1 Conducted output power for NR FR1

Band	SCS (kHz)	Bandwidth (MHz)	UL Channel	RB Allocation	Modulation	Power (dBm)	Gain (dBm)	EIRP (dBm)	EIRP Limit (dBm)	Verdict
n78(3700-3800)	30	70	649000	90@45	DFT_BPSK	27.00	-2.3	24.70	30	PASS
n78(3700-3800)	30	70	649000	1@1	DFT_BPSK	26.38	-2.3	24.08	30	PASS
n78(3700-3800)	30	70	649000	1@187	DFT_BPSK	26.40	-2.3	24.10	30	PASS
n78(3700-3800)	30	70	649000	90@45	DFT_QPSK	26.96	-2.3	24.66	30	PASS
n78(3700-3800)	30	70	649000	1@1	DFT_QPSK	26.29	-2.3	23.99	30	PASS
n78(3700-3800)	30	70	649000	1@187	DFT_QPSK	26.19	-2.3	23.89	30	PASS
n78(3700-3800)	30	70	649000	90@45	DFT_QAM16	26.09	-2.3	23.79	30	PASS
n78(3700-3800)	30	70	649000	1@1	DFT_QAM16	25.57	-2.3	23.27	30	PASS
n78(3700-3800)	30	70	649000	1@187	DFT_QAM16	25.47	-2.3	23.17	30	PASS
n78(3700-3800)	30	70	649000	90@45	DFT_QAM64	24.51	-2.3	22.21	30	PASS
n78(3700-3800)	30	70	649000	1@1	DFT_QAM64	24.44	-2.3	22.14	30	PASS
n78(3700-3800)	30	70	649000	1@187	DFT_QAM64	24.44	-2.3	22.14	30	PASS
n78(3700-3800)	30	70	649000	95@47	CP_QPSK	25.43	-2.3	23.13	30	PASS
n78(3700-3800)	30	70	649000	1@1	CP_QPSK	24.93	-2.3	22.63	30	PASS
n78(3700-3800)	30	70	649000	1@187	CP_QPSK	24.88	-2.3	22.58	30	PASS
n78(3700-3800)	30	70	649000	95@47	CP_QAM16	25.02	-2.3	22.72	30	PASS
n78(3700-3800)	30	70	649000	1@1	CP_QAM16	24.69	-2.3	22.39	30	PASS
n78(3700-3800)	30	70	649000	1@187	CP_QAM16	24.73	-2.3	22.43	30	PASS
n78(3700-3800)	30	70	649000	95@47	CP_QAM64	23.57	-2.3	21.27	30	PASS
n78(3700-3800)	30	70	649000	1@1	CP_QAM64	23.24	-2.3	20.94	30	PASS
n78(3700-3800)	30	70	649000	1@187	CP_QAM64	23.09	-2.3	20.79	30	PASS
n78(3700-3800)	30	70	650000	90@45	DFT_BPSK	26.86	-2.3	24.56	30	PASS
n78(3700-3800)	30	70	650000	1@1	DFT_BPSK	26.47	-2.3	24.17	30	PASS
n78(3700-3800)	30	70	650000	1@187	DFT_BPSK	26.40	-2.3	24.10	30	PASS
n78(3700-3800)	30	70	650000	90@45	DFT_QPSK	26.90	-2.3	24.60	30	PASS
n78(3700-3800)	30	70	650000	1@1	DFT_QPSK	26.41	-2.3	24.11	30	PASS
n78(3700-3800)	30	70	650000	1@187	DFT_QPSK	26.17	-2.3	23.87	30	PASS
n78(3700-3800)	30	70	650000	90@45	DFT_QAM16	25.86	-2.3	23.56	30	PASS
n78(3700-3800)	30	70	650000	1@1	DFT_QAM16	25.67	-2.3	23.37	30	PASS
n78(3700-3800)	30	70	650000	1@187	DFT_QAM16	25.49	-2.3	23.19	30	PASS
n78(3700-3800)	30	70	650000	90@45	DFT_QAM64	24.43	-2.3	22.13	30	PASS
n78(3700-3800)	30	70	650000	1@1	DFT_QAM64	24.07	-2.3	21.77	30	PASS
n78(3700-3800)	30	70	650000	1@187	DFT_QAM64	24.50	-2.3	22.20	30	PASS
n78(3700-3800)	30	70	650000	95@47	CP_QPSK	25.33	-2.3	23.03	30	PASS
n78(3700-3800)	30	70	650000	1@1	CP_QPSK	25.02	-2.3	22.72	30	PASS
n78(3700-3800)	30	70	650000	1@187	CP_QPSK	24.90	-2.3	22.60	30	PASS
n78(3700-3800)	30	70	650000	95@47	CP_QAM16	24.93	-2.3	22.63	30	PASS

n78(3700-3800)	30	70	650000	1@1	CP_QAM16	24.77	-2.3	22.47	30	PASS
n78(3700-3800)	30	70	650000	1@187	CP_QAM16	24.72	-2.3	22.42	30	PASS
n78(3700-3800)	30	70	650000	95@47	CP_QAM64	23.44	-2.3	21.14	30	PASS
n78(3700-3800)	30	70	650000	1@1	CP_QAM64	23.02	-2.3	20.72	30	PASS
n78(3700-3800)	30	70	650000	1@187	CP_QAM64	22.91	-2.3	20.61	30	PASS
n78(3700-3800)	30	70	651000	90@45	DFT_BPSK	26.83	-2.3	24.53	30	PASS
n78(3700-3800)	30	70	651000	1@1	DFT_BPSK	26.49	-2.3	24.19	30	PASS
n78(3700-3800)	30	70	651000	1@187	DFT_BPSK	26.53	-2.3	24.23	30	PASS
n78(3700-3800)	30	70	651000	90@45	DFT_QPSK	26.79	-2.3	24.49	30	PASS
n78(3700-3800)	30	70	651000	1@1	DFT_QPSK	26.35	-2.3	24.05	30	PASS
n78(3700-3800)	30	70	651000	1@187	DFT_QPSK	26.35	-2.3	24.05	30	PASS
n78(3700-3800)	30	70	651000	90@45	DFT_QAM16	25.81	-2.3	23.51	30	PASS
n78(3700-3800)	30	70	651000	1@1	DFT_QAM16	25.49	-2.3	23.19	30	PASS
n78(3700-3800)	30	70	651000	1@187	DFT_QAM16	25.54	-2.3	23.24	30	PASS
n78(3700-3800)	30	70	651000	90@45	DFT_QAM64	24.41	-2.3	22.11	30	PASS
n78(3700-3800)	30	70	651000	1@1	DFT_QAM64	24.12	-2.3	21.82	30	PASS
n78(3700-3800)	30	70	651000	1@187	DFT_QAM64	24.20	-2.3	21.90	30	PASS
n78(3700-3800)	30	70	651000	95@47	CP_QPSK	25.25	-2.3	22.95	30	PASS
n78(3700-3800)	30	70	651000	1@1	CP_QPSK	25.09	-2.3	22.79	30	PASS
n78(3700-3800)	30	70	651000	1@187	CP_QPSK	25.09	-2.3	22.79	30	PASS
n78(3700-3800)	30	70	651000	95@47	CP_QAM16	24.81	-2.3	22.51	30	PASS
n78(3700-3800)	30	70	651000	1@1	CP_QAM16	24.36	-2.3	22.06	30	PASS
n78(3700-3800)	30	70	651000	1@187	CP_QAM16	24.45	-2.3	22.15	30	PASS
n78(3700-3800)	30	70	651000	95@47	CP_QAM64	23.38	-2.3	21.08	30	PASS
n78(3700-3800)	30	70	651000	1@1	CP_QAM64	22.95	-2.3	20.65	30	PASS
n78(3700-3800)	30	70	651000	1@187	CP_QAM64	23.01	-2.3	20.71	30	PASS

2 Frequency stability for NR FR1

NT:

Band	SCS (kHz)	Bandwidth (MHz)	UL Channel	RB Allocation	Modulation	Voltage (Vdc)	Result(Hz)	Result (ppm)	Limit (ppm)	Verdict
n78(3700-3800)	30	70	650000	90@45	DFT_BPSK	3.89	-42.36	-0.01	Within authorized band for 5G NR n78	PASS
n78(3700-3800)	30	70	650000	90@45	DFT_BPSK	3.45	-45.44	-0.01		PASS
n78(3700-3800)	30	70	650000	90@45	DFT_BPSK	4.48	-32.78	-0.01		PASS
n78(3700-3800)	30	70	650000	90@45	DFT_QPSK	3.89	-23.66	-0.01		PASS
n78(3700-3800)	30	70	650000	90@45	DFT_QPSK	3.45	-22.09	-0.01		PASS
n78(3700-3800)	30	70	650000	90@45	DFT_QPSK	4.48	-21.65	-0.01		PASS

Note: Only the worst case shown in the report.

NV:

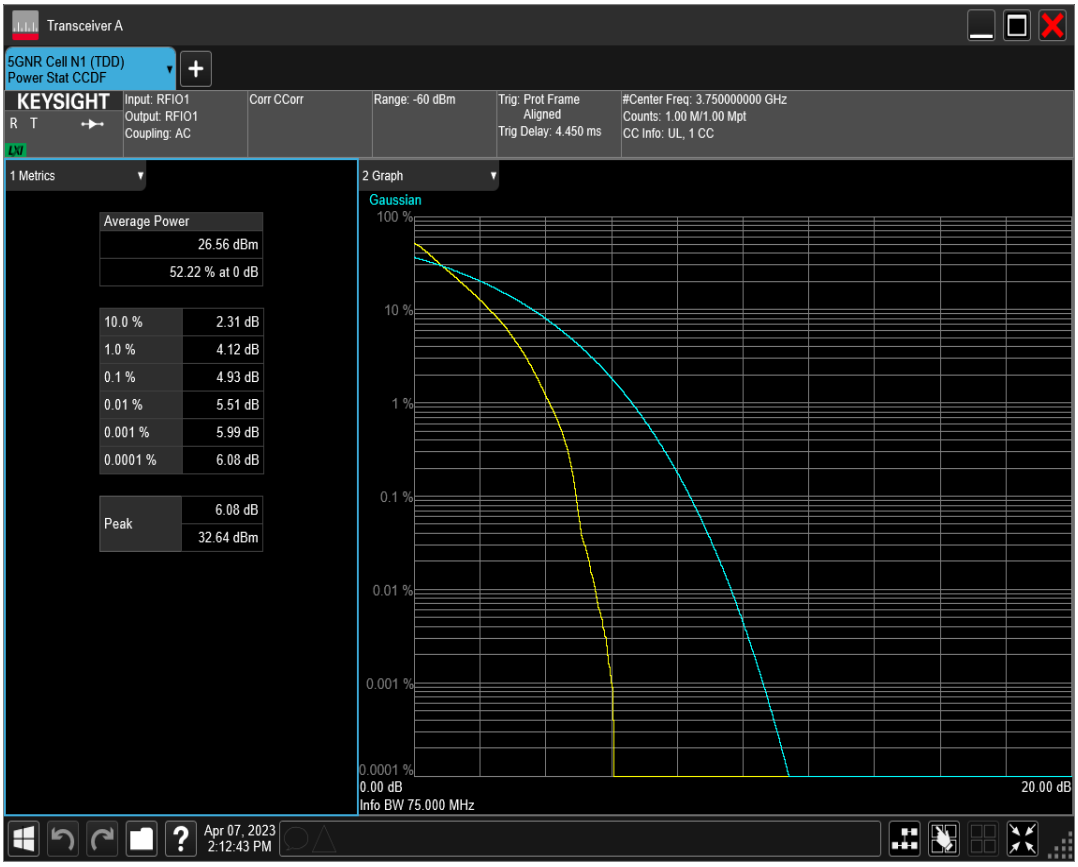
Band	SCS (kHz)	Bandwidth (MHz)	UL Channel	RB Allocation	Modulation	Voltage (Vdc)	Result(Hz)	Result (ppm)	Limit (ppm)	Verdict
n78(3700-3800)	30	70	650000	90@45	DFT_BPSK	-30	-42.25	-0.01	Within authorized band for 5G NR n78	PASS
n78(3700-3800)	30	70	650000	90@45	DFT_BPSK	-20	-45.83	-0.01		PASS
n78(3700-3800)	30	70	650000	90@45	DFT_BPSK	-10	-32.55	-0.01		PASS
n78(3700-3800)	30	70	650000	90@45	DFT_BPSK	0	-24.08	-0.01		PASS
n78(3700-3800)	30	70	650000	90@45	DFT_BPSK	10	-22.52	-0.01		PASS
n78(3700-3800)	30	70	650000	90@45	DFT_BPSK	20	-21.51	-0.01		PASS
n78(3700-3800)	30	70	650000	90@45	DFT_BPSK	30	-42.5	-0.01		PASS
n78(3700-3800)	30	70	650000	90@45	DFT_BPSK	40	-46.23	-0.01		PASS
n78(3700-3800)	30	70	650000	90@45	DFT_BPSK	50	-32.21	-0.01		PASS
n78(3700-3800)	30	70	650000	90@45	DFT_QPSK	-30	-24.29	-0.01		PASS
n78(3700-3800)	30	70	650000	90@45	DFT_QPSK	-20	-22.61	-0.01		PASS
n78(3700-3800)	30	70	650000	90@45	DFT_QPSK	-10	-21.49	-0.01		PASS
n78(3700-3800)	30	70	650000	90@45	DFT_QPSK	0	-42.45	-0.01		PASS
n78(3700-3800)	30	70	650000	90@45	DFT_QPSK	10	-46.27	-0.01		PASS
n78(3700-3800)	30	70	650000	90@45	DFT_QPSK	20	-32.53	-0.01		PASS
n78(3700-3800)	30	70	650000	90@45	DFT_QPSK	30	-23.87	-0.01		PASS
n78(3700-3800)	30	70	650000	90@45	DFT_QPSK	40	-22.35	-0.01		PASS
n78(3700-3800)	30	70	650000	90@45	DFT_QPSK	50	-21.47	-0.01		PASS

Note: Only the worst case shown in the report.

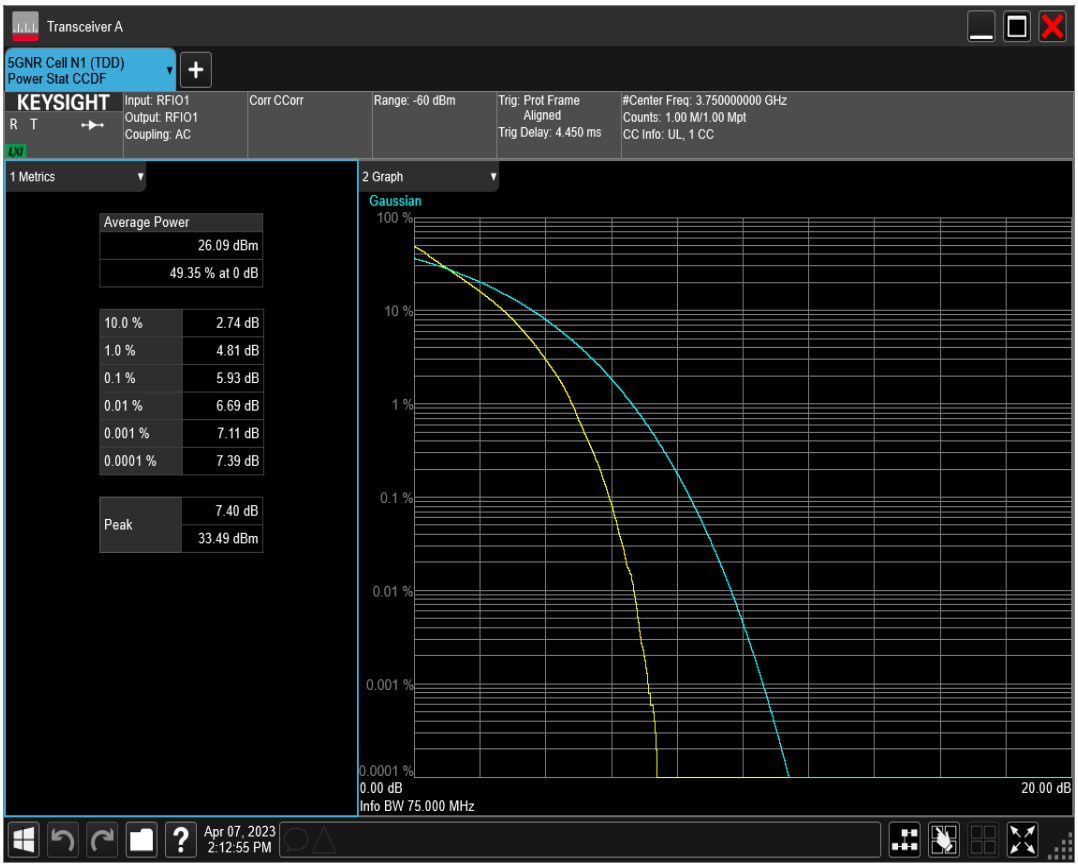
3 Peak-to-Average Ratio for NR FR1

Band	SCS (kHz)	Bandwidth (MHz)	UL Channel	RB Allocation	Modulation	Result (dB)	high Limit (dB)	Verdict
n78(3700-3800)	30	70	650000	180@0	DFT_BPSK	4.93	13	PASS
n78(3700-3800)	30	70	650000	180@0	DFT_QPSK	5.93	13	PASS
n78(3700-3800)	30	70	650000	180@0	DFT_QAM16	6.72	13	PASS
n78(3700-3800)	30	70	650000	180@0	DFT_QAM64	6.98	13	PASS

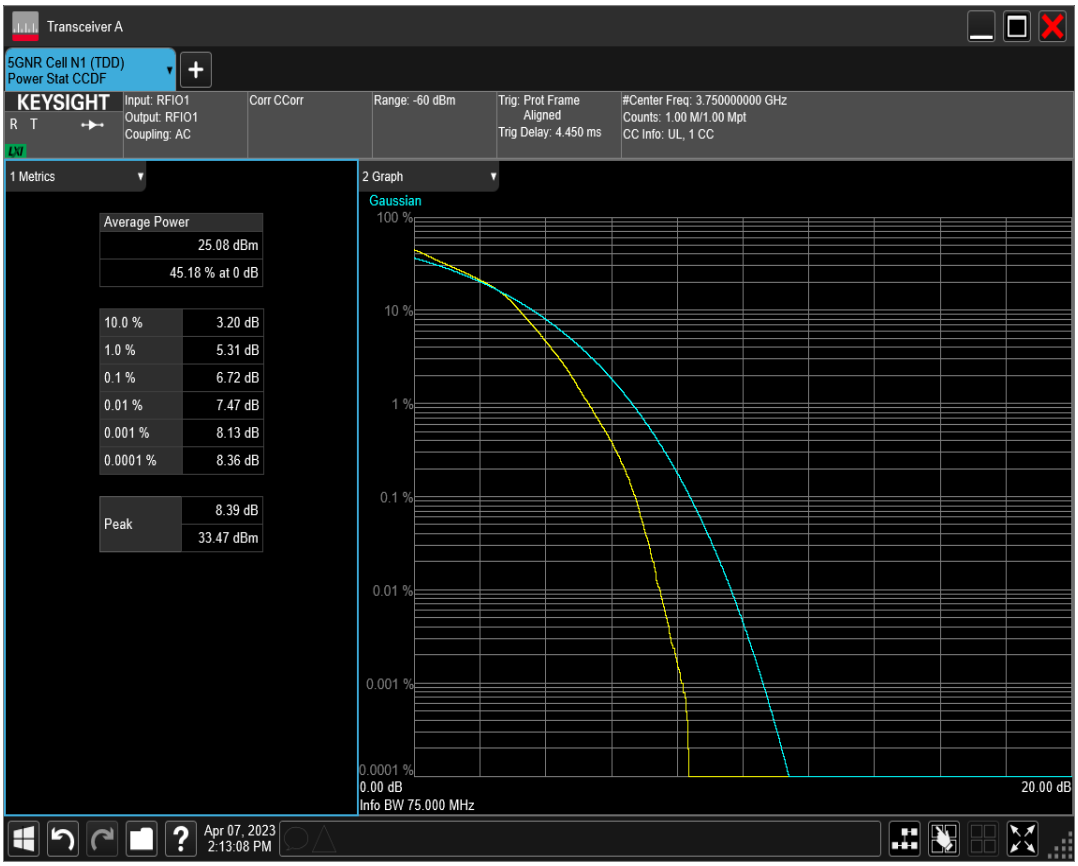
n78(3700-3800) SCS=30kHz DFT_BPSK BW=70MHz Channel=650000 RB=180@0



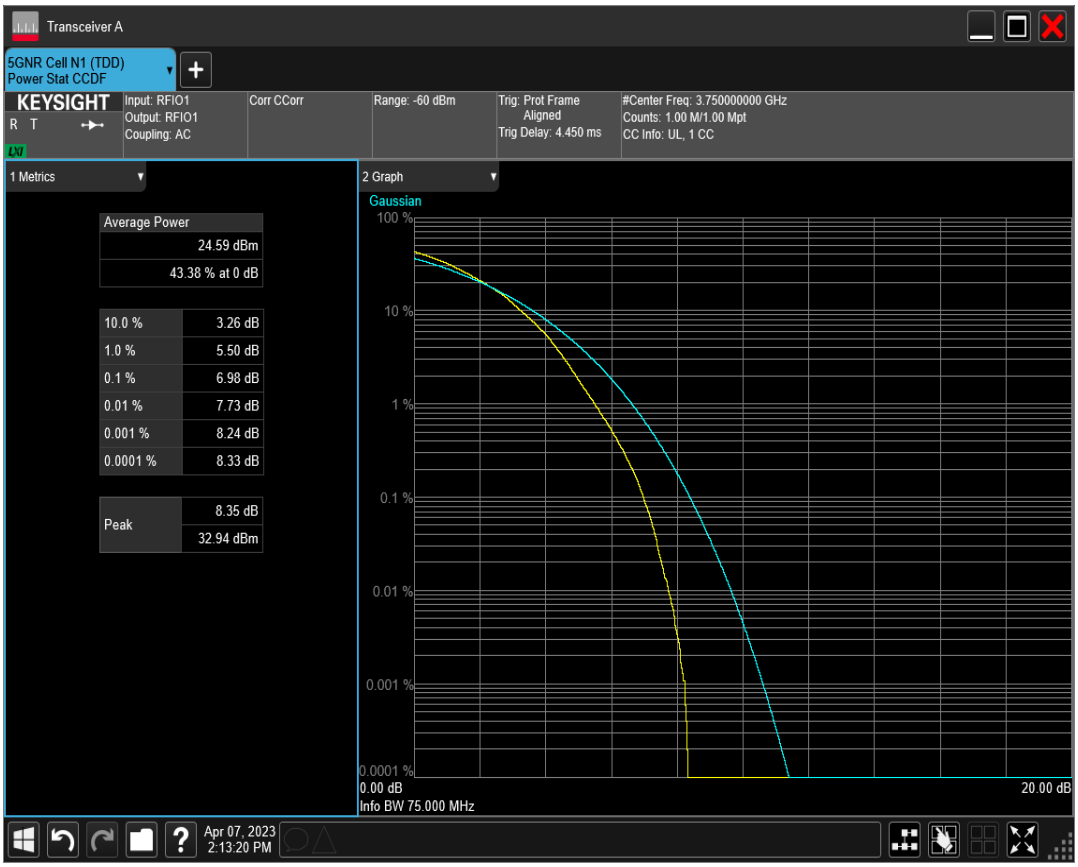
n78(3700-3800) SCS=30kHz DFT_QPSK BW=70MHz Channel=650000 RB=180@0



n78(3700-3800) SCS=30kHz DFT_QAM16 BW=70MHz Channel=650000 RB=180@0



n78(3700-3800) SCS=30kHz DFT_QAM64 BW=70MHz Channel=650000 RB=180@0


Transceiver A
5GNR Cell N1 (TDD)
Power Stat CCDF
KEYSIGHT
Input: RFIO1
Output: RFIO1
Coupling: AC
Corr CCorr
Range: -60 dBm
Trig: Prot Frame
Aligned
Trig Delay: 4.450 ms
#Center Freq: 3.750000000 GHz
Counts: 1.00 M/1.00 Mpt
CC Info: UL, 1 CC
1 Metrics
Average Power
24.59 dBm
43.38 % at 0 dB
10.0 % 3.26 dB
1.0 % 5.50 dB
0.1 % 6.98 dB
0.01 % 7.73 dB
0.001 % 8.24 dB
0.0001 % 8.33 dB
Peak 8.35 dB
32.94 dBm
2 Graph
Gaussian
100 %
10 %
1 %
0.1 %
0.01 %
0.001 %
0.0001 %
0.00 dB
20.00 dB
Info BW 75.000 MHz
Apr 07, 2023
2:13:20 PM

4 Occupied bandwidth for NR FR1

Band	SCS (kHz)	Bandwidth (MHz)	UL Channel	RB Allocation	Modulation	99% OBW (MHz)	-26dB EBW (MHz)	Verdict
n78(3700-3800)	30	70	649000	180@0	DFT_BPSK	66.980	68.190	PASS
n78(3700-3800)	30	70	649000	180@0	DFT_QPSK	67.050	68.190	PASS
n78(3700-3800)	30	70	649000	180@0	DFT_QAM16	67.000	68.210	PASS
n78(3700-3800)	30	70	649000	180@0	DFT_QAM64	67.000	68.180	PASS
n78(3700-3800)	30	70	649000	189@0	CP_QPSK	67.790	71.430	PASS
n78(3700-3800)	30	70	650000	180@0	DFT_BPSK	67.000	68.180	PASS
n78(3700-3800)	30	70	650000	180@0	DFT_QPSK	67.000	68.200	PASS
n78(3700-3800)	30	70	650000	180@0	DFT_QAM16	67.020	68.200	PASS
n78(3700-3800)	30	70	650000	180@0	DFT_QAM64	67.030	68.190	PASS
n78(3700-3800)	30	70	650000	189@0	CP_QPSK	67.800	71.430	PASS
n78(3700-3800)	30	70	651000	180@0	DFT_BPSK	67.010	68.180	PASS
n78(3700-3800)	30	70	651000	180@0	DFT_QPSK	67.000	68.210	PASS
n78(3700-3800)	30	70	651000	180@0	DFT_QAM16	67.030	68.210	PASS
n78(3700-3800)	30	70	651000	180@0	DFT_QAM64	67.040	68.190	PASS
n78(3700-3800)	30	70	651000	189@0	CP_QPSK	67.800	71.430	PASS

n78(3700-3800) SCS=30kHz DFT_BPSK BW=70MHz Channel=649000 RB=180@0

n78(3700-3800) SCS=30kHz DFT_QPSK BW=70MHz Channel=649000 RB=180@0

n78(3700-3800) SCS=30kHz DFT_QAM16 BW=70MHz Channel=649000 RB=180@0

n78(3700-3800) SCS=30kHz DFT_QAM64 BW=70MHz Channel=649000 RB=180@0

n78(3700-3800) SCS=30kHz CP_QPSK BW=70MHz Channel=649000 RB=189@0

n78(3700-3800) SCS=30kHz DFT_BPSK BW=70MHz Channel=650000 RB=180@0

n78(3700-3800) SCS=30kHz DFT_QPSK BW=70MHz Channel=650000 RB=180@0

n78(3700-3800) SCS=30kHz DFT_QAM16 BW=70MHz Channel=650000 RB=180@0

n78(3700-3800) SCS=30kHz DFT_QAM64 BW=70MHz Channel=650000 RB=180@0

n78(3700-3800) SCS=30kHz CP_QPSK BW=70MHz Channel=650000 RB=189@0

n78(3700-3800) SCS=30kHz DFT_BPSK BW=70MHz Channel=651000 RB=180@0

n78(3700-3800) SCS=30kHz DFT_QPSK BW=70MHz Channel=651000 RB=180@0

n78(3700-3800) SCS=30kHz DFT_QAM16 BW=70MHz Channel=651000 RB=180@0

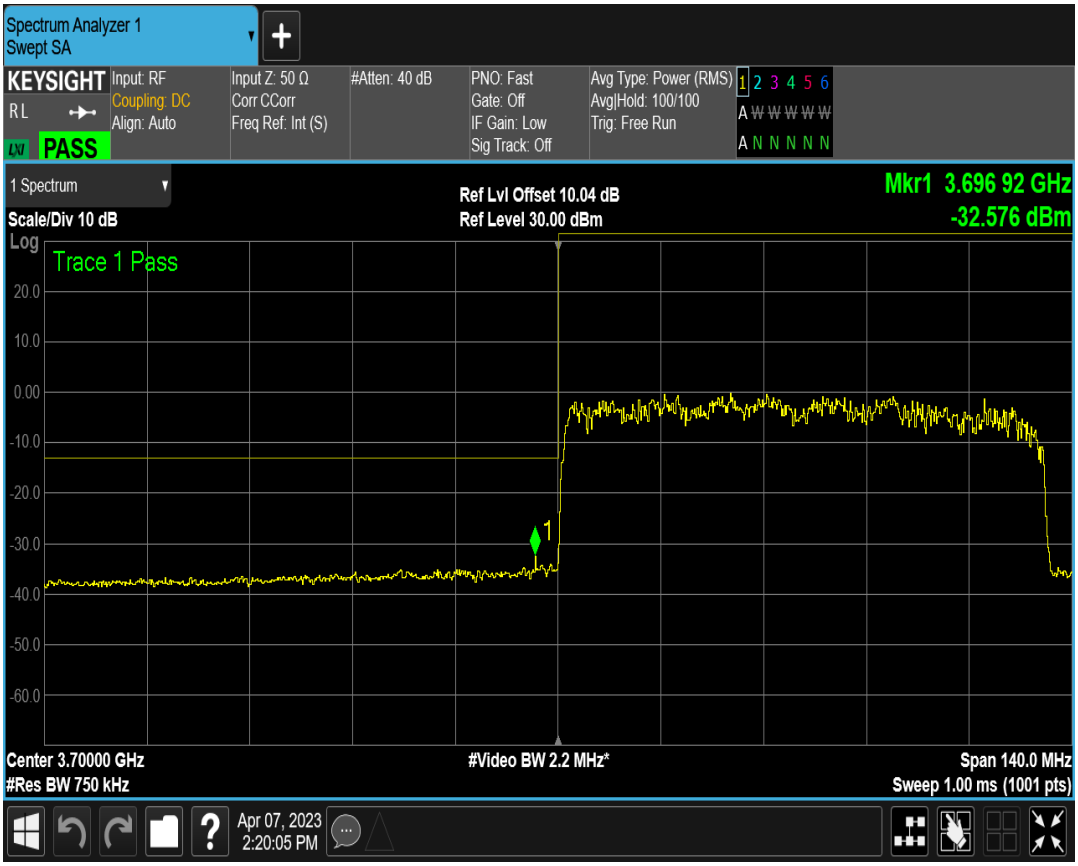
n78(3700-3800) SCS=30kHz DFT_QAM64 BW=70MHz Channel=651000 RB=180@0

n78(3700-3800) SCS=30kHz CP_QPSK BW=70MHz Channel=651000 RB=189@0

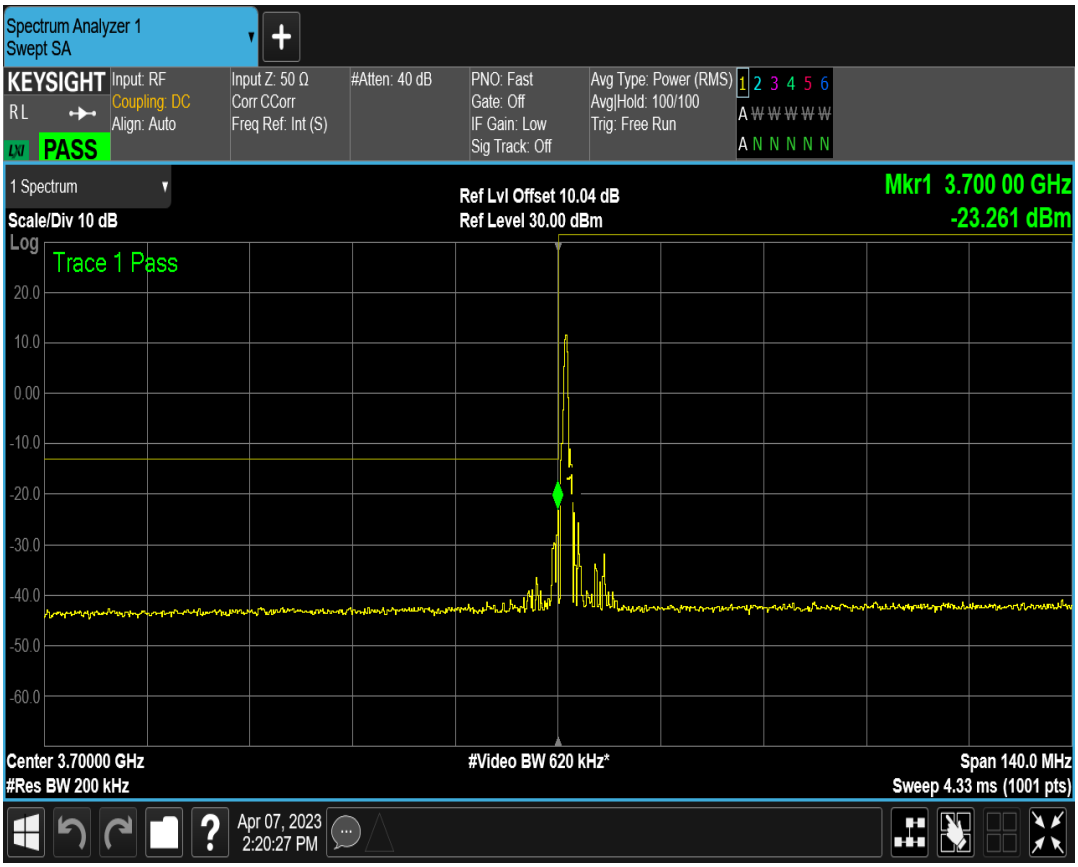
5 Band edge for NR FR1

Band	SCS (kHz)	Bandwidth (MHz)	UL Channel	RB Allocation	Modulation	Spur Freq (MHz)	Spur Level (dBm)	Limit (dBm)	Verdict
n78(3700-3800)	30	70	649000	180@0	DFT_QPSK	3696.92	-32.57	-13	PASS
n78(3700-3800)	30	70	649000	1@0	DFT_QPSK	3700.00	-23.26	-13	PASS
n78(3700-3800)	30	70	651000	180@0	DFT_QPSK	3811.62	-35.23	-13	PASS
n78(3700-3800)	30	70	651000	1@188	DFT_QPSK	3800.42	-33.98	-13	PASS

n78(3700-3800) SCS=30kHz DFT_QPSK BW=70MHz Channel=649000 RB=180@0



n78(3700-3800) SCS=30kHz DFT_QPSK BW=70MHz Channel=649000 RB=1@0



n78(3700-3800) SCS=30kHz DFT_QPSK BW=70MHz Channel=651000 RB=180@0

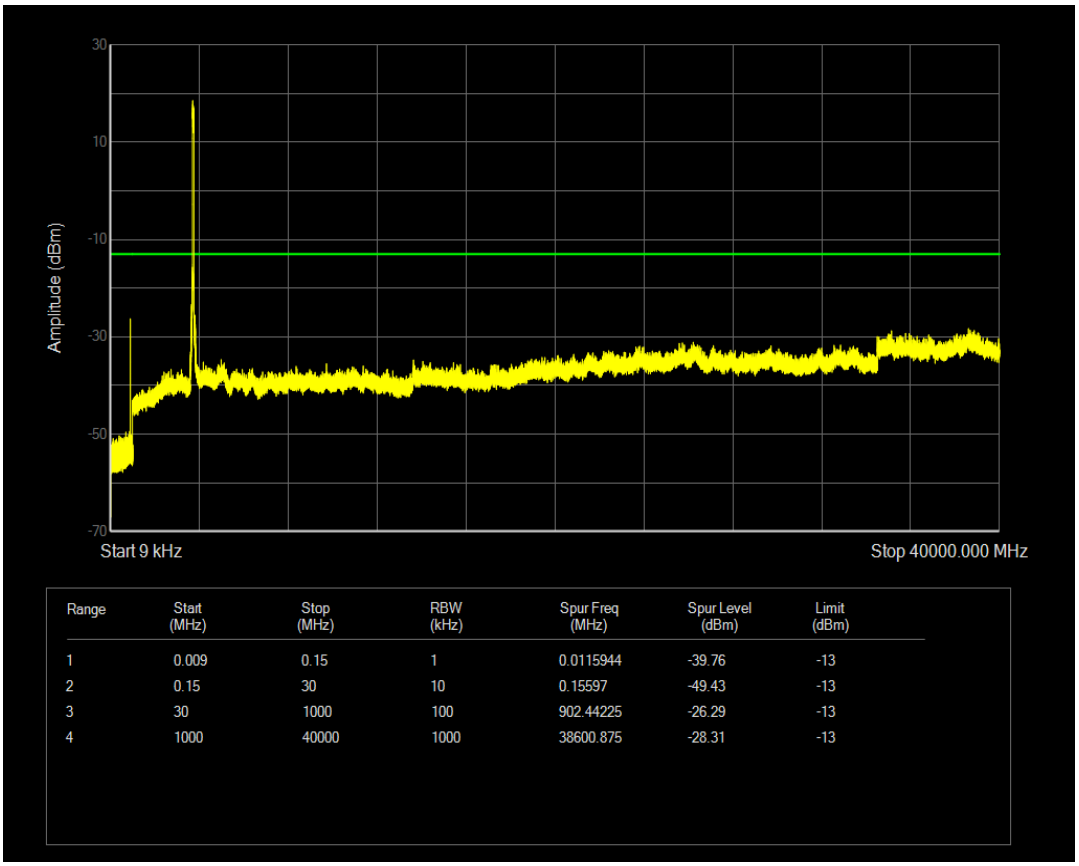
n78(3700-3800) SCS=30kHz DFT_QPSK BW=70MHz Channel=651000 RB=1@188

Spectrum Analyzer 1
Swept SA
KEYSIGHT
Input: RF
Coupling: DC
Align: Auto
Input Z: 50 Ω
Corr CCorr
Freq Ref: Int (S)
#Atten: 40 dB
PNO: Fast
Gate: Off
IF Gain: Low
Sig Track: Off
Avg Type: Power (RMS)
Avg|Hold: 100/100
Trig: Free Run
PASS
1 Spectrum
Scale/Div 10 dB
Log
Ref Lvl Offset 9.93 dB
Ref Level 30.00 dBm
Mkr1 3.800 42 GHz
-33.984 dBm
Trace 1 Pass
20.0
10.0
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
Center 3.80000 GHz
#Res BW 200 kHz
#Video BW 620 kHz*
Span 140.0 MHz
Sweep 4.33 ms (1001 pts)
Apr 07, 2023
2:21:23 PM

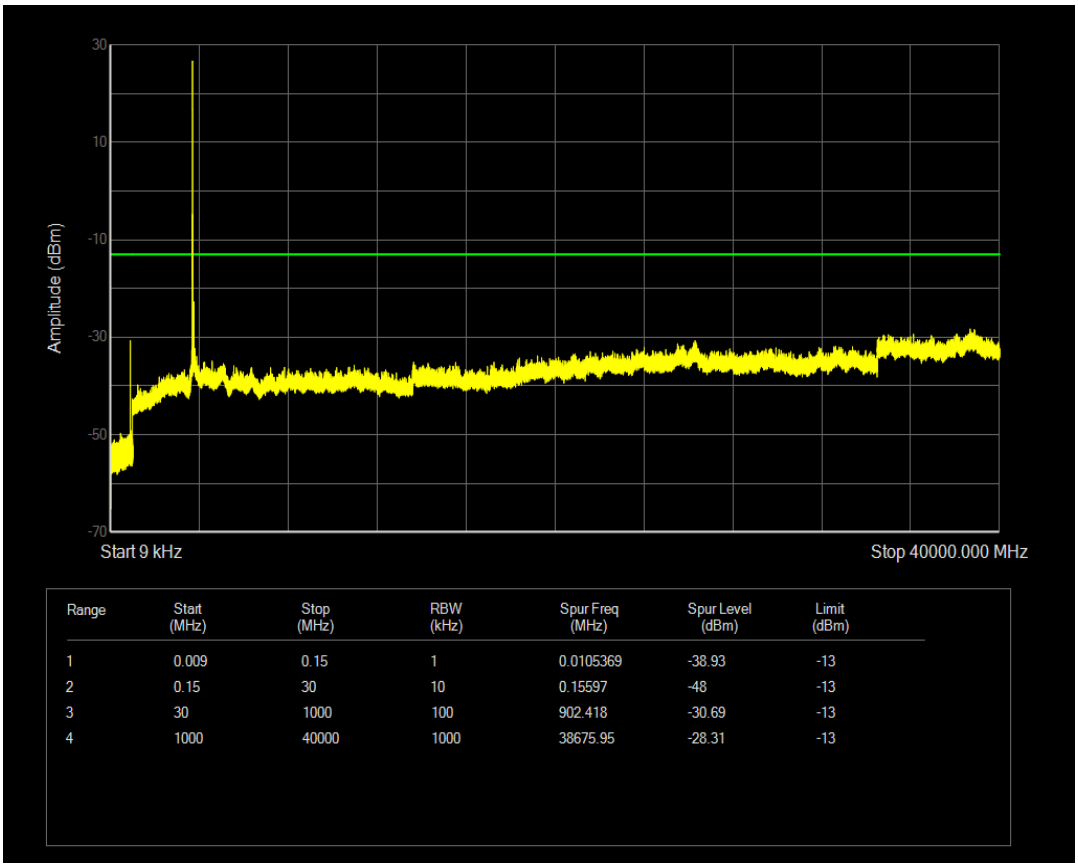
6 Out-of-band emissions for NR FR1

Band	SCS (kHz)	Bandwidth (MHz)	UL Channel	RB Allocation	Modulation	Spur Freq (MHz)	Spur Level (dBm)	Limit (dBm)	Verdict
n78(3700-3800)	30	70	649000	180@0	DFT_QPSK	902.44	-26.29	-13	PASS
n78(3700-3800)	30	70	649000	1@0	DFT_QPSK	38675.95	-28.31	-13	PASS
n78(3700-3800)	30	70	649000	1@188	DFT_QPSK	38652.55	-27.89	-13	PASS
n78(3700-3800)	30	70	650000	180@0	DFT_QPSK	38538.48	-27.98	-13	PASS
n78(3700-3800)	30	70	650000	1@0	DFT_QPSK	38665.23	-28.09	-13	PASS
n78(3700-3800)	30	70	650000	1@188	DFT_QPSK	38697.40	-28.06	-13	PASS
n78(3700-3800)	30	70	651000	180@0	DFT_QPSK	38492.65	-28.83	-13	PASS
n78(3700-3800)	30	70	651000	1@0	DFT_QPSK	38498.50	-28.16	-13	PASS
n78(3700-3800)	30	70	651000	1@188	DFT_QPSK	38568.70	-27.70	-13	PASS

n78(3700-3800) SCS=30kHz DFT_QPSK BW=70MHz Channel=649000 RB=180@0

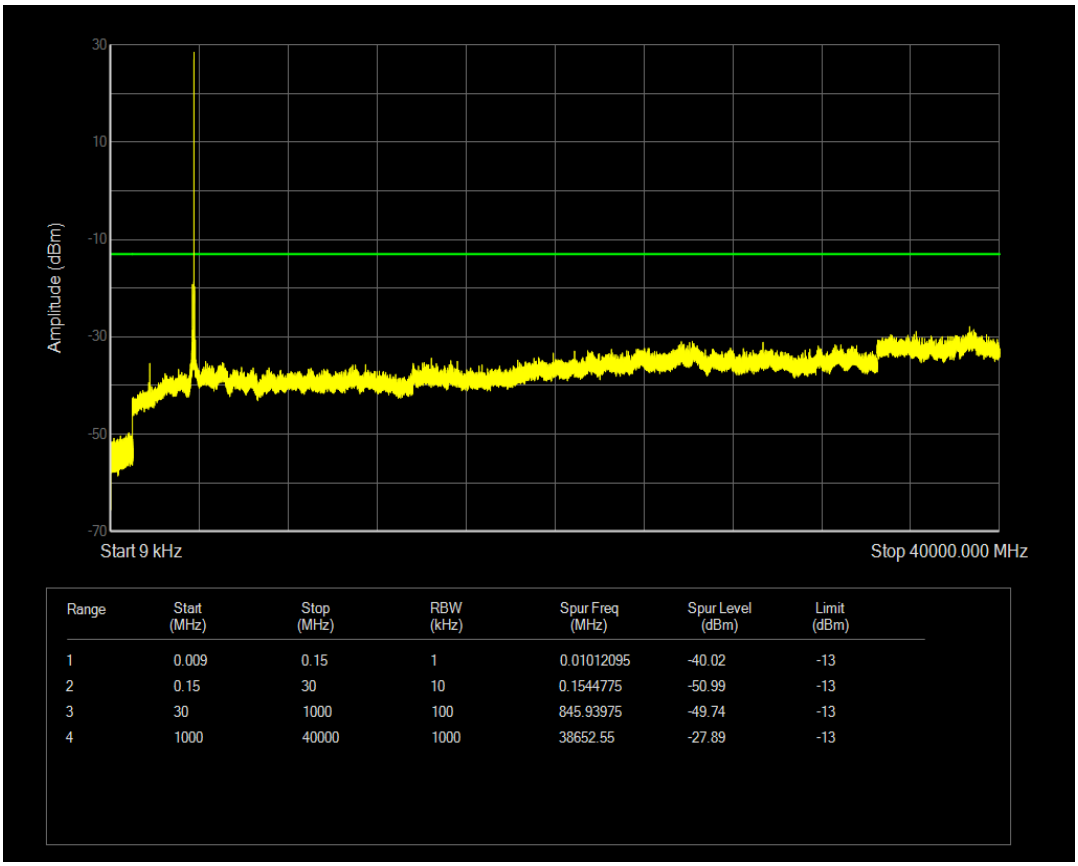


n78(3700-3800) SCS=30kHz DFT_QPSK BW=70MHz Channel=649000 RB=1@0



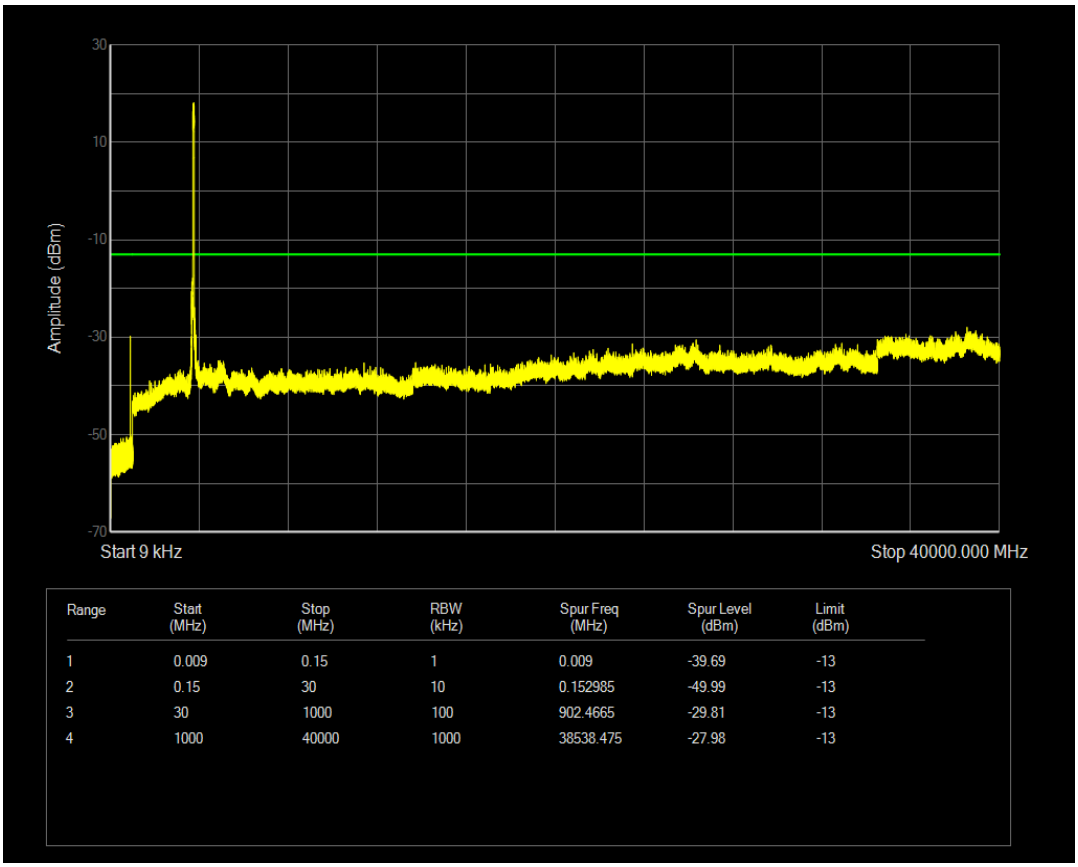
Range	Start (MHz)	Stop (MHz)	RBW (kHz)	Spur Freq (MHz)	Spur Level (dBm)	Limit (dBm)
1	0.009	0.15	1	0.0105369	-38.93	-13
2	0.15	30	10	0.15597	-48	-13
3	30	1000	100	902.418	-30.69	-13
4	1000	40000	1000	38675.95	-28.31	-13

n78(3700-3800) SCS=30kHz DFT_QPSK BW=70MHz Channel=649000 RB=1@188



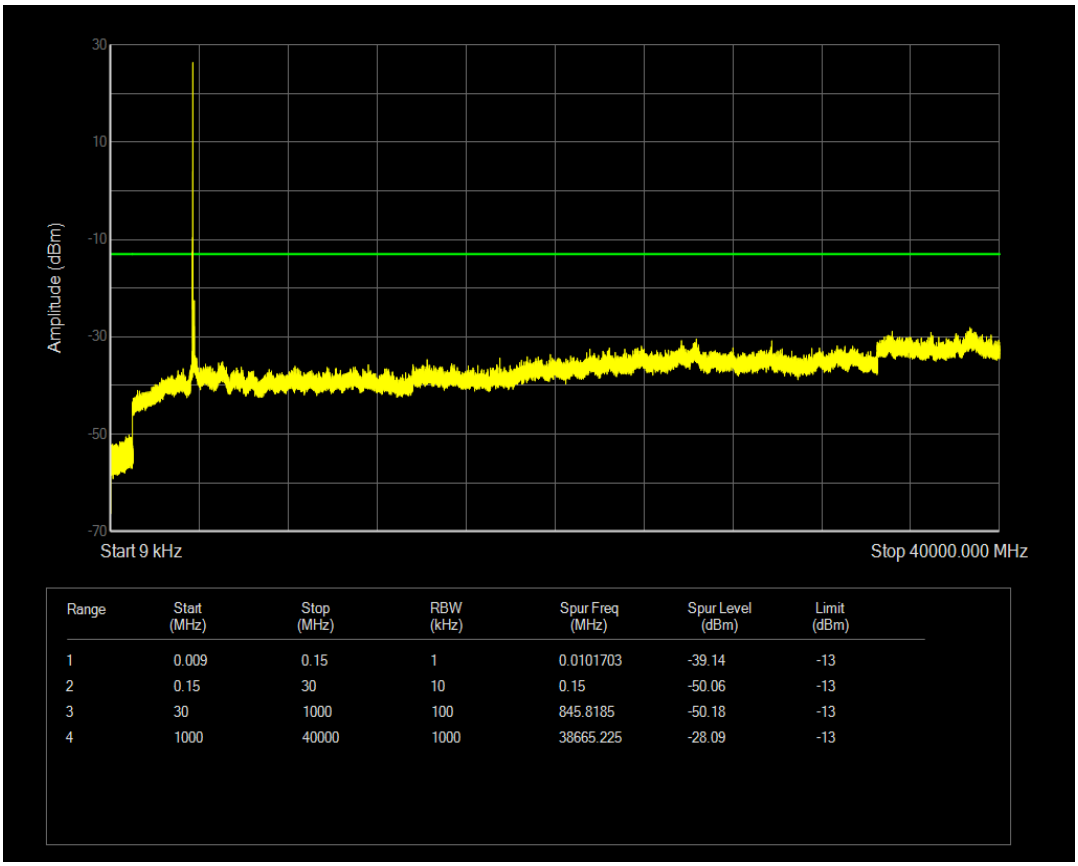
Range	Start (MHz)	Stop (MHz)	RBW (kHz)	Spur Freq (MHz)	Spur Level (dBm)	Limit (dBm)
1	0.009	0.15	1	0.01012095	-40.02	-13
2	0.15	30	10	0.1544775	-50.99	-13
3	30	1000	100	845.93975	-49.74	-13
4	1000	40000	1000	38652.55	-27.89	-13

n78(3700-3800) SCS=30kHz DFT_QPSK BW=70MHz Channel=650000 RB=180@0



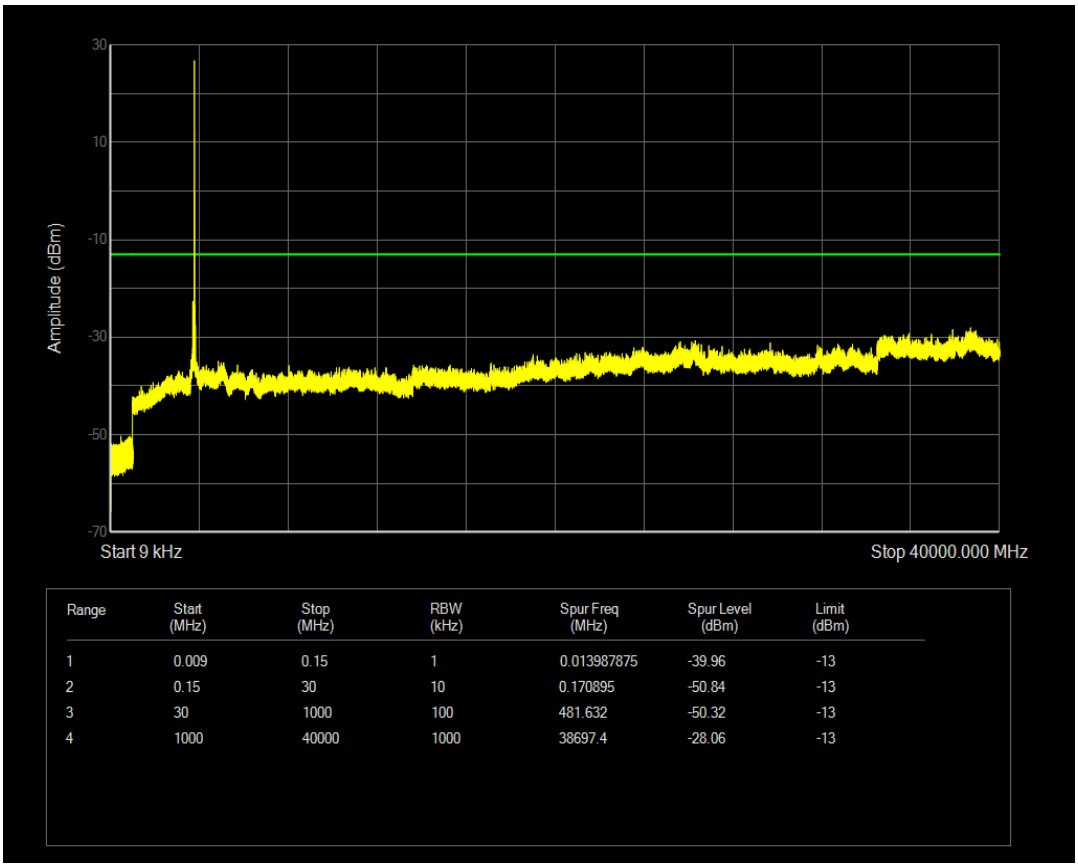
Range	Start (MHz)	Stop (MHz)	RBW (kHz)	Spur Freq (MHz)	Spur Level (dBm)	Limit (dBm)
1	0.009	0.15	1	0.009	-39.69	-13
2	0.15	30	10	0.152985	-49.99	-13
3	30	1000	100	902.4665	-29.81	-13
4	1000	40000	1000	38538.475	-27.98	-13

n78(3700-3800) SCS=30kHz DFT_QPSK BW=70MHz Channel=650000 RB=1@0



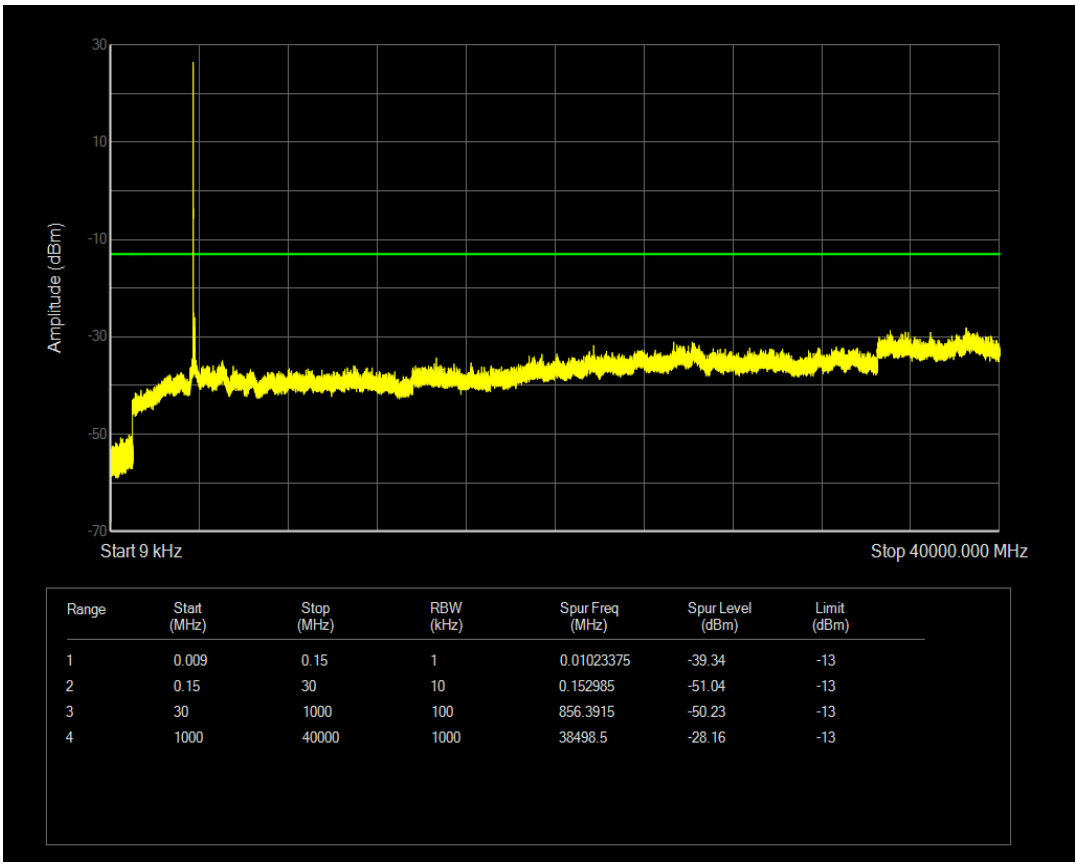
Range	Start (MHz)	Stop (MHz)	RBW (kHz)	Spur Freq (MHz)	Spur Level (dBm)	Limit (dBm)
1	0.009	0.15	1	0.0101703	-39.14	-13
2	0.15	30	10	0.15	-50.06	-13
3	30	1000	100	845.8185	-50.18	-13
4	1000	40000	1000	38665.225	-28.09	-13

n78(3700-3800) SCS=30kHz DFT_QPSK BW=70MHz Channel=650000 RB=1@188



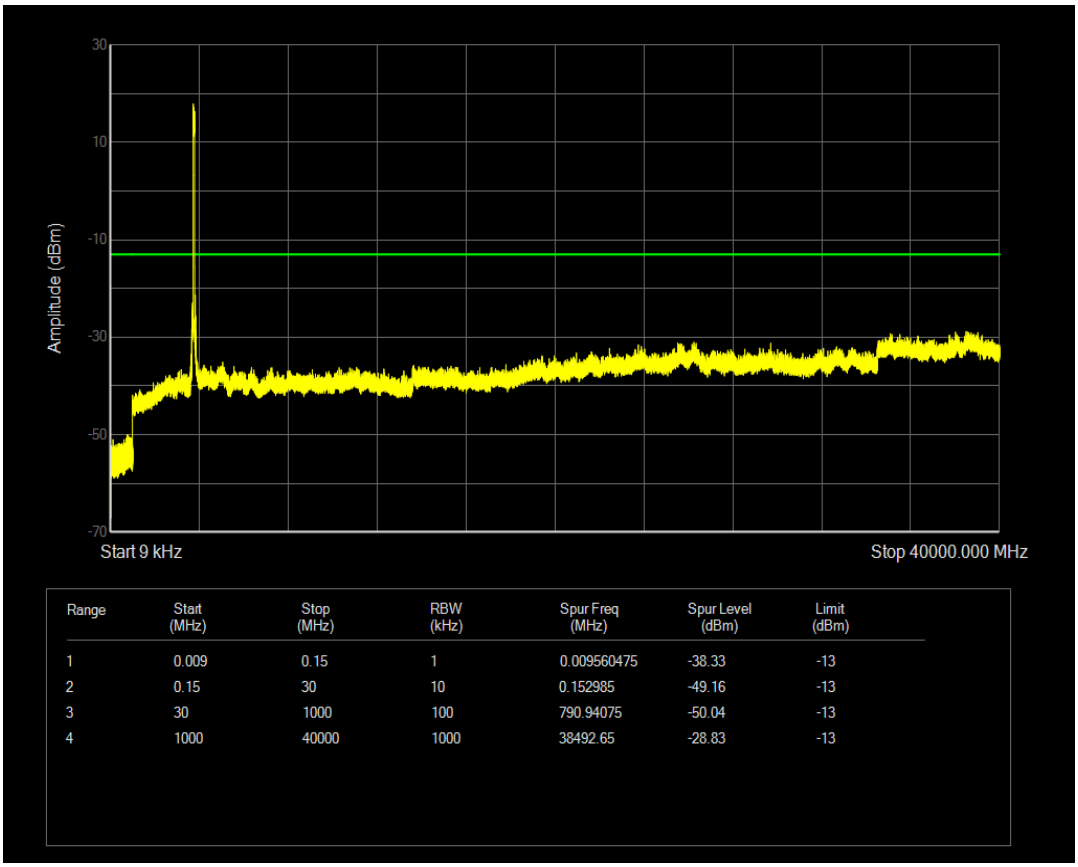
Range	Start (MHz)	Stop (MHz)	RBW (kHz)	Spur Freq (MHz)	Spur Level (dBm)	Limit (dBm)
1	0.009	0.15	1	0.013987875	-39.96	-13
2	0.15	30	10	0.170895	-50.84	-13
3	30	1000	100	481.632	-50.32	-13
4	1000	40000	1000	38697.4	-28.06	-13

n78(3700-3800) SCS=30kHz DFT_QPSK BW=70MHz Channel=651000 RB=1@0



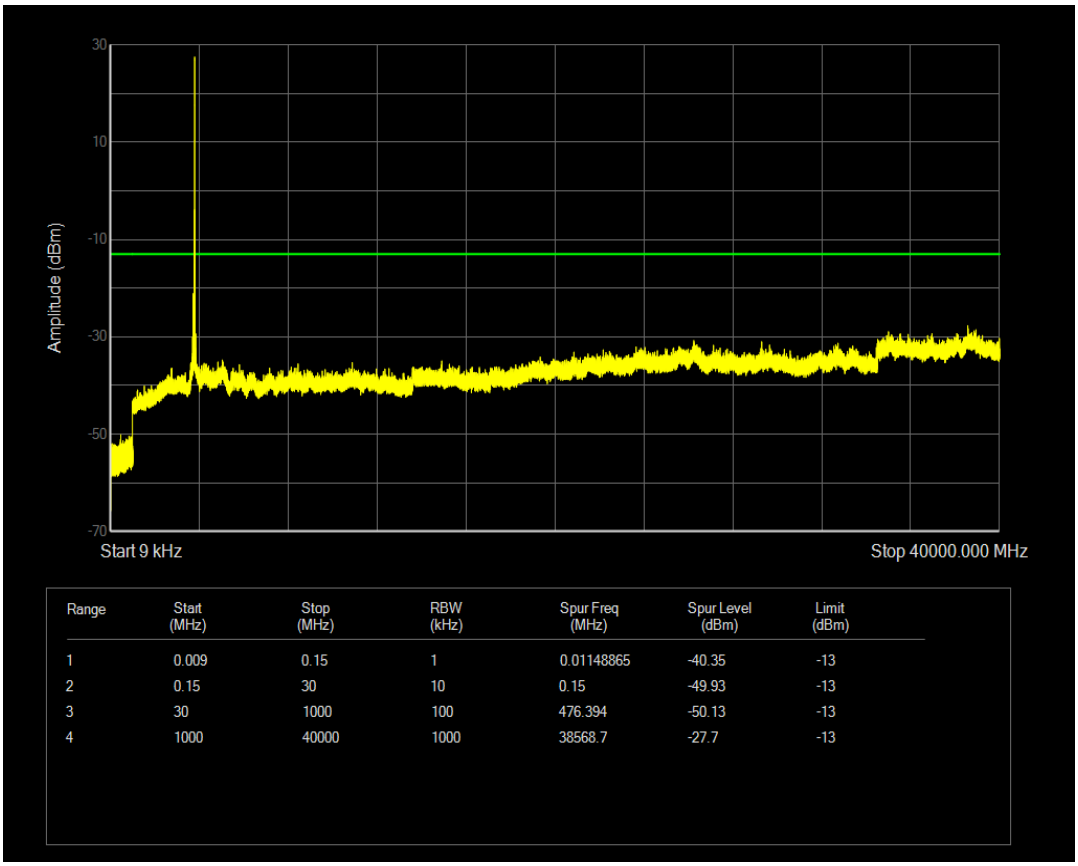
Range	Start (MHz)	Stop (MHz)	RBW (kHz)	Spur Freq (MHz)	Spur Level (dBm)	Limit (dBm)
1	0.009	0.15	1	0.01023375	-39.34	-13
2	0.15	30	10	0.152985	-51.04	-13
3	30	1000	100	856.3915	-50.23	-13
4	1000	40000	1000	38498.5	-28.16	-13

n78(3700-3800) SCS=30kHz DFT_QPSK BW=70MHz Channel=651000 RB=180@0



Range	Start (MHz)	Stop (MHz)	RBW (kHz)	Spur Freq (MHz)	Spur Level (dBm)	Limit (dBm)
1	0.009	0.15	1	0.009560475	-38.33	-13
2	0.15	30	10	0.152985	-49.16	-13
3	30	1000	100	790.94075	-50.04	-13
4	1000	40000	1000	38492.65	-28.83	-13

n78(3700-3800) SCS=30kHz DFT_QPSK BW=70MHz Channel=651000 RB=1@188



Range	Start (MHz)	Stop (MHz)	RBW (kHz)	Spur Freq (MHz)	Spur Level (dBm)	Limit (dBm)
1	0.009	0.15	1	0.01148865	-40.35	-13
2	0.15	30	10	0.15	-49.93	-13
3	30	1000	100	476.394	-50.13	-13
4	1000	40000	1000	38568.7	-27.7	-13