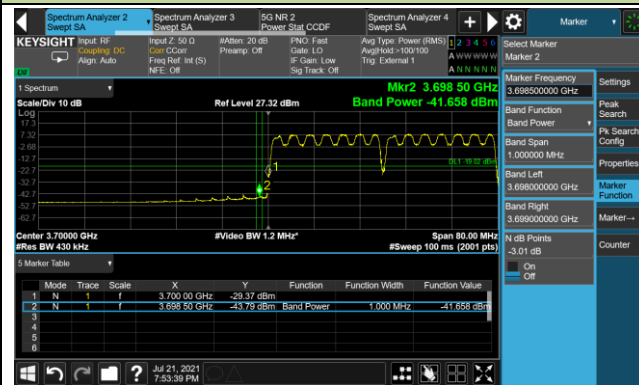


Test Engineer	Peter Xu	Test Site	SR2
Test Date	2021/07/21	Test Configuration	n77 (MultiCarrier)

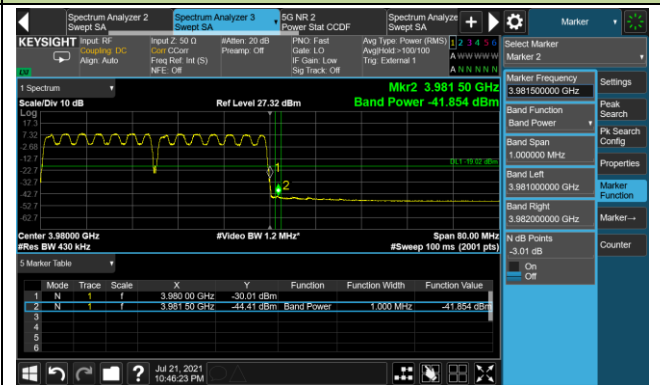
Unwanted Emission - Ant 1

20+20 MHz Channel Bandwidth

3710+3730 MHz

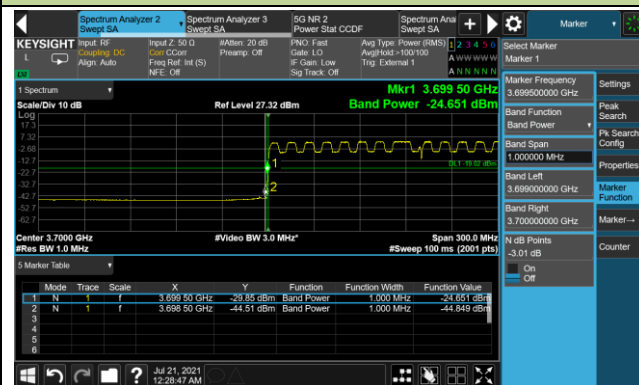


3950+3970 MHz

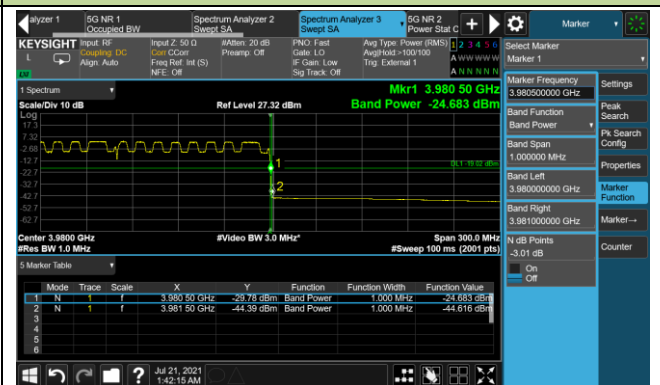


100+100 MHz Channel Bandwidth

3750+3850 MHz



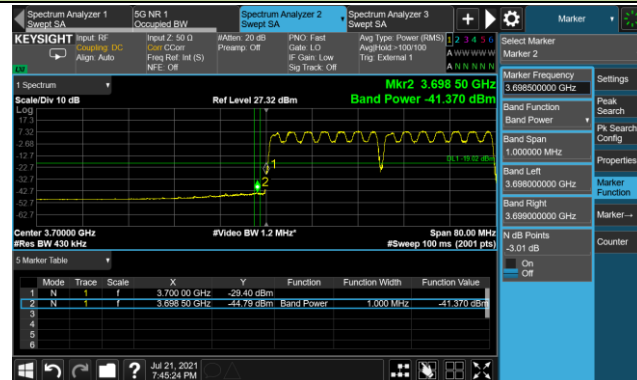
3830+3930 MHz



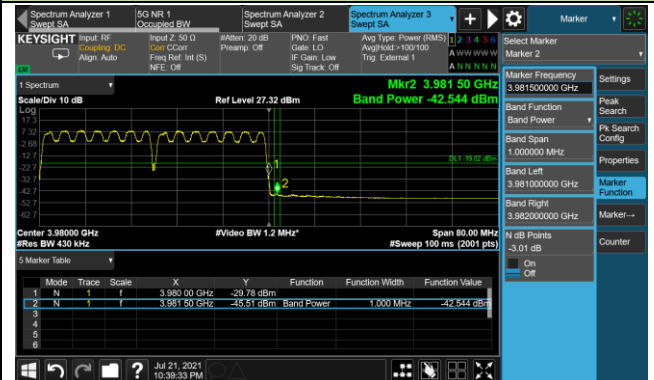
Unwanted Emission - Ant 2

20+20 MHz Channel Bandwidth

3710+3730 MHz

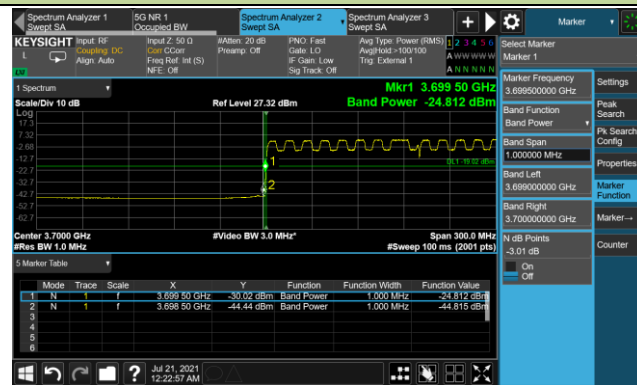


3950+3970 MHz

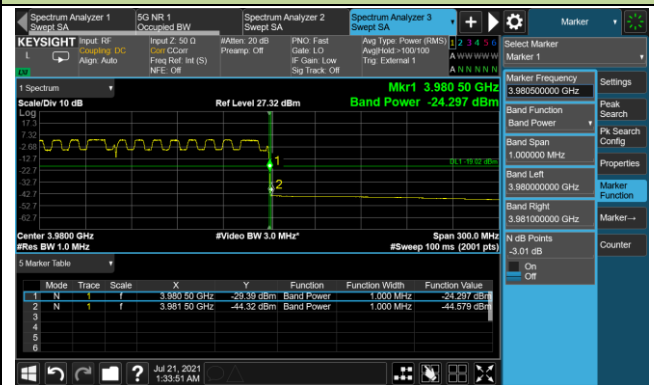


100+100 MHz Channel Bandwidth

3750+3850 MHz



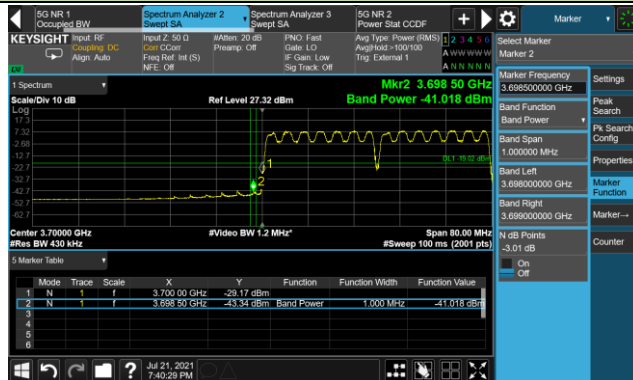
3830+3930 MHz



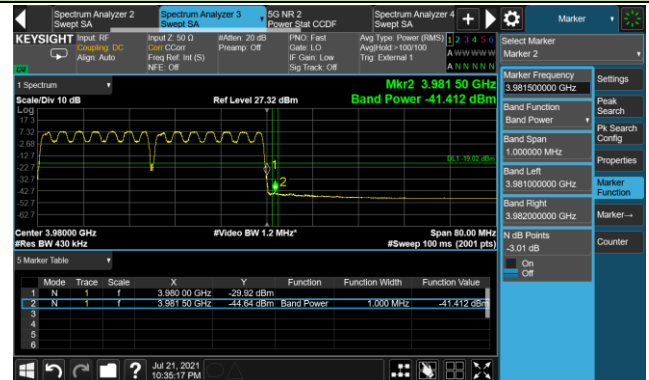
Unwanted Emission - Ant 3

20+20 MHz Channel Bandwidth

3710+3730 MHz

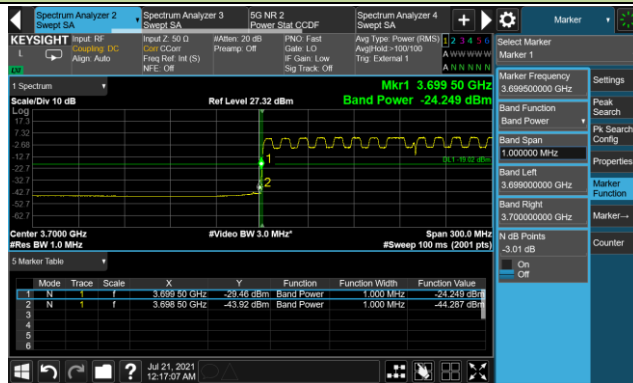


3950+3970 MHz

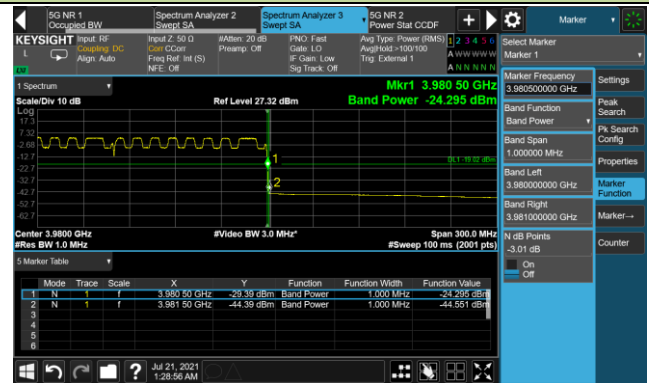


100+100 MHz Channel Bandwidth

3750+3850 MHz



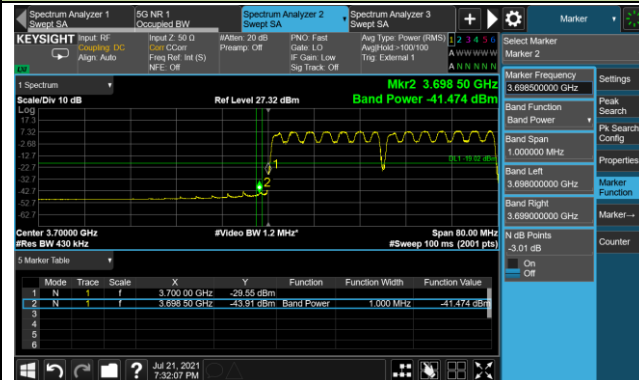
3830+3930 MHz



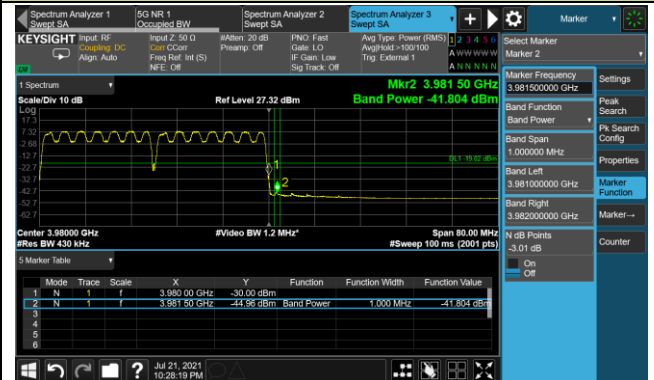
Unwanted Emission - Ant 4

20+20 MHz Channel Bandwidth

3710+3730 MHz

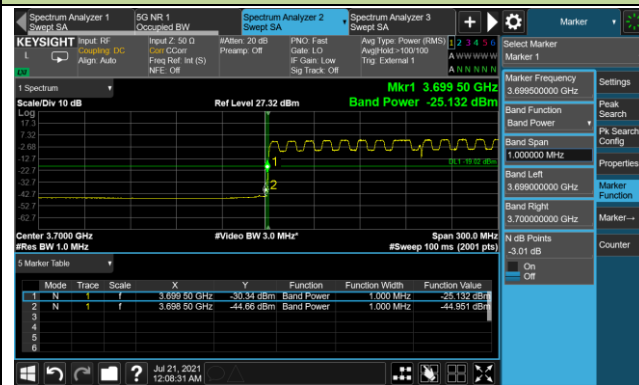


3950+3970 MHz

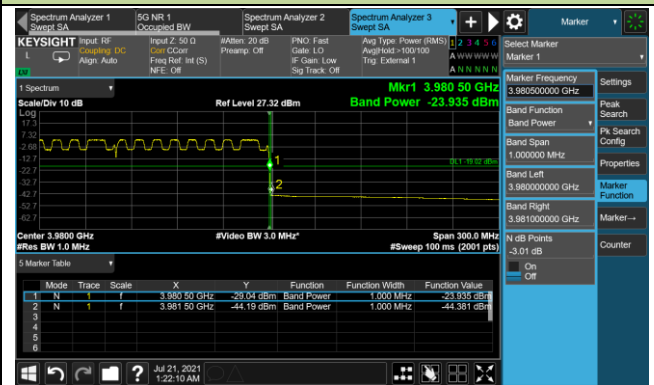


100+100 MHz Channel Bandwidth

3750+3850 MHz



3830+3930 MHz



5.7. Out-of-frequency Band unwanted Emissions Measurement

5.7.1. Test Limit

After the first 1.0 MHz outside the equipment's smallest operating frequency block, which can contain the equipment's occupied bandwidth, the emission power in any 1 MHz bandwidth shall be attenuated below the transmitter output power P (in dBW) by at least $43 + 10 \log_{10} p$ (watts) dB.

Note: This device can be implement MIMO function, so the limit of spurious emissions needs to be reduced $10 \cdot \log(\text{Numbers}_{\text{Ant}})$ according to FCC KDB 662911 D01 guidance.

The limit is adjusted to $-13\text{dBm} - 10 \cdot \log(4) = -19.02\text{dBm}$

E (dBμV/m) = EIRP (dBm) - $20 \log D$ + 104.8; where D is the measurement distance in meters. The emission limit equal to 82.3dBμV/m.

5.7.2. Test Procedure Used

ANSI C63.26-2015 - Section 5.7 & Section 5.5

5.7.3. Test Setting

Conducted Measurement

1. Set the analyzer frequency to low or high channel.
2. RBW = 1MHz
3. VBW $\geq 3 \cdot \text{RBW}$
4. Sweep time = auto
5. Detector = power averaging (rms)
6. Set sweep trigger to "free run."
7. User gate triggered such that the analyzer only sweeps when the device is transmitting at full power.
8. Trace average at least 100 traces in power averaging (rms) mode if sweep is set to auto-couple.

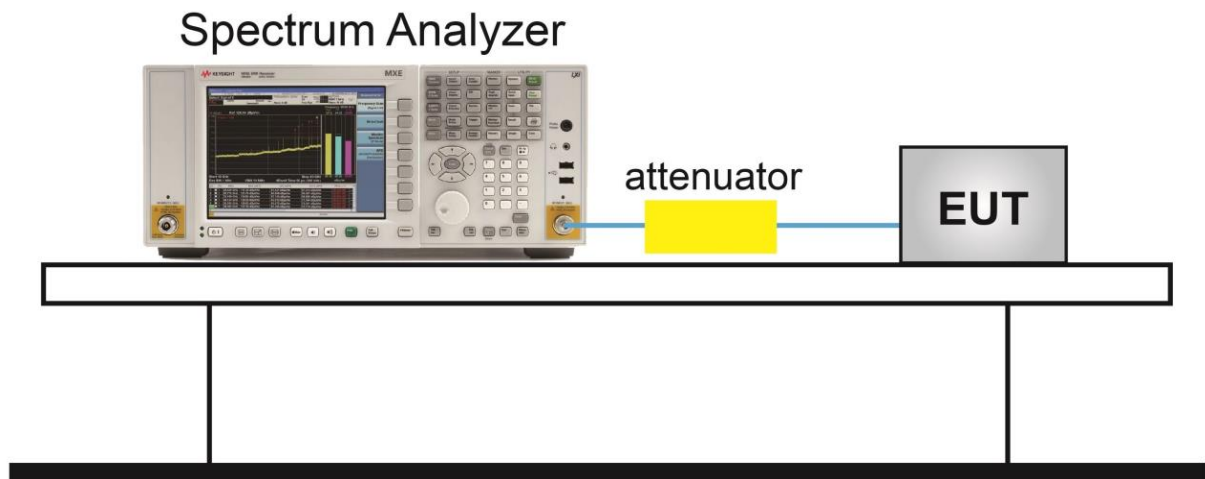
To accurately determine the average power over the on and off time of the transmitter, it can be necessary to increase the number of traces to be averaged above 100, or if using a manually configured sweep time, increase the sweep time.

Radiated Measurement

1. RBW = 1MHz
2. VBW $\geq 3 \times$ RBW
3. Sweep time $\geq 10 \times$ (number of points in sweep) $\times$ (transmission symbol period)
4. Detector = Peak
5. Trace mode = max hold
6. The trace was allowed to stabilize

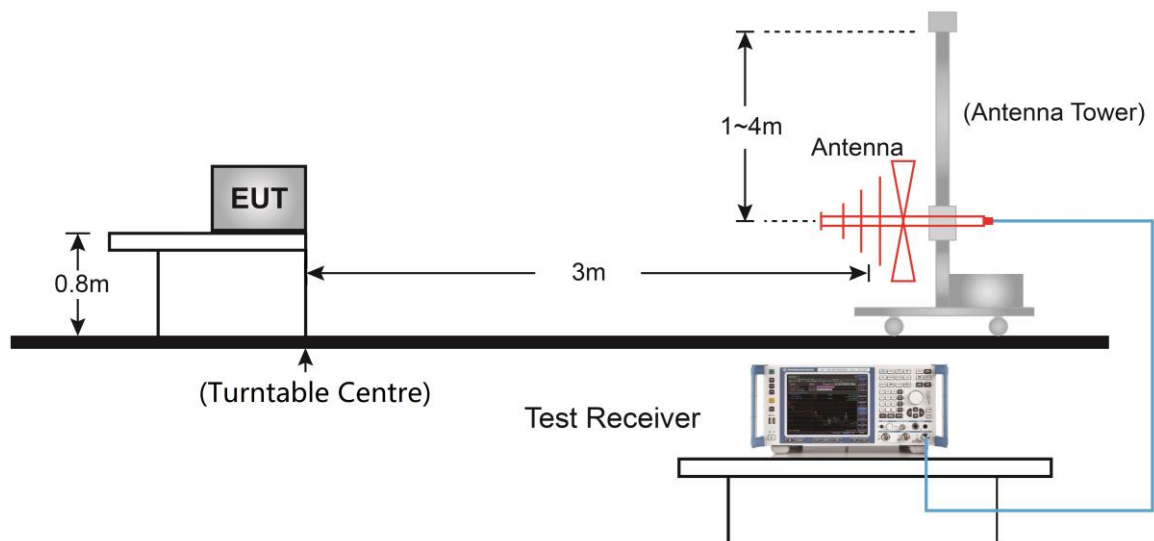
5.7.4. Test Setup

Conducted Measurement

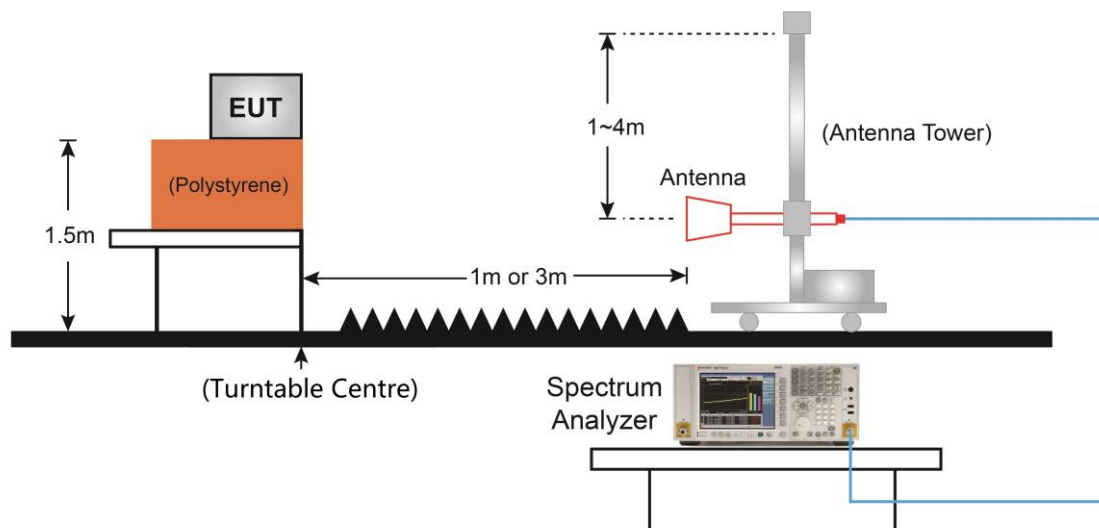


Radiated Measurement

Below 1GHz Test Setup:



Above 1GHz Test Setup:



5.7.5.Test Result

Conducted Spurious Test Result

Test Engineer	Peter Xu	Test Site	SR2
Test Date	2021/07/14 ~ 2021/07/21	Test Configuration	n77

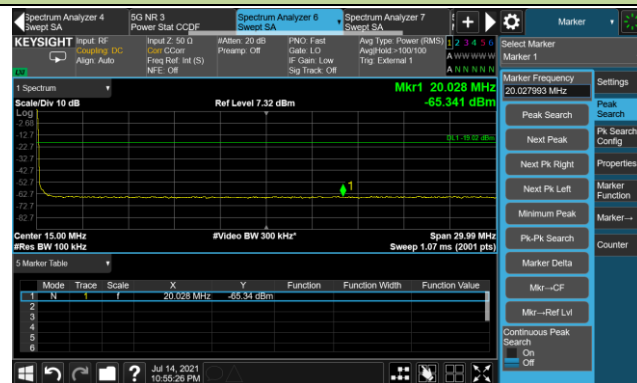
Frequency (MHz)	Channel BW(MHz)	Frequency Range (MHz)	Max Spurious Emissions (dBm)	Limit (dBm)	Result
3710.01	20	0.009 ~ 30	-65.34	≤ -19.02	Pass
		30 ~ 40000	-29.60	≤ -19.02	Pass
3840.00	20	0.009 ~ 30	-65.63	≤ -19.02	Pass
		30 ~ 40000	-29.58	≤ -19.02	Pass
3969.99	20	0.009 ~ 30	-66.07	≤ -19.02	Pass
		30 ~ 40000	-29.67	≤ -19.02	Pass
3720.00	40	0.009 ~ 30	-65.94	≤ -19.02	Pass
		30 ~ 40000	-29.48	≤ -19.02	Pass
3840.00	40	0.009 ~ 30	-65.38	≤ -19.02	Pass
		30 ~ 40000	-29.89	≤ -19.02	Pass
3960.00	40	0.009 ~ 30	-65.79	≤ -19.02	Pass
		30 ~ 40000	-29.44	≤ -19.02	Pass
3730.02	60	0.009 ~ 30	-65.35	≤ -19.02	Pass
		30 ~ 40000	-29.67	≤ -19.02	Pass
3840.00	60	0.009 ~ 30	-65.86	≤ -19.02	Pass
		30 ~ 40000	-29.77	≤ -19.02	Pass
3949.98	60	0.009 ~ 30	-65.63	≤ -19.02	Pass
		30 ~ 40000	-29.80	≤ -19.02	Pass
3740.01	80	0.009 ~ 30	-65.60	≤ -19.02	Pass
		30 ~ 40000	-29.70	≤ -19.02	Pass
3840.00	80	0.009 ~ 30	-63.70	≤ -19.02	Pass
		30 ~ 40000	-29.64	≤ -19.02	Pass
3939.99	80	0.009 ~ 30	-62.99	≤ -19.02	Pass
		30 ~ 40000	-29.63	≤ -19.02	Pass
3750.00	100	0.009 ~ 30	-61.71	≤ -19.02	Pass
		30 ~ 40000	-29.70	≤ -19.02	Pass
3840.00	100	0.009 ~ 30	-62.08	≤ -19.02	Pass
		30 ~ 40000	-30.20	≤ -19.02	Pass
3930.00	100	0.009 ~ 30	-59.25	≤ -19.02	Pass
		30 ~ 40000	-29.64	≤ -19.02	Pass

Frequency (MHz)	ChannelBW (MHz)	Frequency Range (MHz)	Max Spurious Emissions (dBm)	Limit (dBm)	Result
3710+3730	20+20	0.009 ~ 30	-65.55	≤ -19.02	Pass
		30 ~ 40000	-29.41	≤ -19.02	Pass
3830+3850	20+20	0.009 ~ 30	-65.39	≤ -19.02	Pass
		30 ~ 40000	-29.70	≤ -19.02	Pass
3950+3970	20+20	0.009 ~ 30	-65.01	≤ -19.02	Pass
		30 ~ 40000	-29.64	≤ -19.02	Pass
3750+3850	100+100	0.009 ~ 30	-65.12	≤ -19.02	Pass
		30 ~ 40000	-30.14	≤ -19.02	Pass
3790+3890	100+100	0.009 ~ 30	-64.96	≤ -19.02	Pass
		30 ~ 40000	-29.51	≤ -19.02	Pass
3830+3930	100+100	0.009 ~ 30	-64.47	≤ -19.02	Pass
		30 ~ 40000	-29.89	≤ -19.02	Pass

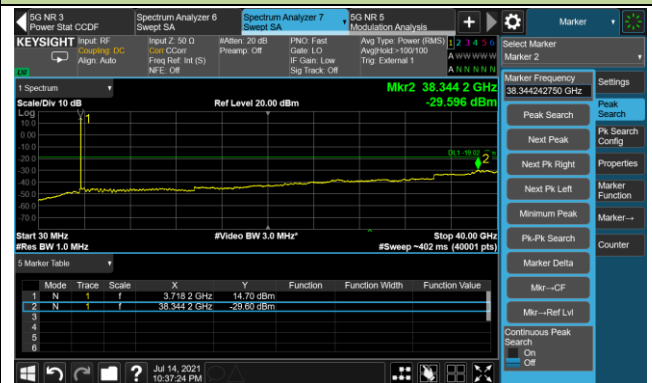
20MHz Channel Bandwidth

3710.01 MHz

9kHz ~ 30MHz

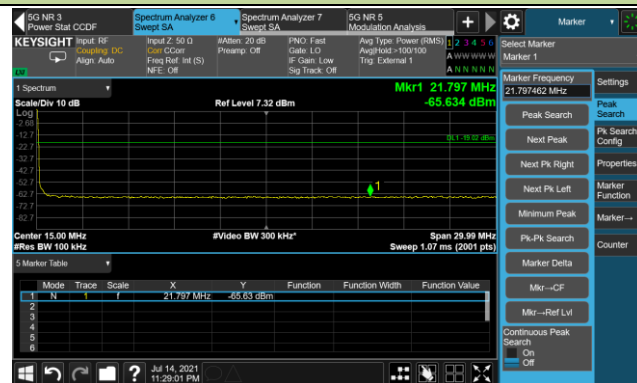


30MHz ~ 40000MHz

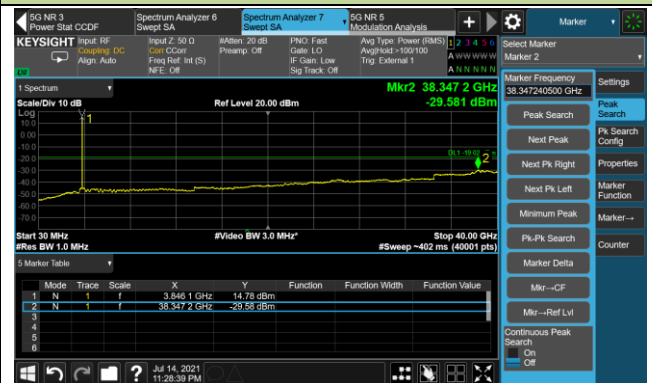


3840.00 MHz

9kHz ~ 30MHz

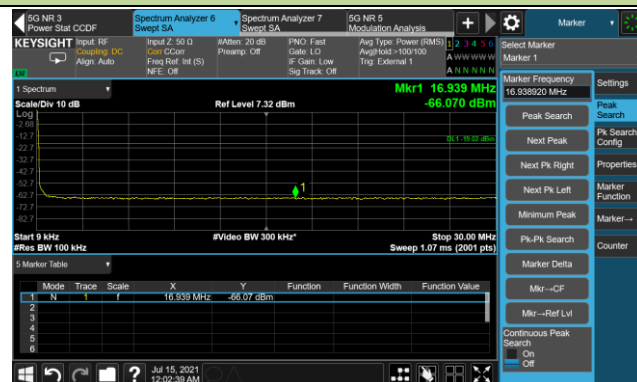


30MHz ~ 40000MHz

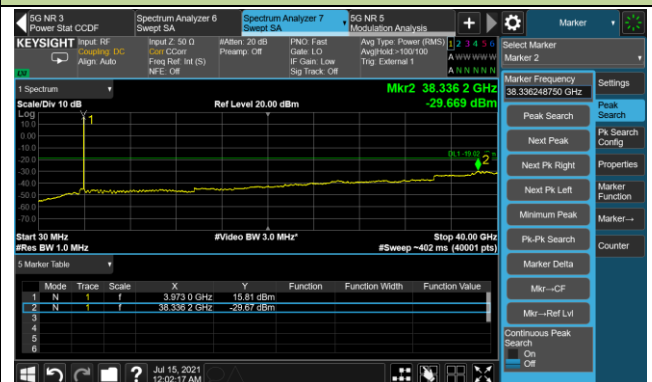


3969.99 MHz

9kHz ~ 30MHz



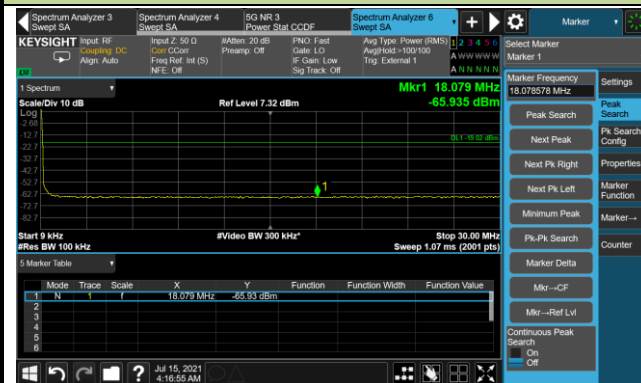
30MHz ~ 40000MHz



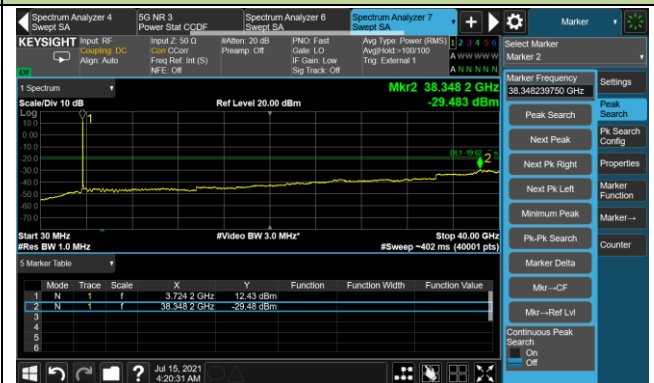
40MHz Channel Bandwidth

3720.00 MHz

9kHz ~ 30MHz

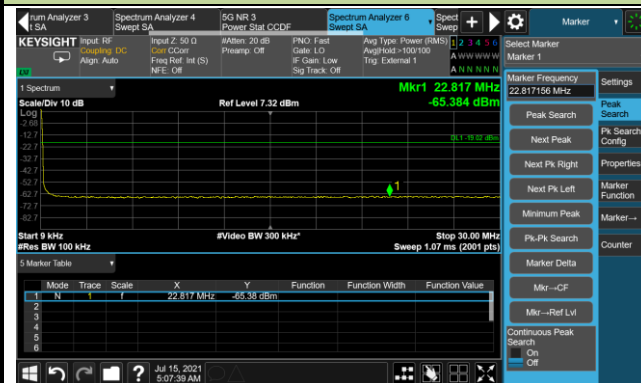


30MHz ~ 40000MHz

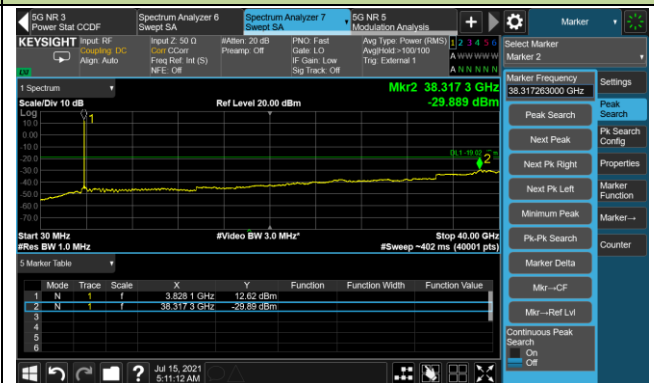


3840.00 MHz

9kHz ~ 30MHz

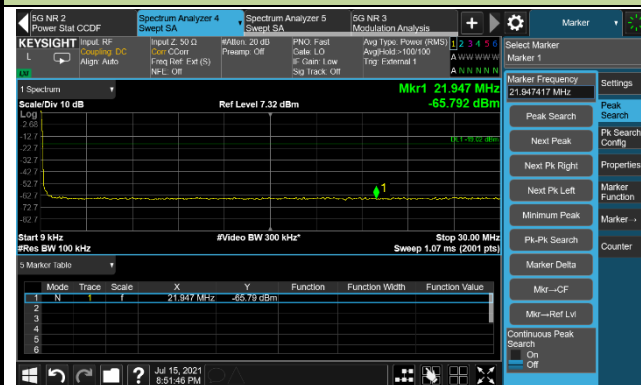


30MHz ~ 40000MHz

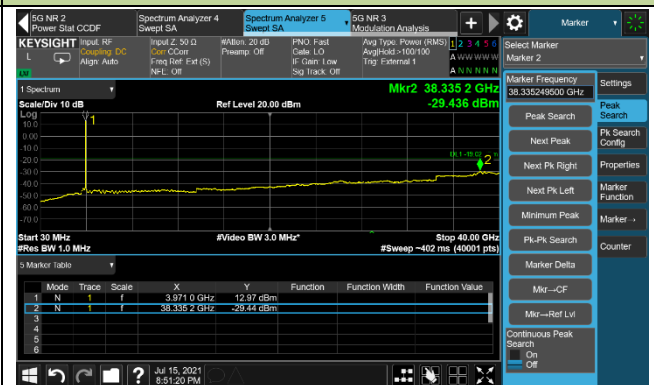


3960.00 MHz

9kHz ~ 30MHz



30MHz ~ 40000MHz

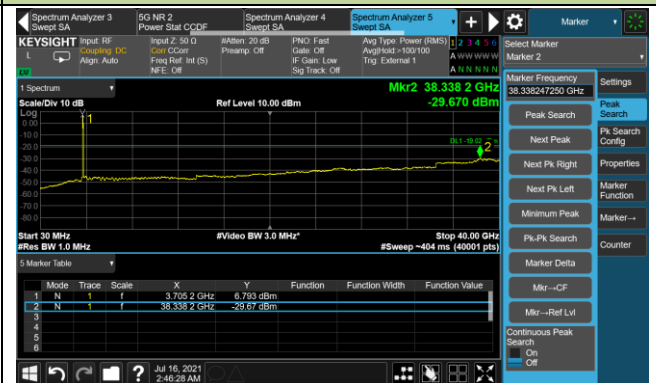
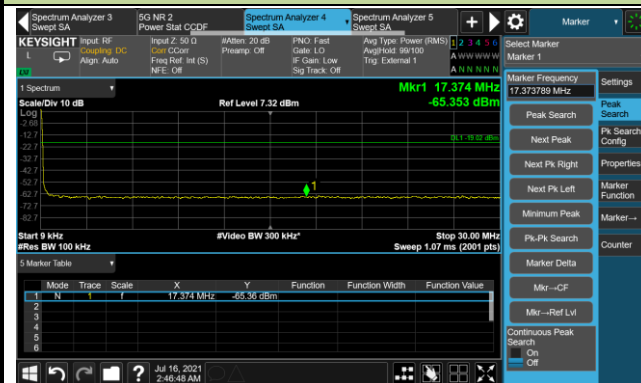


60MHz Channel Bandwidth

3730.02 MHz

9kHz ~ 30MHz

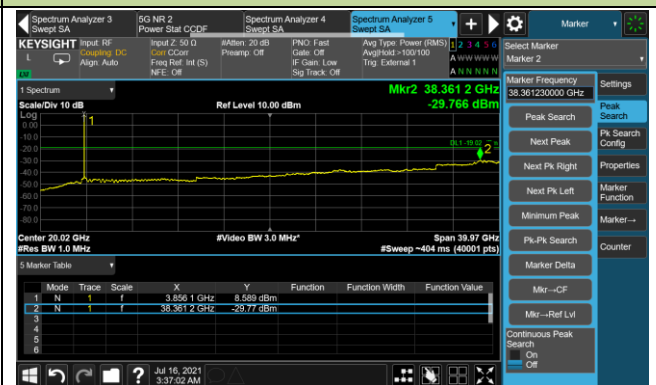
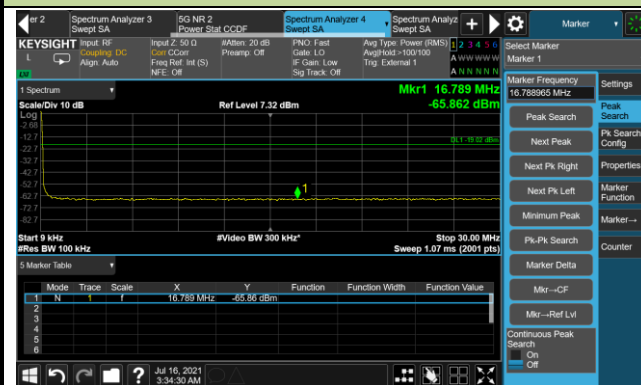
30MHz ~ 40000MHz



3840.00 MHz

9kHz ~ 30MHz

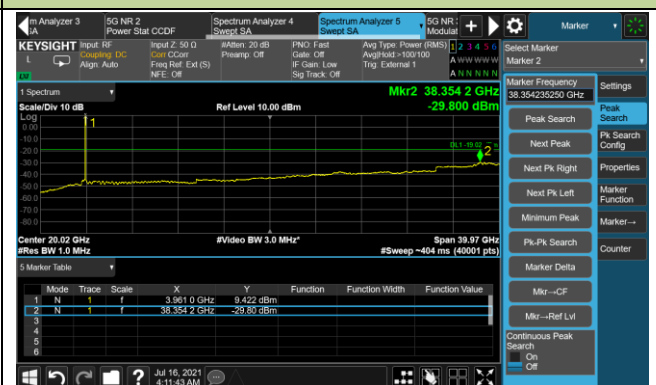
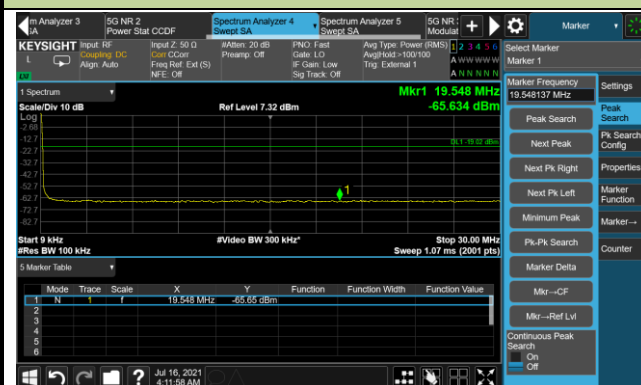
30MHz ~ 40000MHz



3949.98 MHz

9kHz ~ 30MHz

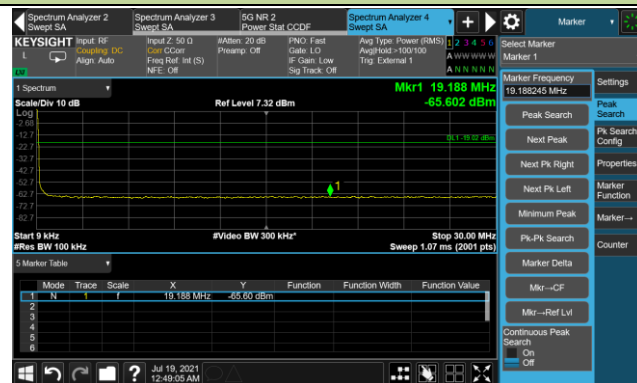
30MHz ~ 40000MHz



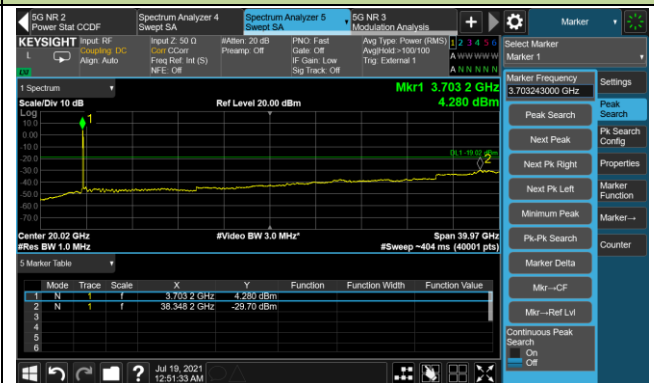
80MHz Channel Bandwidth

3740.01 MHz

9kHz ~ 30MHz

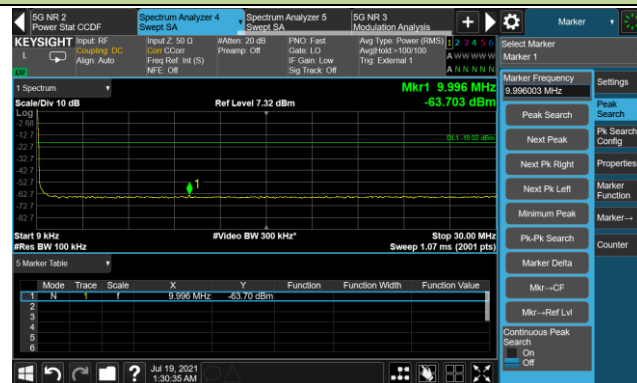


30MHz ~ 40000MHz

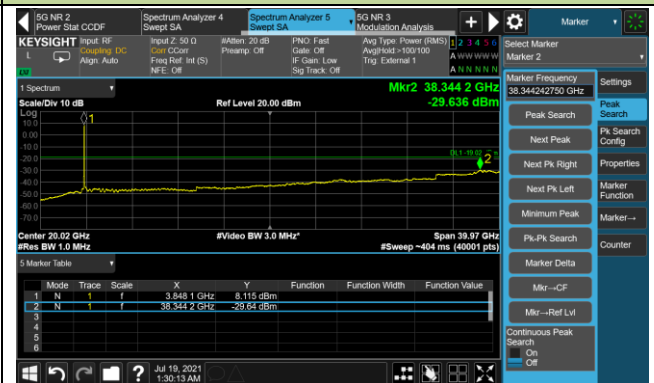


3840.00 MHz

9kHz ~ 30MHz

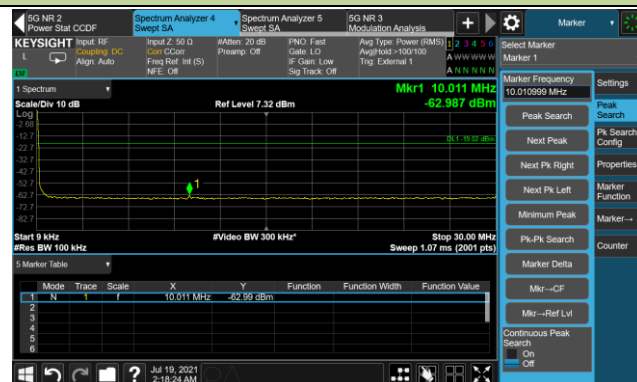


30MHz ~ 40000MHz

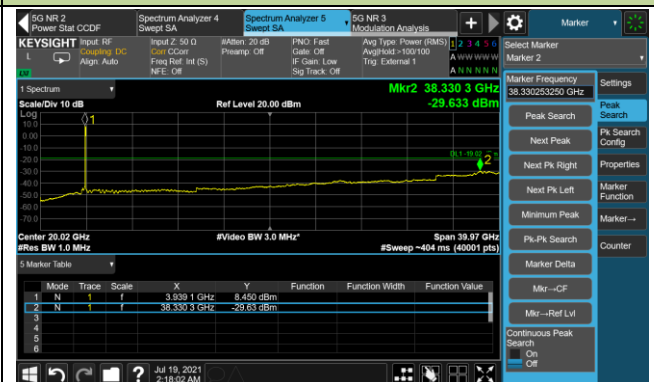


3939.99 MHz

9kHz ~ 30MHz



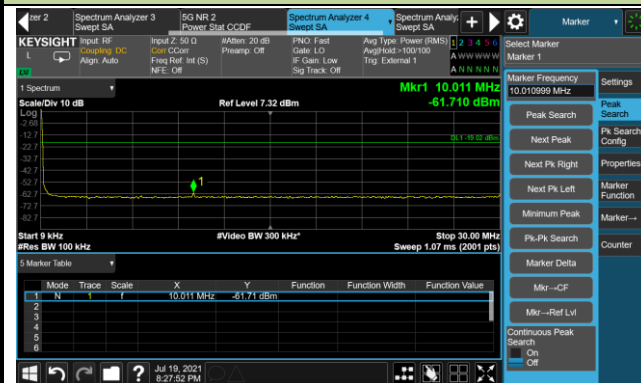
30MHz ~ 40000MHz



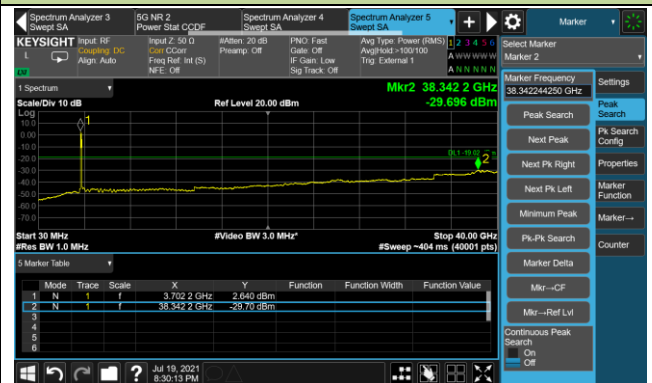
100MHz Channel Bandwidth

3750.00 MHz

9kHz ~ 30MHz

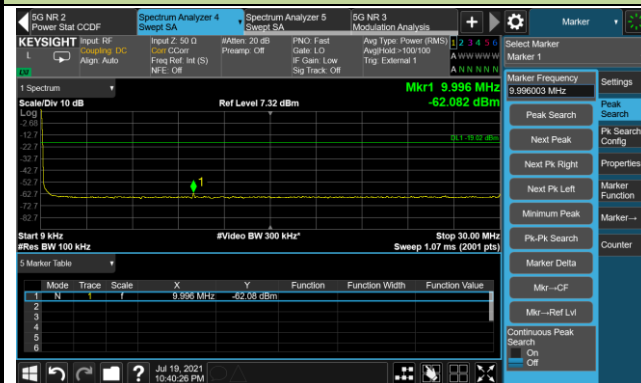


30MHz ~ 40000MHz

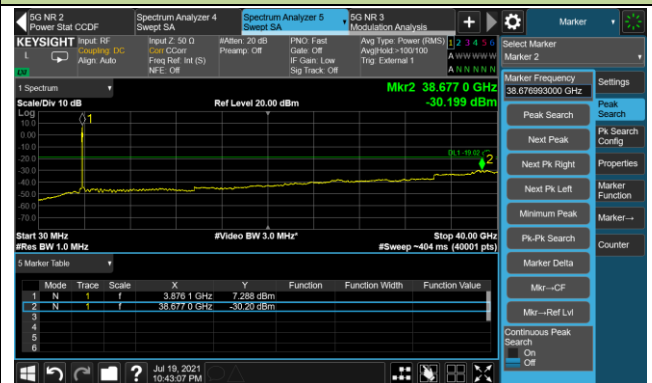


3840.00 MHz

9kHz ~ 30MHz

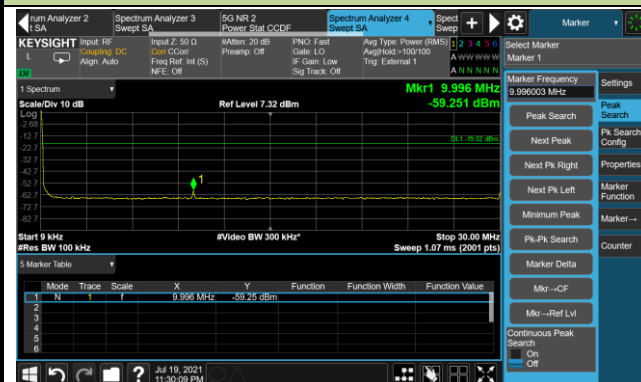


30MHz ~ 40000MHz

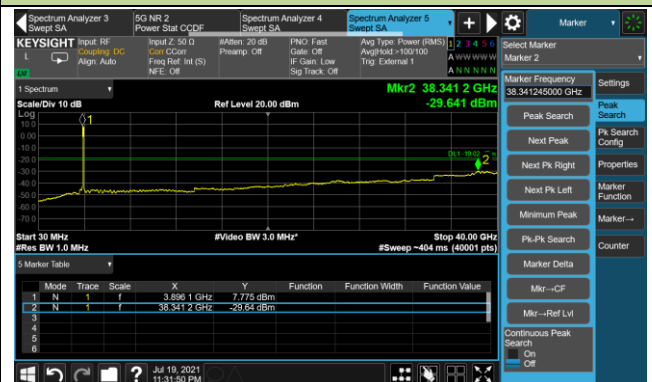


3930.00 MHz

9kHz ~ 30MHz



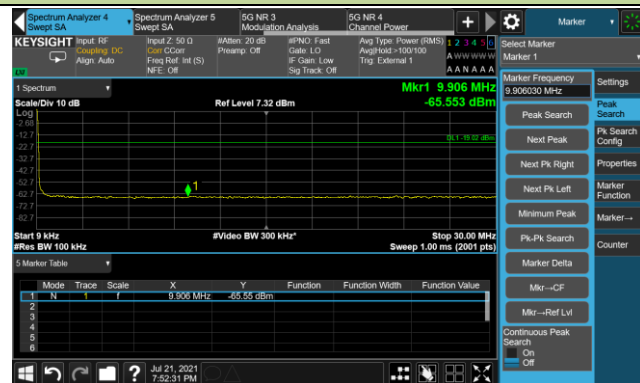
30MHz ~ 40000MHz



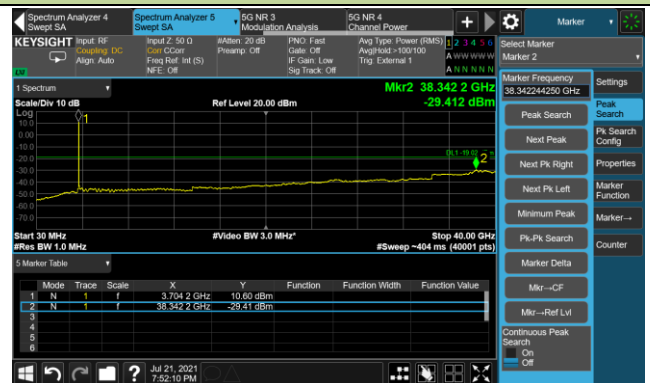
20+20 MHz Channel Bandwidth

3710+3730 MHz

9kHz ~ 30MHz

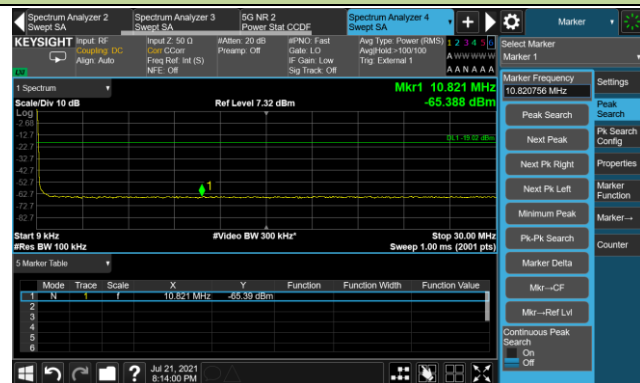


30MHz ~ 40000MHz

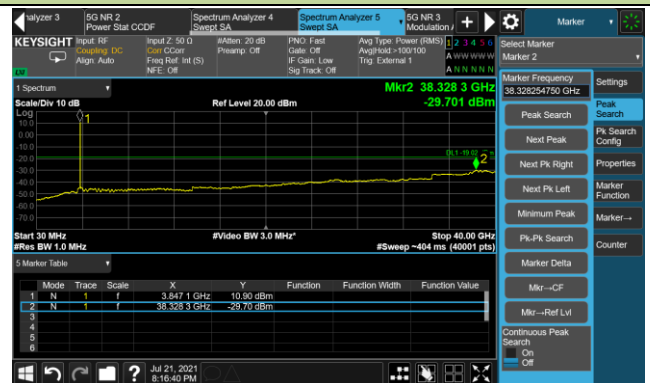


3830+3850 MHz

9kHz ~ 30MHz

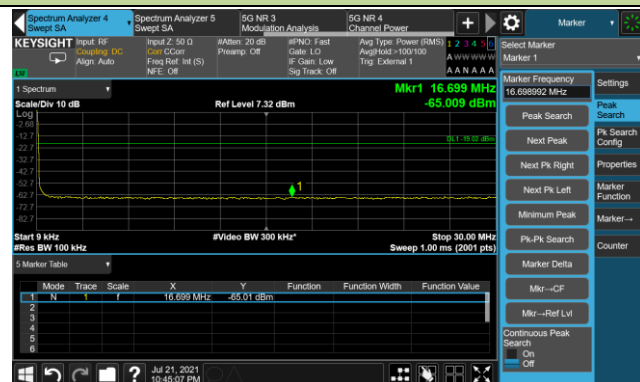


30MHz ~ 40000MHz

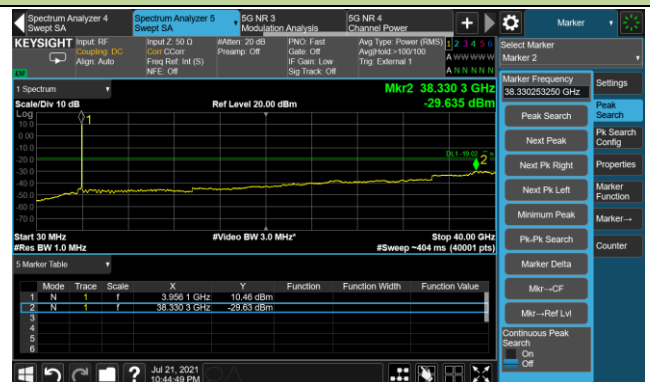


3950+3970 MHz

9kHz ~ 30MHz



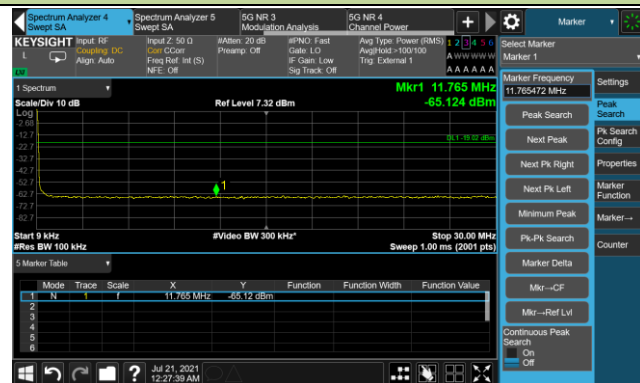
30MHz ~ 40000MHz



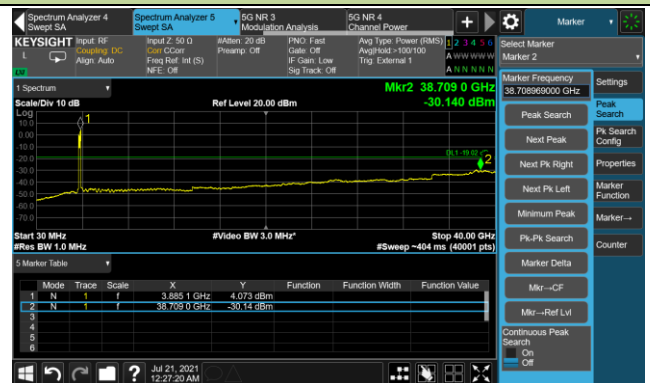
100+100MHz Channel Bandwidth

3750+3850 MHz

9kHz ~ 30MHz

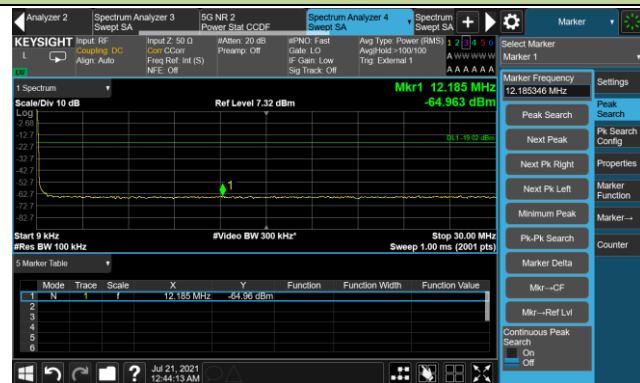


30MHz ~ 40000MHz

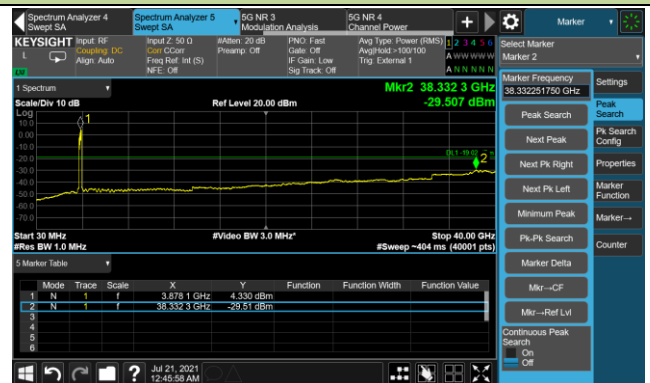


3790+3890 MHz

9kHz ~ 30MHz

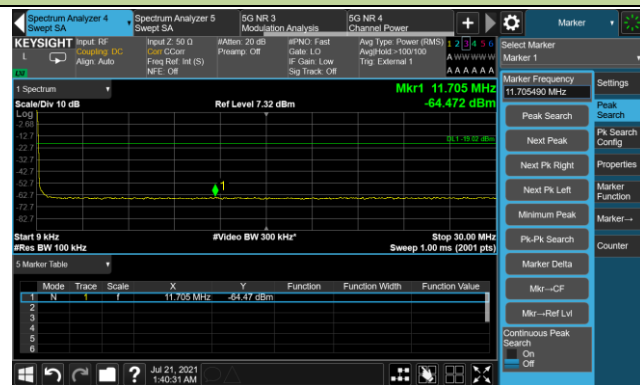


30MHz ~ 40000MHz

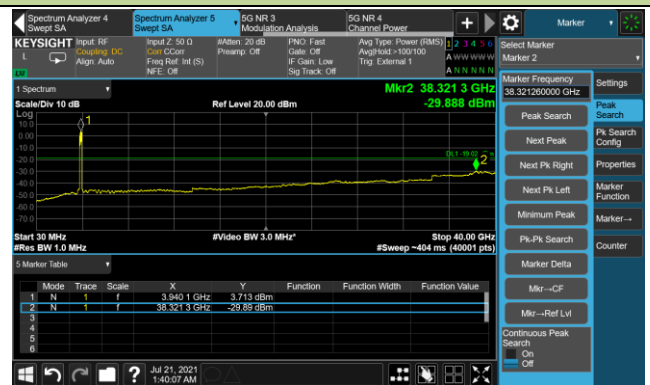


3830+3930 MHz

9kHz ~ 30MHz



30MHz ~ 40000MHz



Radiated Spurious Test Result

Test Engineer	Kevin Ker	Test Site	AC1
Test Date	2021/07/18	Test Configuration	n77, BW=20MHz

Frequency (MHz)	Reading Level (dBμV)	Factor (dB)	Measure Level(dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
Bottom Channel							
55.71	3.05	20.03	23.08	82.30	-59.22	Peak	Horizontal
105.66	4.32	18.44	22.76	82.30	-59.54	Peak	Horizontal
36.31	22.15	18.32	40.47	82.30	-41.83	Peak	Vertical
182.78	8.92	17.03	25.95	82.30	-56.35	Peak	Vertical
7417.50	52.60	12.65	65.25	82.30	-17.05	Peak	Horizontal
11659.00	32.82	19.69	52.51	82.30	-29.79	Peak	Horizontal
7426.00	48.41	12.69	61.10	82.30	-21.20	Peak	Vertical
12143.50	33.26	18.77	52.03	82.30	-30.27	Peak	Vertical
Middle Channel							
49.89	3.55	20.60	24.15	82.30	-58.15	Peak	Horizontal
156.59	7.60	15.48	23.08	82.30	-59.22	Peak	Horizontal
36.31	20.30	18.32	38.62	82.30	-43.68	Peak	Vertical
152.71	10.29	15.27	25.56	82.30	-56.74	Peak	Vertical
7681.00	64.13	13.17	77.30	82.30	-5.00	Peak	Horizontal
12143.50	33.26	18.77	52.03	82.30	-30.27	Peak	Horizontal
7681.00	59.08	13.17	72.25	82.30	-10.05	Peak	Vertical
11591.00	32.05	19.84	51.89	82.30	-30.41	Peak	Vertical
Top Channel							
159.50	9.80	15.67	25.47	82.30	-56.83	Peak	Horizontal
854.50	4.00	31.10	35.10	82.30	-47.20	Peak	Horizontal
36.31	19.35	18.32	37.67	82.30	-44.63	Peak	Vertical
159.01	9.41	15.64	25.05	82.30	-57.25	Peak	Vertical
7936.00	57.16	13.38	70.54	82.30	-11.76	Peak	Horizontal
12118.00	33.20	18.80	52.00	82.30	-30.30	Peak	Horizontal
7936.00	55.15	13.38	68.53	82.30	-13.77	Peak	Vertical
11395.50	31.11	19.89	51.00	82.30	-31.30	Peak	Vertical

Note: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) -Pre_Amplifier Gain (dB)

6. CONCLUSION

The data collected relate only the item(s) tested and show that the unit is compliance with FCC Rules.

The End