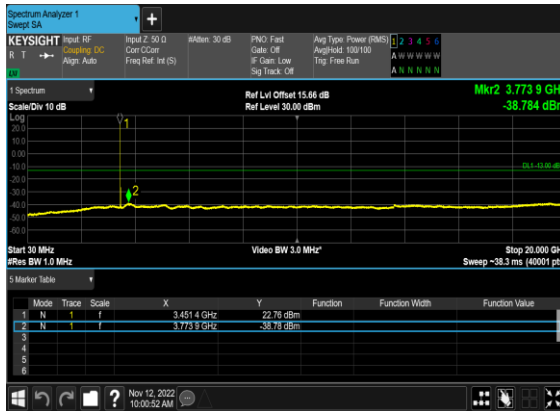
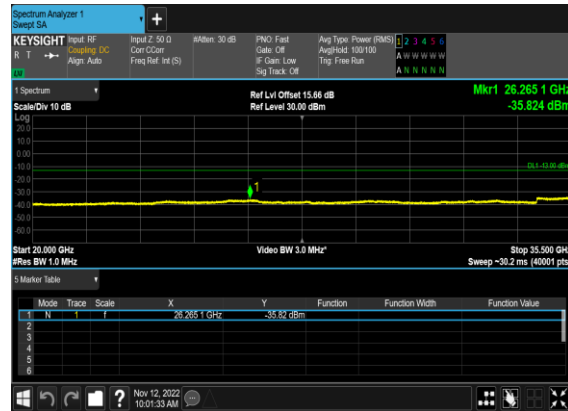


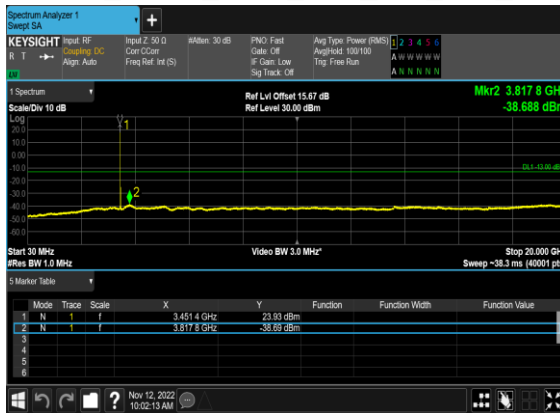
N78(50M)_DFT-s- OFDM_BPSK_Edge_1RB_Left_Low_CH



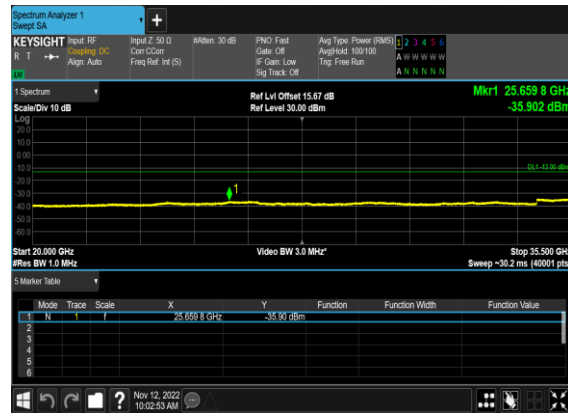
N78(50M)_DFT-s- OFDM_BPSK_Edge_1RB_Left_Low_CH



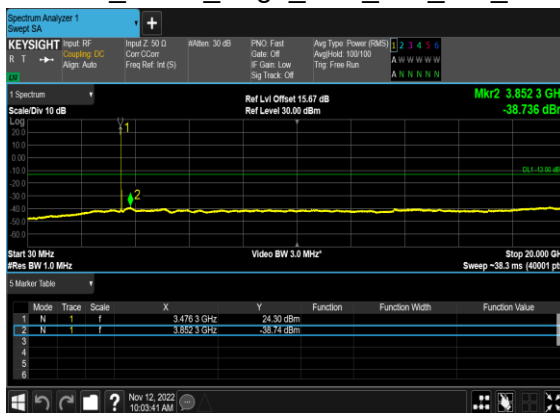
N78(50M)_DFT-s- OFDM_QPSK_Edge_1RB_Left_Low_CH



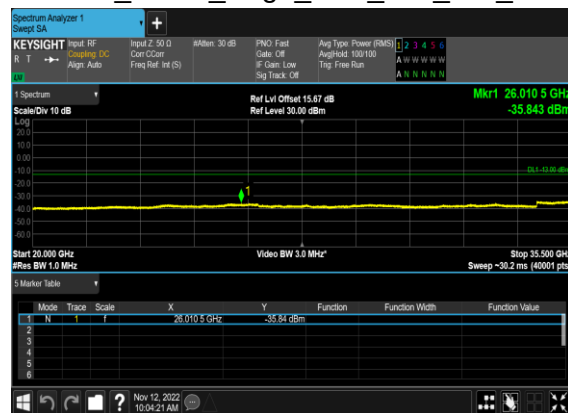
N78(50M)_DFT-s- OFDM_QPSK_Edge_1RB_Left_Low_CH



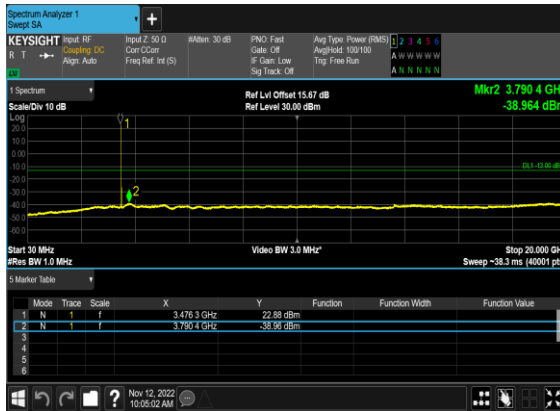
N78(50M)_DFT-s- OFDM_BPSK_Edge_1RB_Left_Mid_CH



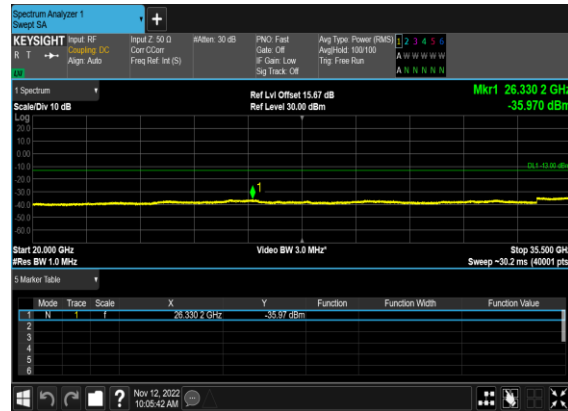
N78(50M)_DFT-s- OFDM_BPSK_Edge_1RB_Left_Mid_CH



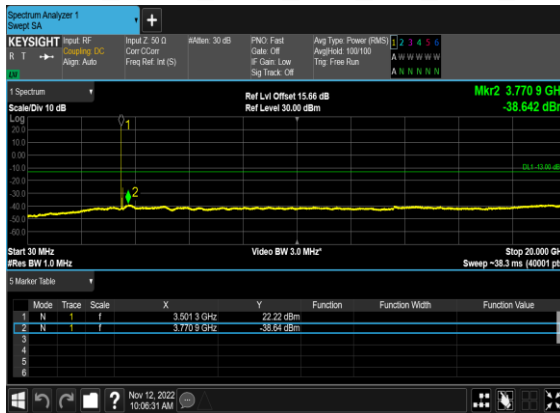
N78(50M)_DFT-s- OFDM_QPSK_Edge_1RB_Left_Mid_CH



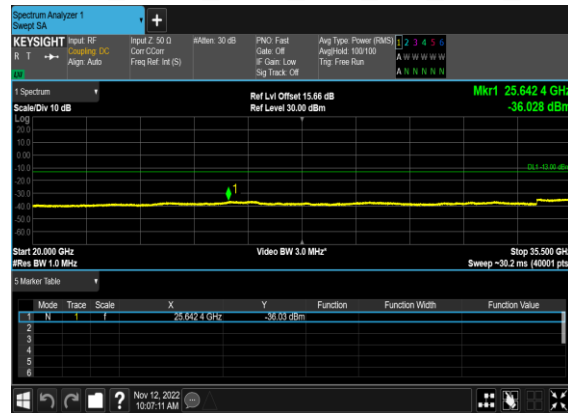
N78(50M)_DFT-s- OFDM_QPSK_Edge_1RB_Left_Mid_CH



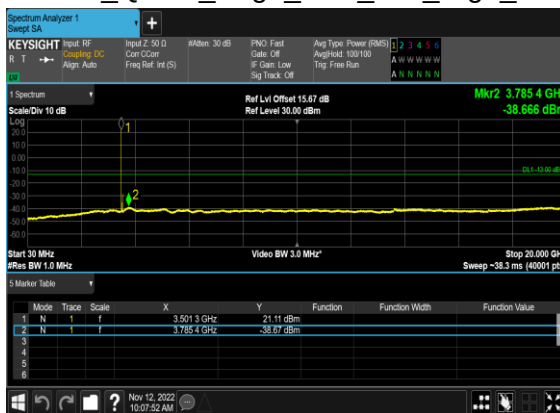
N78(50M)_DFT-s- OFDM_BPSK_Edge_1RB_Left_High_CH



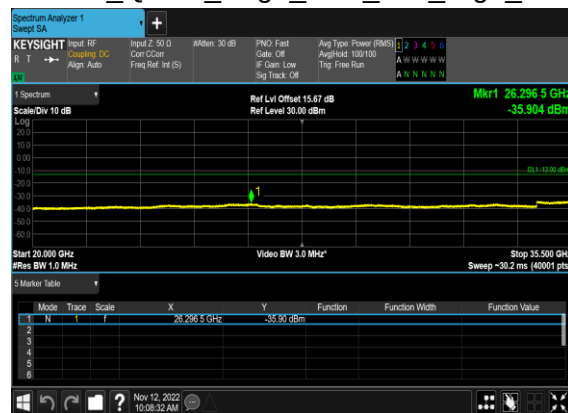
N78(50M)_DFT-s- OFDM_BPSK_Edge_1RB_Left_High_CH



N78(50M)_DFT-s- OFDM_QPSK_Edge_1RB_Left_High_CH



N78(50M)_DFT-s- OFDM_QPSK_Edge_1RB_Left_High_CH



Keysight Spectrum Analyzer 1

Input RF: CW
 Input Z: 50 Ω
 Core Ref: Int (S)
 #dBm: 30 dB
 PNO: Fast
 Gate: Off
 # Gain: Low
 Sig Track: Off

Avg Type: Power (RMS)
 AvgRate: 100/100
 Trg: Free Run

1 2 3 4 5 6
 A W W W W W
 A N N N N N

Scale: 10 dB
 Div 10 dB

Ref Lvl Offset: 15.67 dB
 Ref Level: 30.00 dBm

Mkr2: 3.7824 GHz
 -38.46 dBm

0.00
 10.00
 20.00
 30.00
 40.00
 50.00
 60.00
 70.00
 80.00
 90.00
 100.00

Start: 30 MHz
 Res BW: 10 MHz
 Video BW: 3.0 MHz

Sweep: 30 MHz
 Stop: 200.00 MHz
 Sweep: -38.3 ms (#40001 pts)

Marker Table

Mode	Trace	Scale	X	Y	Function	Function Width	Function Value
1	N	1	3.4514 GHz	23.29 dBm			
2	N	1	3.7824 GHz	-38.46 dBm			
3							
4							
5							
6							

Keysight Spectrum Analyzer 1
Sweep SA

KEYSIGHT Input RF **Channel** DC **Align** Auto
R T **Align** Auto
IN

Input Z: 50 Ω
Core C/Corr
Freq Ref: 1st (S)

AttAtt: 30 dB
PNO Fast
Gate Off
IF Gain: Low
Sig Track: Off

Avg Type: Power (RMS)
Avegknt: 100100
Ttp: Free Run

2 3 4 5 6
A W W W W W
A N N N N N

1 Spectrum
Scale/Div 10 dB
Log
20.0
10.0
0.0
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
-70.0
-80.0
-90.0
-100.0
-110.0
-120.0
-130.0
-140.0
-150.0
-160.0
-170.0
-180.0
-190.0
-200.0
-210.0
-220.0
-230.0
-240.0
-250.0
-260.0
-270.0
-280.0
-290.0
-300.0
-310.0
-320.0
-330.0
-340.0
-350.0
-360.0
-370.0
-380.0
-390.0
-400.0
-410.0
-420.0
-430.0
-440.0
-450.0
-460.0
-470.0
-480.0
-490.0
-500.0
-510.0
-520.0
-530.0
-540.0
-550.0
-560.0
-570.0
-580.0
-590.0
-600.0
-610.0
-620.0
-630.0
-640.0
-650.0
-660.0
-670.0
-680.0
-690.0
-700.0
-710.0
-720.0
-730.0
-740.0
-750.0
-760.0
-770.0
-780.0
-790.0
-800.0
-810.0
-820.0
-830.0
-840.0
-850.0
-860.0
-870.0
-880.0
-890.0
-900.0
-910.0
-920.0
-930.0
-940.0
-950.0
-960.0
-970.0
-980.0
-990.0
-1000.0
-1010.0
-1020.0
-1030.0
-1040.0
-1050.0
-1060.0
-1070.0
-1080.0
-1090.0
-1100.0
-1110.0
-1120.0
-1130.0
-1140.0
-1150.0
-1160.0
-1170.0
-1180.0
-1190.0
-1200.0
-1210.0
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-1230.0
-1240.0
-1250.0
-1260.0
-1270.0
-1280.0
-1290.0
-1300.0
-1310.0
-1320.0
-1330.0
-1340.0
-1350.0
-1360.0
-1370.0
-1380.0
-1390.0
-1400.0
-1410.0
-1420.0
-1430.0
-1440.0
-1450.0
-1460.0
-1470.0
-1480.0
-1490.0
-1500.0
-1510.0
-1520.0
-1530.0
-1540.0
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-1560.0
-1570.0
-1580.0
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-1600.0
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-2890.0
-2900.0
-2910.0
-2920.0
-2930.0
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-2960.0
-2970.0
-2980.0
-2990.0
-3000.0
-3010.0
-3020.0
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-3070.0
-3080.0
-3090.0
-3100.0
-3110.0
-3120.0
-3130.0
-3140.0
-3150.0
-3160.0
-3170.0
-3180.0
-3190.0
-3200.0
-3210.0
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-3490.0
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-4090.0
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-4150.0
-4160.0
-4170.0
-4180.0
-4190.0
-4200.0
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-4250.0
-4260.0
-4270.0
-4280.0
-4290.0
-4300.0
-4310.0
-4320.0
-4330.0
-4340.0

Spectrum Analyzer 1
Sweep SA

KEYSTRT Input RF
R T Locking DC
Align Auto

Input Z: 50.0
Cen Freq: 3.810 GHz
Span: 10.0 MHz

Att: 30 dB
Ref Level: 30.0 dBm

PHO Fast
Gate: Off
IF Gain: Low
Sig Track: Off

Avg Type: Power (RMS)
Averaging: 100100
Trigger: Free Run

1 2 3 4 5 6
A W W W W W
N N N N N N

1 Spectrum
Scale/Div 10 dB
Log
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
-70.0
-80.0
-90.0
-100.0

Ref Level Offset: 15.67 dBm
Ref Level: 30.0 dBm

Mkr2: 3.810 GHz
-38.598 dBm

Start 30 MHz
#Res BW 1.0 MHz

Video BW 3.0 MHz

Stop 20.0 GHz
Sweep ~38.3 ms (400001 pts)

5 Marker Table

Mode	Trace	Scale	X	Y	Function	Function Width	Function Value
1	N	1	f	22.08 dBm			
2	N	1	f	-38.59 dBm			
3							
4							
5							
6							

Nov 12, 2022
10:10:42 AM

Spectrum Analyzer 1
Sweep SA

KEYSIGHT Input: RF, Output: DC, Alphas: Auto, Intf Z: 50 Ω, Corr: Ccorr, Freq Ref: 1st (S), #Aftm: 30 dB, PNO: Fast, Gate: Off, #F: 1001, #F: 1001, Avg Type: Power (RMS), A: 1 2 3 4 5 6, A: W W W W W W, A: N N N N N N

1 Spectrum
Scale/Div: 10 dB
Log
20 dB
10 dB
0 dB
-10 dB
-20 dB
-30 dB
-40 dB
-50 dB
Start: 20.000 GHz
#Res: BW 1.0 MHz
Video BW: 3.0 MHz
Stop: 35.500 GHz
Sweep: ~30.2 ms (40001 pts)

Ref Lvl Offset: 15.67 dB
Ref Level: 30.00 dBm

Mr1: 25.886 1 GHz
-36.02 dBm

5 Marker Table

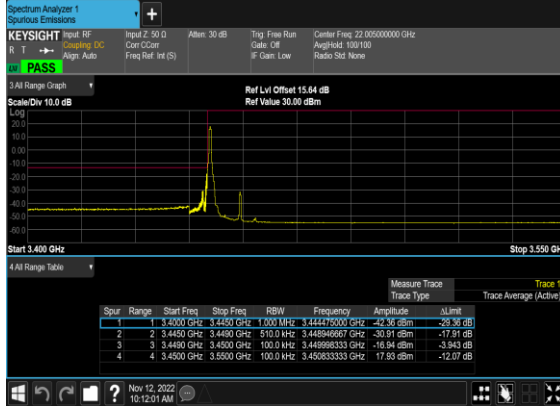
Mode	Trace	Scale	X	Y	Function	Function Width	Function Value
1	N	F	25.886 1 GHz	-36.02 dBm			
2							
3							
4							
5							
6							

Nov 12, 2022
10:11:22 AM

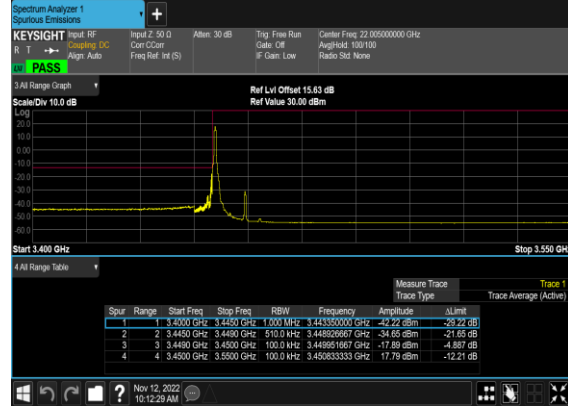
Conducted Band Edge

NR Band	SCS (kHz)	Bandwidth (MHz)	Arfcn	Freq (MHz)	Modulation	RB	Result	Verdict
78	30	10	630334	3455.01	DFT-s-OFDM BPSK	1@0	see graph	PASS
78	30	10	630334	3455.01	DFT-s-OFDM QPSK	1@0	see graph	PASS
78	30	10	630334	3455.01	DFT-s-OFDM BPSK	24@0	see graph	PASS
78	30	10	630334	3455.01	DFT-s-OFDM QPSK	24@0	see graph	PASS
78	30	10	636332	3544.98	DFT-s-OFDM BPSK	1@23	see graph	PASS
78	30	10	636332	3544.98	DFT-s-OFDM QPSK	1@23	see graph	PASS
78	30	10	636332	3544.98	DFT-s-OFDM BPSK	24@0	see graph	PASS
78	30	10	636332	3544.98	DFT-s-OFDM QPSK	24@0	see graph	PASS
78	30	50	631668	3475.02	DFT-s-OFDM BPSK	1@0	see graph	PASS
78	30	50	631668	3475.02	DFT-s-OFDM QPSK	1@0	see graph	PASS
78	30	50	631668	3475.02	DFT-s-OFDM BPSK	128@0	see graph	PASS
78	30	50	631668	3475.02	DFT-s-OFDM QPSK	128@0	see graph	PASS
78	30	50	635000	3525.0	DFT-s-OFDM BPSK	1@132	see graph	PASS
78	30	50	635000	3525.0	DFT-s-OFDM QPSK	1@132	see graph	PASS
78	30	50	635000	3525.0	DFT-s-OFDM BPSK	128@0	see graph	PASS
78	30	50	635000	3525.0	DFT-s-OFDM QPSK	128@0	see graph	PASS
78	30	100	633334	3500.01	DFT-s-OFDM BPSK	1@0	see graph	PASS
78	30	100	633334	3500.01	DFT-s-OFDM QPSK	1@0	see graph	PASS
78	30	100	633334	3500.01	DFT-s-OFDM BPSK	1@272	see graph	PASS
78	30	100	633334	3500.01	DFT-s-OFDM QPSK	1@272	see graph	PASS
78	30	100	633334	3500.01	DFT-s-OFDM BPSK	270@0	see graph	PASS
78	30	100	633334	3500.01	DFT-s-OFDM QPSK	270@0	see graph	PASS

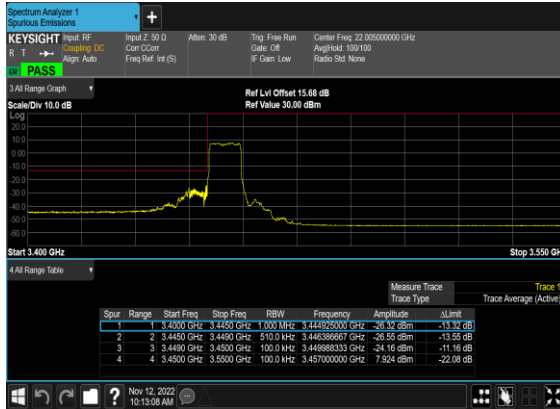
N78(10M)_DFT-s-
OFDM_BPSK_Edge_1RB_Left_Low_CH



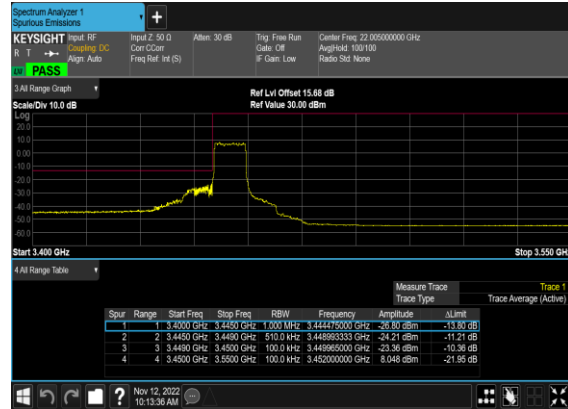
N78(10M)_DFT-s-
OFDM_QPSK_Edge_1RB_Left_Low_CH



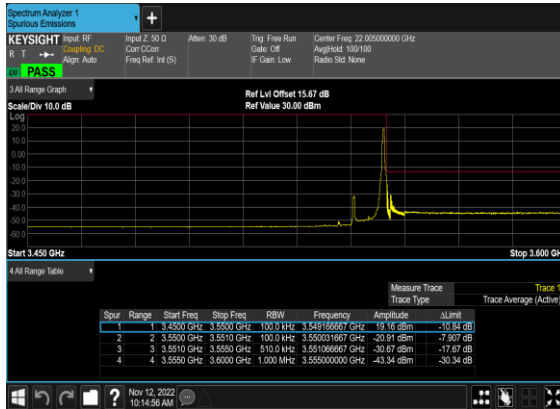
N78(10M)_DFT-s-
OFDM_BPSK_Outer_Full_Low_CH



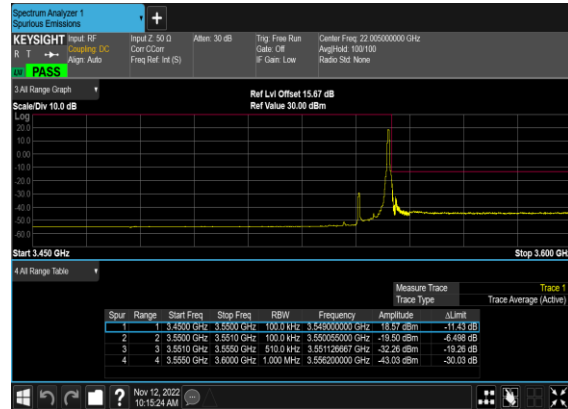
N78(10M)_DFT-s-
OFDM_QPSK_Outer_Full_Low_CH



N78(10M)_DFT-s-
OFDM_BPSK_Edge_1RB_Right_High_CH



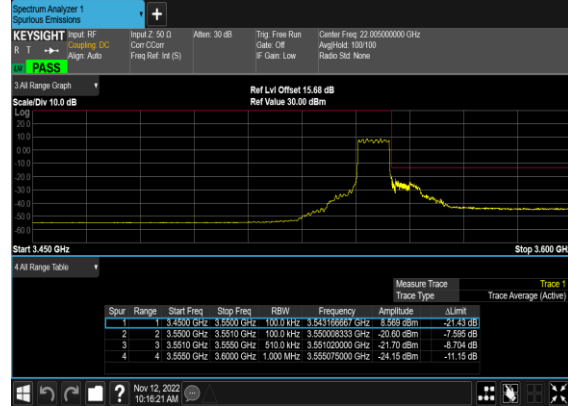
N78(10M)_DFT-s-
OFDM_QPSK_Edge_1RB_Right_High_CH



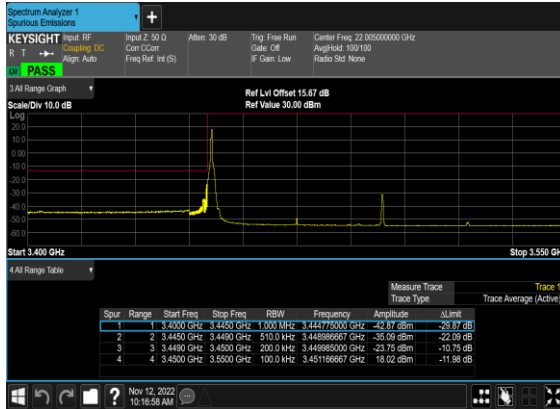
N78(10M)_DFT-s-
OFDM_BPSK_Outer_Full_High_CH



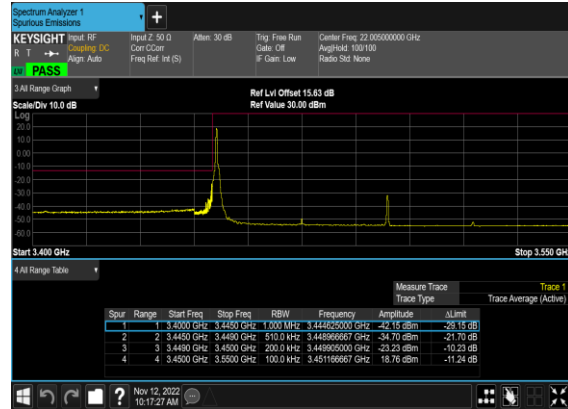
N78(10M)_DFT-s-
OFDM_QPSK_Outer_Full_High_CH



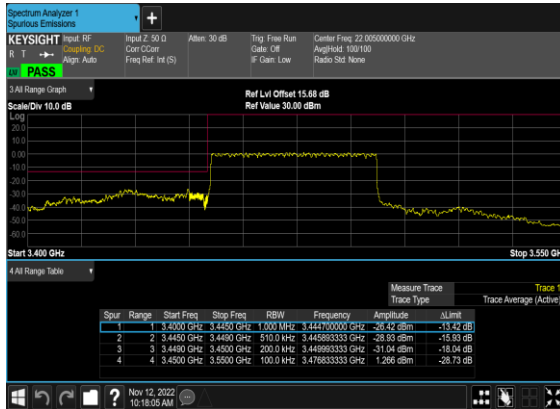
N78(50M)_DFT-s-
OFDM_BPSK_Edge_1RB_Left_Low_CH



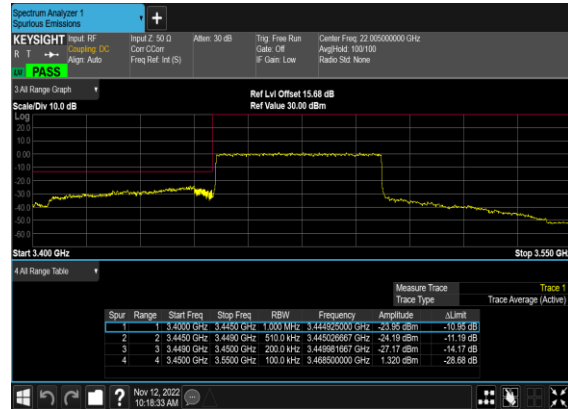
N78(50M)_DFT-s-
OFDM_QPSK_Edge_1RB_Left_Low_CH



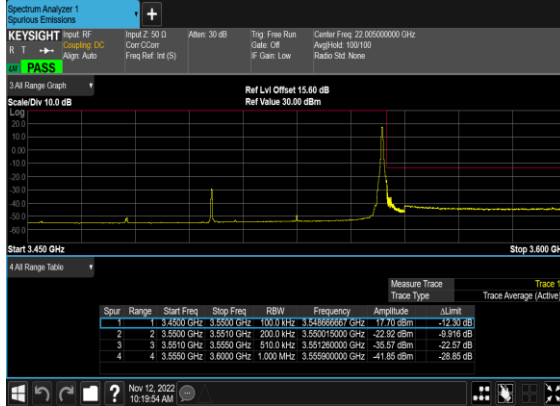
N78(50M)_DFT-s-
OFDM_BPSK_Outer_Full_Low_CH



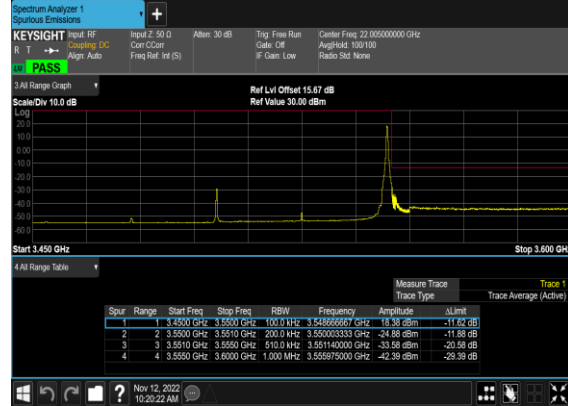
N78(50M)_DFT-s-
OFDM_QPSK_Outer_Full_Low_CH



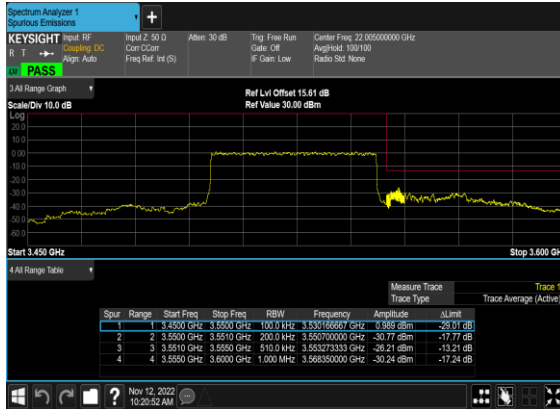
N78(50M)_DFT-s-OFDM_BPSK_Edge_1RB_Right_High_CH



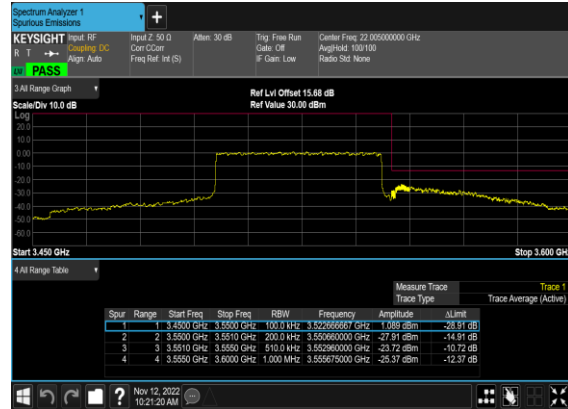
N78(50M)_DFT-s-OFDM_QPSK_Edge_1RB_Right_High_CH



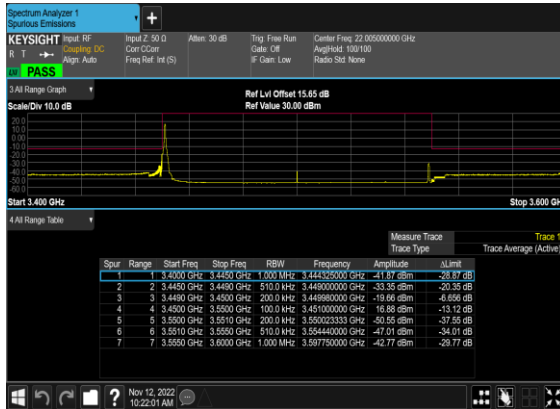
N78(50M)_DFT-s-OFDM_BPSK_Outer_Full_High_CH



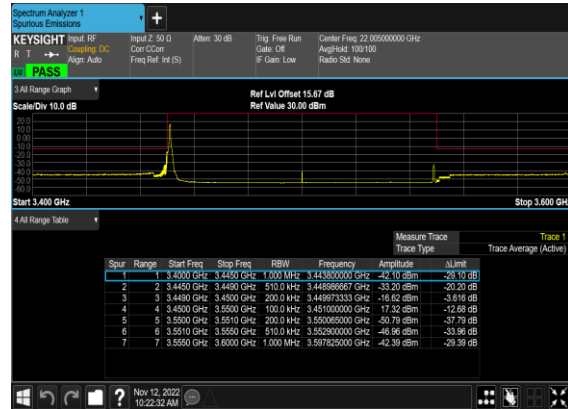
N78(50M)_DFT-s-OFDM_QPSK_Outer_Full_High_CH



N78(100M)_DFT-s-OFDM_BPSK_Edge_1RB_Left_Mid_CH



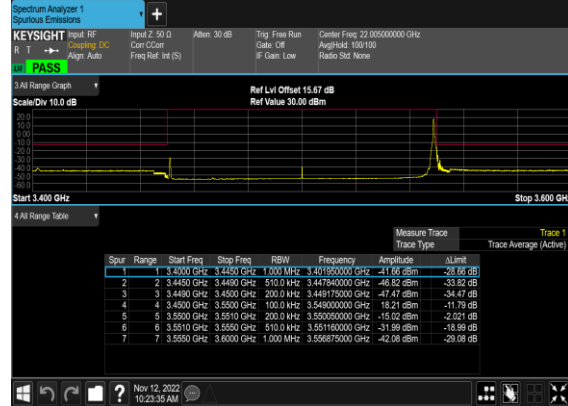
N78(100M)_DFT-s-OFDM_QPSK_Edge_1RB_Left_Mid_CH



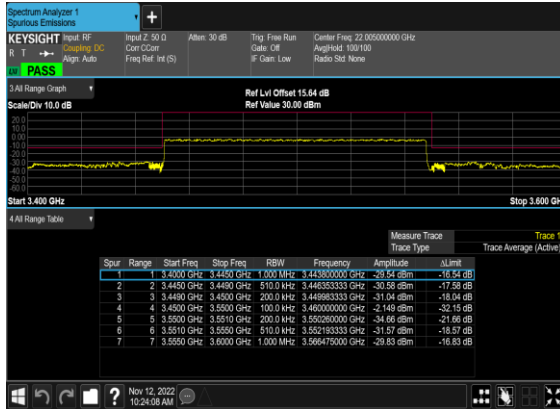
N78(100M)_DFT-s- OFDM_BPSK_Edge_1RB_Right_Mid_CH



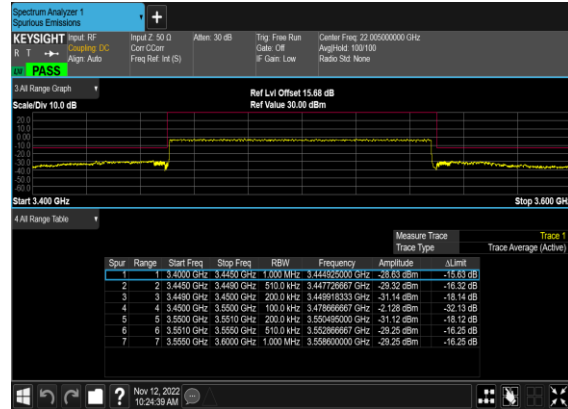
N78(100M)_DFT-s- OFDM_QPSK_Edge_1RB_Right_Mid_CH



N78(100M)_DFT-s- OFDM_BPSK_Outer_Full_Mid_CH



N78(100M)_DFT-s- OFDM_QPSK_Outer_Full_Mid_CH



Appendix B. Test Results of Radiated Test

Radiated Spurious Emission

Test Engineer :	Carry Xu	Temperature :	23~25°C
		Relative Humidity :	41~42%

Note: Pre-scanned harmonic for the different antenna combinations, we choose the worst antenna mode to perform final test.

n77 SA / NR 100MHz / QPSK / ANT7								
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	6900	-55.26	-13	-42.26	-65.47	3.03	13.24	H
	10356	-58.95	-13	-45.95	-68.40	3.56	13.01	H
	13818	-61.12	-13	-48.12	-70.64	3.92	13.44	H
	6900	-61.31	-13	-48.31	-71.52	3.03	13.24	V
	10356	-59.51	-13	-46.51	-68.96	3.56	13.01	V
	13818	-61.22	-13	-48.22	-70.74	3.92	13.44	V

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

n78 SA / NR 100MHz / QPSK / ANT6								
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	6900	-57.46	-13	-44.46	-67.67	3.03	13.24	H
	10368	-60.92	-13	-47.92	-70.37	3.56	13.01	H
	13818	-60.96	-13	-47.96	-70.48	3.92	13.44	H
	6900	-62.90	-13	-49.90	-73.11	3.03	13.24	V
	10368	-61.12	-13	-48.12	-70.57	3.56	13.01	V
	13818	-61.47	-13	-48.47	-70.99	3.92	13.44	V

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

EN-DC_2A_n78A / LTE 20MHz + NR 100MHz / QPSK / ANT5(LTE) & ANT6(NR)								
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	6900	-59.37	-13	-46.37	-69.58	3.03	13.24	H
	10356	-60.31	-13	-47.31	-69.76	3.56	13.01	H
	13818	-61.37	-13	-48.37	-70.89	3.92	13.44	H
	6900	-62.68	-13	-49.68	-72.89	3.03	13.24	V
	10356	-58.95	-13	-45.95	-68.40	3.56	13.01	V
	13818	-61.38	-13	-48.38	-70.90	3.92	13.44	V

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

EN-DC_5A_n78A / LTE 10MHz + NR 100MHz / QPSK / ANT1(LTE) & ANT6(NR)								
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	6900	-56.69	-13	-43.69	-66.90	3.03	13.24	H
	10356	-59.27	-13	-46.27	-68.72	3.56	13.01	H
	13818	-61.09	-13	-48.09	-70.61	3.92	13.44	H
	6900	-60.88	-13	-47.88	-71.09	3.03	13.24	V
	10356	-54.63	-13	-41.63	-64.08	3.56	13.01	V
	13818	-61.06	-13	-48.06	-70.58	3.92	13.44	V

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

EN-DC_7A_n78A / LTE 20MHz + NR 100MHz / QPSK / ANT3(LTE) & ANT6(NR)								
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	6900	-57.30	-13	-44.30	-67.51	3.03	13.24	H
	10356	-59.60	-13	-46.60	-69.05	3.56	13.01	H
	13818	-61.32	-13	-48.32	-70.84	3.92	13.44	H
	6900	-60.69	-13	-47.69	-70.90	3.03	13.24	V
	10356	-57.41	-13	-44.41	-66.86	3.56	13.01	V
	13818	-61.42	-13	-48.42	-70.94	3.92	13.44	V

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

EN-DC_38A_n78A / LTE 20MHz + NR 100MHz / QPSK / ANT3(LTE) & ANT6(NR)								
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	6900	-55.75	-13	-42.75	-65.96	3.03	13.24	H
	10356	-60.02	-13	-47.02	-69.47	3.56	13.01	H
	13818	-61.46	-13	-48.46	-70.98	3.92	13.44	H
	6900	-60.55	-13	-47.55	-70.76	3.03	13.24	V
	10356	-56.70	-13	-43.70	-66.15	3.56	13.01	V
	13818	-61.45	-13	-48.45	-70.97	3.92	13.44	V

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

EN-DC_41A_n78A / LTE 20MHz + NR 100MHz / QPSK / ANT3(LTE) & ANT6(NR)								
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	6900	-58.33	-13	-45.33	-68.54	3.03	13.24	H
	10356	-60.11	-13	-47.11	-69.56	3.56	13.01	H
	13818	-61.28	-13	-48.28	-70.80	3.92	13.44	H
	6900	-61.08	-13	-48.08	-71.29	3.03	13.24	V
	10356	-59.83	-13	-46.83	-69.28	3.56	13.01	V
	13818	-61.36	-13	-48.36	-70.88	3.92	13.44	V

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