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Appendix B:  
802.11ax  
Test Plot

FCC ID  
A3LSMG990U2

**REVISION HISTORY**

The revision history for this document is shown in table.

Revision No.	Date of Issue	Description
0	May 13, 2022	Initial Release

**Note:**

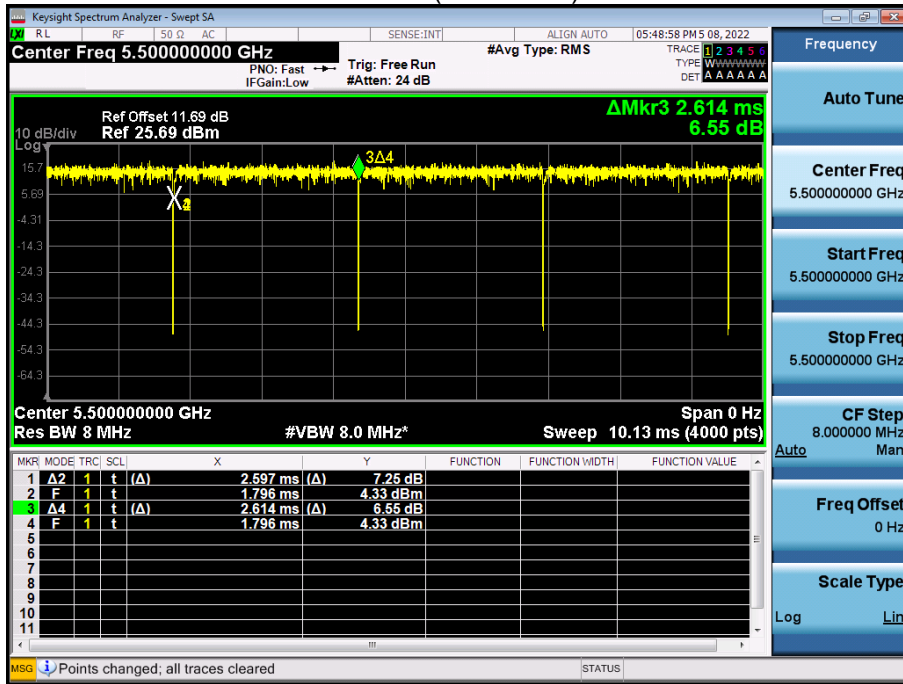
In order to simplify the report, attached plots were only the most lowest datarate.

# 1. Duty Cycle

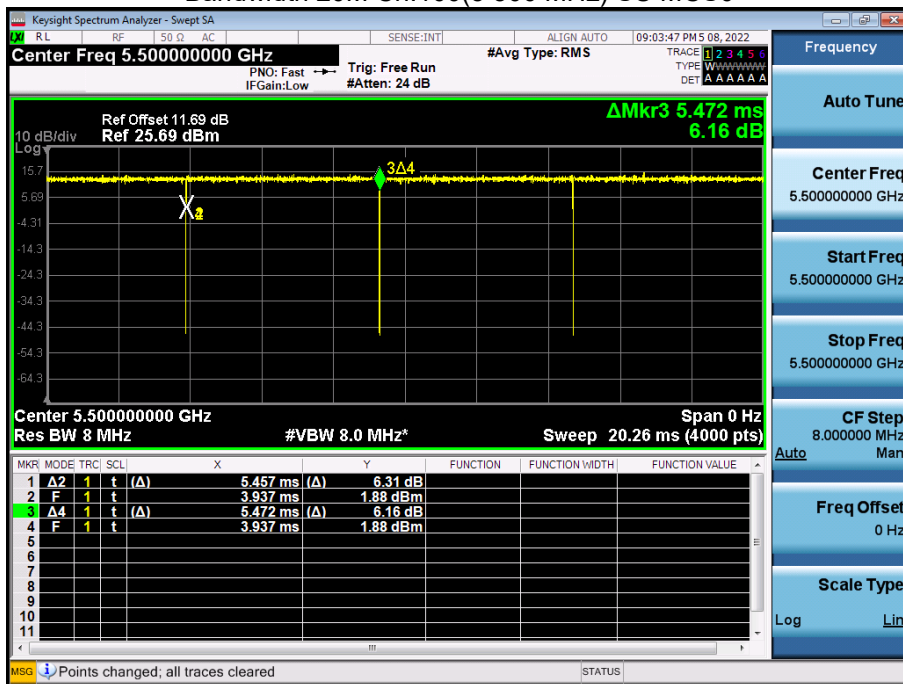
**Note:**

In order to simplify the report, attached plots were only the most lowest datarate.

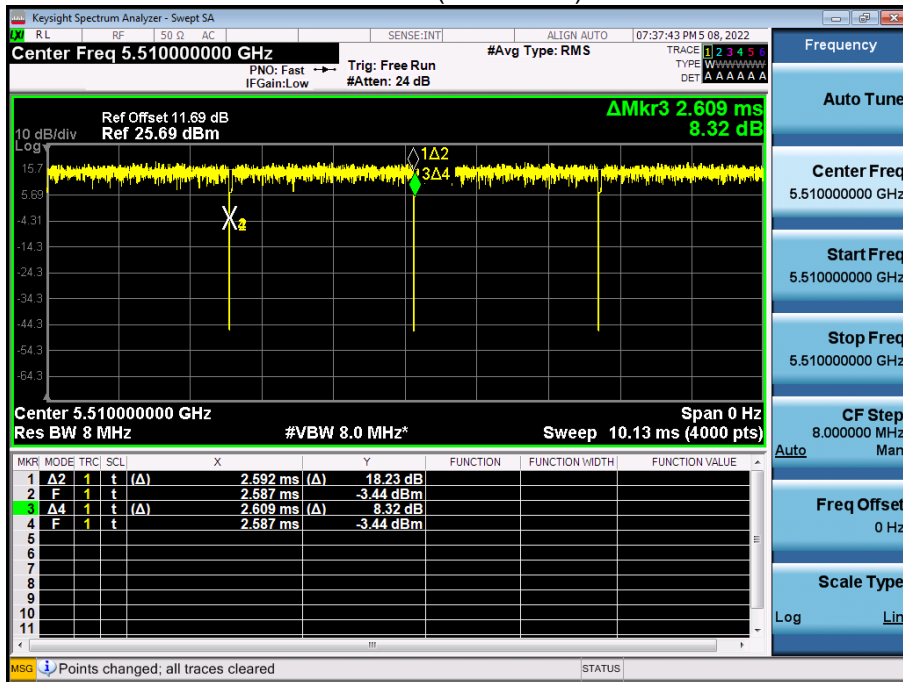
Bandwidth 20M Ch.100(5 500 MHz) 26 Tone MCS0



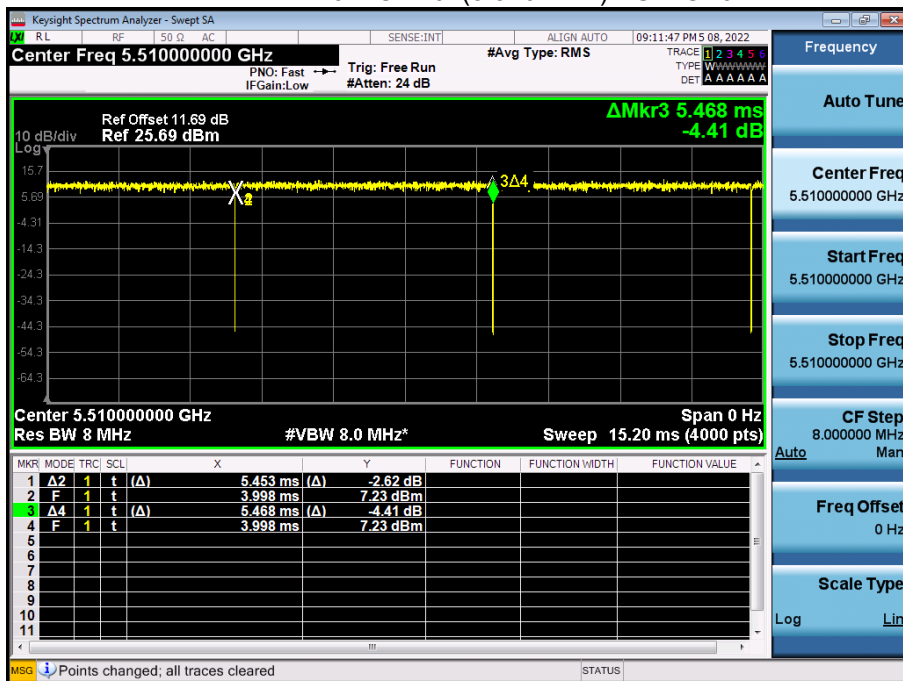
Bandwidth 20M Ch.100(5 500 MHz) SU MCS0



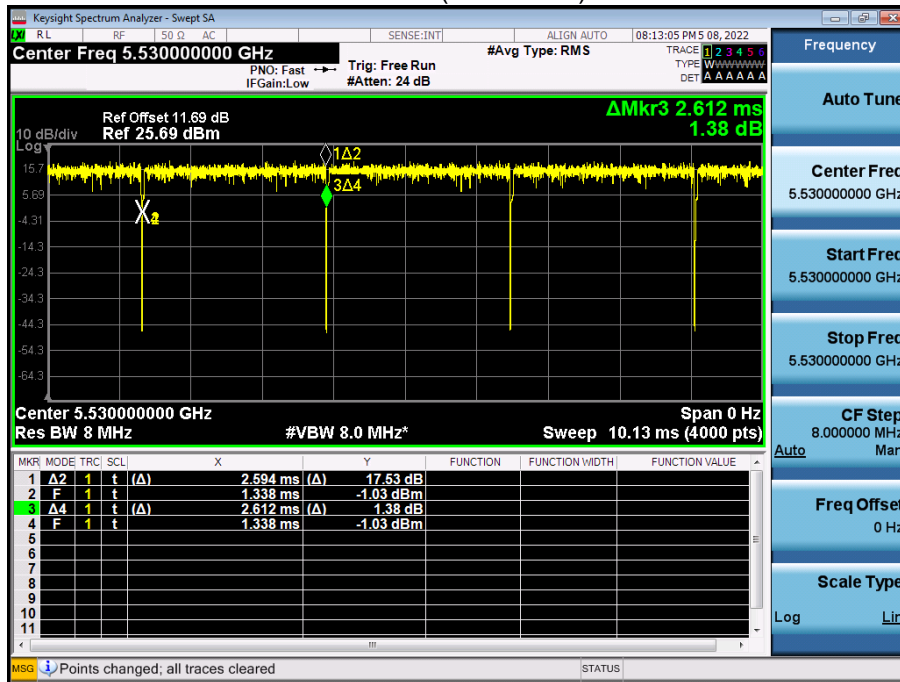
Bandwidth 40M Ch.102(5 510 MHz) 26Tone MCS0



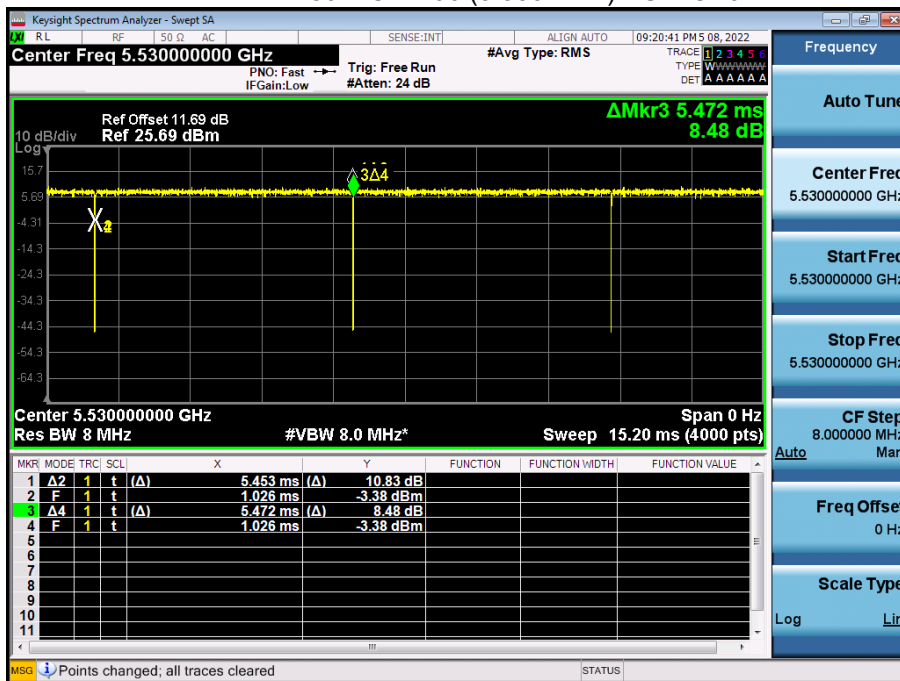
Bandwidth 40M Ch.102(5 510 MHz) SU MCS0



Bandwidth 80M Ch.106 (5 530 MHz) 26Tone MCS0



Bandwidth 80M Ch. 106 (5 530 MHz) SU MCS0

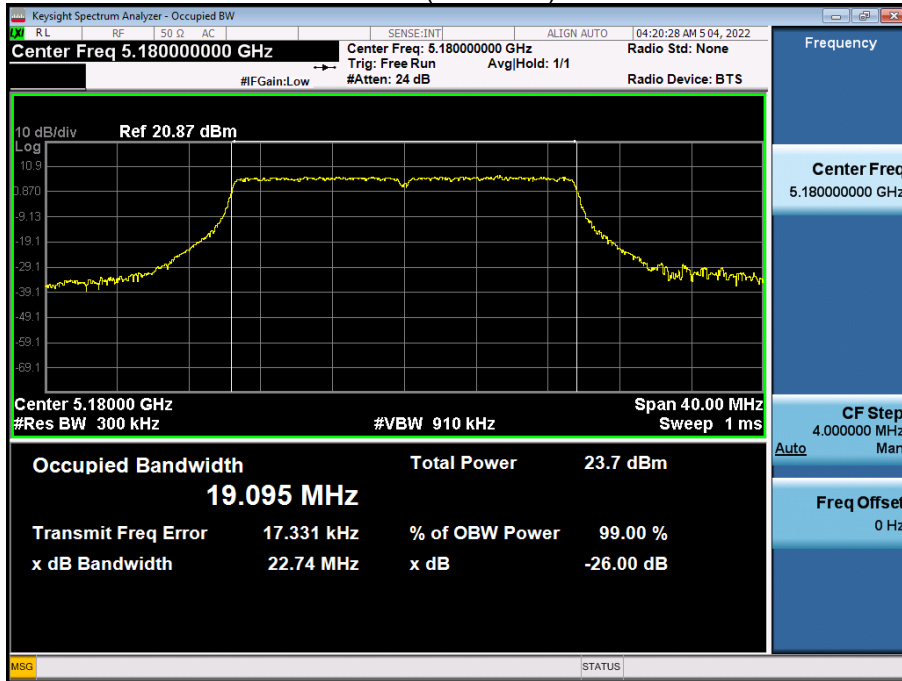


## 2. 26dB Bandwidth

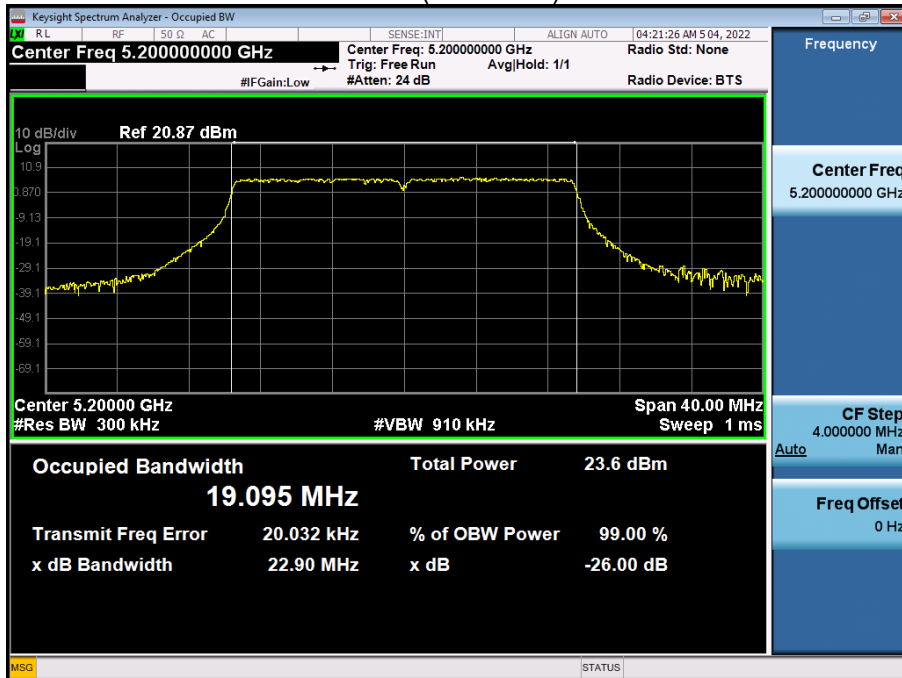
**Note:**

1. In order to simplify the report, attached plots were only Ant.2 (Worst Case: Ant.2).
2. In order to simplify the report, attached plots were only the most wide channel.

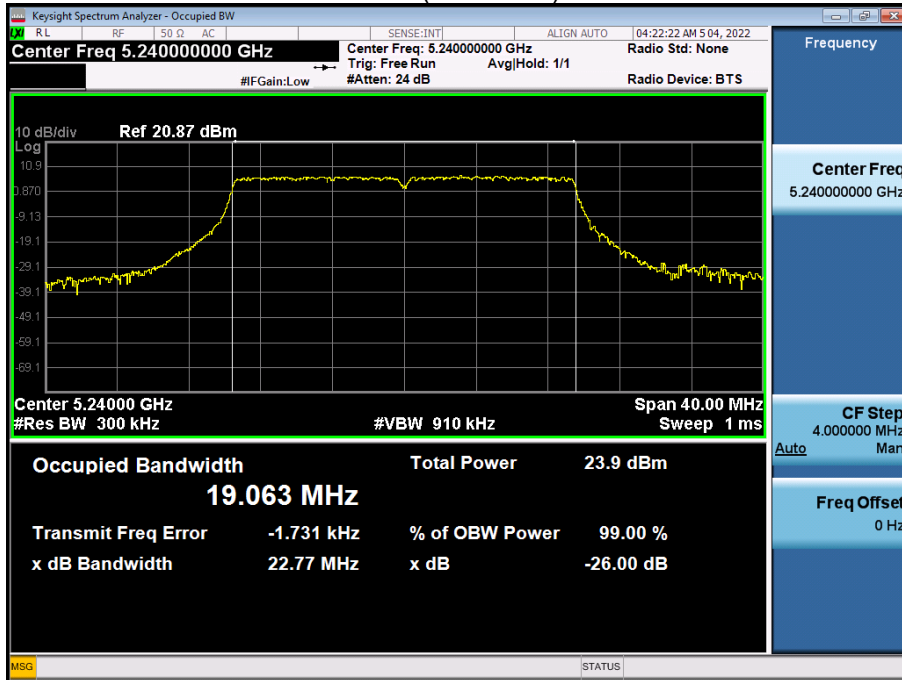
Bandwidth 20M Ch.36(5180MHz) 242 Tone RU 61



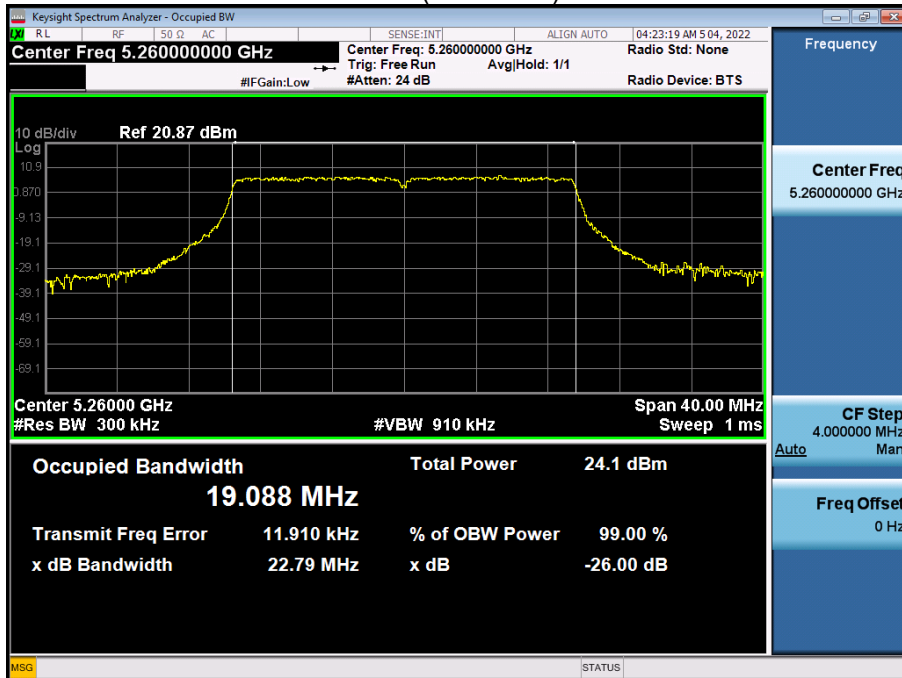
Bandwidth 20M Ch.40(5200MHz) 242 Tone RU 61



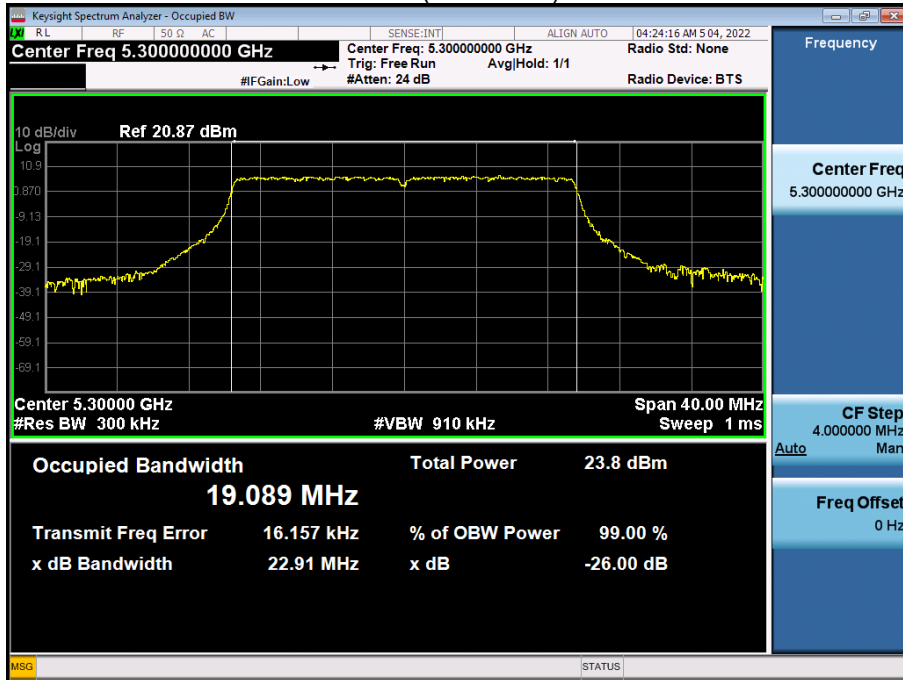
Bandwidth 20M Ch.48(5 240MHz) 242 Tone RU 61



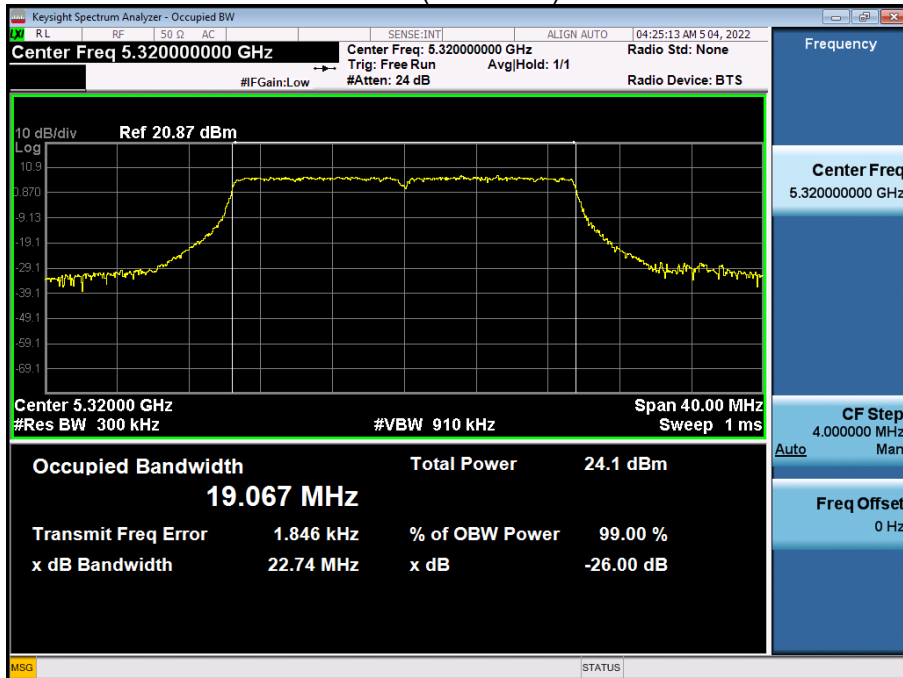
Bandwidth 20M Ch.52(5 260MHz) 242 Tone RU 61



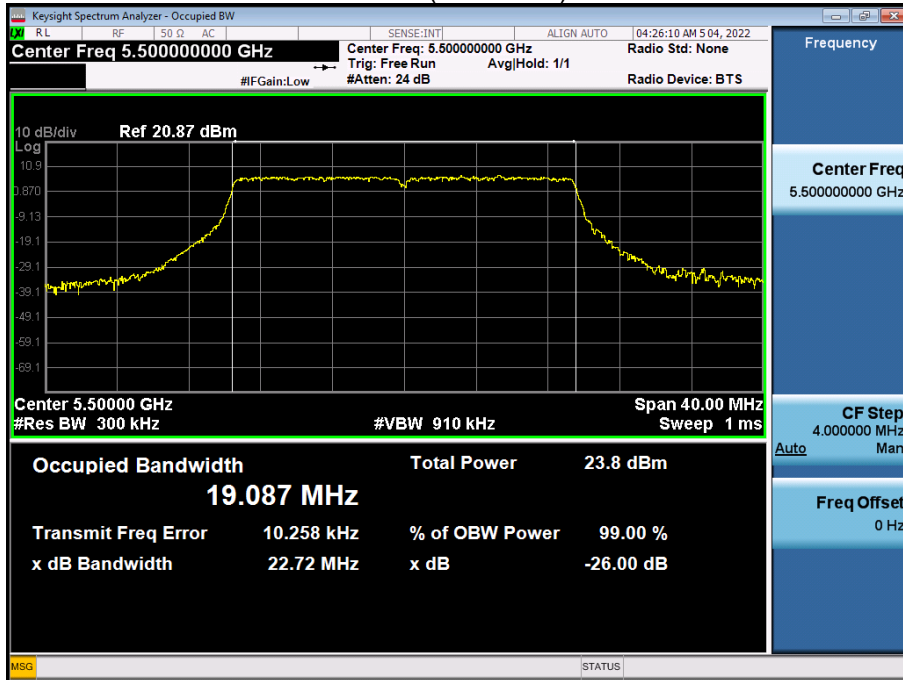
Bandwidth 20M Ch.60(5 300MHz) 242 Tone RU 61



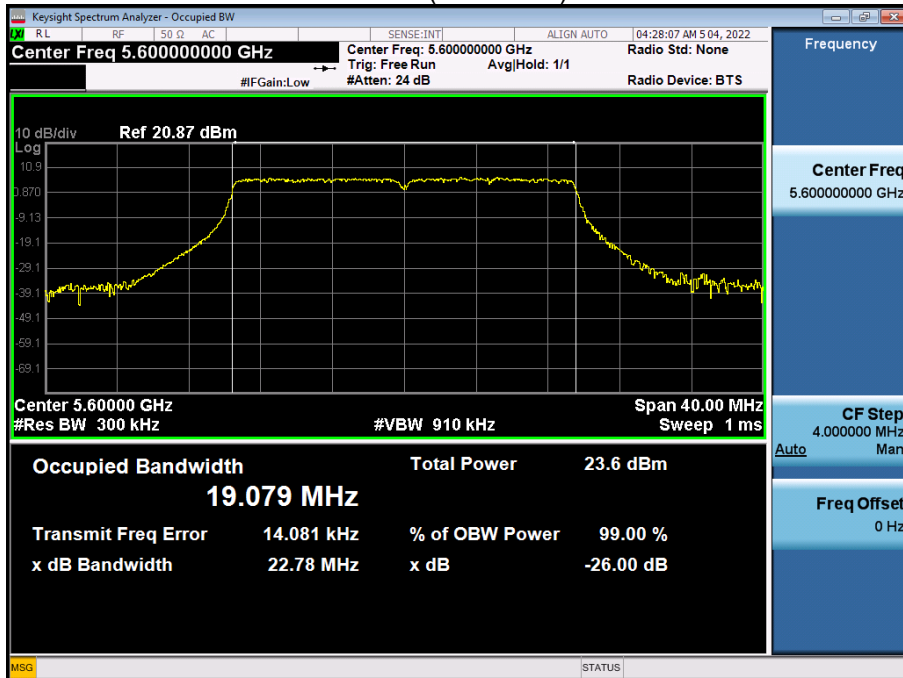
Bandwidth 20M Ch.64(5 320MHz) 242 Tone RU 61



Bandwidth 20M Ch.100(5 500MHz) 242 Tone RU 61

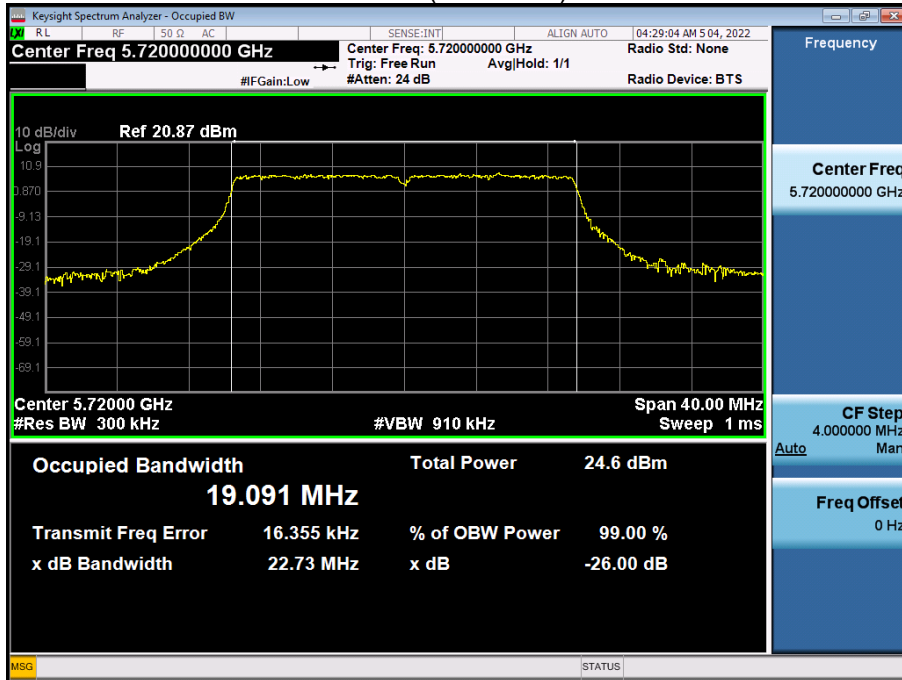


Bandwidth 20M Ch.120(5 600MHz) 242 Tone RU 61

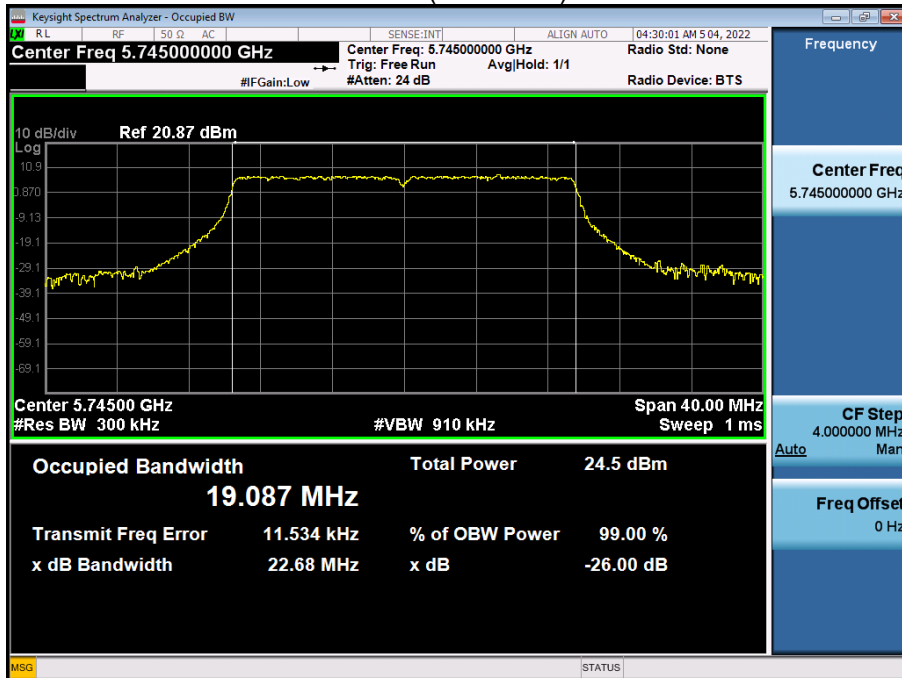




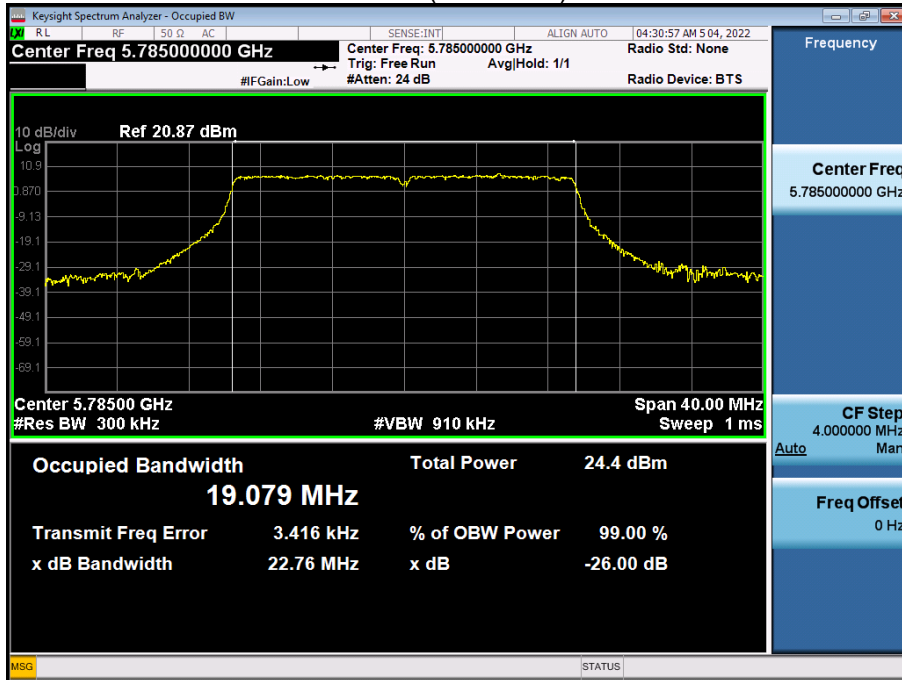
Bandwidth 20M Ch.144(5 720MHz) 242 Tone RU 61



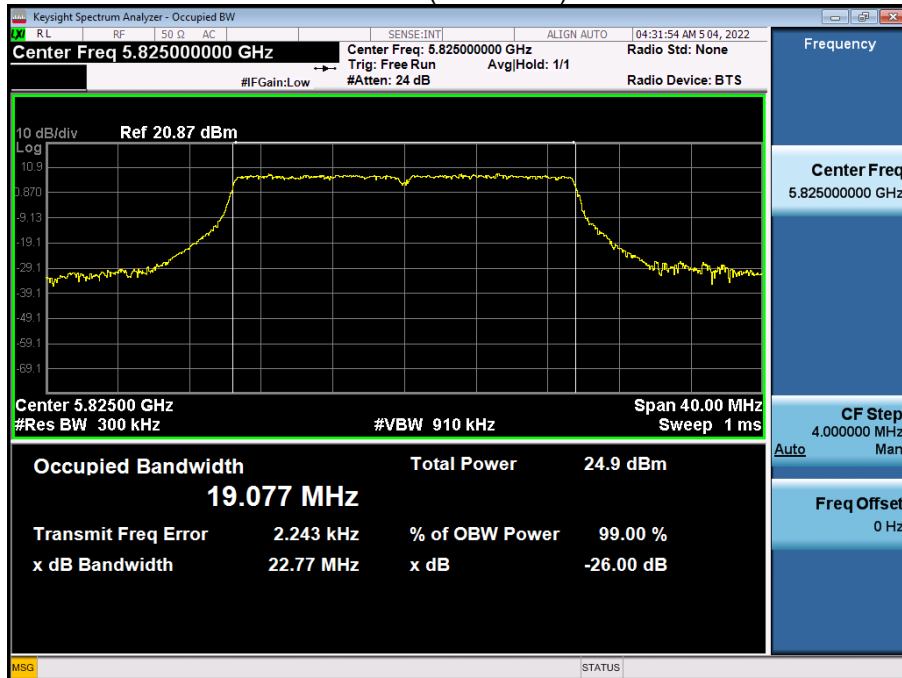
Bandwidth 20M Ch.149(5 745MHz) 242 Tone RU 61



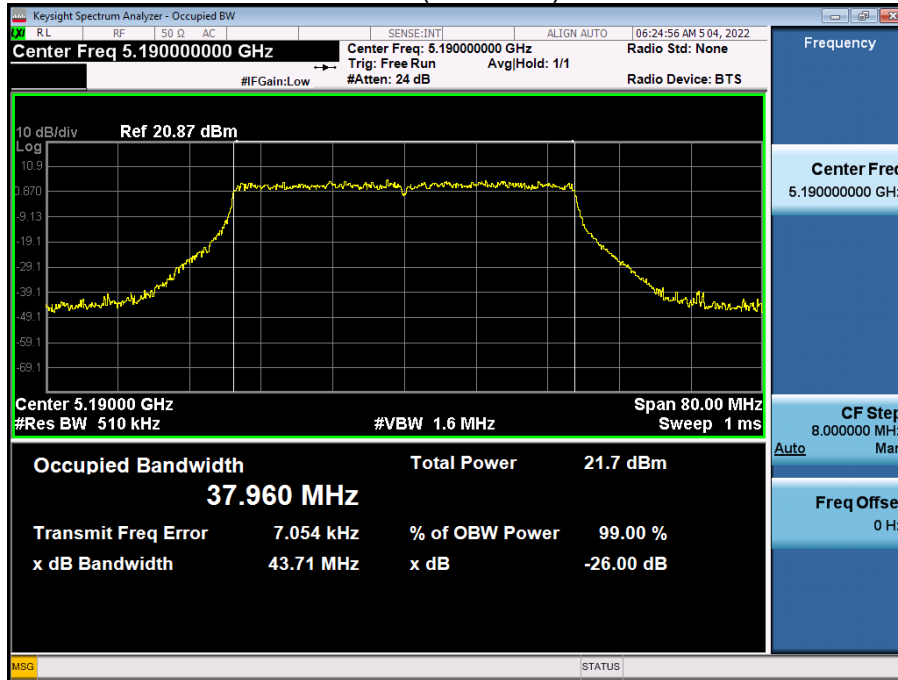
Bandwidth 20M Ch.157(5 785MHz) 242 Tone RU 61



Bandwidth 20M Ch.165(5 825MHz) 242 Tone RU 61



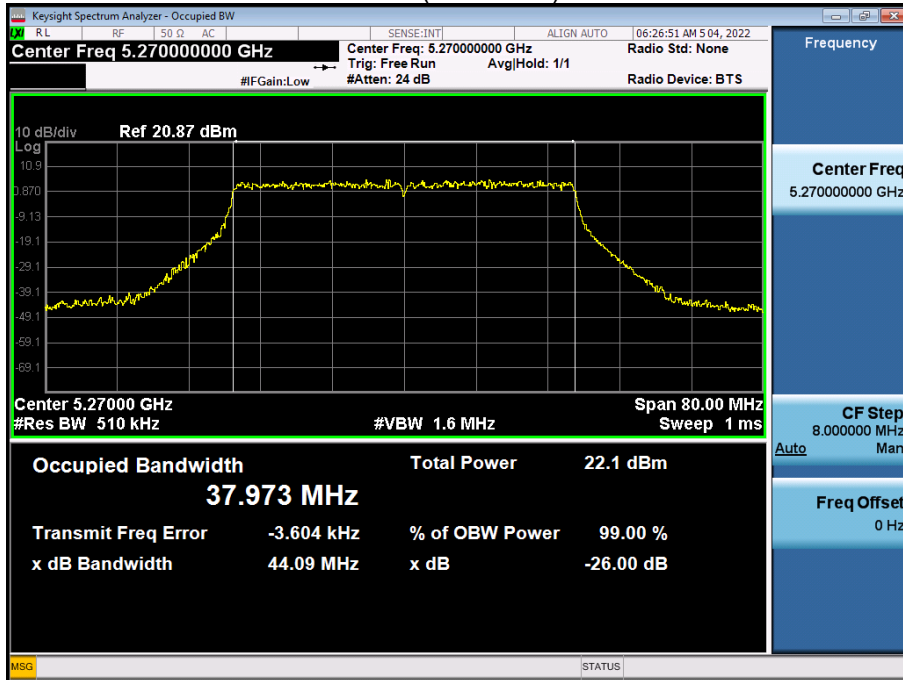
Bandwidth 40M Ch.38(5 190MHz) 484 Tone RU 65



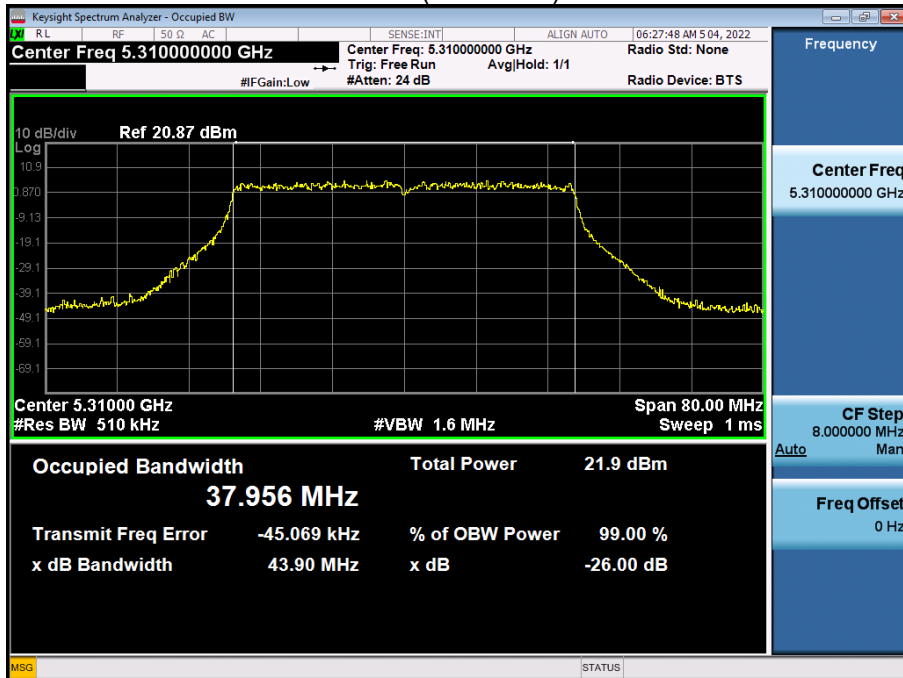
Bandwidth 40M Ch.46(5 230MHz) 484 Tone RU 65



Bandwidth 40M Ch.54(5 270MHz) 484 Tone RU 65



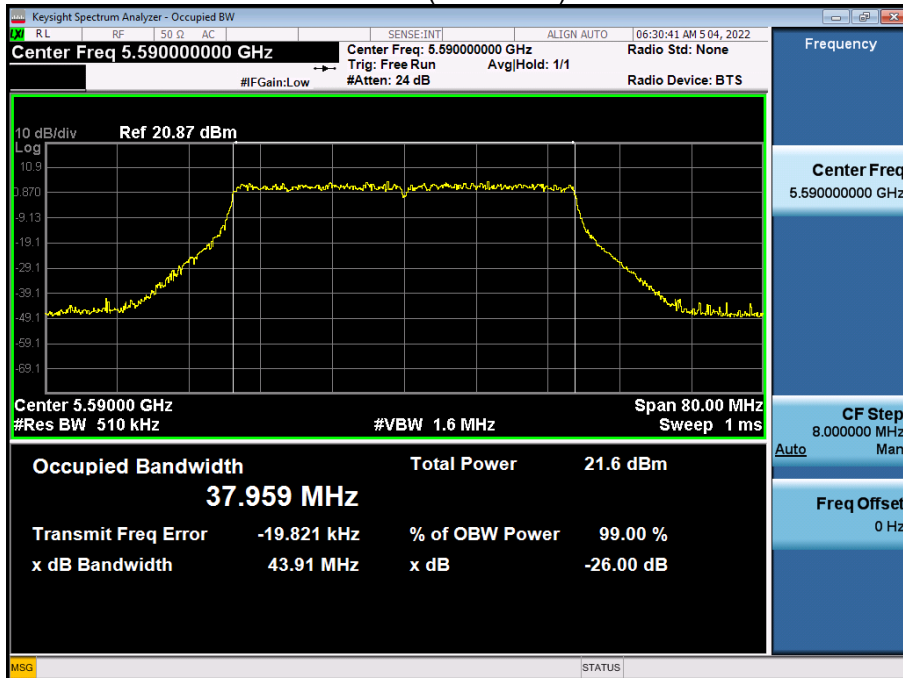
Bandwidth 40M Ch.62(5 310MHz) 484 Tone RU 65



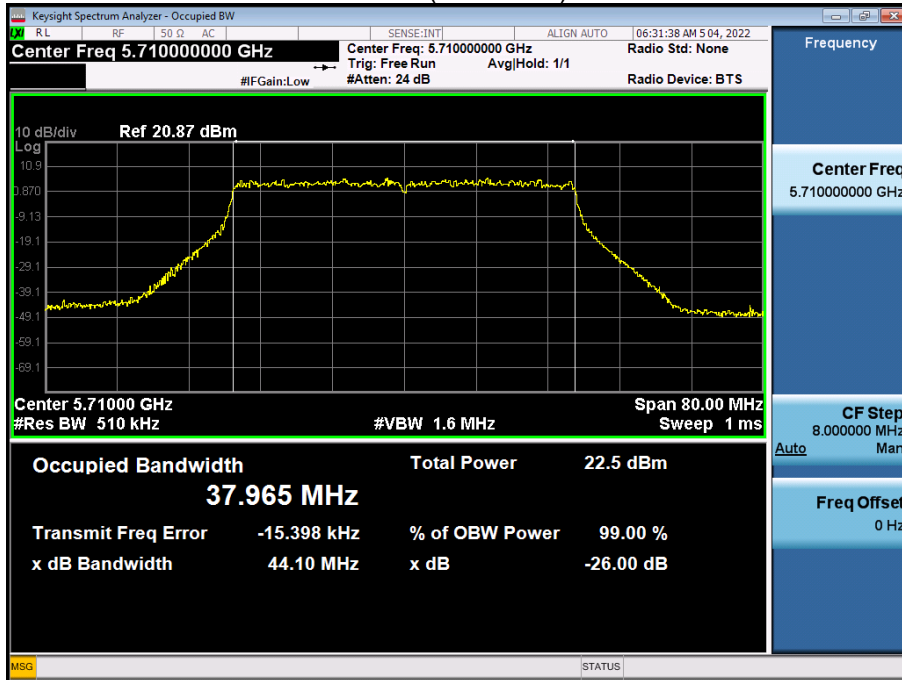
Bandwidth 40M Ch.102(5 510MHz) 484 Tone RU 65



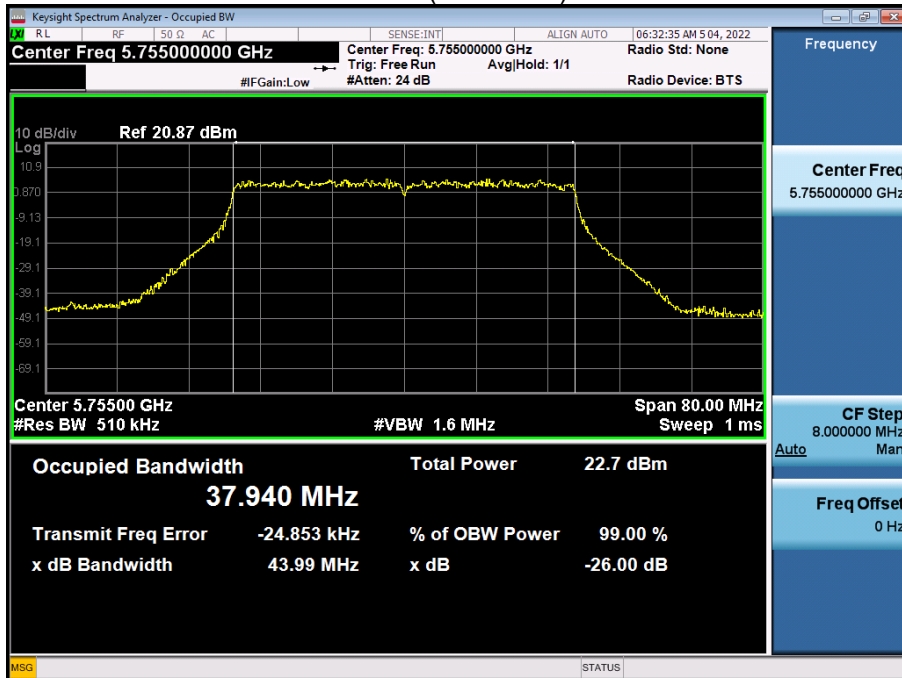
Bandwidth 40M Ch.118(5 590MHz) 484 Tone RU 65



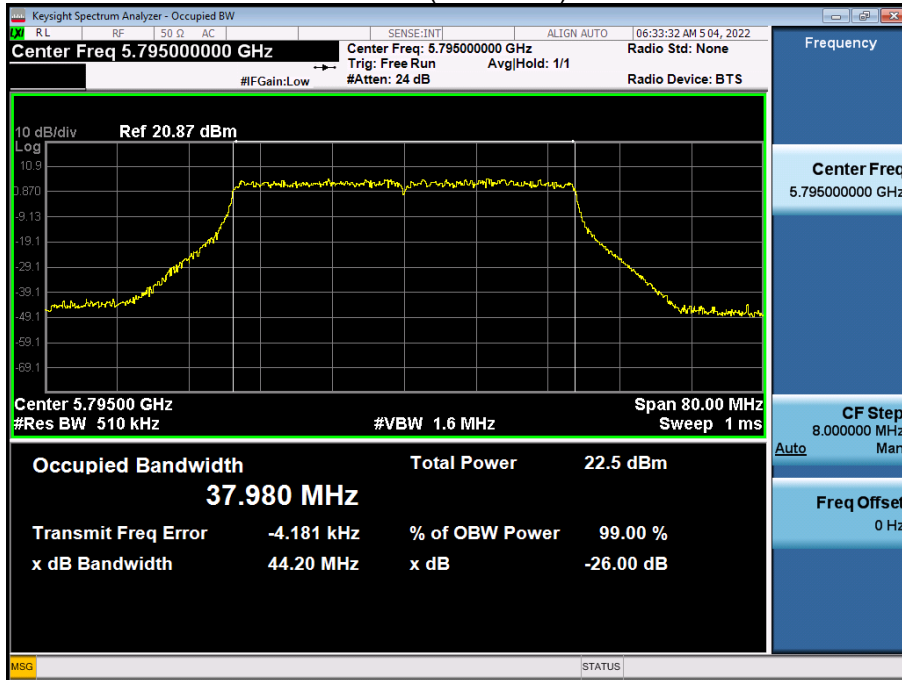
Bandwidth 40M Ch.142(5 710MHz) 484 Tone RU 65



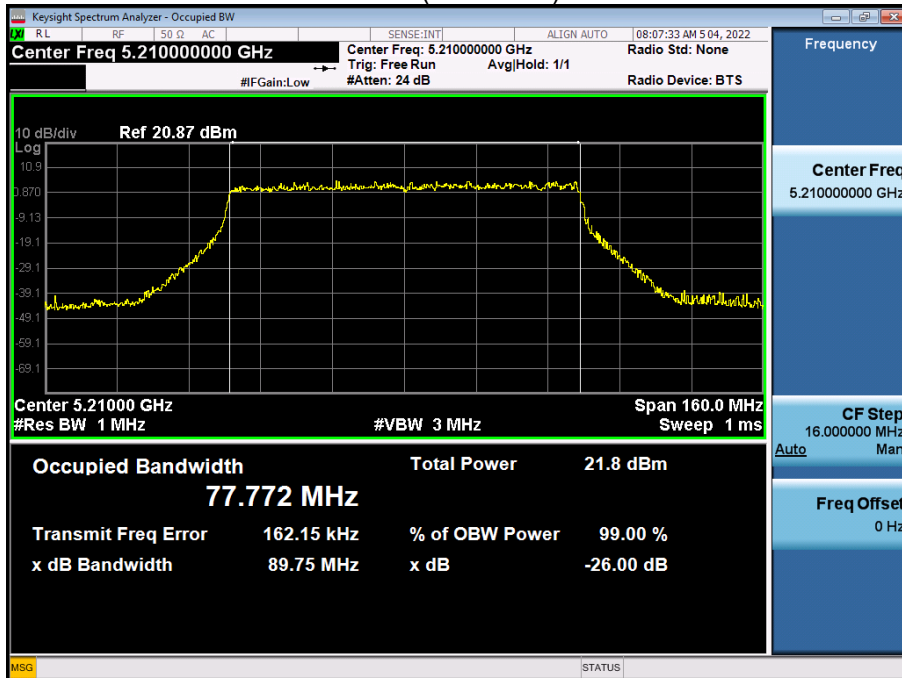
Bandwidth 40M Ch.151(5 755MHz) 484 Tone RU 65



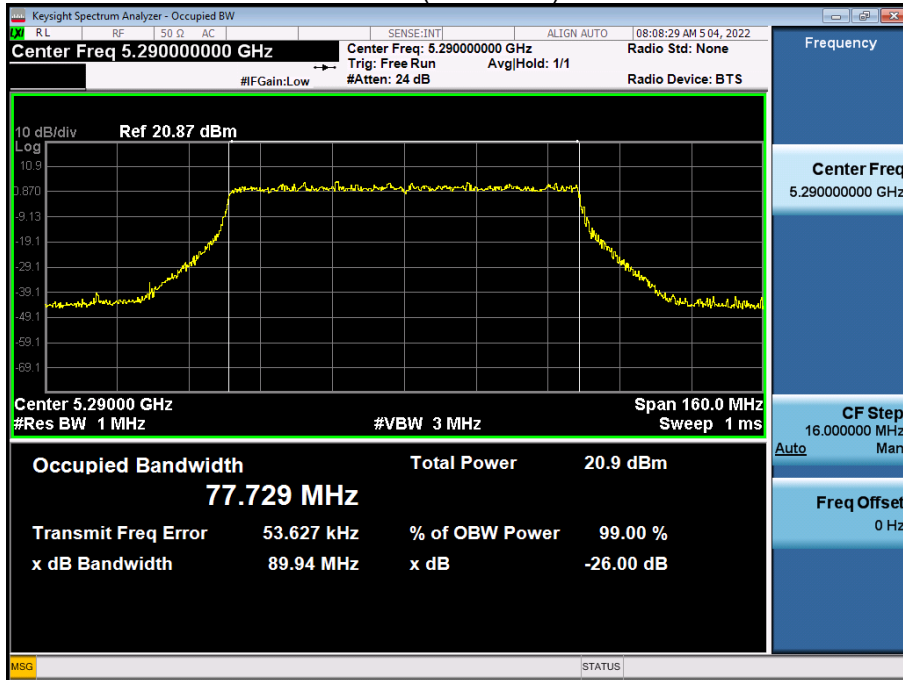
Bandwidth 40M Ch.159(5 795MHz) 484 Tone RU 65



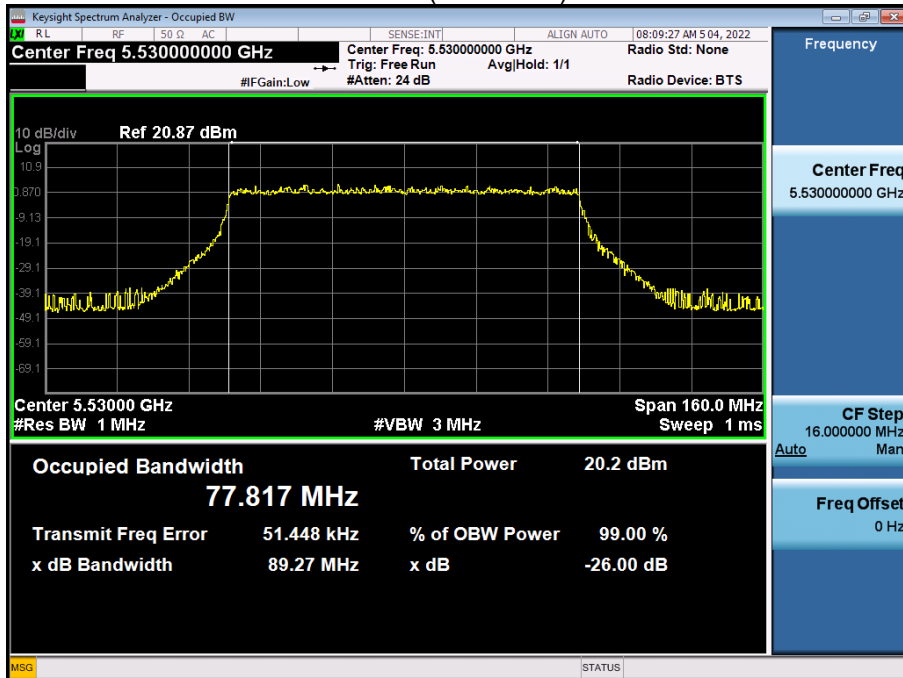
Bandwidth 80M Ch.42(5 210MHz) 996 Tone RU 67



Bandwidth 80M Ch.58(5 290MHz) 996 Tone RU 67

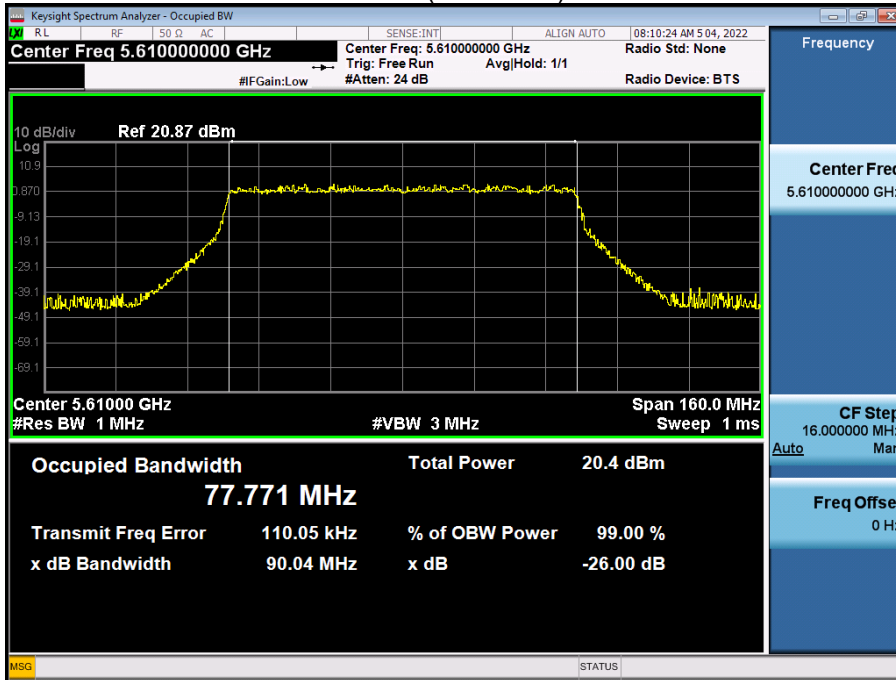


Bandwidth 80M Ch.106(5 530MHz) 996 Tone RU 67

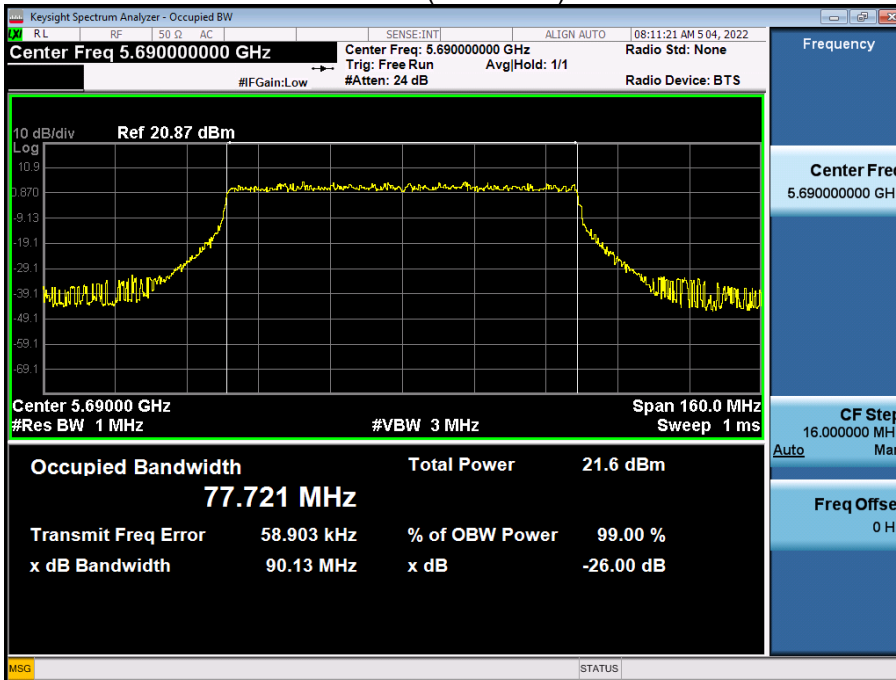




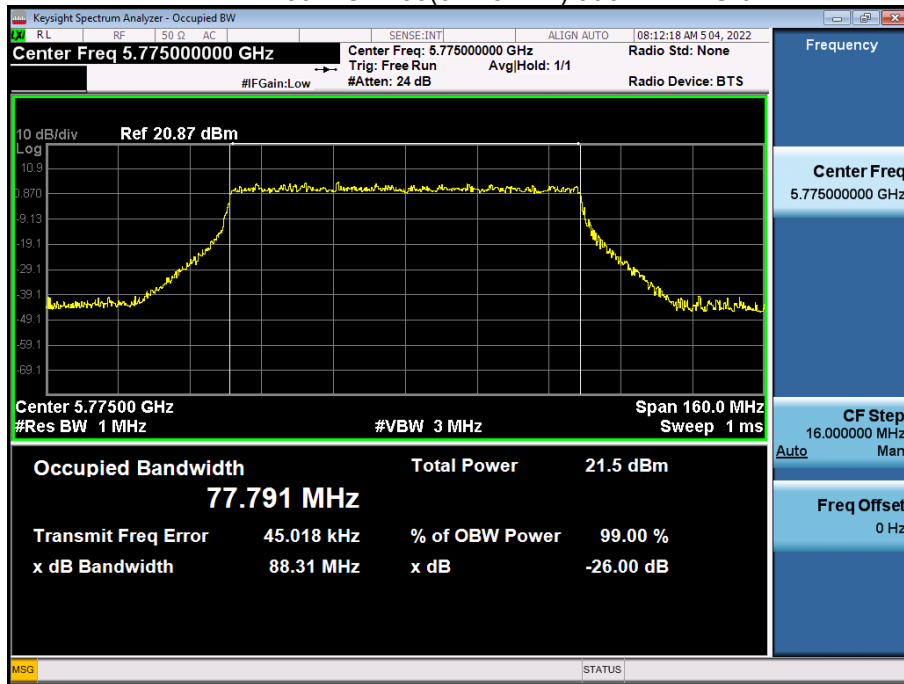
Bandwidth 80M Ch.122(5 610MHz) 996 Tone RU 67



Bandwidth 80M Ch.138(5 690MHz) 996 Tone RU 67



Bandwidth 80M Ch.155(5 775MHz) 996 Tone RU 67



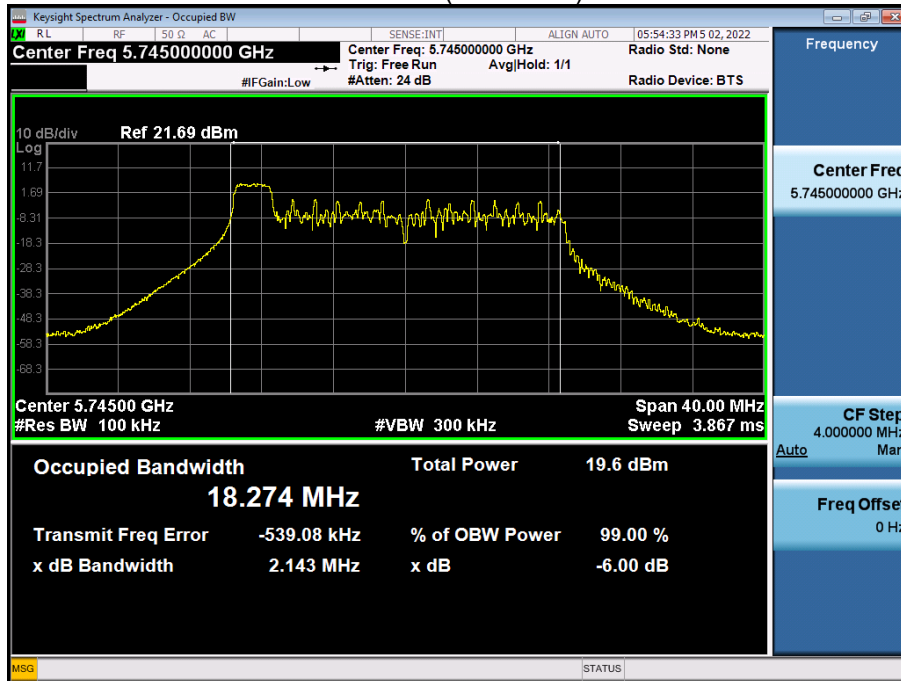
### 3. 6dB Bandwidth

**Note:**

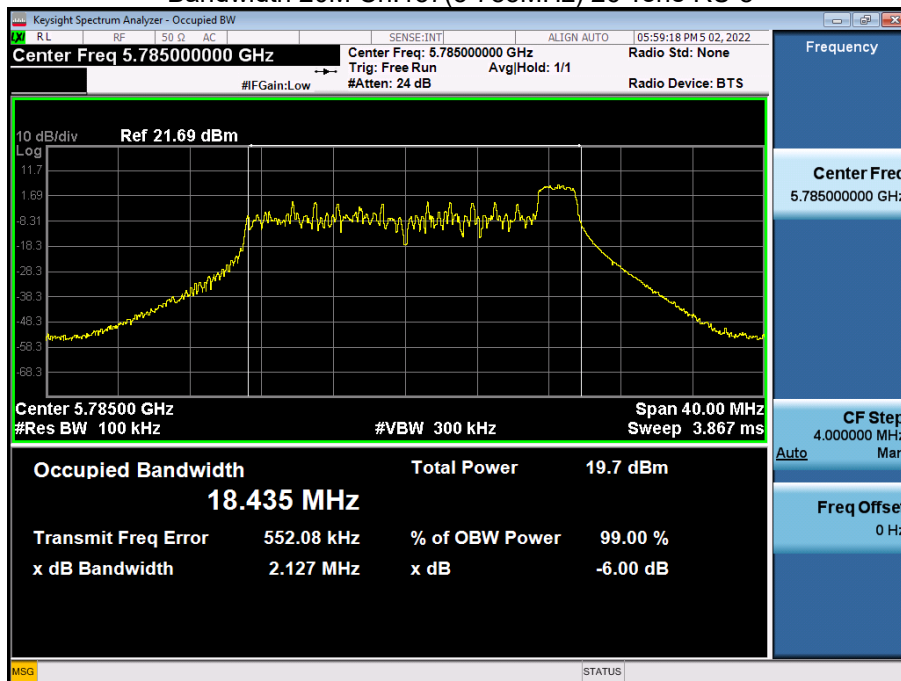
1. In order to simplify the report, attached plots were only the most narrow channel.

#### 3.1 Ant1

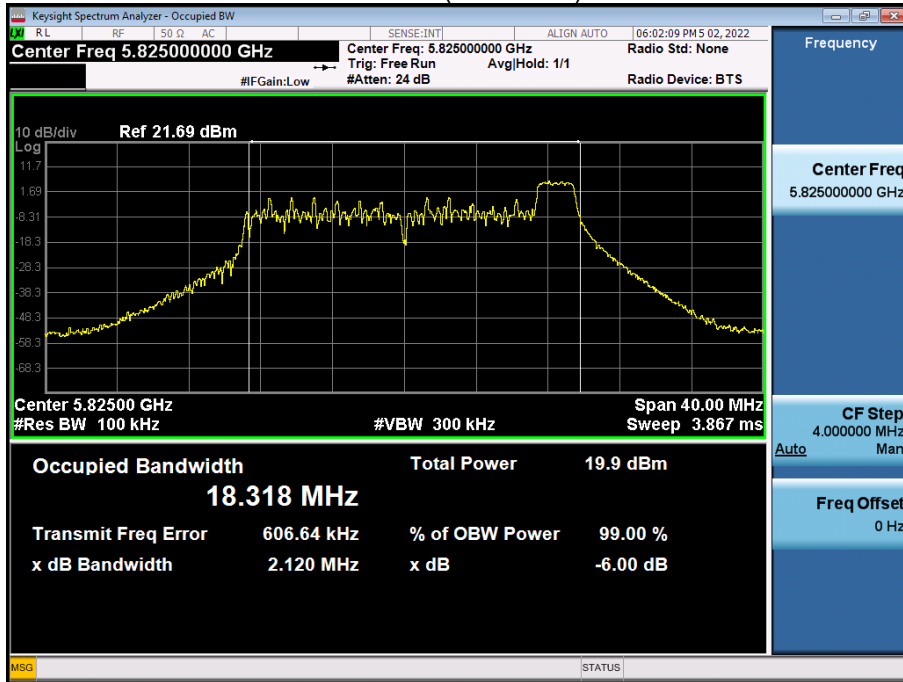
Bandwidth 20M Ch.149(5 745MHz) 26 Tone RU 0



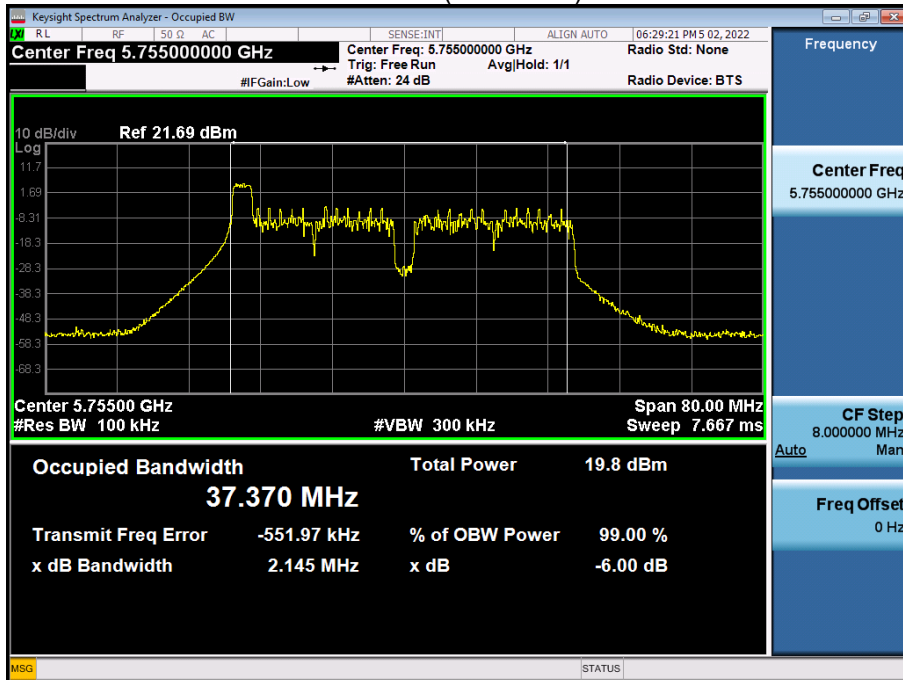
Bandwidth 20M Ch.157(5 785MHz) 26 Tone RU 8



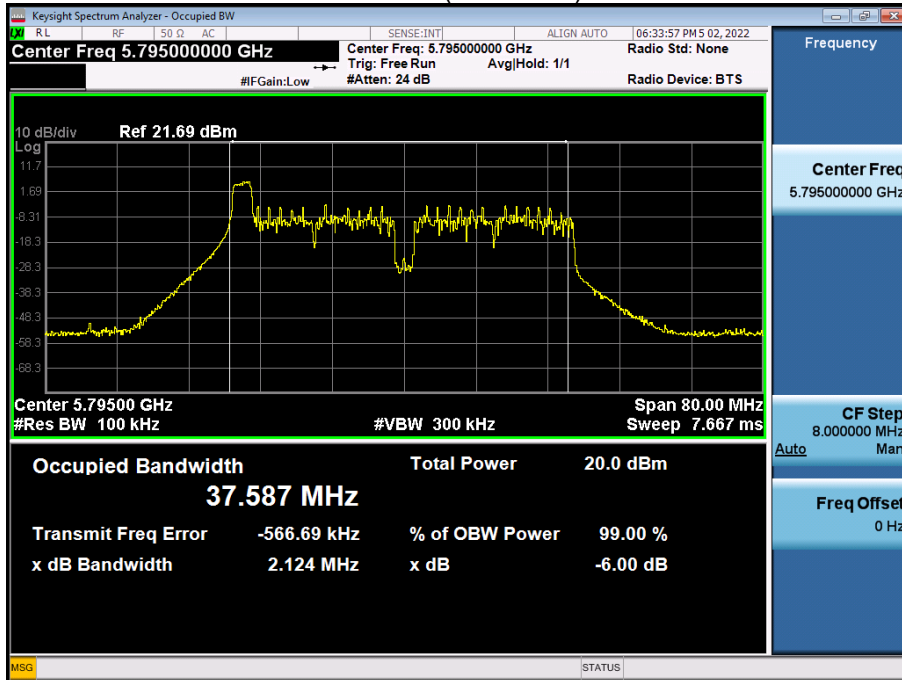
Bandwidth 20M Ch.165(5 825MHz) 26 Tone RU 8



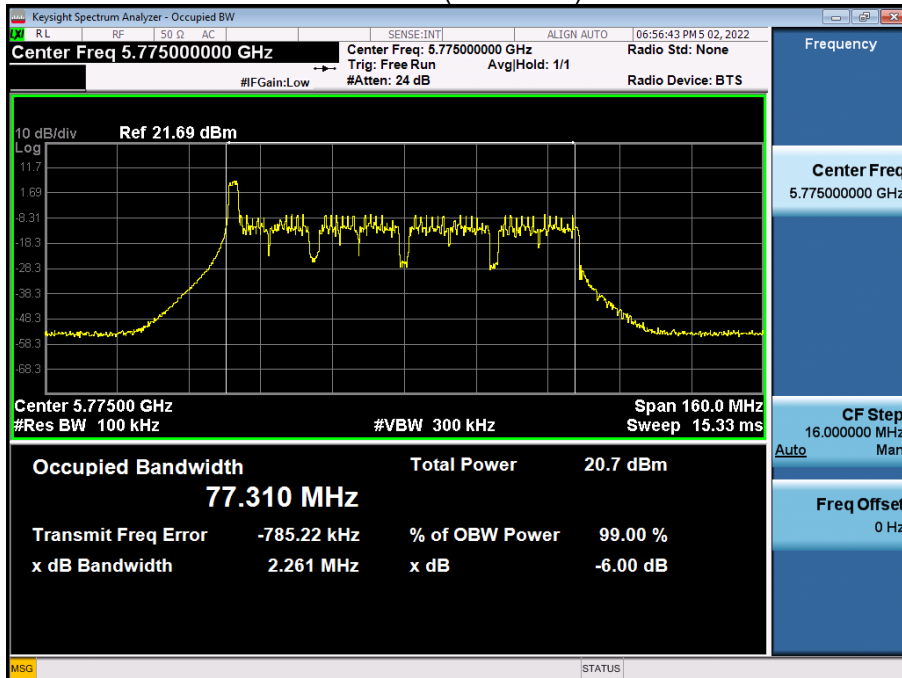
Bandwidth 40M Ch.151(5 755MHz) 26 Tone RU 0



Bandwidth 40M Ch.159(5 795MHz) 26 Tone RU 0

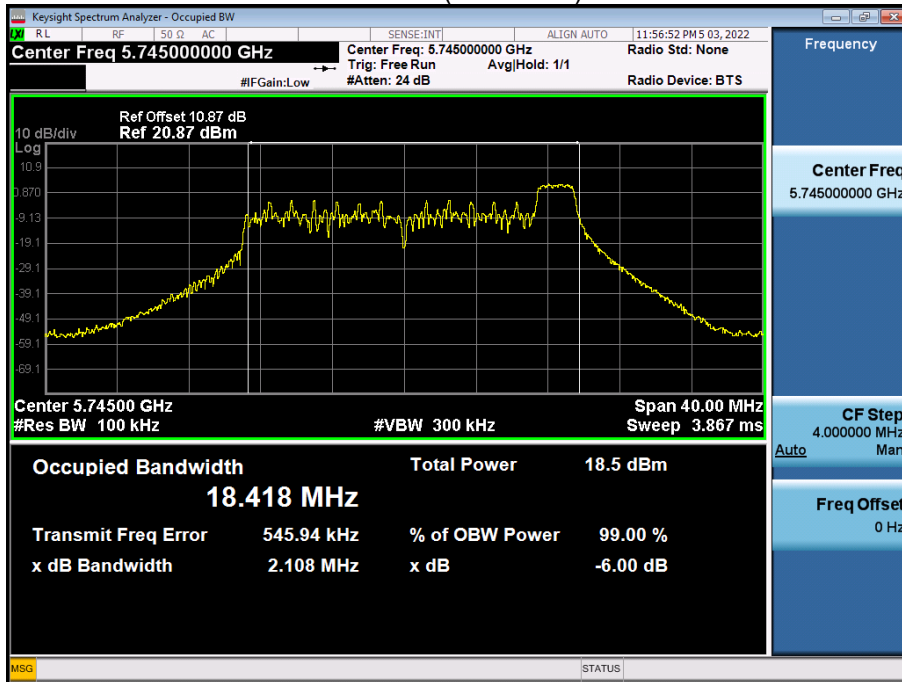


Bandwidth 80M Ch.155(5 775MHz) 26 Tone RU 0

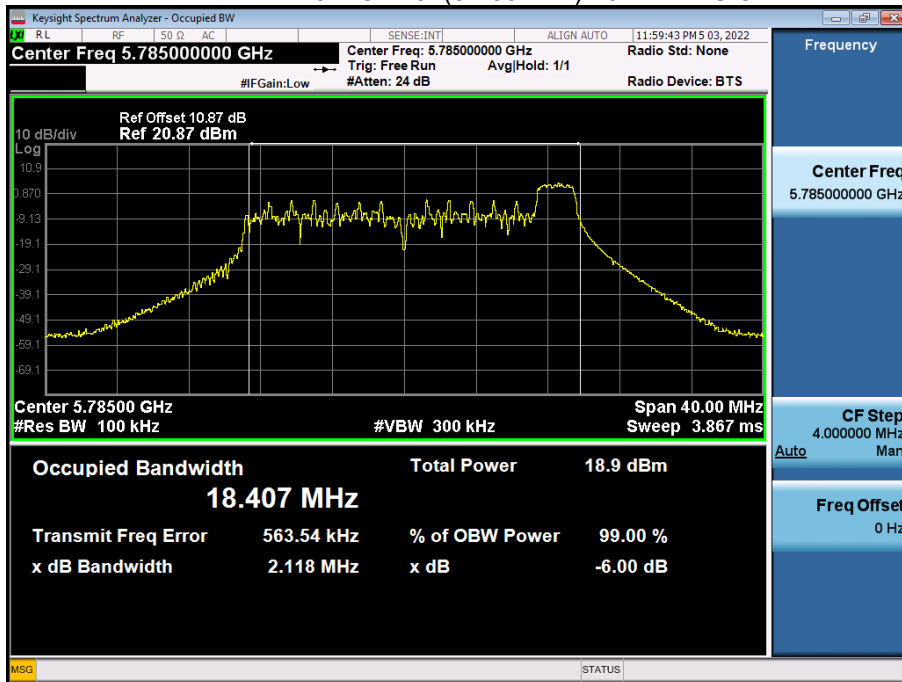


### 3.2 Ant2

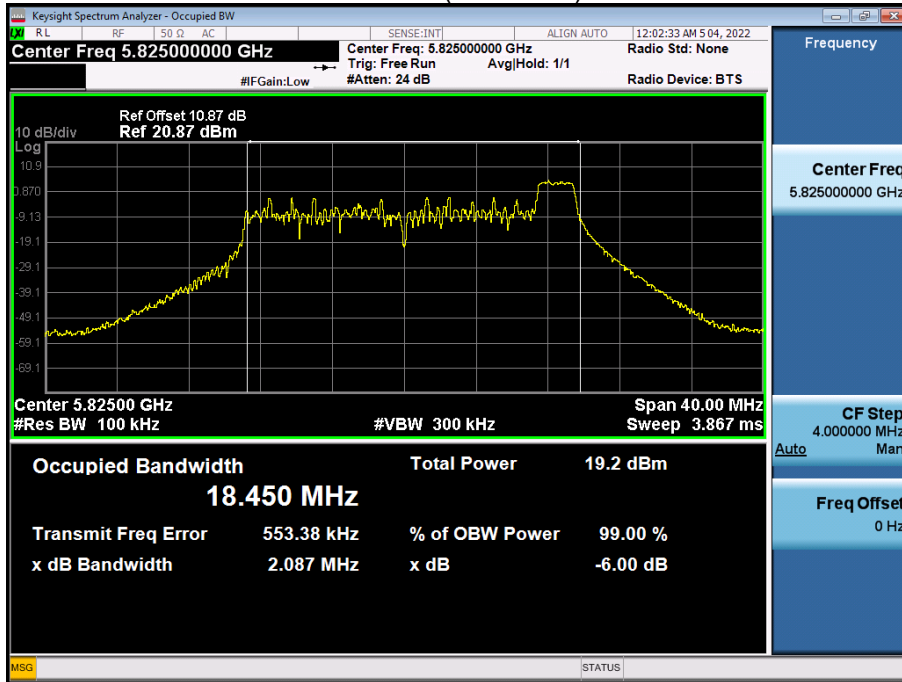
Bandwidth 20M Ch.149(5 745MHz) 26 Tone RU 8



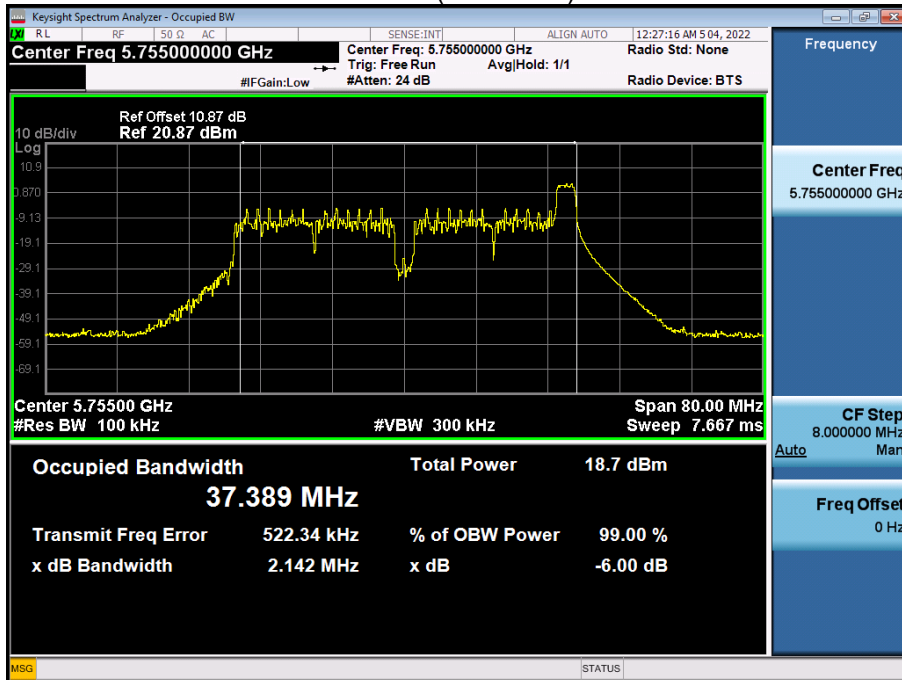
Bandwidth 20M Ch.157(5 785MHz) 26 Tone RU 8



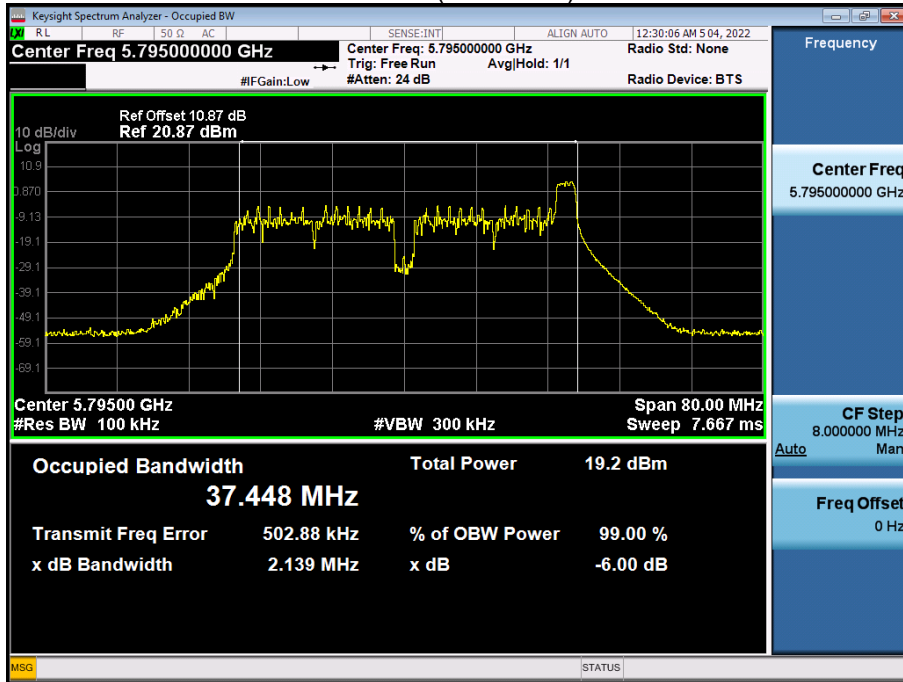
Bandwidth 20M Ch.165(5 825MHz) 26 Tone RU 8



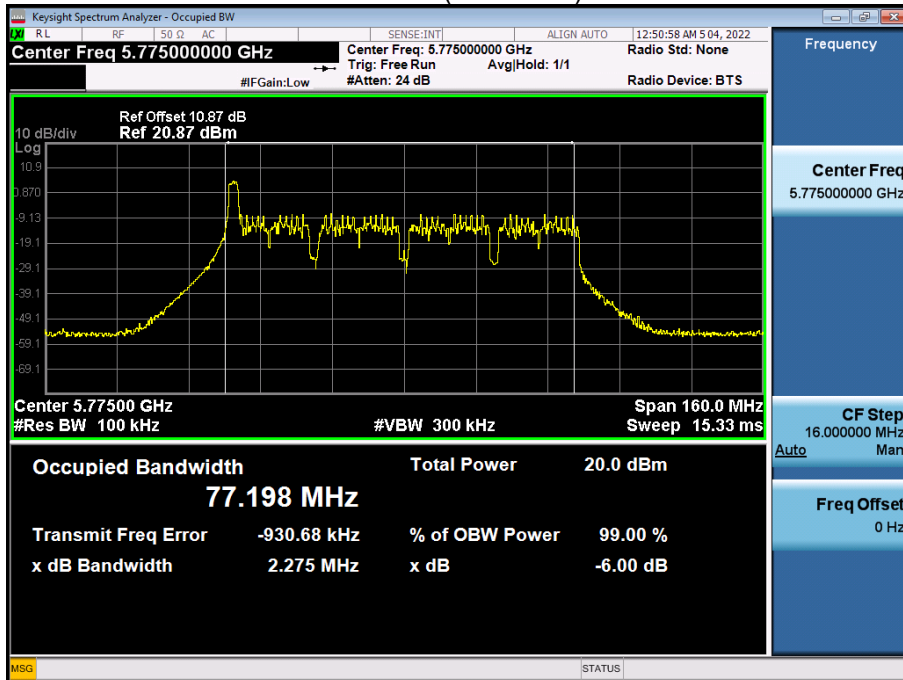
Bandwidth 40M Ch.151(5 755MHz) 26 Tone RU 17



Bandwidth 40M Ch.159(5 795MHz) 26 Tone RU 17



Bandwidth 80M Ch.155(5 775MHz) 26 Tone RU 0



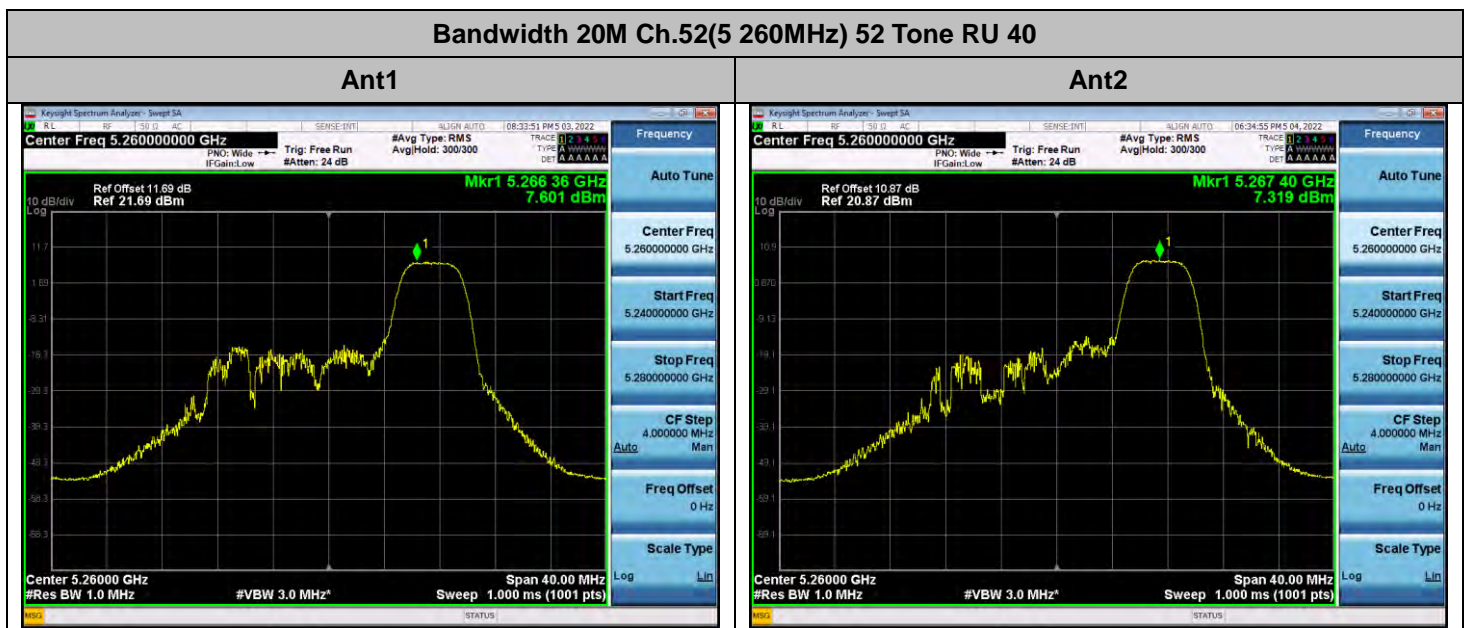


### 4. Power Spectral Density

**Note:**

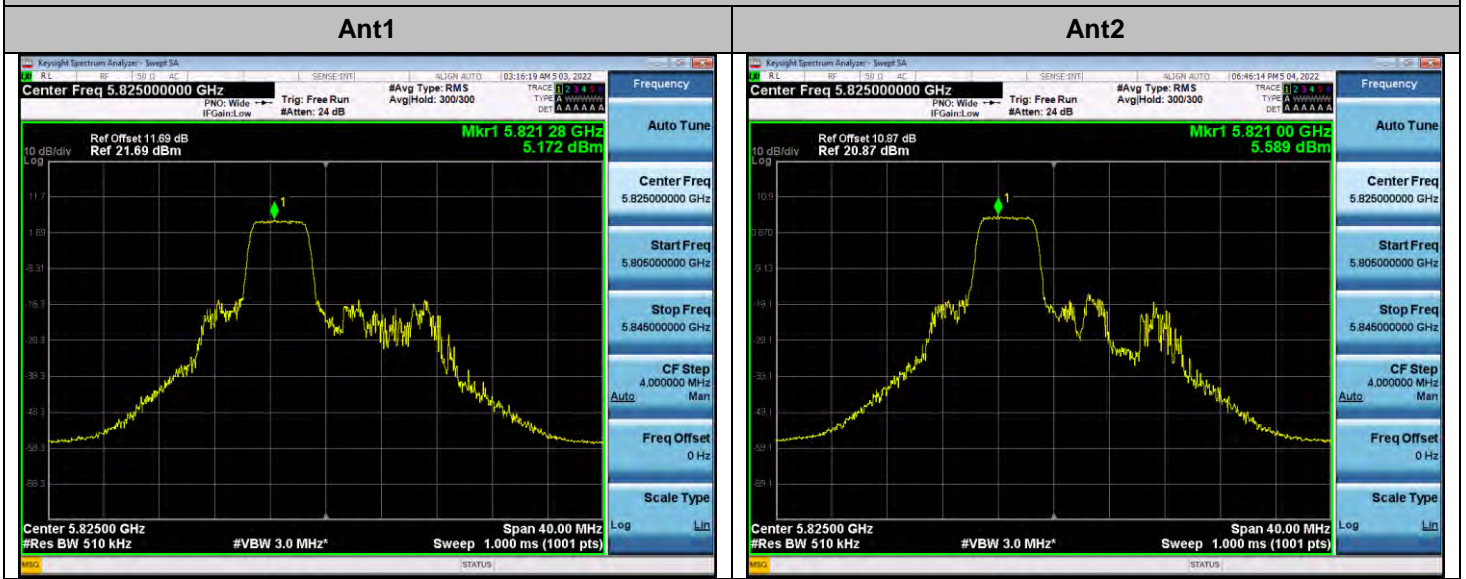
1. In order to simplify the report, attached plots were only channel of highest PSD.
2.  $MIMO\ PSD = 10 \cdot \log((10^{Ant1\ PSD(dBm)} / 10) + (10^{Ant2\ PSD(dBm)} / 10))$   
 Total MIMO PSD (dBm) = MIMO PSD(dBm) + Duty Cycle Factor(dB)
3. Duty Cycle factor was applied as 0.000 (Duty Cycle  $\geq$  98%)

#### 4.1 MIMO (Ant 1 + Ant 2)



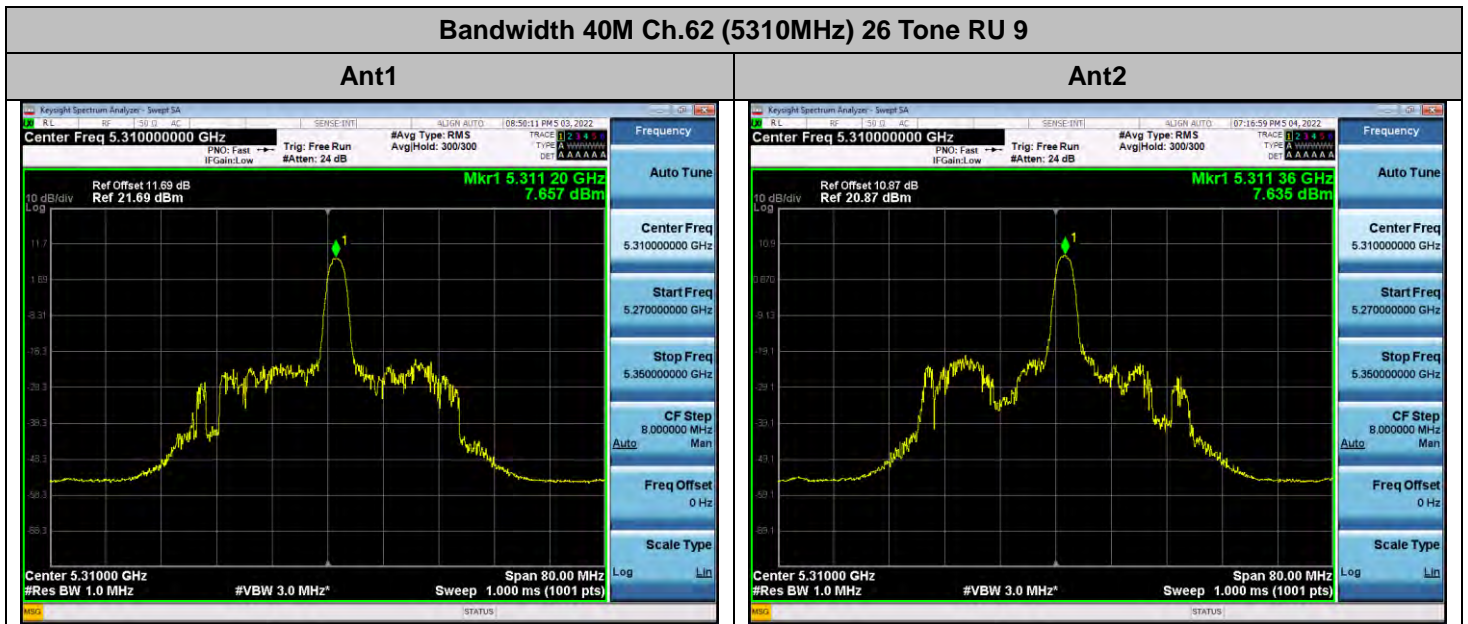
MIMO PSD (dBm)	Duty Cycle Factor (dB)	Total MIMO PSD (dBm)
10.473	0.000	10.473

**Bandwidth 20M Ch.165 (5 825MHz) 52 Tone RU 38**



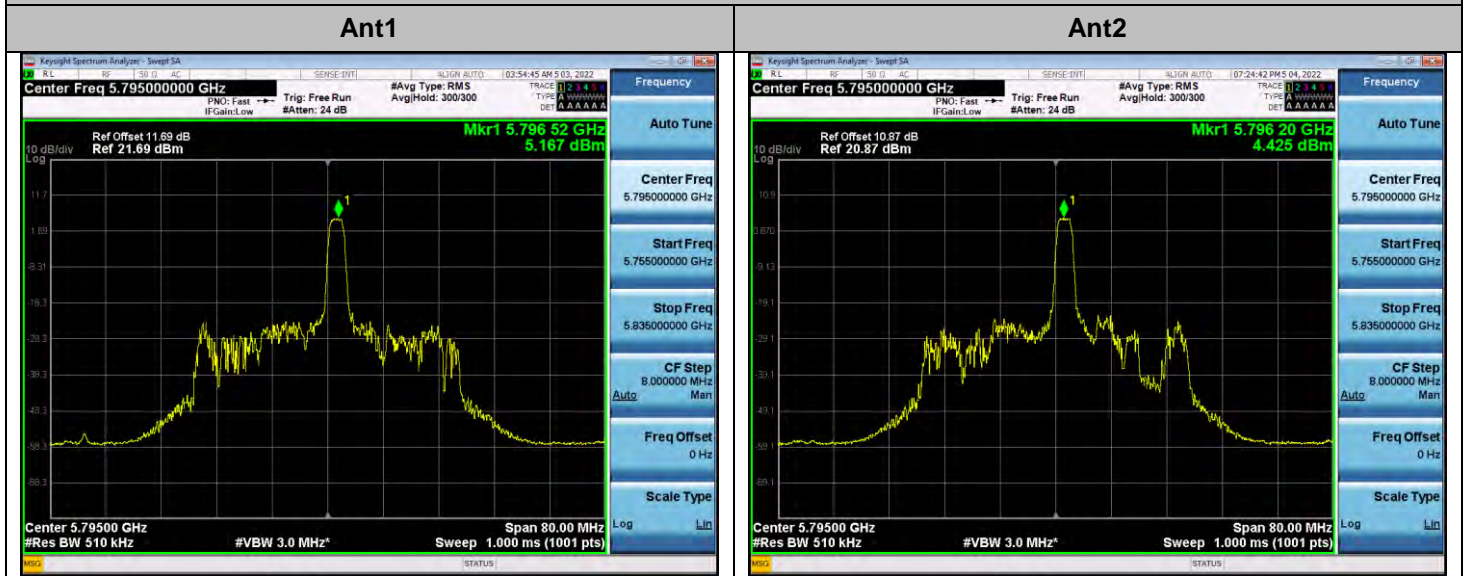
MIMO PSD (dBm)	Duty Cycle Factor (dB)	Total MIMO PSD (dBm)
8.396	0.000	8.396

**Bandwidth 40M Ch.62 (5310MHz) 26 Tone RU 9**



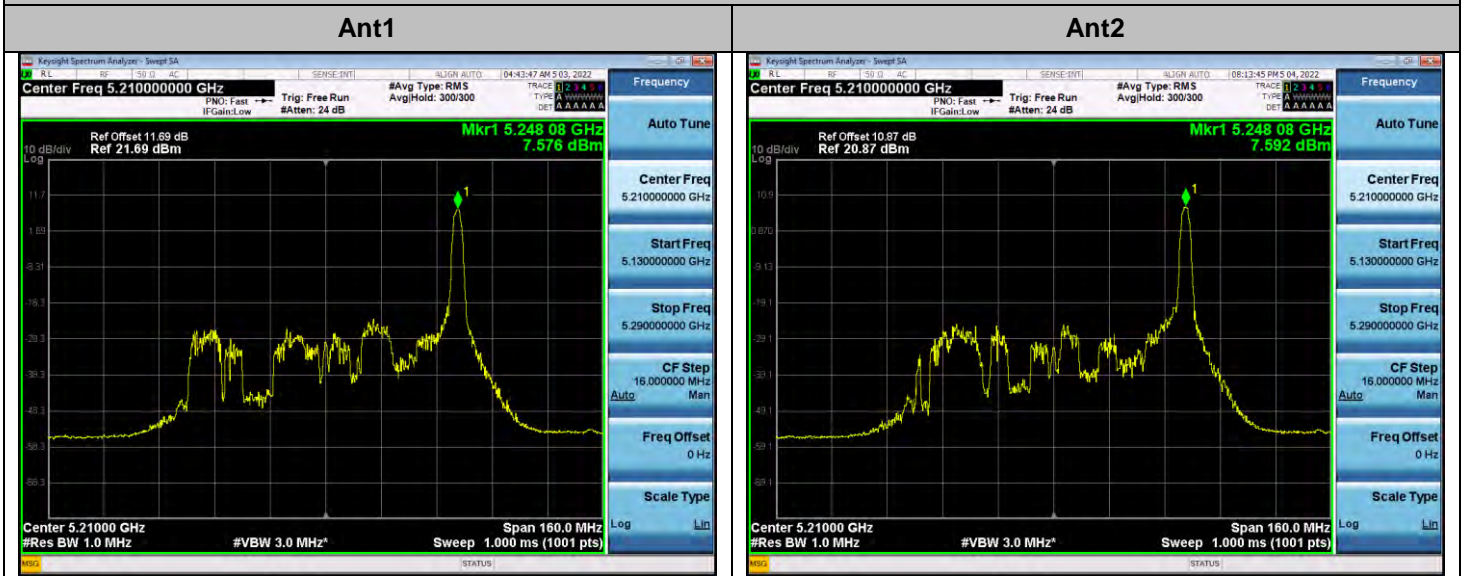
MIMO PSD (dBm)	Duty Cycle Factor (dB)	Total MIMO PSD (dBm)
10.656	0.000	10.656

**Bandwidth 40M Ch.159 (5 795MHz) 26 Tone RU 9**



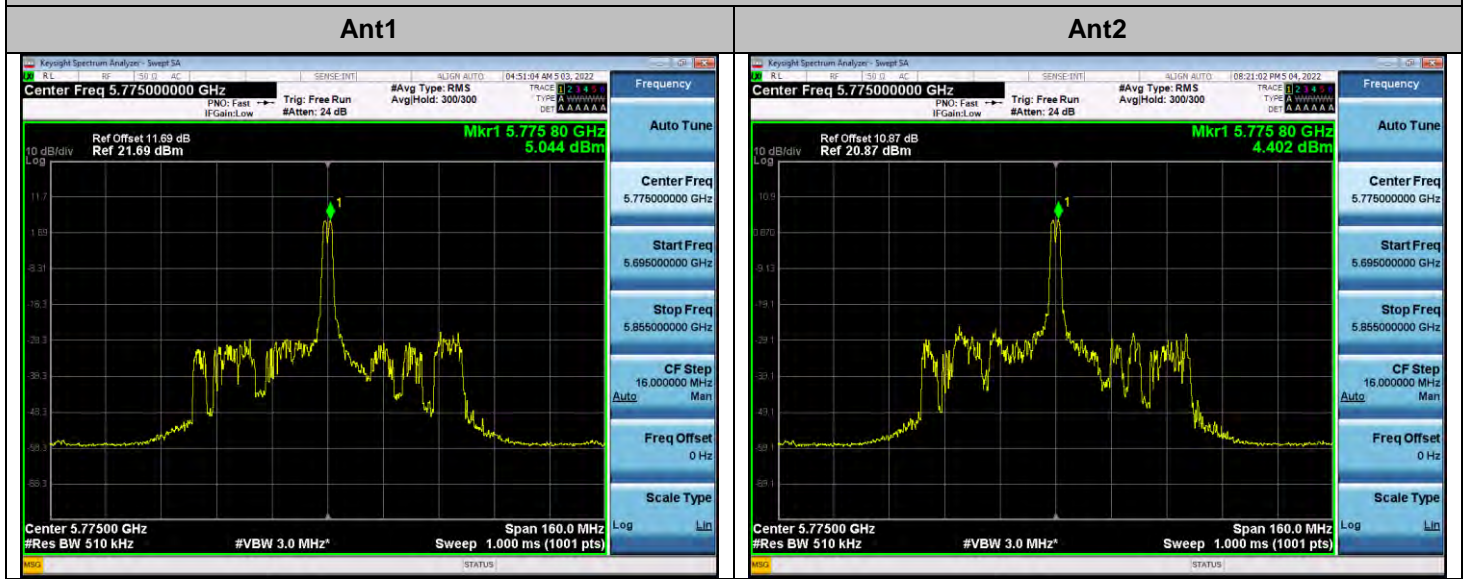
MIMO PSD (dBm)	Duty Cycle Factor (dB)	Total MIMO PSD (dBm)
7.822	0.000	7.822

**Bandwidth 80M Ch.42 (5 210MHz) 26 Tone RU 36**



MIMO PSD (dBm)	Duty Cycle Factor (dB)	Total MIMO PSD (dBm)
10.594	0.000	10.594

**Bandwidth 80M Ch.155 (5 775MHz) 26 Tone RU 18**



MIMO PSD (dBm)	Duty Cycle Factor (dB)	Total MIMO PSD (dBm)
7.745	0.000	7.745

## 5. Straddle Channel

### 5.1 26dB Bandwidth

**Note:**

1. In order to simplify the report, attached plots were only the most wide channel.
2. [UNII 2C] 26dB Bandwidth = 5 725MHz - Measured Frequency[MHz]
3. [UNII 3] 26dB Bandwidth = Measured Frequency[MHz] -5 725MHz

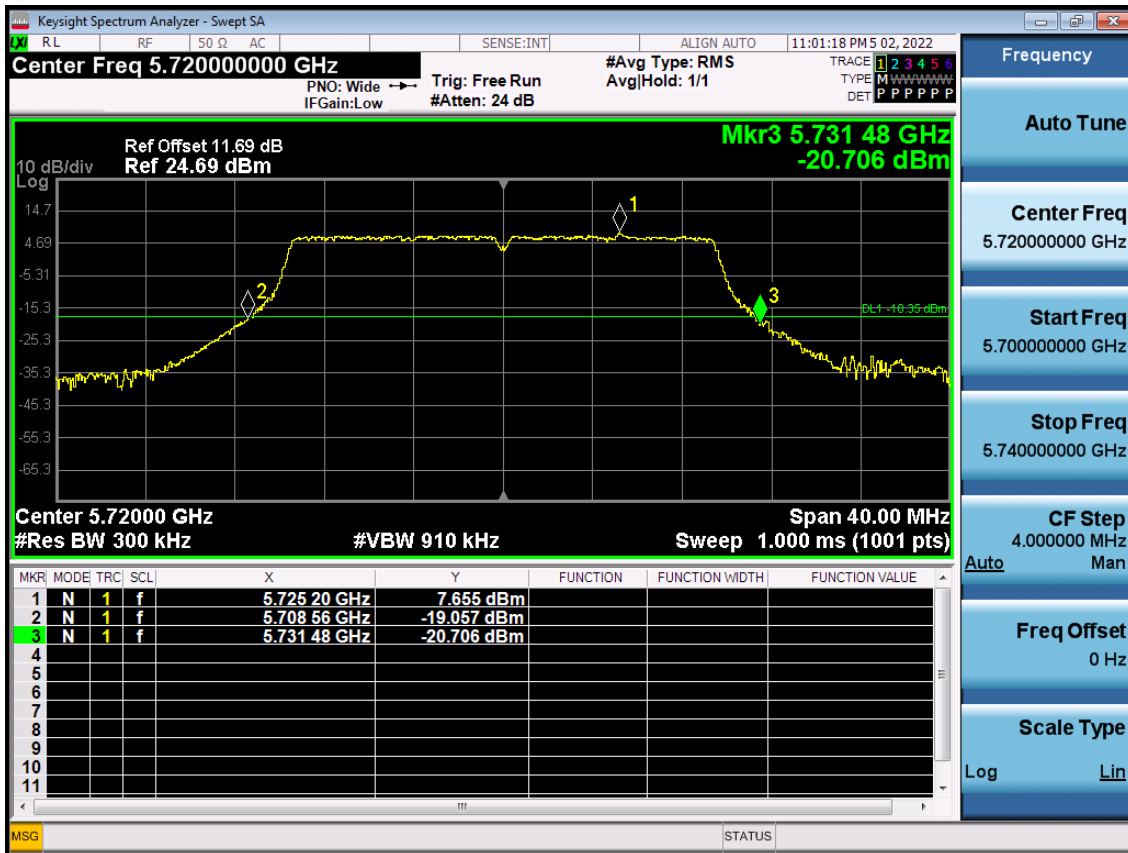
#### 5.1.1 Ant1

(26dB) Bandwidth 20M Ch.144(5 720MHz) 106 Tone RU 53



UNII 2C	5 725 [MHz]	Measured Frequency [MHz]	26dB Bandwidth [MHz]
	5 725	5 708.4	16.60

(26dB) Bandwidth 20M Ch.144(5 720MHz) 242 Tone RU 61



UNII 3	Measured Frequency [MHz]	5 725 [MHz]	26dB Bandwidth [MHz]
		5 731.48	5 725

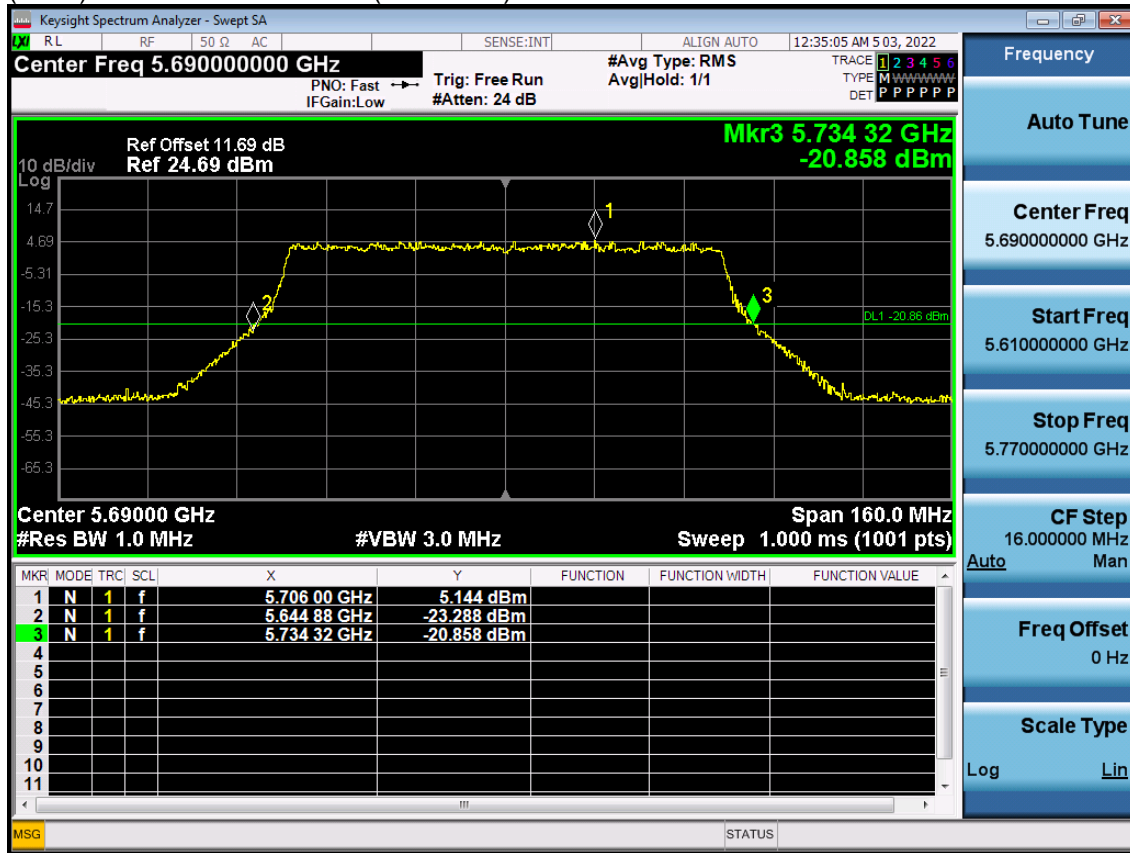


(26dB) Bandwidth 40M Ch.142(5 710MHz) 484 Tone RU 65



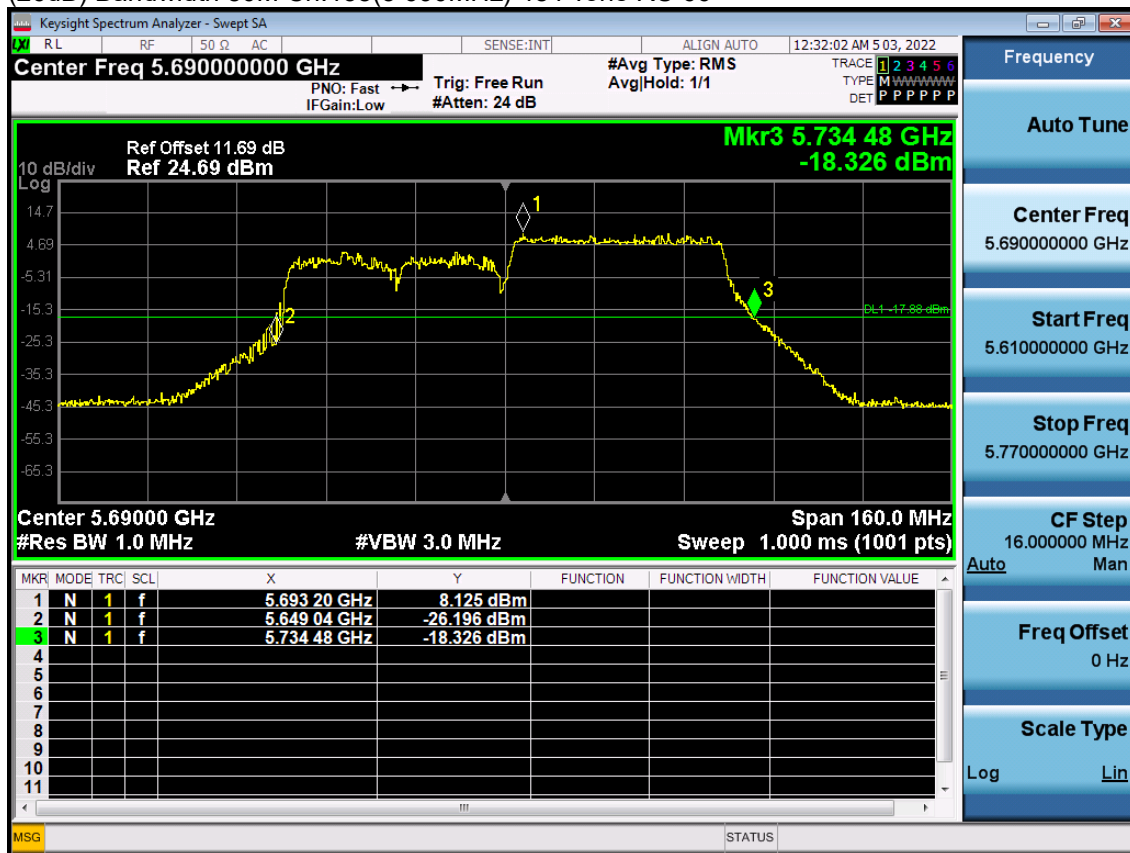
UNII 2C	5 725 [MHz]	Measured Frequency [MHz]	26dB Bandwidth [MHz]
	5 725	5 687.76	37.24
UNII 3	Measured Frequency [MHz]	5 725 [MHz]	26dB Bandwidth [MHz]
	5 732	5 725	7.00

(26dB) Bandwidth 80M Ch.138(5 690MHz) 996 Tone RU 67



UNII 2C	5 725 [MHz]	Measured Frequency [MHz]	26dB Bandwidth [MHz]
	5 725	5 644.88	80.12

(26dB) Bandwidth 80M Ch.138(5 690MHz) 484 Tone RU 66



UNII 3	Measured Frequency [MHz]	5 725 [MHz]	26dB Bandwidth [MHz]
		5 734.48	5 725

### 5.1.2 Ant2

(26dB) Bandwidth 20M Ch.144(5 720MHz) 106 Tone RU 53



UNII 2C	5 725 [MHz]	Measured Frequency [MHz]	26dB Bandwidth [MHz]
		5 725	5 708.36

(26dB) Bandwidth 20M Ch.144(5 720MHz) 106 Tone RU 54

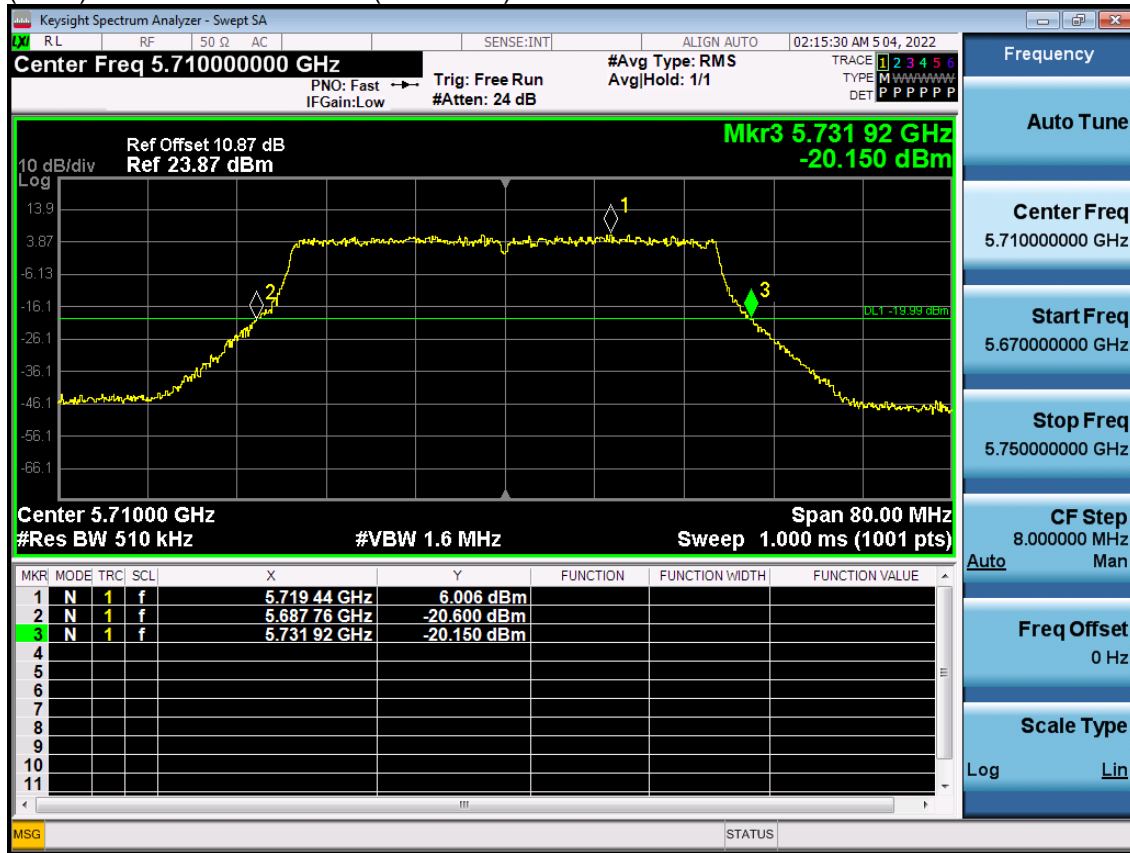


UNII 3	Measured Frequency [MHz]	5 725 [MHz]	26dB Bandwidth [MHz]
		5 731.52	5 725

**Note:**

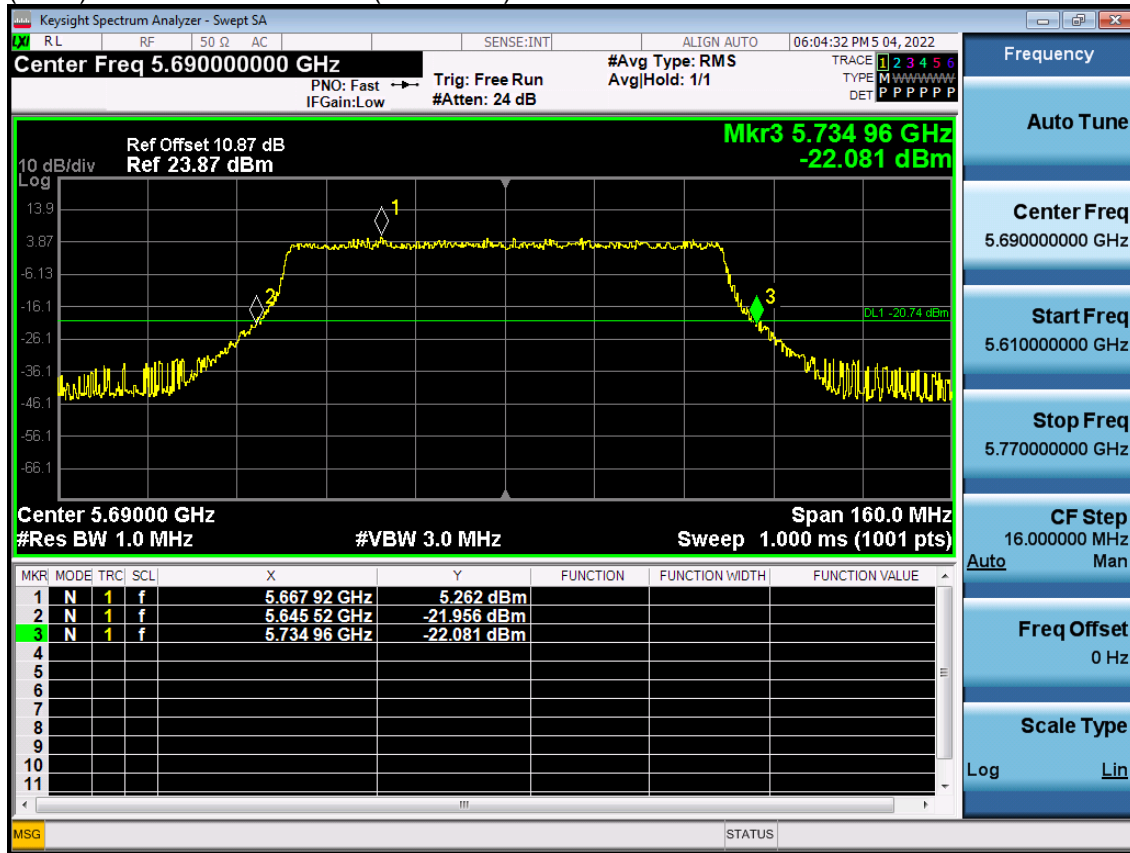
1. [UNII 3] 26dB Bandwidth = Measured Frequency[MHz] - 5 725MHz

(26dB) Bandwidth 40M Ch.142(5 710MHz) 484 Tone RU 65



UNII 2C	5 725 [MHz]	Measured Frequency [MHz]	26dB Bandwidth [MHz]
	5 725	5 687.76	37.24
UNII 3	Measured Frequency [MHz]	5 725 [MHz]	26dB Bandwidth [MHz]
	5 731.92	5 725	6.92

(26dB) Bandwidth 40M Ch.138(5 690MHz) 996 Tone RU 67



UNII 2C	5 725 [MHz]	Measured Frequency [MHz]	26dB Bandwidth [MHz]
	5 725	5 645.52	79.48
UNII 3	Measured Frequency [MHz]	5 725 [MHz]	26dB Bandwidth [MHz]
	5 734.96	5 725	9.96

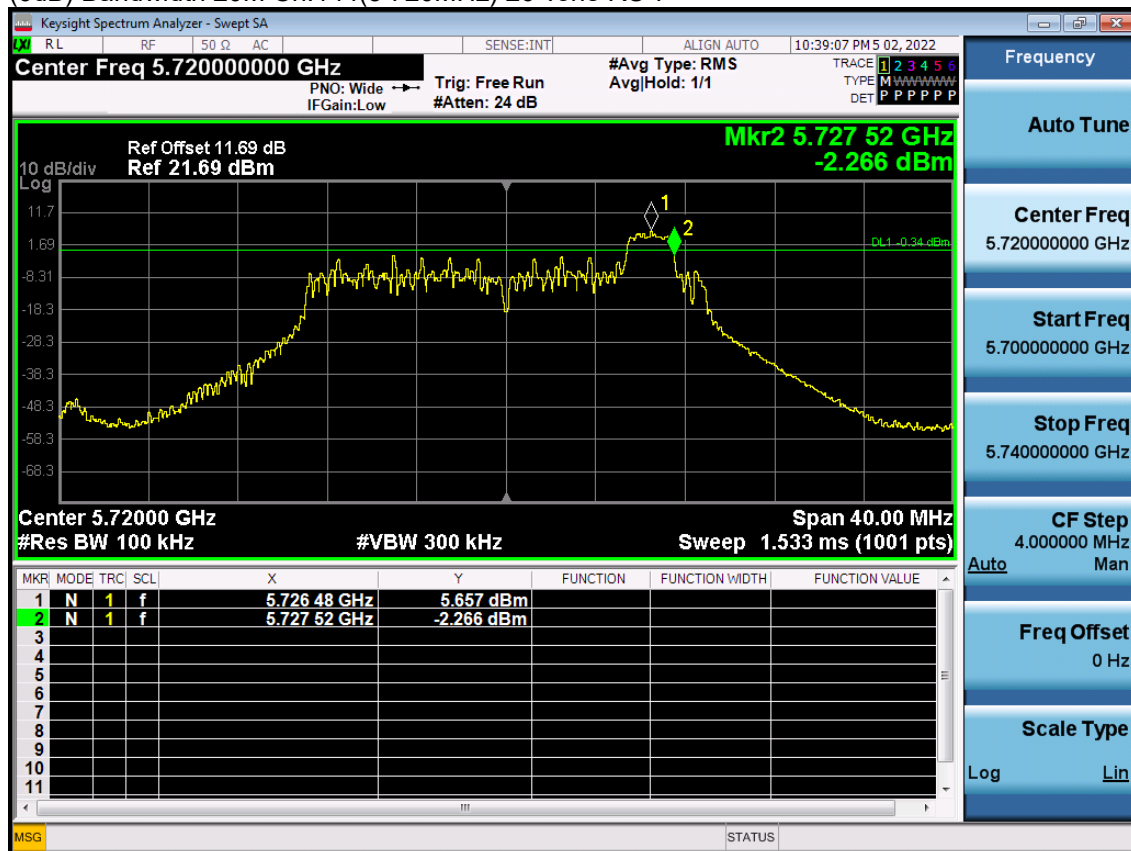
## 5.2 6dB Bandwidth

**Note:**

1. In order to simplify the report, attached plots were only the most narrow channel.
2. 6dB Bandwidth = Measured Frequency[MHz] – 5 725MHz

### 5.2.1 Ant1

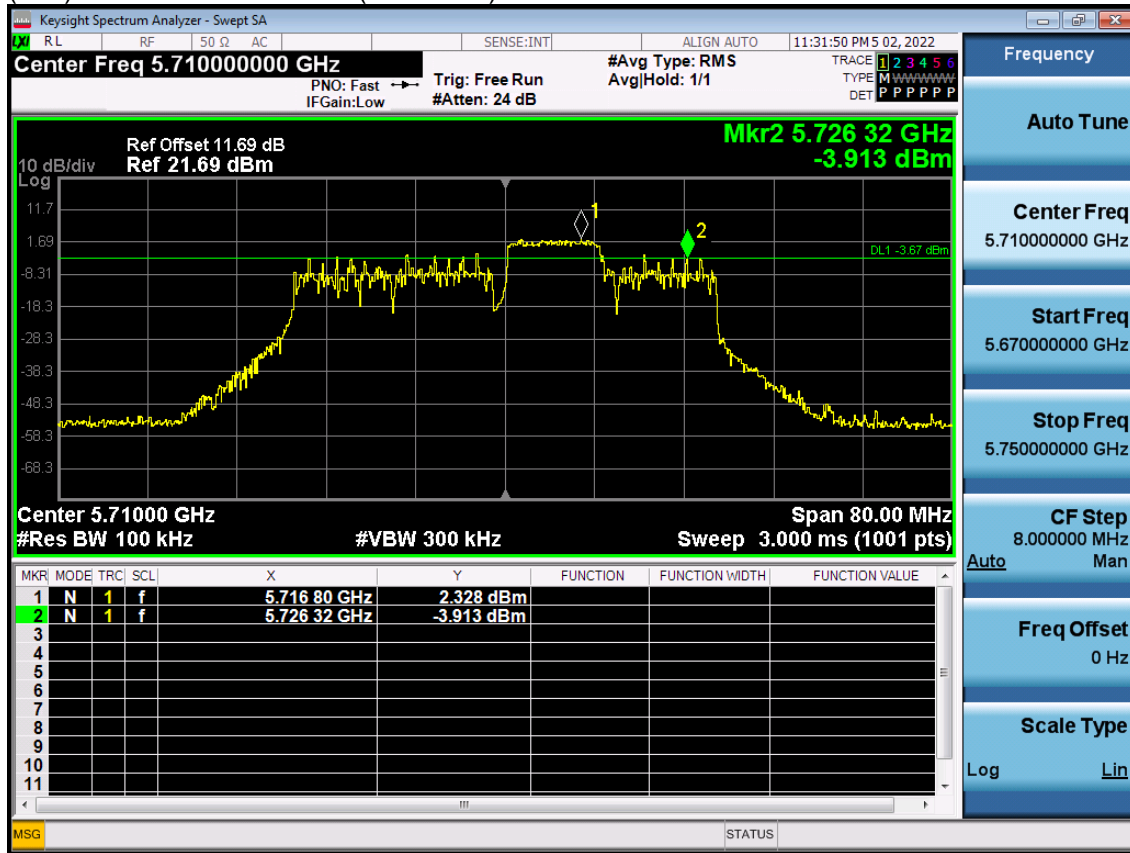
(6dB) Bandwidth 20M Ch.144(5 720MHz) 26 Tone RU 7



Measured Frequency [MHz]	5 725 [MHz]	6dB Bandwidth [MHz]
5 727.52	5 725	2.52

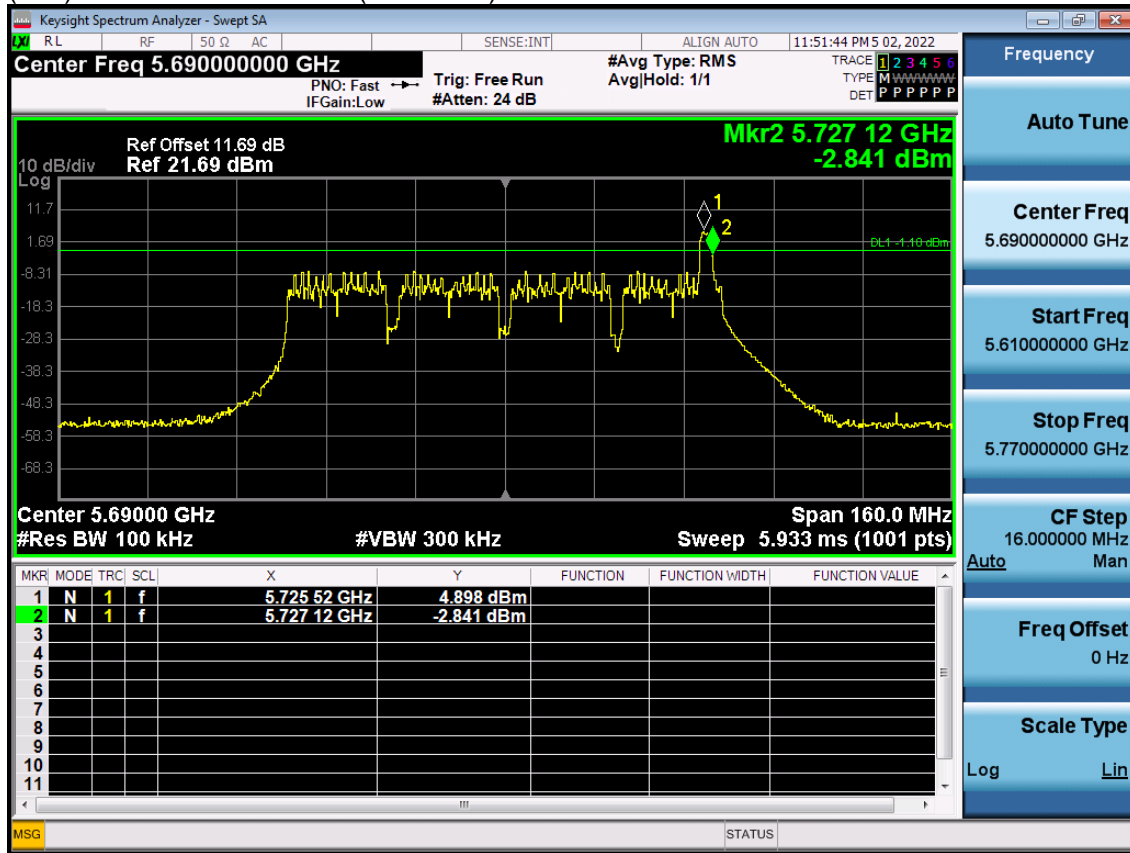


(6dB) Bandwidth 40M Ch.142(5 710MHz) 106 Tone RU 55



Measured Frequency [MHz]	5 725 [MHz]	6dB Bandwidth [MHz]
5 726.32	5 725	1.32

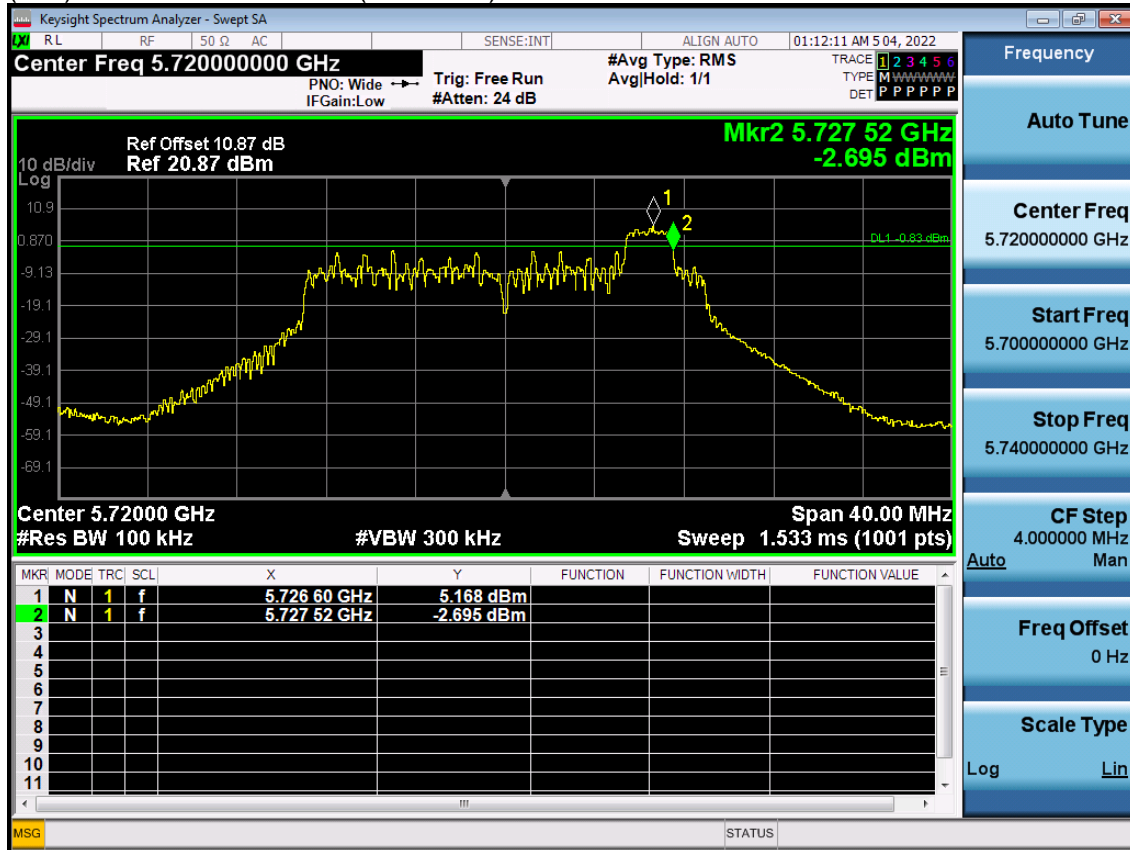
(6dB) Bandwidth 80M Ch.138(5 690MHz) 26 Tone RU 35



Measured Frequency [MHz]	5 725 [MHz]	6dB Bandwidth [MHz]
5 727.12	5 725	2.12

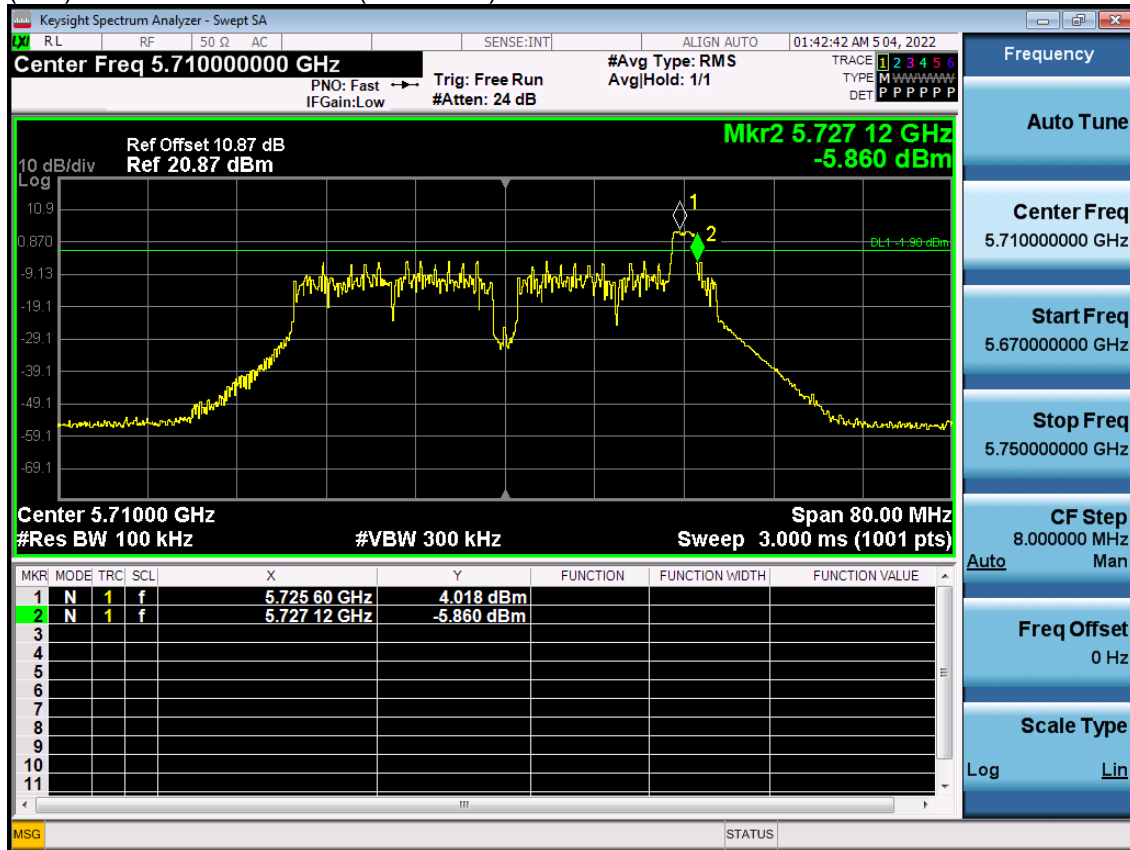
### 5.2.2 Ant2

(6dB) Bandwidth 20M Ch.144(5 720MHz) 26 Tone RU 7



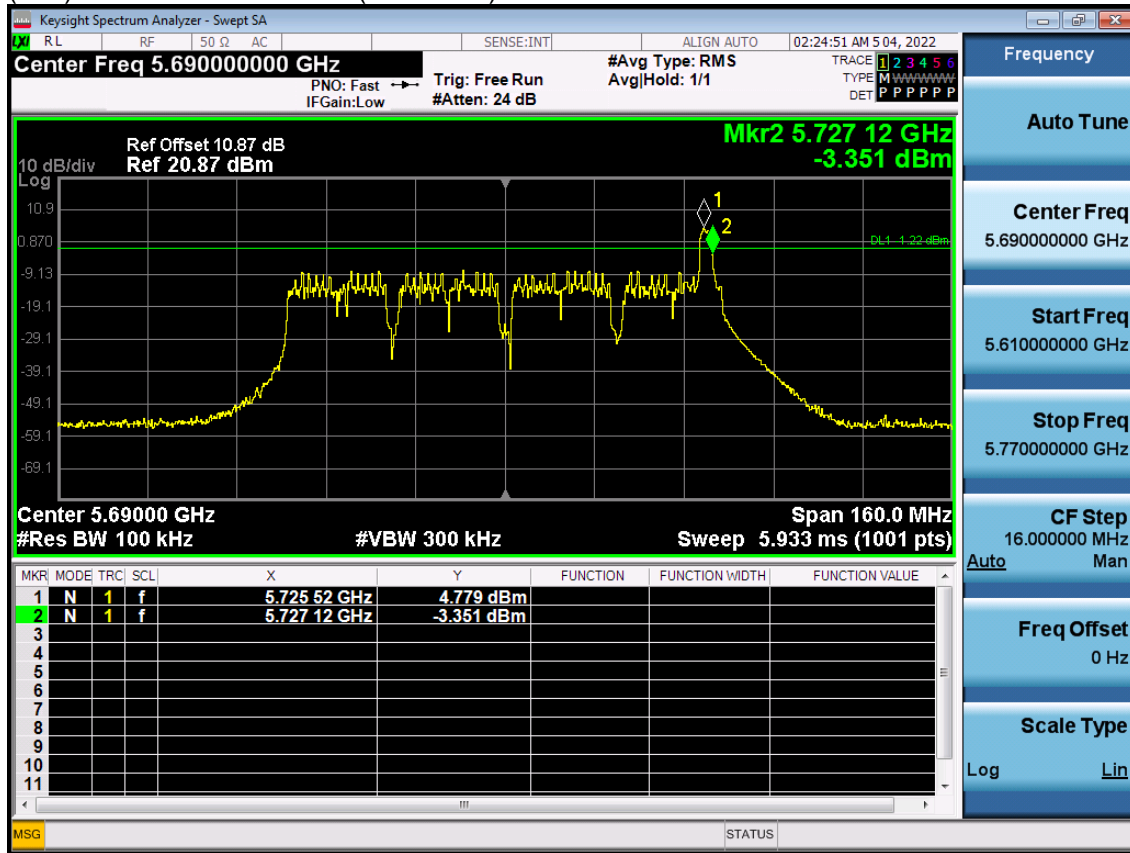
Measured Frequency [MHz]	5 725 [MHz]	6dB Bandwidth [MHz]
5 727.52	5 725	2.52

(6dB) Bandwidth 40M Ch.142(5 710MHz) 26 Tone RU 16



Measured Frequency [MHz]	5 725 [MHz]	6dB Bandwidth [MHz]
5 727.12	5 725	2.12

(6dB) Bandwidth 80M Ch.138(5 690MHz) 26 Tone RU 35



Measured Frequency [MHz]	5 725 [MHz]	6dB Bandwidth [MHz]
5 727.12	5 725	2.12

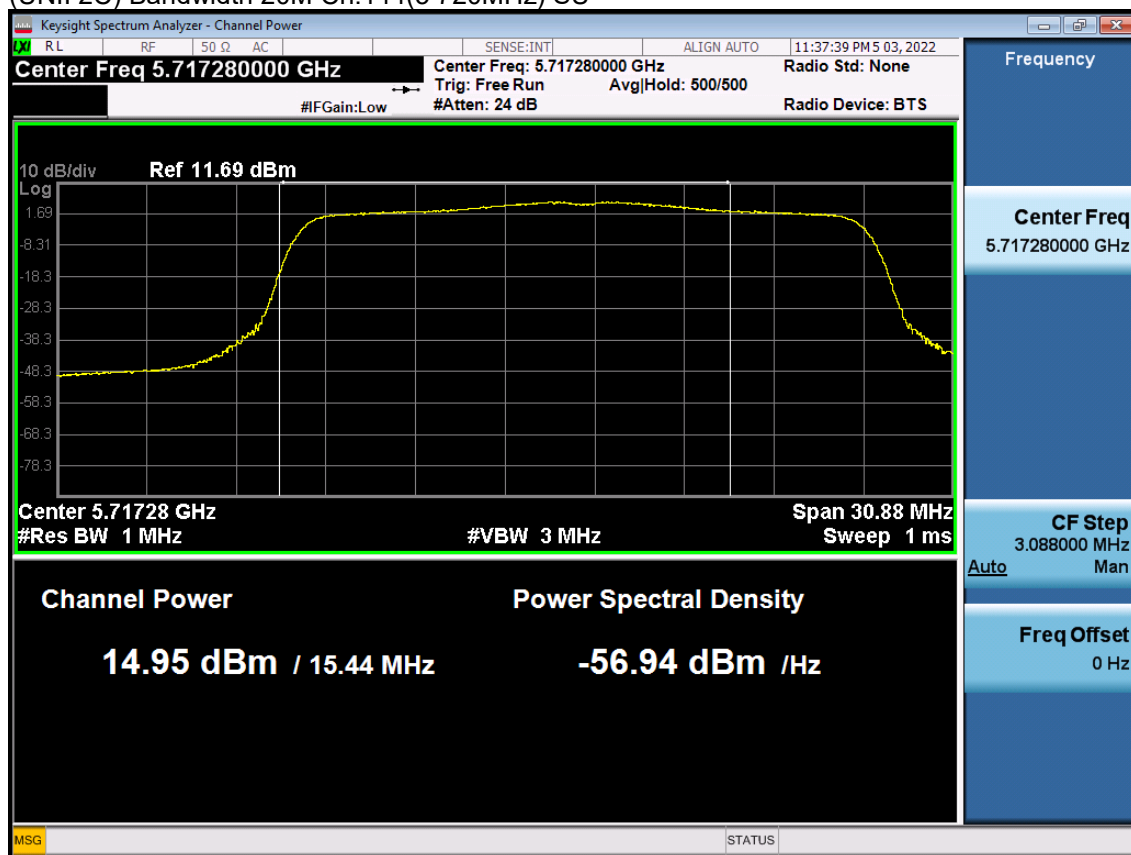
### 5.3 Output Power

**Note:**

1. In order to simplify the report, attached plots were only channel of highest Power.
2. Total Power(dBm) = Reading Value(dBm) + Duty Cycle Factor(dB)
3. Duty Cycle factor was applied as 0.000 (Duty Cycle ≥ 98%)

#### 5.3.1 Ant1

(UNII 2C) Bandwidth 20M Ch.144(5 720MHz) SU



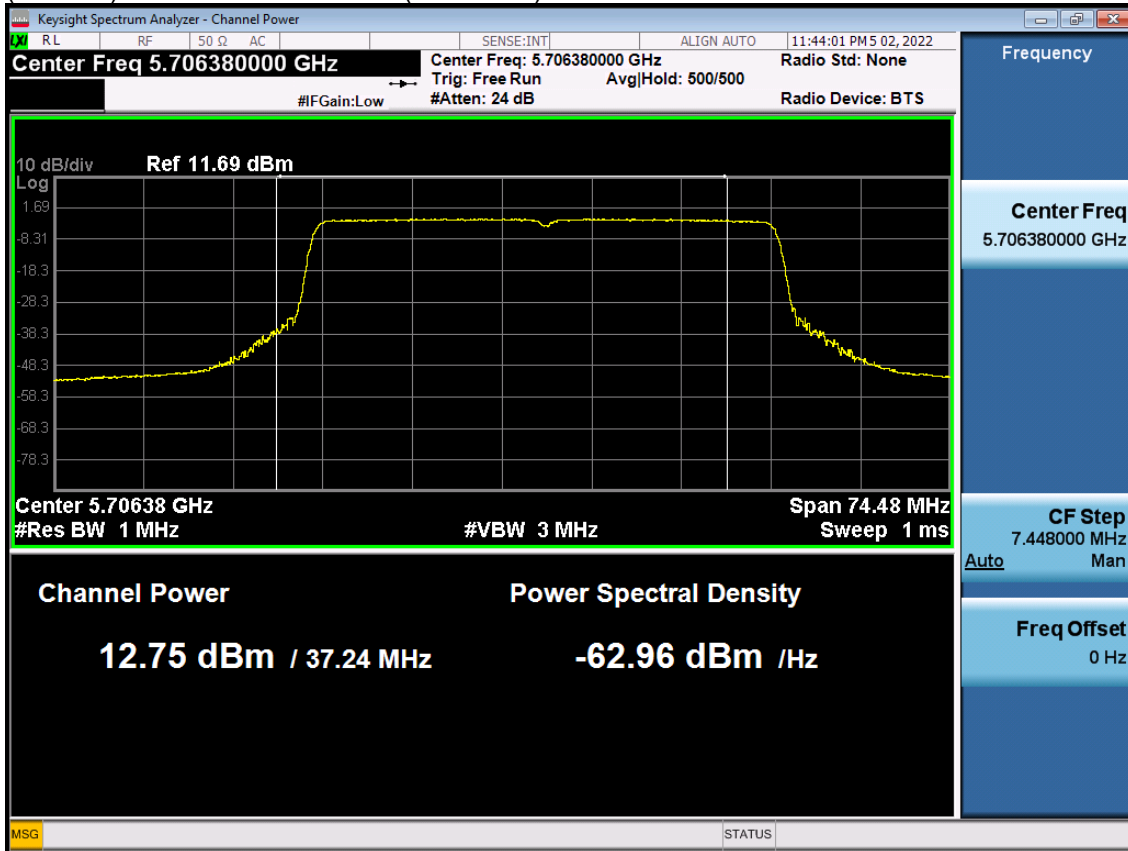
Reading Value (dBm)	Duty Cycle Factor (dB)	Total Power (dBm)
14.95	0.000	14.95

(UNII 3) Bandwidth 20M Ch.144(5 720MHz) 52 Tone RU 40



Reading Value (dBm)	Duty Cycle Factor (dB)	Total Power (dBm)
12.65	0.000	12.65

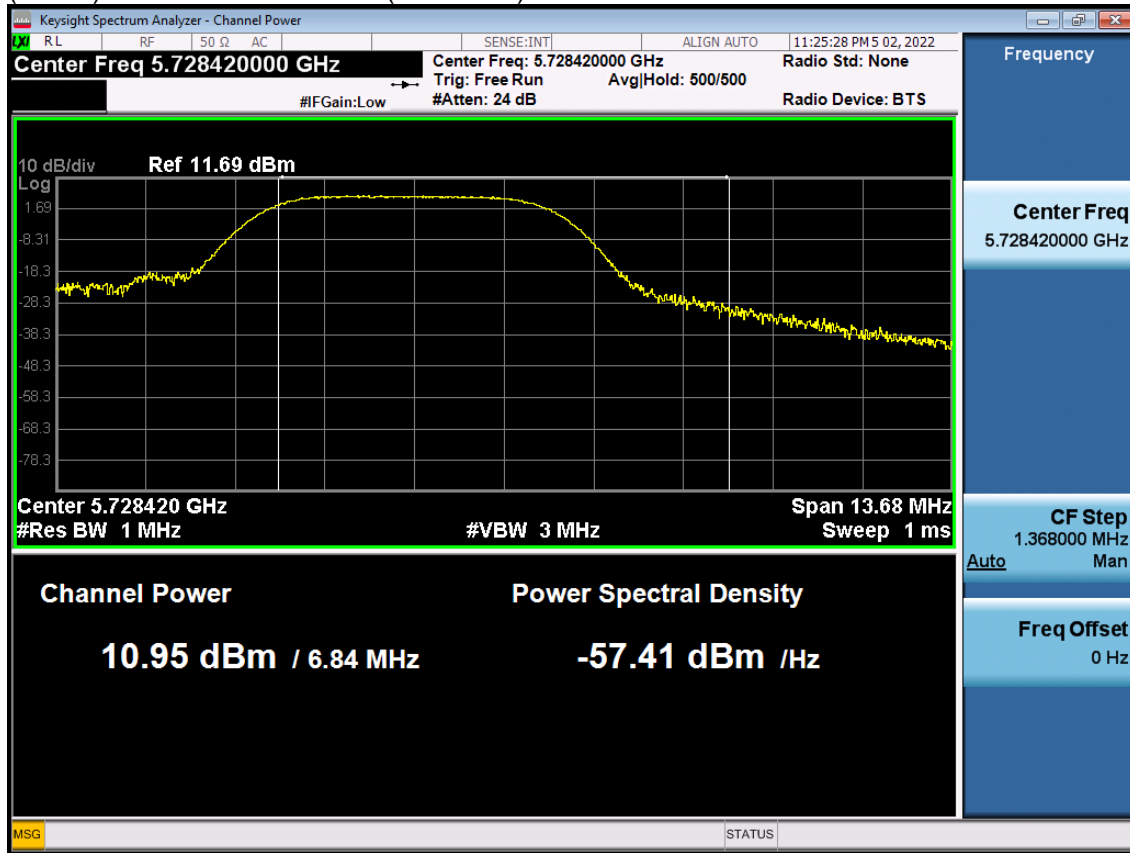
(UNII 2C) Bandwidth 40M Ch.142(5 710MHz) 484 Tone RU 65



Reading Value (dBm)	Duty Cycle Factor (dB)	Total Power (dBm)
12.75	0.000	12.75

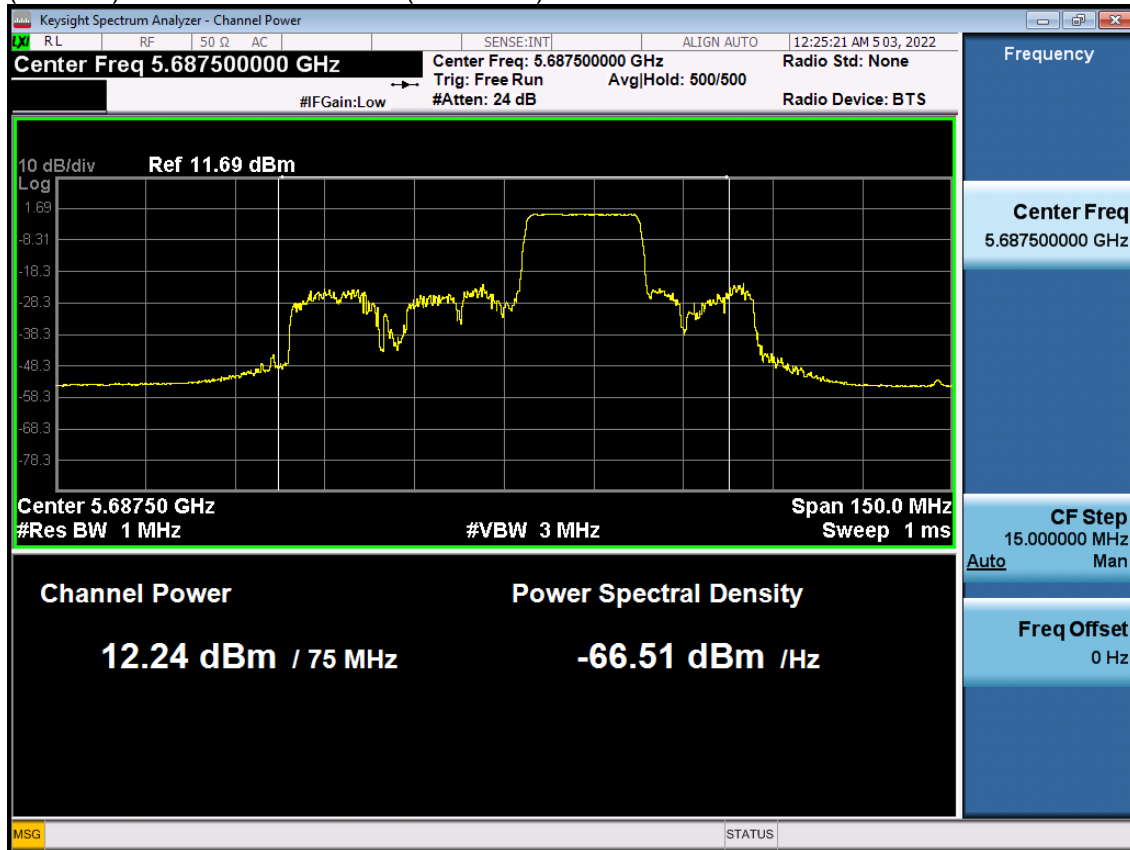


(UNII 3) Bandwidth 40M Ch.142(5 710MHz) 52 Tone RU 44



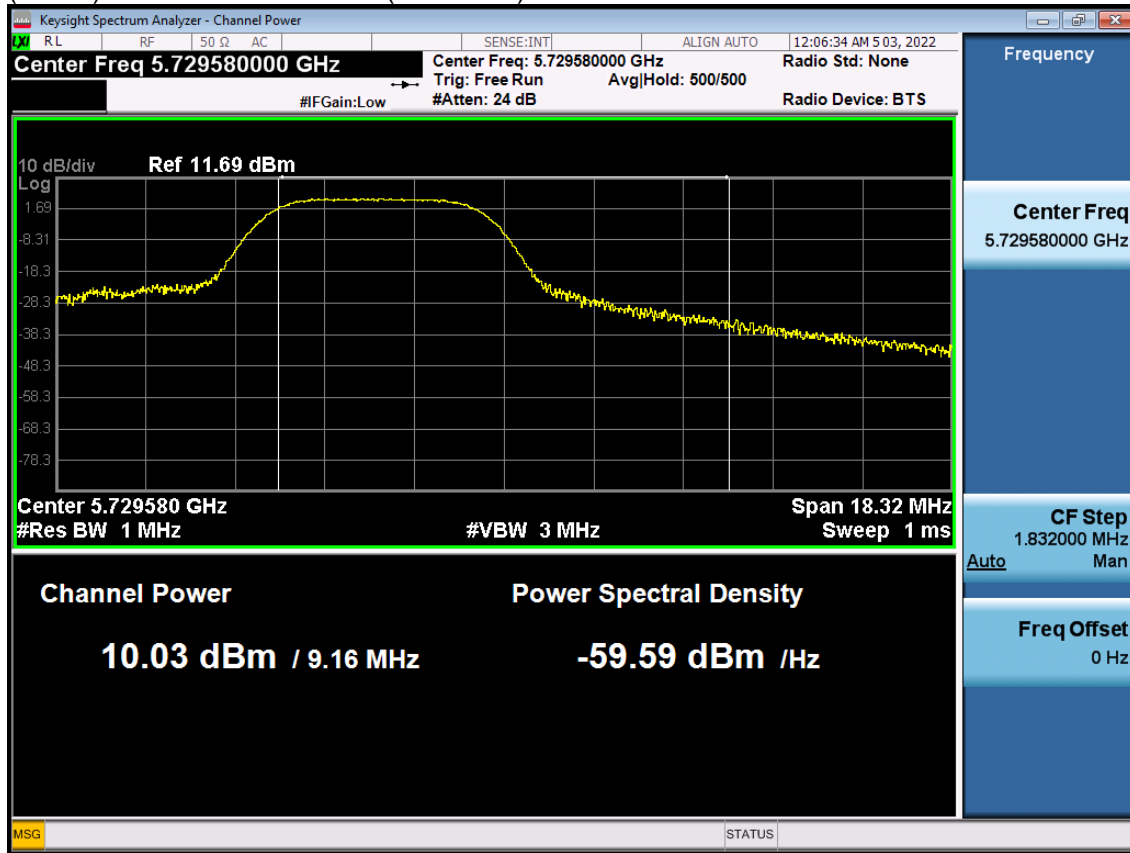
Reading Value (dBm)	Duty Cycle Factor (dB)	Total Power (dBm)
10.95	0.000	10.95

(UNII 2C) Bandwidth 80M Ch.138(5 690MHz) 242 Tone RU 63



Reading Value (dBm)	Duty Cycle Factor (dB)	Total Power (dBm)
12.24	0.000	12.24

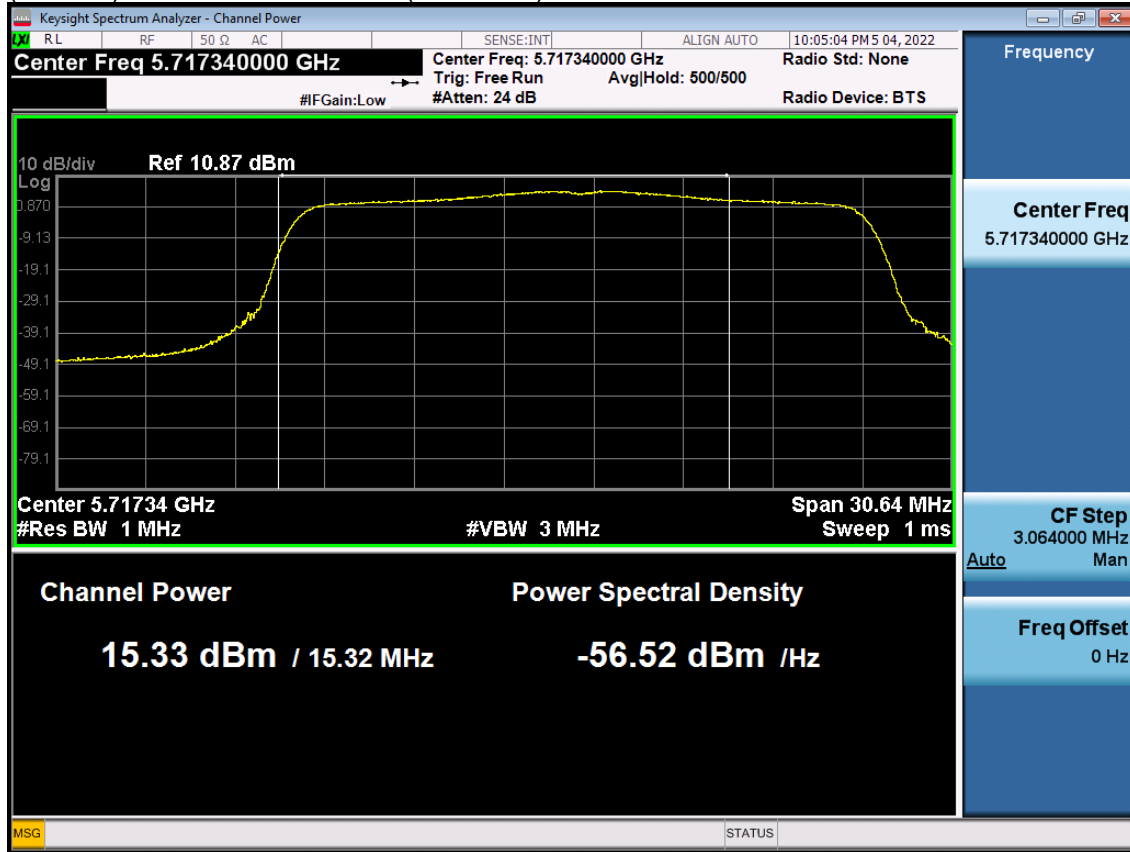
(UNII 3) Bandwidth 80M Ch.138(5 690MHz) 52 Tone RU 52



Reading Value (dBm)	Duty Cycle Factor (dB)	Total Power (dBm)
10.03	0.000	10.03

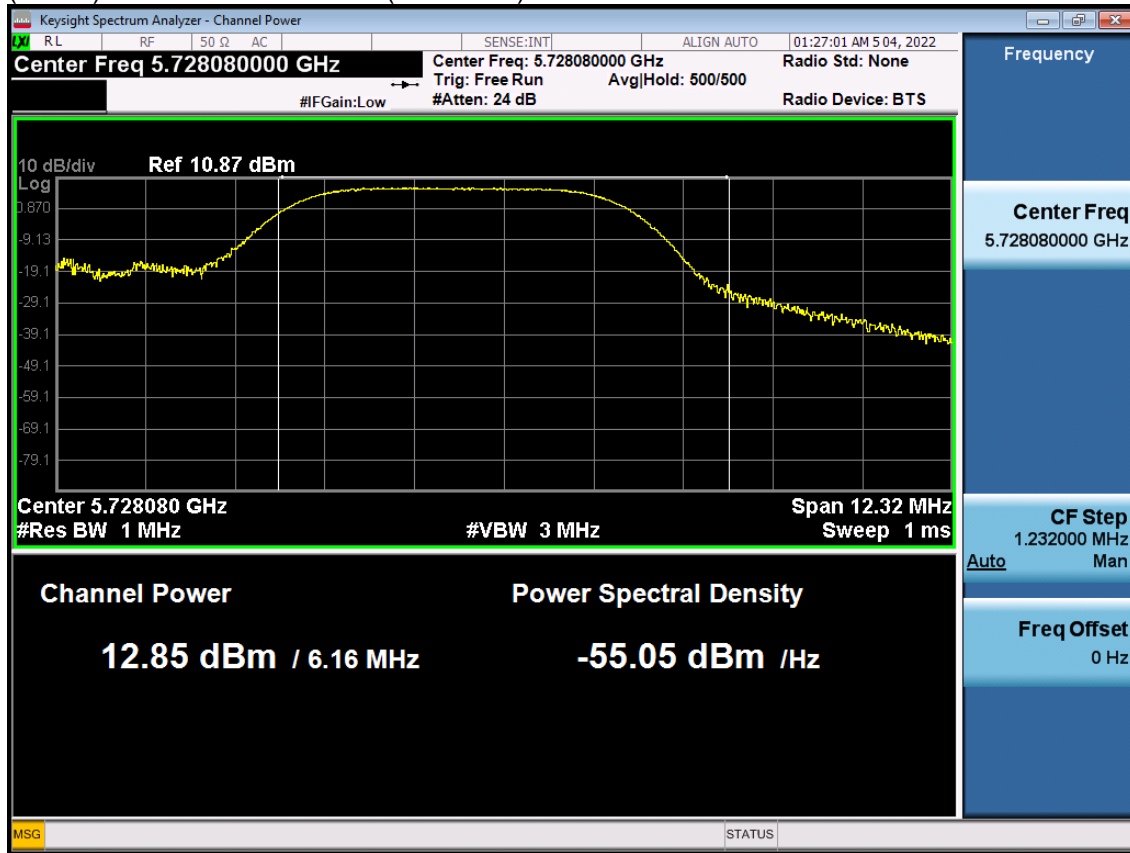
### 5.3.2 Ant2

(UNII 2C) Bandwidth 20M Ch.144(5 720MHz) SU



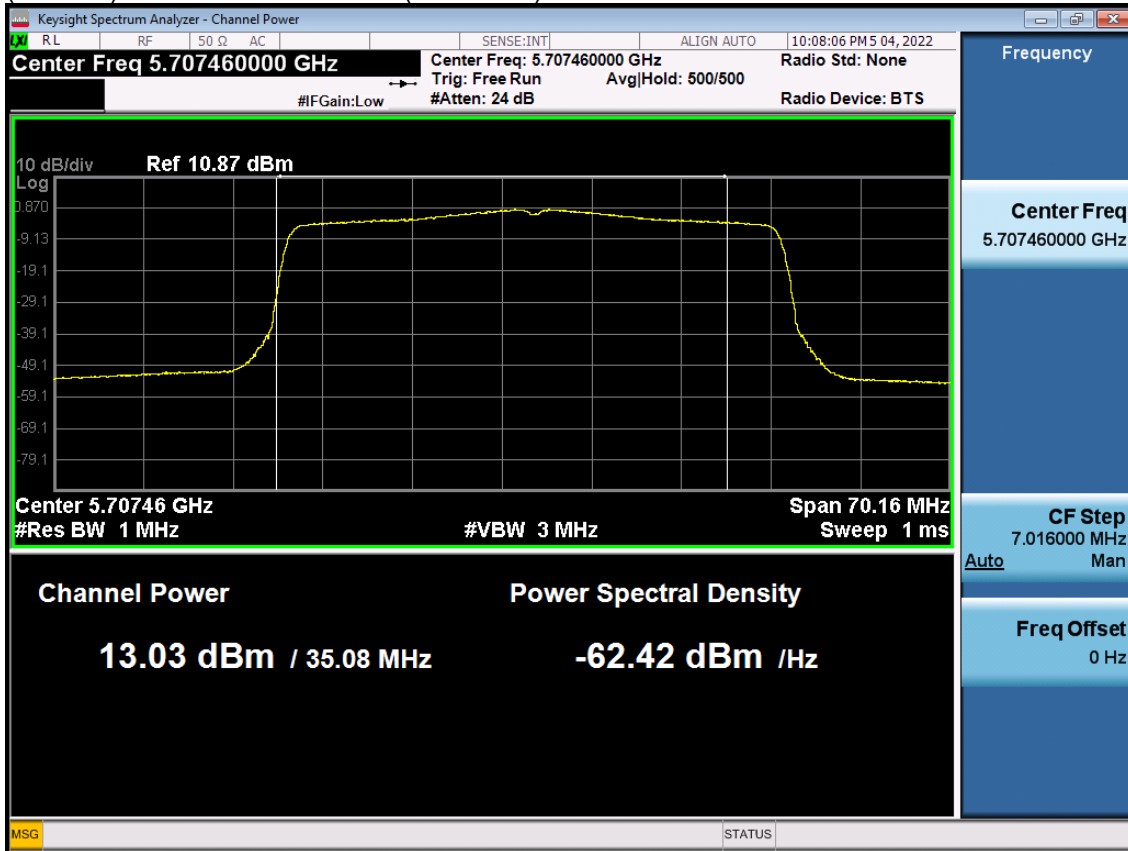
Reading Value (dBm)	Duty Cycle Factor (dB)	Total Power (dBm)
15.33	0.000	15.33

(UNII 3) Bandwidth 20M Ch.144(5 720MHz) 52 Tone RU 40



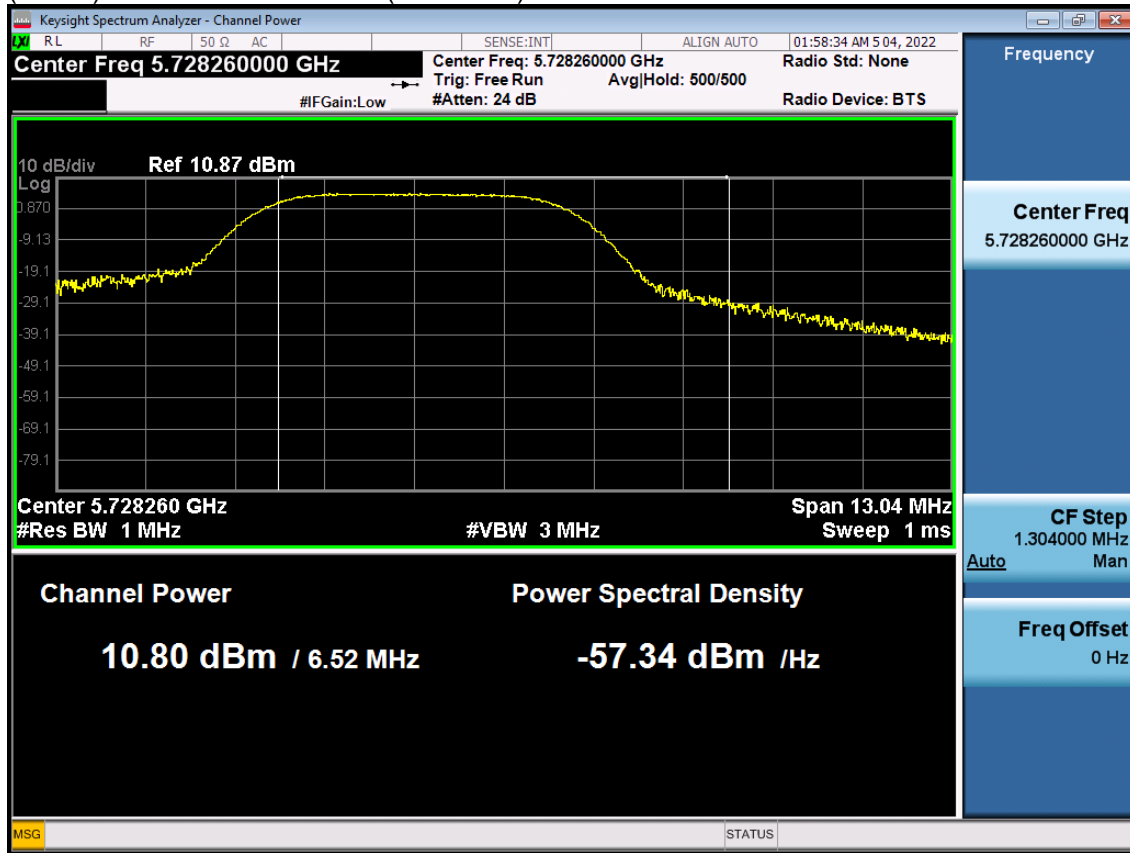
Reading Value (dBm)	Duty Cycle Factor (dB)	Total Power (dBm)
12.85	0.000	12.85

(UNII 2C) Bandwidth 40M Ch.142(5 710MHz) SU



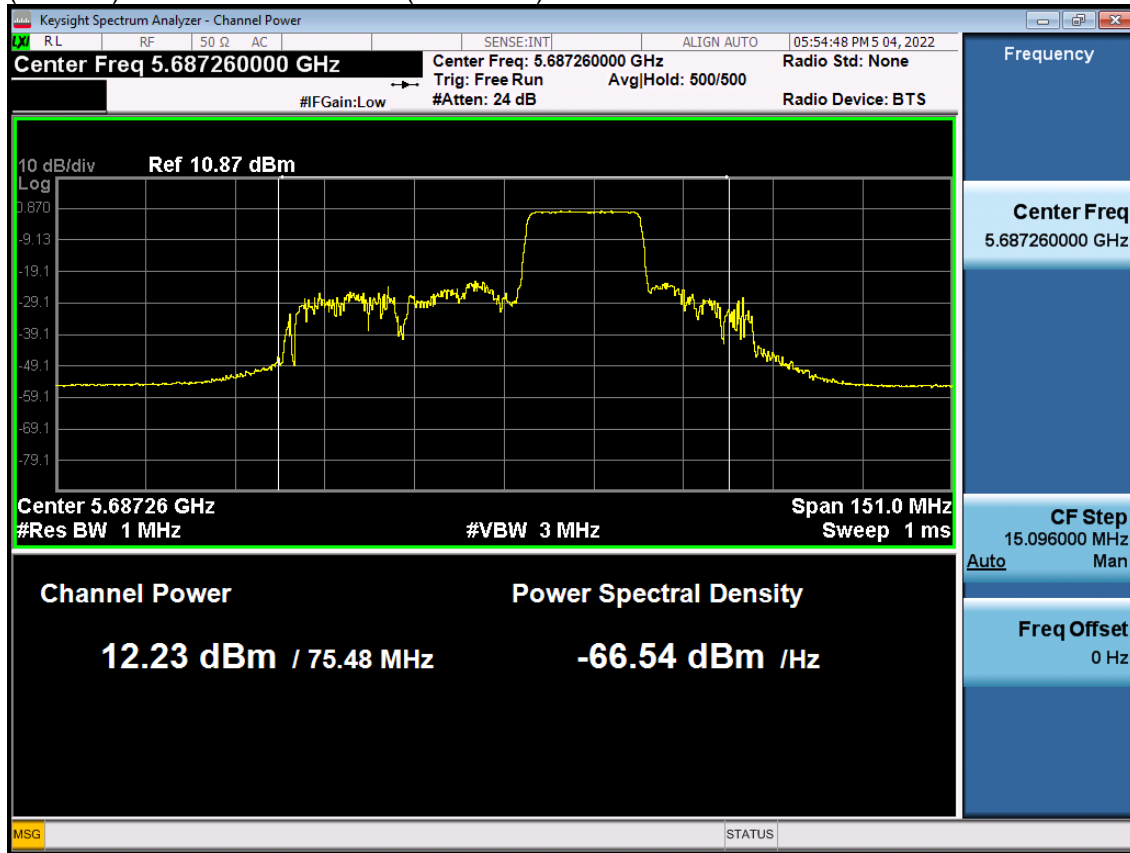
Reading Value (dBm)	Duty Cycle Factor (dB)	Total Power (dBm)
13.03	0.000	13.03

(UNII 3) Bandwidth 40M Ch.142(5 710MHz) 52 Tone RU 44



Reading Value (dBm)	Duty Cycle Factor (dB)	Total Power (dBm)
10.80	0.000	10.80

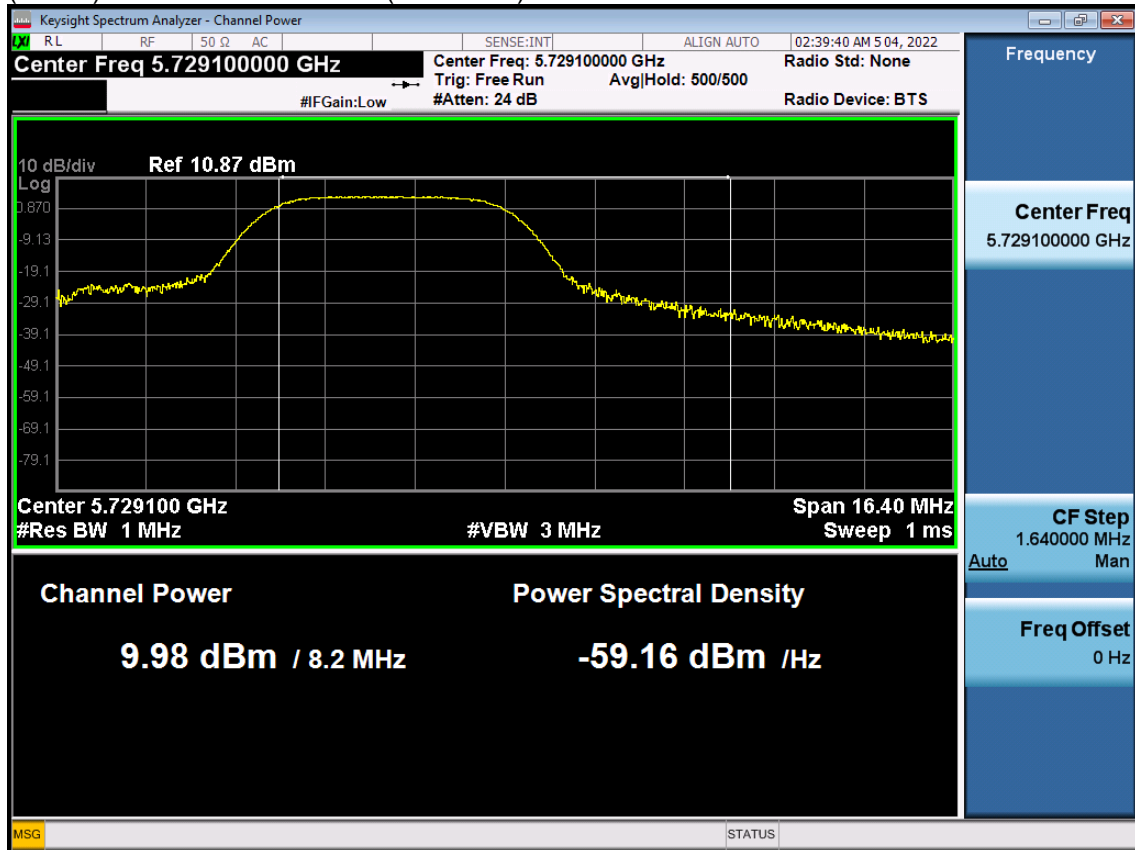
(UNII 2C) Bandwidth 80M Ch.138(5 690MHz) 242 Tone RU 63



Reading Value (dBm)	Duty Cycle Factor (dB)	Total Power (dBm)
12.23	0.000	12.23



(UNII 3) Bandwidth 80M Ch.138(5 690MHz) 52 Tone RU 52



Reading Value (dBm)	Duty Cycle Factor (dB)	Total Power (dBm)
9.98	0.000	9.98

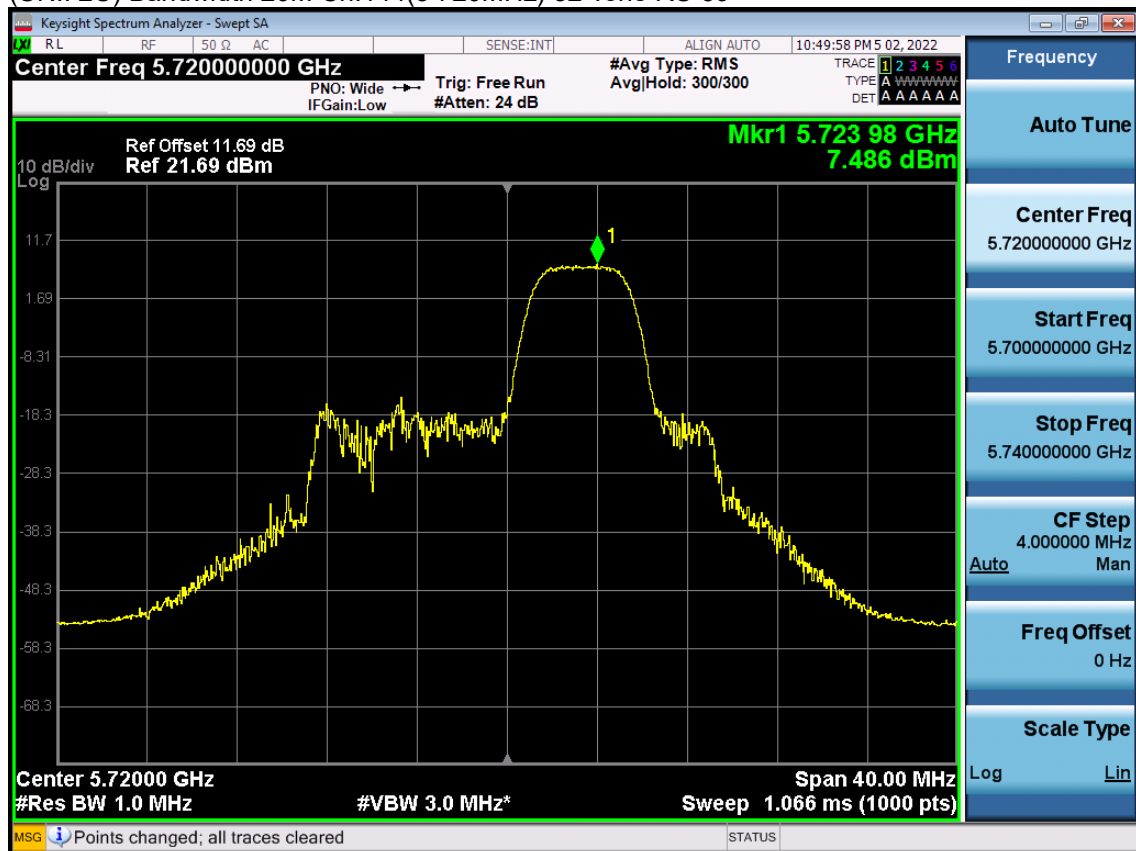
### 5.4 Power Spectral Density

**Note:**

1. In order to simplify the report, attached plots were only channel of highest PSD.
2. Total PSD (dBm) = Reading Value(dBm) + Duty Cycle Factor(dB)
3. Duty Cycle factor was applied as 0.000 (Duty Cycle ≥ 98%)

#### 5.4.1 Ant1

(UNII 2C) Bandwidth 20M Ch.144(5 720MHz) 52 Tone RU 39



Reading Value (dBm)	Duty Cycle Factor (dB)	Total MIMO PSD (dBm)
7.486	0.000	7.486

(UNII 3) Bandwidth 20M Ch.144(5 720MHz) 26 Tone RU 7



Reading Value (dBm)	Duty Cycle Factor (dB)	Total MIMO PSD (dBm)
4.584	0.000	4.584

(UNII 2C) Bandwidth 40M Ch.142(5 710MHz) 26 Tone RU 9



Reading Value (dBm)	Duty Cycle Factor (dB)	Total MIMO PSD (dBm)
7.464	0.000	7.464

(UNII 3) Bandwidth 40M Ch.142(5 710MHz) 26 Tone RU 16



Reading Value (dBm)	Duty Cycle Factor (dB)	Total MIMO PSD (dBm)
4.264	0.000	4.264

(UNII 2C) Bandwidth 80M Ch.138(5 690MHz) 52 Tone RU 51



Reading Value (dBm)	Duty Cycle Factor (dB)	Total MIMO PSD (dBm)
4.730	0.000	4.730

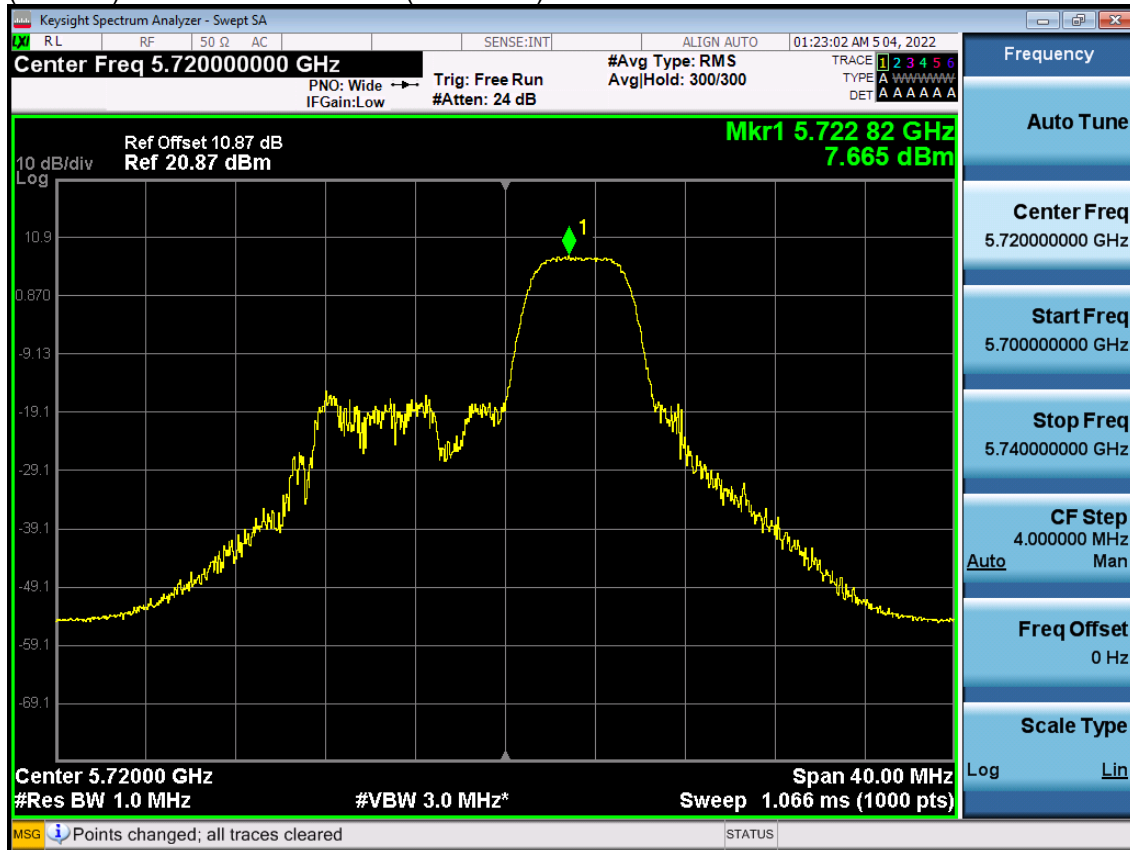
(UNII 3) Bandwidth 80M Ch.138(5 690MHz) 26 Tone RU 35



Reading Value (dBm)	Duty Cycle Factor (dB)	Total PSD (dBm)
4.404	0.000	4.404

### 5.4.2 Ant2

(UNII 2C) Bandwidth 20M Ch.144(5 720MHz) 52 Tone RU 39



Reading Value (dBm)	Duty Cycle Factor (dB)	Total PSD (dBm)
7.665	0.000	7.665



(UNII 3) Bandwidth 20M Ch.144(5 720MHz) 52 Tone RU 40



Reading Value (dBm)	Duty Cycle Factor (dB)	Total PSD (dBm)
4.616	0.000	4.616

(UNII 2C) Bandwidth 40M Ch.142(5 710MHz) 26 Tone RU 9



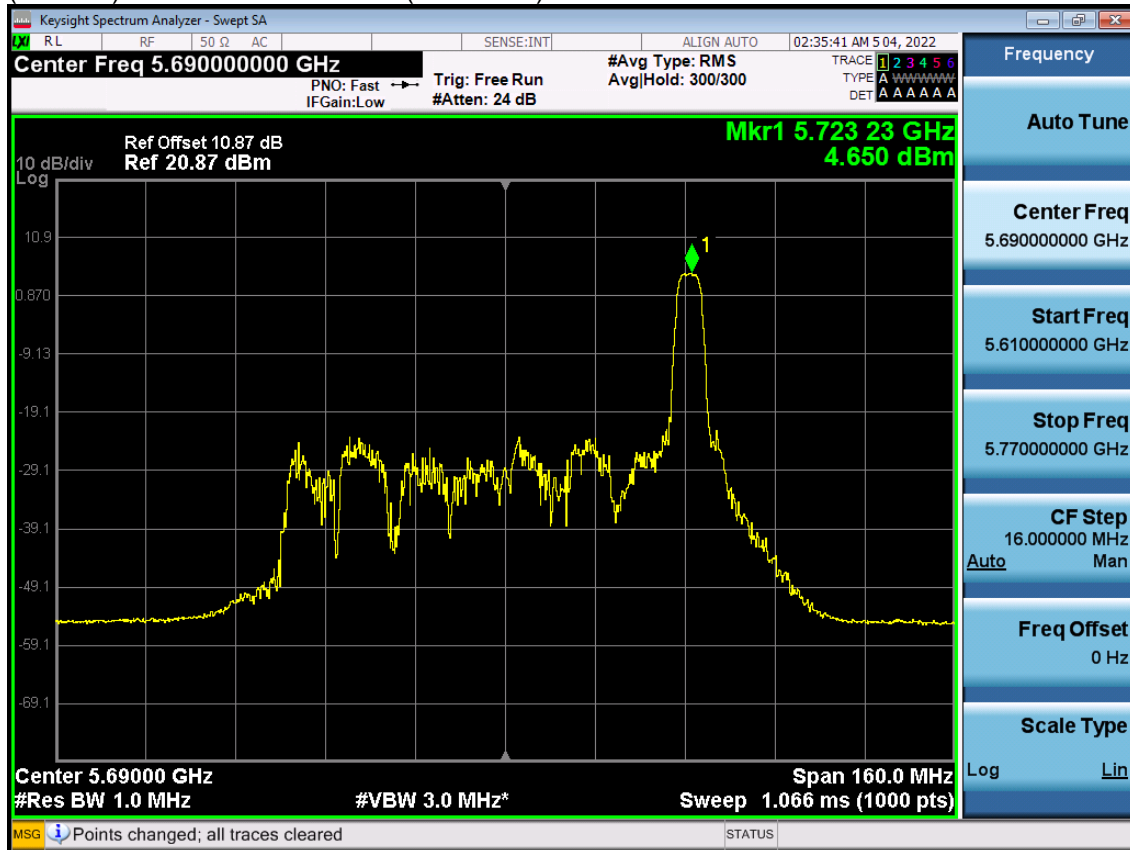
Reading Value (dBm)	Duty Cycle Factor (dB)	Total PSD (dBm)
6.912	0.000	6.912

(UNII 3) Bandwidth 40M Ch.142(5 710MHz) 26 Tone RU 17



Reading Value (dBm)	Duty Cycle Factor (dB)	Total PSD (dBm)
3.596	0.000	3.596

(UNII 2C) Bandwidth 80M Ch.138(5 690MHz) 52 Tone RU 51



Reading Value (dBm)	Duty Cycle Factor (dB)	Total PSD (dBm)
4.650	0.000	4.650

(UNII 3) Bandwidth 80M Ch.138(5 690MHz) 26 Tone RU 35



Reading Value (dBm)	Duty Cycle Factor (dB)	Total PSD (dBm)
4.059	0.000	4.059