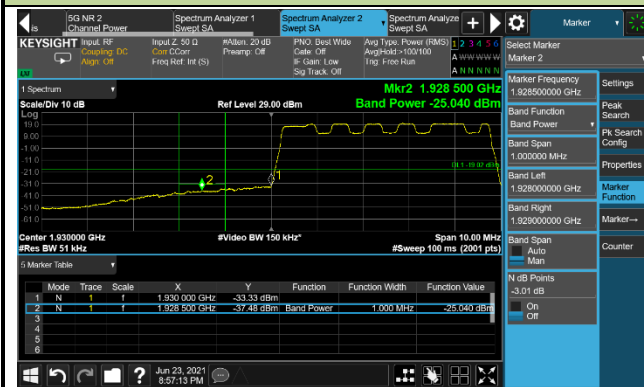
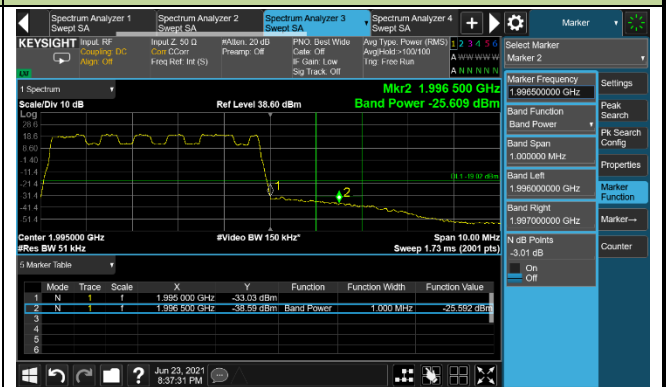


## 5MHz Channel Bandwidth - Ant 3

### Bottom Channel

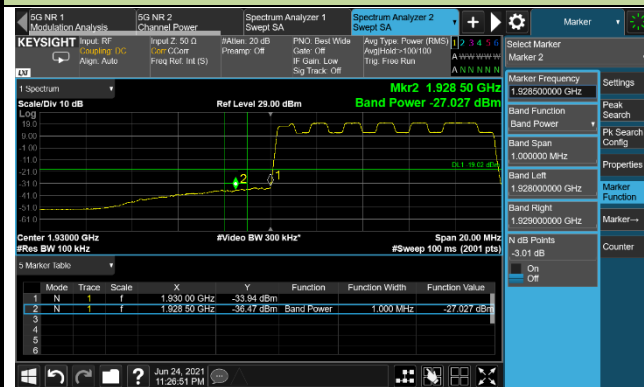


### Top Channel

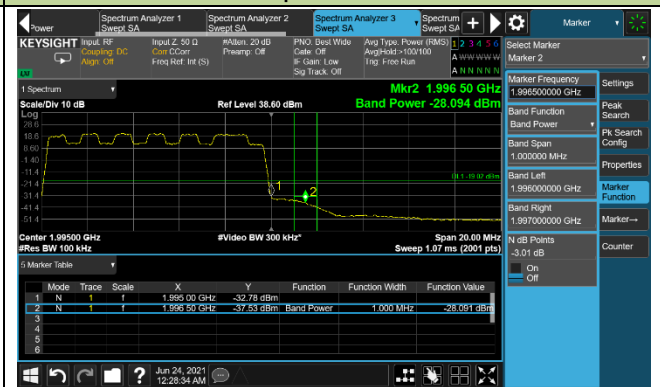


## 10MHz Channel Bandwidth - Ant 0

## Bottom Channel

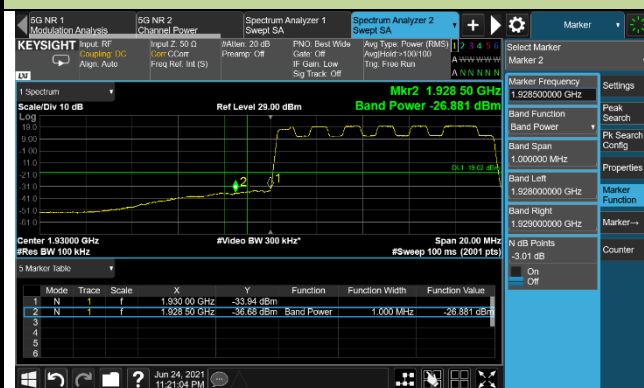


## Top Channel

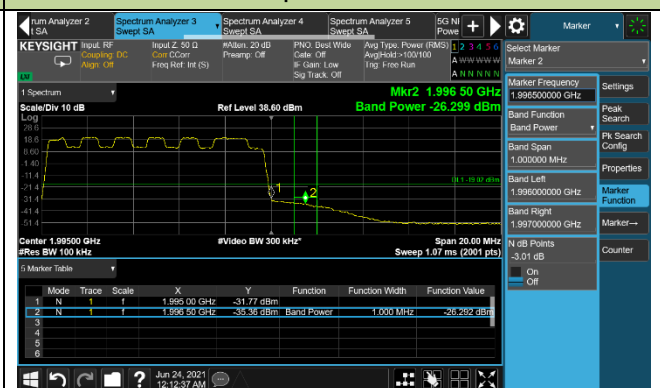


## 10MHz Channel Bandwidth - Ant 1

## Bottom Channel

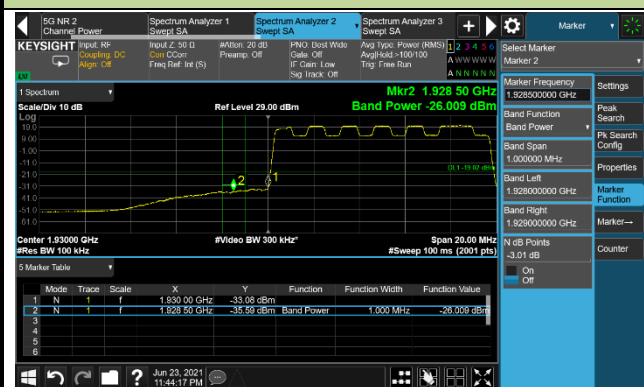


## Top Channel

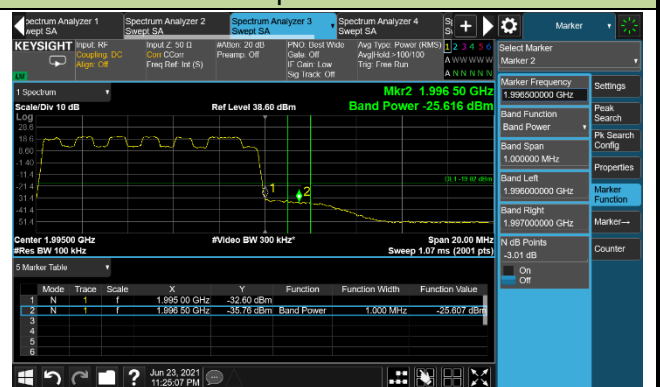


## 10MHz Channel Bandwidth - Ant 2

## Bottom Channel

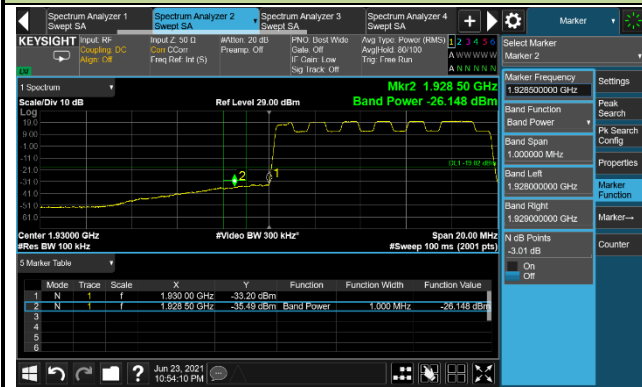


## Top Channel



# 10MHz Channel Bandwidth - Ant 3

## Bottom Channel

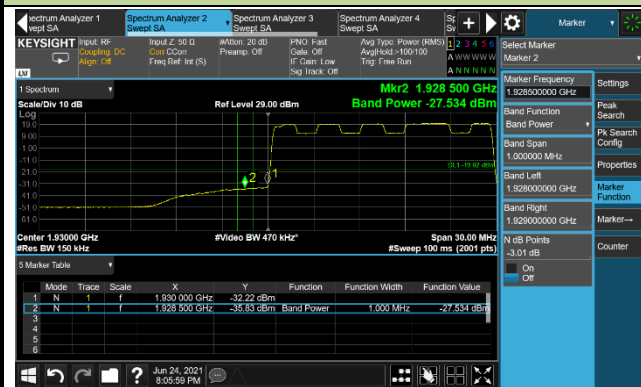


## Top Channel



## 15MHz Channel Bandwidth - Ant 0

## Bottom Channel

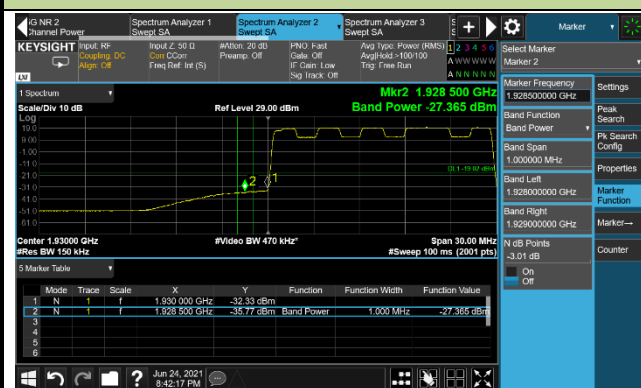


## Top Channel

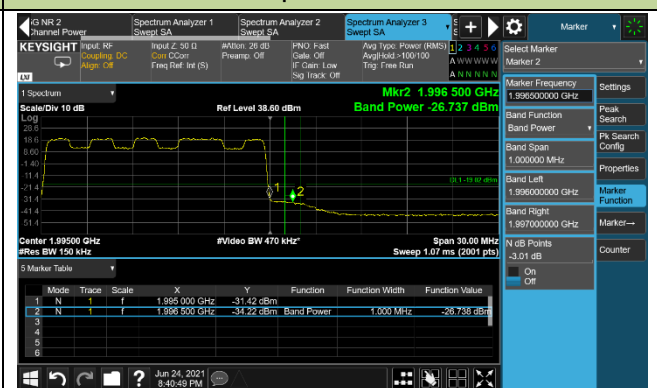


## 15MHz Channel Bandwidth - Ant 1

## Bottom Channel

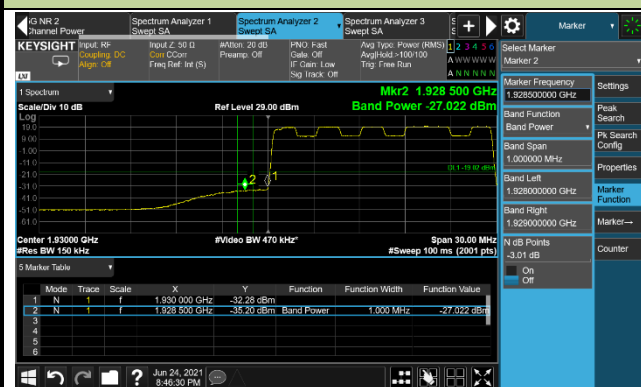


## Top Channel

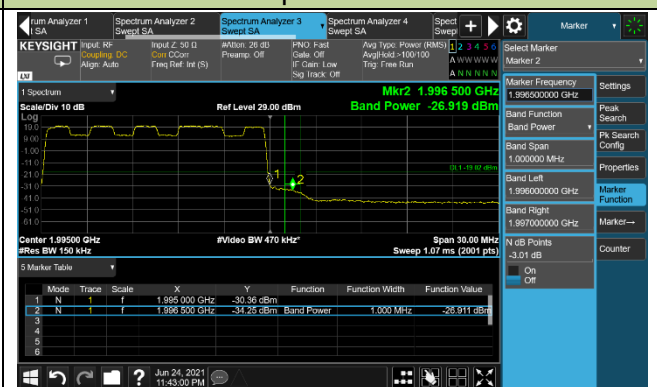


## 15MHz Channel Bandwidth - Ant 2

## Bottom Channel



## Top Channel

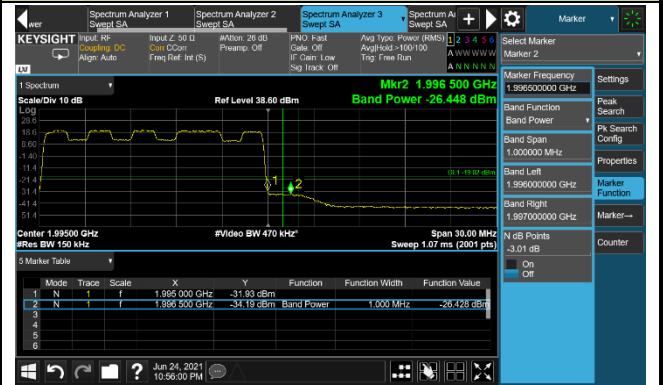


## 15MHz Channel Bandwidth - Ant 3

## 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.

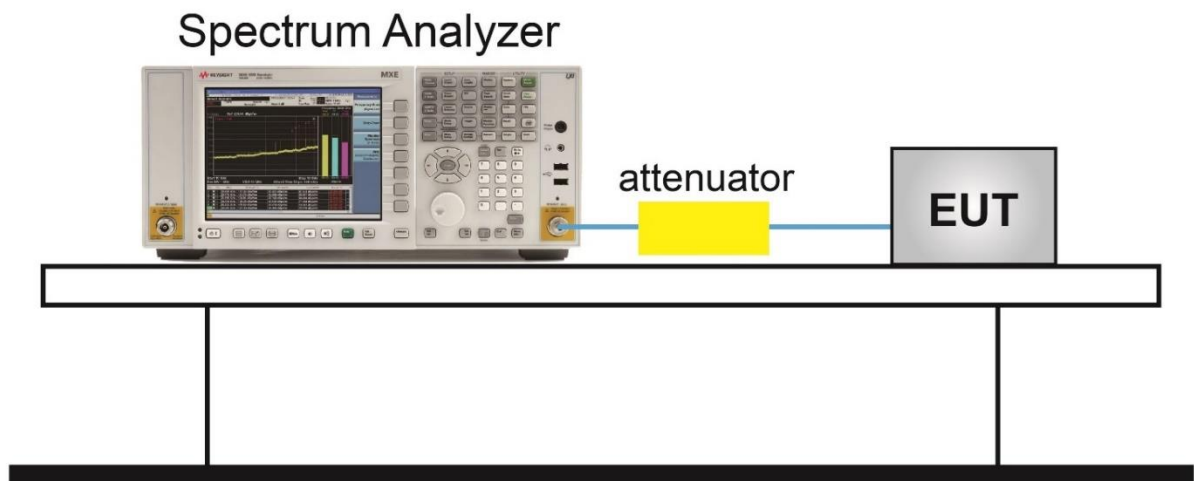
### 5.6.2. Test Procedure Used

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



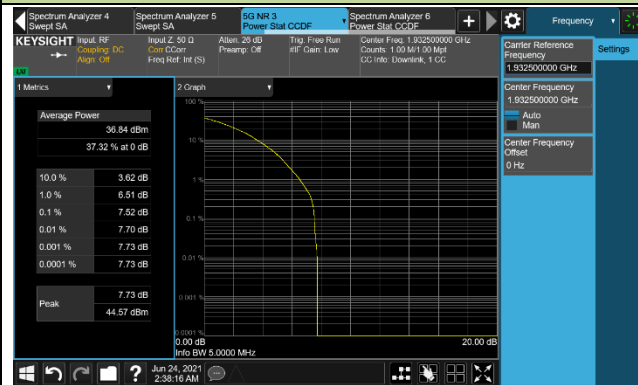
### 5.6.5. Test Result

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

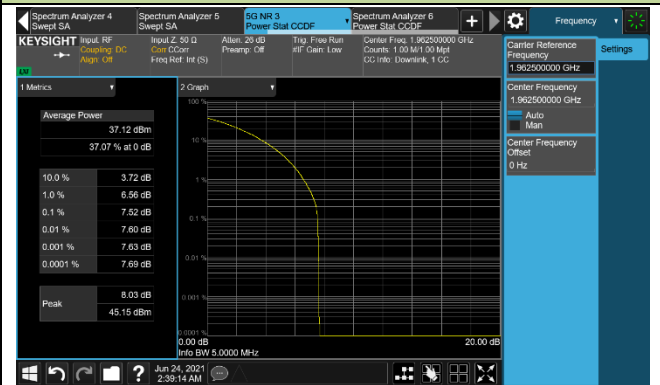
Frequency (MHz)	Bandwidth (MHz)	Peak to Average Ratio (dB)	Limit (dB)	Result
1932.5	5	7.52	$\leq 13.00$	Pass
1962.5	5	7.52	$\leq 13.00$	Pass
1992.5	5	7.52	$\leq 13.00$	Pass
1935.0	10	7.45	$\leq 13.00$	Pass
1962.5	10	7.44	$\leq 13.00$	Pass
1990.0	10	7.41	$\leq 13.00$	Pass
1937.5	15	7.46	$\leq 13.00$	Pass
1962.5	15	7.36	$\leq 13.00$	Pass
1987.5	15	7.46	$\leq 13.00$	Pass

## 5MHz Channel Bandwidth

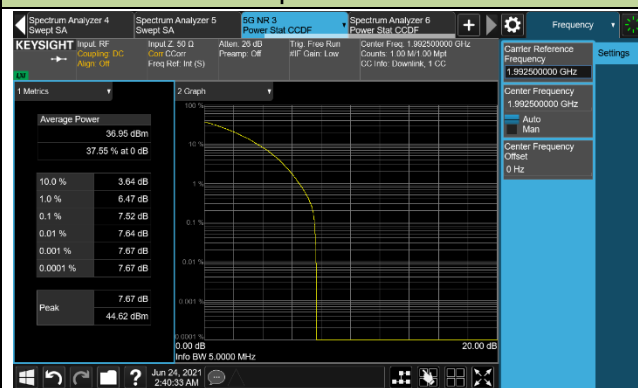
### Bottom Channel



### Middle Channel

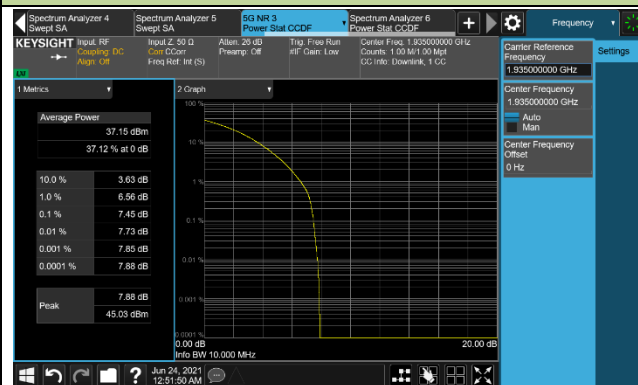


### Top Channel

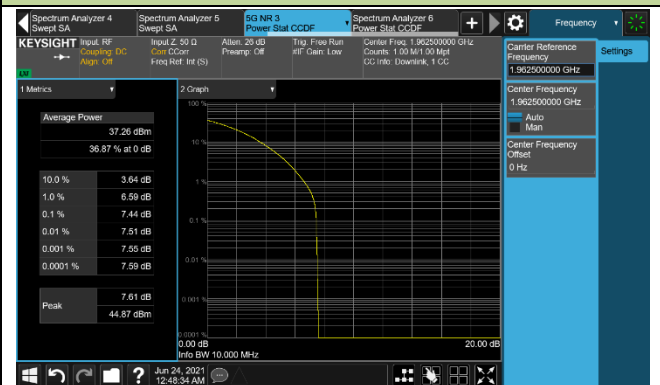


## 10MHz Channel Bandwidth

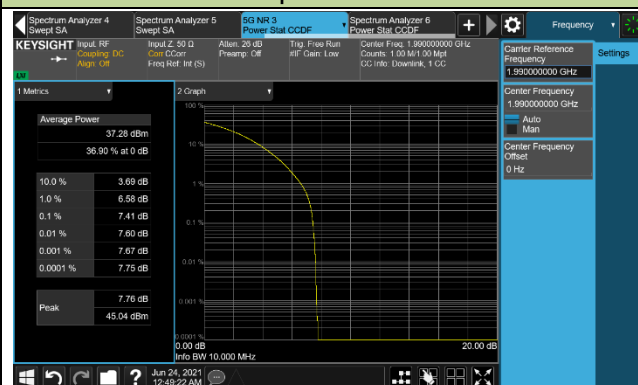
### Bottom Channel



### Middle Channel



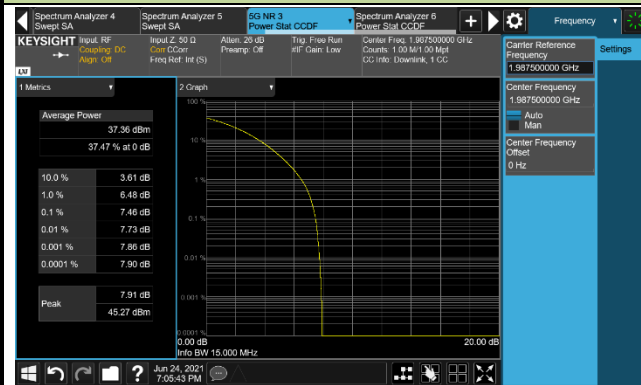
### Top Channel



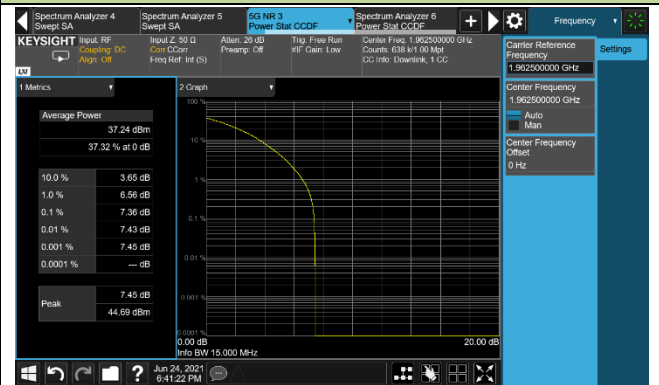


## 15MHz Channel Bandwidth

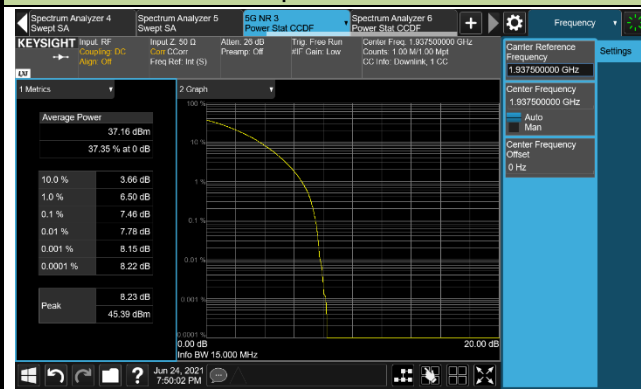
### Bottom Channel



### Middle Channel



### Top Channel



## **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**

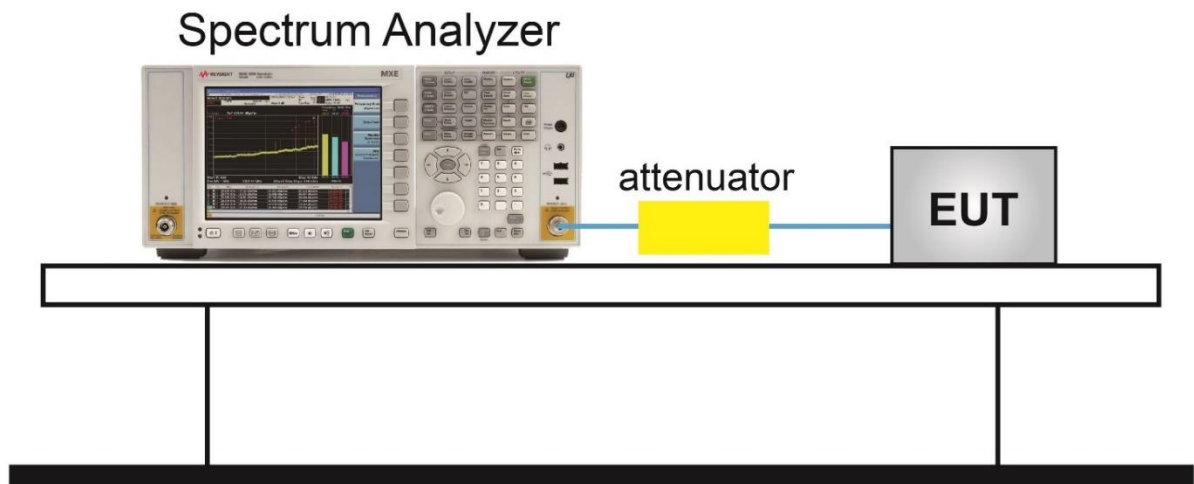
ANSI C63.26-2015 - Section 6.4.4.2

### **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

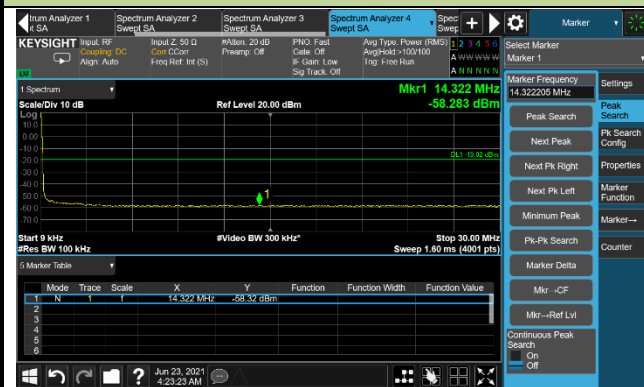
Test Engineer	Peter Xu	Test Site	SR2
Test Date	2021/06/23 ~ 2021/06/24		

Frequency (MHz)	Channel Bandwidth (MHz)	Frequency Range (MHz)	Max Spurious Emissions (dBm)	Limit (dBm)	Result
1932.5	5	0.009 ~ 30	-58.28	$\leq -19.02$	Pass
		30 ~ 20000	-32.18	$\leq -19.02$	Pass
1962.5	5	0.009 ~ 30	-58.09	$\leq -19.02$	Pass
		30 ~ 20000	-31.55	$\leq -19.02$	Pass
1992.5	5	0.009 ~ 30	-58.48	$\leq -19.02$	Pass
		30 ~ 20000	-31.84	$\leq -19.02$	Pass
1935.0	10	0.009 ~ 30	-57.66	$\leq -19.02$	Pass
		30 ~ 20000	-34.18	$\leq -19.02$	Pass
1962.5	10	0.009 ~ 30	-57.89	$\leq -19.02$	Pass
		30 ~ 20000	-33.82	$\leq -19.02$	Pass
1990.0	10	0.009 ~ 30	-57.49	$\leq -19.02$	Pass
		30 ~ 20000	-34.14	$\leq -19.02$	Pass
1937.5	15	0.009 ~ 30	-52.48	$\leq -19.02$	Pass
		30 ~ 20000	-29.78	$\leq -19.02$	Pass
1962.5	15	0.009 ~ 30	-53.58	$\leq -19.02$	Pass
		30 ~ 20000	-29.37	$\leq -19.02$	Pass
1987.5	15	0.009 ~ 30	-52.39	$\leq -19.02$	Pass
		30 ~ 20000	-29.31	$\leq -19.02$	Pass

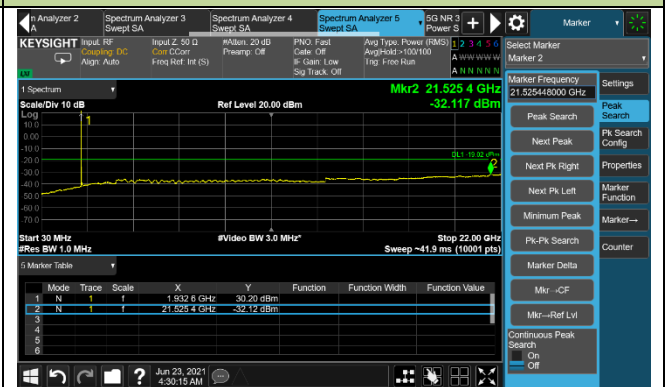
## 5MHz Channel Bandwidth

## Bottom Channel

## 9kHz ~ 1GHz

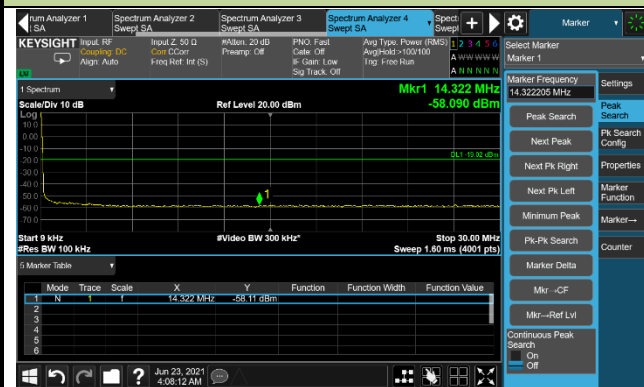


## 1GHz ~ 20GHz

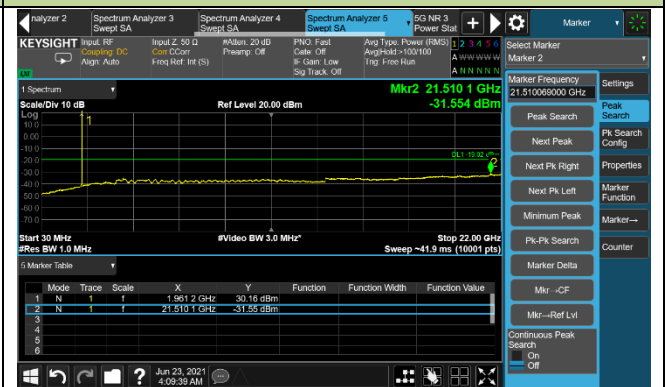


## Middle Channel

## 9kHz ~ 1GHz

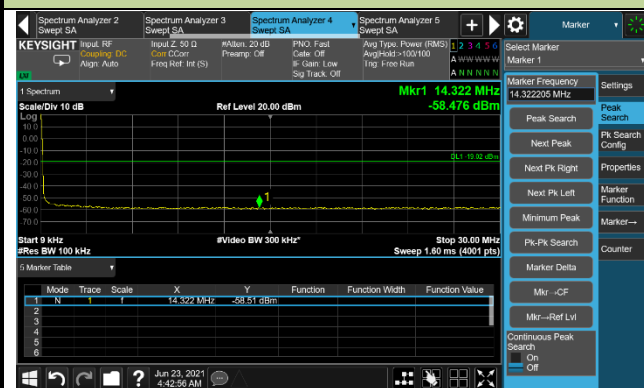


## 1GHz ~ 20GHz

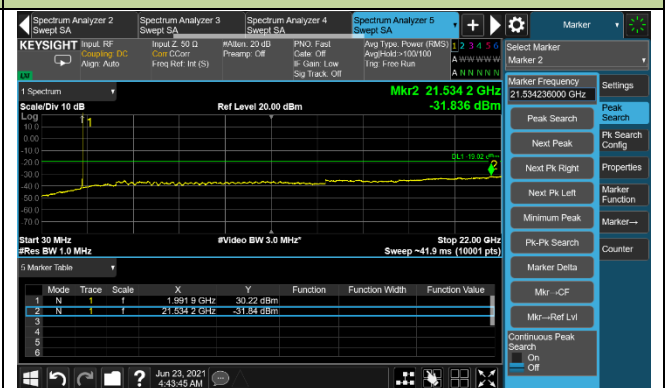


## Top Channel

## 9kHz ~ 1GHz



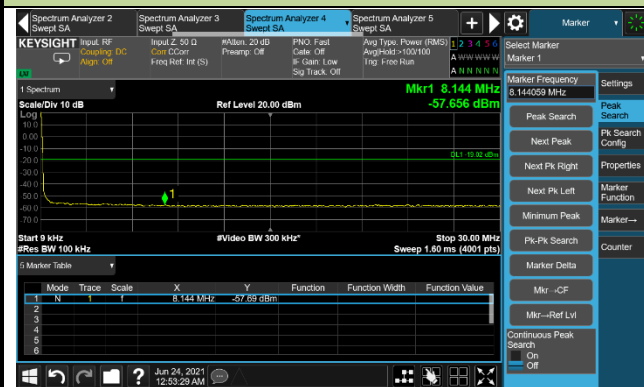
## 1GHz ~ 20GHz



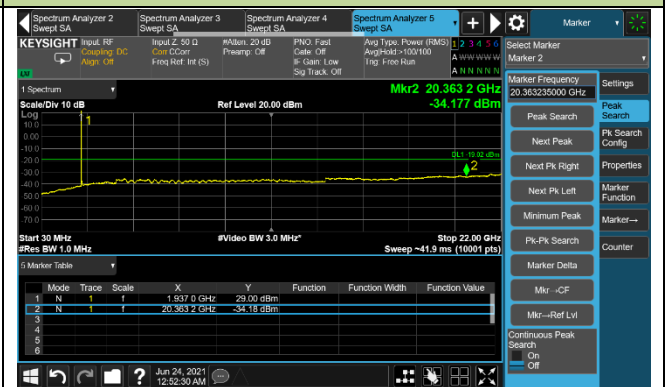
## 10MHz Channel Bandwidth

### Bottom Channel

#### 9kHz ~ 1GHz

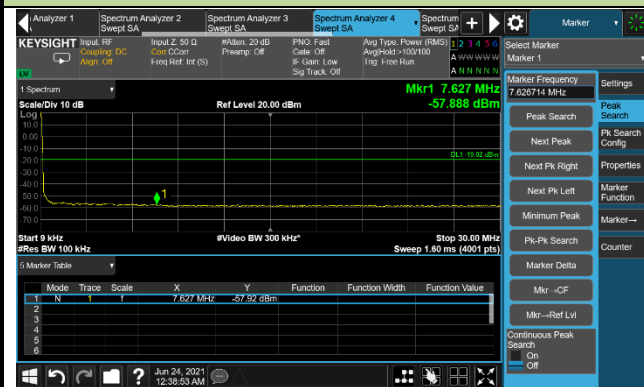


#### 1GHz ~ 20GHz

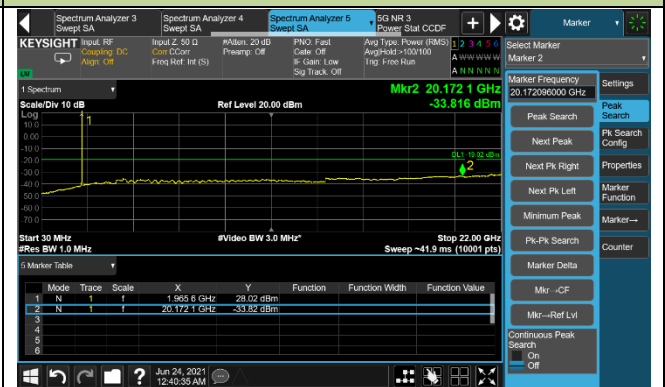


### Middle Channel

#### 9kHz ~ 1GHz

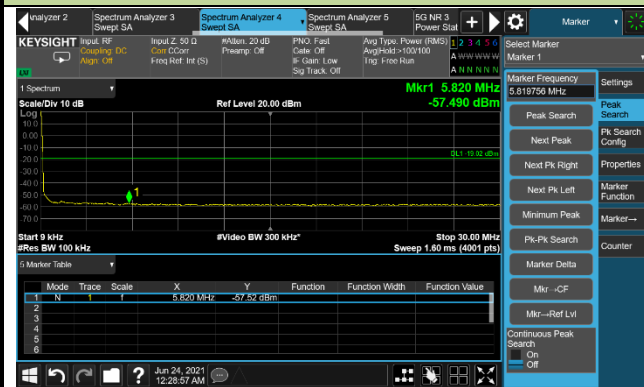


#### 1GHz ~ 20GHz



### Top Channel

#### 9kHz ~ 1GHz



#### 1GHz ~ 20GHz





## **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.

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

### **5.8.2. Test Procedure Used**

ANSI C63.26-2015 - Section 5.2.7 & 5.5

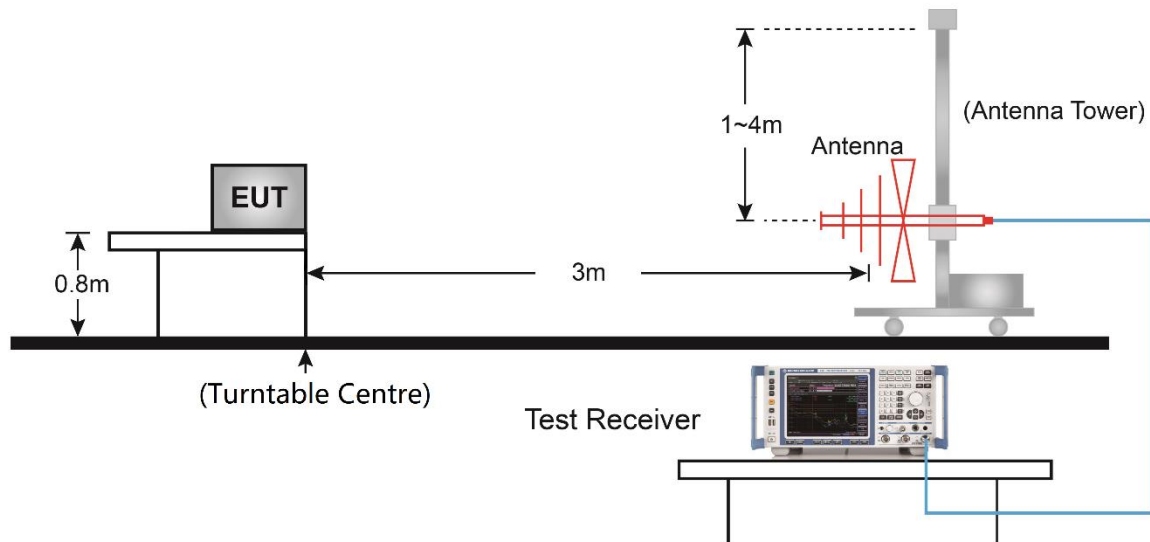
### **5.8.3. Test Setting**

1. RBW = 100kHz or 1MHz
2. VBW  $\geq 3 \times$  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

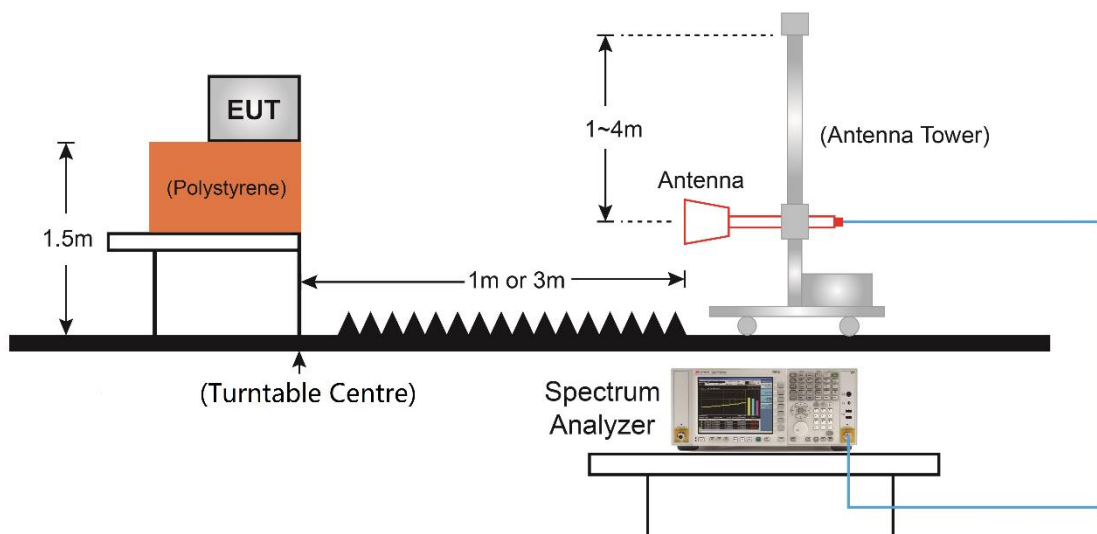


#### 5.8.4. Test Setup

##### 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 (dBμV)	Factor (dB)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
Bottom Channel							
50.9	2.1	21.9	24.0	82.3	-58.3	Peak	Horizontal
716.3	3.7	29.6	33.3	82.3	-49.0	Peak	Horizontal
35.3	13.7	19.4	33.1	82.3	-49.2	Peak	Vertical
767.2	3.7	30.2	33.9	82.3	-48.4	Peak	Vertical
5241.5	37.6	4.0	41.6	82.3	-40.7	Peak	Horizontal
9831.5	41.3	15.0	56.3	82.3	-26.0	Peak	Horizontal
3864.5	44.9	0.4	45.3	82.3	-37.0	Peak	Vertical
9831.5	42.0	15.0	57.0	82.3	-25.3	Peak	Vertical
Middle Channel							
51.8	1.7	21.7	23.4	82.3	-58.9	Peak	Horizontal
601.8	3.5	27.8	31.3	82.3	-51.0	Peak	Horizontal
34.4	11.8	19.2	31.0	82.3	-51.3	Peak	Vertical
748.3	3.9	30.1	34.0	82.3	-48.3	Peak	Vertical
4961.0	37.1	3.7	40.8	82.3	-41.5	Peak	Horizontal
9831.5	40.0	15.0	55.0	82.3	-27.3	Peak	Horizontal
3924.0	51.2	0.9	52.1	82.3	-30.2	Peak	Vertical
9831.5	39.2	15.0	54.2	82.3	-28.1	Peak	Vertical
Top Channel							
52.8	2.2	21.5	23.7	82.3	-58.6	Peak	Horizontal
916.6	5.2	31.9	37.1	82.3	-45.2	Peak	Horizontal
34.9	11.4	19.3	30.7	82.3	-51.6	Peak	Vertical
578.1	4.6	27.4	32.0	82.3	-50.3	Peak	Vertical
3966.5	47.9	0.8	48.7	82.3	-33.6	Peak	Horizontal
9831.5	41.0	15.0	56.0	82.3	-26.3	Peak	Horizontal
3966.5	60.9	0.8	61.7	82.3	-20.6	Peak	Vertical
9831.5	43.3	15.0	58.3	82.3	-24.0	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.

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The End