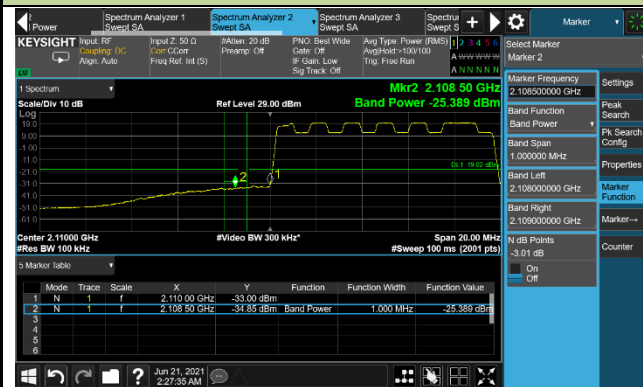
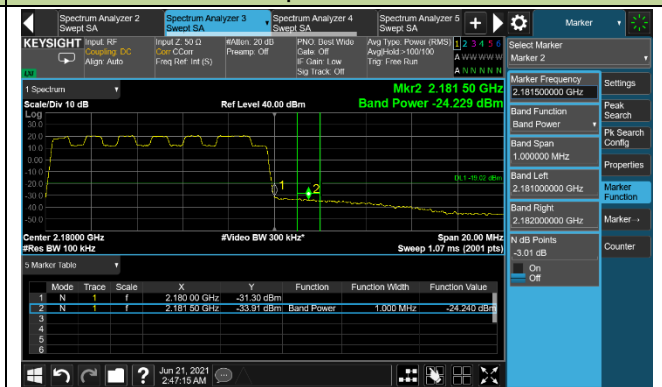


10MHz Channel Bandwidth - Ant 0

Bottom Channel

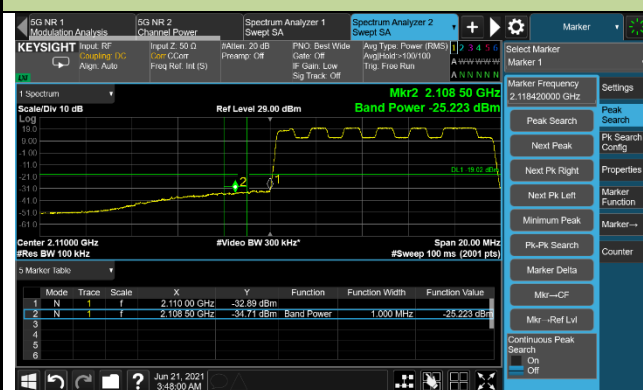


Top Channel

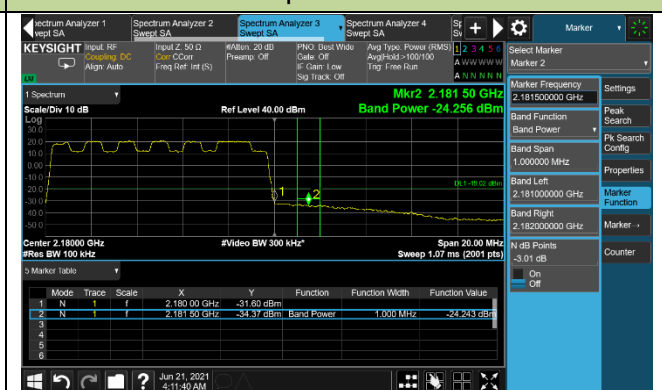


10MHz Channel Bandwidth - Ant 1

Bottom Channel

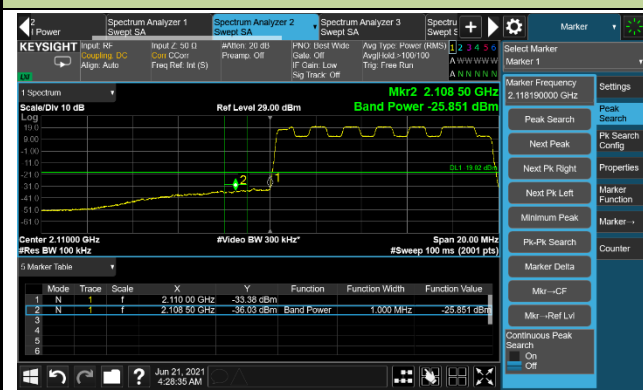


Top Channel



10MHz Channel Bandwidth - Ant 2

Bottom Channel

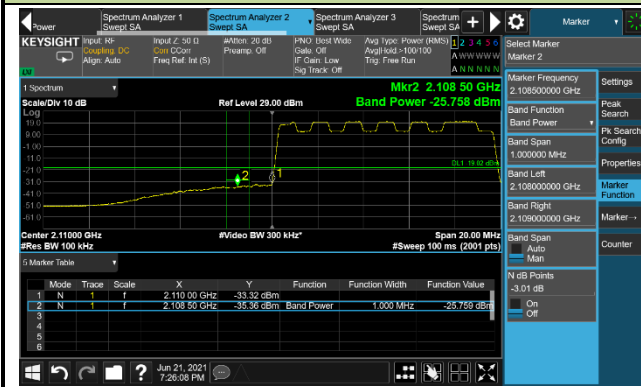


Top Channel

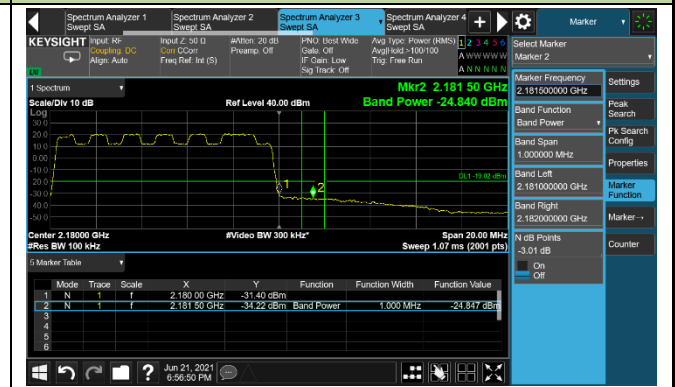


10MHz Channel Bandwidth - Ant 3

Bottom Channel

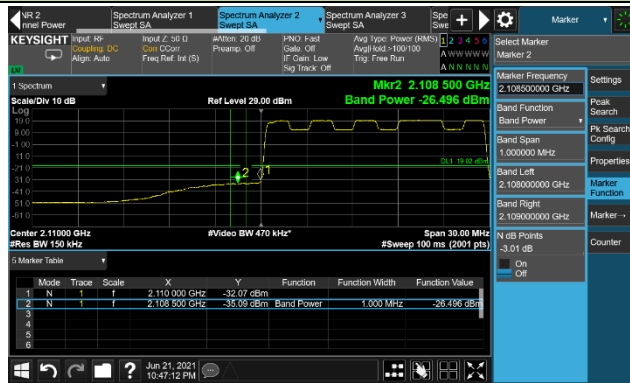


Top Channel

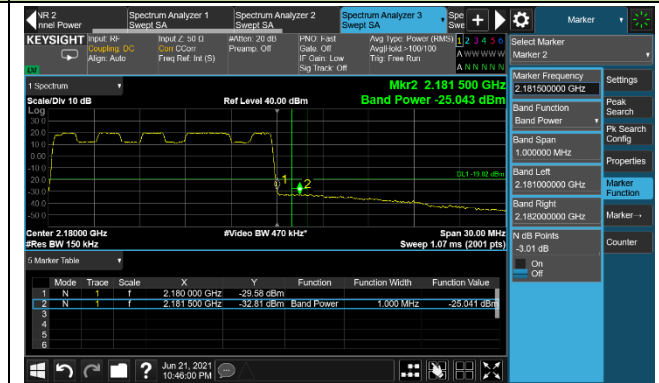


15MHz Channel Bandwidth - Ant 0

Bottom Channel

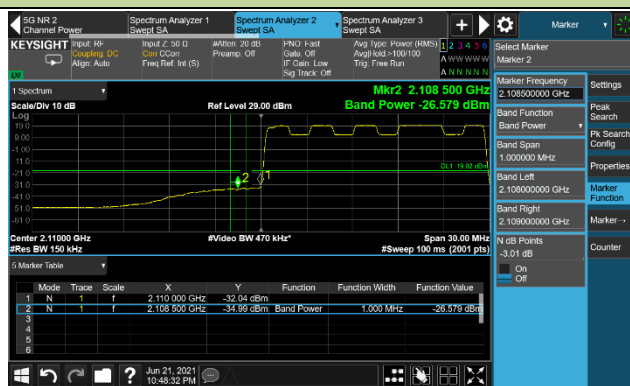


Top Channel

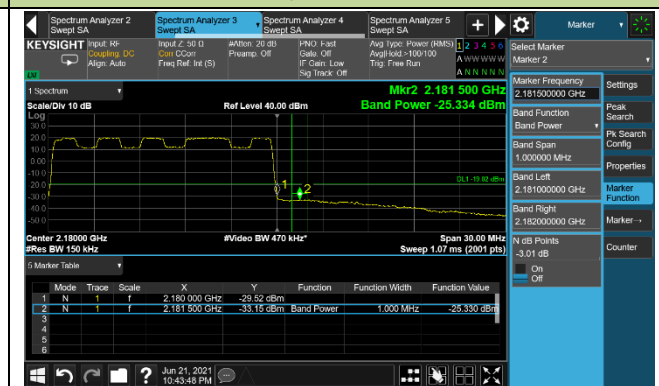


15MHz Channel Bandwidth - Ant 1

Bottom Channel

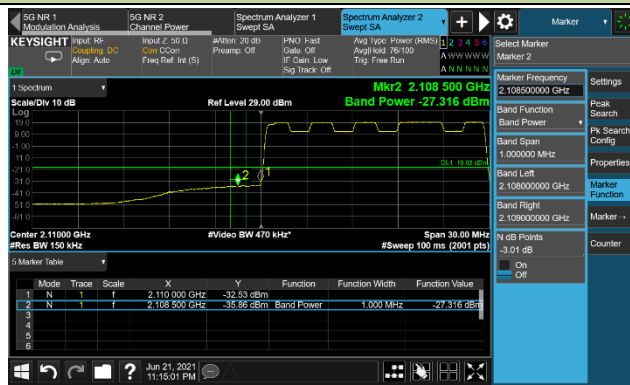


Top Channel

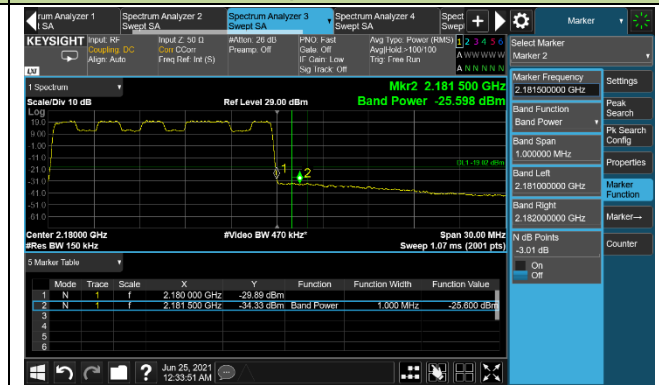


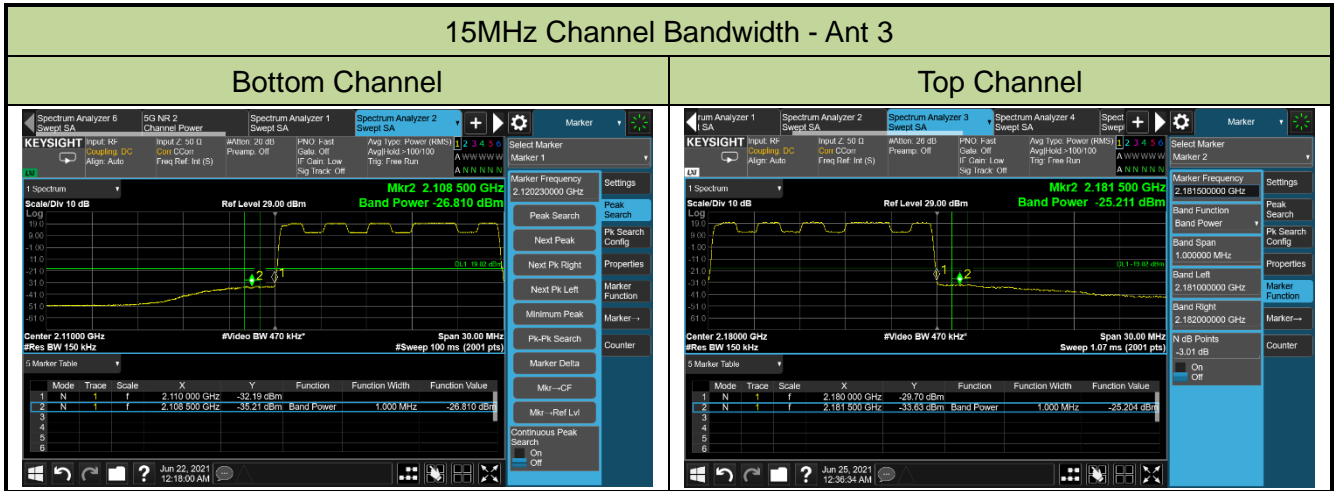
15MHz Channel Bandwidth - Ant 2

Bottom Channel



Top Channel





5.6. Peak to Average Ratio Measurement

5.6.1. Test Limit

In measuring transmissions in this band using an average power technique, the peak-to-average ratio (PAR) of the transmission may not exceed 13 dB.

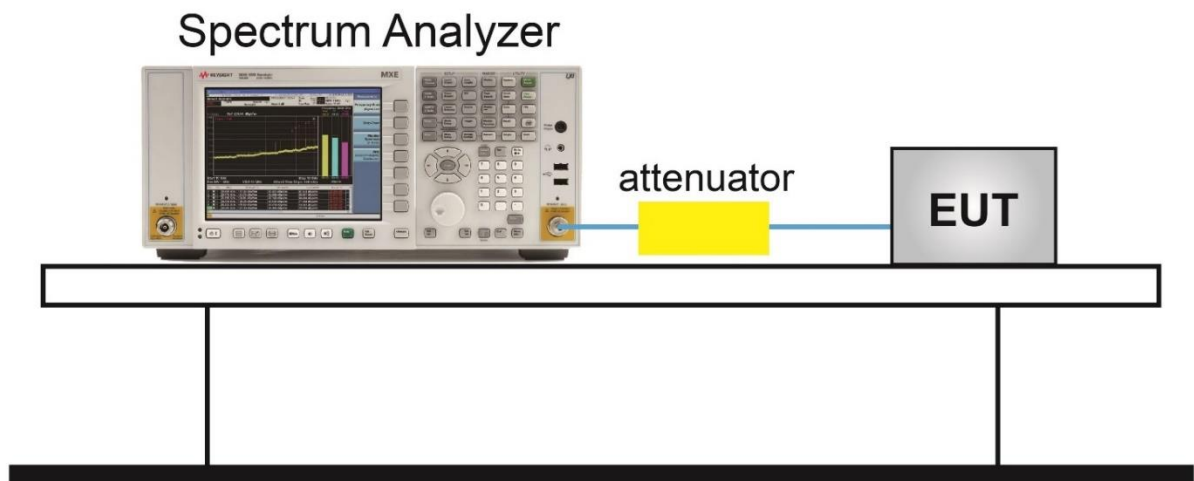
5.6.2. Test Procedure Used

ANSI C63.26-2015 - Section 5.2.6

5.6.3. Test Setting

1. Set the resolution / measurement bandwidth \geq signal's occupied bandwidth.
2. Set the number of counts to a value that stabilizes the measured CCDF curve.
3. Record the maximum PARR level associated with a probability of 0.1%.

5.6.4. Test Setup



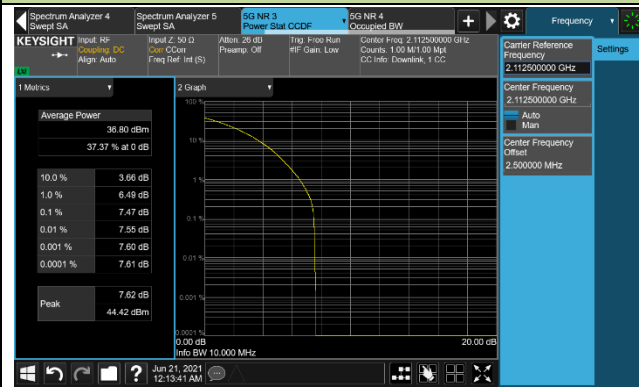
5.6.5. Test Result

Test Engineer	Peter Xu	Test Site	SR2
Test Date	2021/06/22		

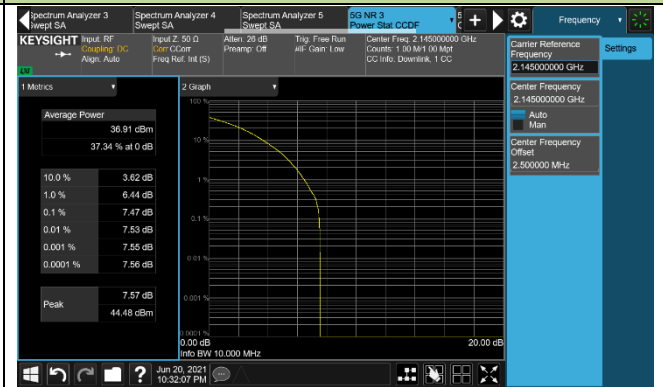
Frequency (MHz)	Bandwidth (MHz)	Peak to Average Ratio (dB)	Limit (dB)	Result
2112.5	5	7.47	≤ 13.00	Pass
2145.0	5	7.47	≤ 13.00	Pass
2177.5	5	7.46	≤ 13.00	Pass
2115.0	10	7.39	≤ 13.00	Pass
2145.0	10	7.41	≤ 13.00	Pass
2175.0	10	7.41	≤ 13.00	Pass
2117.5	15	7.33	≤ 13.00	Pass
2145.0	15	7.31	≤ 13.00	Pass
2172.5	15	7.29	≤ 13.00	Pass

5MHz Channel Bandwidth

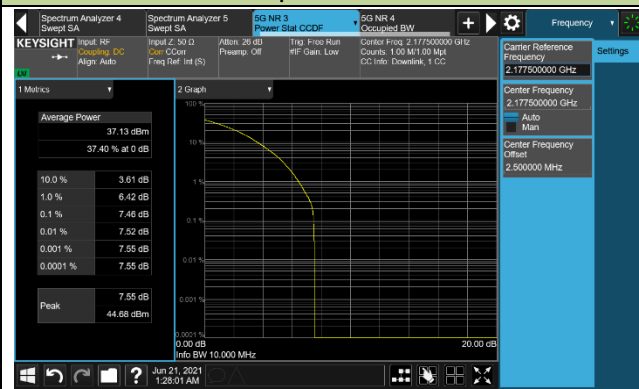
Bottom Channel



Middle Channel

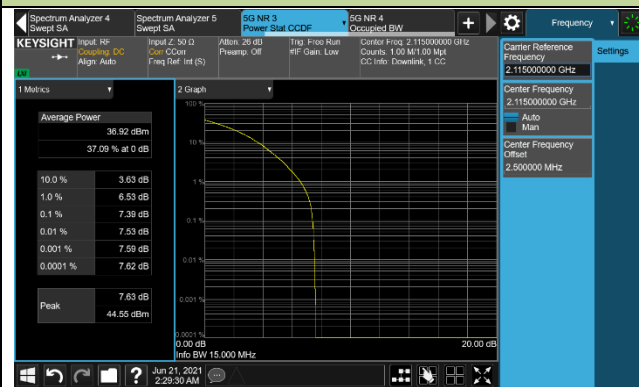


Top Channel

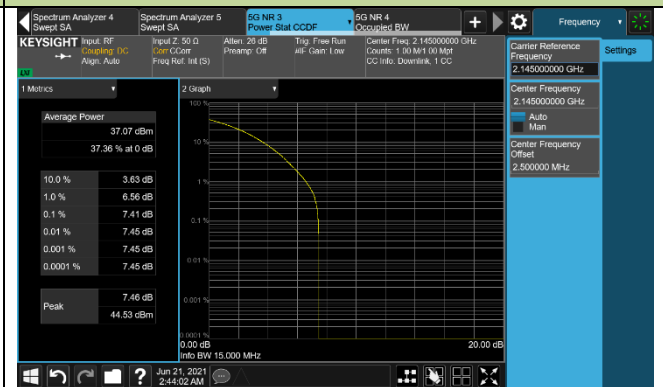


10MHz Channel Bandwidth

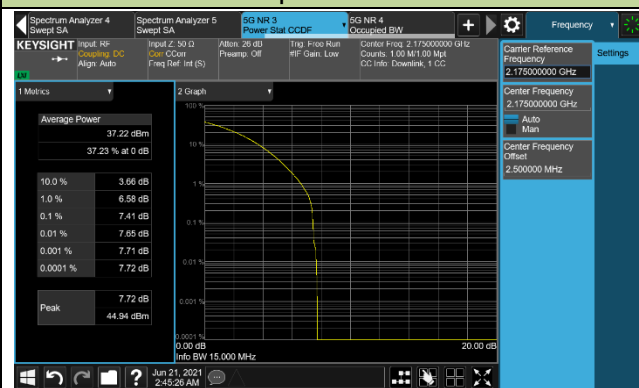
Bottom Channel

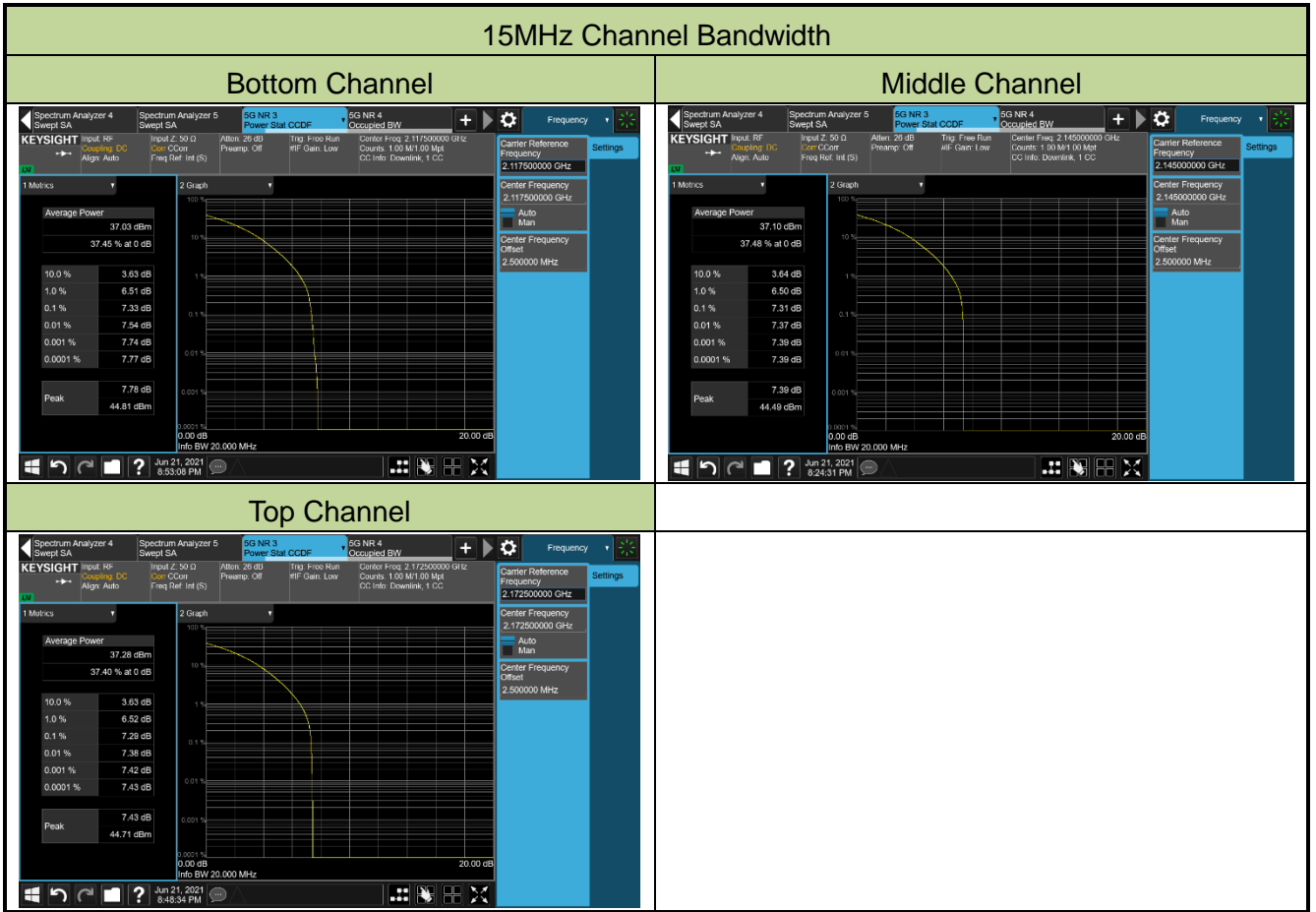


Middle Channel



Top Channel





5.7. Conducted Spurious Emission Measurement

5.7.1. Test Limit

on any frequency outside a licensee's frequency block, the power of any emission shall be attenuated below the transmitter power (P) at least $43 + 10 \cdot \log(P)$ dB, the emission limit equal to -13dBm.

Note: This device can be implement MIMO function, so the limit os 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 $-13\text{dBm} - 10 \cdot \log(4) = -19.02\text{dBm}$

5.7.2. Test Procedure Used

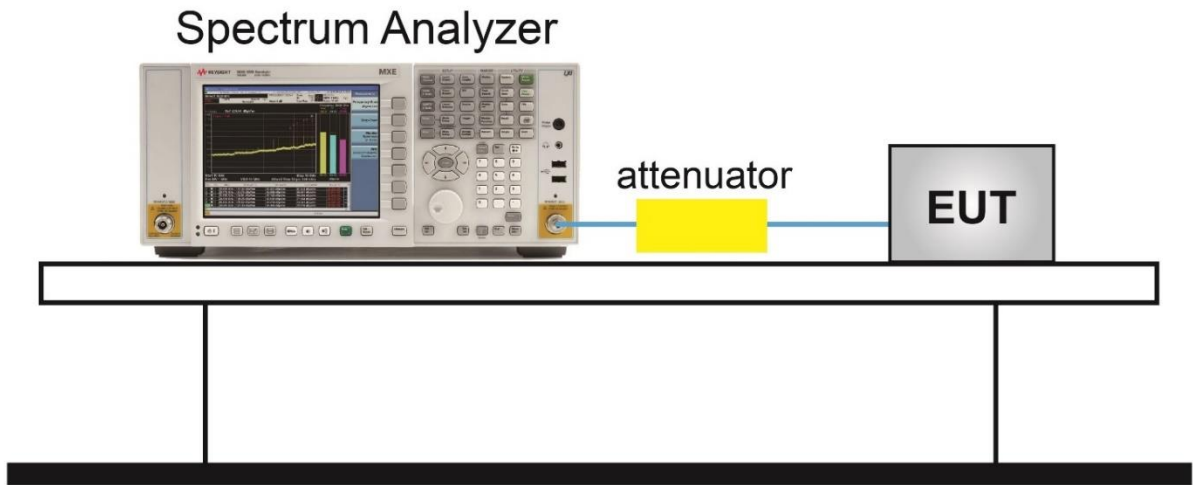
ANSI C63.26-2015 - Section 6.4.4.2

5.7.3. Test Setting

1. Set the analyzer frequency to low or high channel.
2. RBW = 100kHz or 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. 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.

5.7.4. Test Setup



5.7.5. Test Result

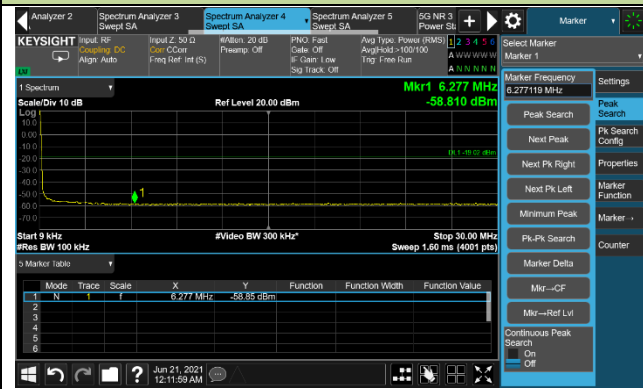
Test Engineer	Peter Xu	Test Site	SR2
Test Date	2021/06/23 ~ 2021/06/24		

Frequency (MHz)	Channel BW (MHz)	Frequency Range (MHz)	Max Spurious Emissions (dBm)	Limit (dBm)	Result
2112.5	5	0.009 ~ 30	-28.81	≤ -19.02	Pass
		30 ~ 22000	-31.88	≤ -19.02	Pass
2145.0	5	0.009 ~ 30	-57.91	≤ -19.02	Pass
		30 ~ 22000	-31.97	≤ -19.02	Pass
2172.5	5	0.009 ~ 30	-58.54	≤ -19.02	Pass
		30 ~ 22000	-32.17	≤ -19.02	Pass
2115.0	10	0.009 ~ 30	-59.02	≤ -19.02	Pass
		30 ~ 22000	-31.90	≤ -19.02	Pass
2145.0	10	0.009 ~ 30	-58.04	≤ -19.02	Pass
		30 ~ 22000	-32.09	≤ -19.02	Pass
2175.0	10	0.009 ~ 30	-58.91	≤ -19.02	Pass
		30 ~ 22000	-32.31	≤ -19.02	Pass
2117.5	15	0.009 ~ 30	-57.58	≤ -19.02	Pass
		30 ~ 22000	-31.85	≤ -19.02	Pass
2145.0	15	0.009 ~ 30	-58.10	≤ -19.02	Pass
		30 ~ 22000	-32.00	≤ -19.02	Pass
2172.5	15	0.009 ~ 30	-58.53	≤ -19.02	Pass
		30 ~ 22000	-31.94	≤ -19.02	Pass

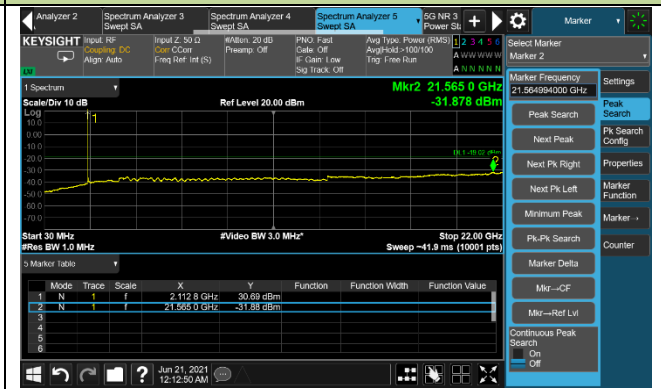
5MHz Channel Bandwidth

Bottom Channel

9kHz ~ 1GHz

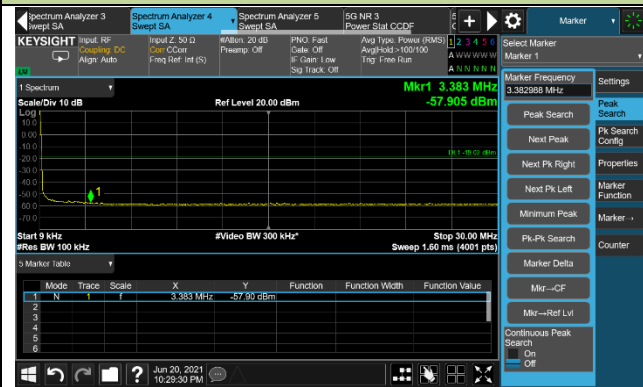


1GHz ~ 22GHz

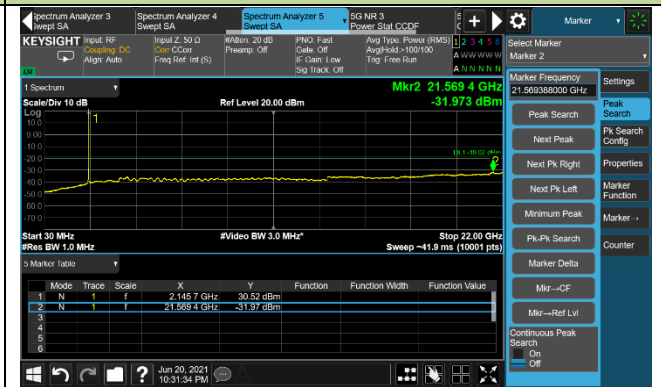


Middle Channel

9kHz ~ 1GHz

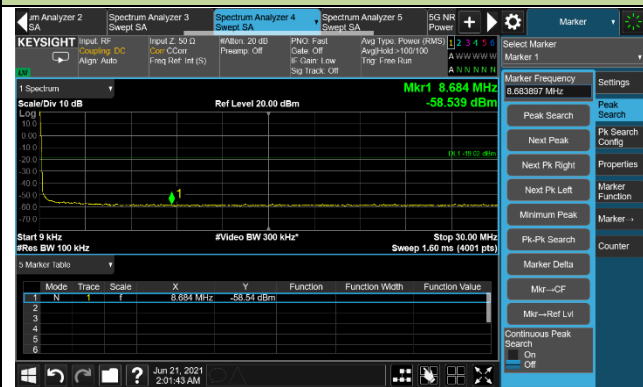


1GHz ~ 22GHz



Top Channel

9kHz ~ 1GHz



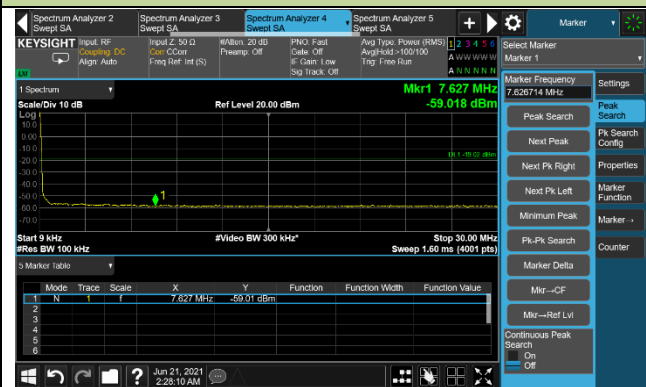
1GHz ~ 22GHz



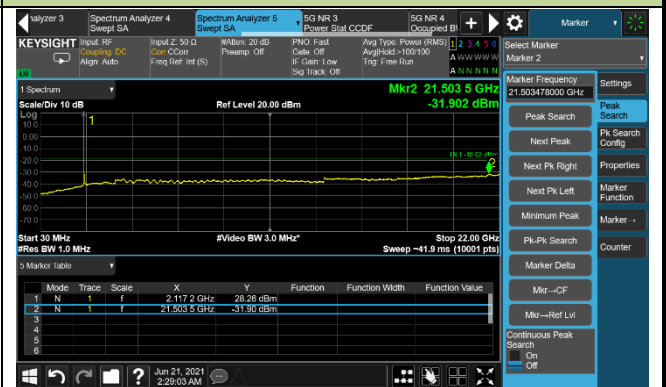
10MHz Channel Bandwidth

Bottom Channel

9kHz ~ 1GHz

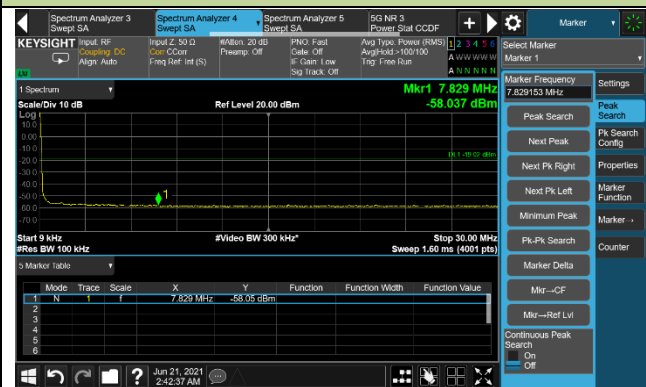


1GHz ~ 22GHz

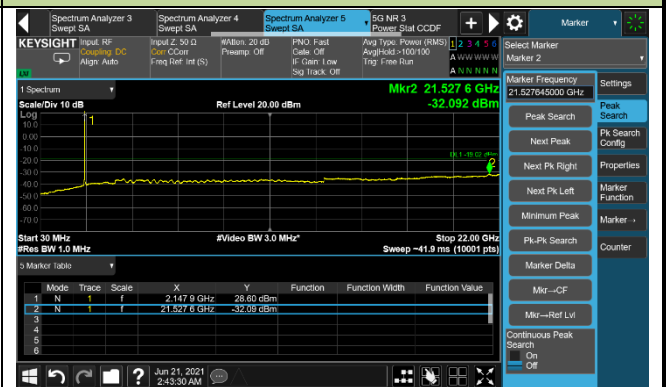


Middle Channel

9kHz ~ 1GHz

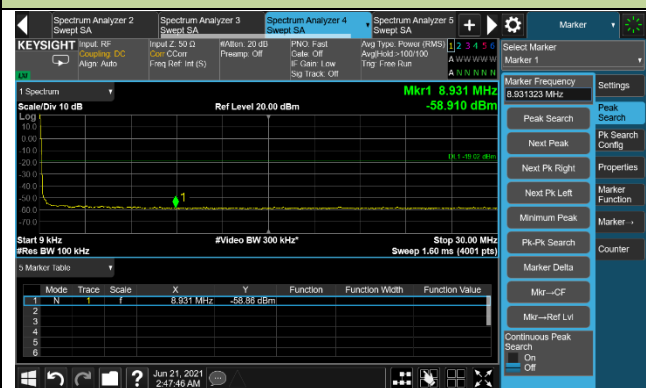


1GHz ~ 22GHz

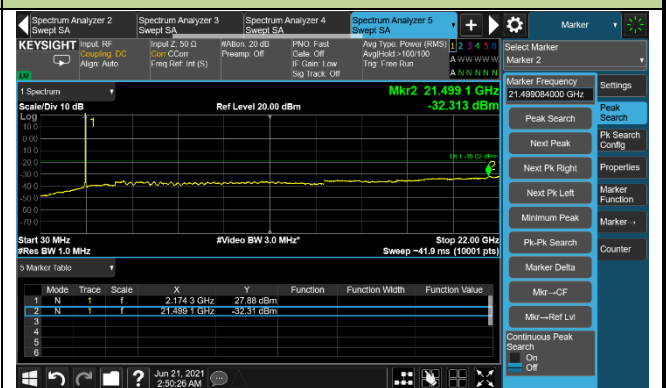


Top Channel

9kHz ~ 1GHz



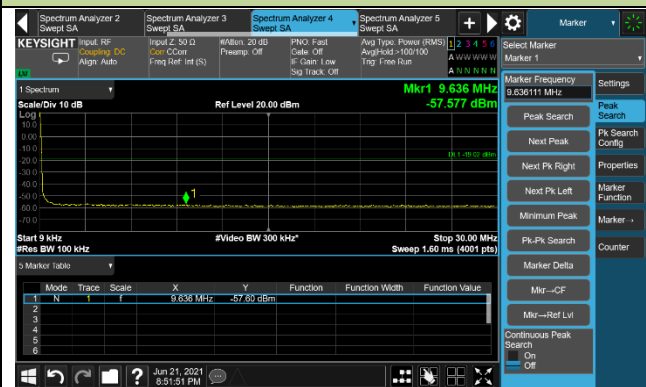
1GHz ~ 22GHz



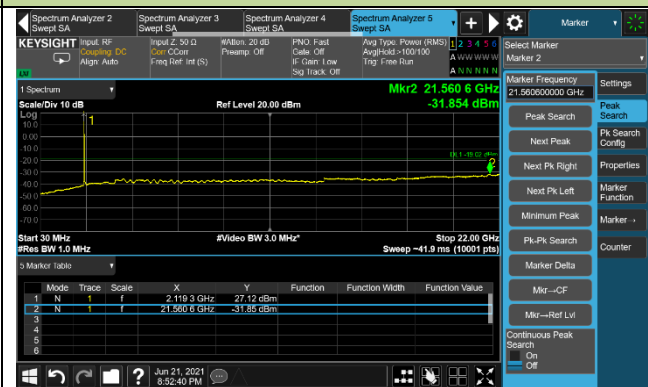
15MHz Channel Bandwidth

Bottom Channel

9kHz ~ 1GHz

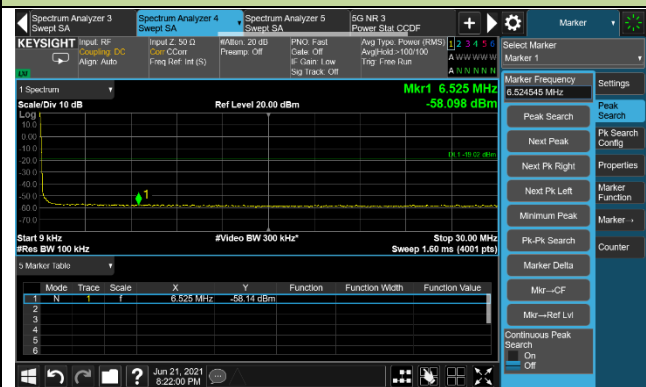


1GHz ~ 22GHz

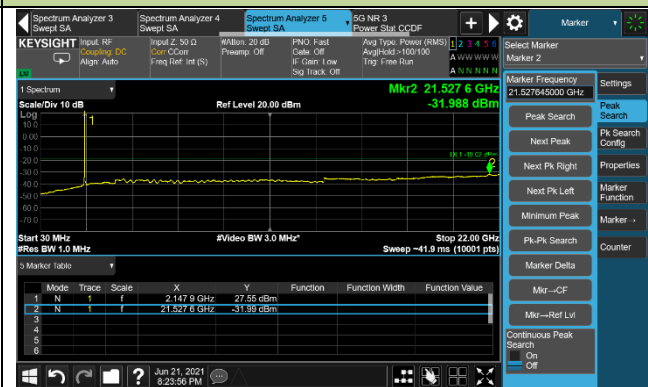


Middle Channel

9kHz ~ 1GHz

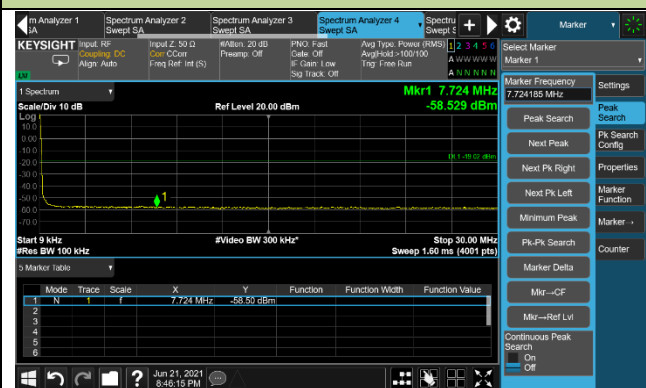


1GHz ~ 22GHz

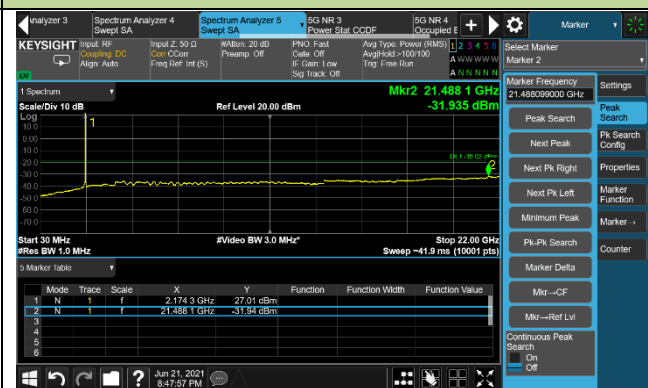


Top Channel

9kHz ~ 1GHz



1GHz ~ 22GHz



5.8. Radiated Spurious Emission Measurement

5.8.1. Test Limit

Out of band emissions: The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least $43 + 10 \log(P)$ dB. The emission limit equal to -13dBm.

E (dB μ V/m) = EIRP (dBm) – 20 log D + 104.8; where D is the measurement distance in meters. The emission limit equal to 82.3dB μ V/m.

5.8.2. Test Procedure Used

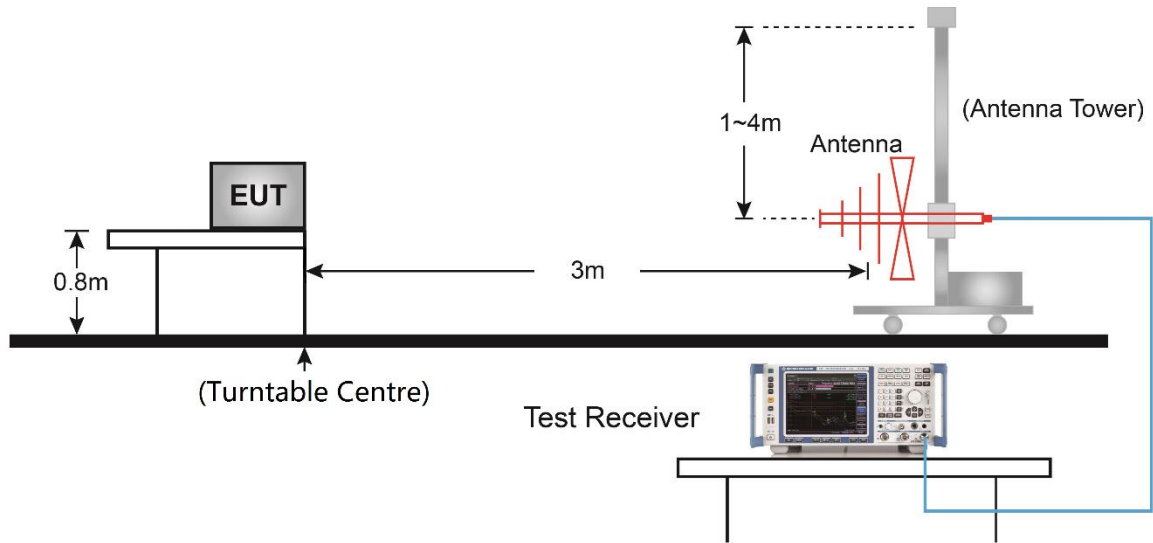
ANSI C63.26-2015 - Section 5.2.7 & 5.5

5.8.3. Test Setting

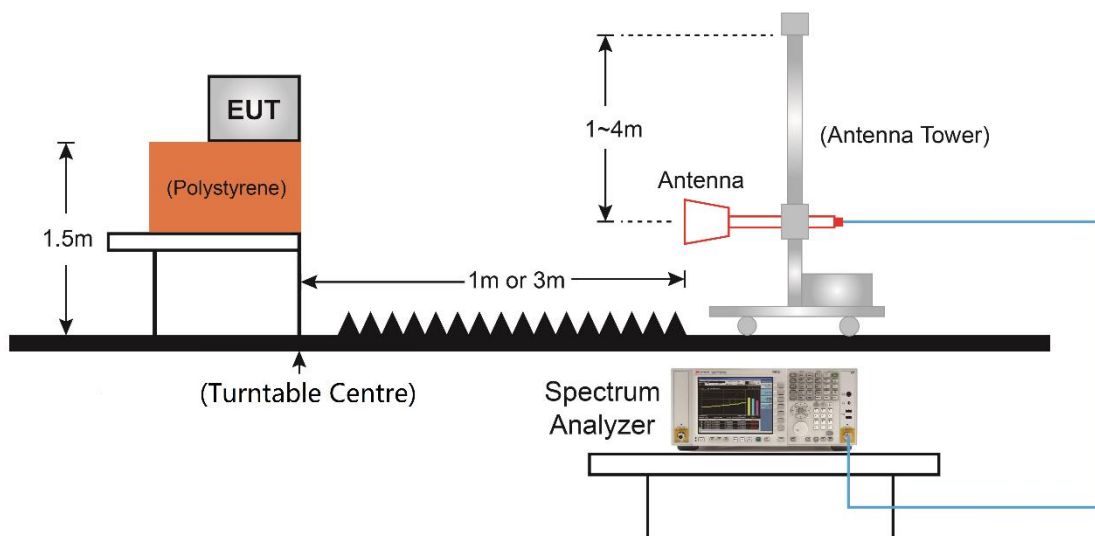
1. RBW = 100kHz or 1MHz
2. VBW \geq 3*RBW
3. Sweep time \geq 10 \times (number of points in sweep) \times (transmission symbol period)
4. Detector = Peak
5. Trace mode = max hold
6. The trace was allowed to stabilize

5.8.4. Test Setup

Below 1GHz Test Setup:



Above 1GHz Test Setup:



5.8.5. Test Result

Test Engineer	Kevin Ker	Test Site	AC1
Test Date	2021/06/28	Test Configuration	BW=5MHz

Frequency (MHz)	Reading Level (dB μ V)	Factor (dB)	Measure Level (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Detector	Polarization
Bottom Channel							
34.9	5.1	19.3	24.4	82.3	-57.9	Peak	Horizontal
585.3	3.7	27.5	31.2	82.3	-51.1	Peak	Horizontal
35.3	7.1	24.7	31.8	82.3	-50.5	Peak	Vertical
682.8	6.3	26.8	33.0	82.3	-49.3	Peak	Vertical
6338.0	38.9	7.4	46.3	82.3	-36.0	Peak	Horizontal
13180.5	34.1	19.7	53.8	82.3	-28.5	Peak	Horizontal
6338.0	41.0	7.4	48.3	82.3	-34.0	Peak	Vertical
10758.0	33.7	17.4	51.2	82.3	-31.1	Peak	Vertical
Middle Channel							
35.3	5.8	19.4	25.3	82.3	-57.0	Peak	Horizontal
527.1	2.8	26.5	29.3	82.3	-53.0	Peak	Horizontal
35.3	20.7	19.4	40.2	82.3	-42.1	Peak	Vertical
532.5	3.1	26.6	29.7	82.3	-52.6	Peak	Vertical
6822.5	35.6	9.5	45.1	82.3	-37.2	Peak	Horizontal
11625.0	34.0	18.3	52.3	82.3	-30.0	Peak	Horizontal
4289.5	40.7	1.8	42.6	82.3	-39.7	Peak	Vertical
10817.5	35.2	17.5	52.7	82.3	-29.6	Peak	Vertical
Top Channel							
52.8	2.5	21.5	24.0	82.3	-58.3	Peak	Horizontal
500.0	4.2	26.2	30.4	82.3	-51.9	Peak	Horizontal
34.9	21.0	19.3	40.3	82.3	-42.0	Peak	Vertical
500.0	3.2	26.2	29.4	82.3	-52.9	Peak	Vertical
5054.5	36.8	3.8	40.6	82.3	-41.7	Peak	Horizontal
13869.0	33.2	21.3	54.5	82.3	-27.8	Peak	Horizontal
4357.5	40.4	2.1	42.4	82.3	-39.9	Peak	Vertical
14744.5	34.8	21.4	56.2	82.3	-26.1	Peak	Vertical

Note: Measure Level (dB μ V/m) = Reading Level (dB μ V) + 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