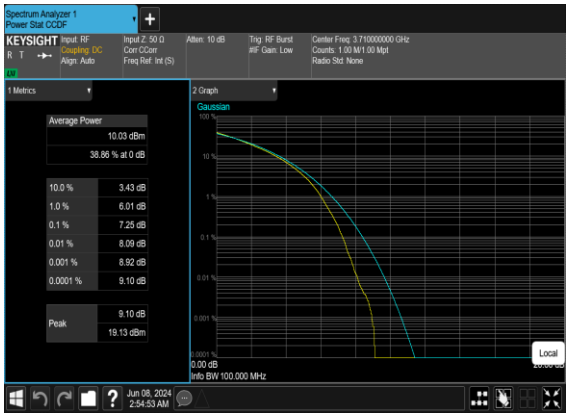
Frequency Stability

NR Band	SCS (kHz)	Bandwidth (MHz)	Arfcn	Freq (MHz)	Modulation	RB	Deviation (ppm)	Verdict	Environment
78	30	80	650000	3750	DFT-s-OFDM PI/2 BPSK	216@0	-0.0001	**PASS**	NV
78	30	80	650000	3750	DFT-s-OFDM PI/2 BPSK	216@0	-0.0012	**PASS**	LV
78	30	80	650000	3750	DFT-s-OFDM PI/2 BPSK	216@0	-0.0023	**PASS**	HV
78	30	80	650000	3750	DFT-s-OFDM PI/2 BPSK	216@0	-0.0014	**PASS**	-30℃
78	30	80	650000	3750	DFT-s-OFDM PI/2 BPSK	216@0	0.0025	**PASS**	-20℃
78	30	80	650000	3750	DFT-s-OFDM PI/2 BPSK	216@0	0.0004	**PASS**	-10℃
78	30	80	650000	3750	DFT-s-OFDM PI/2 BPSK	216@0	0.0054	**PASS**	0℃
78	30	80	650000	3750	DFT-s-OFDM PI/2 BPSK	216@0	-0.0123	**PASS**	10℃
78	30	80	650000	3750	DFT-s-OFDM PI/2 BPSK	216@0	-0.0213	**PASS**	20℃
78	30	80	650000	3750	DFT-s-OFDM PI/2 BPSK	216@0	-0.0078	**PASS**	30℃
78	30	80	650000	3750	DFT-s-OFDM PI/2 BPSK	216@0	0.0325	**PASS**	40℃
78	30	80	650000	3750	DFT-s-OFDM PI/2 BPSK	216@0	-0.00212	**PASS**	50℃

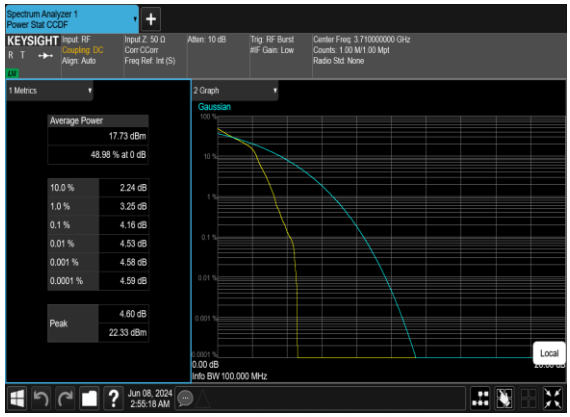
Peak to Average Ratio

NR Band	SCS (kHz)	Bandwidth (MHz)	Arfcn	Freq (MHz)	Modulation	RB	Result (dB)	Limit (dB)	Verdict
78	30	80	650000	3750.0	DFT-s-OFDM PI/2 BPSK	216@0	7.25	13	**PASS**
78	30	80	650000	3750.0	DFT-s-OFDM PI/2 BPSK	1@0	4.16	13	**PASS**
78	30	80	650000	3750.0	DFT-s-OFDM QPSK	216@0	7.84	13	**PASS**
78	30	80	650000	3750.0	DFT-s-OFDM QPSK	1@0	5.36	13	**PASS**

N78(80M)_DFT-s-OFDM_PI_2-BPSK_Outer_Full_Mid_CH

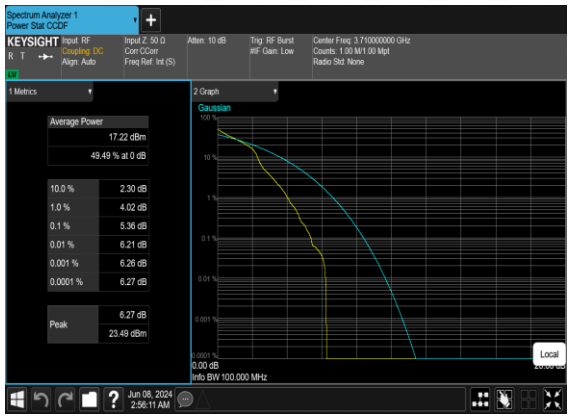


N78(80M)_DFT-s-OFDM_PI_2-BPSK_Edge_1RB_Left_Mid_CH



N78(80M)_DFT-s-OFDM_QPSK_Outer_Full_Mid_CH

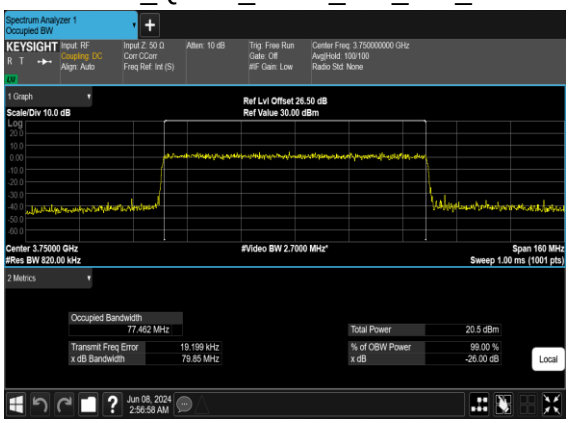
N78(80M)_DFT-s-OFDM_QPSK_Edge_1RB_Left_Mid_CH



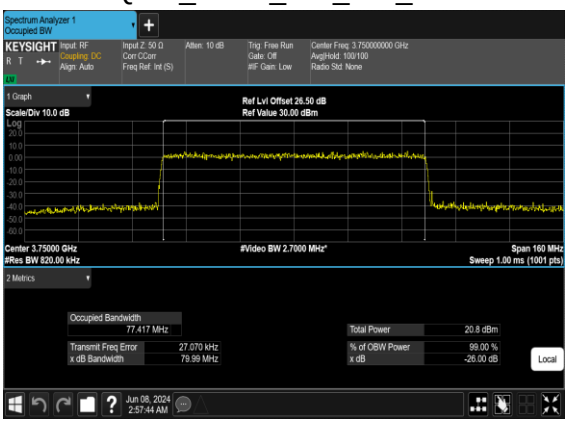
Occupied Bandwidth

NR Band	SCS (kHz)	Bandwidth (MHz)	Arfcn	Freq (MHz)	Modulation	RB	OBW (MHz)	26dB BW (MHz)
78	30	80	650000	3750.0	CP-OFDM QPSK	217@0	77.462	79.85
78	30	80	650000	3750.0	CP-OFDM 16 QAM	217@0	77.417	79.99
78	30	80	650000	3750.0	CP-OFDM 64 QAM	217@0	77.448	81.51
78	30	80	650000	3750.0	CP-OFDM 256 QAM	217@0	77.215	79.87

N78(80M)_CP-OFDM_QPSK_Outer_Full_Mid_CH

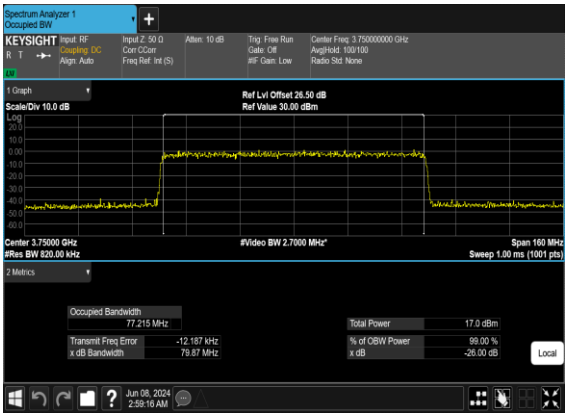


N78(80M)_CP-OFDM_16 QAM_Outer_Full_Mid_CH



N78(80M)_CP-OFDM_64 QAM_Outer_Full_Mid_CH

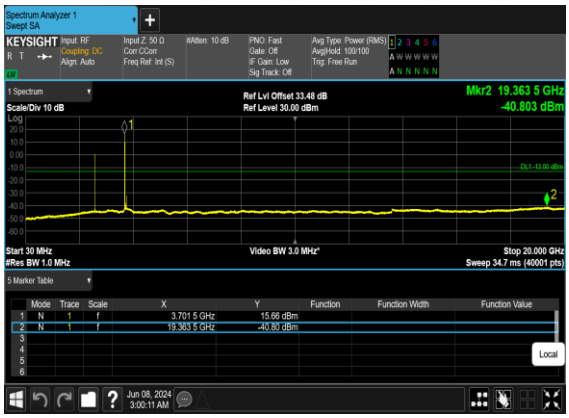
N78(80M)_CP-OFDM_256 QAM_Outer_Full_Mid_CH



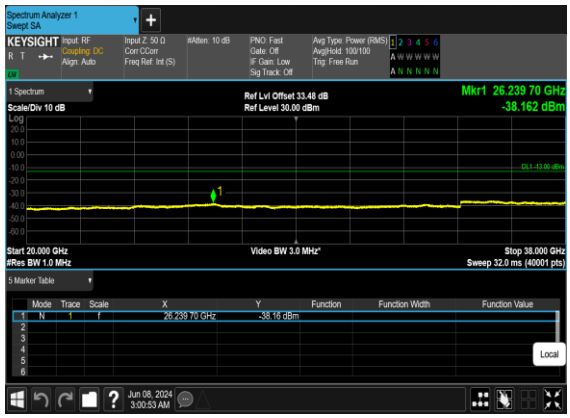
Conducted Spurious Emissions

NR Band	SCS (kHz)	Bandwidth (MHz)	Arfcn	Freq (MHz)	Modulation	RB	Result	Verdict
78	30	80	649334	3740.01	DFT-s-OFDM BPSK	1@0	see graph	**---**
78	30	80	649334	3740.01	DFT-s-OFDM BPSK	1@0	see graph	**PASS**
78	30	80	649334	3740.01	DFT-s-OFDM BPSK	1@0	see graph	**PASS**
78	30	80	649334	3740.01	DFT-s-OFDM QPSK	1@0	see graph	**---**
78	30	80	649334	3740.01	DFT-s-OFDM QPSK	1@0	see graph	**PASS**
78	30	80	649334	3740.01	DFT-s-OFDM QPSK	1@0	see graph	**PASS**
78	30	80	650666	3759.99	DFT-s-OFDM BPSK	1@0	see graph	**---**
78	30	80	650666	3759.99	DFT-s-OFDM BPSK	1@0	see graph	**PASS**
78	30	80	650666	3759.99	DFT-s-OFDM BPSK	1@0	see graph	**PASS**
78	30	80	650666	3759.99	DFT-s-OFDM QPSK	1@0	see graph	**---**
78	30	80	650666	3759.99	DFT-s-OFDM QPSK	1@0	see graph	**PASS**
78	30	80	650666	3759.99	DFT-s-OFDM QPSK	1@0	see graph	**PASS**

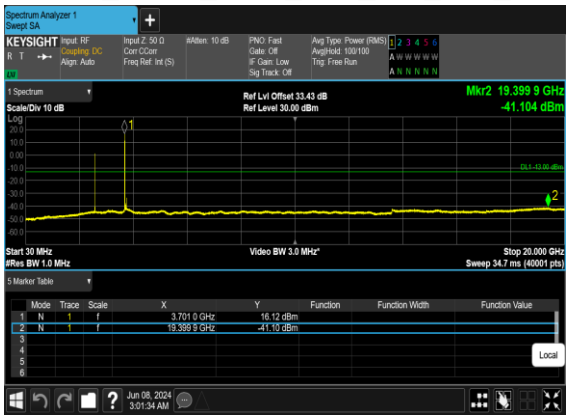
N78(80M)_DFT-s-OFDM_BPSK_Edge_1RB_Left_Low_CH



N78(80M)_DFT-s-OFDM_BPSK_Edge_1RB_Left_Low_CH

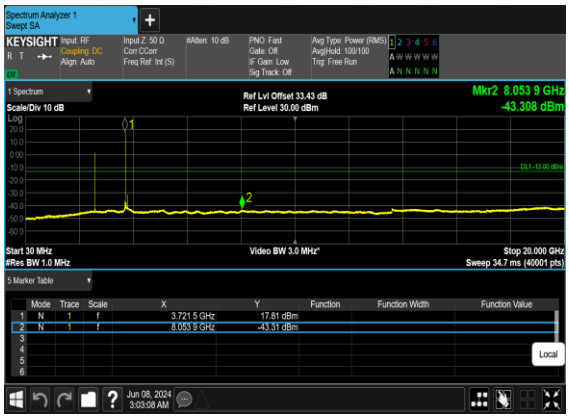


N78(80M)_DFT-s-OFDM_QPSK_Edge_1RB_Left_Low_CH

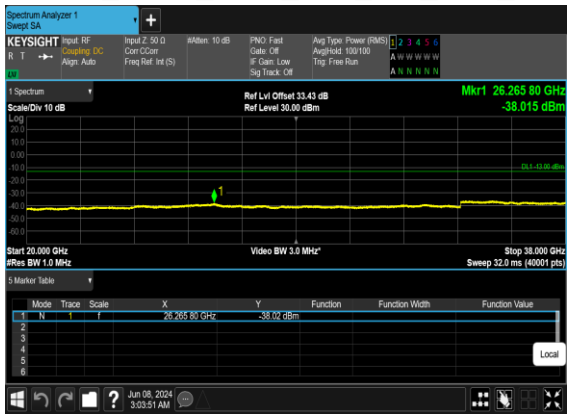


N78(80M)_DFT-s-OFDM_QPSK_Edge_1RB_Left_Low_CH

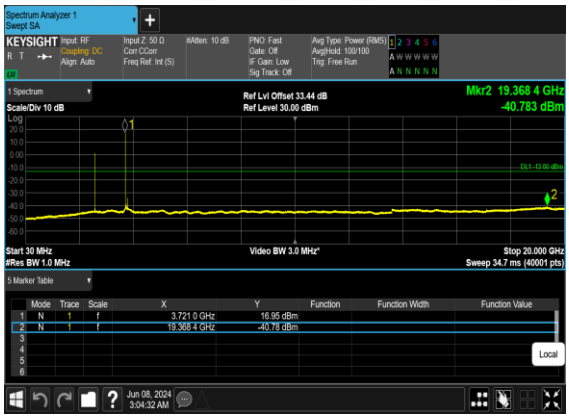
N78(80M)_DFT-s-OFDM_BPSK_Edge_1RB_Left_High_CH



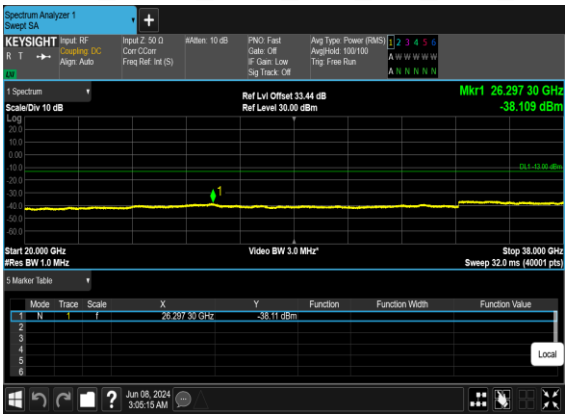
N78(80M)_DFT-s-OFDM_BPSK_Edge_1RB_Left_High_CH



N78(80M)_DFT-s-OFDM_QPSK_Edge_1RB_Left_High_CH



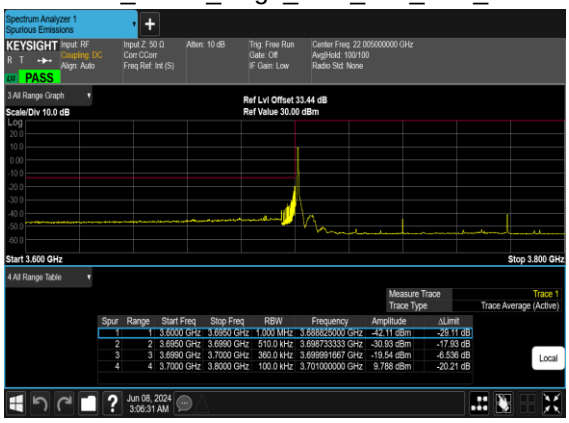
N78(80M)_DFT-s-OFDM_QPSK_Edge_1RB_Left_High_CH



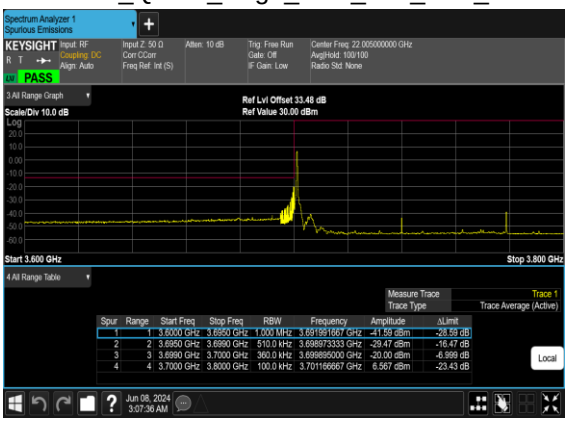
Conducted Band Edge

NR Band	SCS (kHz)	Bandwidth (MHz)	Arfcn	Freq (MHz)	Modulation	RB	Result	Verdict
78	30	80	649334	3740.01	DFT-s-OFDM BPSK	1@0	see graph	**PASS**
78	30	80	649334	3740.01	DFT-s-OFDM QPSK	1@0	see graph	**PASS**
78	30	80	649334	3740.01	DFT-s-OFDM BPSK	216@0	see graph	**PASS**
78	30	80	649334	3740.01	DFT-s-OFDM QPSK	216@0	see graph	**PASS**
78	30	80	650666	3759.99	DFT-s-OFDM BPSK	1@216	see graph	**PASS**
78	30	80	650666	3759.99	DFT-s-OFDM QPSK	1@216	see graph	**PASS**
78	30	80	650666	3759.99	DFT-s-OFDM BPSK	216@0	see graph	**PASS**
78	30	80	650666	3759.99	DFT-s-OFDM QPSK	216@0	see graph	**PASS**

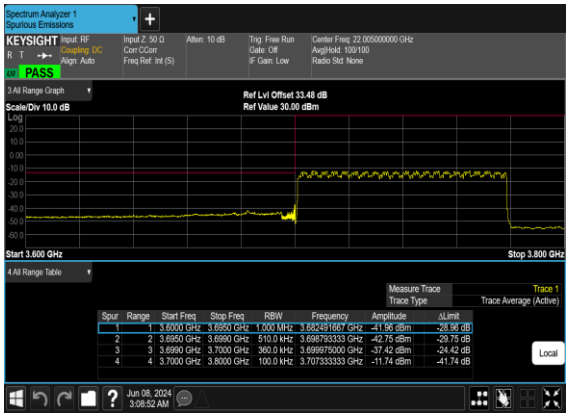
N78(80M)_DFT-s-OFDM_BPSK_Edge_1RB_Left_Low_CH



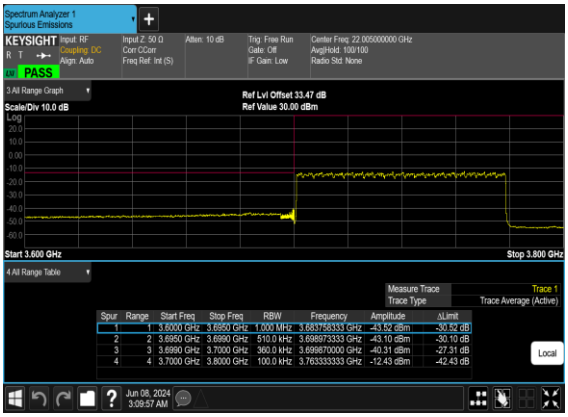
N78(80M)_DFT-s-OFDM_QPSK_Edge_1RB_Left_Low_CH



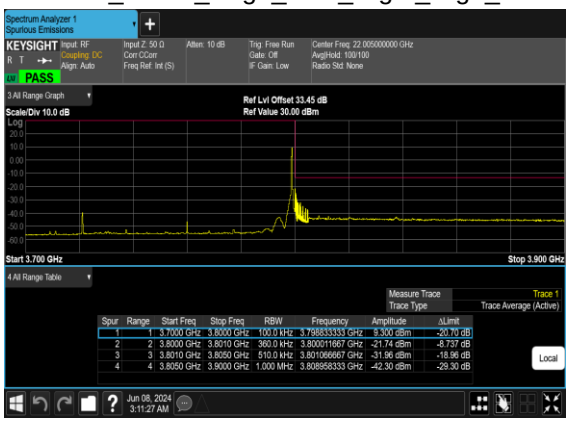
N78(80M)_DFT-s-OFDM_BPSK_Outer_Full_Low_CH



N78(80M)_DFT-s-OFDM_QPSK_Outer_Full_Low_CH

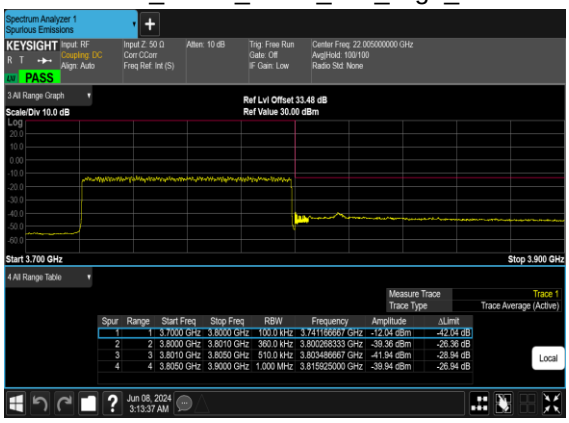


N78(80M)_DFT-s-OFDM_BPSK_Edge_1RB_Right_High_CH

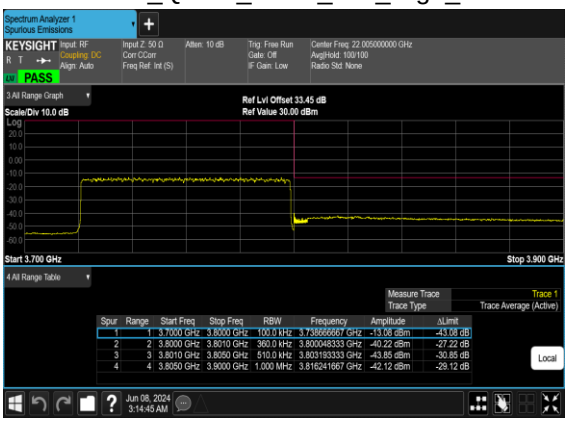


N78(80M)_DFT-s-OFDM_QPSK_Edge_1RB_Right_High_CH

N78(80M)_DFT-s-OFDM_BPSK_Outer_Full_High_CH



N78(80M)_DFT-s-OFDM_QPSK_Outer_Full_High_CH



Appendix B. Test Results of Radiated Test

Radiated Spurious Emission

Test Engineer :	Chris	Temperature :	23~25℃
		Relative Humidity :	41~42%

n41 SA / NR 100MHz / QPSK								
Channel	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)
Middle	5092	-60.28	-25	-35.28	-70.49	3.03	13.24	H
	7626	-45.28	-25	-20.28	-54.73	3.56	13.01	H
	10188	-62.37	-25	-37.37	-71.89	3.92	13.44	H
	5092	-57.22	-25	-32.22	-67.43	3.03	13.24	V
	7640	-44.89	-25	-19.89	-54.34	3.56	13.01	V
	10188	-62.17	-25	-37.17	-71.69	3.92	13.44	V

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

EN-DC_41A_n77A / LTE 10MHz + NR 100MHz / QPSK								
Channel	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)
Middle	7583	-55.99	-13	-42.99	-66.20	3.03	13.24	H
	11378	-52.66	-13	-39.66	-62.11	3.56	13.01	H
	15162	-57.10	-13	-44.10	-66.62	3.92	13.44	H
	7583	-57.94	-13	-44.94	-68.15	3.03	13.24	V
	11378	-53.03	-13	-40.03	-62.48	3.56	13.01	V
	15162	-59.89	-13	-46.89	-69.41	3.92	13.44	V

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

EN-DC_41A_n78A / LTE 10MHz + NR 100MHz / QPSK								
Channel	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)
Middle	7407	-62.51	-13	-49.51	-72.72	3.03	13.24	H
	11103	-50.57	-13	-37.57	-60.02	3.56	13.01	H
	14821	-59.73	-13	-46.73	-69.25	3.92	13.44	H
	7407	-62.53	-13	-49.53	-72.74	3.03	13.24	V
	11103	-59.31	-13	-46.31	-68.76	3.56	13.01	V
	14821	-59.91	-13	-46.91	-69.43	3.92	13.44	V

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

SA_n77 / 100MHz / QPSK								
Channel	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)
Middle	7583	-59.53	-13	-46.53	-69.74	3.03	13.24	H
	11378	-52.47	-13	-39.47	-61.92	3.56	13.01	H
	15162	-57.27	-13	-44.27	-66.79	3.92	13.44	H
	7583	-60.81	-13	-47.81	-71.02	3.03	13.24	V
	11378	-52.80	-13	-39.80	-62.25	3.56	13.01	V
	15162	-58.84	-13	-45.84	-68.36	3.92	13.44	V

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