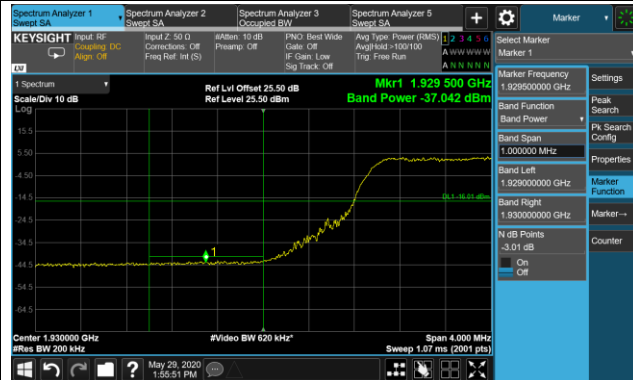


20MHz Channel Bandwidth - Ant 0

Bottom Channel

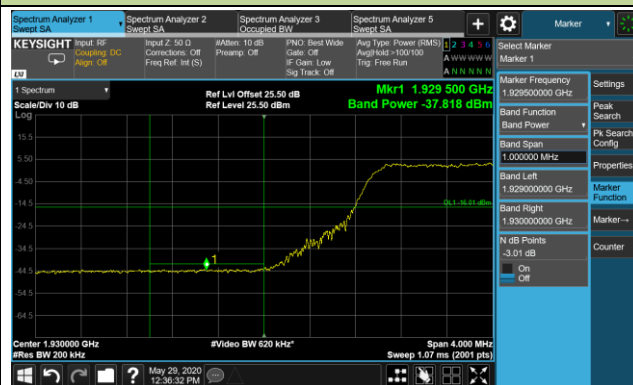


Top Channel



20MHz Channel Bandwidth - Ant 1

Bottom Channel



Top Channel



6.6. Peak to Average Ratio

6.6.1. 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.

6.6.2. Test Procedure Used

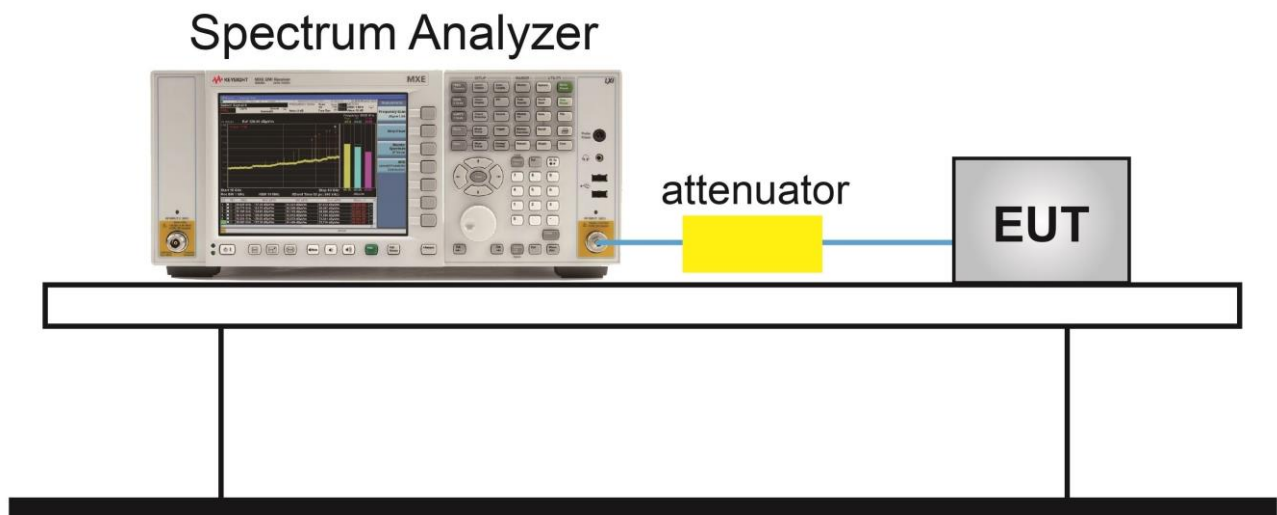
KDB 971168 D01v03r01 - Section 5.7

ANSI C63.26-2015 - Section 5.2.6

6.6.3. 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%.

6.6.4. Test Setup



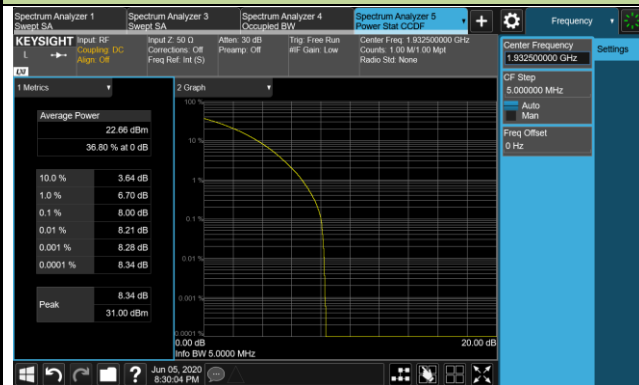
6.6.5. Test Result

Product	AirScale Indoor Radio ASiR-pRRH	Test Engineer	Peter Xu
Test Site	SR2	Test Date	2020/06/05 ~ 2020/06/06
Test Configuration	LTE Band 25 (Single Carrier), QPSK		

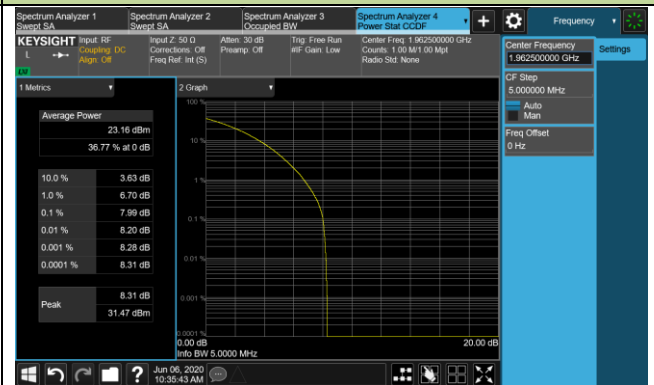
Frequency (MHz)	Bandwidth (MHz)	Peak to Average Ratio (dB)	Limit (dBm)	Result
1932.5	5	8.00	≤ 13.00	Pass
1962.5	5	7.99	≤ 13.00	Pass
1992.5	5	7.89	≤ 13.00	Pass
1935.0	10	7.96	≤ 13.00	Pass
1962.5	10	7.91	≤ 13.00	Pass
1990.0	10	7.91	≤ 13.00	Pass
1937.5	15	7.97	≤ 13.00	Pass
1962.5	15	7.95	≤ 13.00	Pass
1987.5	15	7.96	≤ 13.00	Pass
1940.0	20	7.98	≤ 13.00	Pass
1962.5	20	7.97	≤ 13.00	Pass
1985.0	20	7.96	≤ 13.00	Pass

5MHz Channel Bandwidth

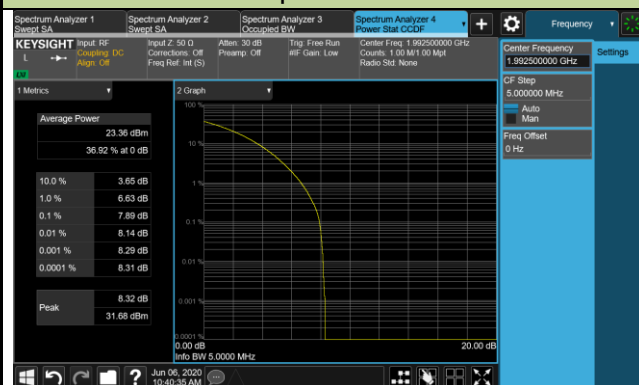
Bottom Channel



Middle Channel

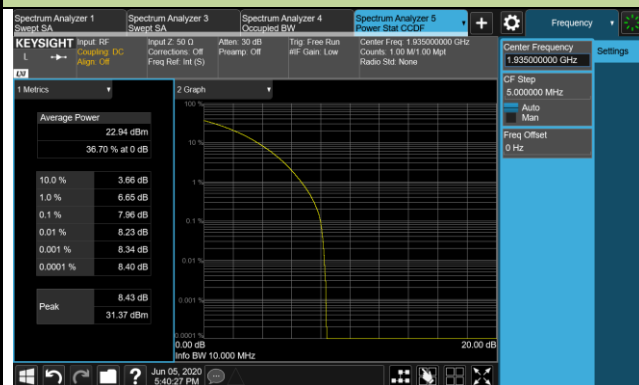


Top Channel

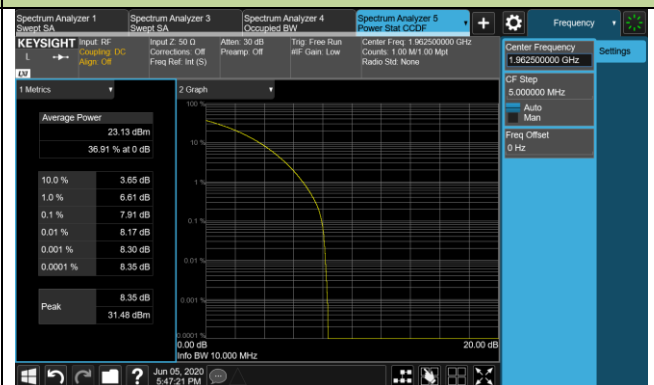


10MHz Channel Bandwidth

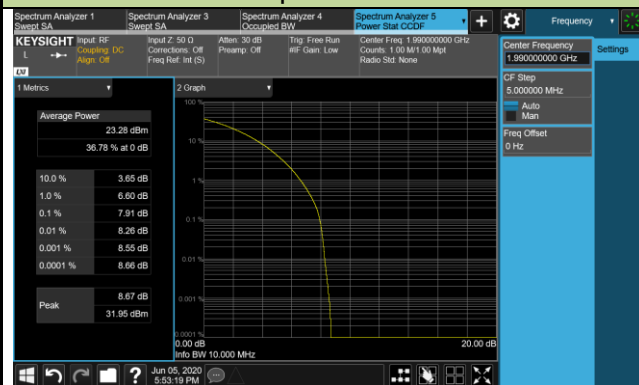
Bottom Channel



Middle Channel

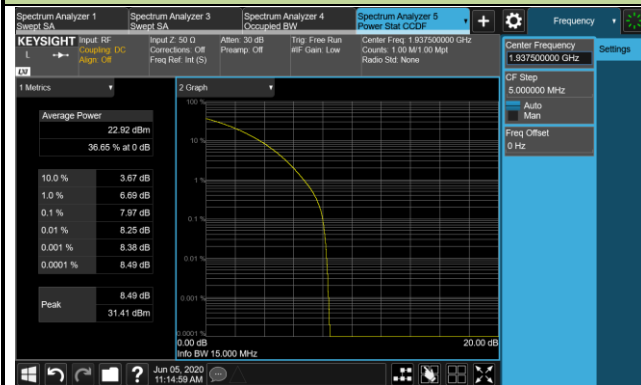


Top Channel

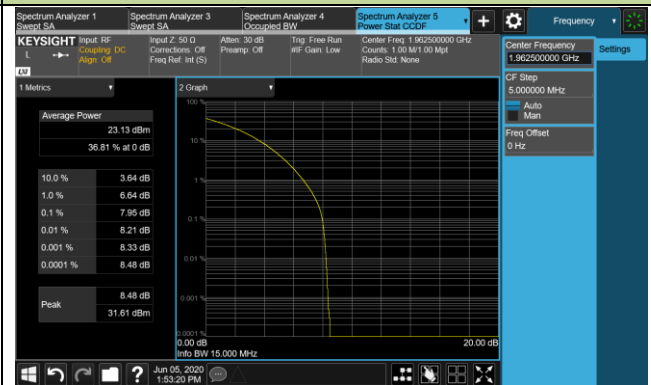


15MHz Channel Bandwidth

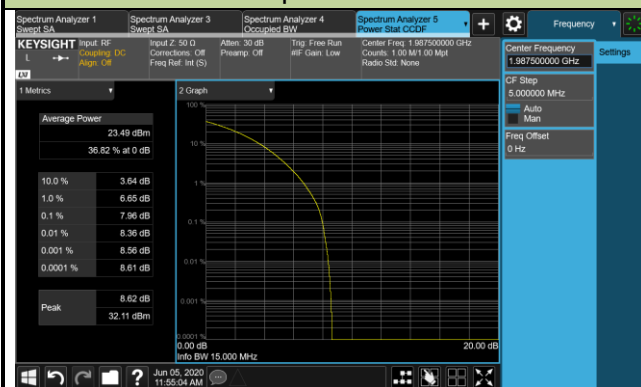
Bottom Channel



Middle Channel

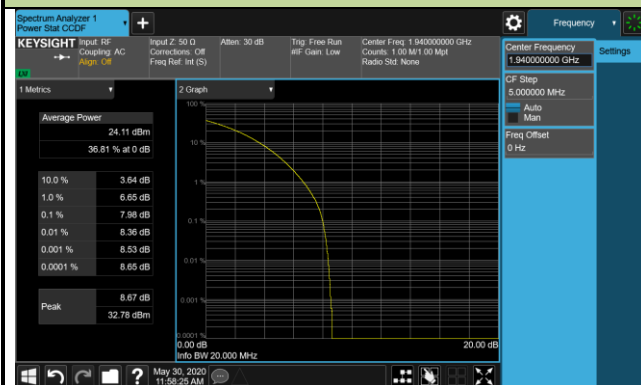


Top Channel

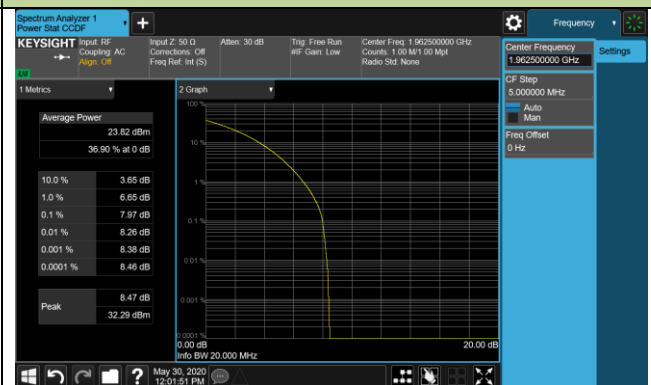


20MHz Channel Bandwidth

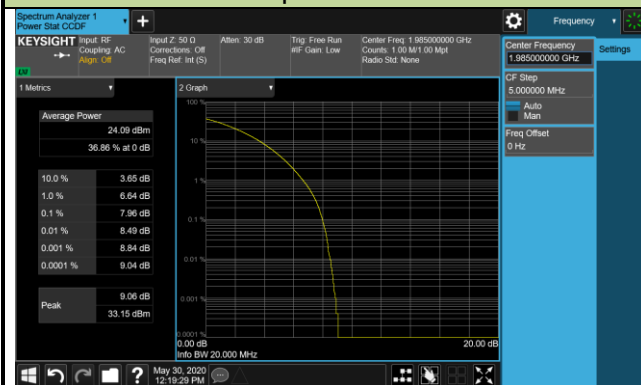
Bottom Channel



Middle Channel



Top Channel



6.7. Conducted Spurious Emissions

6.7.1. 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 $-13\text{dBm} - 10 \cdot \log(2) = -16.01\text{dBm}$

6.7.2. Test Procedure Used

KDB 971168 D01v03r01 - Section 6

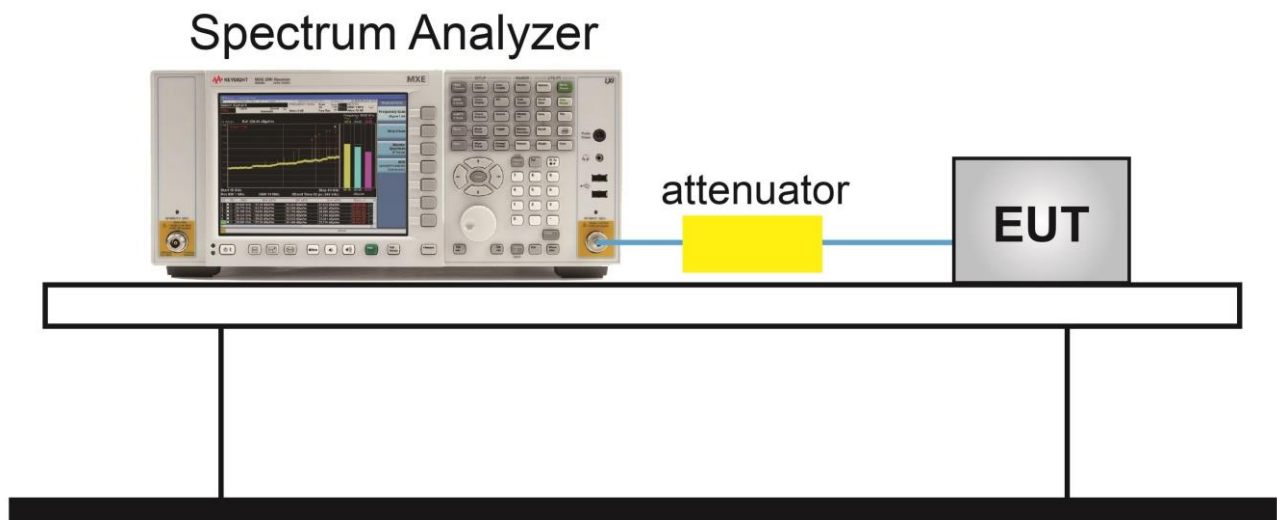
ANSI C63.26-2015 - Section 6.4.4.2

6.7.3. 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.

6.7.4. Test Setup



6.7.5. Test Result

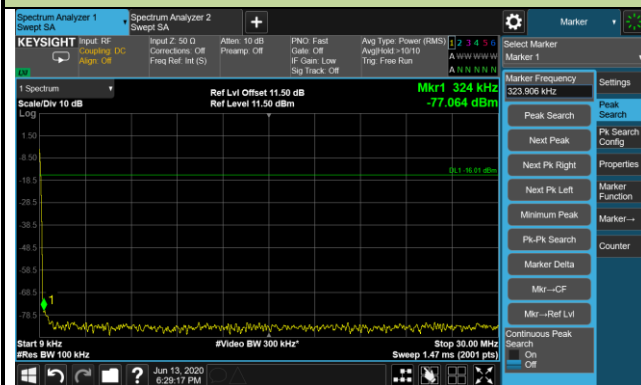
Product	AirScale Indoor Radio ASiR-pRRH	Test Engineer	Peter Xu
Test Site	SR2	Test Date	2020/06/13
Test Configuration	LTE Band 25 (Single Carrier), QPSK		

Frequency (MHz)	Channel Bandwidth (MHz)	Frequency Range (MHz)	Max Spurious Emissions (dBm)	Limit (dBm)	Result
1932.5	5	0.009 ~ 30	-77.06	≤ -16.01	Pass
		30 ~ 27000	-39.74	≤ -16.01	Pass
1962.5	5	0.009 ~ 30	-78.89	≤ -16.01	Pass
		30 ~ 27000	-39.96	≤ -16.01	Pass
1992.5	5	0.009 ~ 30	-77.91	≤ -16.01	Pass
		30 ~ 27000	-40.35	≤ -16.01	Pass
1935.0	10	0.009 ~ 30	-77.13	≤ -16.01	Pass
		30 ~ 27000	-39.11	≤ -16.01	Pass
1962.5	10	0.009 ~ 30	-77.82	≤ -16.01	Pass
		30 ~ 27000	-40.77	≤ -16.01	Pass
1990.0	10	0.009 ~ 30	-76.92	≤ -16.01	Pass
		30 ~ 27000	-39.81	≤ -16.01	Pass
1937.5	15	0.009 ~ 30	-76.15	≤ -16.01	Pass
		30 ~ 27000	-39.70	≤ -16.01	Pass
1962.5	15	0.009 ~ 30	-78.00	≤ -16.01	Pass
		30 ~ 27000	-40.88	≤ -16.01	Pass
1987.5	15	0.009 ~ 30	-76.94	≤ -16.01	Pass
		30 ~ 27000	-40.21	≤ -16.01	Pass
1940.0	20	0.009 ~ 30	-79.27	≤ -16.01	Pass
		30 ~ 27000	-40.60	≤ -16.01	Pass
1962.5	20	0.009 ~ 30	-77.61	≤ -16.01	Pass
		30 ~ 27000	-41.00	≤ -16.01	Pass
1985.0	20	0.009 ~ 30	-76.02	≤ -16.01	Pass
		30 ~ 27000	-40.23	≤ -16.01	Pass

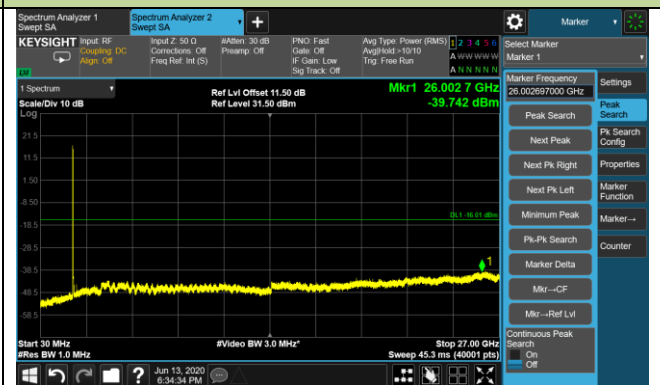
5MHz Channel Bandwidth

Bottom Channel

9kHz ~ 30MHz



30MHz ~ 27.0GHz

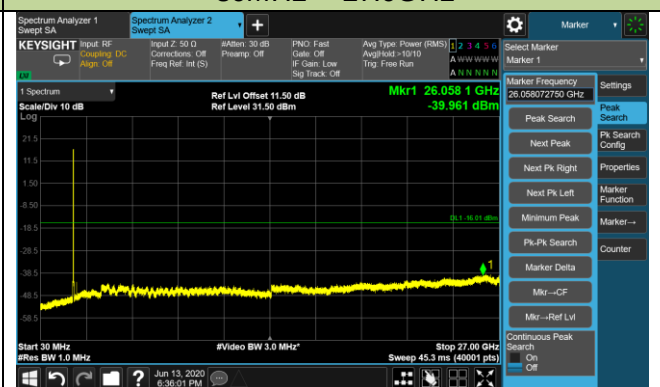


Middle Channel

9kHz ~ 30MHz



30MHz ~ 27.0GHz



Top Channel

9kHz ~ 30MHz



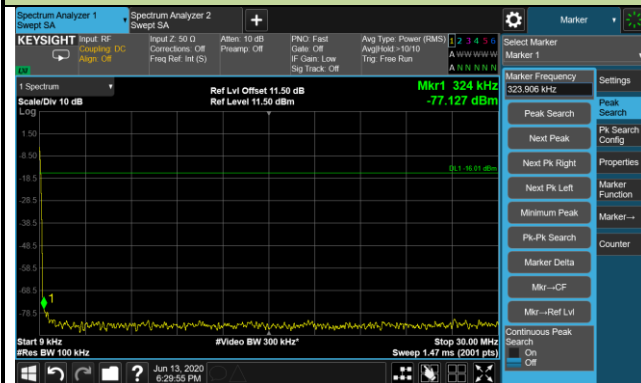
30MHz ~ 27.0GHz



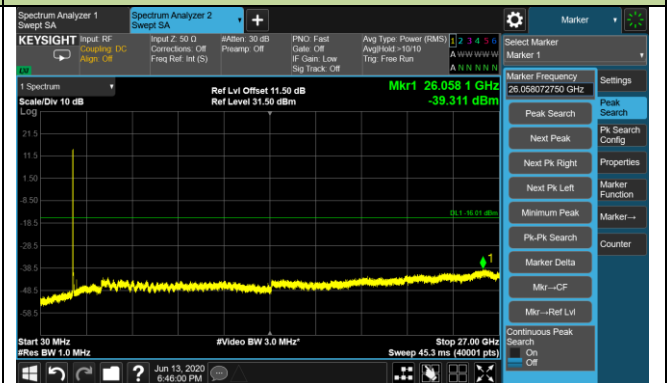
10MHz Channel Bandwidth

Bottom Channel

9kHz ~ 30MHz

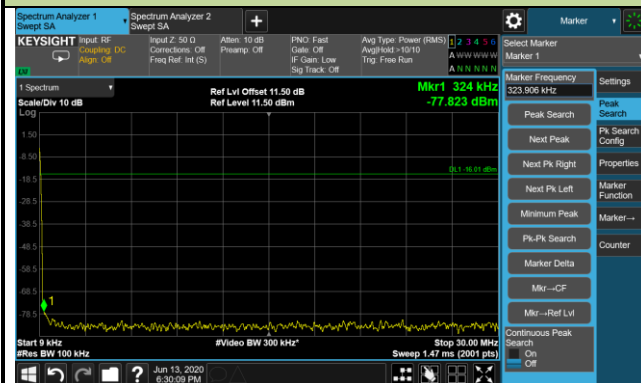


30MHz ~ 27.0GHz

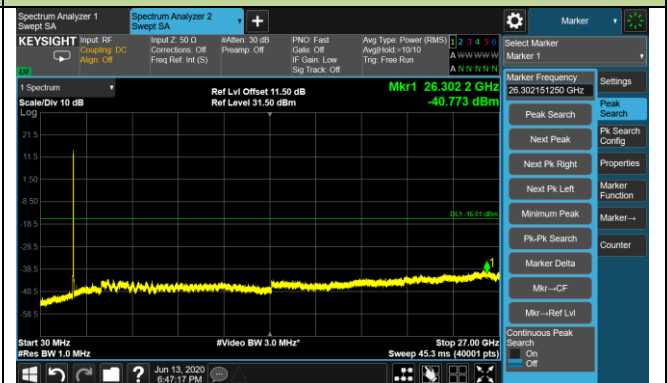


Middle Channel

9kHz ~ 30MHz

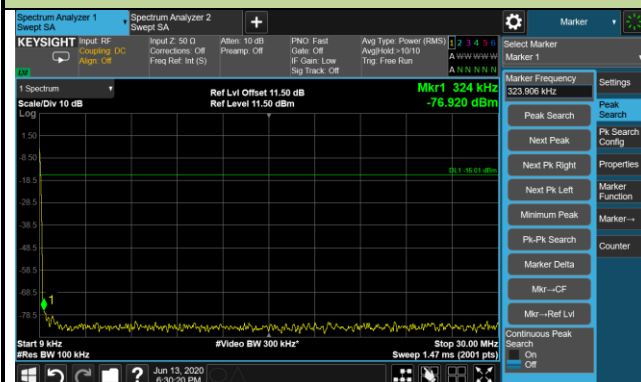


30MHz ~ 27.0GHz

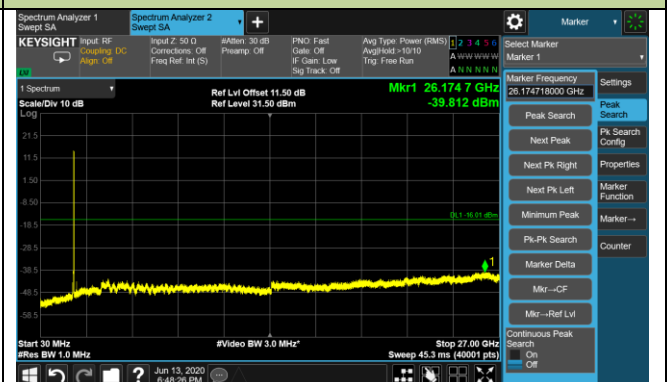


Top Channel

9kHz ~ 30MHz



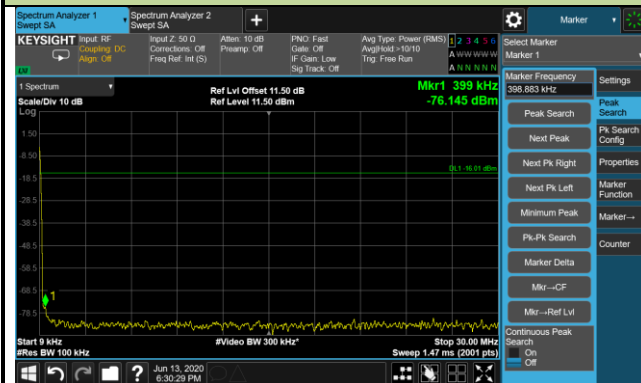
30MHz ~ 27.0GHz



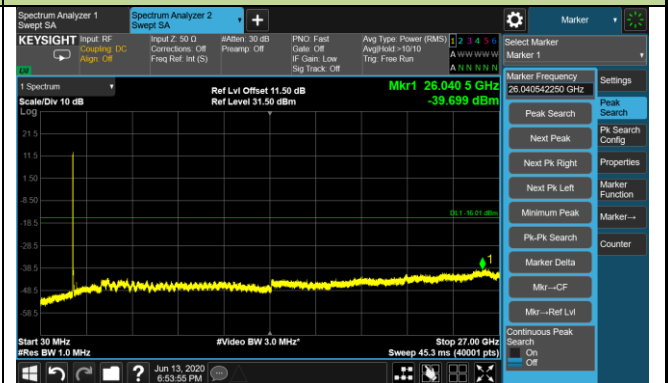
15MHz Channel Bandwidth

Bottom Channel

9kHz ~ 30MHz

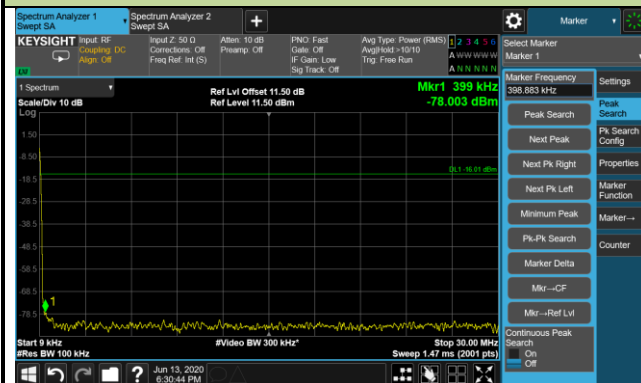


30MHz ~ 27.0GHz

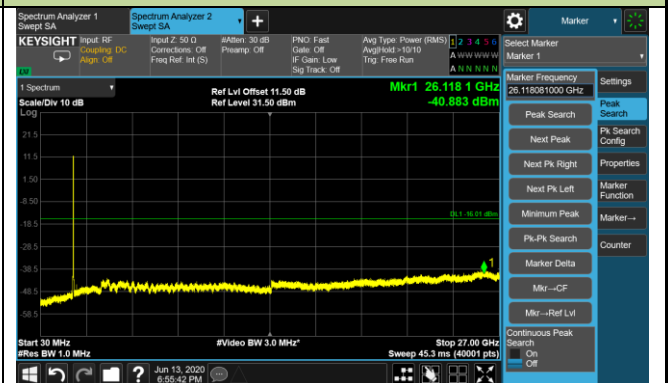


Middle Channel

9kHz ~ 30MHz

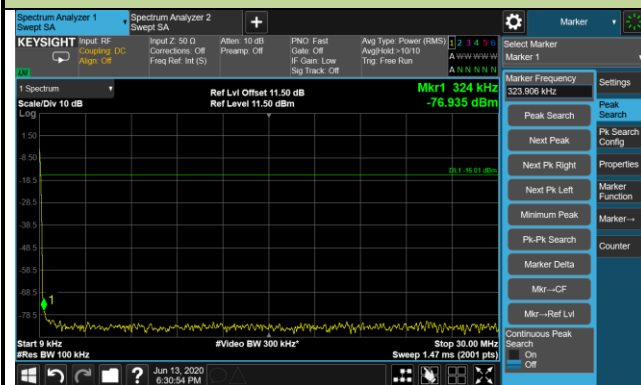


30MHz ~ 27.0GHz

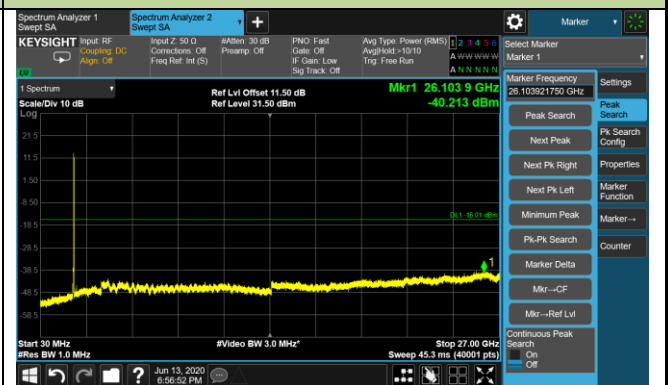


Top Channel

9kHz ~ 30MHz



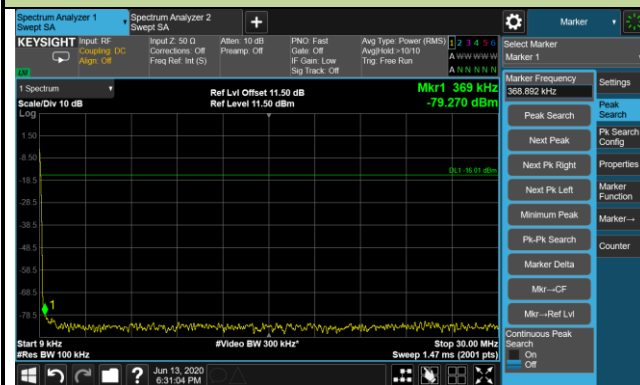
30MHz ~ 27.0GHz



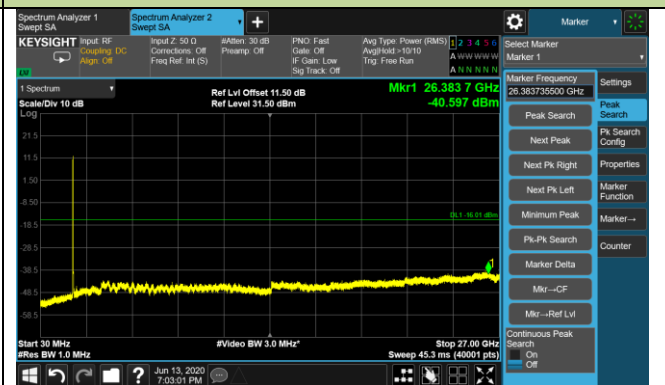
20MHz Channel Bandwidth

Bottom Channel

9kHz ~ 30MHz

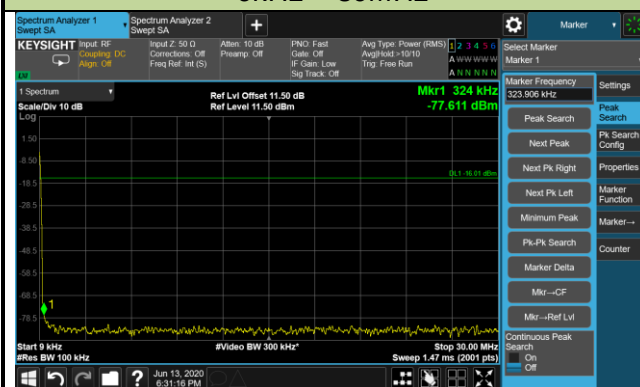


30MHz ~ 27.0GHz

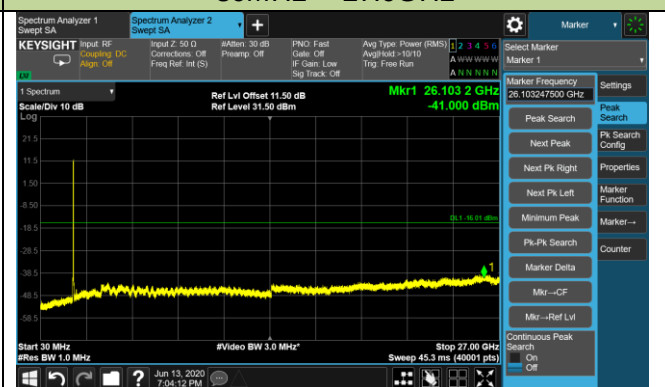


Middle Channel

9kHz ~ 30MHz



30MHz ~ 27.0GHz

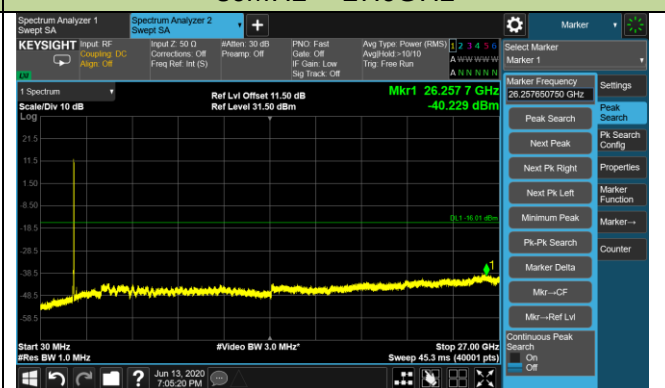


Top Channel

9kHz ~ 30MHz



30MHz ~ 27.0GHz



6.8. Radiated Spurious Emissions Measurements

6.8.1. 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.

$E \text{ (dB}\mu\text{V/m)} = \text{EIRP (dBm)} - 20 \log D + 104.8$; where D is the measurement distance in meters. The emission limit equal to 82.3dB μ V/m.

6.8.2. Test Procedure Used

KDB 971168 D01v03r01 - Section 5.8 & 7

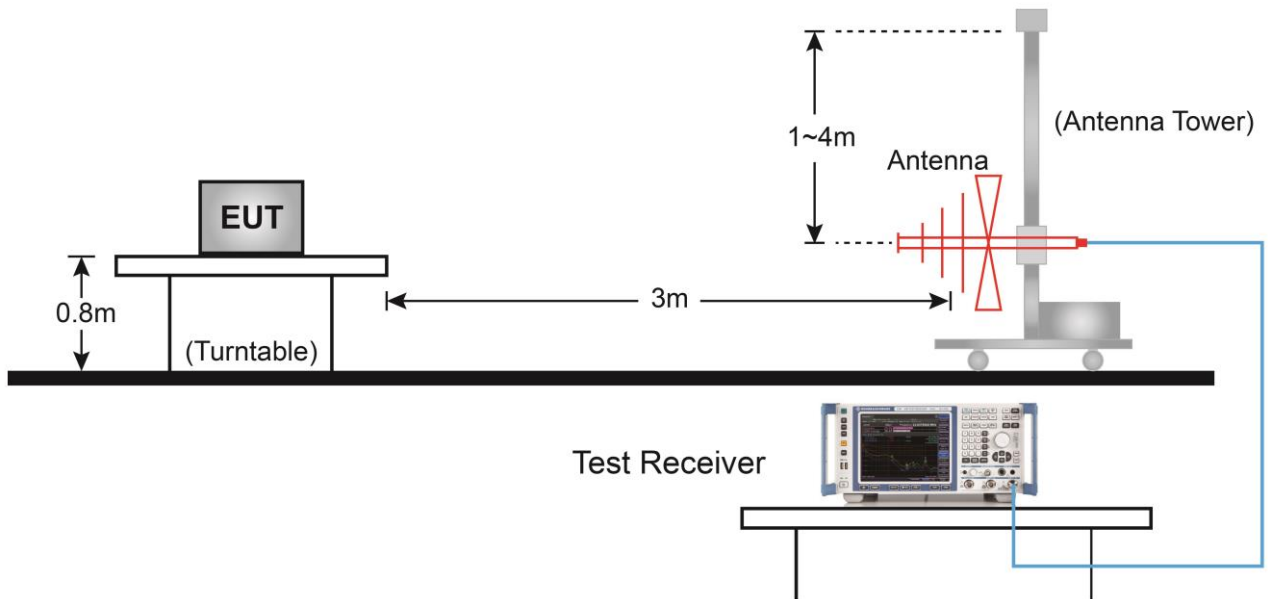
ANSI C63.26-2015 - Section 5.2.7 & 5.5

6.8.3. Test Setting

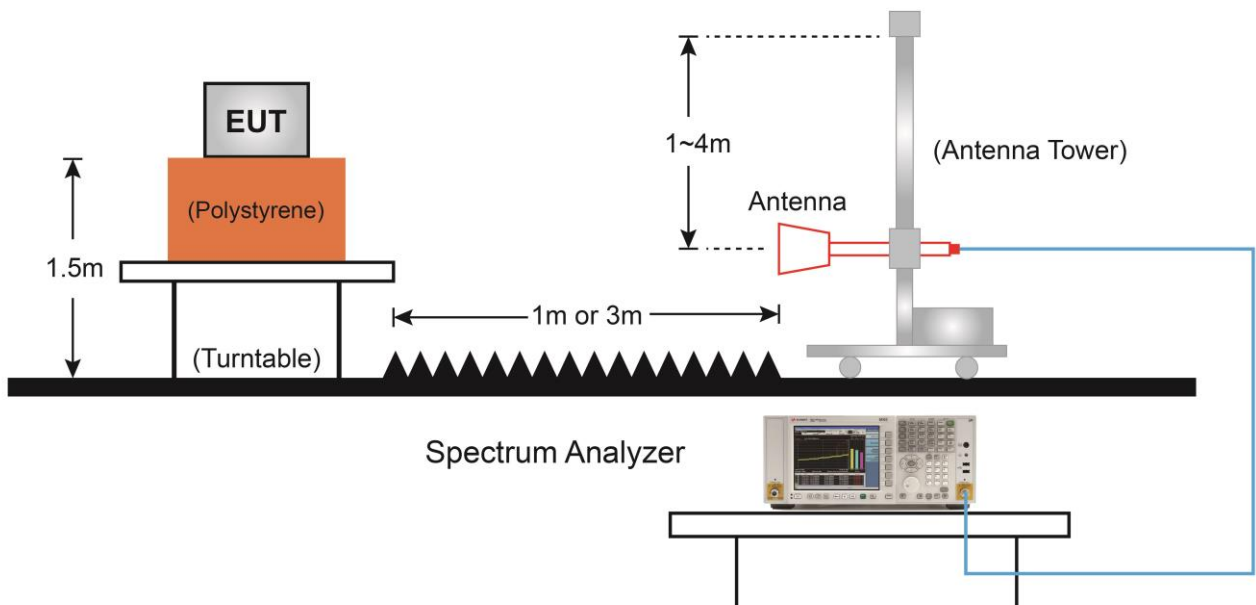
1. RBW = 100kHz or 1MHz
2. VBW $\geq 3 \times$ RBW
3. Sweep time $\geq 10 \times$ (number of points in sweep) $\times$ (transmission symbol period)
4. Detector = Peak
5. Trace mode = max hold
6. The trace was allowed to stabilize

6.8.4. Test Setup

Below 1GHz Test Setup:



Above 1GHz Test Setup:



6.8.5. Test Result

Product	AirScale Indoor Radio ASiR-pRRH	Test Engineer	Kevin Ker
Test Site	AC1	Test Date	2020/06/02
Test Configuration	LTE Band 25 (Single Carrier), QPSK, BW = 5MHz		

Frequency (MHz)	Reading Level (dBμV)	Factor (dB)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
Bottom Channel							
162.4	6.3	16.2	22.5	82.2	-59.7	Peak	Horizontal
375.3	4.1	23.8	27.9	82.2	-54.3	Peak	Horizontal
160.5	9.9	16.1	26.0	82.2	-56.2	Peak	Vertical
362.2	1.1	23.6	24.7	82.2	-57.5	Peak	Vertical
5105.5	38.2	3.9	42.1	82.2	-40.1	Peak	Horizontal
7281.5	36.0	11.1	47.1	82.2	-35.1	Peak	Horizontal
8582.0	38.1	12.7	50.8	82.2	-31.4	Peak	Vertical
9661.5	39.5	14.7	54.2	82.2	-28.0	Peak	Vertical
Middle Channel							
160.5	8.8	16.1	24.9	82.2	-57.3	Peak	Horizontal
380.7	3.4	23.9	27.3	82.2	-54.9	Peak	Horizontal
161.4	10.4	16.2	26.6	82.2	-55.6	Peak	Vertical
376.8	2.3	23.8	26.1	82.2	-56.1	Peak	Vertical
6712.0	35.6	9.0	44.6	82.2	-37.6	Peak	Horizontal
8454.5	34.9	12.5	47.4	82.2	-34.8	Peak	Horizontal
5156.5	38.3	3.9	42.2	82.2	-40.0	Peak	Vertical
8582.0	39.0	12.7	51.7	82.2	-30.5	Peak	Vertical
Top Channel							
161.4	9.0	16.2	25.2	82.2	-57.0	Peak	Horizontal
380.7	3.6	23.9	27.5	82.2	-54.7	Peak	Horizontal
161.0	10.0	16.1	26.1	82.2	-56.1	Peak	Vertical
367.6	0.1	23.7	23.8	82.2	-58.4	Peak	Vertical
4935.5	38.7	3.6	42.3	82.2	-39.9	Peak	Horizontal
7273.0	35.6	11.1	46.7	82.2	-35.5	Peak	Horizontal
5071.5	39.3	3.8	43.1	82.2	-39.1	Peak	Vertical
8582.0	39.1	12.7	51.8	82.2	-30.4	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-pRRH	Test Engineer	Kevin Ker
Test Site	AC1	Test Date	2020/06/02
Test Configuration	LTE Band 25 (Single Carrier), QPSK, BW = 10MHz		

Frequency (MHz)	Reading Level (dBμV)	Factor (dB)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
Bottom Channel							
167.7	7.1	16.3	23.4	82.2	-58.8	Peak	Horizontal
384.1	5.7	23.9	29.6	82.2	-52.6	Peak	Horizontal
161.4	11.9	16.2	28.1	82.2	-54.1	Peak	Vertical
383.6	2.1	23.9	26.0	82.2	-56.2	Peak	Vertical
5190.5	38.4	3.9	42.3	82.2	-39.9	Peak	Horizontal
7400.5	36.0	11.4	47.4	82.2	-34.8	Peak	Horizontal
5301.0	37.8	4.1	41.9	82.2	-40.3	Peak	Vertical
9678.5	38.0	14.8	52.8	82.2	-29.4	Peak	Vertical
Middle Channel							
162.4	8.3	16.2	24.5	82.2	-57.7	Peak	Horizontal
382.1	5.8	23.9	29.7	82.2	-52.5	Peak	Horizontal
161.0	11.3	16.1	27.4	82.2	-54.8	Peak	Vertical
387.0	2.4	24.0	26.4	82.2	-55.8	Peak	Vertical
5454.0	38.6	4.2	42.8	82.2	-39.4	Peak	Horizontal
7281.5	35.8	11.1	46.9	82.2	-35.3	Peak	Horizontal
5896.0	37.7	5.6	43.3	82.2	-38.9	Peak	Vertical
8565.0	35.9	12.6	48.5	82.2	-33.7	Peak	Vertical
Top Channel							
161.0	7.0	16.1	23.1	82.2	-59.1	Peak	Horizontal
385.5	5.7	23.9	29.6	82.2	-52.6	Peak	Horizontal
159.5	12.9	16.1	29.0	82.2	-53.2	Peak	Vertical
380.7	2.2	23.9	26.1	82.2	-56.1	Peak	Vertical
6865.0	35.9	9.7	45.6	82.2	-36.6	Peak	Horizontal
10044.0	35.7	15.5	51.2	82.2	-31.0	Peak	Horizontal
6431.5	36.9	7.8	44.7	82.2	-37.5	Peak	Vertical
9202.5	36.0	14.0	50.0	82.2	-32.2	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-pRRH	Test Engineer	Jason Gao
Test Site	AC1	Test Date	2020/06/02
Test Configuration	LTE Band 25 (Single Carrier), QPSK, BW = 15MHz		

Frequency (MHz)	Reading Level (dBμV)	Factor (dB)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
Bottom Channel							
160.0	5.4	16.1	21.5	82.2	-60.7	Peak	Horizontal
402.5	1.2	24.2	25.4	82.2	-56.8	Peak	Horizontal
160.0	12.5	16.1	28.6	82.2	-53.6	Peak	Vertical
474.7	1.0	25.4	26.4	82.2	-55.8	Peak	Vertical
4646.5	39.8	2.9	42.7	82.2	-39.5	Peak	Horizontal
7179.5	36.8	10.8	47.6	82.2	-34.6	Peak	Horizontal
4782.5	39.8	3.2	43.0	82.2	-39.2	Peak	Vertical
6669.5	36.7	8.8	45.5	82.2	-36.7	Peak	Vertical
Middle Channel							
160.0	5.3	16.1	21.4	82.2	-60.8	Peak	Horizontal
474.7	0.0	25.4	25.4	82.2	-56.8	Peak	Horizontal
160.0	11.1	16.1	27.2	82.2	-55.0	Peak	Vertical
488.8	-0.4	25.6	25.2	82.2	-57.0	Peak	Vertical
6389.0	37.8	7.6	45.4	82.2	-36.8	Peak	Horizontal
8675.5	36.9	12.9	49.8	82.2	-32.4	Peak	Horizontal
7375.0	37.1	11.4	48.5	82.2	-33.7	Peak	Vertical
8582.0	36.9	12.7	49.6	82.2	-32.6	Peak	Vertical
Top Channel							
194.9	3.2	18.8	22.0	82.2	-60.2	Peak	Horizontal
475.2	-0.2	25.4	25.2	82.2	-57.0	Peak	Horizontal
160.0	9.8	16.1	25.9	82.2	-56.3	Peak	Vertical
475.2	2.0	25.4	27.4	82.2	-54.8	Peak	Vertical
6304.0	37.1	7.2	44.3	82.2	-37.9	Peak	Horizontal
7927.5	35.4	12.4	47.8	82.2	-34.4	Peak	Horizontal
5887.5	37.6	5.5	43.1	82.2	-39.1	Peak	Vertical
8420.5	36.2	12.5	48.7	82.2	-33.5	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-pRRH	Test Engineer	Kevin Ker
Test Site	AC1	Test Date	2020/06/01 ~ 2020/06/02
Test Configuration	LTE Band 25 (Single Carrier), QPSK, BW = 20MHz		

Frequency (MHz)	Reading Level (dBμV)	Factor (dB)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
Bottom Channel							
160.0	5.4	16.1	21.5	82.2	-60.7	Peak	Horizontal
474.7	1.3	25.4	26.7	82.2	-55.5	Peak	Horizontal
160.0	12.5	16.1	28.6	82.2	-53.6	Peak	Vertical
474.7	1.0	25.4	26.4	82.2	-55.8	Peak	Vertical
4816.5	41.7	3.3	45.0	82.2	-37.2	Peak	Horizontal
7528.0	37.2	11.8	49.0	82.2	-33.2	Peak	Horizontal
4808.0	41.3	3.3	44.6	82.2	-37.6	Peak	Vertical
7451.5	37.2	11.6	48.8	82.2	-33.4	Peak	Vertical
Middle Channel							
392.8	0.6	24.1	24.7	82.2	-57.5	Peak	Horizontal
474.7	0.0	25.4	25.4	82.2	-56.8	Peak	Horizontal
160.0	11.1	16.1	27.2	82.2	-55.0	Peak	Vertical
489.3	-0.4	25.6	25.2	82.2	-57.0	Peak	Vertical
4825.0	41.4	3.3	44.7	82.2	-37.5	Peak	Horizontal
6729.0	36.4	9.1	45.5	82.2	-36.7	Peak	Horizontal
4825.0	40.7	3.3	44.0	82.2	-38.2	Peak	Vertical
7128.5	37.0	10.7	47.7	82.2	-34.5	Peak	Vertical
Top Channel							
194.9	3.2	18.8	22.0	82.2	-60.2	Peak	Horizontal
367.6	1.1	23.7	24.8	82.2	-57.4	Peak	Horizontal
160.0	9.8	16.1	25.9	82.2	-56.3	Peak	Vertical
475.2	2.0	25.4	27.4	82.2	-54.8	Peak	Vertical
4808.0	40.3	3.3	43.6	82.2	-38.6	Peak	Horizontal
8650.0	37.9	12.8	50.7	82.2	-31.5	Peak	Horizontal
4808.0	40.3	3.3	43.6	82.2	-38.6	Peak	Vertical
7485.5	36.8	11.7	48.5	82.2	-33.7	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)

7. CONCLUSION

The data collected relate only the item(s) tested and show that the **AirScale Indoor Radio ASiR-pRRH** is compliance with FCC Rules.

The End
