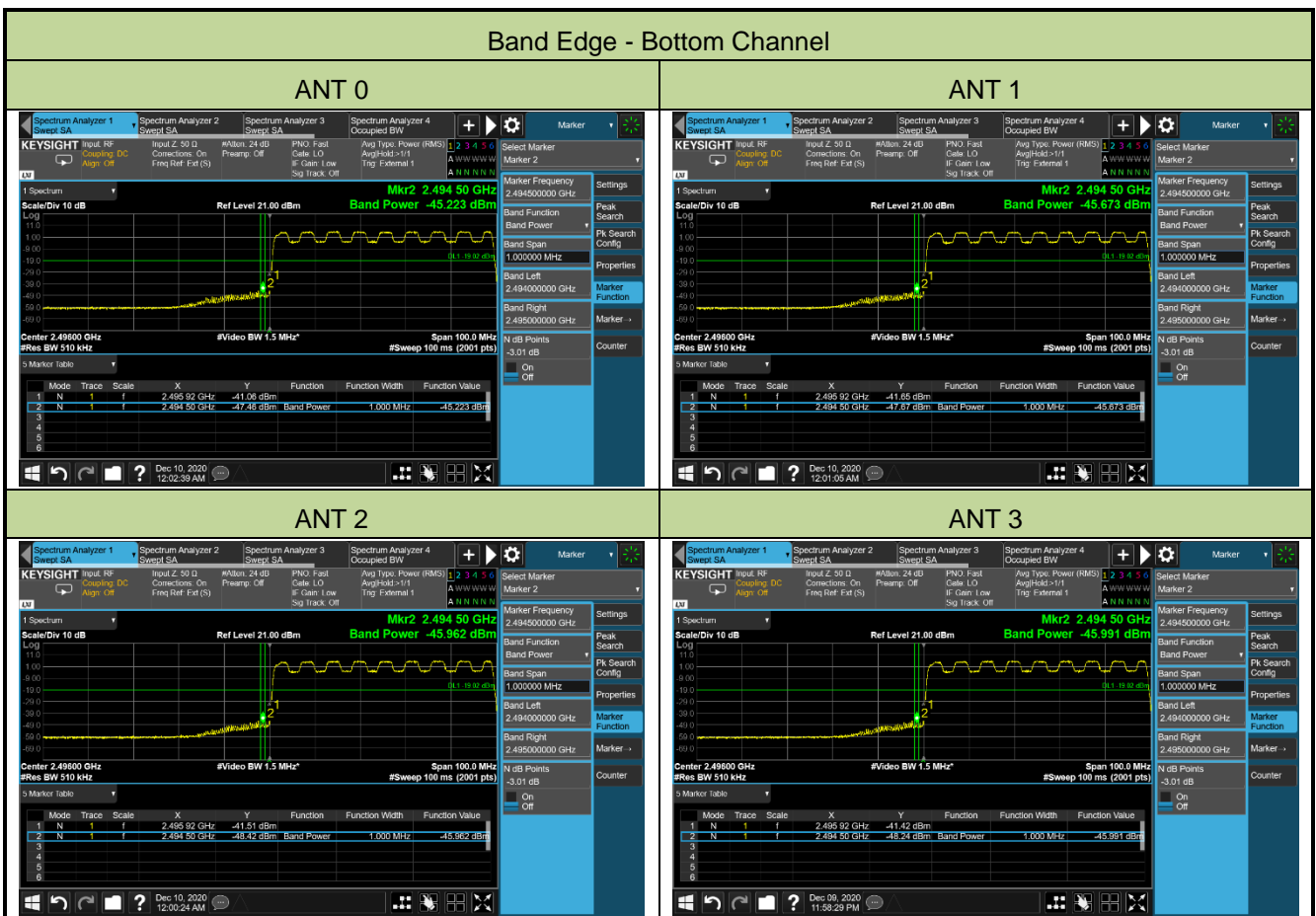


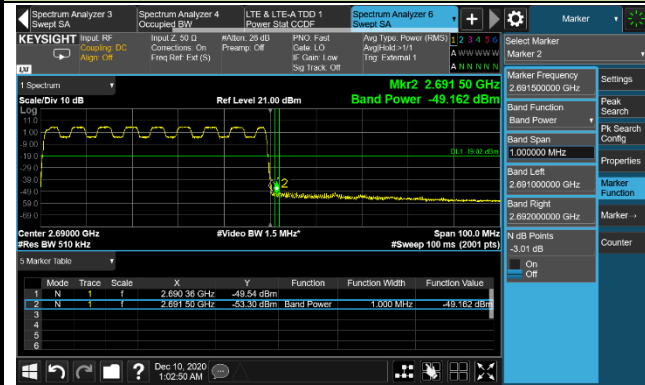
Product	AirScale Indoor Radio ASiR 5G-pRRH	Test Engineer	Eric Lin
Test Site	SR2	Test Date	2020/12/10
Test Configuration	5G NR 50MHz		

Frequency (MHz)	Channel Bandwidth (MHz)	Max Band Edge (dBm)				Limit (dBm)	Result
		Ant 0	Ant 1	Ant 2	Ant 3		
QPSK							
Bottom	50	-45.22	-45.67	-45.96	-45.99	≤ -19.02	Pass
Top	50	-49.16	-48.90	-49.11	-49.05	≤ -19.02	Pass

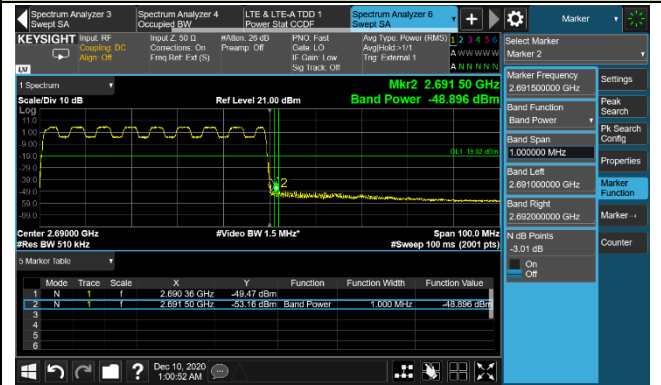


Band Edge - Top Channel

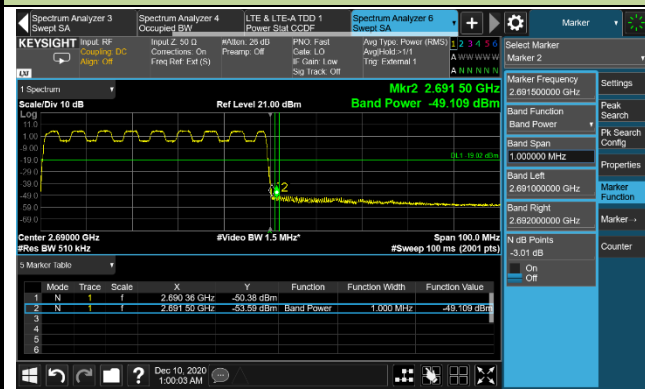
ANT 0



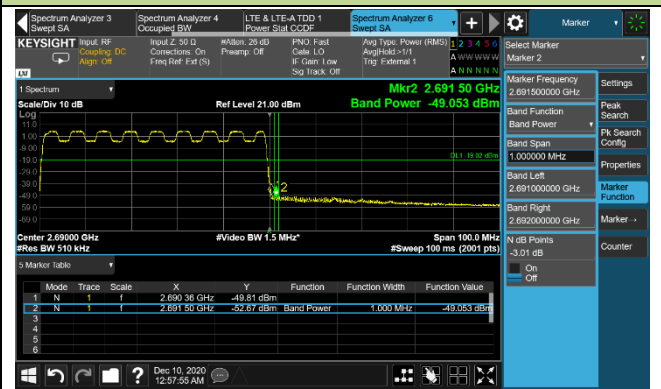
ANT 1



ANT 2

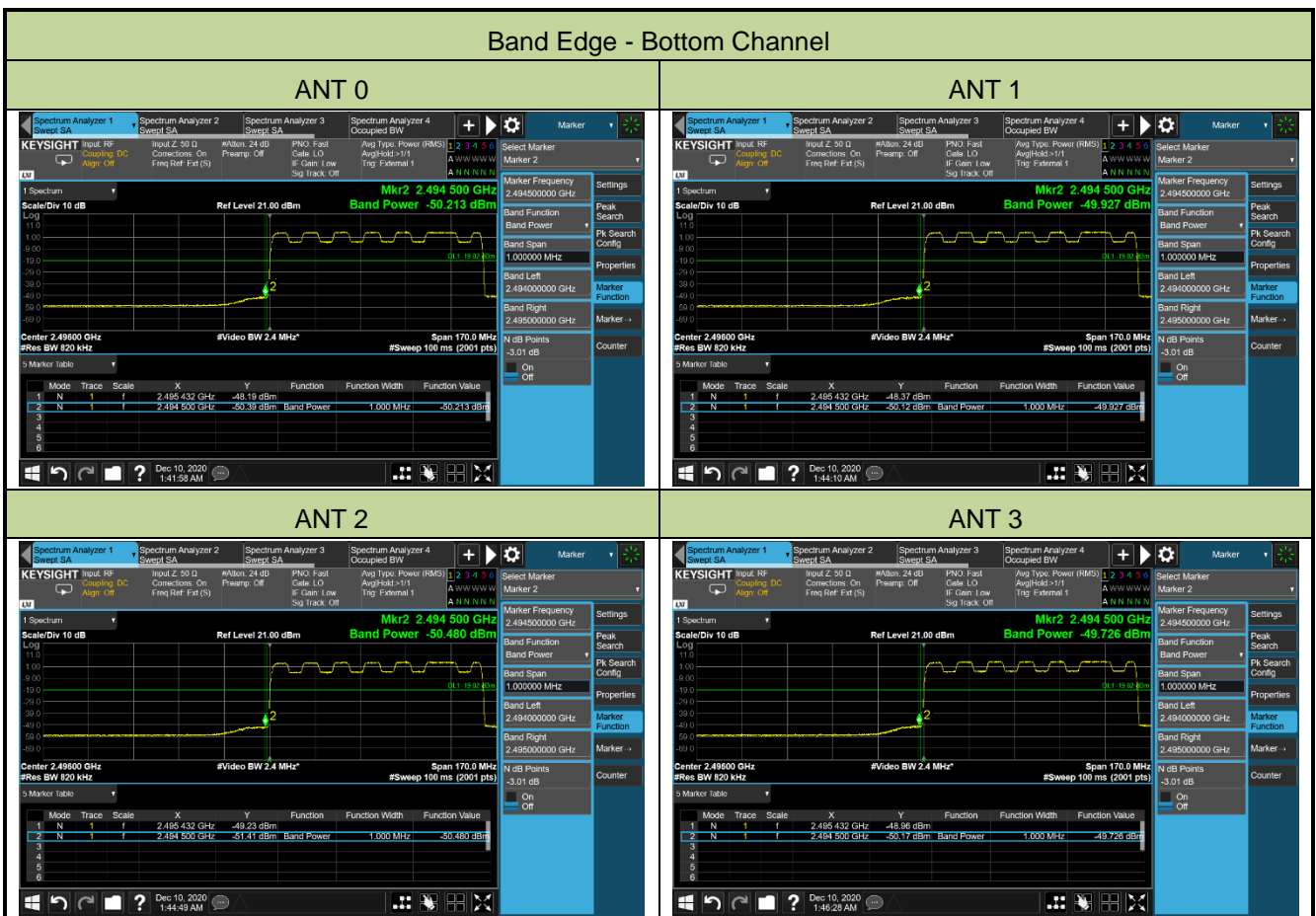


ANT 3



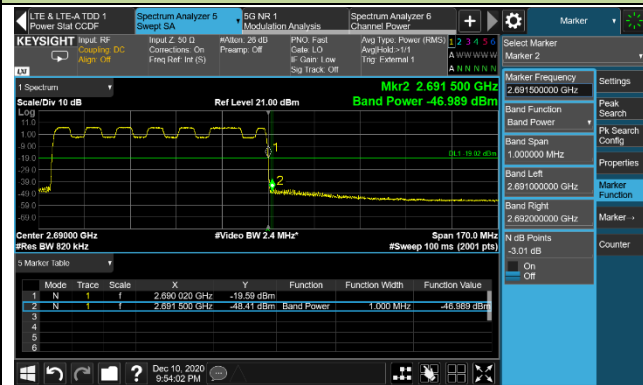
Product	AirScale Indoor Radio ASiR 5G-pRRH	Test Engineer	Eric Lin
Test Site	SR2	Test Date	2020/12/10
Test Configuration	5G NR 80MHz		

Frequency (MHz)	Channel Bandwidth (MHz)	Max Band Edge (dBm)				Limit (dBm)	Result
		Ant 0	Ant 1	Ant 2	Ant 3		
QPSK							
Bottom	80	-50.21	-49.93	-50.48	-49.73	≤ -19.02	Pass
Top	80	-46.99	-46.88	-47.18	-46.55	≤ -19.02	Pass

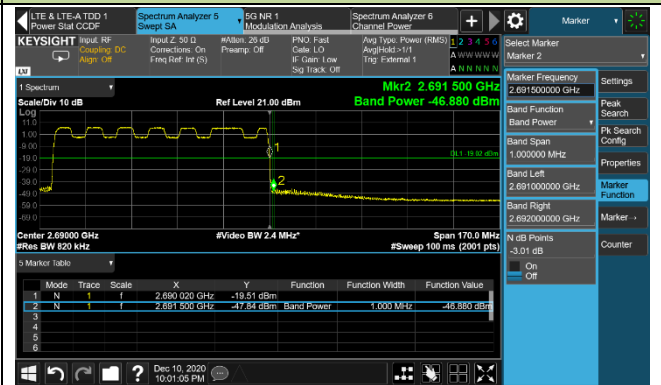


Band Edge - Top Channel

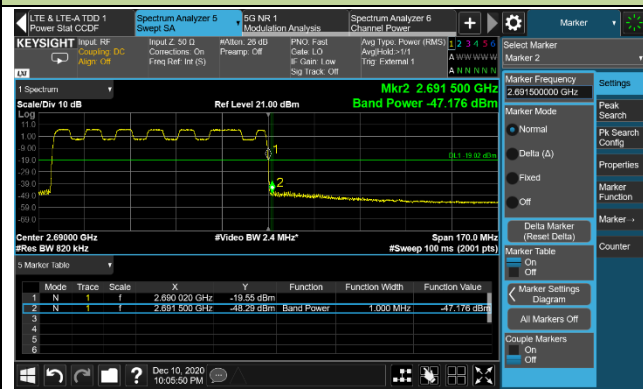
ANT 0



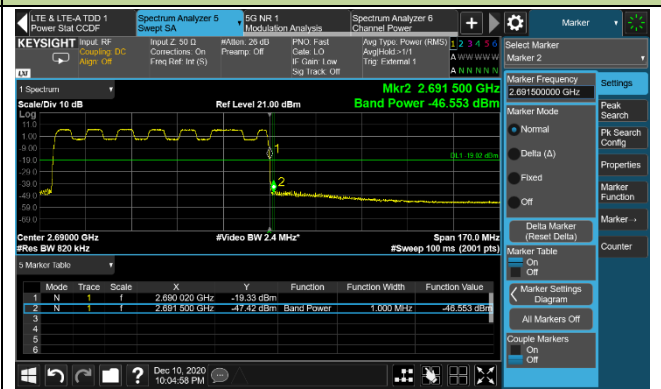
ANT 1



ANT 2



ANT 3



5.6. Peak to Average Ratio

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

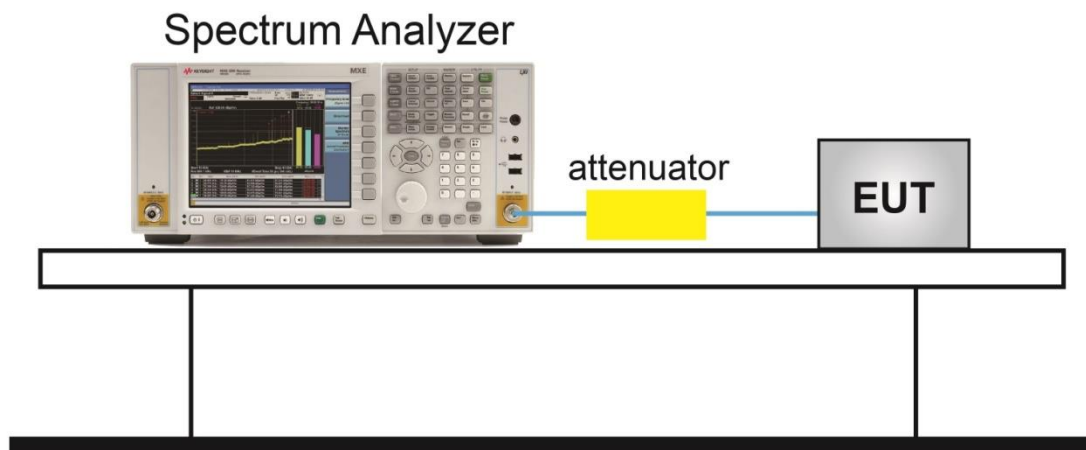
KDB 971168 D01v03r01 - Section 5.7

ANSI C63.26-2015 - Section 5.2.6

5.6.3. Test Setting

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

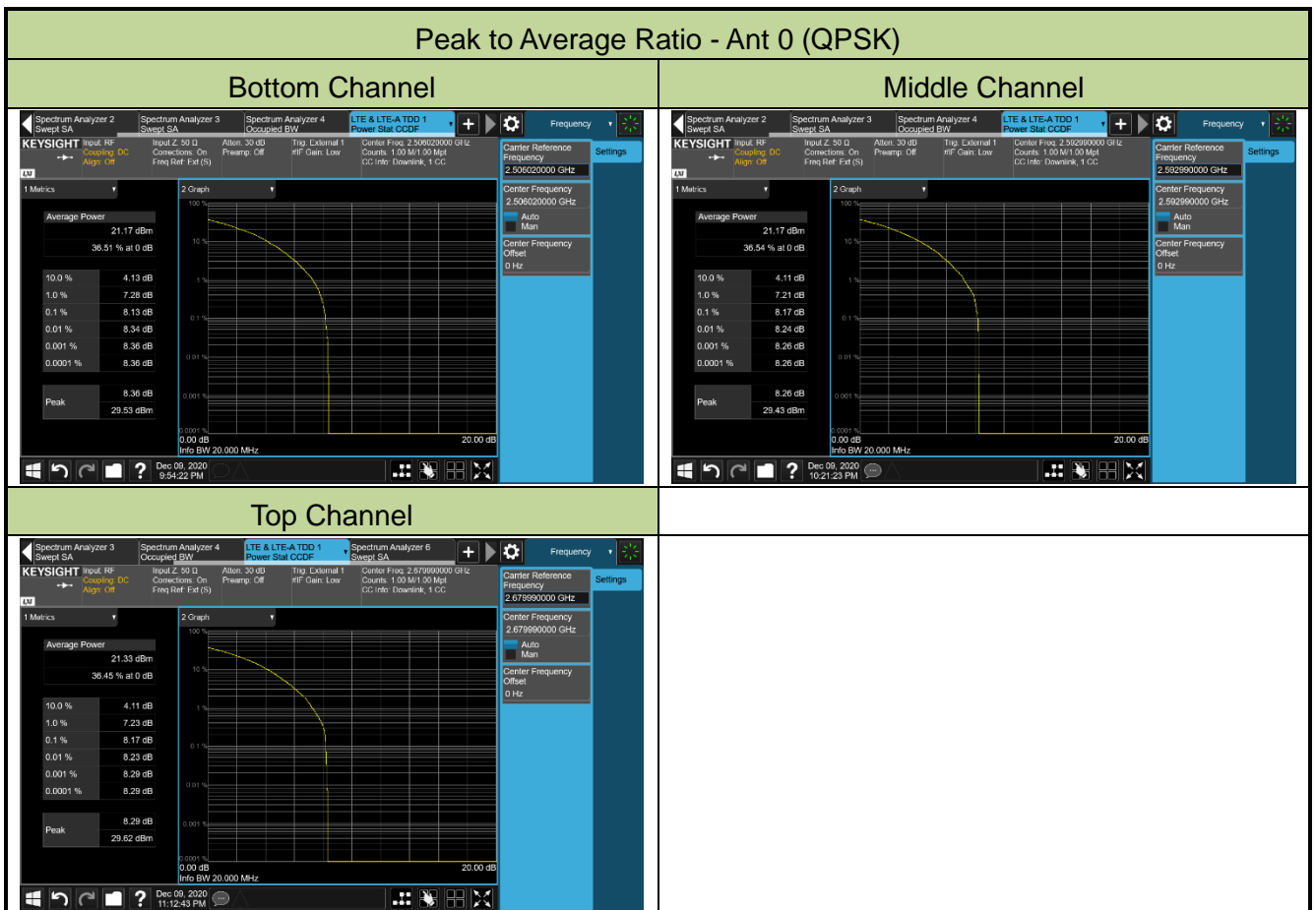
5.6.4. Test Setup



5.6.5. Test Result

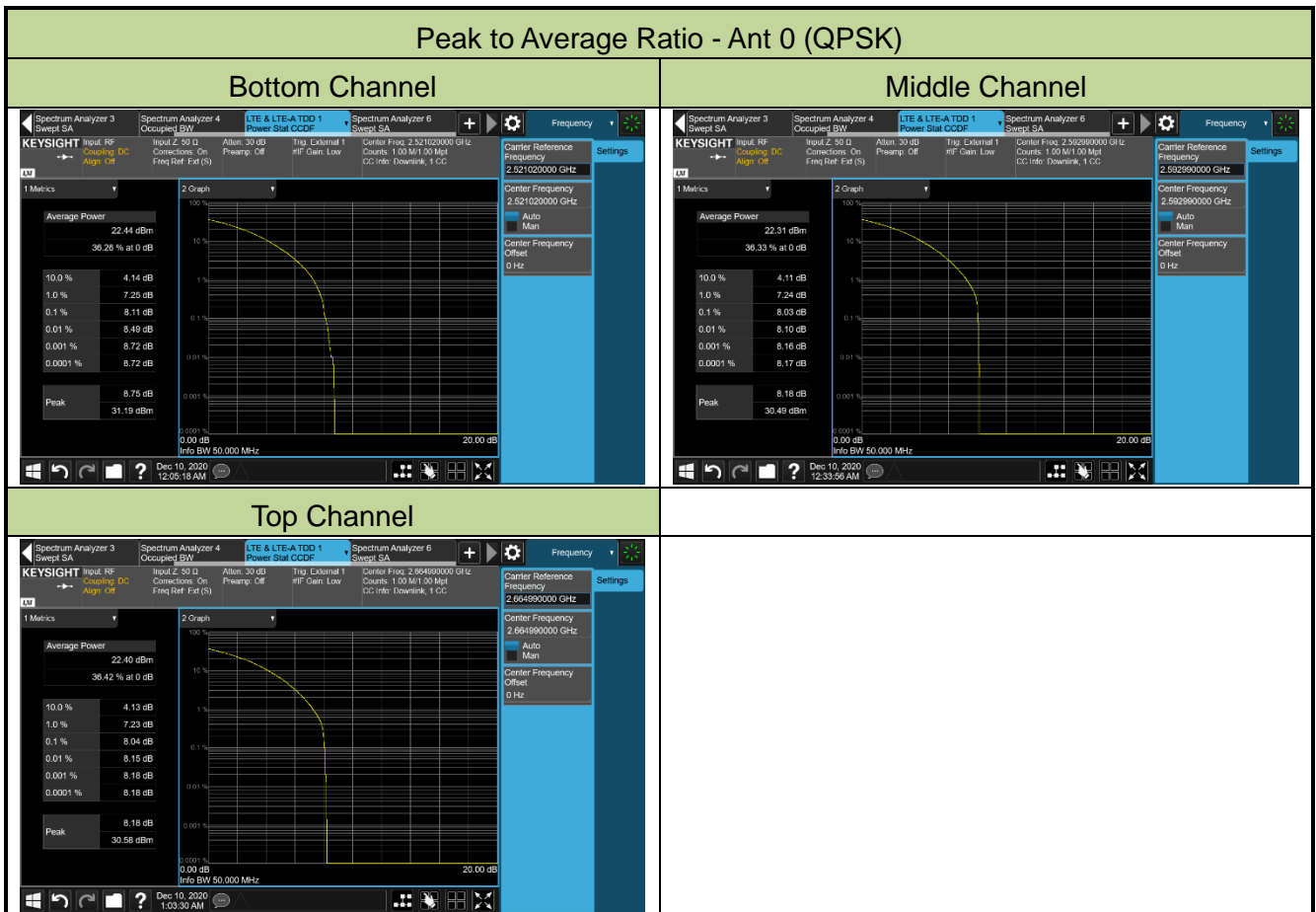
Product	AirScale Indoor Radio ASiR 5G-pRRH	Test Engineer	Eric Lin
Test Site	SR2	Test Date	2020/12/09
Test Configuration	5G NR 20MHz		

Channel No.	Frequency (MHz)	Channel Bandwidth (MHz)	Peak to Average Ratio (dB)	Limit (dB)	Result
QPSK					
501204	2506.02	20	8.13	≤ 13.00	Pass
518598	2592.99	20	8.17	≤ 13.00	Pass
535998	2679.99	20	8.17	≤ 13.00	Pass



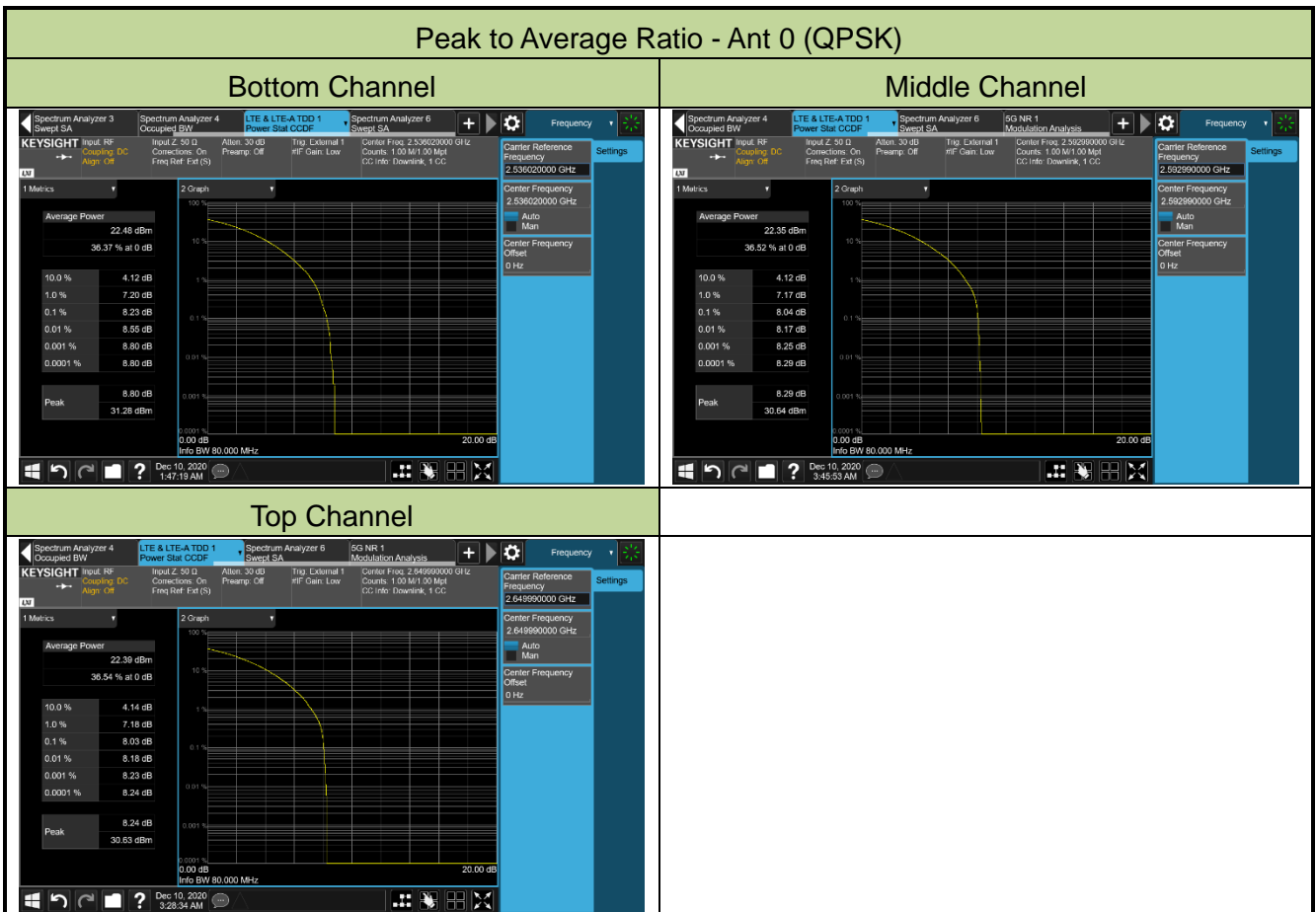
Product	AirScale Indoor Radio ASiR 5G-pRRH	Test Engineer	Eric Lin
Test Site	SR2	Test Date	2020/12/10
Test Configuration	5G NR 50MHz		

Channel No.	Frequency (MHz)	Channel Bandwidth (MHz)	Peak to Average Ratio (dB)	Limit (dB)	Result
QPSK					
504204	2521.02	50	8.11	≤ 13.00	Pass
518598	2592.99	50	8.03	≤ 13.00	Pass
532998	2664.99	50	8.04	≤ 13.00	Pass



Product	AirScale Indoor Radio ASiR 5G-pRRH	Test Engineer	Eric Lin
Test Site	SR2	Test Date	2020/12/10
Test Configuration	5G NR 80MHz		

Channel No.	Frequency (MHz)	Channel Bandwidth (MHz)	Peak to Average Ratio (dB)	Limit (dB)	Result
QPSK					
507204	2536.02	80	8.23	≤ 13.00	Pass
518598	2592.99	80	8.04	≤ 13.00	Pass
529998	2649.99	80	8.03	≤ 13.00	Pass



5.7. Conducted Spurious Emissions

5.7.1. Test Limit

In the FCC 24.238, 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

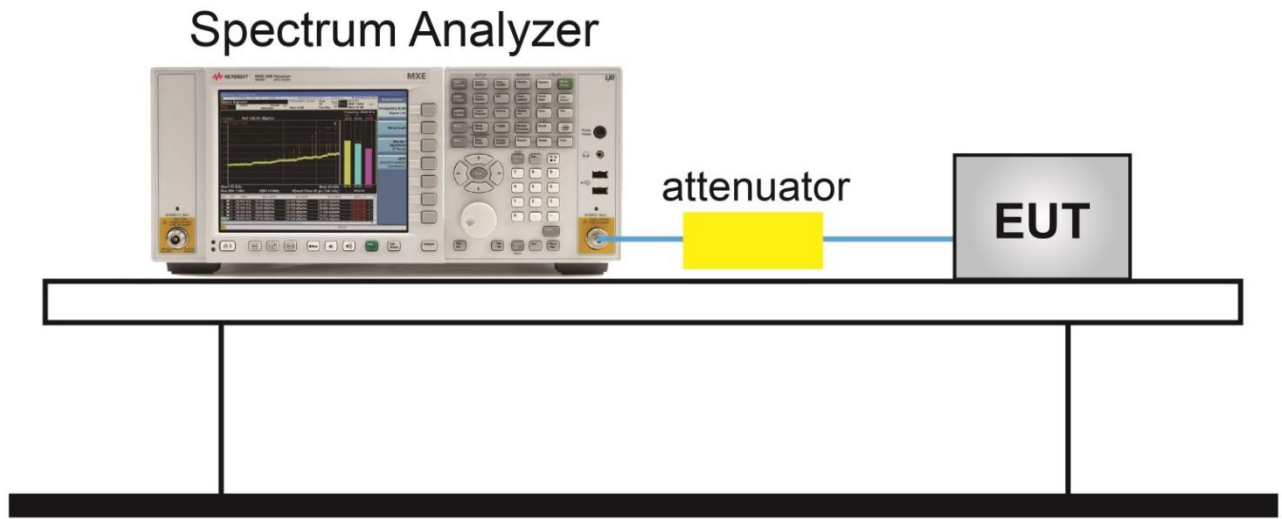
KDB 971168 D01v03r01 - Section 6

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 $\geq 3 \cdot$ 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.

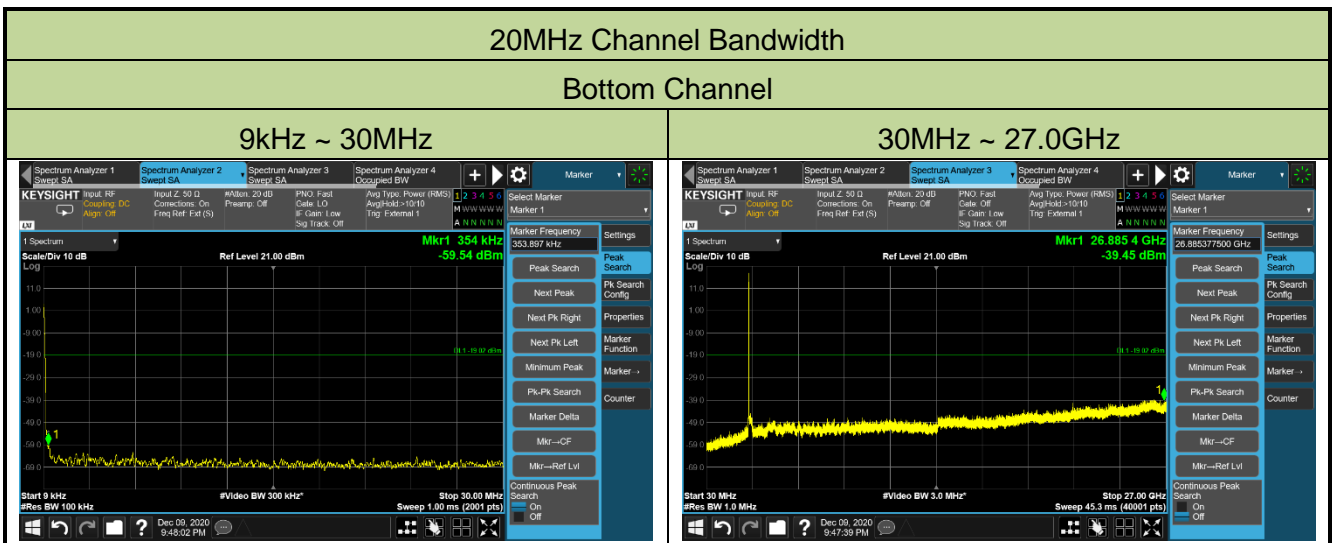
5.7.4. Test Setup



5.7.5. Test Result

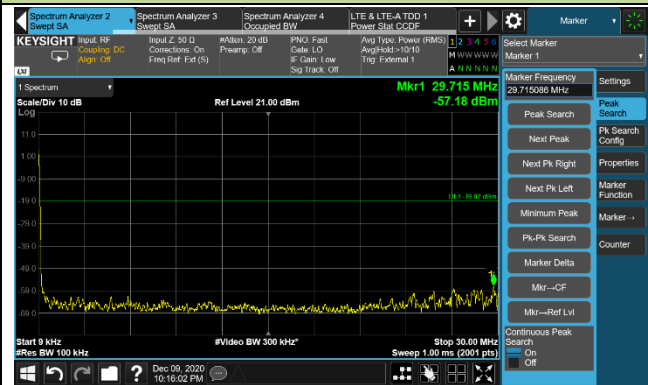
Product	AirScale Indoor Radio ASiR 5G-pRRH	Test Engineer	Eric Lin
Test Site	SR2	Test Date	2020/12/09
Test Configuration	5G NR 20MHz		

Frequency (MHz)	Channel Bandwidth (MHz)	Frequency Range (MHz)	Max Spurious Emissions (dBm)	Limit (dBm)	Result
2506.02	20	0.009 ~ 30	-59.54	≤ -19.02	Pass
		30 ~ 27000	-39.45	≤ -19.02	Pass
2592.99	20	0.009 ~ 30	-57.18	≤ -19.02	Pass
		30 ~ 27000	-39.34	≤ -19.02	Pass
2679.99	20	0.009 ~ 30	-58.15	≤ -19.02	Pass
		30 ~ 27000	-39.65	≤ -19.02	Pass

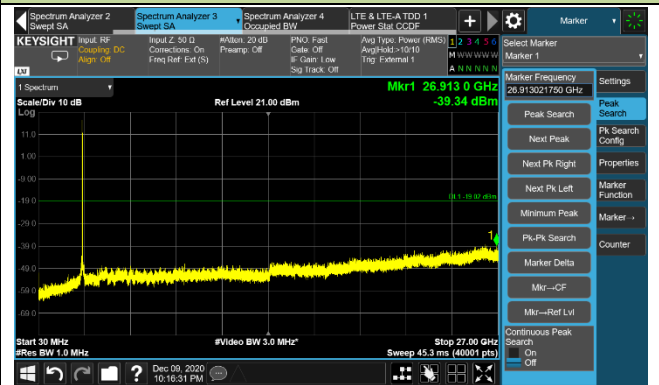


Middle Channel

9kHz ~ 30MHz

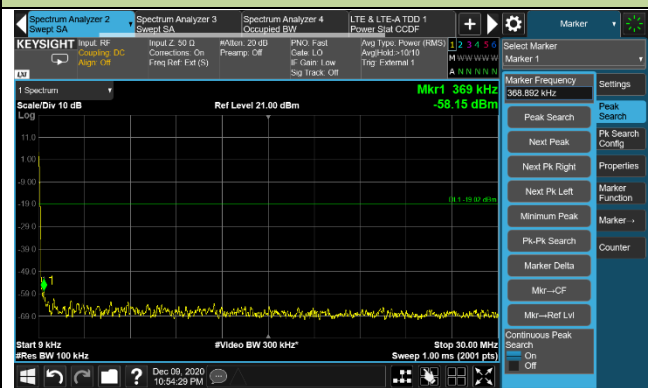


30MHz ~ 27.0GHz

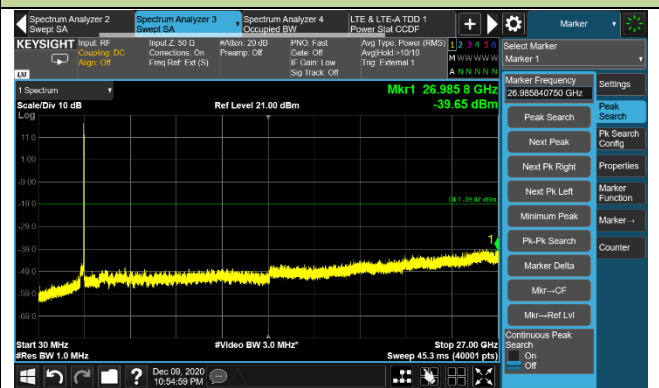


Top Channel

9kHz ~ 30MHz

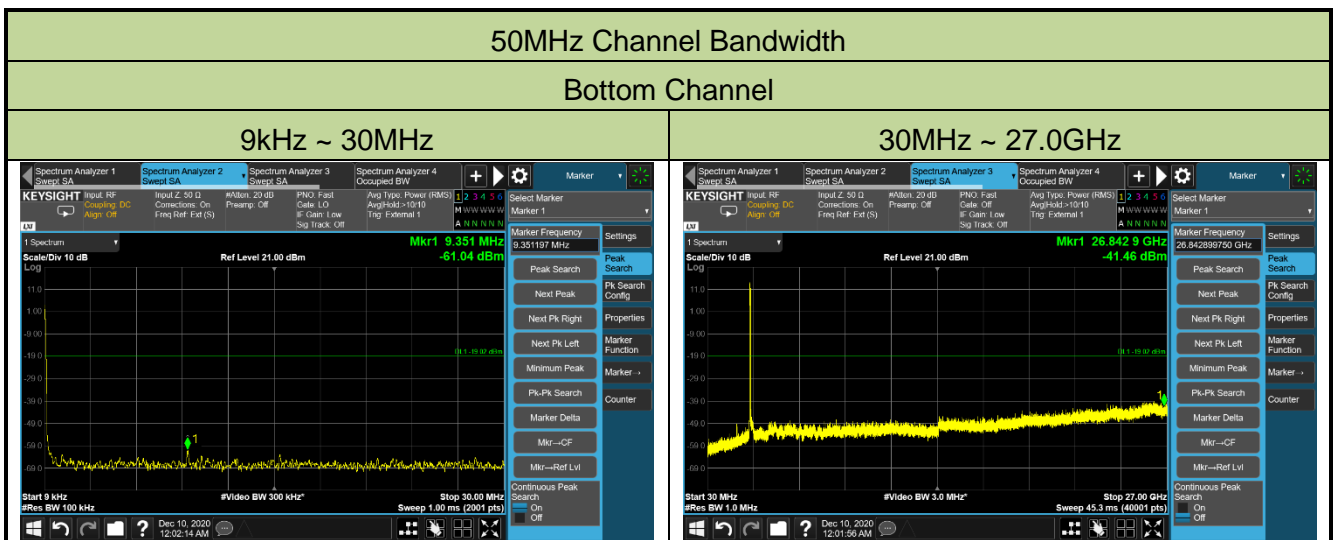


30MHz ~ 27.0GHz



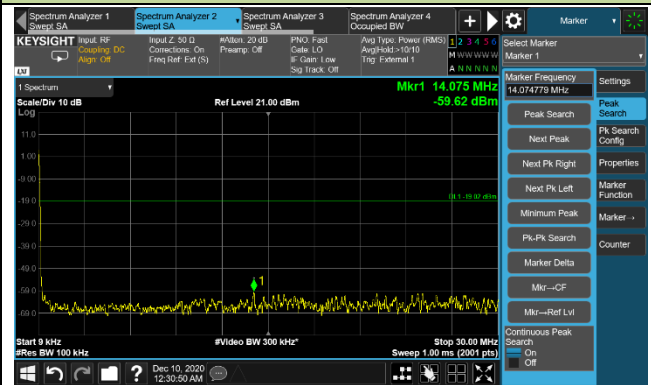
Product	AirScale Indoor Radio ASiR 5G-pRRH	Test Engineer	Eric Lin
Test Site	SR2	Test Date	2020/12/10
Test Configuration	5G NR 50MHz		

Frequency (MHz)	Channel Bandwidth (MHz)	Frequency Range (MHz)	Max Spurious Emissions (dBm)	Limit (dBm)	Result
2521.02	50	0.009 ~ 30	-61.04	≤ -19.02	Pass
		30 ~ 27000	-41.46	≤ -19.02	Pass
2592.99	50	0.009 ~ 30	-59.62	≤ -19.02	Pass
		30 ~ 27000	-41.06	≤ -19.02	Pass
2664.99	50	0.009 ~ 30	-60.14	≤ -19.02	Pass
		30 ~ 27000	-38.32	≤ -19.02	Pass

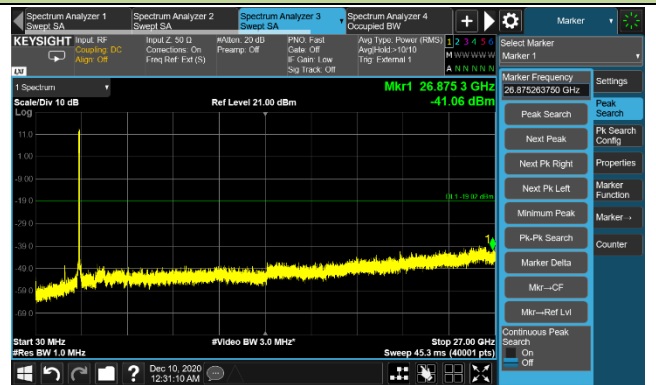


Middle Channel

9kHz ~ 30MHz

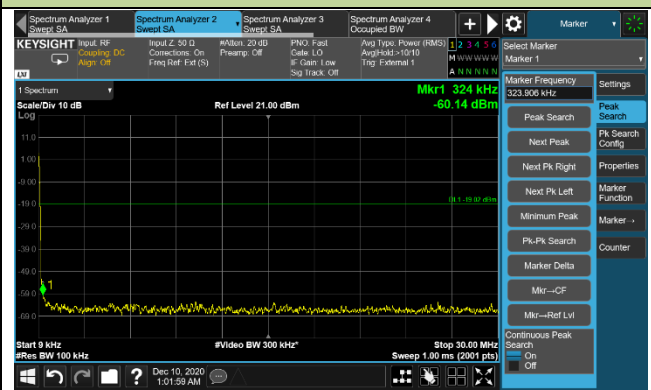


30MHz ~ 27.0GHz

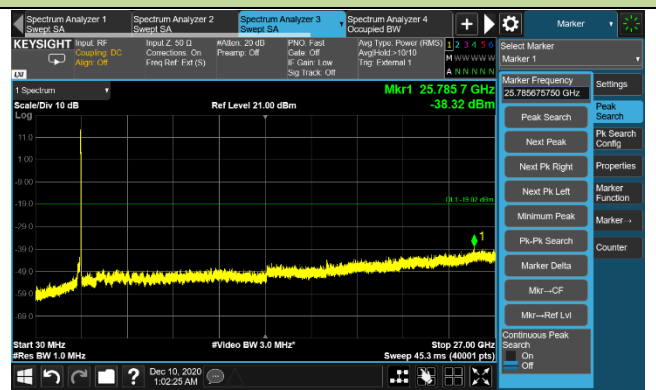


Top Channel

9kHz ~ 30MHz

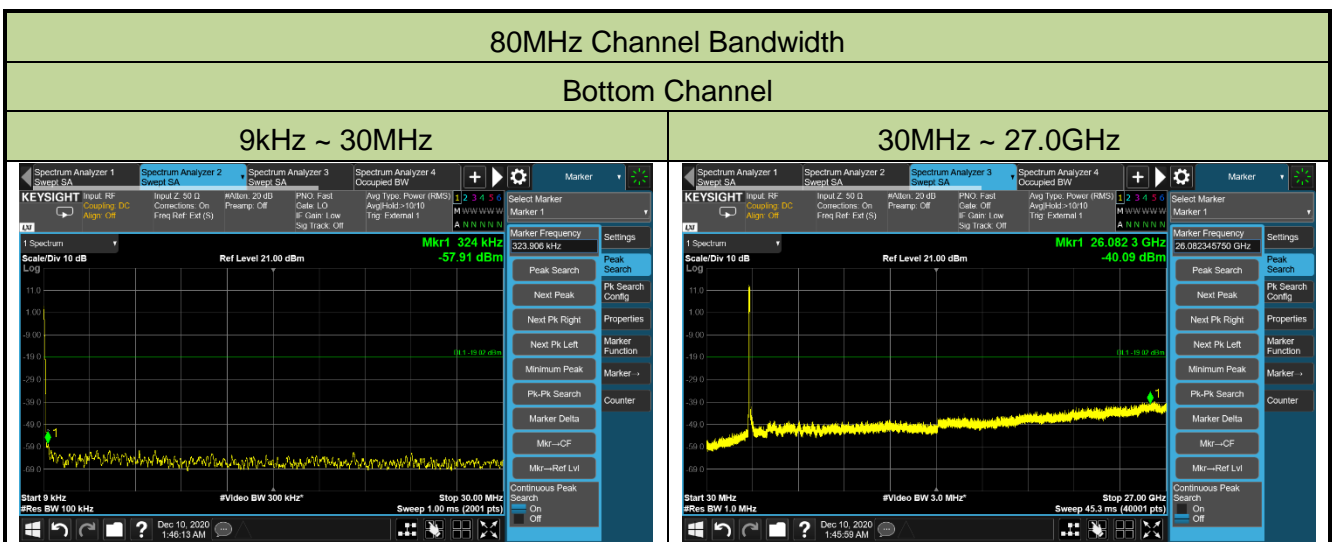


30MHz ~ 27.0GHz



Product	AirScale Indoor Radio ASiR 5G-pRRH	Test Engineer	Eric Lin
Test Site	SR2	Test Date	2020/12/10
Test Configuration	5G NR 80MHz		

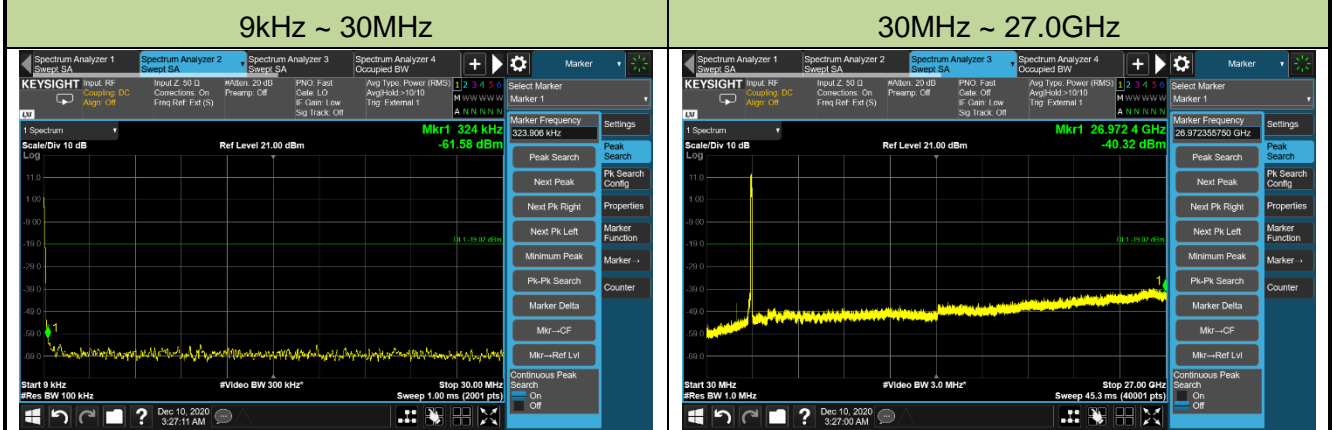
Frequency (MHz)	Channel Bandwidth (MHz)	Frequency Range (MHz)	Max Spurious Emissions (dBm)	Limit (dBm)	Result
2536.02	80	0.009 ~ 30	-57.91	≤ -19.02	Pass
		30 ~ 27000	-40.09	≤ -19.02	Pass
2592.99	80	0.009 ~ 30	-57.92	≤ -19.02	Pass
		30 ~ 27000	-40.00	≤ -19.02	Pass
2649.99	80	0.009 ~ 30	-61.58	≤ -19.02	Pass
		30 ~ 27000	-40.32	≤ -19.02	Pass



Middle Channel



Top Channel



5.8. Radiated Spurious Emissions Measurements

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

KDB 971168 D01v03r01 - Section 5.8 & 7

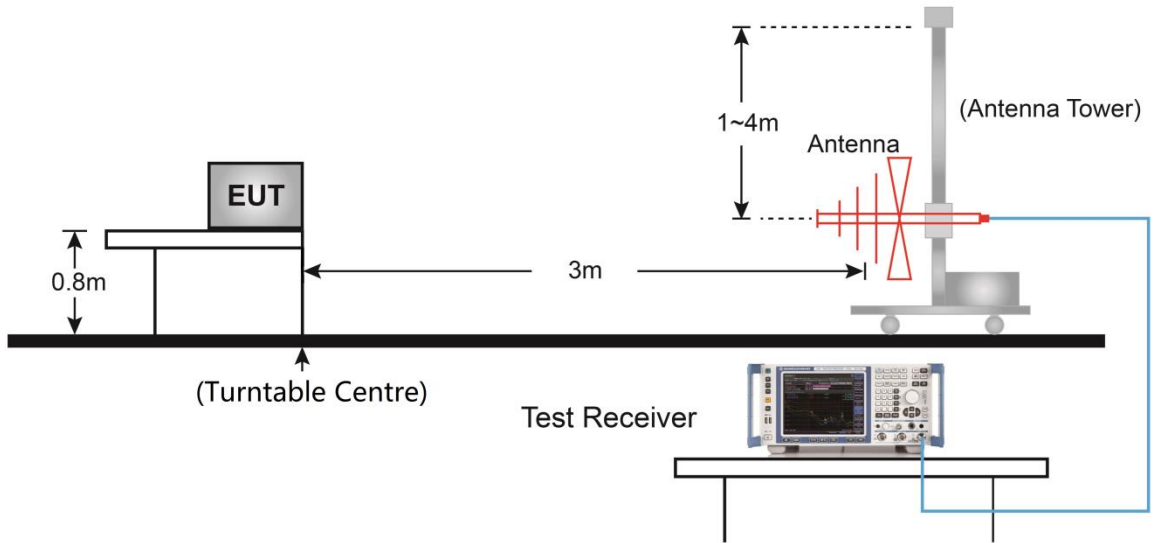
ANSI C63.26-2015 - Section 5.2.7 & 5.5

5.8.3. Test Setting

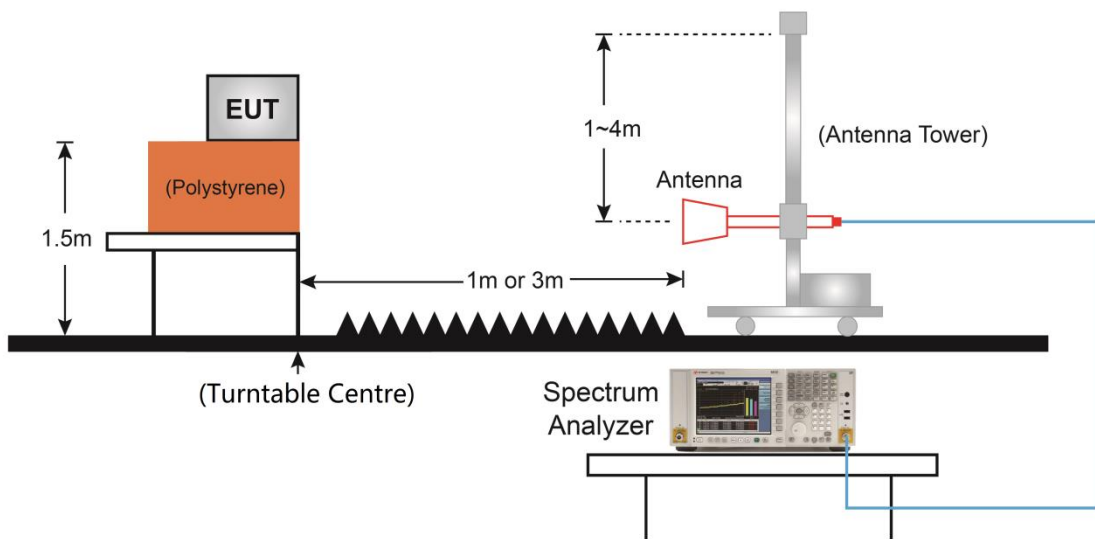
1. RBW = 100kHz or 1MHz
2. VBW \geq 3*RBW
3. Sweep time \geq 10 \times (number of points in sweep) \times (transmission symbol period)
4. Detector = Peak
5. Trace mode = max hold
6. The trace was allowed to stabilize

5.8.4. Test Setup

Below 1GHz Test Setup:



Above 1GHz Test Setup:



5.8.5. Test Result

Product	AirScale Indoor Radio ASiR 5G-pRRH	Test Engineer	Jay Chu
Test Site	SR2	Test Date	2020/12/14
Test Configuration	5G NR 20MHz		

Frequency (MHz)	Reading Level (dBμV)	Factor (dB)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
Bottom Channel							
127.97	19.49	16.18	35.67	82.30	-46.63	Peak	Horizontal
284.63	14.23	21.14	35.37	82.30	-46.93	Peak	Horizontal
127.00	22.34	16.27	38.61	82.30	-43.69	Peak	Vertical
312.27	14.67	21.90	36.57	82.30	-45.73	Peak	Vertical
6576.00	34.74	8.43	43.17	82.30	-39.13	Peak	Horizontal
8080.50	32.06	12.52	44.58	82.30	-37.72	Peak	Horizontal
7536.50	39.35	11.78	51.13	82.30	-31.17	Peak	Vertical
10222.50	31.68	16.12	47.80	82.30	-34.50	Peak	Vertical
Middle Channel							
127.00	19.82	16.27	36.09	82.30	-46.21	Peak	Horizontal
285.11	13.90	21.16	35.06	82.30	-47.24	Peak	Horizontal
127.00	19.82	16.27	36.09	82.30	-46.21	Peak	Vertical
313.24	13.93	21.94	35.87	82.30	-46.43	Peak	Vertical
6142.50	34.55	6.52	41.07	82.30	-41.23	Peak	Horizontal
7706.50	31.20	12.05	43.25	82.30	-39.05	Peak	Horizontal
4961.00	33.27	3.66	36.93	82.30	-45.37	Peak	Vertical
6584.50	32.42	8.47	40.89	82.30	-41.41	Peak	Vertical
Top Channel							
127.00	19.98	16.27	36.25	82.30	-46.05	Peak	Horizontal
287.54	13.37	21.21	34.58	82.30	-47.72	Peak	Horizontal
126.03	22.05	16.36	38.41	82.30	-43.89	Peak	Vertical
314.70	13.33	22.00	35.33	82.30	-46.97	Peak	Vertical
5156.50	35.60	3.91	39.51	82.30	-42.79	Peak	Horizontal
6882.00	32.35	9.78	42.13	82.30	-40.17	Peak	Horizontal
5173.50	37.15	3.93	41.08	82.30	-41.22	Peak	Vertical
6210.50	34.62	6.82	41.44	82.30	-40.86	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)

Product	AirScale Indoor Radio ASiR 5G-pRRH	Test Engineer	Jay Chu
Test Site	SR2	Test Date	2020/12/14
Test Configuration	5G NR 50MHz		

Frequency (MHz)	Reading Level (dBμV)	Factor (dB)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
Bottom Channel							
127.00	20.29	16.27	36.56	82.30	-45.74	Peak	Horizontal
285.60	16.06	21.17	37.23	82.30	-45.07	Peak	Horizontal
126.52	22.69	16.32	39.01	82.30	-43.29	Peak	Vertical
315.18	11.69	22.02	33.71	82.30	-48.59	Peak	Vertical
6788.50	32.50	9.37	41.87	82.30	-40.43	Peak	Horizontal
7604.50	38.96	11.89	50.85	82.30	-31.45	Peak	Horizontal
5505.00	35.50	4.29	39.79	82.30	-42.51	Peak	Vertical
7562.00	39.80	11.82	51.62	82.30	-30.68	Peak	Vertical
Middle Channel							
127.00	19.37	16.27	35.64	82.30	-46.66	Peak	Horizontal
284.14	12.13	21.13	33.26	82.30	-49.04	Peak	Horizontal
126.03	23.22	16.36	39.58	82.30	-42.72	Peak	Vertical
319.06	13.77	22.17	35.94	82.30	-46.36	Peak	Vertical
6873.50	34.05	9.74	43.79	82.30	-38.51	Peak	Horizontal
8973.00	31.96	13.61	45.57	82.30	-36.73	Peak	Horizontal
5930.00	34.85	5.66	40.51	82.30	-41.79	Peak	Vertical
7239.00	33.15	10.98	44.13	82.30	-38.17	Peak	Vertical
Top Channel							
126.52	19.56	16.32	35.88	82.30	-46.42	Peak	Horizontal
286.08	14.57	21.18	35.75	82.30	-46.55	Peak	Horizontal
126.52	22.54	16.32	38.86	82.30	-43.44	Peak	Vertical
313.24	15.75	21.94	37.69	82.30	-44.61	Peak	Vertical
5165.00	35.58	3.92	39.50	82.30	-42.80	Peak	Horizontal
6516.50	34.54	8.17	42.71	82.30	-39.59	Peak	Horizontal
4442.50	34.75	2.36	37.11	82.30	-45.19	Peak	Vertical
5853.50	35.08	5.42	40.50	82.30	-41.80	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)

Product	AirScale Indoor Radio ASiR 5G-pRRH	Test Engineer	Jay Chu
Test Site	SR2	Test Date	2020/12/14
Test Configuration	5G NR 80MHz		

Frequency (MHz)	Reading Level (dBμV)	Factor (dB)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
Bottom Channel							
127.00	19.98	16.27	36.25	82.30	-46.05	Peak	Horizontal
287.05	14.04	21.20	35.24	82.30	-47.06	Peak	Horizontal
127.49	22.50	16.23	38.73	82.30	-43.57	Peak	Vertical
319.06	12.96	22.17	35.13	82.30	-47.17	Peak	Vertical
6567.50	33.39	8.39	41.78	82.30	-40.52	Peak	Horizontal
7604.50	40.02	11.89	51.91	82.30	-30.39	Peak	Horizontal
5887.50	34.02	5.53	39.55	82.30	-42.75	Peak	Vertical
7613.00	37.01	11.90	48.91	82.30	-33.39	Peak	Vertical
Middle Channel							
127.97	19.12	16.18	35.30	82.30	-47.00	Peak	Horizontal
308.39	12.94	21.74	34.68	82.30	-47.62	Peak	Horizontal
126.52	22.44	16.32	38.76	82.30	-43.54	Peak	Vertical
320.52	15.04	22.23	37.27	82.30	-45.03	Peak	Vertical
5632.50	35.46	4.70	40.16	82.30	-42.14	Peak	Horizontal
7018.00	34.93	10.35	45.28	82.30	-37.02	Peak	Horizontal
5547.50	37.04	4.42	41.46	82.30	-40.84	Peak	Vertical
7698.00	34.18	12.04	46.22	82.30	-36.08	Peak	Vertical
Top Channel							
127.97	19.07	16.18	35.25	82.30	-47.05	Peak	Horizontal
285.60	13.67	21.17	34.84	82.30	-47.46	Peak	Horizontal
124.58	21.26	16.50	37.76	82.30	-44.54	Peak	Vertical
306.45	15.15	21.66	36.81	82.30	-45.49	Peak	Vertical
5556.00	37.03	4.45	41.48	82.30	-40.82	Peak	Horizontal
7774.50	32.43	12.16	44.59	82.30	-37.71	Peak	Horizontal
4833.50	36.20	3.35	39.55	82.30	-42.75	Peak	Vertical
6678.00	33.52	8.88	42.40	82.30	-39.90	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.