



**Note:**

Per ANSI C63.10-2013 and KDB 662911 v02r01 Section E)1), the conducted powers at Antenna 1 and Antenna 2 were first measured separately during MIMO transmission as shown in the section above. The measured values were then summed in linear power units then converted back to dBm.

Per ANSI C63.10-2013 Section 14.4.3, the directional gain is calculated using the following formula, where  $G_N$  is the gain of the nth antenna and  $N_{ANT}$ , the total number of antennas used.

$$\text{Directional gain} = 10 \log[(10^{G_1/20} + 10^{G_2/20} + \dots + 10^{G_N/20})^2 / N_{ANT}] \text{ dBi}$$

**Sample MIMO Calculation:**

At 5180MHz in 802.11n (20MHz BW) mode, the average conducted output power was measured to be 10.97 dBm for Antenna 1 and 11.23 dBm for Antenna 2.

Antenna 1 + Antenna 2 = MIMO

$$(10.97 \text{ dBm} + 11.23 \text{ dBm}) = (12.50 \text{ mW} + 13.27 \text{ mW}) = 25.78 \text{ mW} = 14.11 \text{ dBm}$$

**Sample e.i.r.p. Calculation:**

At 5180MHz in 802.11n (20MHz BW) mode, the average MIMO conducted power was calculated to be 14.11 dBm with directional gain of -1.05 dBi.

$$\text{e.i.r.p. (dBm)} = \text{Conducted Power (dBm)} + \text{Ant gain (dBi)}$$

$$14.11 \text{ dBm} + -1.05 \text{ dBi} = 13.06 \text{ dBm}$$

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## 7.5 Maximum Power Spectral Density – 802.11ax OFDMA

§15.407(a.1.iv) §15.407(a.2) §15.407(a.3); RSS-247 [6.2]

### Test Overview and Limit

The spectrum analyzer was connected to the antenna terminal while the EUT was operating at its maximum duty cycle, at its maximum power control level, as defined in ANSI C63.10-2013 and KDB 789033 D02 v02r01, and at the appropriate frequencies. Method SA-1, as defined in ANSI C63.10-2013 and KDB 789033 D02 v02r01, was used to measure the power spectral density.

***In the 5.25 – 5.35GHz and 5.47 – 5.725GHz bands, the maximum permissible power spectral density is 11dBm/MHz.***

***In the 5.725 – 5.850GHz band, the maximum permissible power spectral density is 30dBm/500kHz.***

### Test Procedure Used

ANSI C63.10-2013 – Section 12.3.2.2  
 KDB 789033 D02 v02r01 – Section F  
 ANSI C63.10-2013 – Section 14.3.2.2 Measure-and-Sum Technique  
 KDB 662911 v02r01 – Section E)2) Measure-and-Sum Technique

### Test Settings

1. Analyzer was set to the center frequency of the UNII channel under investigation
2. Span was set to encompass the entire emission bandwidth of the signal
3. RBW = 1MHz
4. VBW = 3MHz
5. Number of sweep points  $\geq 2 \times$  (span/RBW)
6. Sweep time = auto
7. Detector = power averaging (RMS)
8. Trigger was set to free run for all modes
9. Trace was averaged over 100 sweeps
10. The peak search function of the spectrum analyzer was used to find the peak of the spectrum.

### Test Setup

The EUT and measurement equipment were set up as shown in the diagram below.



**Figure 7-4. Test Instrument & Measurement Setup**

### Test Notes

The power spectral density for each channel was measured with the RU index showing the highest conducted power

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## Summed MIMO Power Spectral Density Measurements

	Frequency [MHz]	Channel No.	802.11 Mode	Tones	Data Rate [Mbps]	Antenna-1 Power Density [dBm]	Antenna-2 Power Density [dBm]	Summed MIMO Power Density [dBm]	Max Power Density [dBm/MHz]	Margin [dB]
Band 1	5180	36	ax (20MHz)	26T	MCS0	4.80	7.05	9.08	11.00	-1.92
	5200	40	ax (20MHz)	26T	MCS0	5.31	7.16	9.34	11.00	-1.66
	5240	48	ax (20MHz)	26T	MCS0	6.40	7.12	9.79	11.00	-1.21
	5190	38	ax (40MHz)	26T	MCS0	5.77	7.78	9.90	11.00	-1.10
	5230	46	ax (40MHz)	26T	MCS0	5.99	7.97	10.10	11.00	-0.90
	5210	42	ax (80MHz)	26T	MCS0	5.83	7.02	9.48	11.00	-1.52
Band 1/2A	5250	50	ax (160MHz) L	26T	MCS0	6.79	5.51	9.21	11.00	-1.79
	5250	50	ax (160MHz) U	26T	MCS0	6.30	7.27	9.82	11.00	-1.18
Band 2A	5260	52	ax (20MHz)	26T	MCS0	6.61	7.35	10.01	11.00	-0.99
	5280	56	ax (20MHz)	26T	MCS0	5.35	6.58	9.02	11.00	-1.98
	5320	64	ax (20MHz)	26T	MCS0	5.13	6.29	8.76	11.00	-2.24
	5270	54	ax (40MHz)	26T	MCS0	6.11	7.92	10.12	11.00	-0.88
	5310	62	ax (40MHz)	26T	MCS0	6.26	7.68	10.04	11.00	-0.96
	5290	58	ax (80MHz)	26T	MCS0	5.83	6.49	9.18	11.00	-1.82
Band 2C	5500	100	ax (20MHz)	26T	MCS0	4.71	7.56	9.38	11.00	-1.62
	5600	120	ax (20MHz)	26T	MCS0	4.46	6.65	8.70	11.00	-2.30
	5720	144	ax (20MHz)	26T	MCS0	5.17	6.28	8.77	11.00	-2.23
	5510	102	ax (40MHz)	26T	MCS0	5.10	7.74	9.63	11.00	-1.37
	5590	118	ax (40MHz)	26T	MCS0	5.88	7.01	9.49	11.00	-1.51
	5710	142	ax (40MHz)	26T	MCS0	5.73	7.89	9.95	11.00	-1.05
	5530	106	ax (80MHz)	26T	MCS0	4.48	6.78	8.79	11.00	-2.21
	5610	122	ax (80MHz)	26T	MCS0	4.58	6.01	8.36	11.00	-2.64
	5690	138	ax (80MHz)	26T	MCS0	4.99	6.03	8.55	11.00	-2.45
	5570	114	ax (160MHz) L	26T	MCS0	6.62	7.31	9.99	11.00	-1.01
5570	114	ax (160MHz) U	26T	MCS0	5.49	6.72	9.16	11.00	-1.84	

Table 7-25. Bands 1, 2A, 2C MIMO Conducted Power Spectral Density Measurements MIMO (26 Tones)

	Frequency [MHz]	Channel No.	802.11 Mode	Tones	Data Rate [Mbps]	Antenna-1 Power Density [dBm]	Antenna-2 Power Density [dBm]	Summed MIMO Power Density [dBm]	Max Permissible Power Density	Margin [dB]
Band 3	5745	149	ax (20MHz)	26T	MCS0	2.66	4.30	6.57	30.00	-23.43
	5785	157	ax (20MHz)	26T	MCS0	3.30	4.25	6.81	30.00	-23.19
	5825	165	ax (20MHz)	26T	MCS0	2.70	3.53	6.15	30.00	-23.85
	5755	151	ax (40MHz)	26T	MCS0	2.73	4.09	6.47	30.00	-23.53
	5795	159	ax (40MHz)	26T	MCS0	3.21	4.13	6.70	30.00	-23.30
	5775	155	ax (80MHz)	26T	MCS0	3.05	3.70	6.40	30.00	-23.60

Table 7-26. Band 3 MIMO Conducted Power Spectral Density Measurements MIMO (26 Tones)

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	Frequency [MHz]	Channel No.	802.11 Mode	Tones	Data Rate [Mbps]	Antenna-1 Power Density [dBm]	Antenna-2 Power Density [dBm]	Summed MIMO Power Density [dBm]	Max Power Density [dBm/MHz]	Margin [dB]
Band 1	5180	36	ax (20MHz)	242T	MCS0	-0.53	-0.02	2.74	11.00	-8.26
	5200	40	ax (20MHz)	242T	MCS0	-0.48	-0.05	2.75	11.00	-8.25
	5240	48	ax (20MHz)	242T	MCS0	-0.39	0.15	2.90	11.00	-8.10
	5190	38	ax (40MHz)	484T	MCS0	-3.73	-3.69	-0.70	11.00	-11.70
	5230	46	ax (40MHz)	484T	MCS0	-3.48	-3.51	-0.48	11.00	-11.48
	5210	42	ax (80MHz)	996T	MCS0	-9.30	-9.28	-6.28	11.00	-17.28
Band 1/2A	5250	50	ax (160MHz)	996T	MCS0	-9.95	-10.54	-7.22	12.00	-19.22
Band 2A	5260	52	ax (20MHz)	242T	MCS0	-0.33	-0.09	2.80	11.00	-8.20
	5280	56	ax (20MHz)	242T	MCS0	-0.32	0.17	2.94	11.00	-8.06
	5320	64	ax (20MHz)	242T	MCS0	-0.30	-0.06	2.83	11.00	-8.17
	5270	54	ax (40MHz)	484T	MCS0	-3.62	-3.72	-0.66	11.00	-11.66
	5310	62	ax (40MHz)	484T	MCS0	-4.13	-4.23	-1.17	11.00	-12.17
	5290	58	ax (80MHz)	996T	MCS0	-7.09	-7.74	-4.39	11.00	-15.39
Band 2C	5500	100	ax (20MHz)	242T	MCS0	-0.32	0.08	2.89	11.00	-8.11
	5600	120	ax (20MHz)	242T	MCS0	-0.53	-0.94	2.28	11.00	-8.72
	5720	144	ax (20MHz)	242T	MCS0	-0.52	-0.47	2.52	11.00	-8.48
	5510	102	ax (40MHz)	484T	MCS0	-3.84	-3.25	-0.52	11.00	-11.52
	5590	118	ax (40MHz)	484T	MCS0	-4.01	-3.56	-0.77	11.00	-11.77
	5710	142	ax (40MHz)	484T	MCS0	-3.69	-3.35	-0.51	11.00	-11.51
	5530	106	ax (80MHz)	996T	MCS0	-9.15	-9.00	-6.06	11.00	-17.06
	5610	122	ax (80MHz)	996T	MCS0	-6.92	-7.27	-4.08	11.00	-15.08
	5690	138	ax (80MHz)	996T	MCS0	-7.43	-6.93	-4.16	11.00	-15.16
	5570	114	ax (160MHz)	996T	MCS0	-9.29	-8.89	-6.08	11.00	-17.08

Table 7-27. Bands 1, 2A, 2C MIMO Conducted Power Spectral Density Measurements MIMO (Full Tones)

	Frequency [MHz]	Channel No.	802.11 Mode	Tones	Data Rate [Mbps]	Antenna-1 Power Density [dBm]	Antenna-2 Power Density [dBm]	Summed MIMO Power Density [dBm]	Max Permissible Power Density	Margin [dB]
Band 3	5745	149	ax (20MHz)	242T	MCS0	-4.84	-4.06	-1.42	30.00	-31.42
	5785	157	ax (20MHz)	242T	MCS0	-3.29	-3.71	-0.48	30.00	-30.48
	5825	165	ax (20MHz)	242T	MCS0	-3.10	-3.58	-0.32	30.00	-30.32
	5755	151	ax (40MHz)	484T	MCS0	-6.36	-6.05	-3.19	30.00	-33.19
	5795	159	ax (40MHz)	484T	MCS0	-6.79	-6.52	-3.64	30.00	-33.64
	5775	155	ax (80MHz)	996T	MCS0	-11.45	-10.98	-8.20	30.00	-38.20

Table 7-28. Band 3 MIMO Conducted Power Spectral Density Measurements MIMO (Full Tones)

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**Note:**

Per ANSI C63.10-2013 Section 14.3.2.2 and KDB 662911 v02r01 Section E)2), the power spectral density at Antenna-1 and Antenna-2 were first measured separately with reduced Antenna-1 and Antenna-2 powers per manufacture’s tune-up document. The measured values were then summed in linear power units then converted back to dBm.

**Sample Directional Gain Calculation:**

Assuming the antenna gain is -8.61 dBi for Antenna-1 and -7.68 dBi for Antenna-2.

$$\begin{aligned}
\text{Directional gain} &= 10 \log[(10^{G_1/20} + 10^{G_2/20} + \dots + 10^{G_N/20})^2 / N_{\text{ANT}}] \text{ dBi} \\
&= 10 \log[(10^{-8.61/20} + 10^{-7.68/20} / 2] \text{ dBi} \\
&= (-5.12) \text{ dBi}
\end{aligned}$$

**Sample MIMO Calculation:**

Assuming the average conducted power spectral density was measured to be 5.88 dBm for Antenna-1 and 6.27 dBm for Antenna-2.

$$\begin{aligned}
&\text{Antenna-1} + \text{Antenna-2} = \text{MIMO} \\
(5.88 \text{ dBm} + 6.27 \text{ dBm}) &= (3.87 \text{ mW} + 4.24 \text{ mW}) = 8.11 \text{ mW} = 9.09 \text{ dBm}
\end{aligned}$$

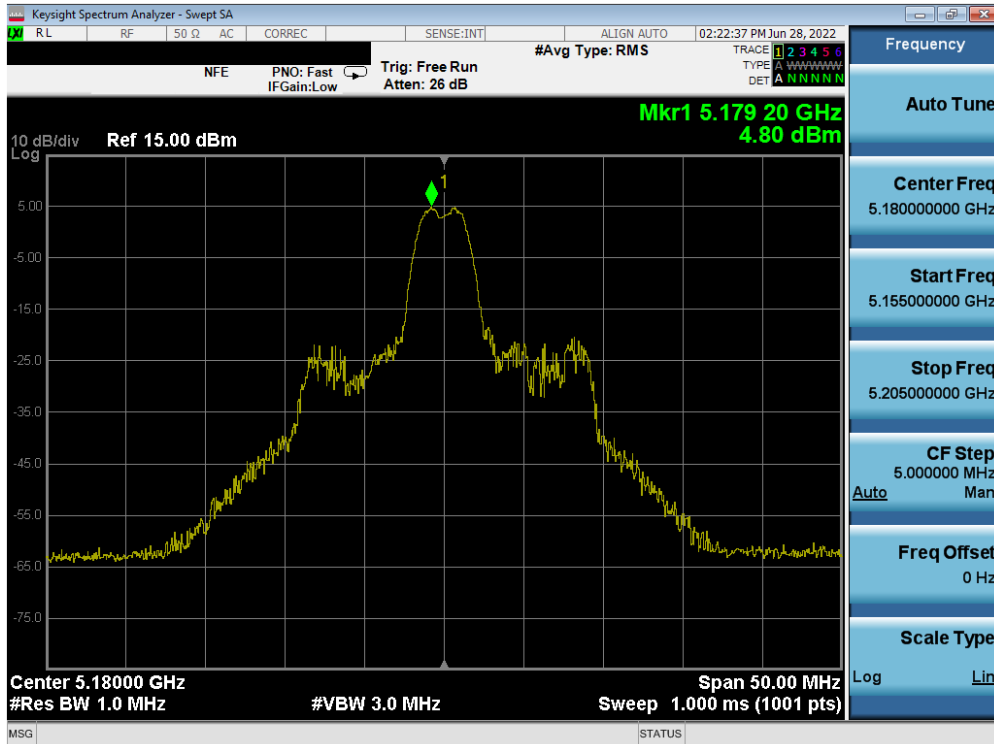
**Sample e.i.r.p Power Spectral Density Calculation:**

Assuming the average MIMO power density was calculated to be 9.09 dBm with directional gain of -5.12 dBi.

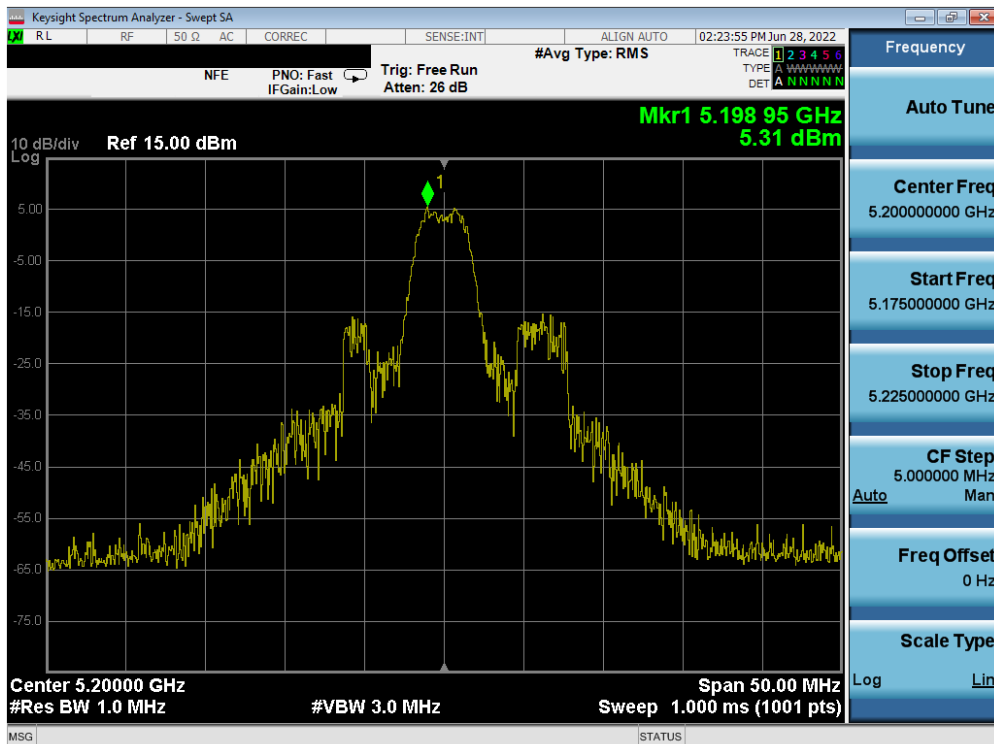
$$\begin{aligned}
\text{e.i.r.p. Power Spectral Density(dBm)} &= \text{Power Spectral Density (dBm)} + \text{directional gain (dBi)} \\
9.09 \text{ dBm} + (-5.12) \text{ dBi} &= 3.97 \text{ dBm}
\end{aligned}$$

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# MIMO Antenna-1 Power Spectral Density Measurements

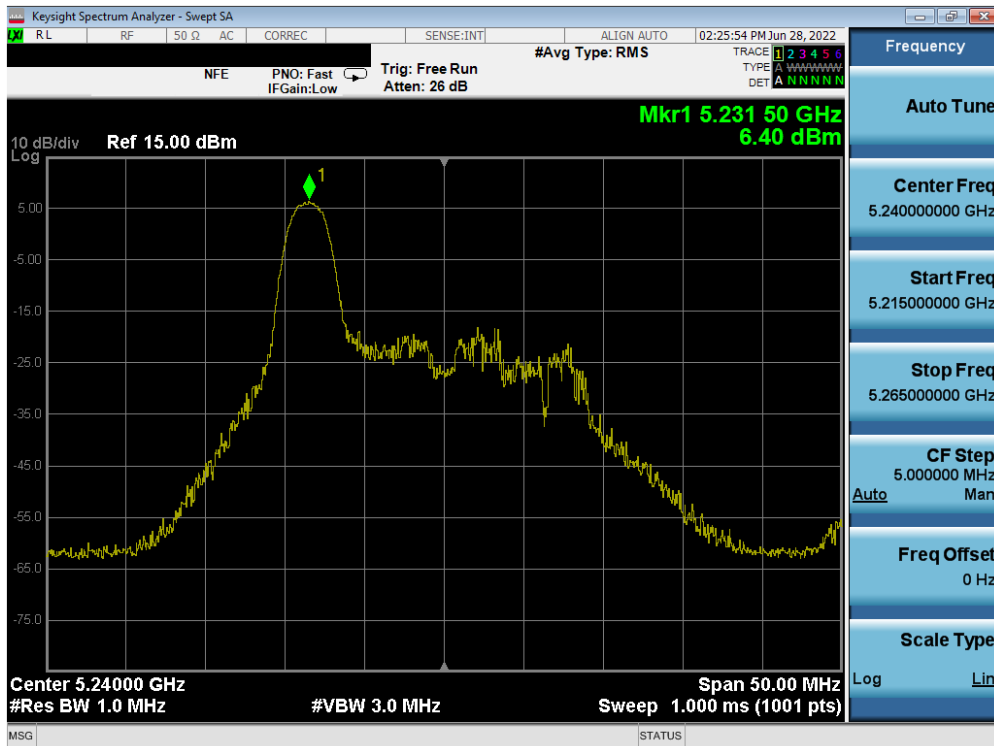


Plot 7-121. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802.11ax – 26 Tones (UNII Band 1) – Ch. 36)

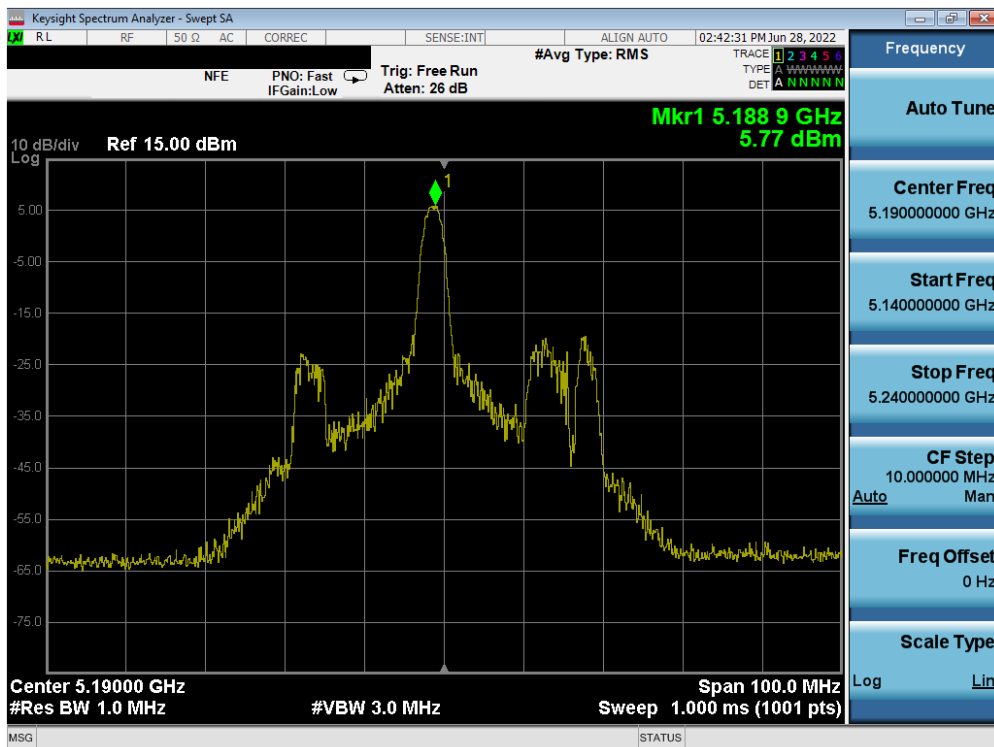


Plot 7-122. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802.11ax – 26 Tones (UNII Band 1) – Ch. 40)

FCC ID: PY7-76056F	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
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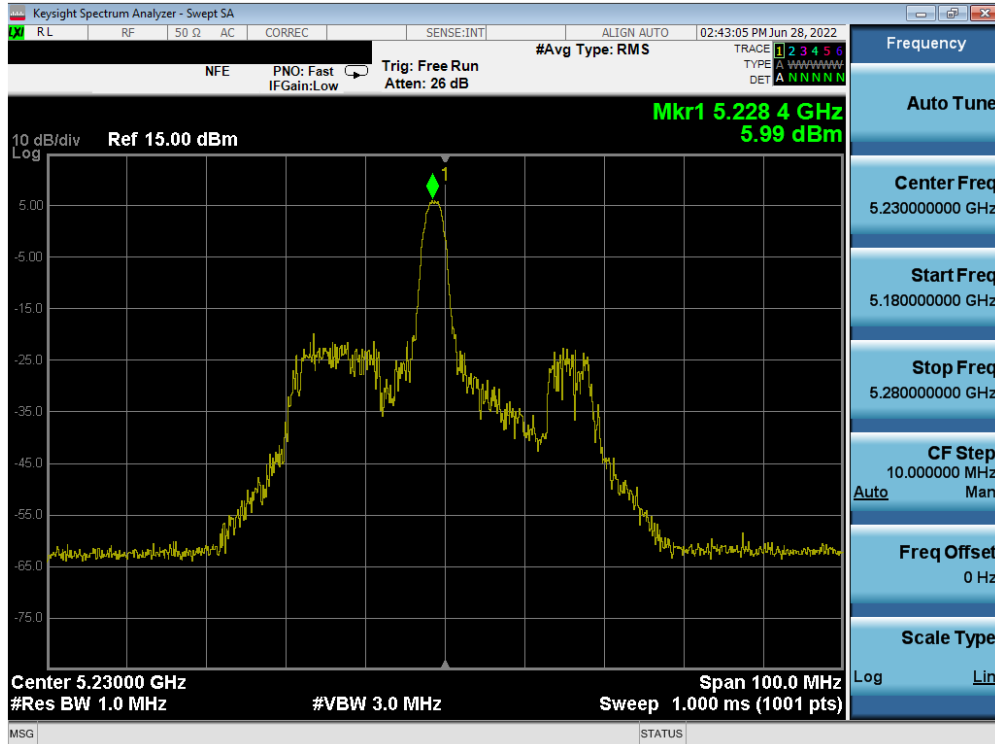


Plot 7-123. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802.11ax – 26 Tones (UNII Band 1) – Ch. 48)

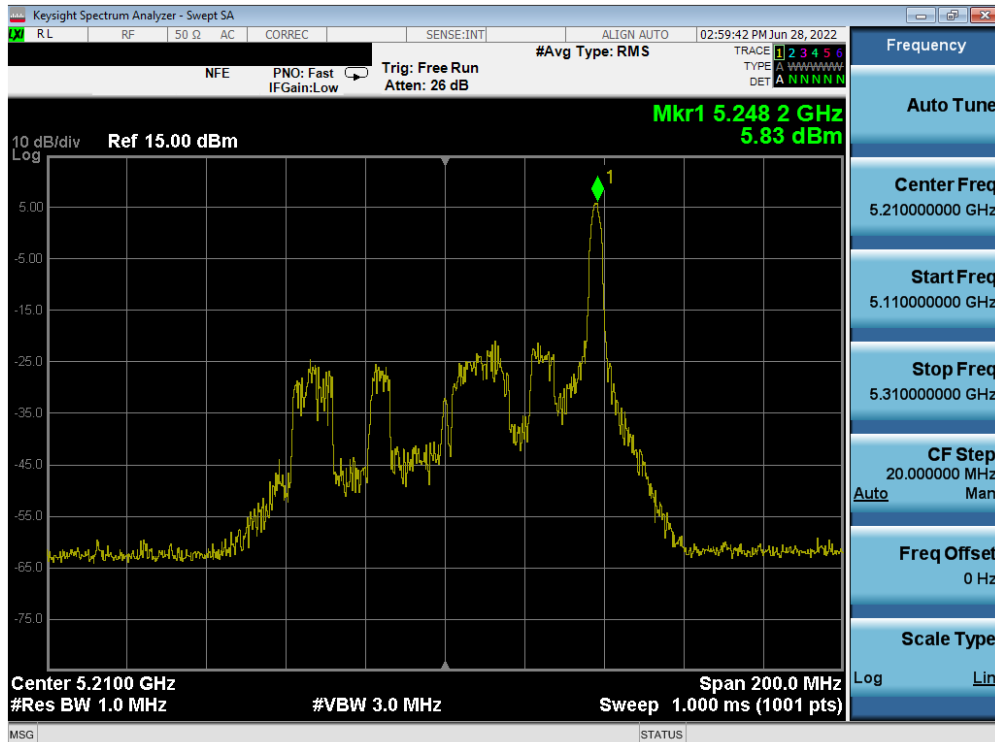


Plot 7-124. Power Spectral Density Plot MIMO ANT1 (40MHz BW 802.11ax – 26 Tones (UNII Band 1) – Ch. 38)

FCC ID: PY7-76056F	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
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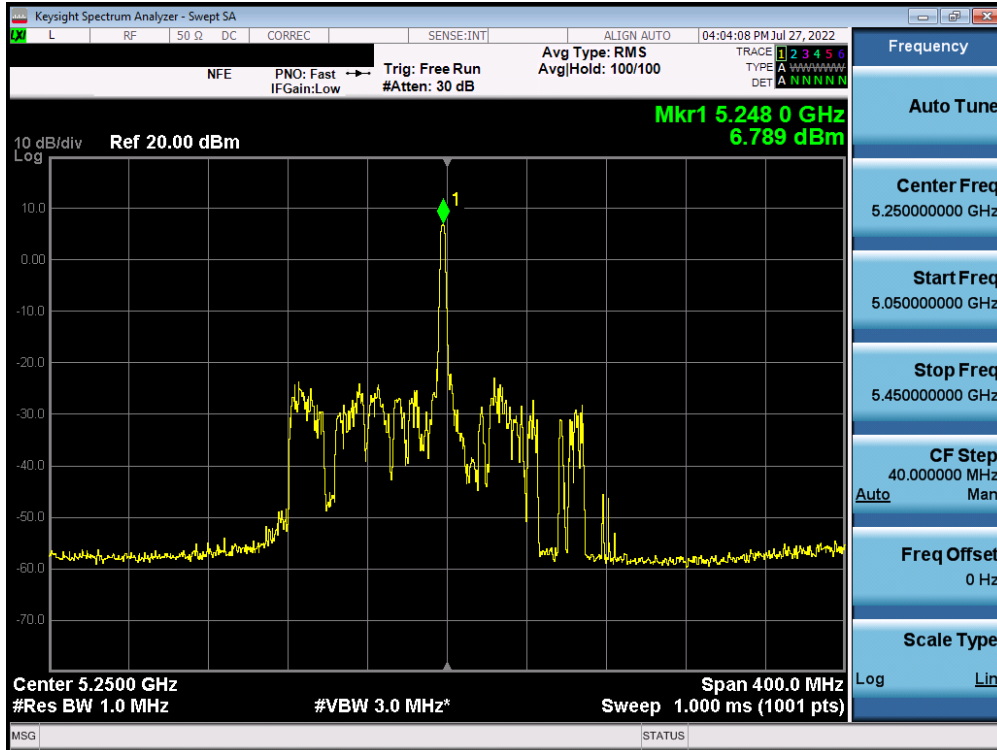
Plot 7-125. Power Spectral Density Plot MIMO ANT1 (40MHz BW 802.11ax – 26 Tones (UNII Band 1) – Ch. 46)



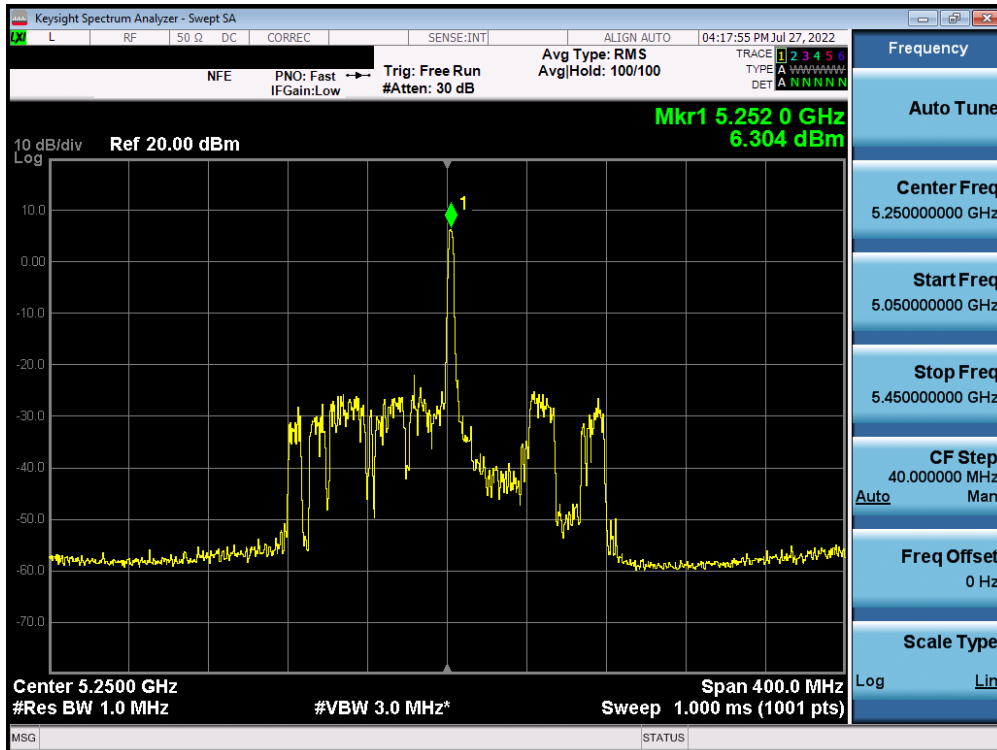
Plot 7-126. Power Spectral Density Plot MIMO ANT1 (80MHz BW 802.11ax – 26 Tones (UNII Band 1) – Ch. 42)

FCC ID: PY7-76056F	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
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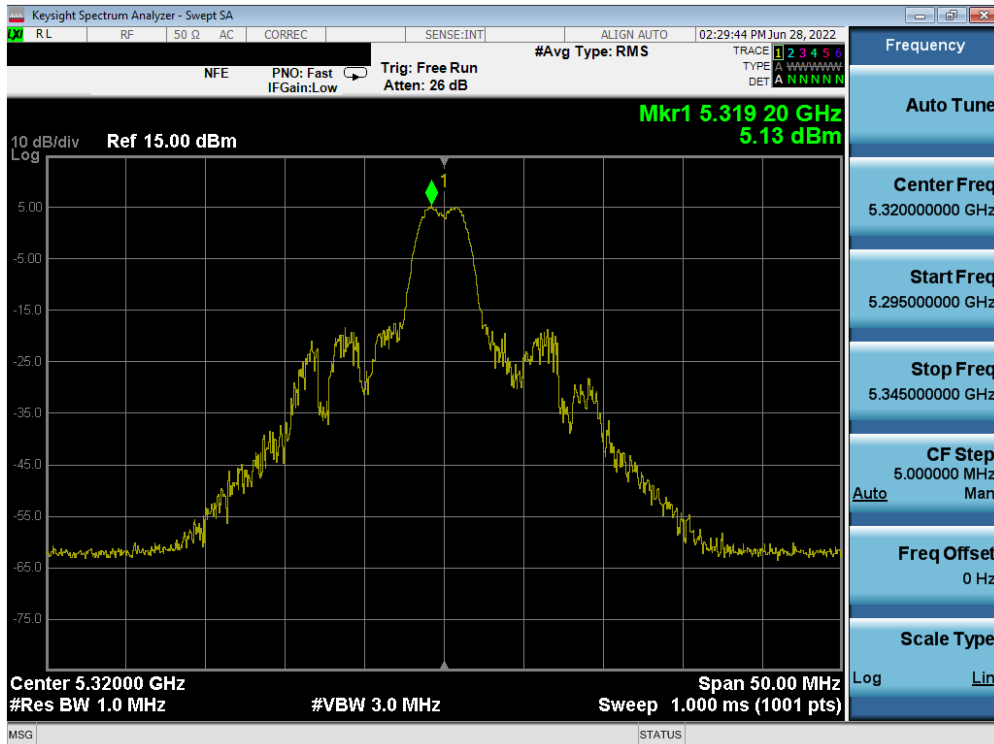
Plot 7-127. Power Spectral Density Plot MIMO ANT1 (160MHz L BW 802.11ax – 26 Tones (UNII Band 1/2A) – Ch. 50)



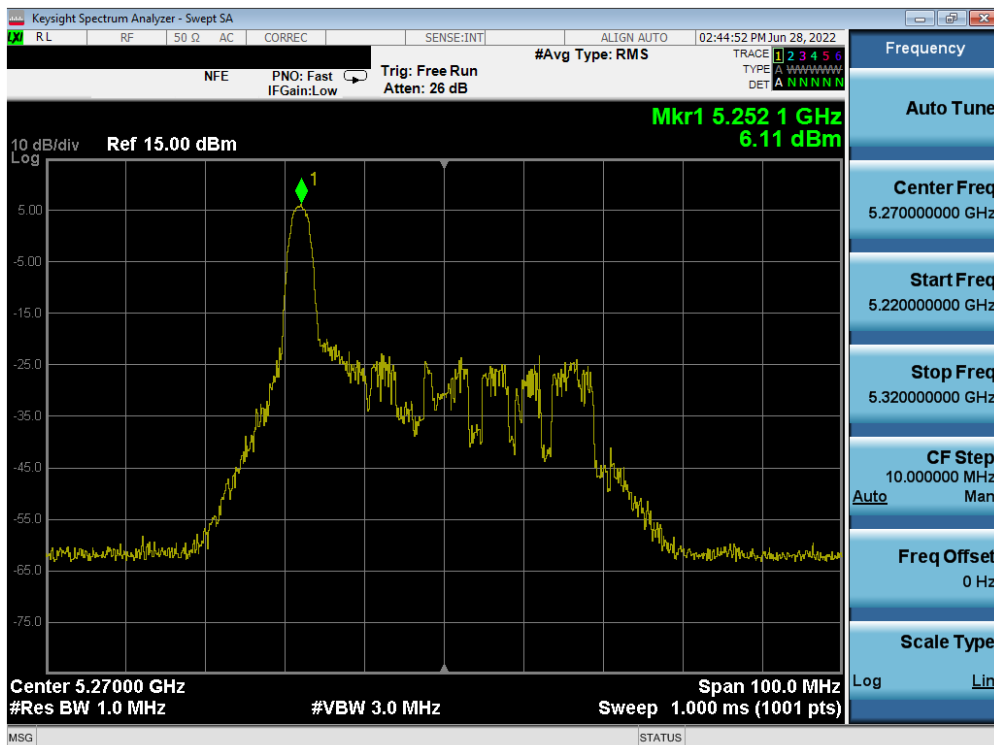
Plot 7-128. Power Spectral Density Plot MIMO ANT1 (160MHz U BW 802.11ax – 26 Tones (UNII Band 1/2A) – Ch. 50)

FCC ID: PY7-76056F	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
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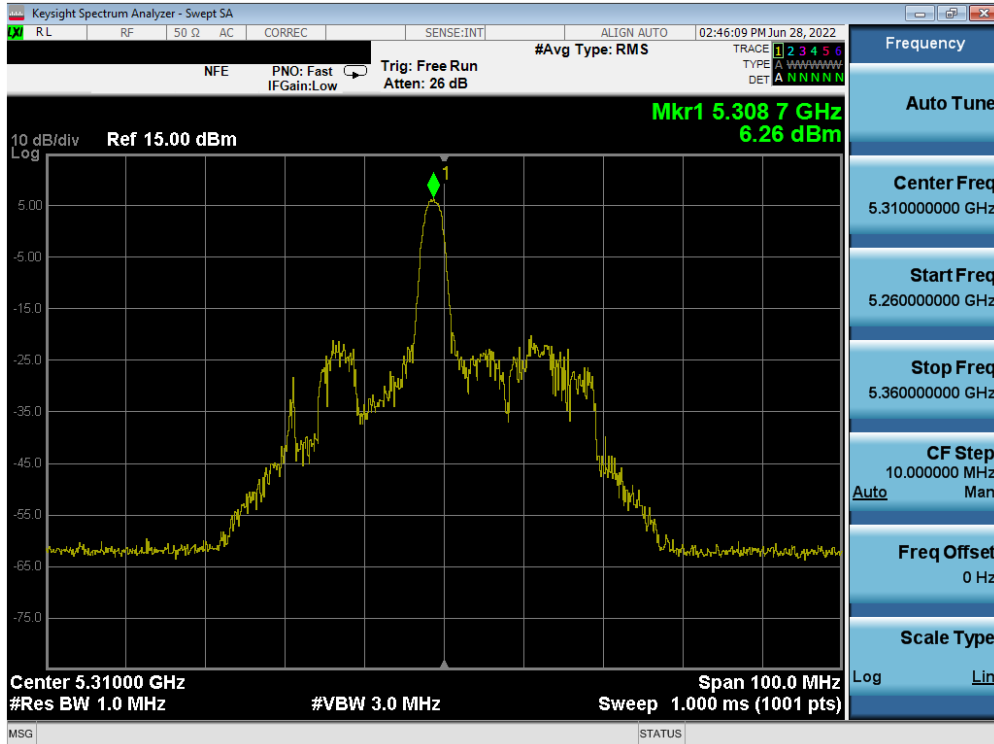


Plot 7-131. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802.11ax – 26 Tones (UNII Band 2A) – Ch. 64)

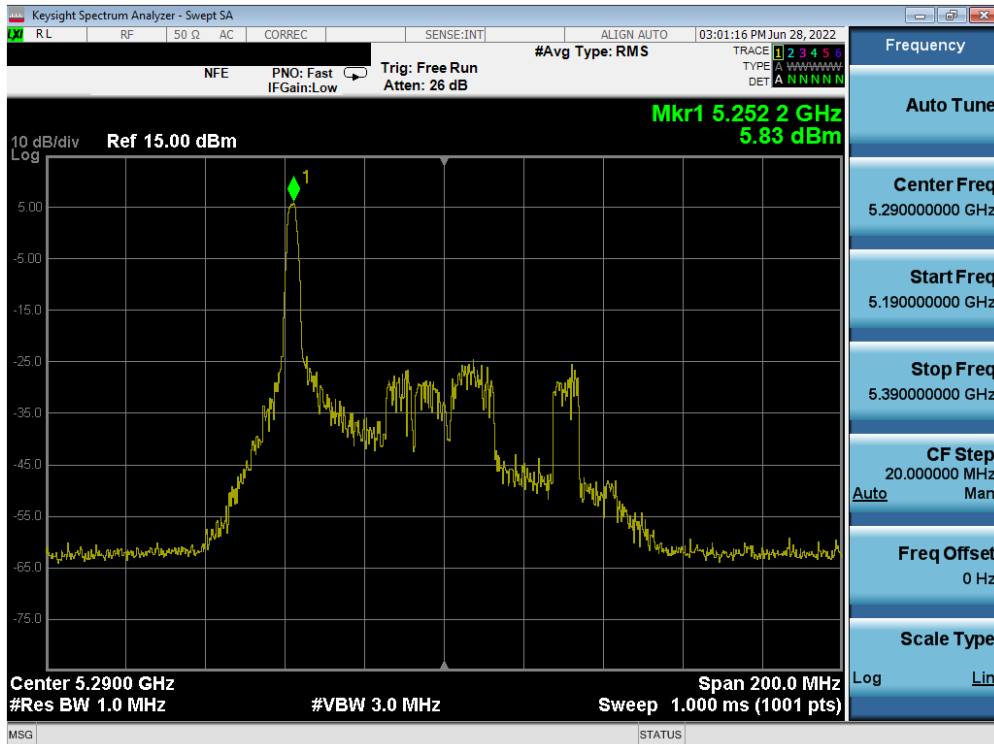


Plot 7-132. Power Spectral Density Plot MIMO ANT1 (40MHz BW 802.11ax – 26 Tones (UNII Band 2A) – Ch. 54)

FCC ID: PY7-76056F	<b>MEASUREMENT REPORT (CERTIFICATION)</b>		Approved by: Technical Manager
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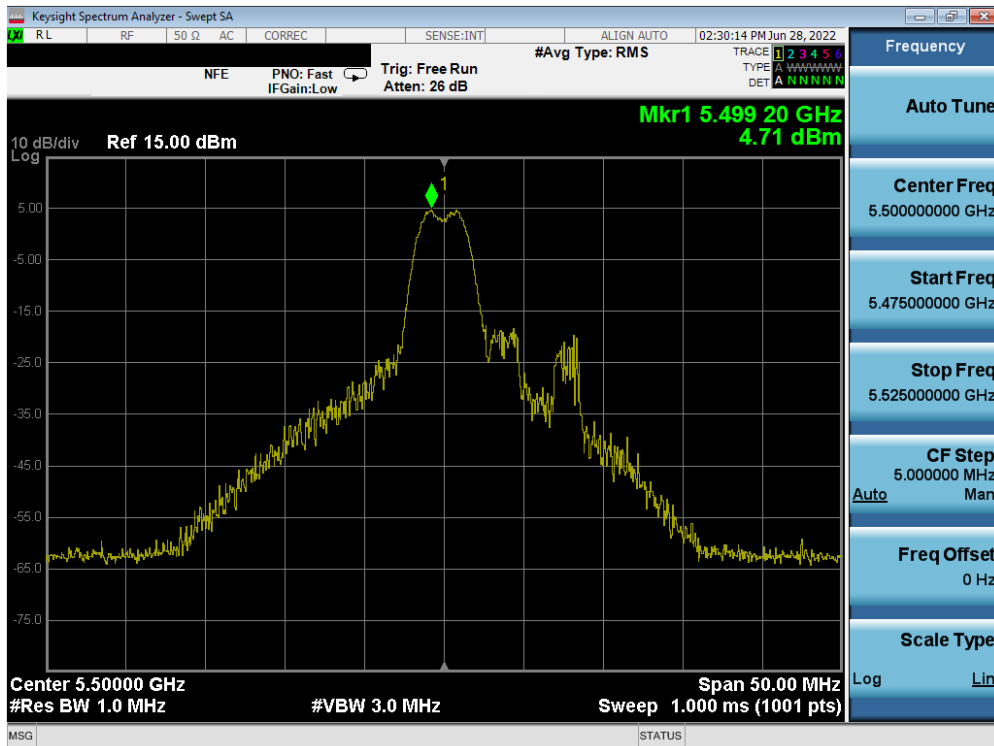


Plot 7-133. Power Spectral Density Plot MIMO ANT1 (40MHz BW 802.11ax – 26 Tones (UNII Band 2A) – Ch. 62)

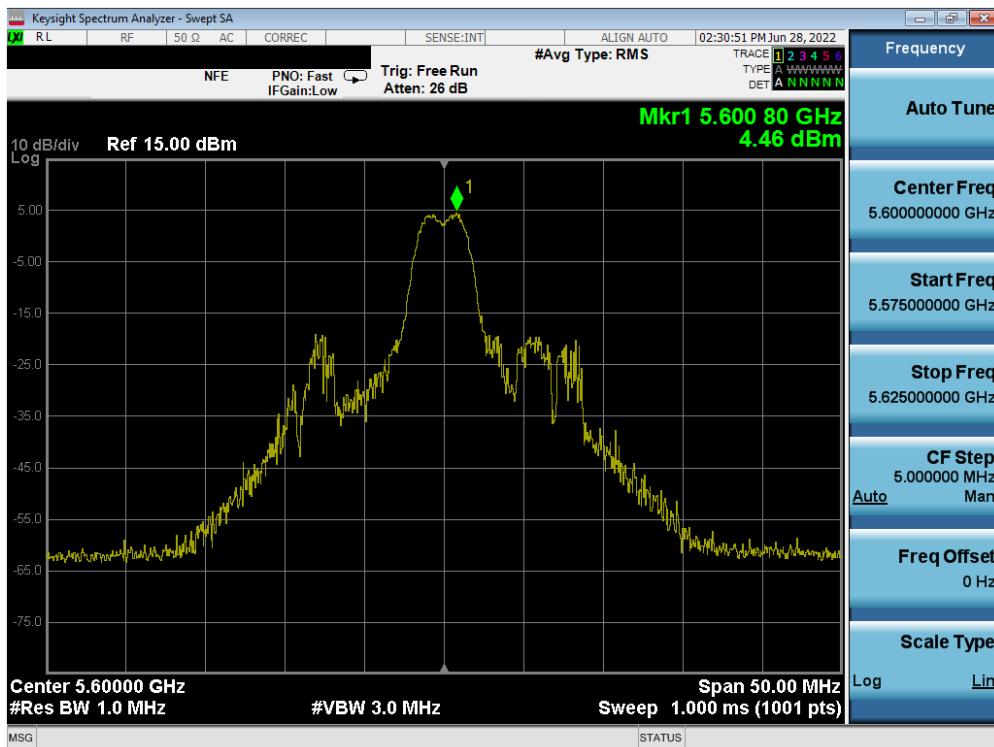


Plot 7-134. Power Spectral Density Plot MIMO ANT1 (80MHz BW 802.11ax – 26 Tones (UNII Band 2A) – Ch. 58)

FCC ID: PY7-76056F	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
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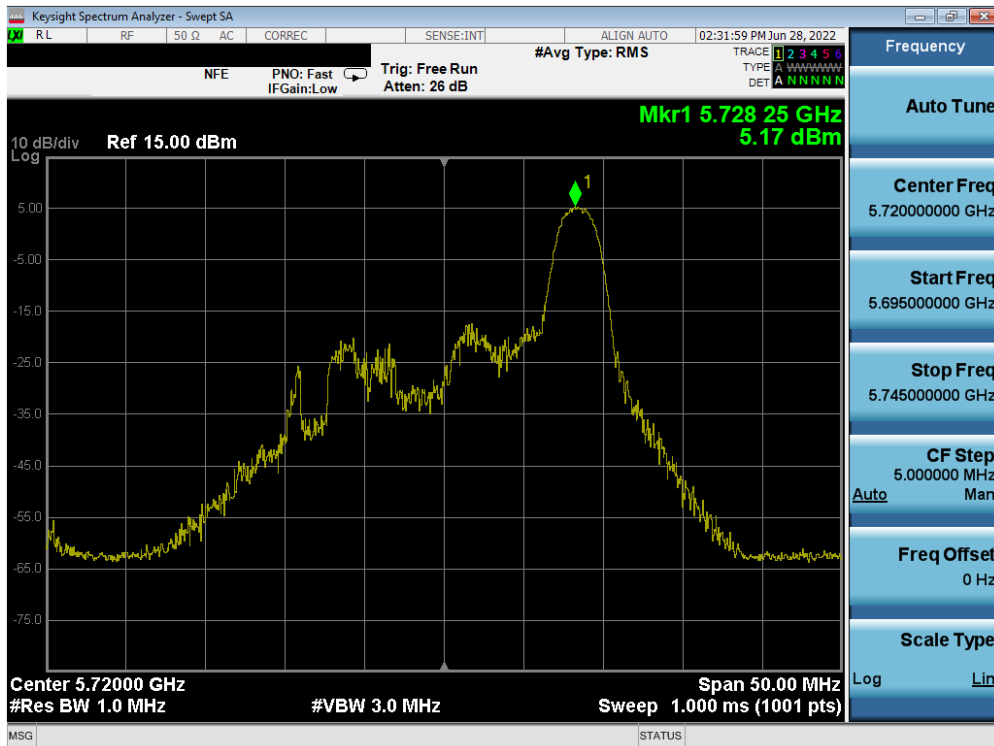


Plot 7-135. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802.11ax – 26 Tones (UNII Band 2C) – Ch. 100)

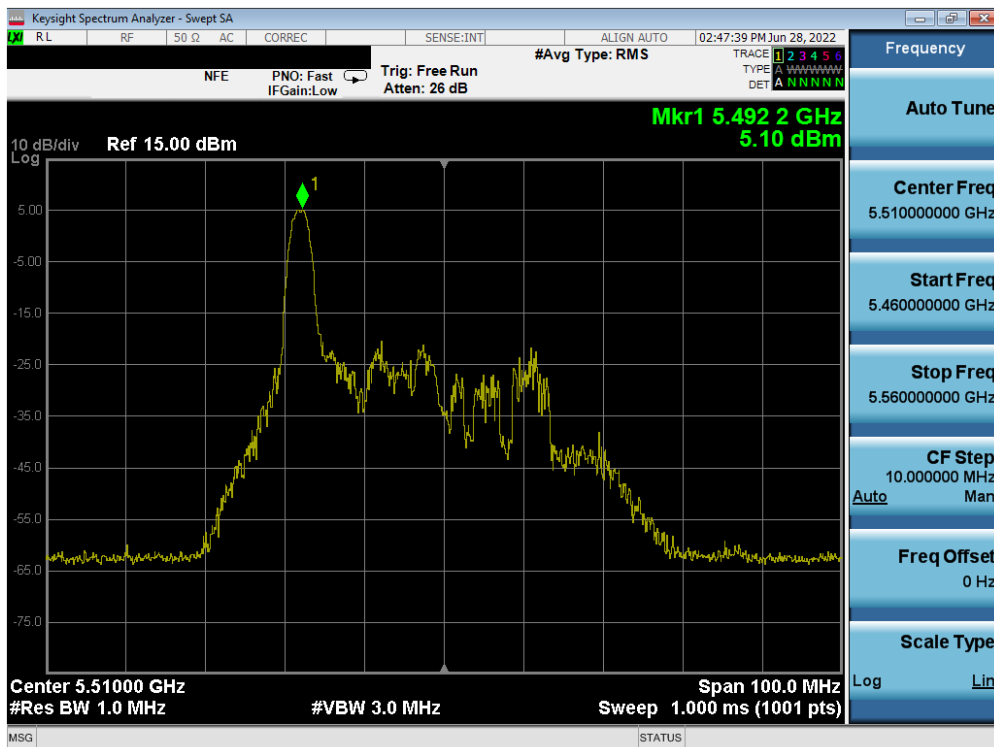


Plot 7-136. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802.11ax – 26 Tones (UNII Band 2C) – Ch. 120)

FCC ID: PY7-76056F	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
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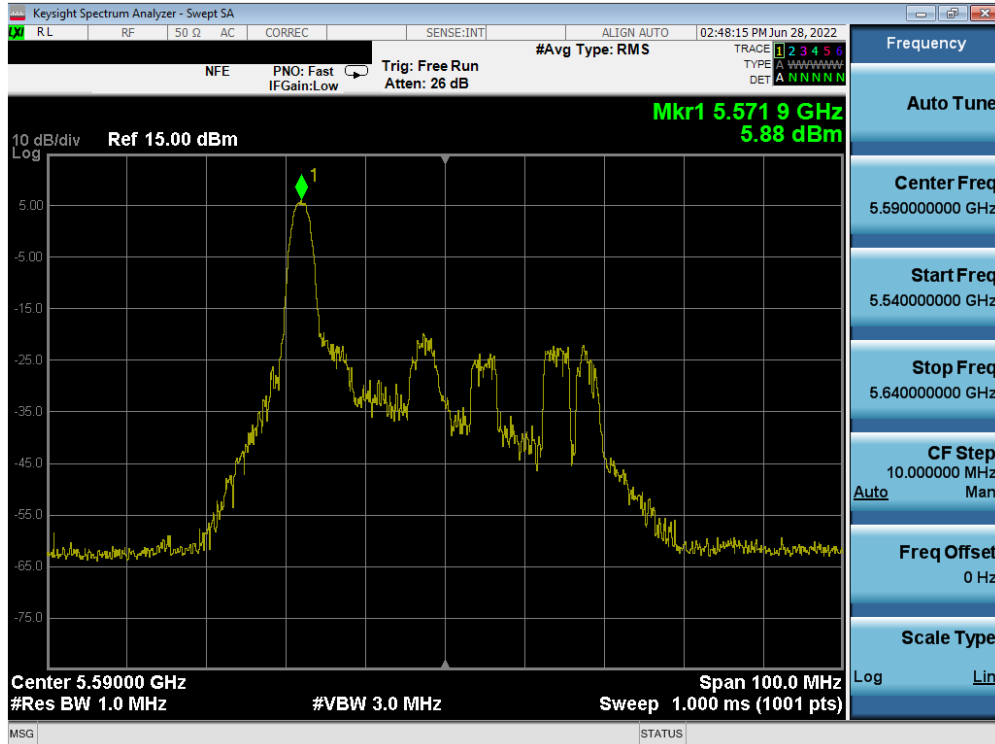


Plot 7-137. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802.11ax – 26 Tones (UNII Band 2C) – Ch. 144)

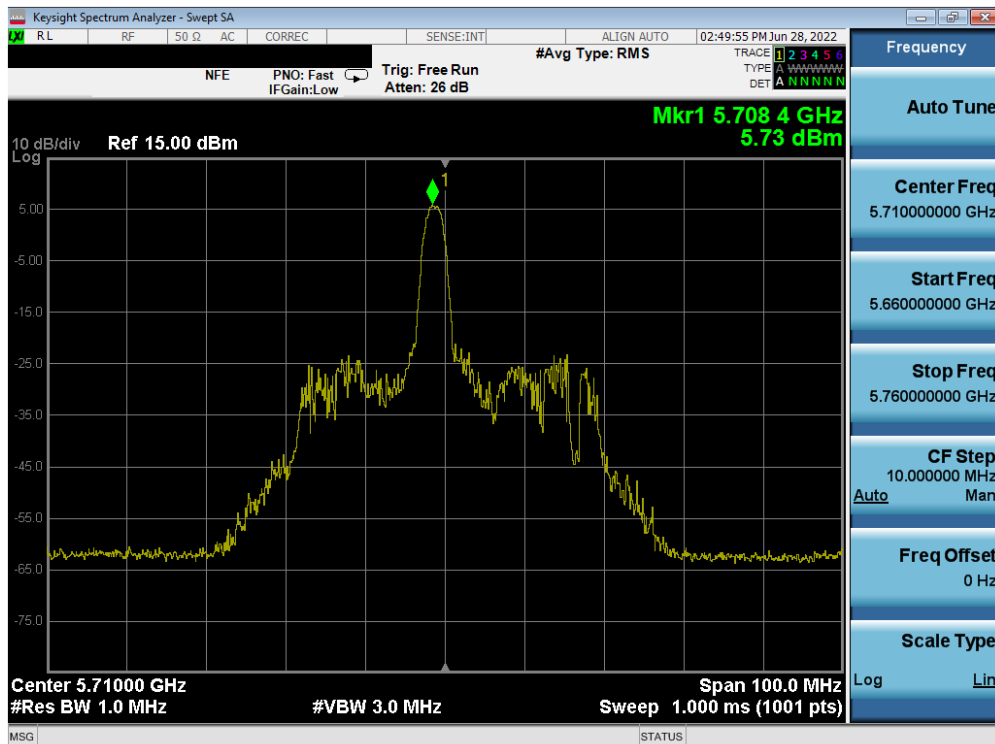


Plot 7-138. Power Spectral Density Plot MIMO ANT1 (40MHz BW 802.11ax – 26 Tones (UNII Band 2C) – Ch. 102)

FCC ID: PY7-76056F	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
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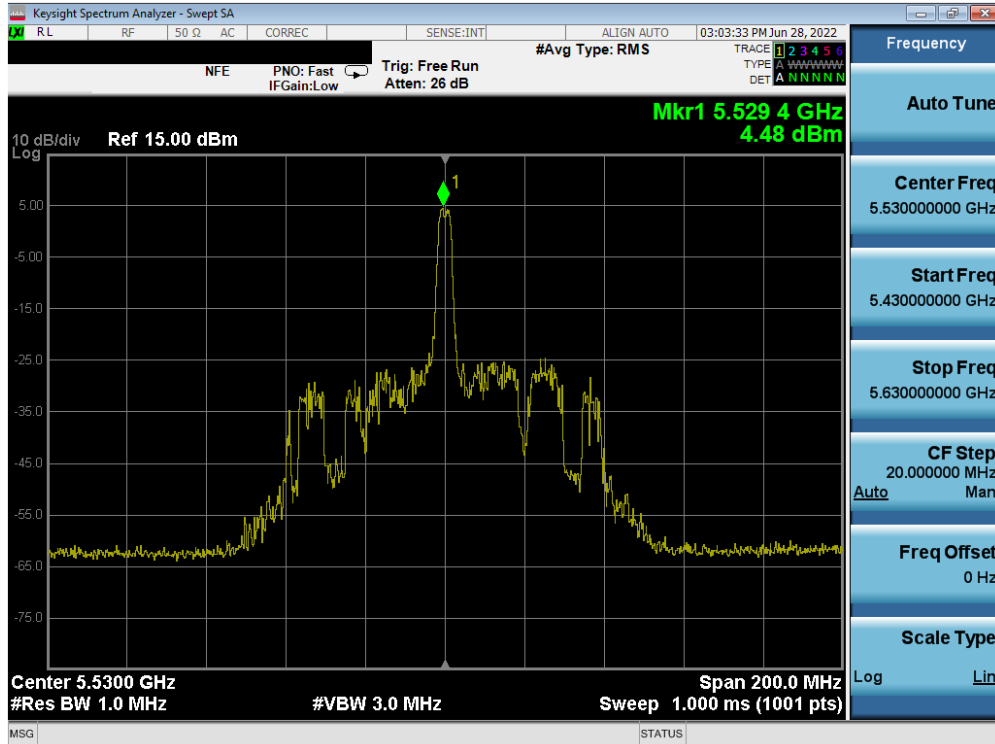


Plot 7-139. Power Spectral Density Plot MIMO ANT1 (40MHz BW 802.11ax – 26 Tones (UNII Band 2C) – Ch. 118)

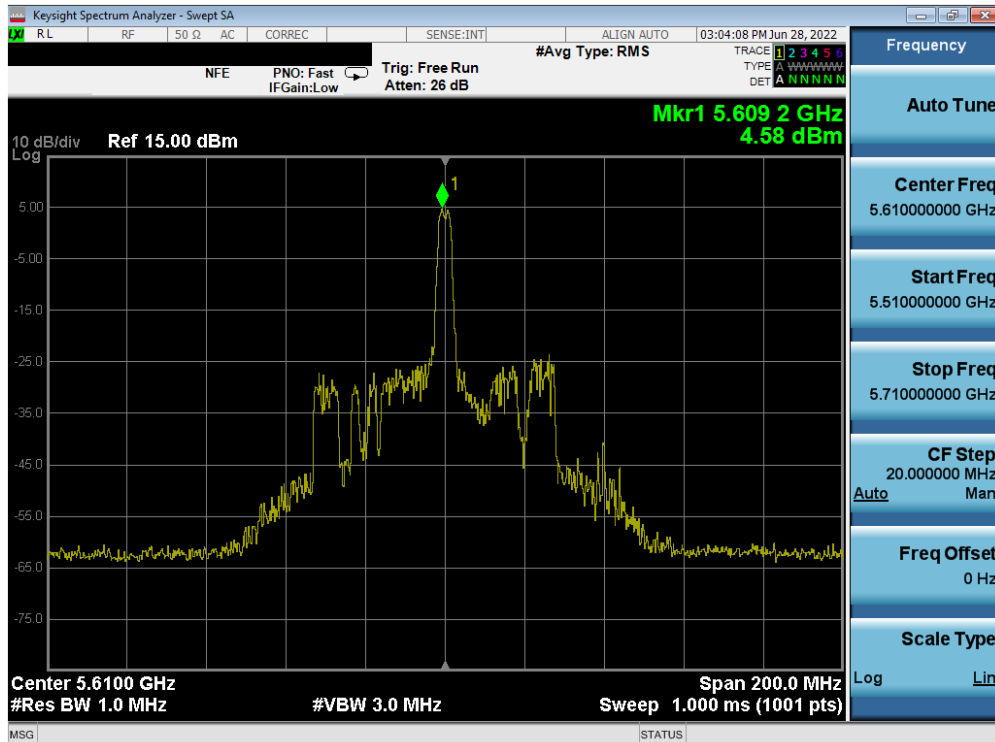


Plot 7-140. Power Spectral Density Plot MIMO ANT1 (40MHz BW 802.11ax – 26 Tones (UNII Band 2C) – Ch. 142)

FCC ID: PY7-76056F	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2205240063-16.PY7	Test Dates: 6/3/2022-7/29/2022	EUT Type: Portable Handset	Page 106 of 189



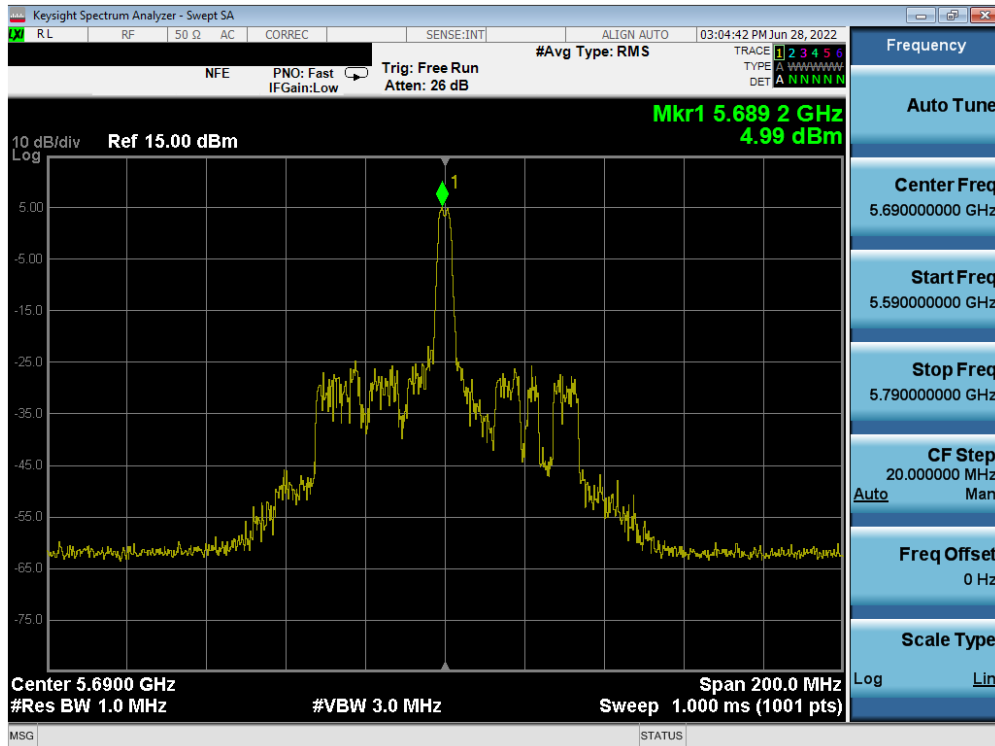
Plot 7-141. Power Spectral Density Plot MIMO ANT1 (80MHz BW 802.11ax – 26 Tones (UNII Band 2C) – Ch. 106)



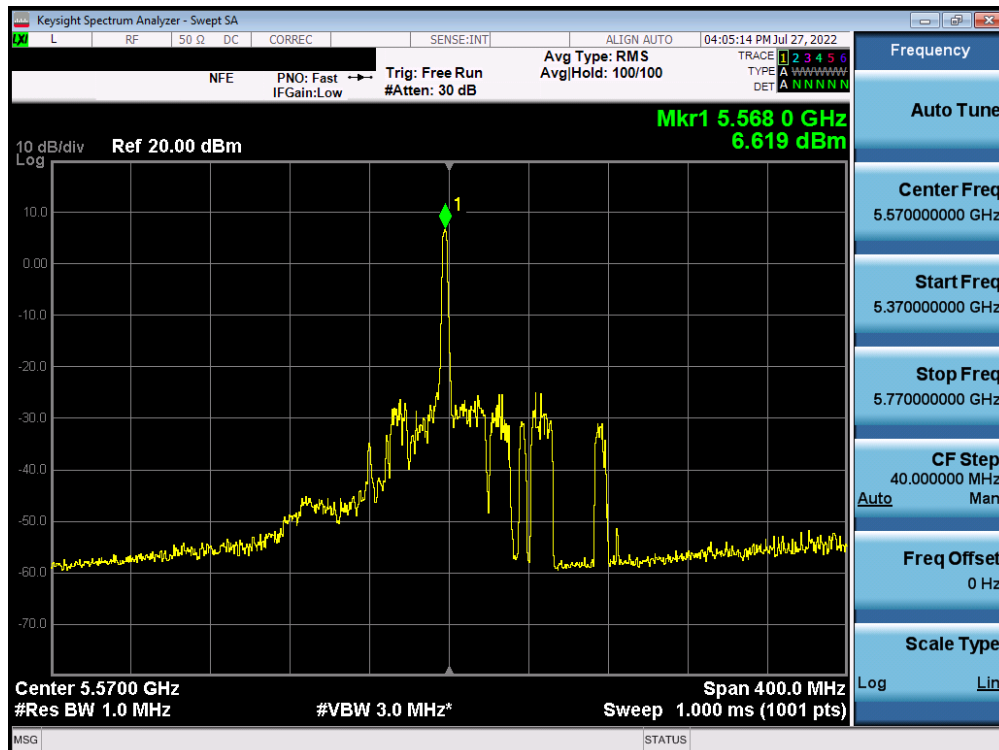
Plot 7-142. Power Spectral Density Plot MIMO ANT1 (80MHz BW 802.11ax – 26 Tones (UNII Band 2C) – Ch. 122)

FCC ID: PY7-76056F	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2205240063-16.PY7	Test Dates: 6/3/2022-7/29/2022	EUT Type: Portable Handset	Page 107 of 189



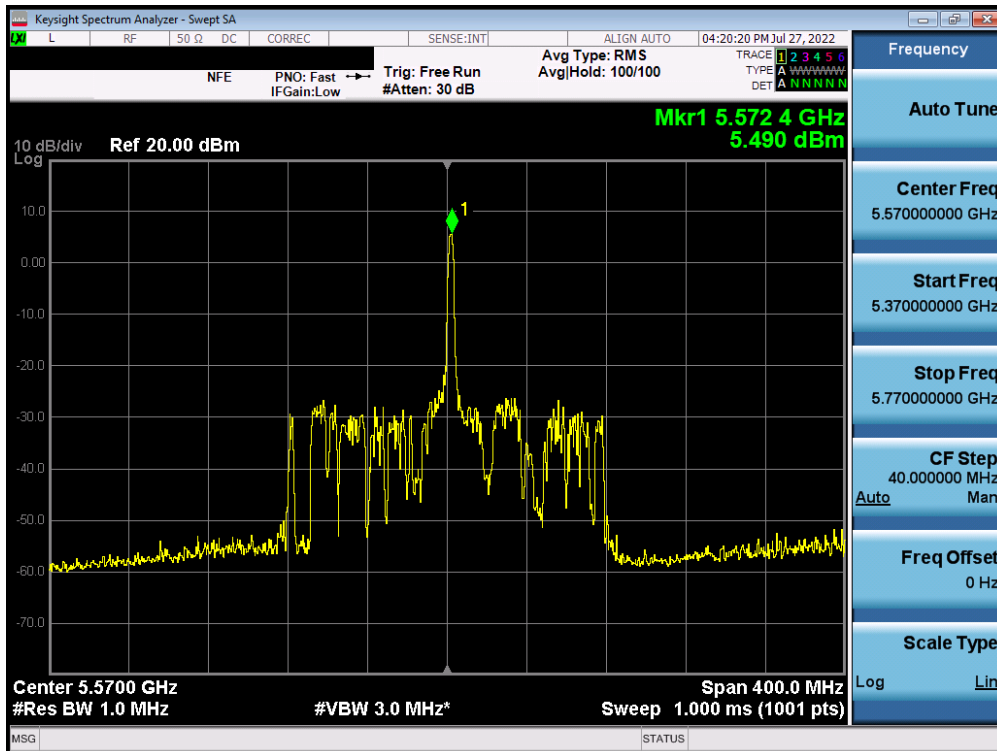


Plot 7-143. Power Spectral Density Plot MIMO ANT1 (80MHz BW 802.11ax – 26 Tones (UNII Band 2C) – Ch. 138)

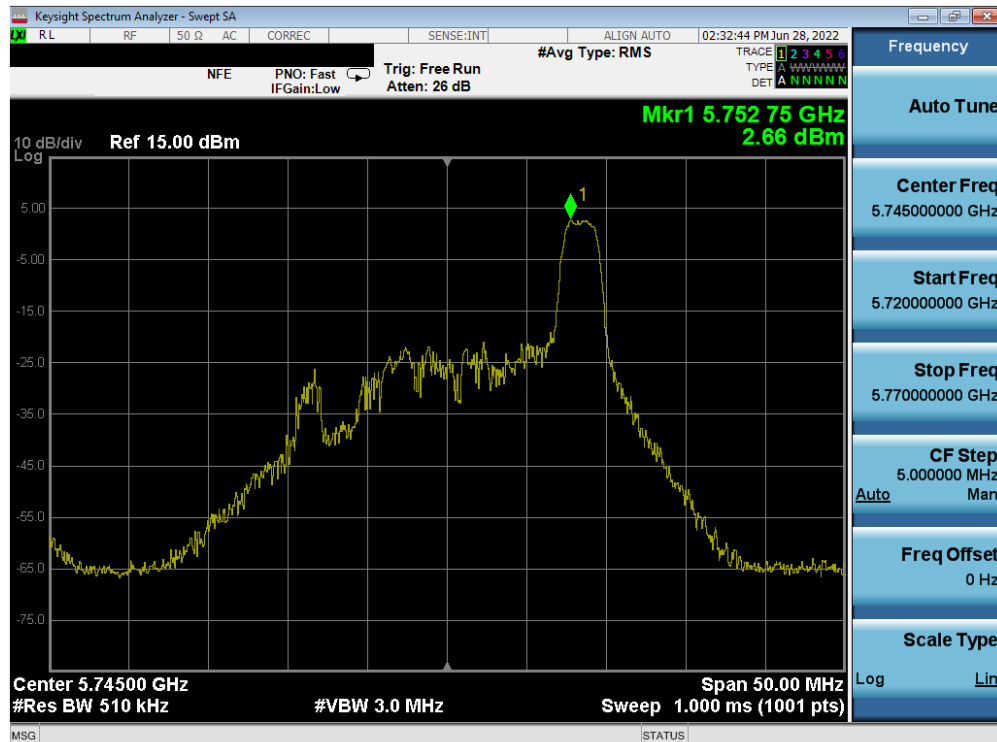


Plot 7-144. Power Spectral Density Plot MIMO ANT1 (160MHz L BW 802.11ax – 26 Tones (UNII Band 2C) – Ch. 114)

FCC ID: PY7-76056F	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2205240063-16.PY7	Test Dates: 6/3/2022-7/29/2022	EUT Type: Portable Handset	Page 108 of 189



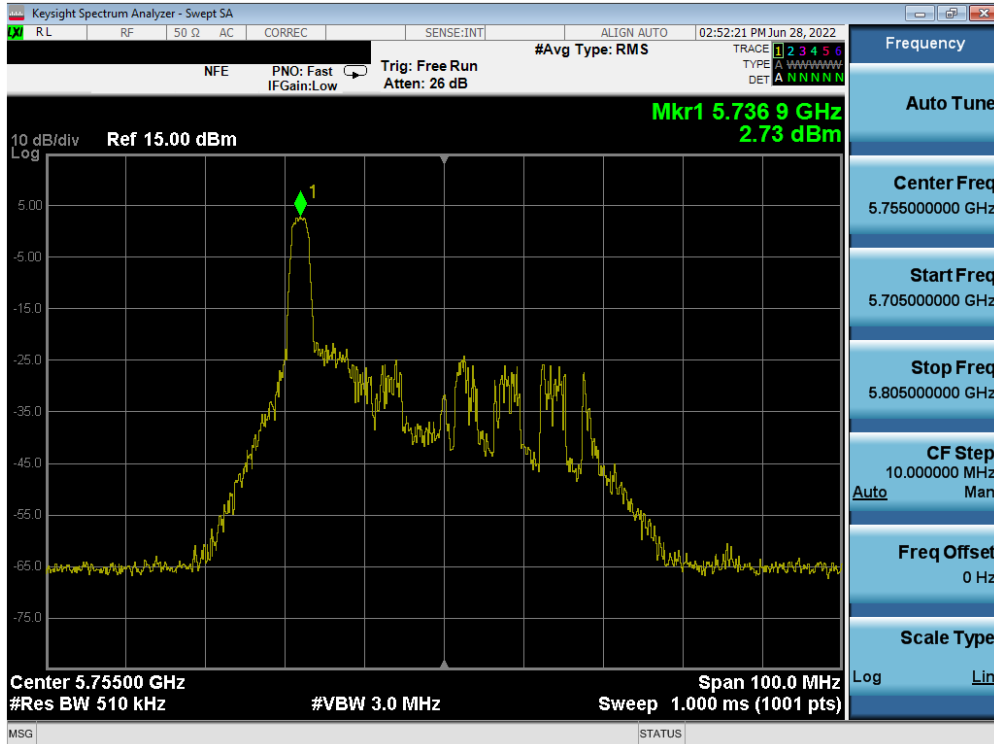
Plot 7-145. Power Spectral Density Plot MIMO ANT1 (160MHz U BW 802.11ax – 26 Tones (UNII Band 2C) – Ch. 114)



Plot 7-146. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802.11ax – 26 Tones (UNII Band 3) – Ch. 149)

FCC ID: PY7-76056F	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2205240063-16.PY7	Test Dates: 6/3/2022-7/29/2022	EUT Type: Portable Handset	Page 109 of 189



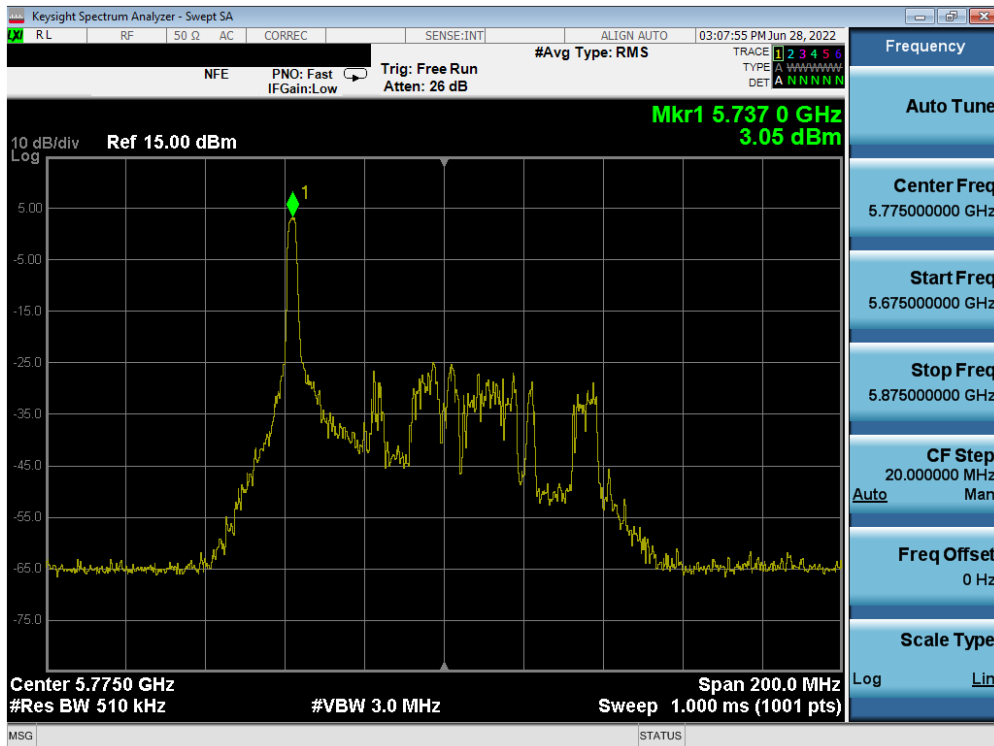


Plot 7-149. Power Spectral Density Plot MIMO ANT1 (40MHz BW 802.11ax – 26 Tones (UNII Band 3) – Ch. 151)



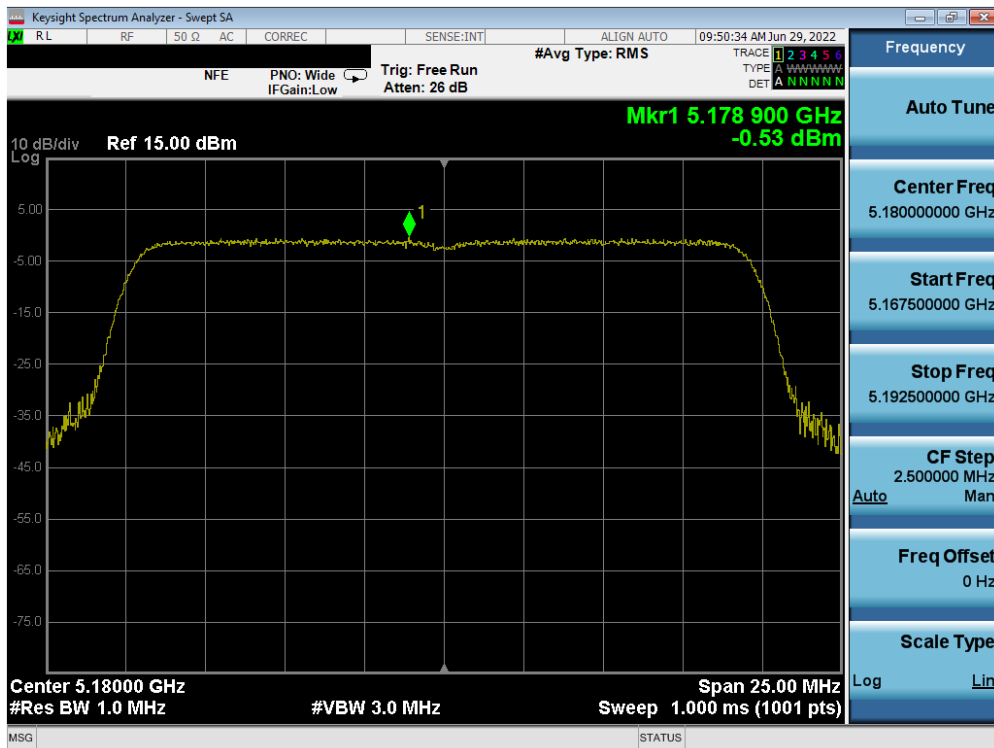
Plot 7-150. Power Spectral Density Plot MIMO ANT1 (40MHz BW 802.11ax – 26 Tones (UNII Band 3) – Ch. 159)

FCC ID: PY7-76056F	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2205240063-16.PY7	Test Dates: 6/3/2022-7/29/2022	EUT Type: Portable Handset	Page 111 of 189

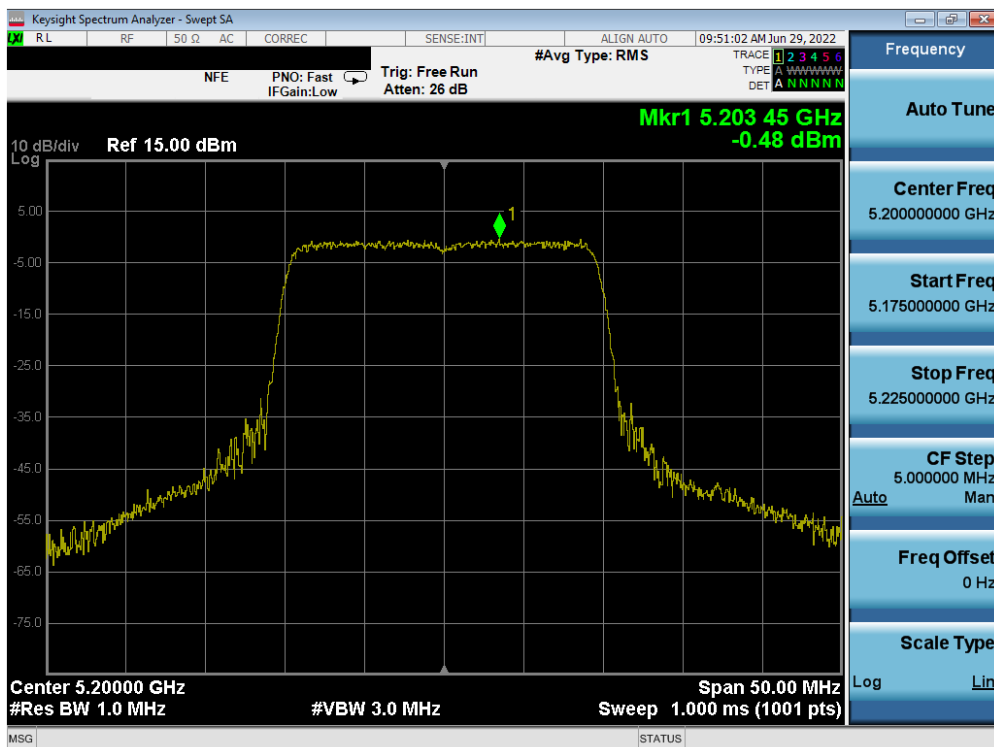


Plot 7-151. Power Spectral Density Plot MIMO ANT1 (80MHz BW 802.11ax – 26 Tones (UNII Band 3) – Ch. 155)

FCC ID: PY7-76056F	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2205240063-16.PY7	Test Dates: 6/3/2022-7/29/2022	EUT Type: Portable Handset	Page 112 of 189

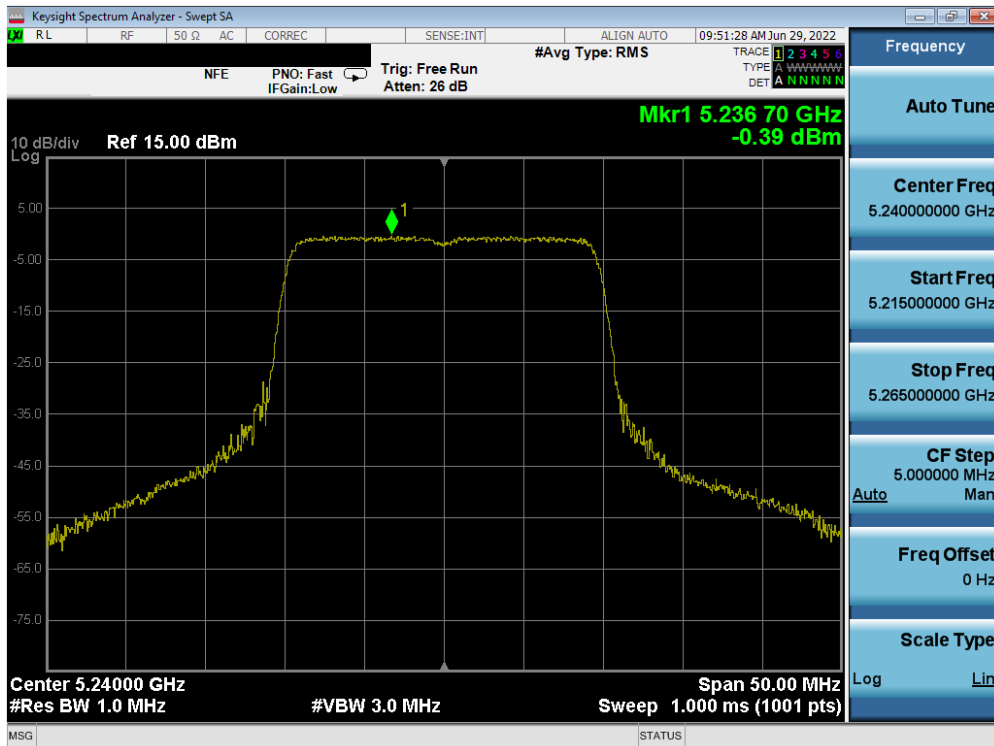


Plot 7-152. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802.11ax – Full Tones (UNII Band 1) – Ch. 36)

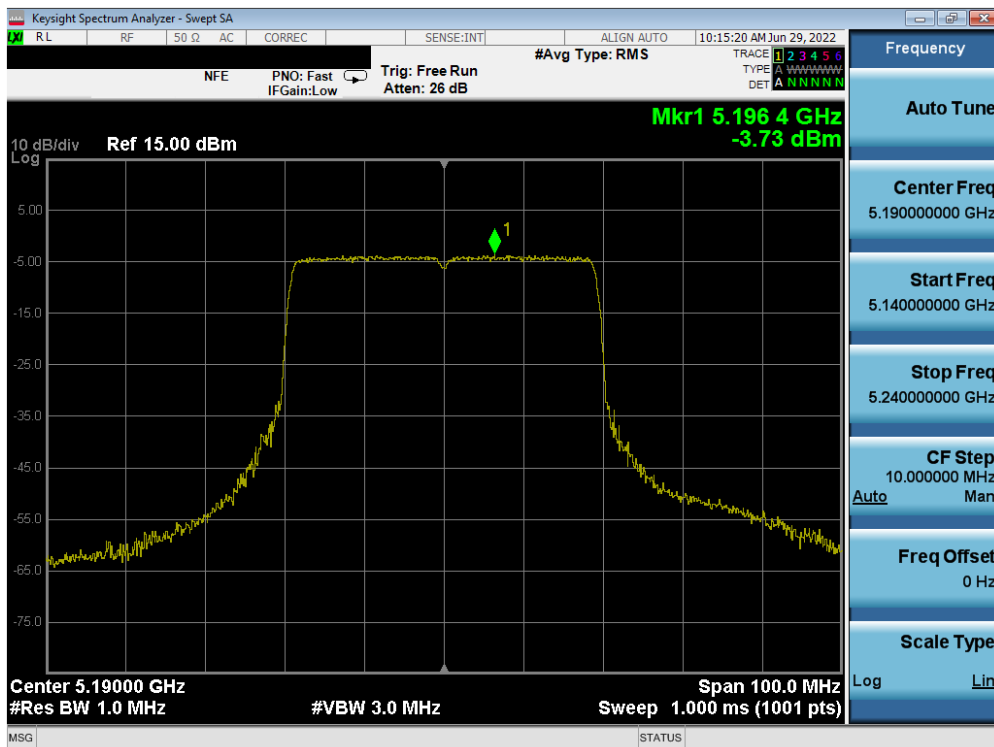


Plot 7-153. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802.11ax – Full Tones (UNII Band 1) – Ch. 40)

FCC ID: PY7-76056F	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2205240063-16.PY7	Test Dates: 6/3/2022-7/29/2022	EUT Type: Portable Handset	Page 113 of 189

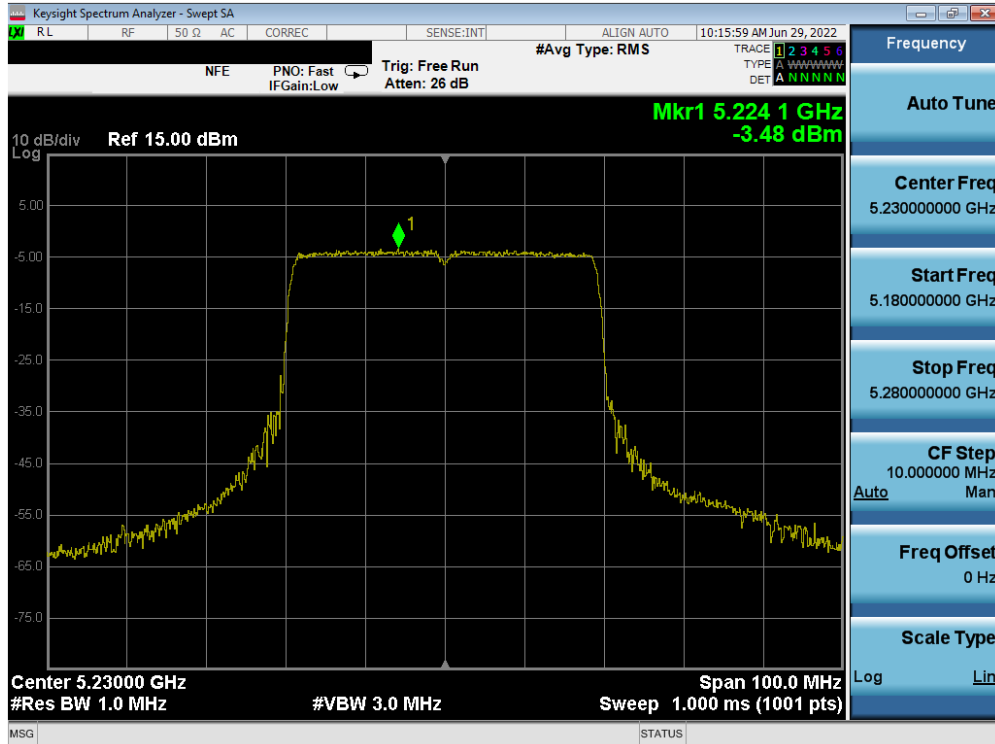


Plot 7-154. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802.11ax – Full Tones (UNII Band 1) – Ch. 48)

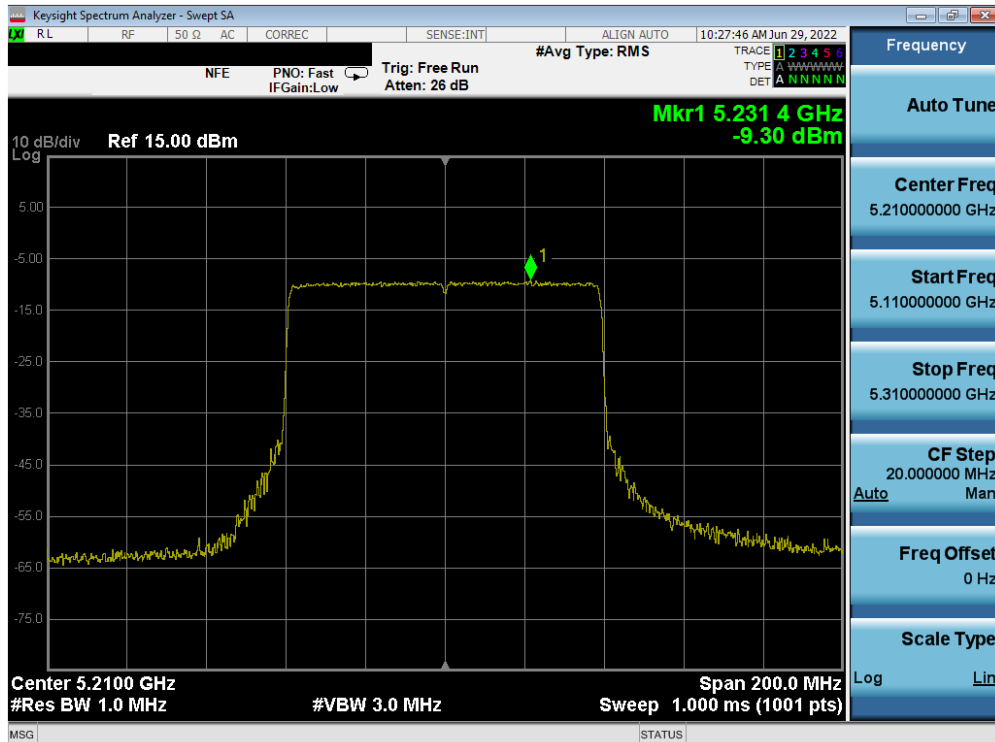


Plot 7-155. Power Spectral Density Plot MIMO ANT1 (40MHz BW 802.11ax – Full Tones (UNII Band 1) – Ch. 38)

FCC ID: PY7-76056F	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2205240063-16.PY7	Test Dates: 6/3/2022-7/29/2022	EUT Type: Portable Handset	Page 114 of 189



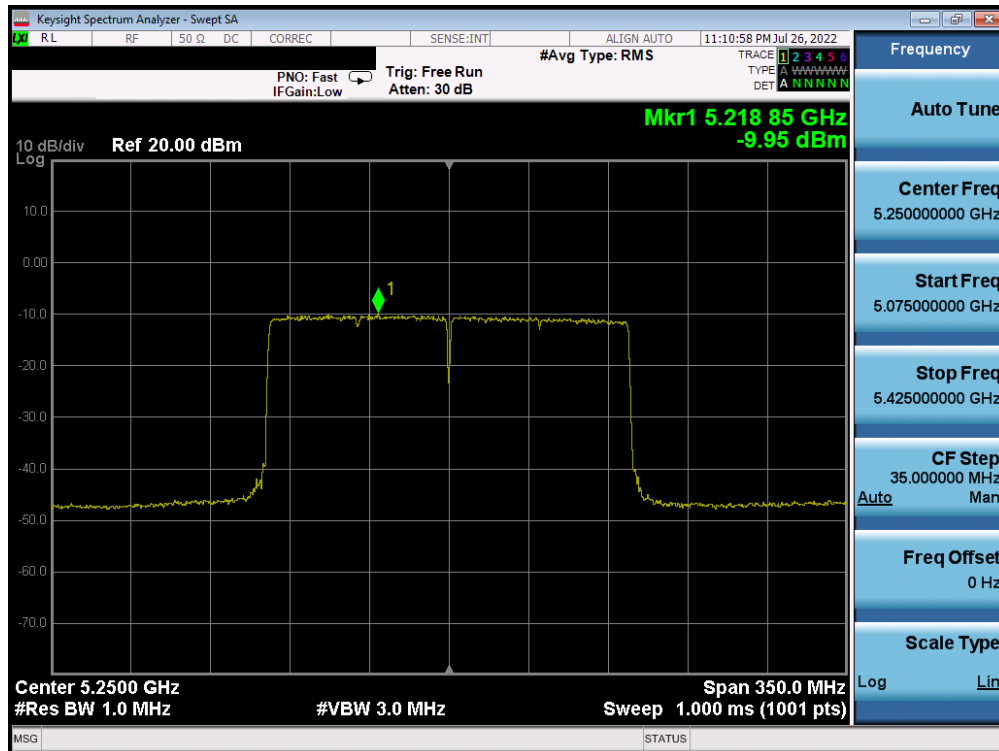
Plot 7-156. Power Spectral Density Plot MIMO ANT1 (40MHz BW 802.11ax – Full Tones (UNII Band 1) – Ch. 46)



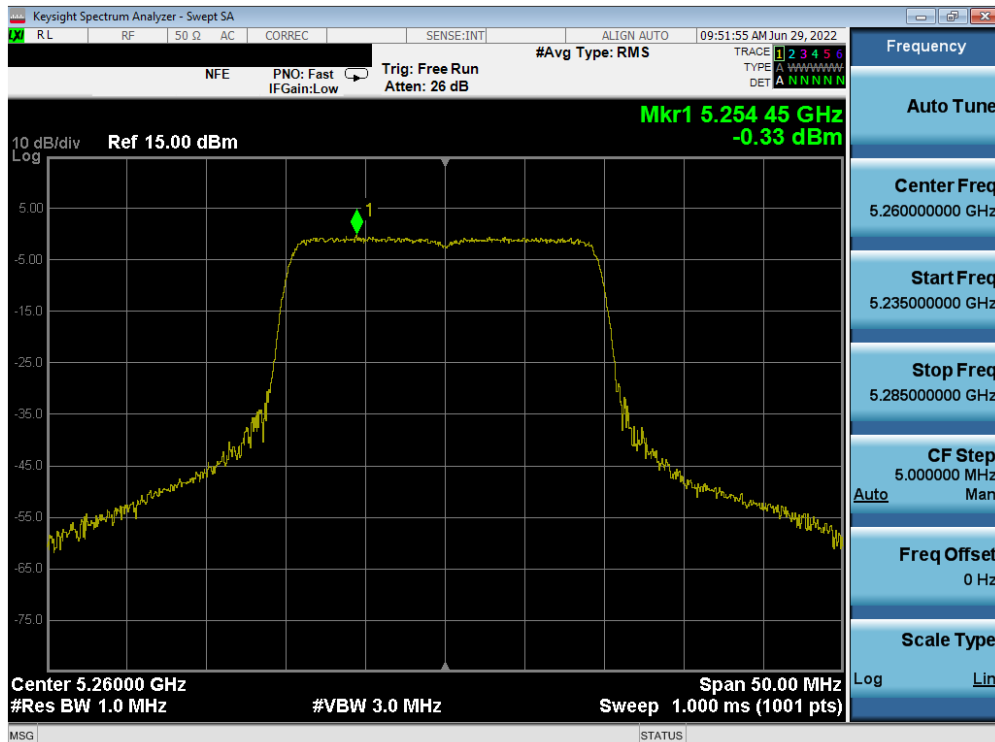
Plot 7-157. Power Spectral Density Plot MIMO ANT1 (80MHz BW 802.11ax – Full Tones (UNII Band 1) – Ch. 42)

FCC ID: PY7-76056F	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2205240063-16.PY7	Test Dates: 6/3/2022-7/29/2022	EUT Type: Portable Handset	Page 115 of 189



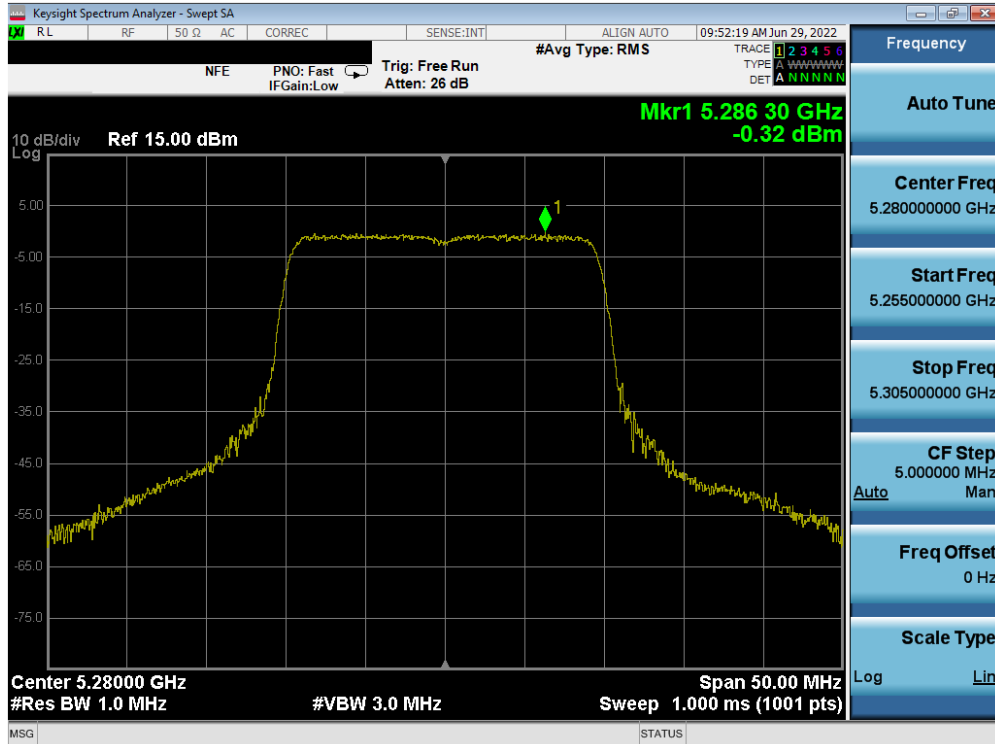


Plot 7-158. Power Spectral Density Plot MIMO ANT1 (160MHz BW 802.11ax – Full Tones (UNII Band 1/2A) – Ch. 50)

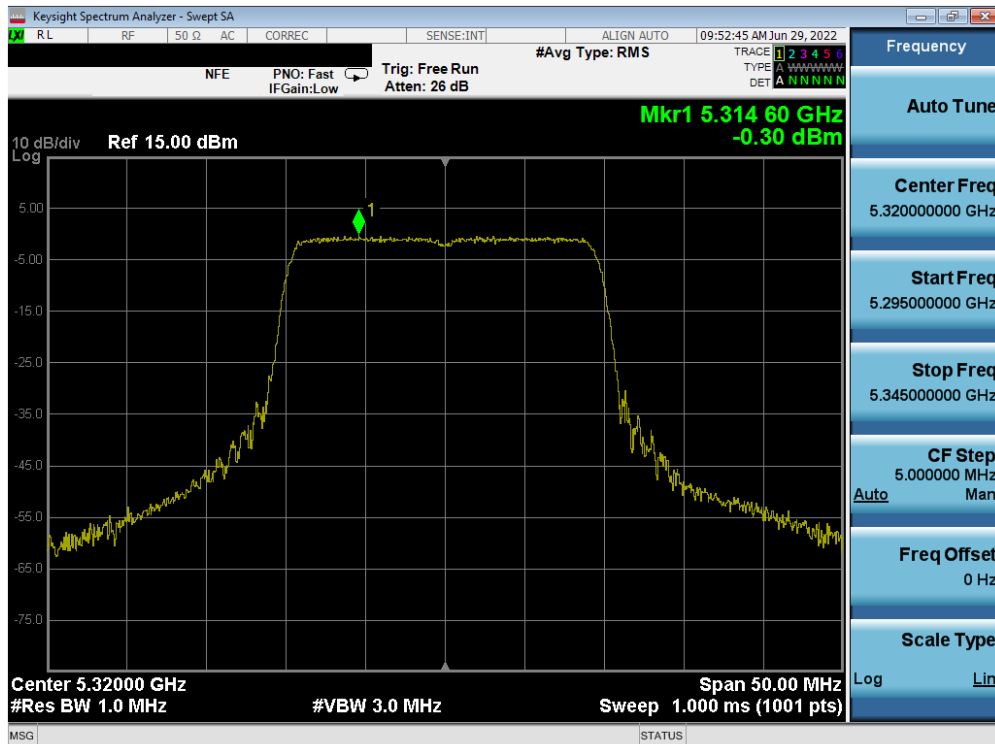


Plot 7-159. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802.11ax – Full Tones (UNII Band 2A) – Ch. 52)

FCC ID: PY7-76056F	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2205240063-16.PY7	Test Dates: 6/3/2022-7/29/2022	EUT Type: Portable Handset	Page 116 of 189

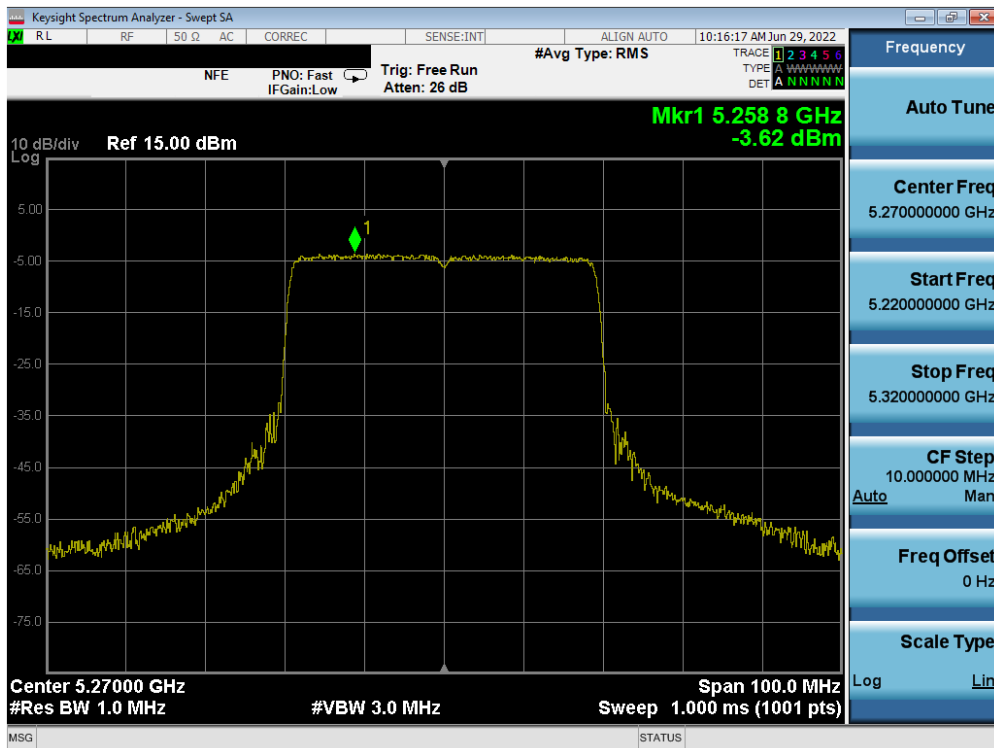


Plot 7-160. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802.11ax – Full Tones (UNII Band 2A) – Ch. 56)

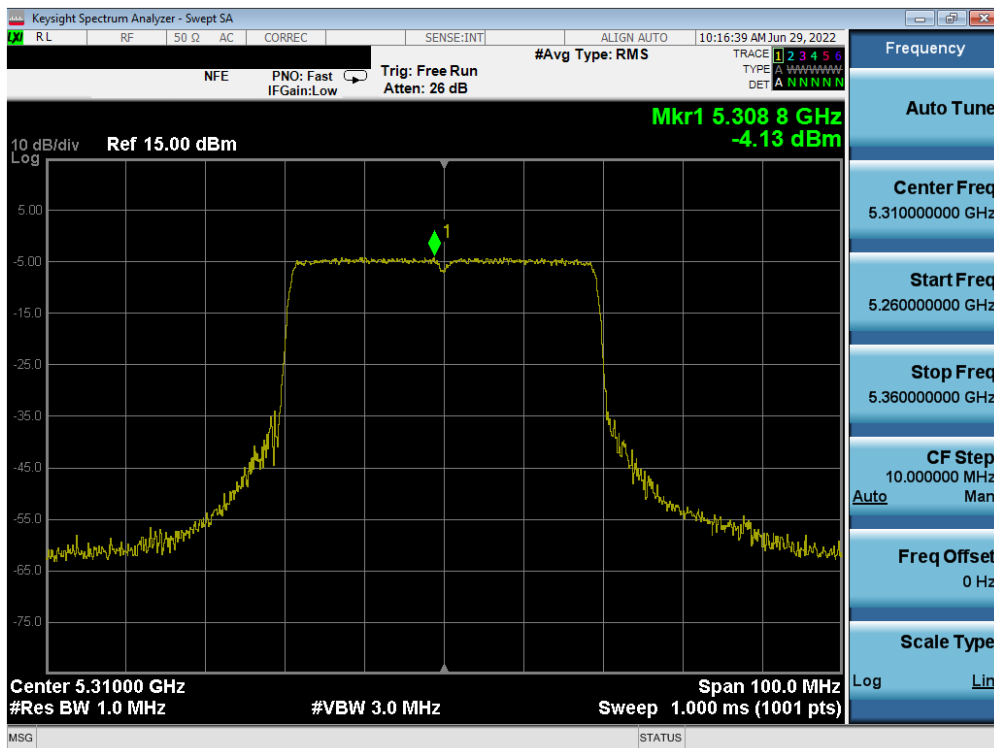


Plot 7-161. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802.11ax – Full Tones (UNII Band 2A) – Ch. 64)

FCC ID: PY7-76056F	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2205240063-16.PY7	Test Dates: 6/3/2022-7/29/2022	EUT Type: Portable Handset	Page 117 of 189

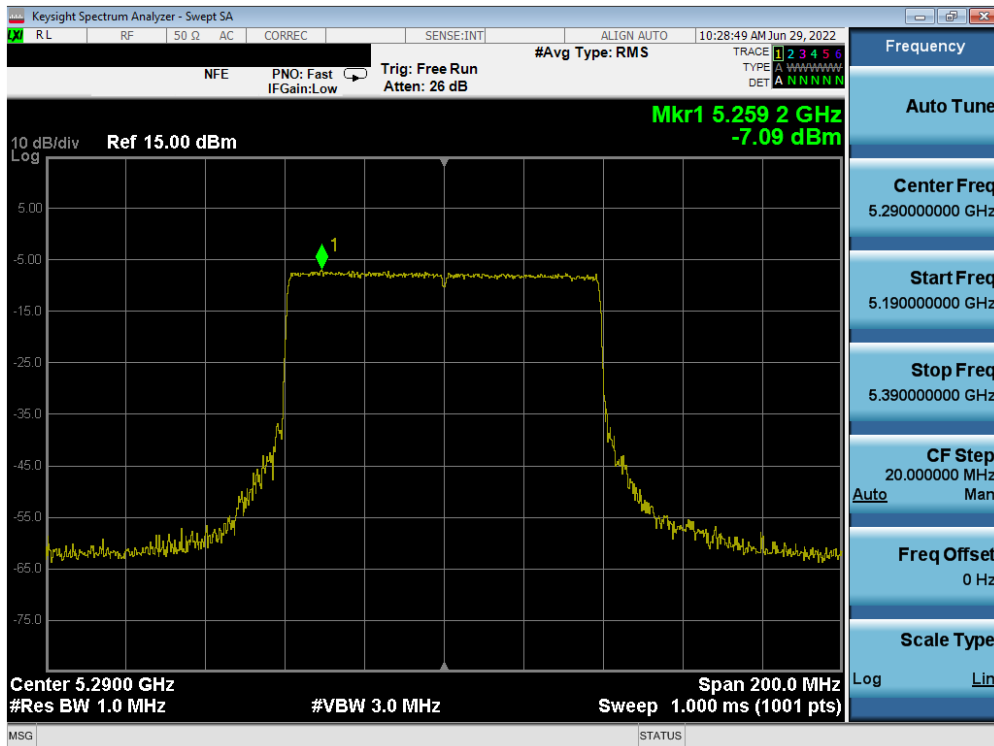


Plot 7-162. Power Spectral Density Plot MIMO ANT1 (40MHz BW 802.11ax – Full Tones (UNII Band 2A) – Ch. 54)

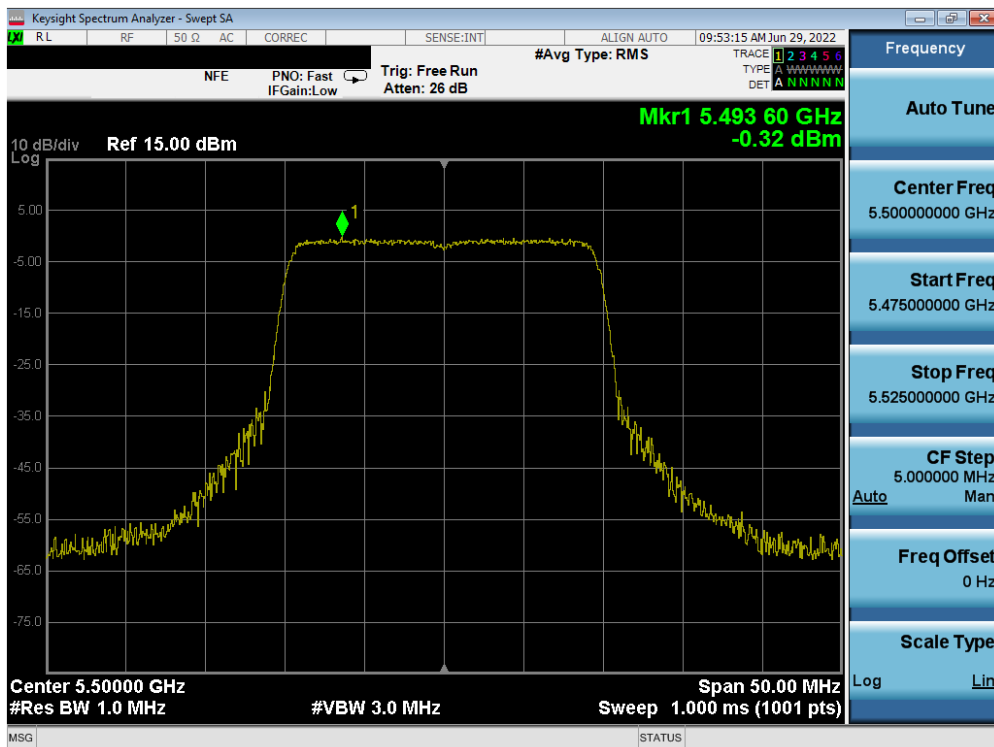


Plot 7-163. Power Spectral Density Plot MIMO ANT1 (40MHz BW 802.11ax – Full Tones (UNII Band 2A) – Ch. 62)

FCC ID: PY7-76056F	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2205240063-16.PY7	Test Dates: 6/3/2022-7/29/2022	EUT Type: Portable Handset	Page 118 of 189

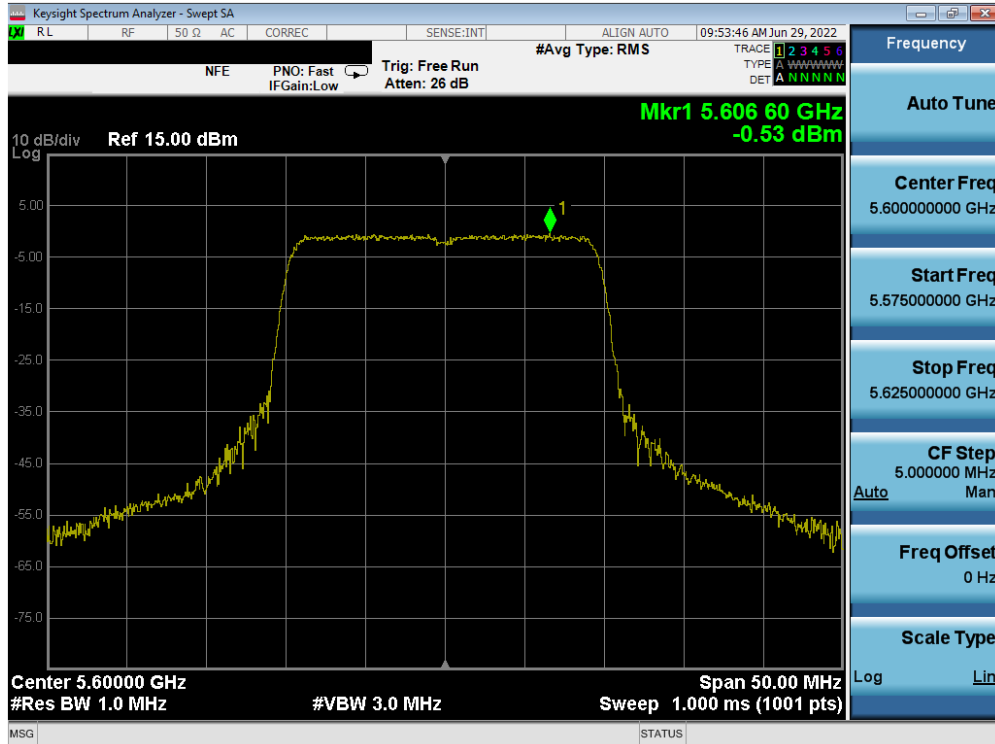


Plot 7-164. Power Spectral Density Plot MIMO ANT1 (80MHz BW 802.11ax – Full Tones (UNII Band 2A) – Ch. 58)

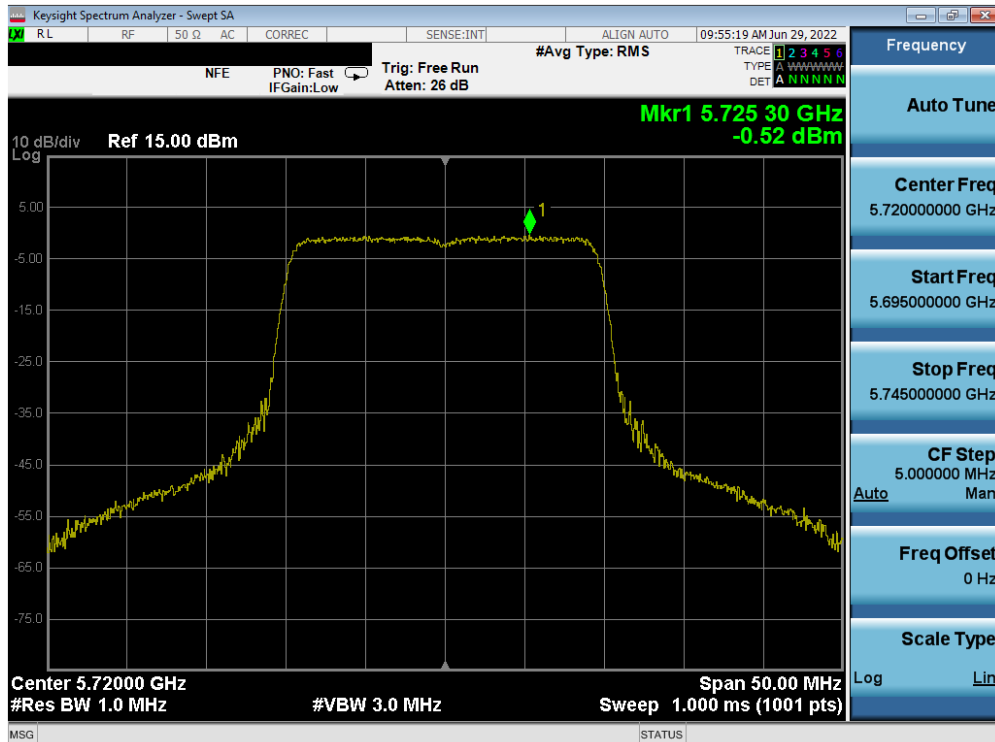


Plot 7-165. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802.11ax – Full Tones (UNII Band 2C) – Ch. 100)

FCC ID: PY7-76056F	<b>MEASUREMENT REPORT (CERTIFICATION)</b>		Approved by: Technical Manager
Test Report S/N: 1M2205240063-16.PY7	Test Dates: 6/3/2022-7/29/2022	EUT Type: Portable Handset	Page 119 of 189

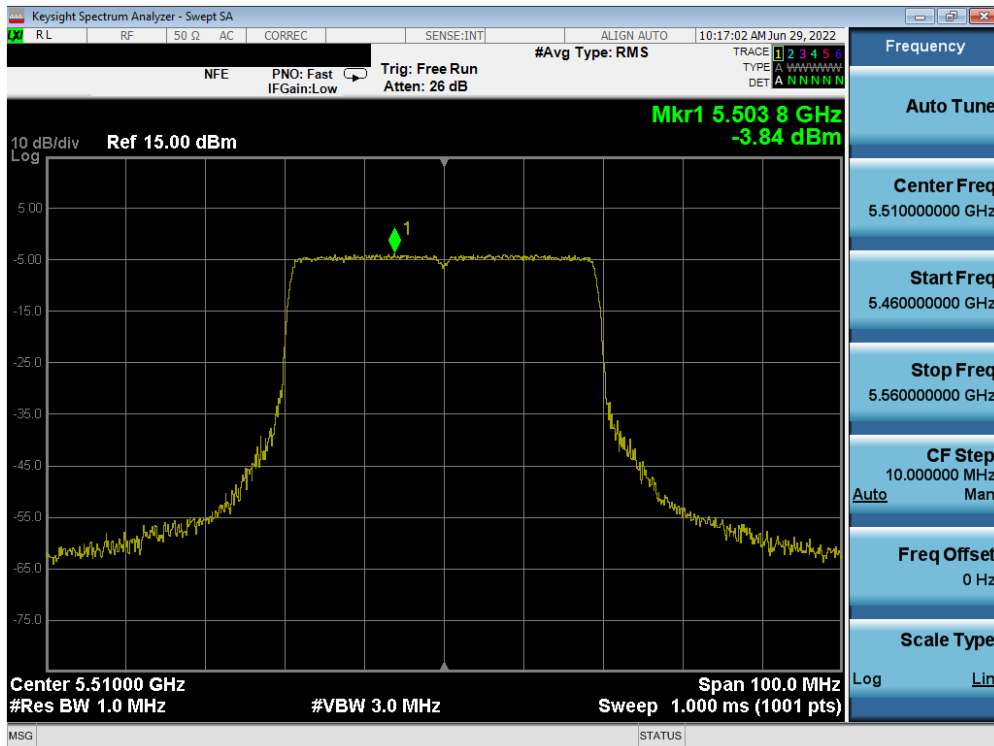


Plot 7-166. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802.11ax – Full Tones (UNII Band 2C) – Ch. 120)

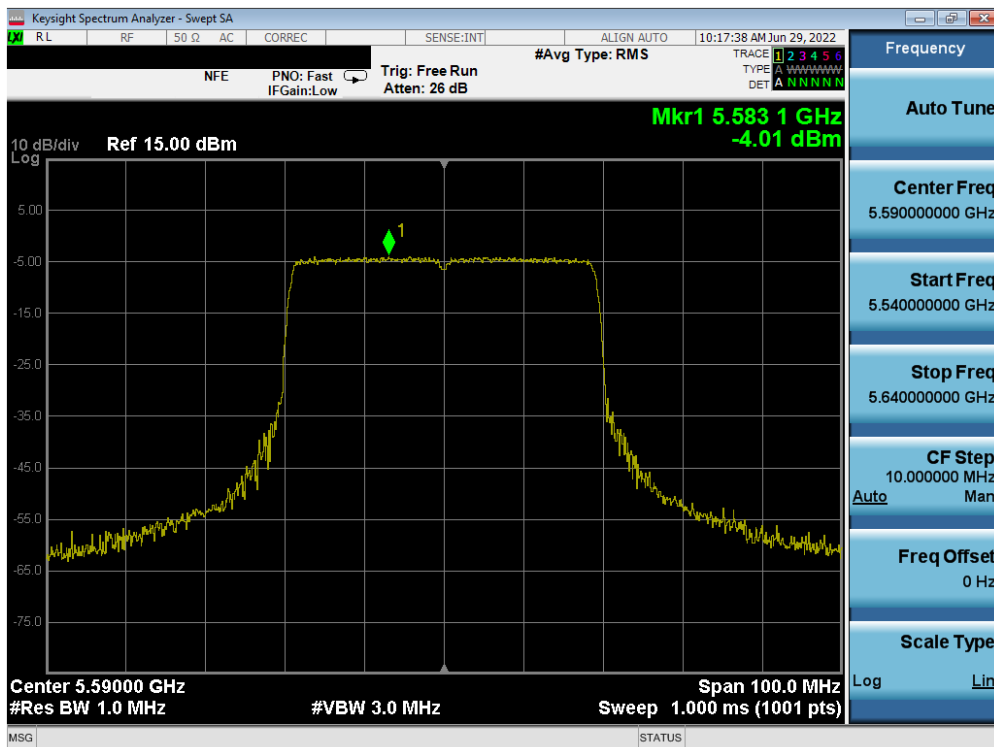


Plot 7-167. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802.11ax – Full Tones (UNII Band 2C) – Ch. 144)

FCC ID: PY7-76056F	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2205240063-16.PY7	Test Dates: 6/3/2022-7/29/2022	EUT Type: Portable Handset	Page 120 of 189

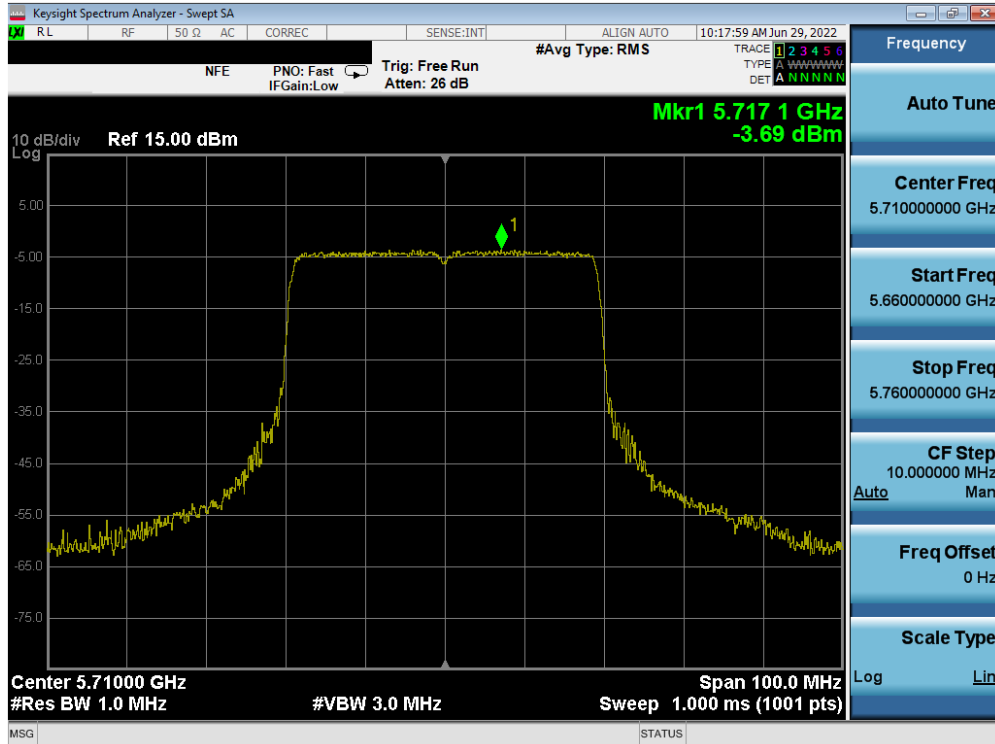


Plot 7-168. Power Spectral Density Plot MIMO ANT1 (40MHz BW 802.11ax – Full Tones (UNII Band 2C) – Ch. 102)

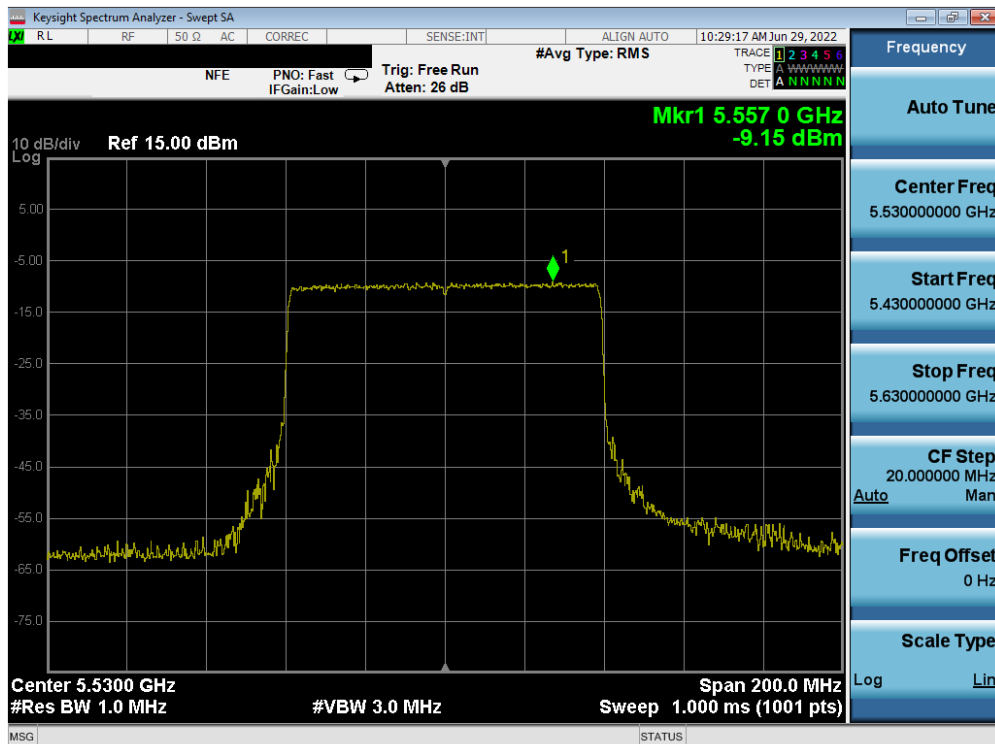


Plot 7-169. Power Spectral Density Plot MIMO ANT1 (40MHz BW 802.11ax – Full Tones (UNII Band 2C) – Ch. 118)

FCC ID: PY7-76056F	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2205240063-16.PY7	Test Dates: 6/3/2022-7/29/2022	EUT Type: Portable Handset	Page 121 of 189

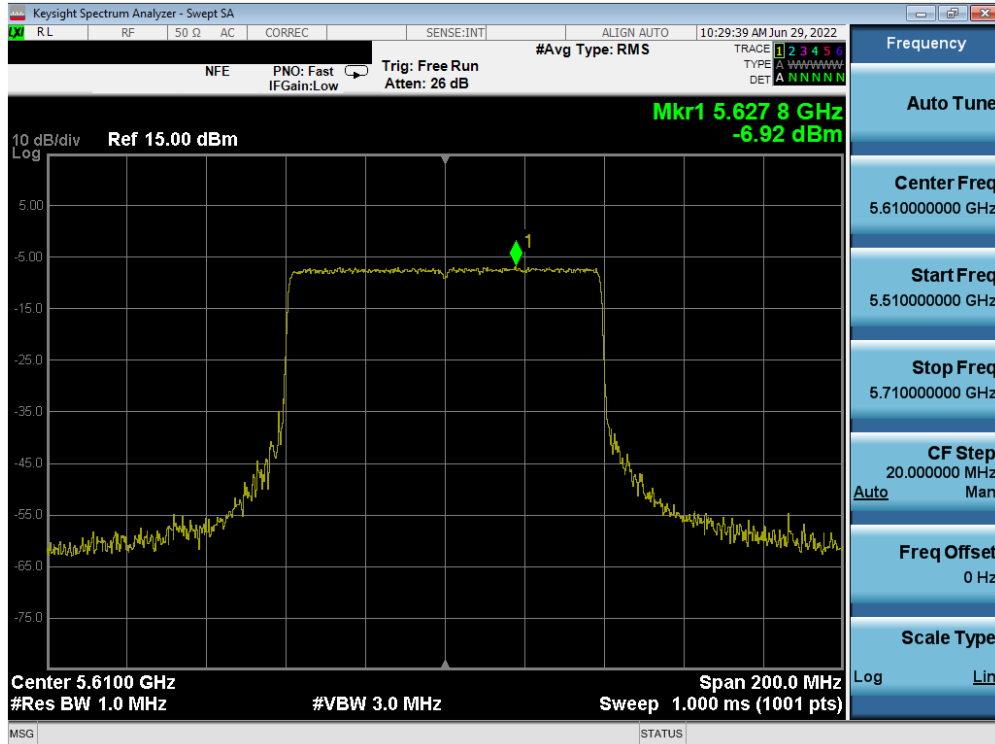


Plot 7-170. Power Spectral Density Plot MIMO ANT1 (40MHz BW 802.11ax – Full Tones (UNII Band 2C) – Ch. 142)

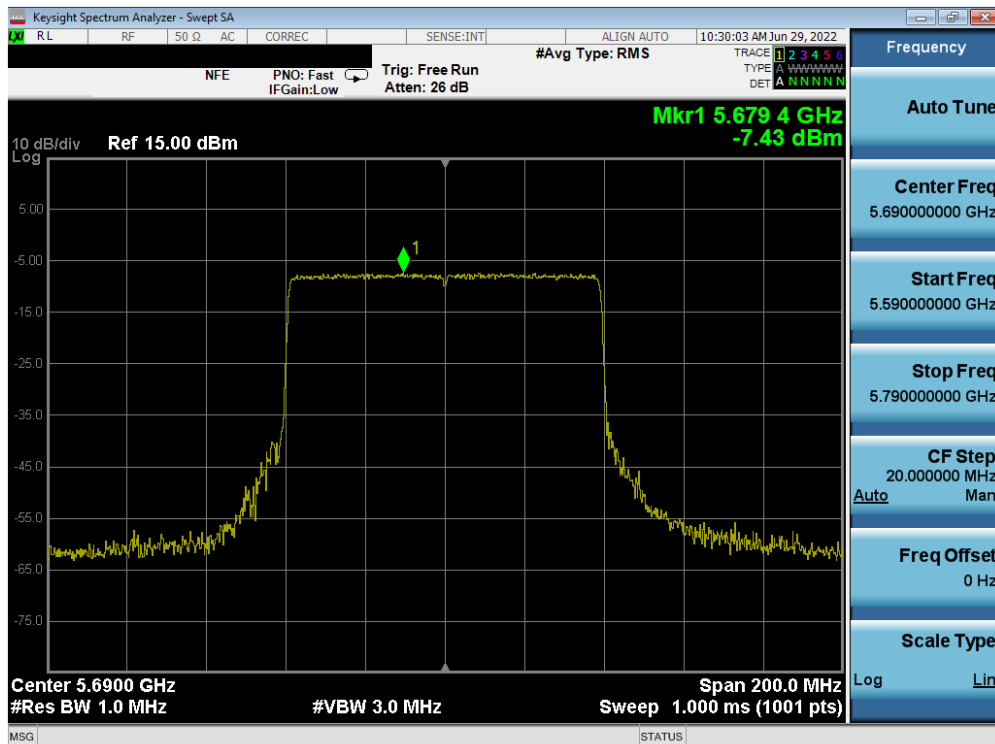


Plot 7-171. Power Spectral Density Plot MIMO ANT1 (80MHz BW 802.11ax – Full Tones (UNII Band 2C) – Ch. 106)

FCC ID: PY7-76056F	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2205240063-16.PY7	Test Dates: 6/3/2022-7/29/2022	EUT Type: Portable Handset	Page 122 of 189



Plot 7-172. Power Spectral Density Plot MIMO ANT1 (80MHz BW 802.11ax – Full Tones (UNII Band 2C) – Ch. 122)

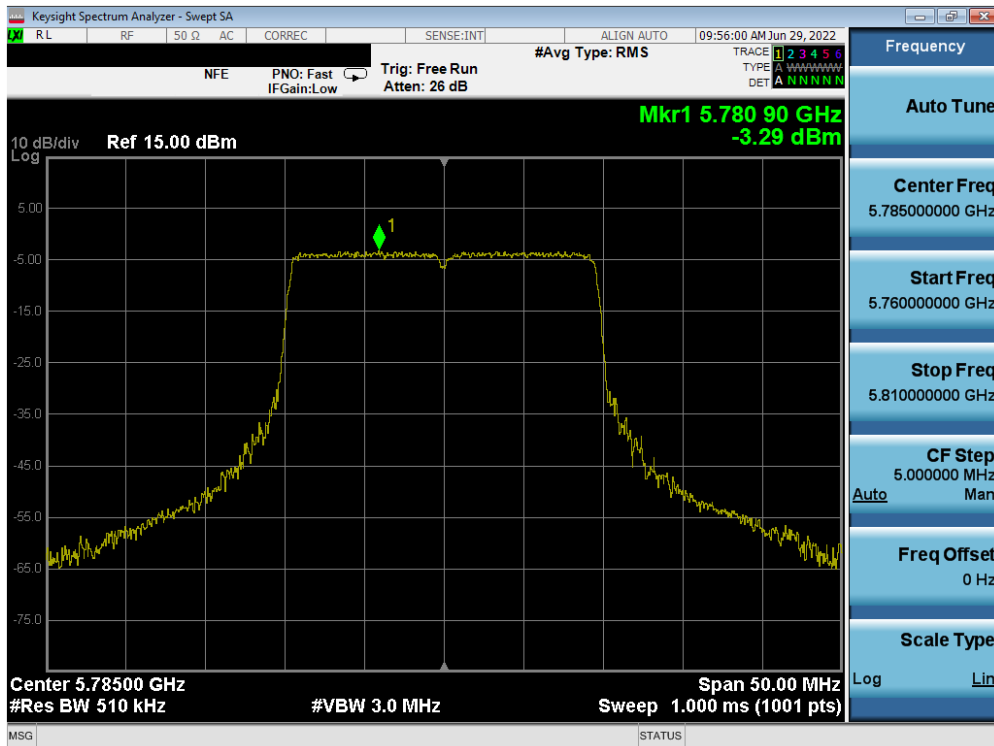


Plot 7-173. Power Spectral Density Plot MIMO ANT1 (80MHz BW 802.11ax – Full Tones (UNII Band 2C) – Ch. 138)

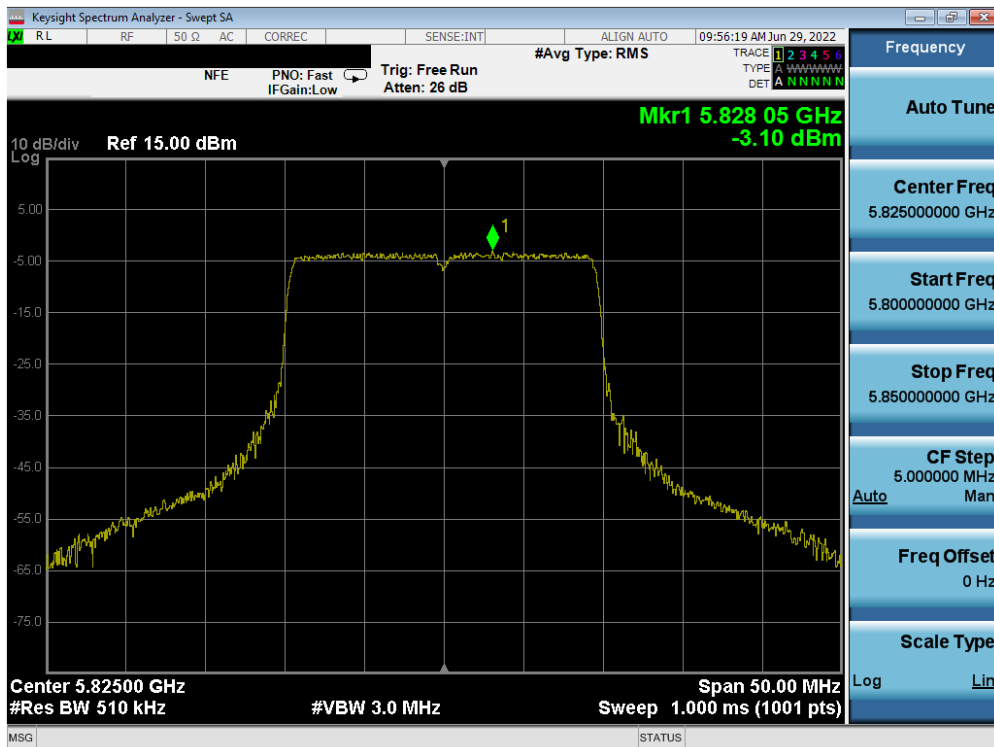
FCC ID: PY7-76056F		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2205240063-16.PY7	Test Dates: 6/3/2022-7/29/2022	EUT Type: Portable Handset	Page 123 of 189	





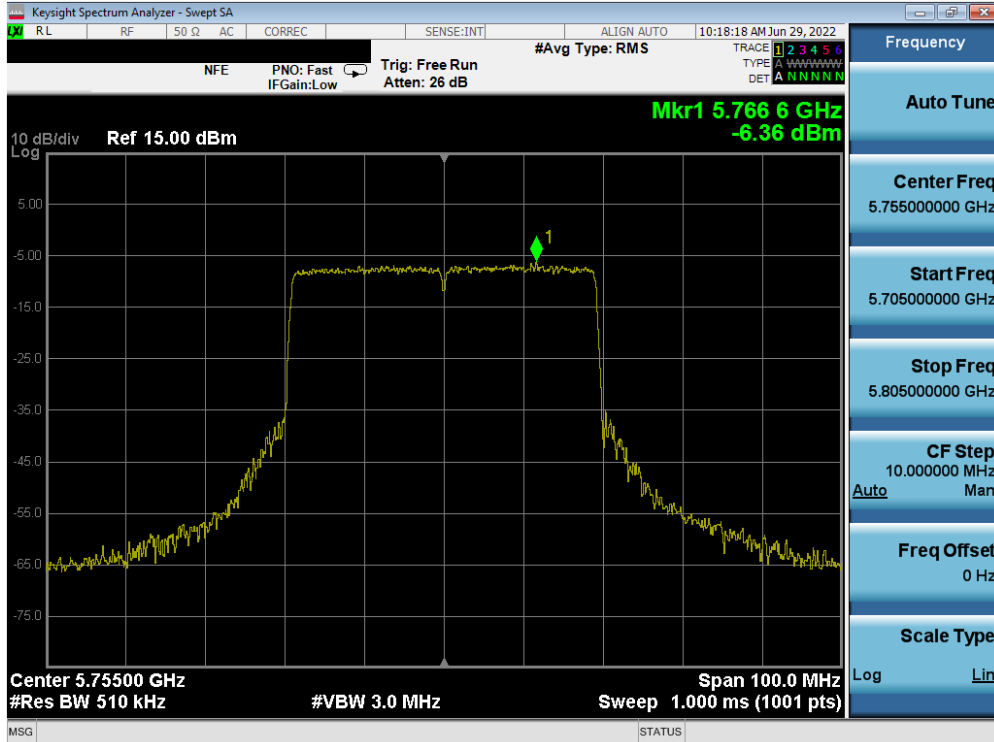


Plot 7-176. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802.11ax – Full Tones (UNII Band 3) – Ch. 157)

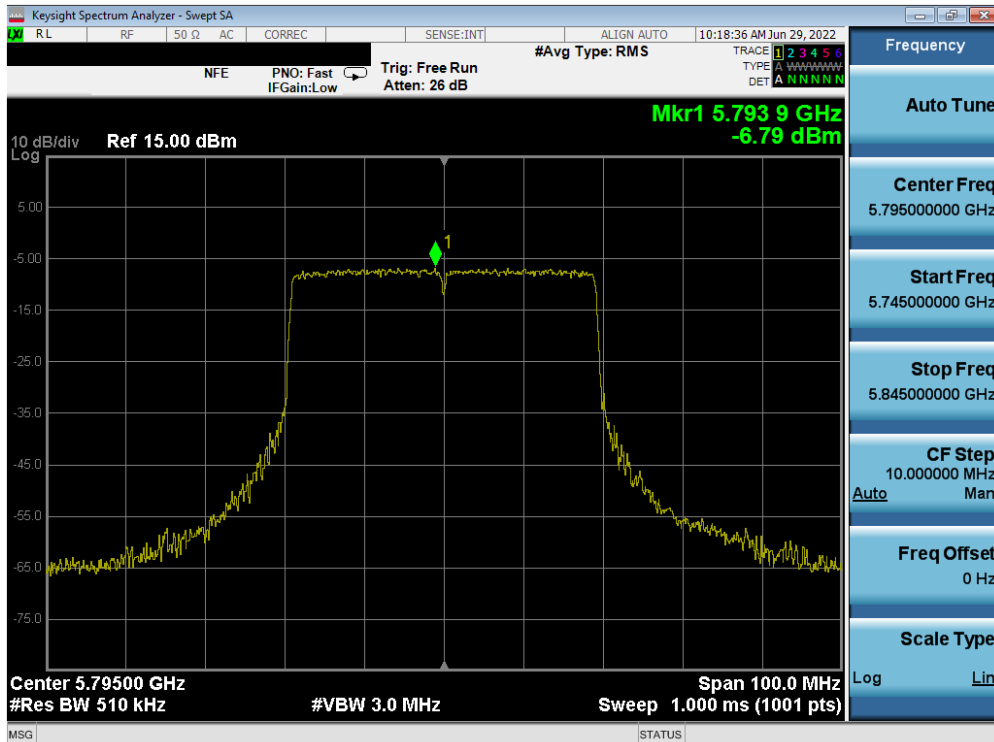


Plot 7-177. Power Spectral Density Plot MIMO ANT1 (20 MHz BW 802.11ax – Full Tones (UNII Band 3) – Ch. 165)

FCC ID: PY7-76056F	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2205240063-16.PY7	Test Dates: 6/3/2022-7/29/2022	EUT Type: Portable Handset	Page 125 of 189

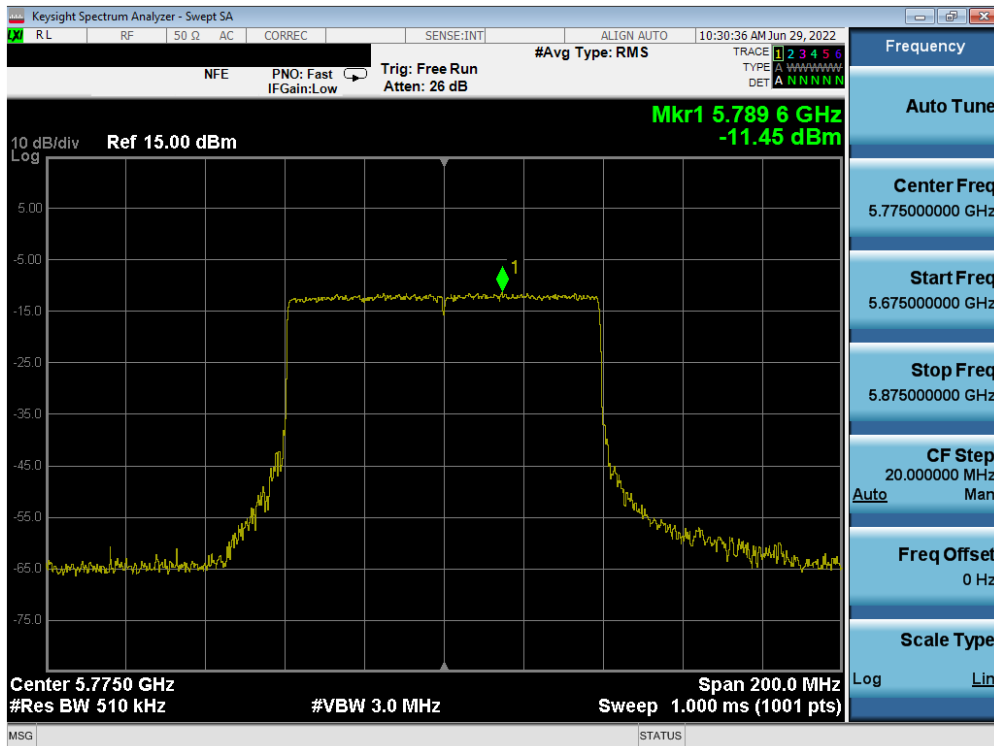


Plot 7-178. Power Spectral Density Plot MIMO ANT1 (40MHz BW 802.11ax – Full Tones (UNII Band 3) – Ch. 151)



Plot 7-179. Power Spectral Density Plot MIMO ANT1 (40MHz BW 802.11ax – Full Tones (UNII Band 3) – Ch. 159)

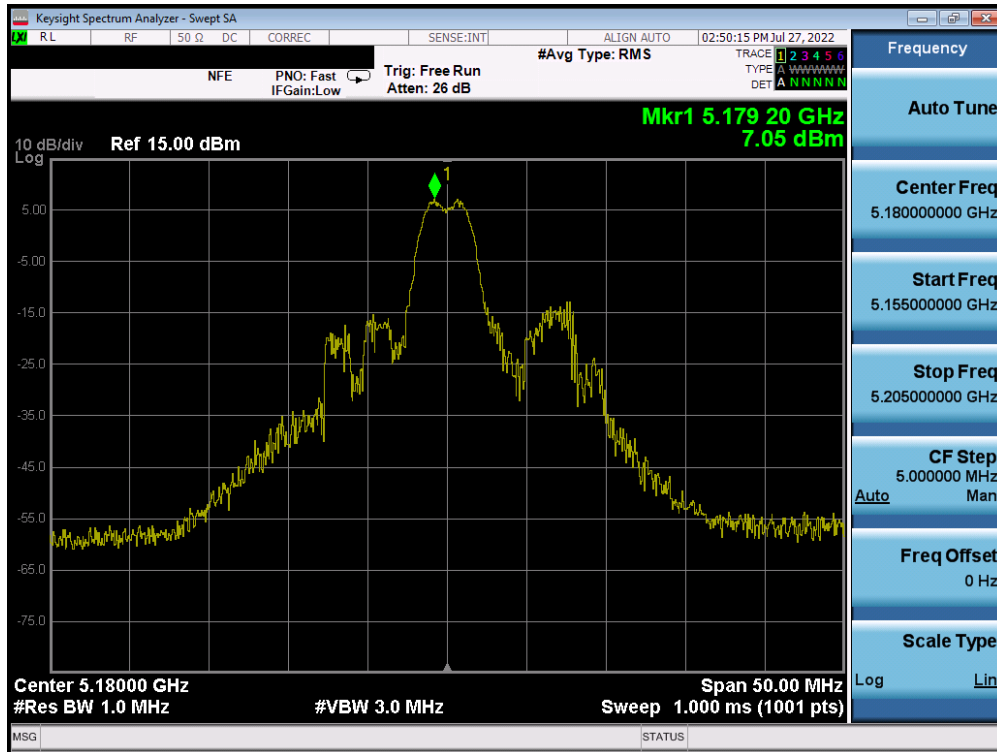
FCC ID: PY7-76056F		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2205240063-16.PY7	Test Dates: 6/3/2022-7/29/2022	EUT Type: Portable Handset	Page 126 of 189	



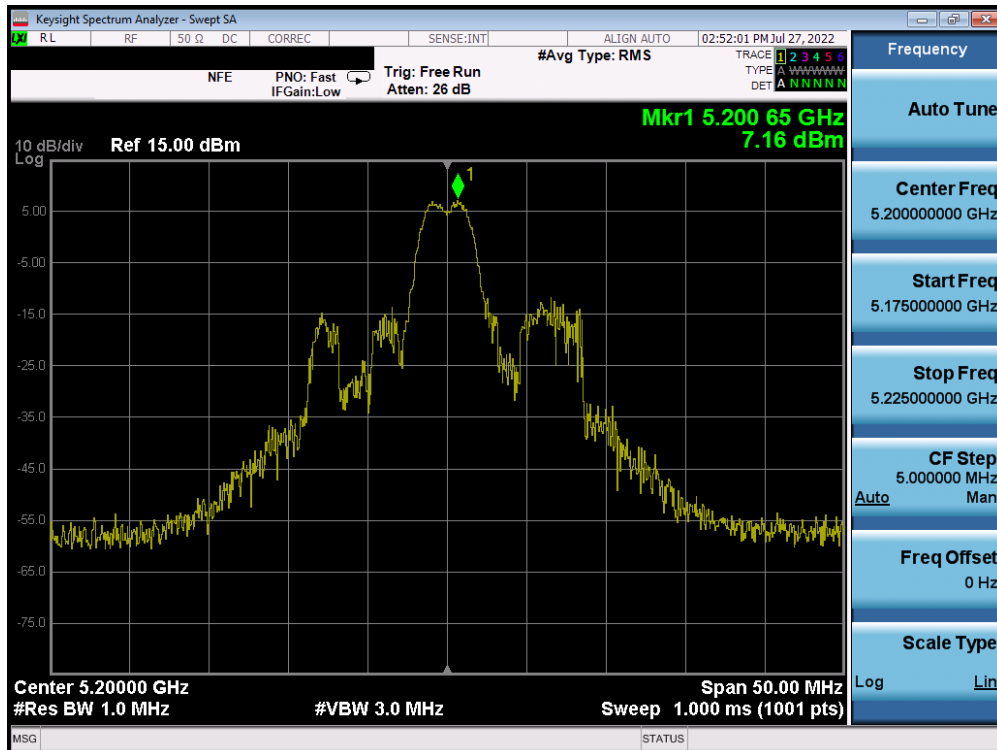
Plot 7-180. Power Spectral Density Plot MIMO ANT1 (80MHz BW 802.11ax – Full Tones (UNII Band 3) – Ch. 155)

FCC ID: PY7-76056F	<b>MEASUREMENT REPORT (CERTIFICATION)</b>		Approved by: Technical Manager
Test Report S/N: 1M2205240063-16.PY7	Test Dates: 6/3/2022-7/29/2022	EUT Type: Portable Handset	Page 127 of 189

## MIMO Antenna-2 Power Spectral Density Measurements

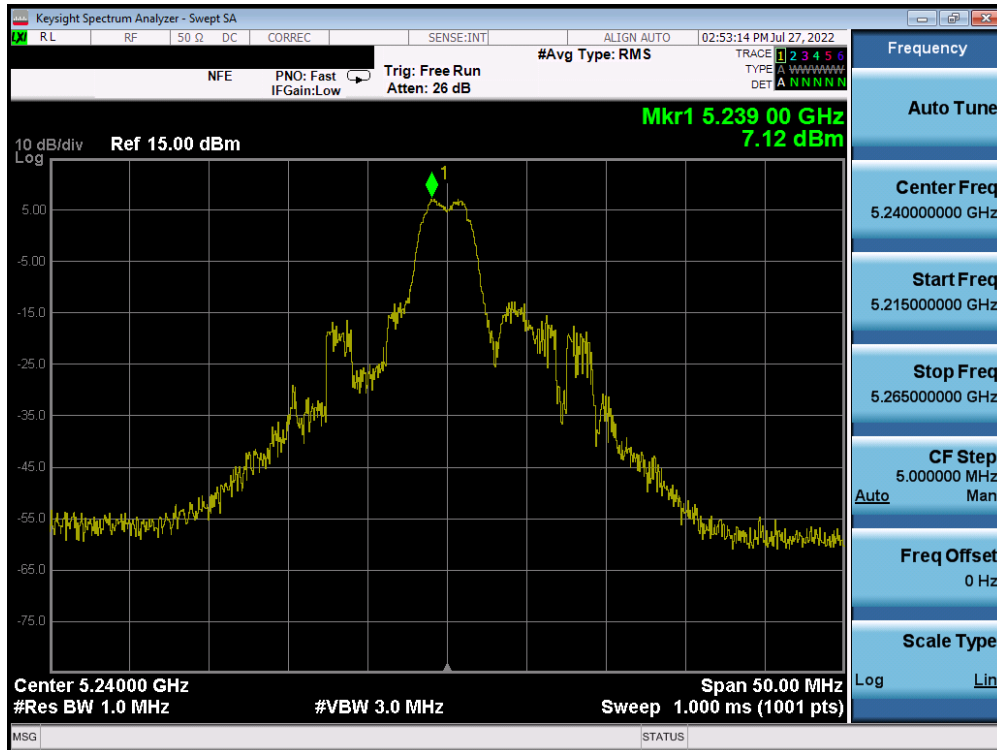


Plot 7-181. Power Spectral Density Plot MIMO ANT2 (20MHz BW 802.11ax – 26 Tones (UNII Band 1) – Ch. 36)

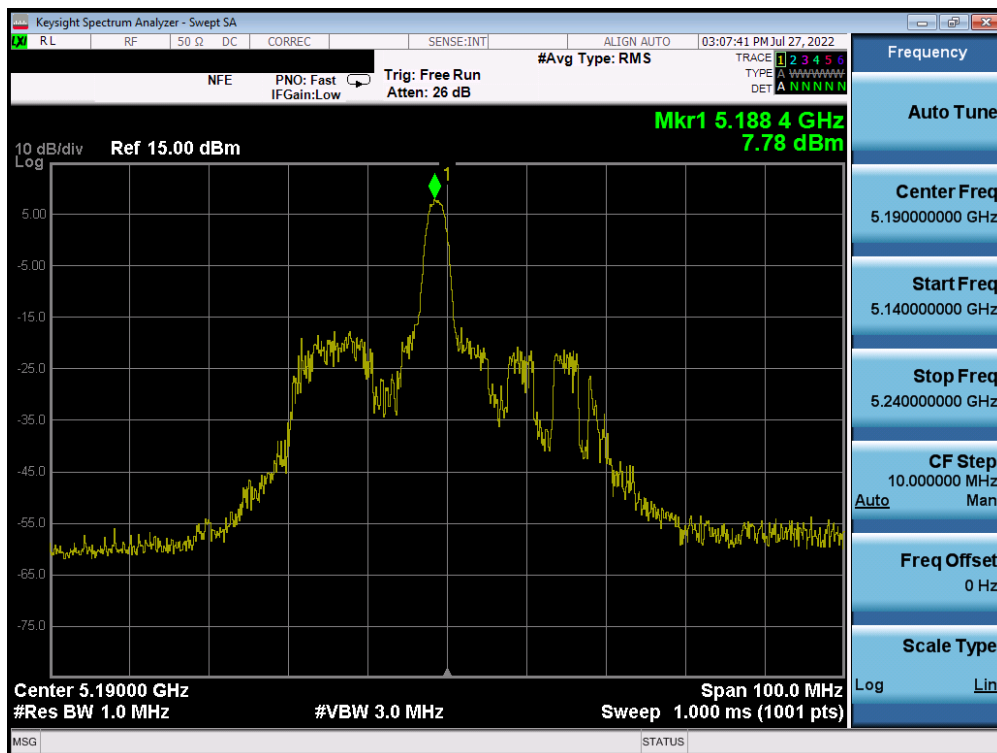


Plot 7-182. Power Spectral Density Plot MIMO ANT2 (20MHz BW 802.11ax – 26 Tones (UNII Band 1) – Ch. 40)

MEASUREMENT REPORT (CERTIFICATION)			Approved by: Technical Manager
FCC ID: PY7-76056F	Test Dates: 6/3/2022-7/29/2022	EUT Type: Portable Handset	Page 128 of 189

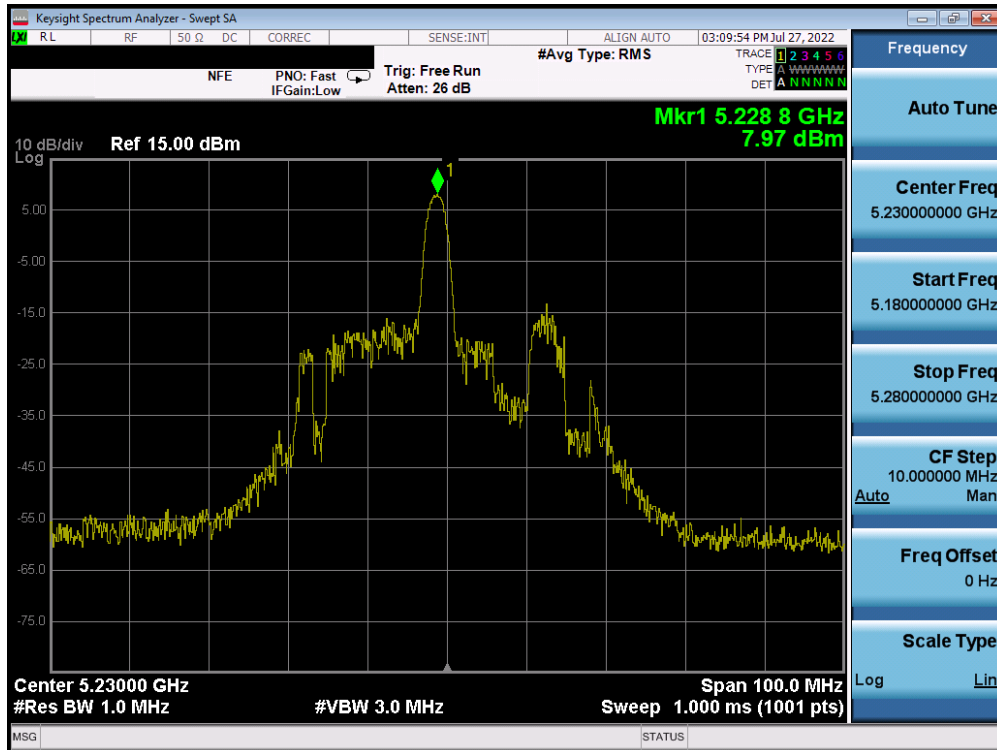


Plot 7-183. Power Spectral Density Plot MIMO ANT2 (20MHz BW 802.11ax – 26 Tones (UNII Band 1) – Ch. 48)

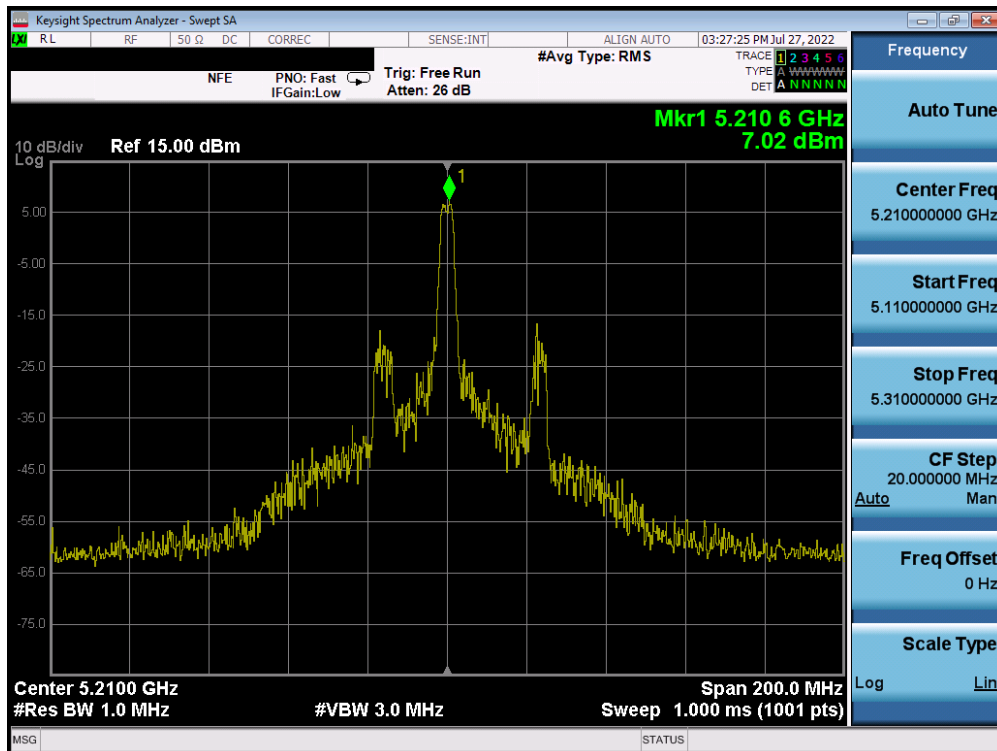


Plot 7-184. Power Spectral Density Plot MIMO ANT2 (40MHz BW 802.11ax – 26 Tones (UNII Band 1) – Ch. 38)

FCC ID: PY7-76056F	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2205240063-16.PY7	Test Dates: 6/3/2022-7/29/2022	EUT Type: Portable Handset	Page 129 of 189

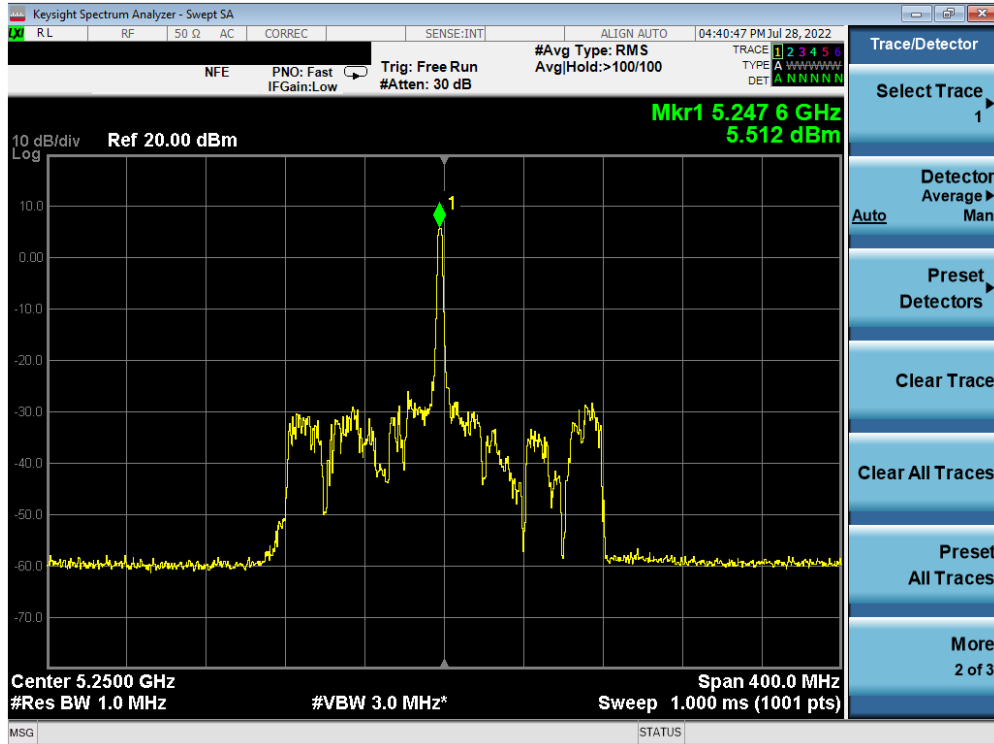


Plot 7-185. Power Spectral Density Plot MIMO ANT2 (40MHz BW 802.11ax – 26 Tones (UNII Band 1) – Ch. 46)

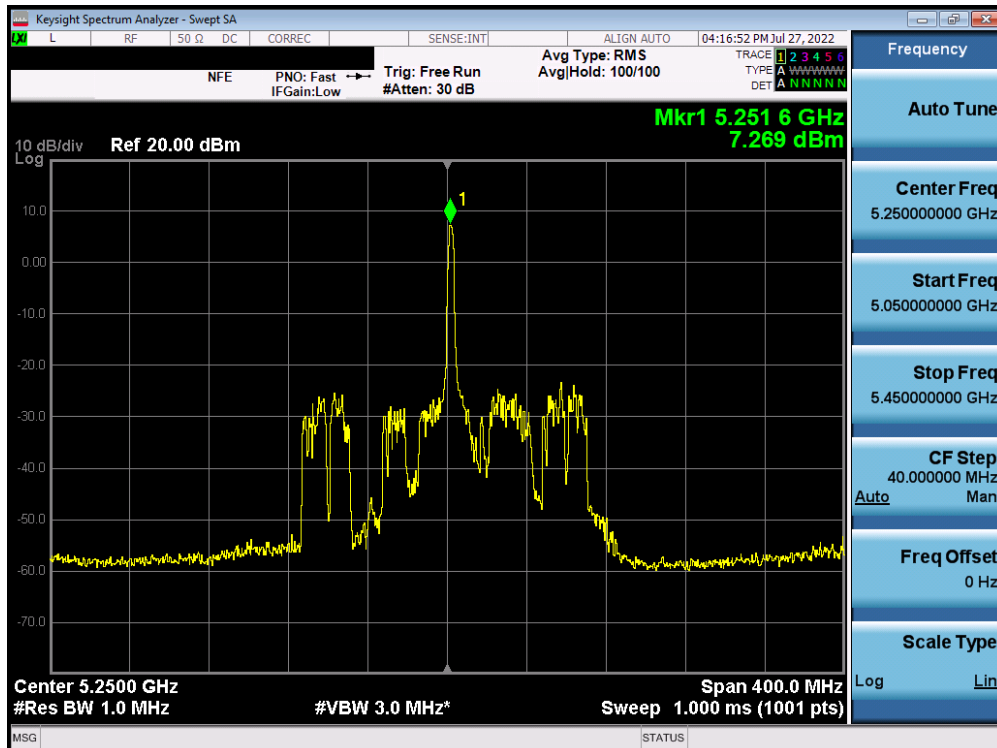


Plot 7-186. Power Spectral Density Plot MIMO ANT2 (80MHz BW 802.11ax – 26 Tones (UNII Band 1) – Ch. 42)

FCC ID: PY7-76056F	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2205240063-16.PY7	Test Dates: 6/3/2022-7/29/2022	EUT Type: Portable Handset	Page 130 of 189



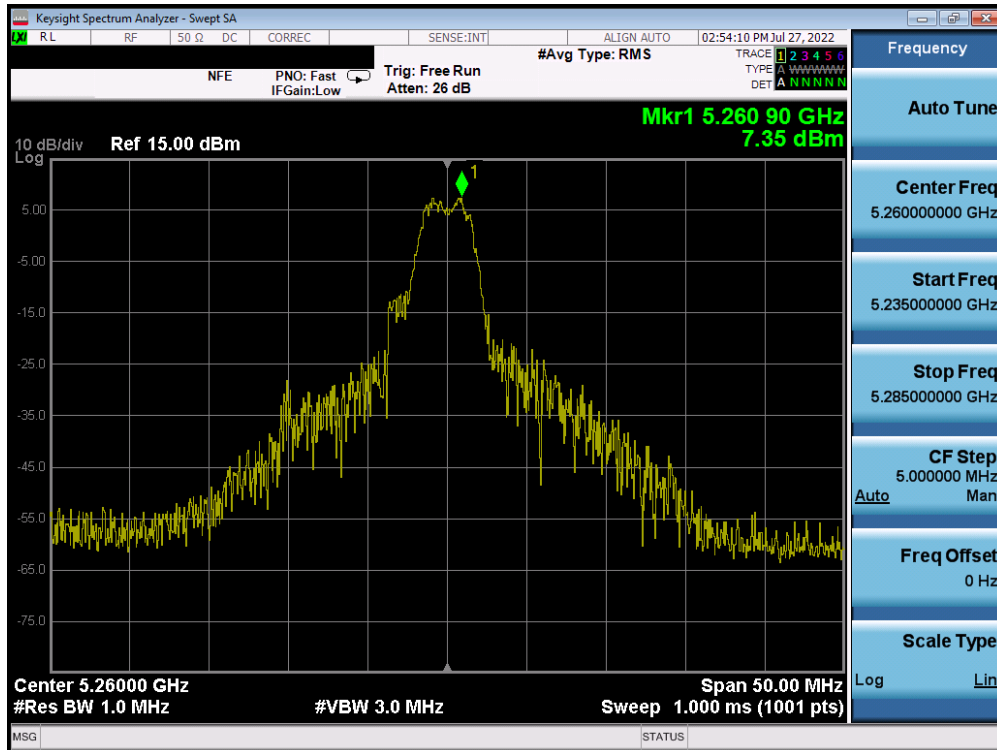
Plot 7-187. Power Spectral Density Plot MIMO ANT2 (160MHz L BW 802.11ax – 26 Tones (UNII Band 1/2A) – Ch. 50)



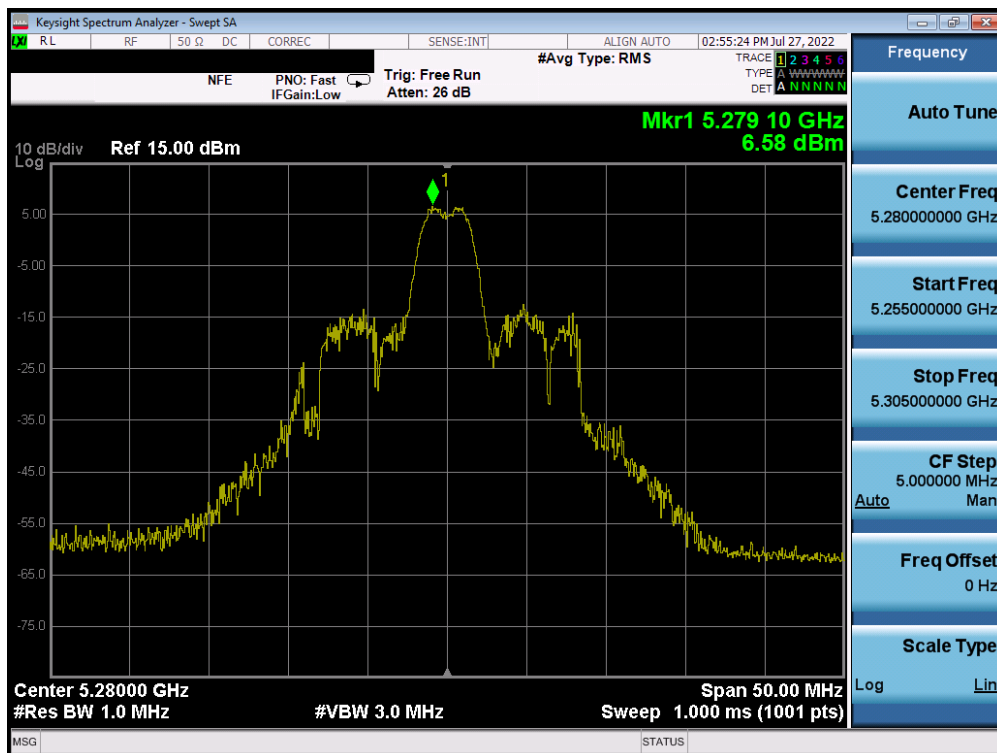
Plot 7-188. Power Spectral Density Plot MIMO ANT2 (160MHz L BW 802.11ax – 26 Tones (UNII Band 1/2A) – Ch. 50)

FCC ID: PY7-76056F	<b>MEASUREMENT REPORT (CERTIFICATION)</b>		Approved by: Technical Manager
Test Report S/N: 1M2205240063-16.PY7	Test Dates: 6/3/2022-7/29/2022	EUT Type: Portable Handset	Page 131 of 189



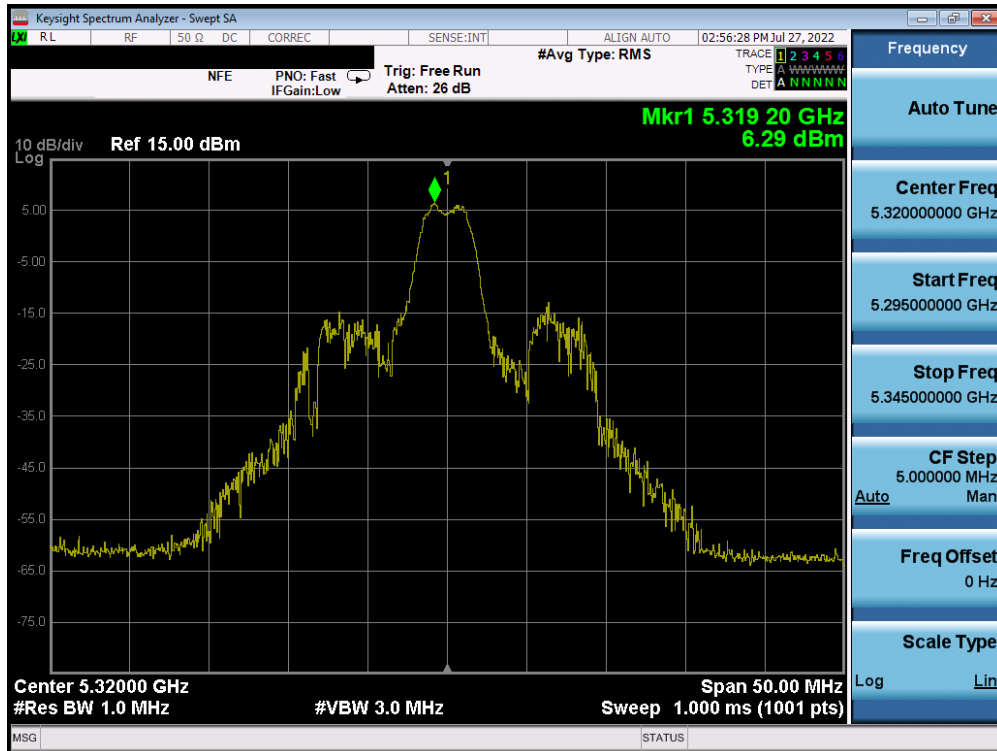


Plot 7-189. Power Spectral Density Plot MIMO ANT2 (20MHz BW 802.11ax – 26 Tones (UNII Band 2A) – Ch. 52)

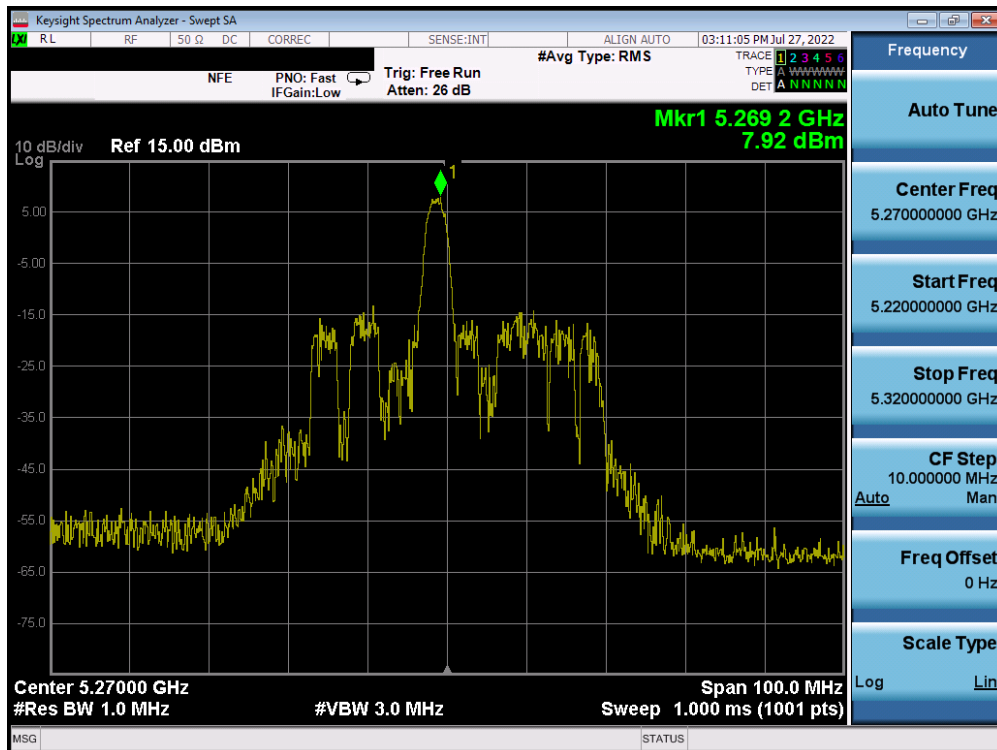


Plot 7-190. Power Spectral Density Plot MIMO ANT2 (20MHz BW 802.11ax – 26 Tones (UNII Band 2A) – Ch. 56)

MEASUREMENT REPORT (CERTIFICATION)			Approved by: Technical Manager
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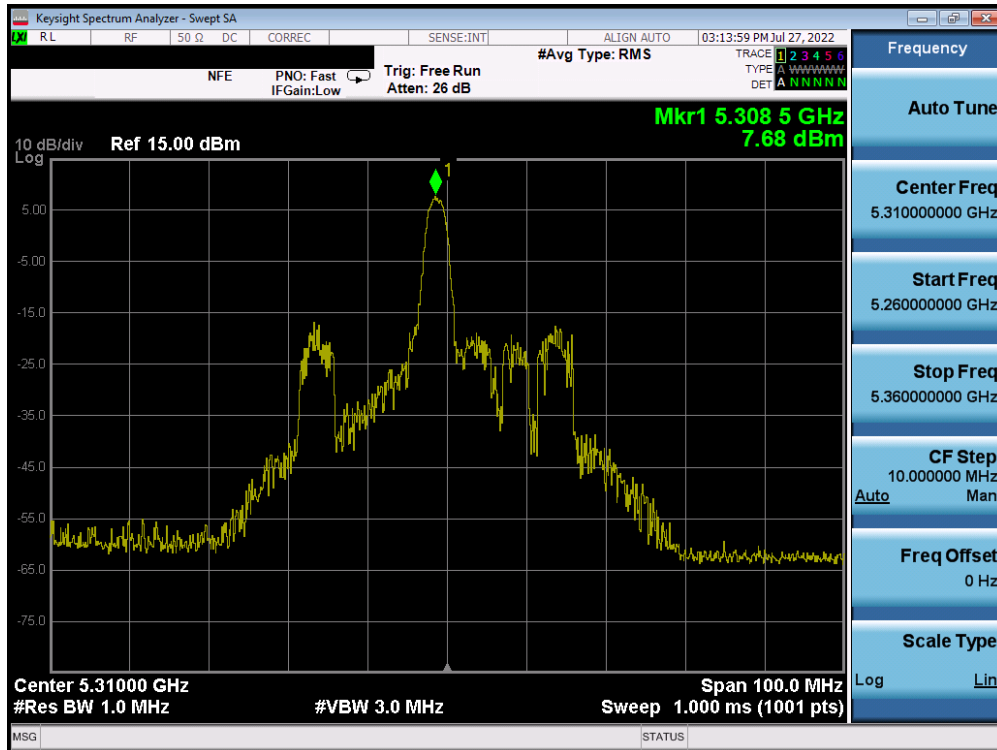


Plot 7-191. Power Spectral Density Plot MIMO ANT2 (20MHz BW 802.11ax – 26 Tones (UNII Band 2A) – Ch. 64)

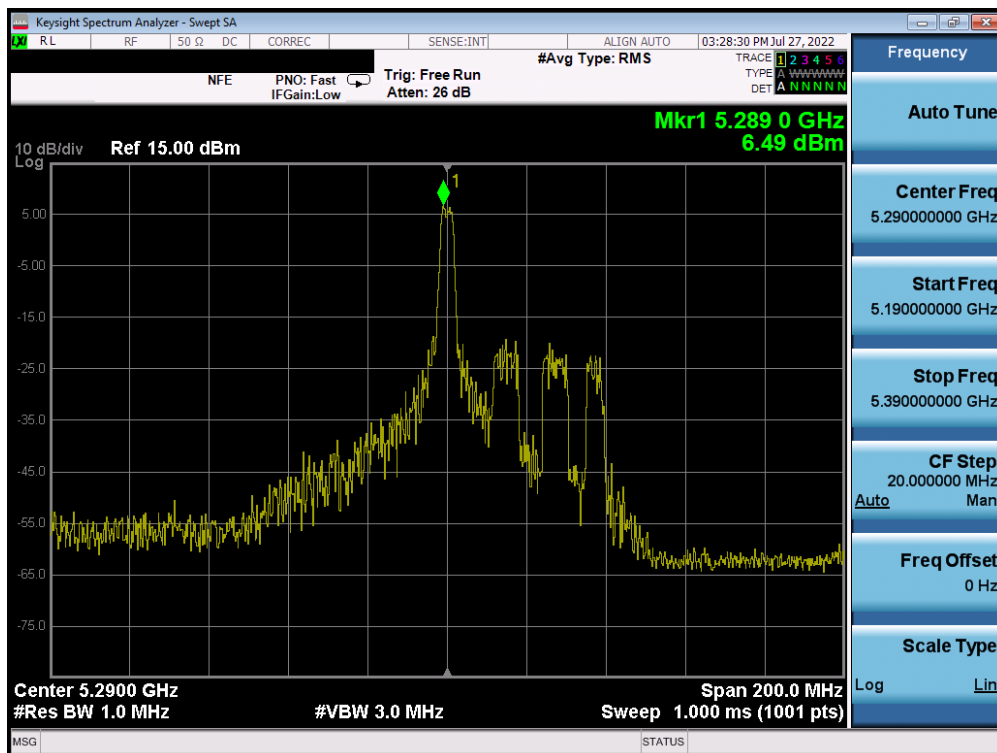


Plot 7-192. Power Spectral Density Plot MIMO ANT2 (40MHz BW 802.11ax – 26 Tones (UNII Band 2A) – Ch. 54)

FCC ID: PY7-76056F	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2205240063-16.PY7	Test Dates: 6/3/2022-7/29/2022	EUT Type: Portable Handset	Page 133 of 189

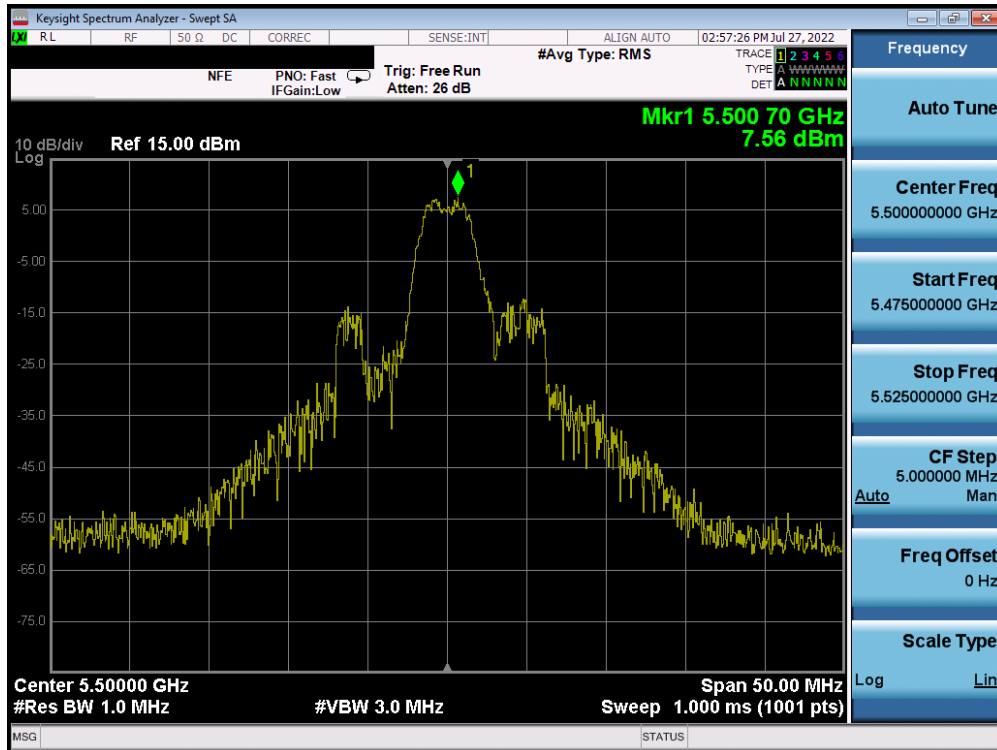


Plot 7-193. Power Spectral Density Plot MIMO ANT2 (40MHz BW 802.11ax – 26 Tones (UNII Band 2A) – Ch. 62)

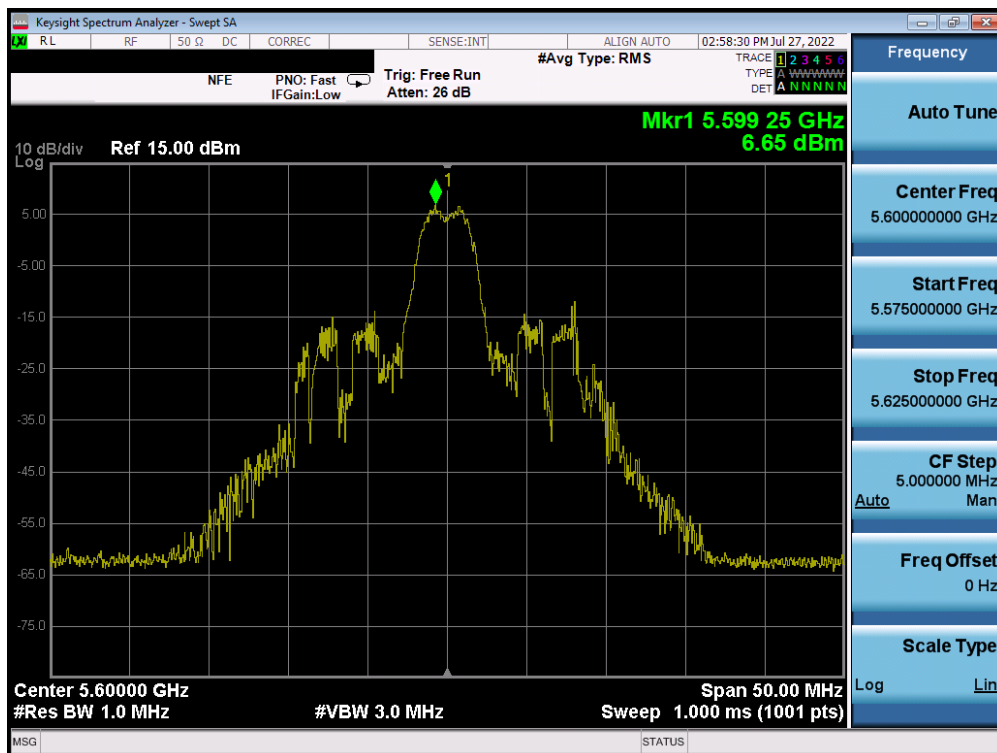


Plot 7-194. Power Spectral Density Plot MIMO ANT2 (80MHz BW 802.11ax – 26 Tones (UNII Band 2A) – Ch. 58)

FCC ID: PY7-76056F	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2205240063-16.PY7	Test Dates: 6/3/2022-7/29/2022	EUT Type: Portable Handset	Page 134 of 189

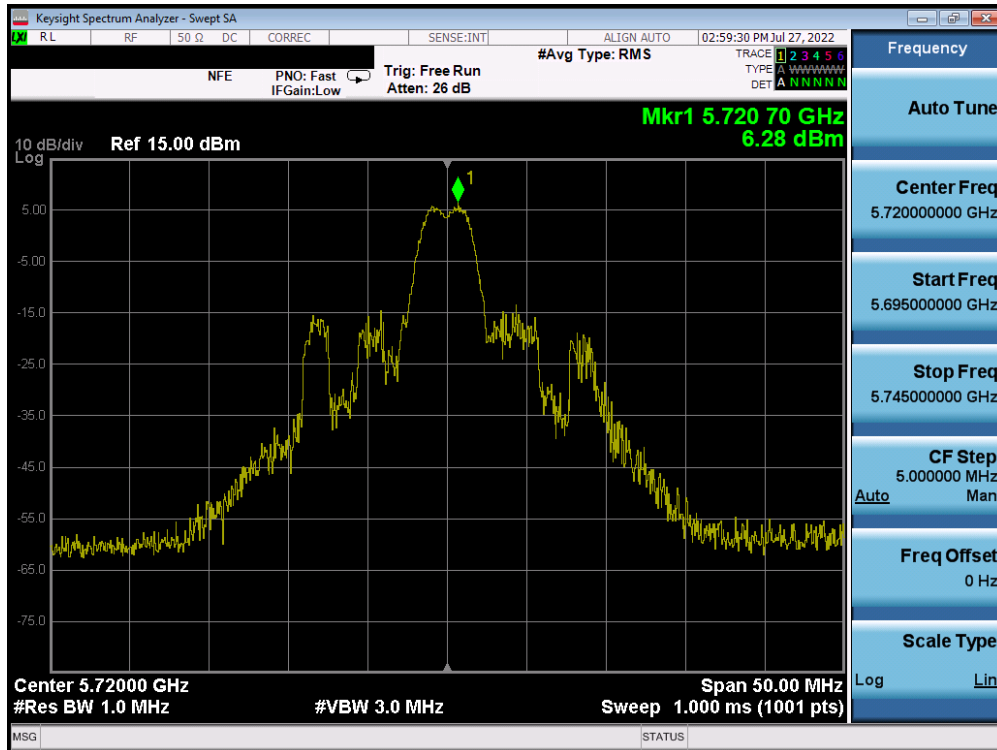


Plot 7-195. Power Spectral Density Plot MIMO ANT2 (20MHz BW 802.11ax – 26 Tones (UNII Band 2C) – Ch. 100)

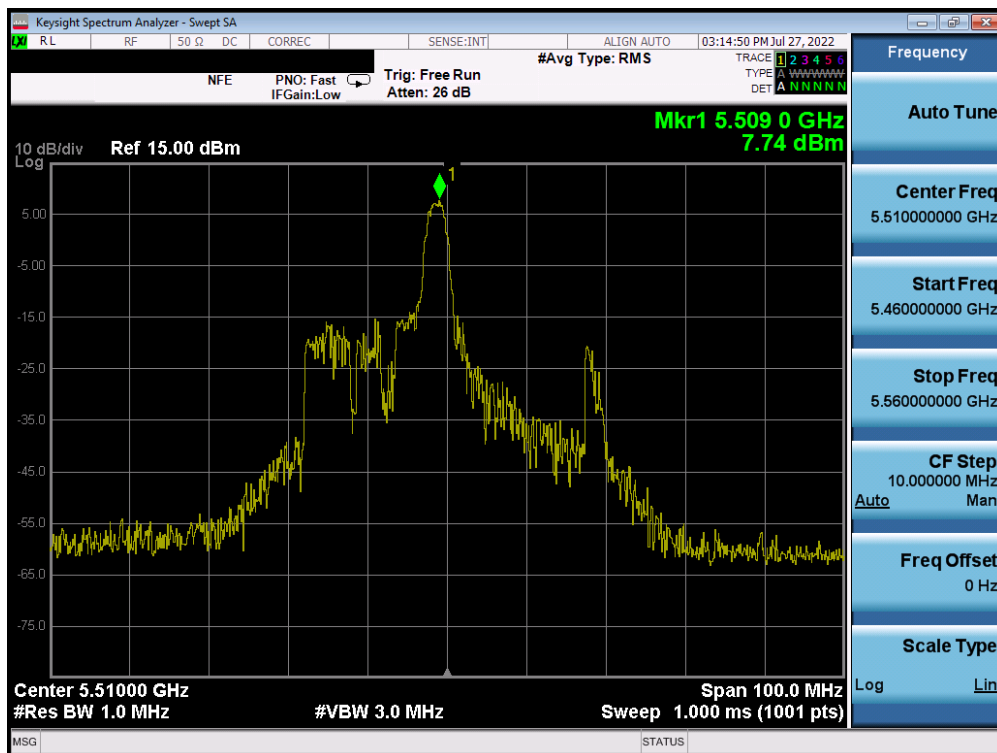


Plot 7-196. Power Spectral Density Plot MIMO ANT2 (20MHz BW 802.11ax – 26 Tones (UNII Band 2C) – Ch. 120)

FCC ID: PY7-76056F	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2205240063-16.PY7	Test Dates: 6/3/2022-7/29/2022	EUT Type: Portable Handset	Page 135 of 189

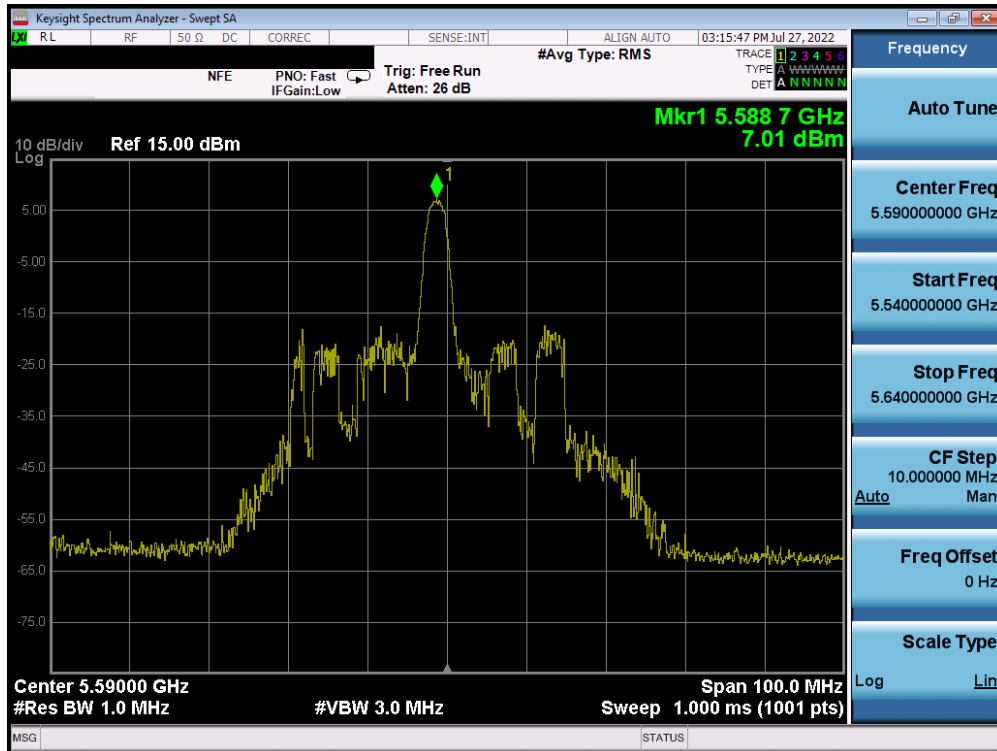


Plot 7-197. Power Spectral Density Plot MIMO ANT2 (20MHz BW 802.11ax – 26 Tones (UNII Band 2C) – Ch. 144)

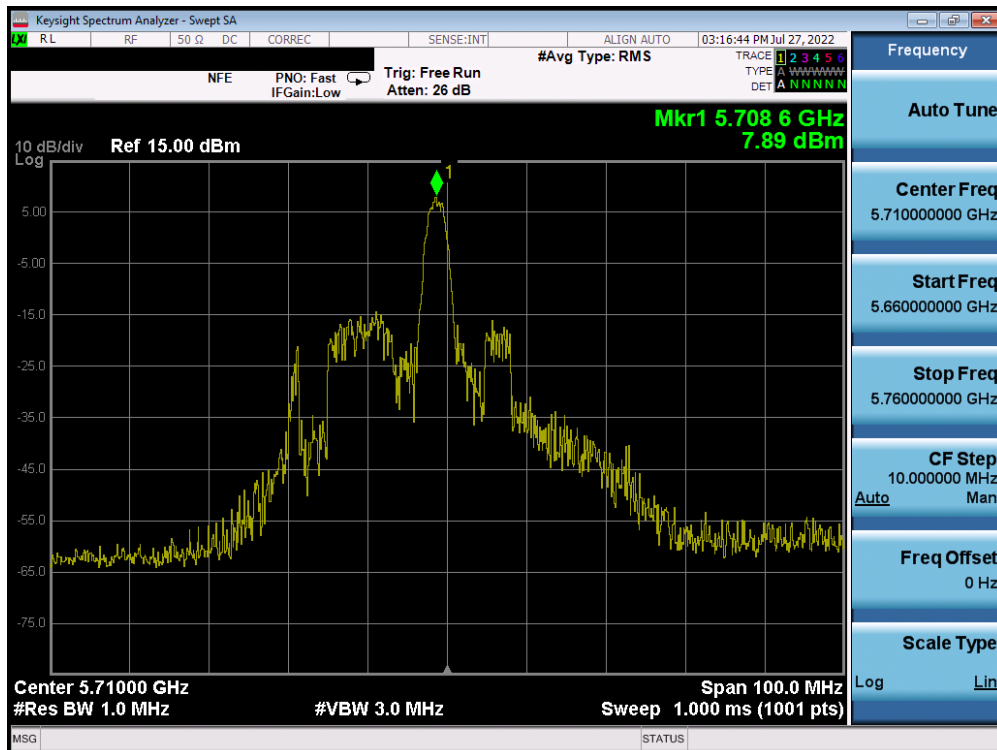


Plot 7-198. Power Spectral Density Plot MIMO ANT2 (40MHz BW 802.11ax – 26 Tones (UNII Band 2C) – Ch. 102)

FCC ID: PY7-76056F	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2205240063-16.PY7	Test Dates: 6/3/2022-7/29/2022	EUT Type: Portable Handset	Page 136 of 189

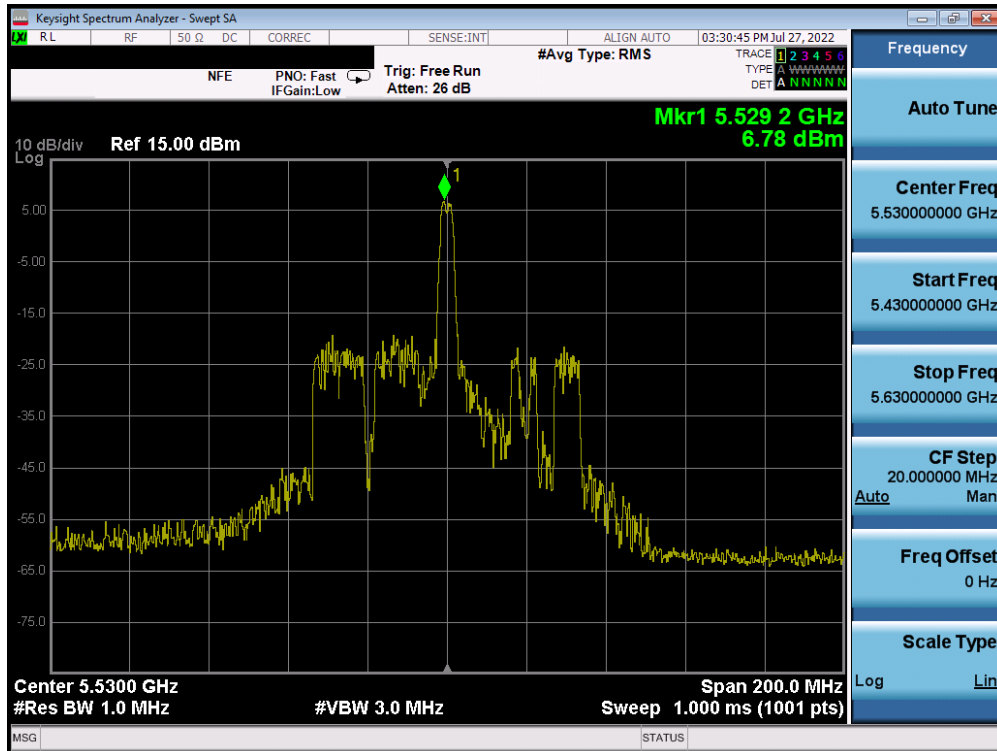


Plot 7-199. Power Spectral Density Plot MIMO ANT2 (40MHz BW 802.11ax – 26 Tones (UNII Band 2C) – Ch. 118)

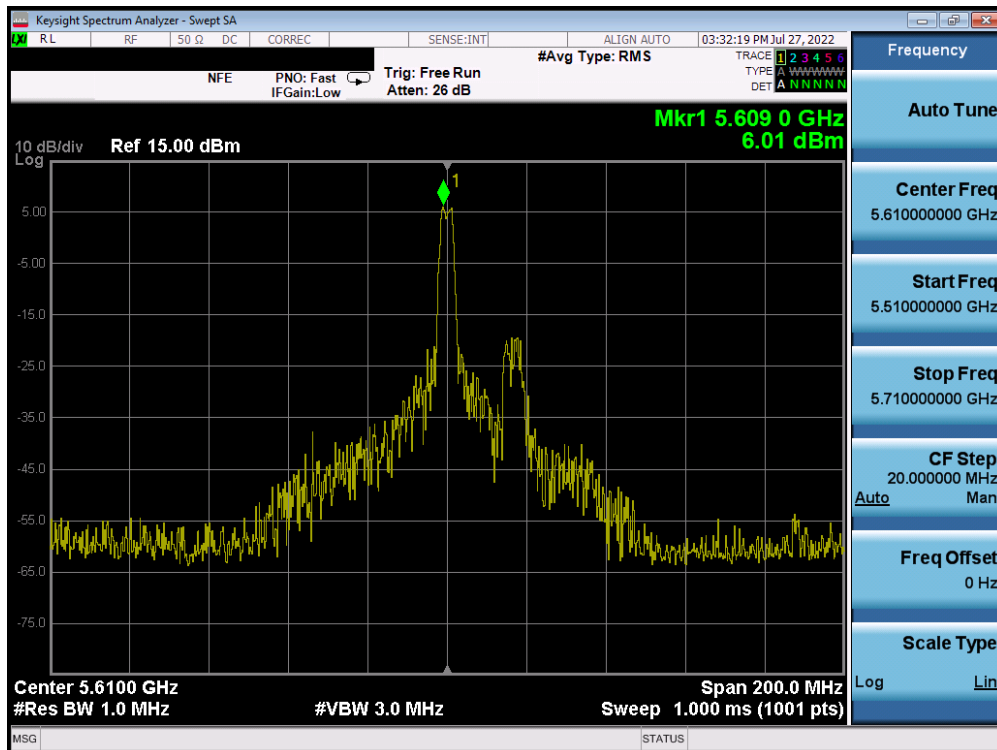


Plot 7-200. Power Spectral Density Plot MIMO ANT2 (40MHz BW 802.11ax – 26 Tones (UNII Band 2C) – Ch. 142)

FCC ID: PY7-76056F	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2205240063-16.PY7	Test Dates: 6/3/2022-7/29/2022	EUT Type: Portable Handset	Page 137 of 189

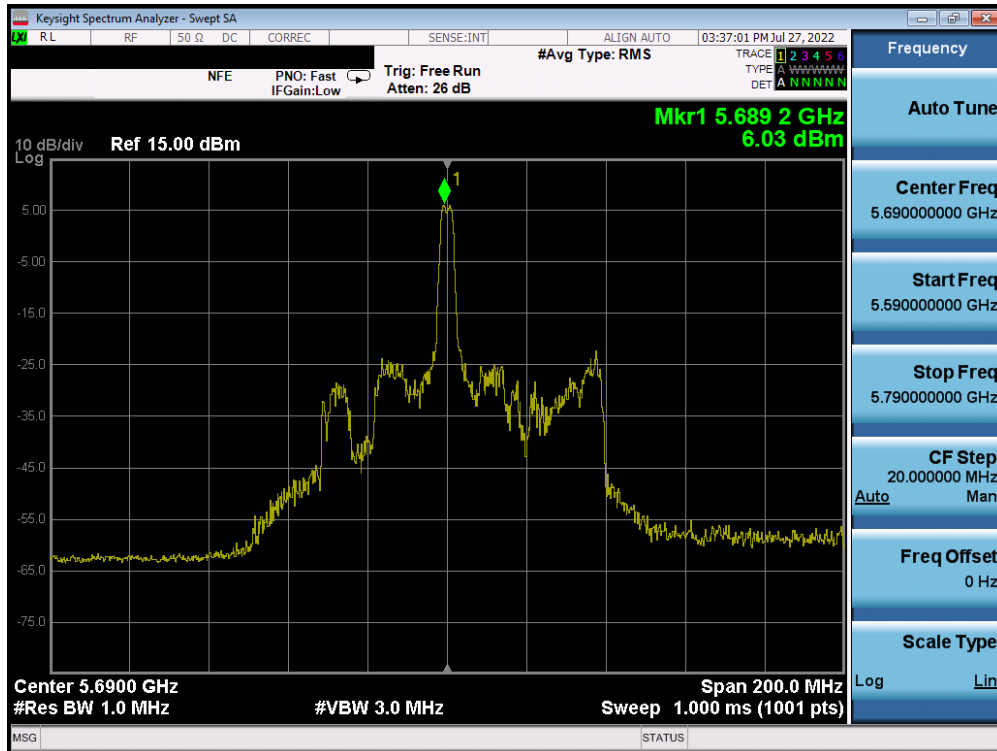


Plot 7-201. Power Spectral Density Plot MIMO ANT2 (80MHz BW 802.11ax – 26 Tones (UNII Band 2C) – Ch. 106)

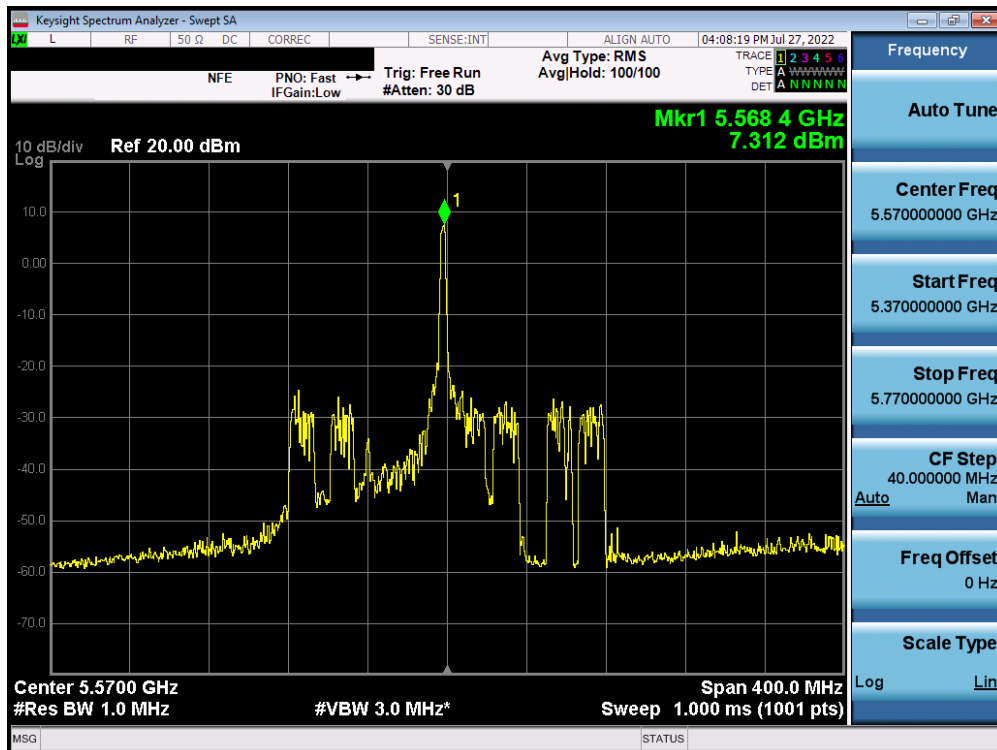


Plot 7-202. Power Spectral Density Plot MIMO ANT2 (80MHz BW 802.11ax – 26 Tones (UNII Band 2C) – Ch. 122)

FCC ID: PY7-76056F	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2205240063-16.PY7	Test Dates: 6/3/2022-7/29/2022	EUT Type: Portable Handset	Page 138 of 189



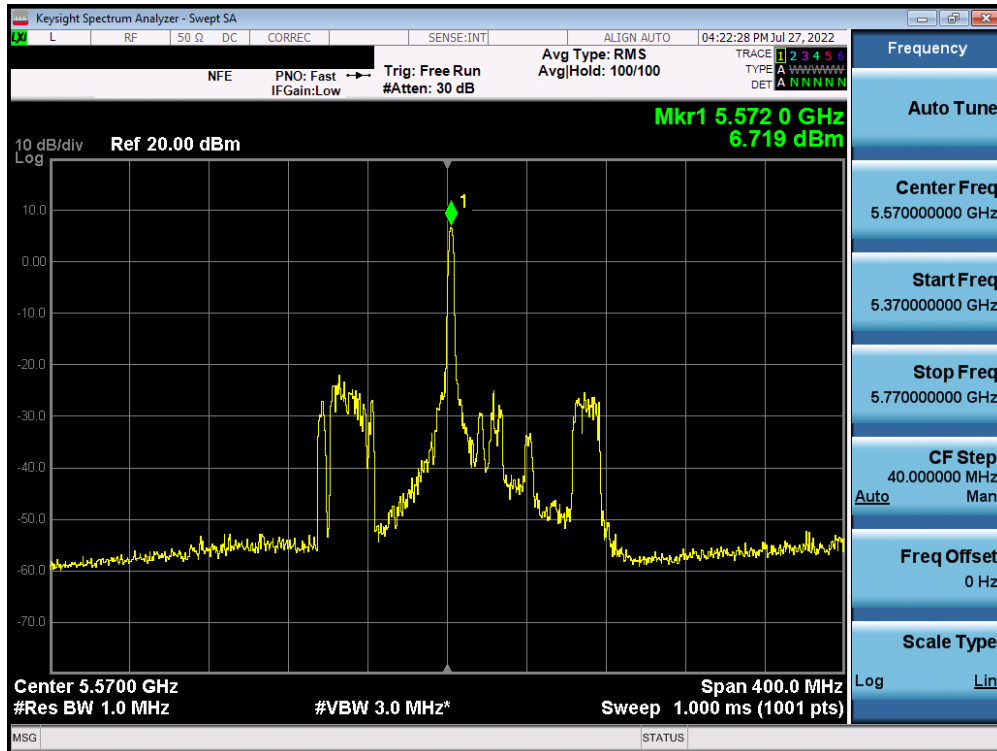
Plot 7-203. Power Spectral Density Plot MIMO ANT2 (80MHz BW 802.11ax – 26 Tones (UNII Band 2C) – Ch. 138)



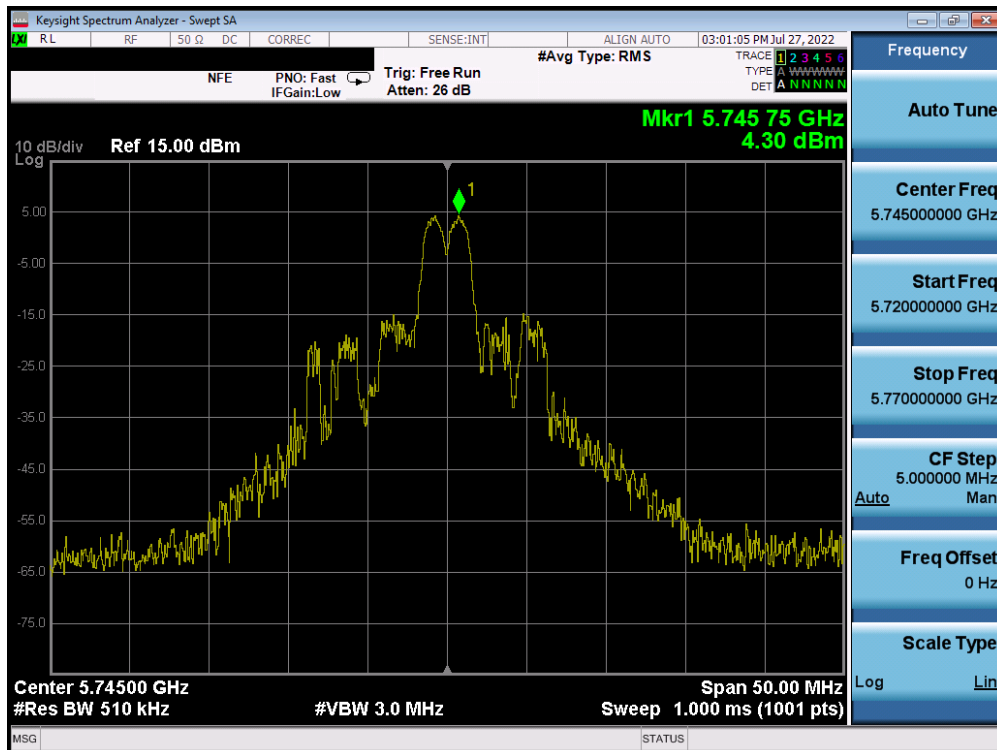
Plot 7-204. Power Spectral Density Plot MIMO ANT2 (160MHz L BW 802.11ax – 26 Tones (UNII Band 2C) – Ch. 114)

FCC ID: PY7-76056F	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2205240063-16.PY7	Test Dates: 6/3/2022-7/29/2022	EUT Type: Portable Handset	Page 139 of 189



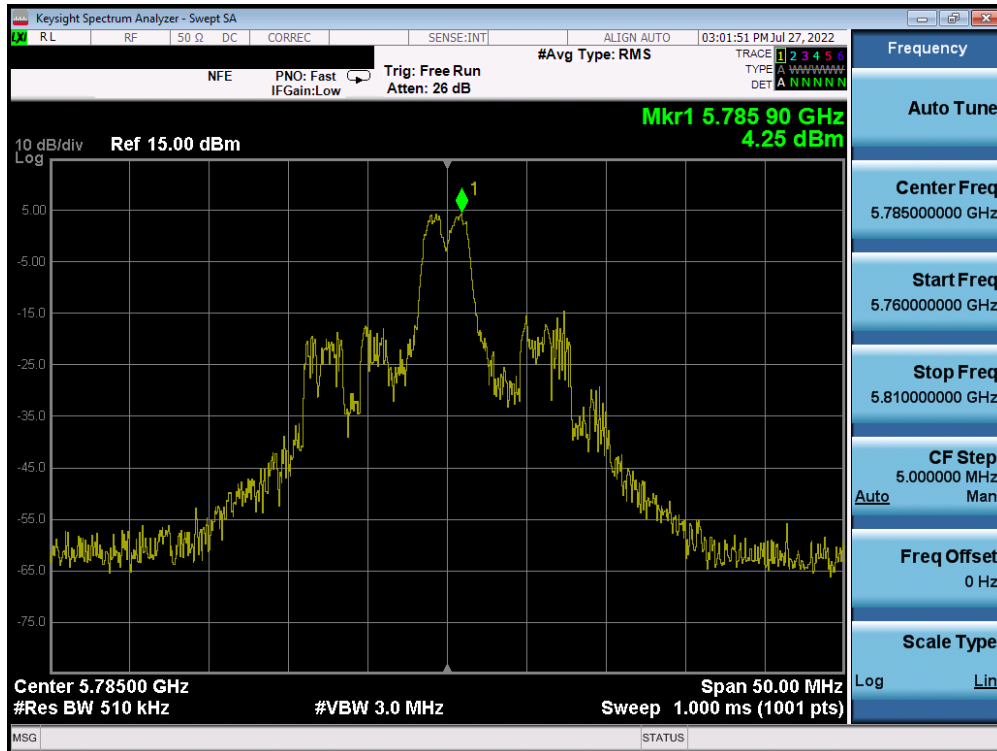


Plot 7-205. Power Spectral Density Plot MIMO ANT2 (160MHz U BW 802.11ax – 26 Tones (UNII Band 2C) – Ch. 114)

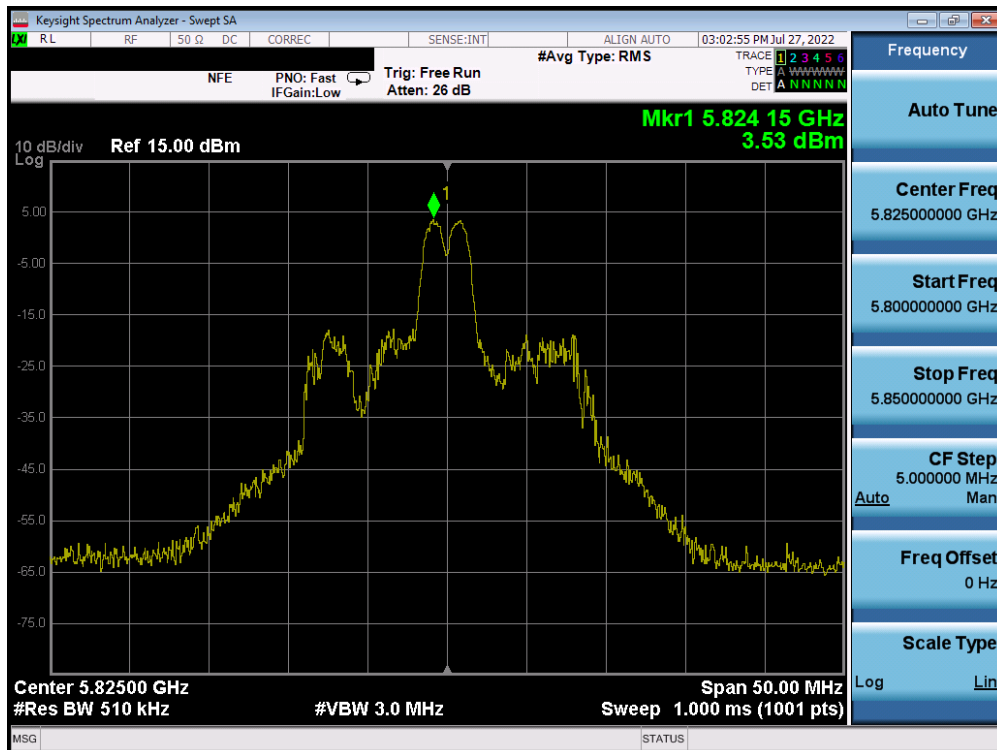


Plot 7-206. Power Spectral Density Plot MIMO ANT2 (20MHz BW 802.11ax – 26 Tones (UNII Band 3) – Ch. 149)

FCC ID: PY7-76056F	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2205240063-16.PY7	Test Dates: 6/3/2022-7/29/2022	EUT Type: Portable Handset	Page 140 of 189

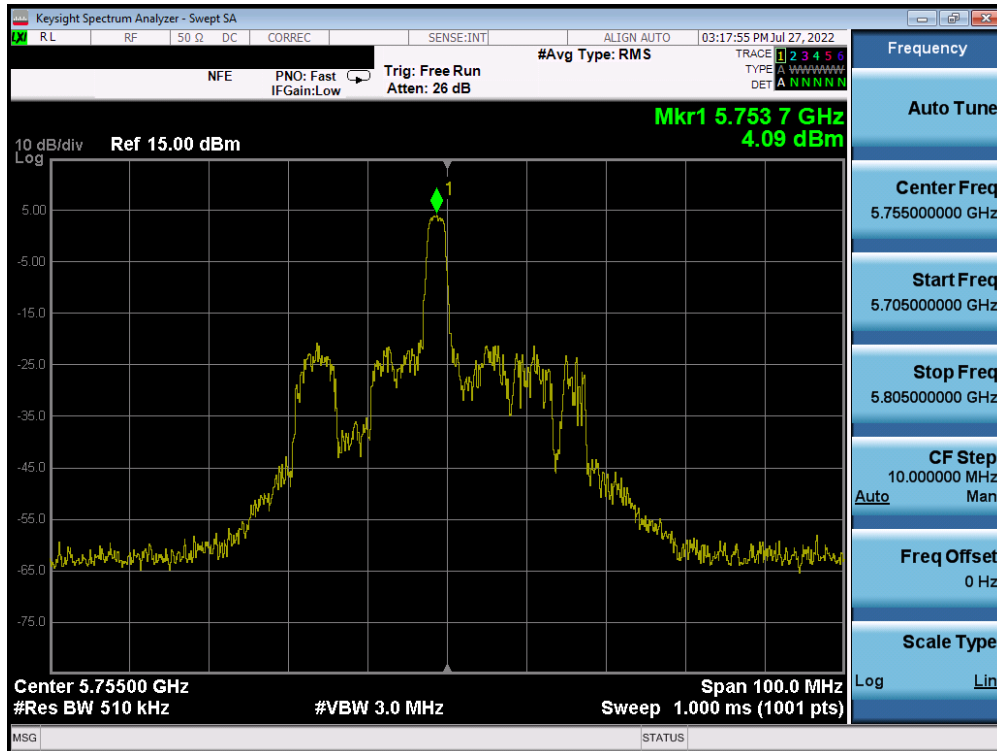


Plot 7-207. Power Spectral Density Plot MIMO ANT2 (20MHz BW 802.11ax – 26 Tones (UNII Band 3) – Ch. 157)

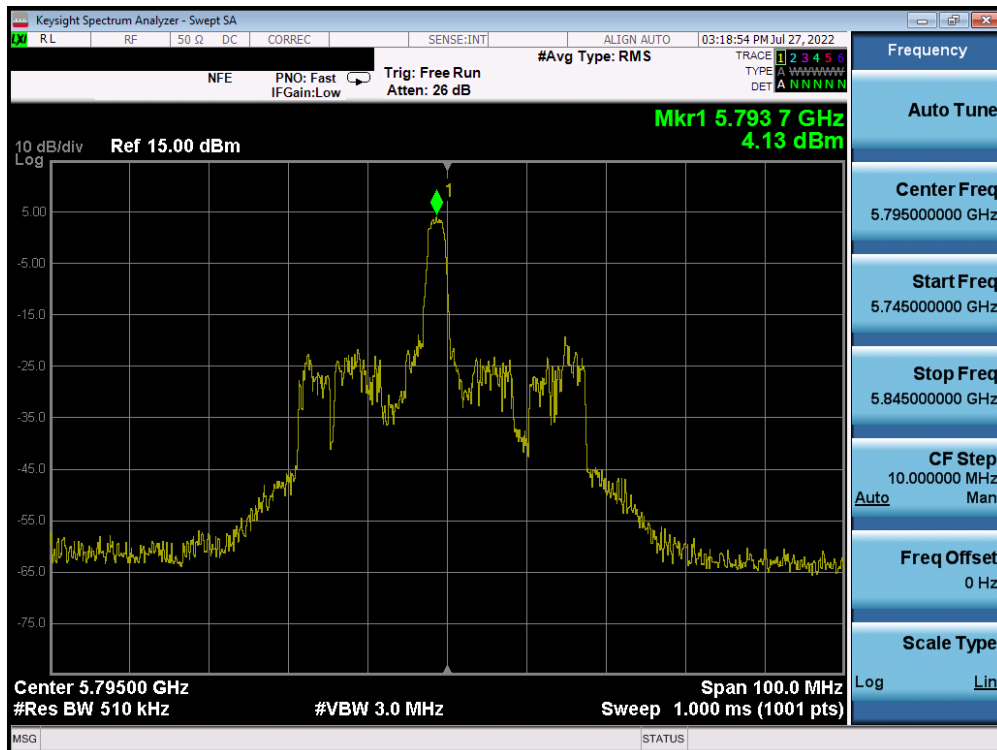


Plot 7-208. Power Spectral Density Plot MIMO ANT2 (20MHz BW 802.11ax – 26 Tones (UNII Band 3) – Ch. 165)

FCC ID: PY7-76056F	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2205240063-16.PY7	Test Dates: 6/3/2022-7/29/2022	EUT Type: Portable Handset	Page 141 of 189

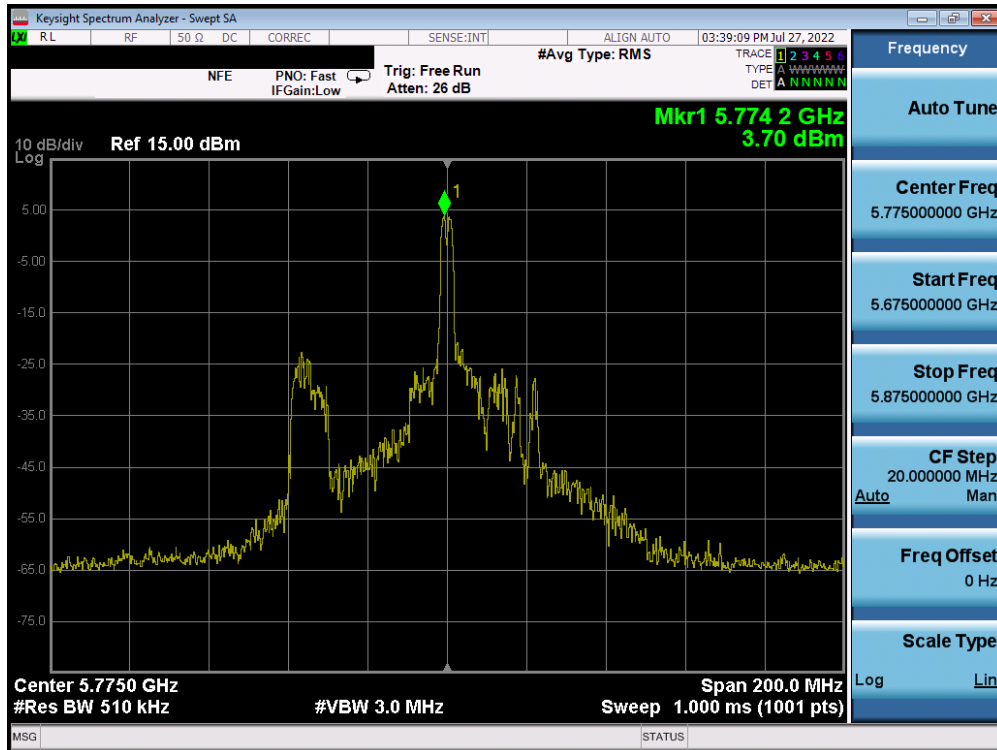


Plot 7-209. Power Spectral Density Plot MIMO ANT2 (40MHz BW 802.11ax – 26 Tones (UNII Band 3) – Ch. 151)

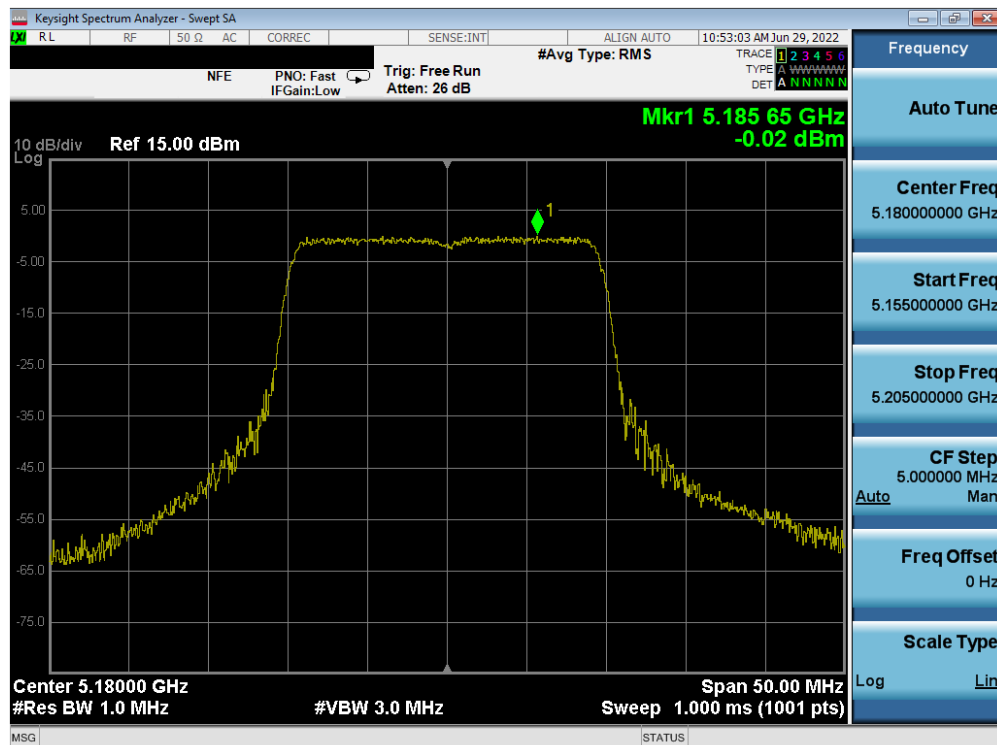


Plot 7-210. Power Spectral Density Plot MIMO ANT2 (40MHz BW 802.11ax – 26 Tones (UNII Band 3) – Ch. 159)

FCC ID: PY7-76056F	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2205240063-16.PY7	Test Dates: 6/3/2022-7/29/2022	EUT Type: Portable Handset	Page 142 of 189

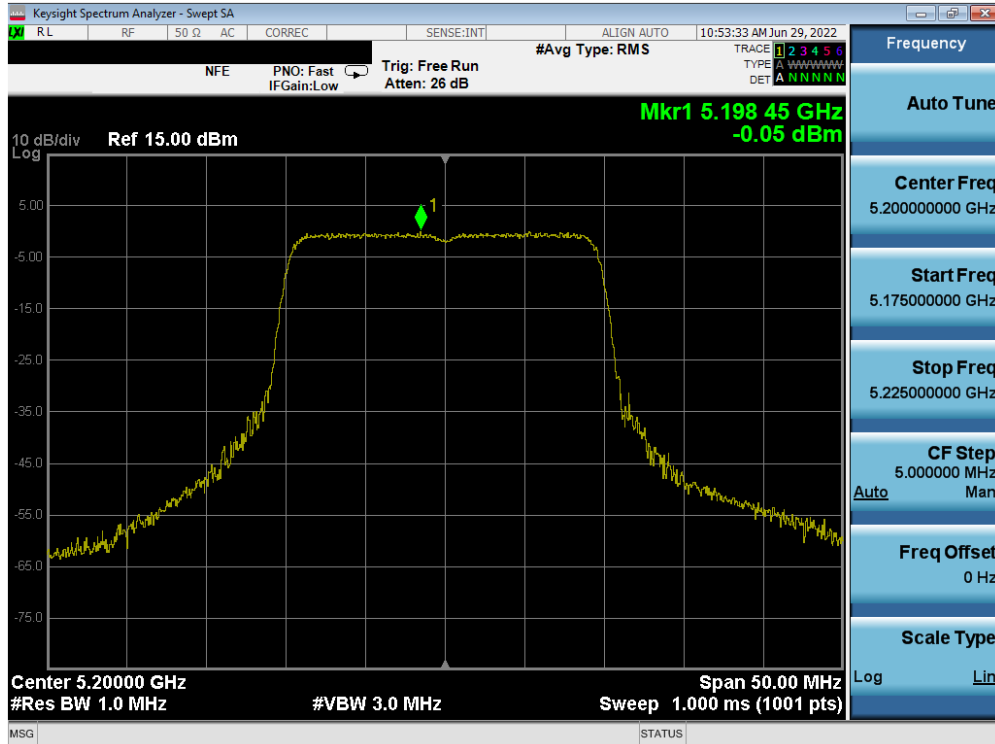


Plot 7-211. Power Spectral Density Plot MIMO ANT2 (80MHz BW 802.11ax – 26 Tones (UNII Band 3) – Ch. 155)

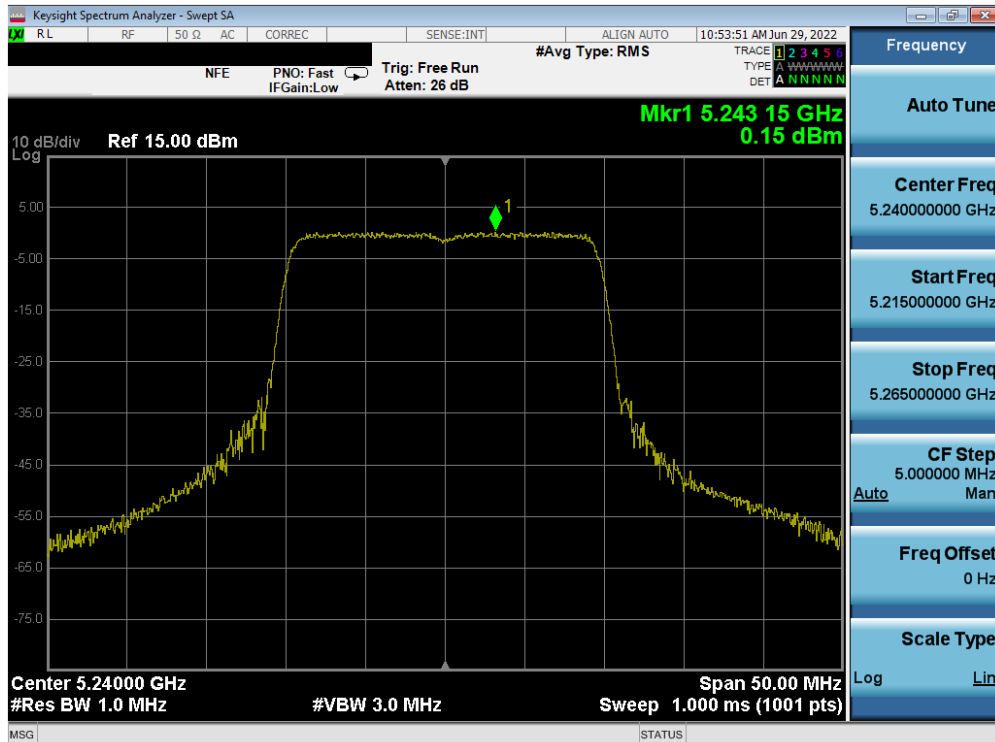


Plot 7-212. Power Spectral Density Plot MIMO ANT2 (20MHz BW 802.11ax – Full Tones (UNII Band 1) – Ch. 36)

FCC ID: PY7-76056F	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2205240063-16.PY7	Test Dates: 6/3/2022-7/29/2022	EUT Type: Portable Handset	Page 143 of 189

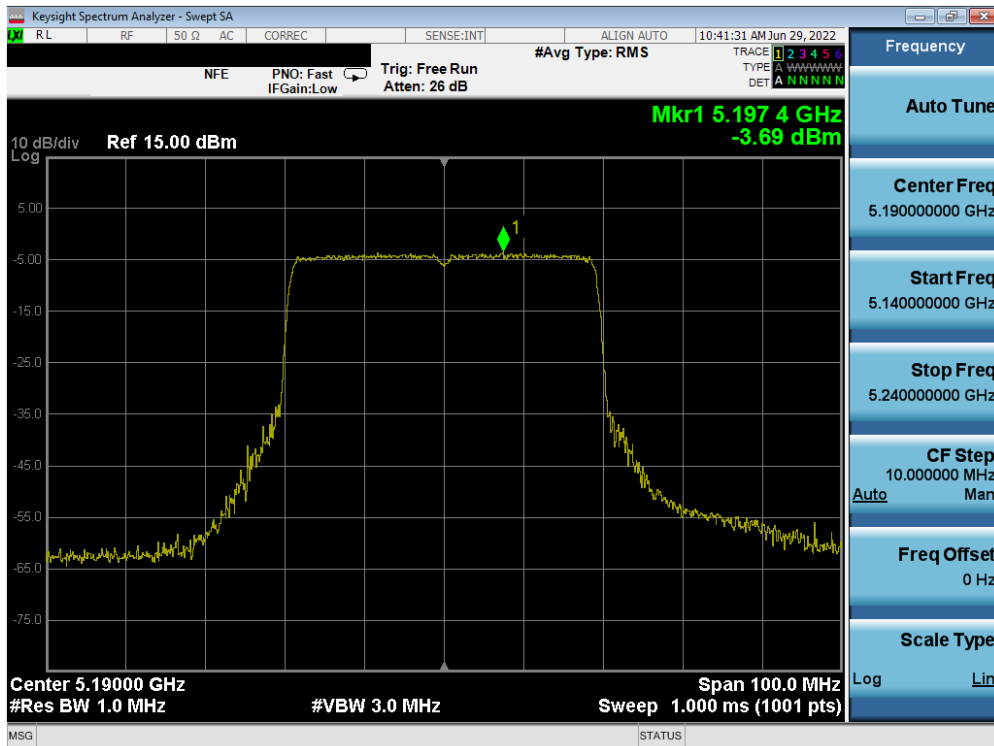


Plot 7-213. Power Spectral Density Plot MIMO ANT2 (20MHz BW 802.11ax – Full Tones (UNII Band 1) – Ch. 40)

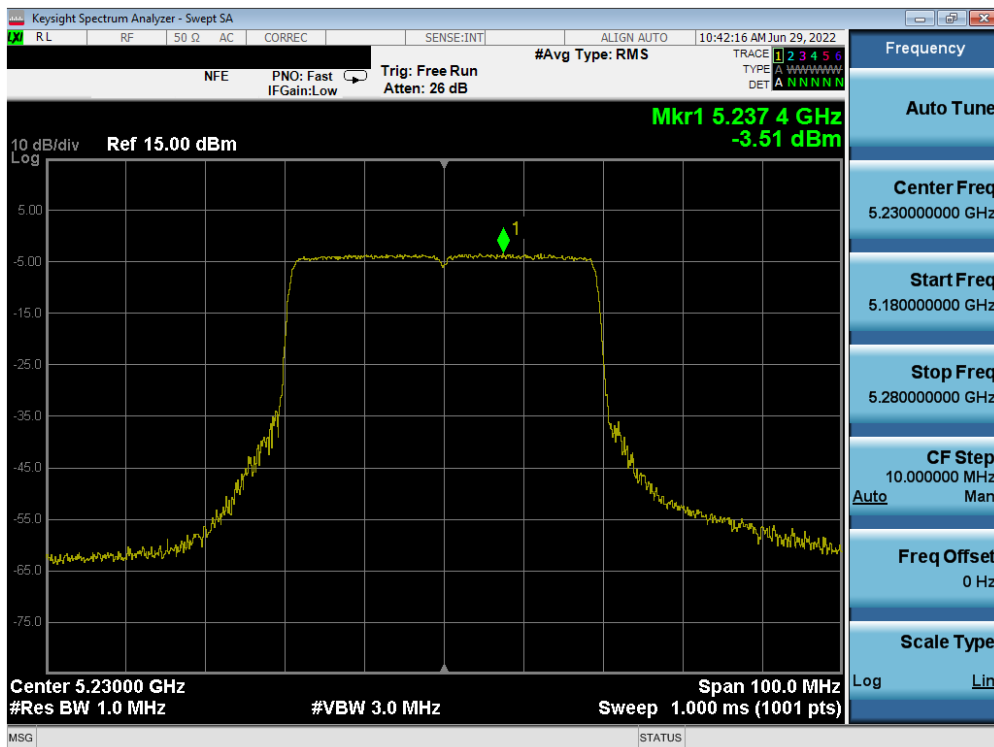


Plot 7-214. Power Spectral Density Plot MIMO ANT2 (20MHz BW 802.11ax – Full Tones (UNII Band 1) – Ch. 48)

FCC ID: PY7-76056F	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2205240063-16.PY7	Test Dates: 6/3/2022-7/29/2022	EUT Type: Portable Handset	Page 144 of 189

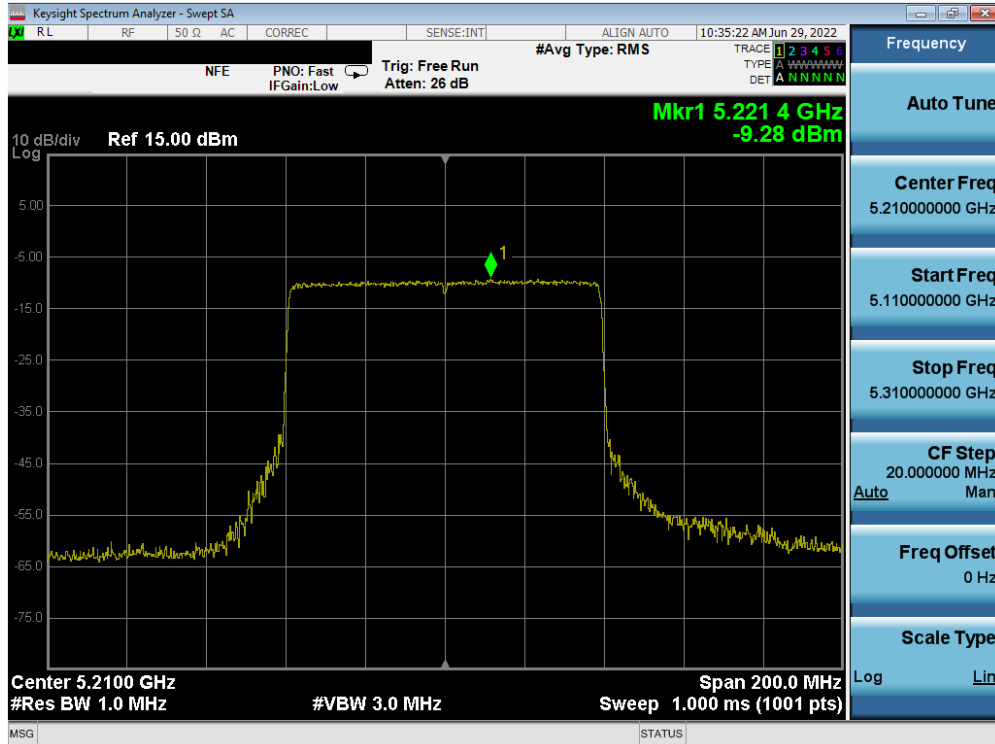


Plot 7-215. Power Spectral Density Plot MIMO ANT2 (40MHz BW 802.11ax – Full Tones (UNII Band 1) – Ch. 38)

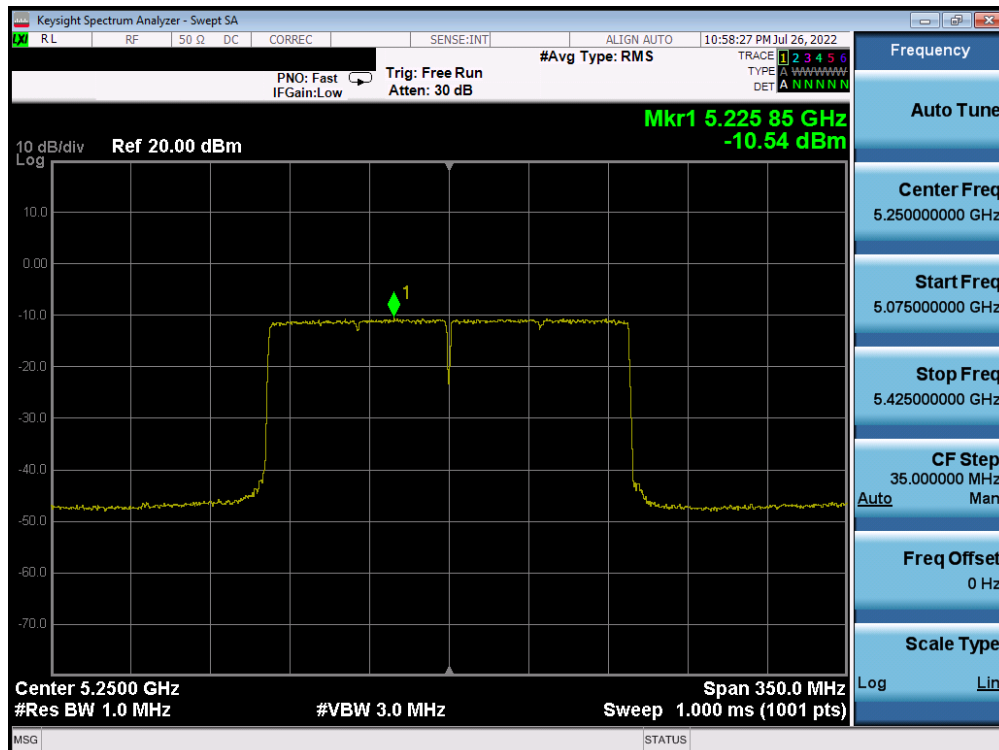


Plot 7-216. Power Spectral Density Plot MIMO ANT2 (40MHz BW 802.11ax – Full Tones (UNII Band 1) – Ch. 46)

FCC ID: PY7-76056F	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2205240063-16.PY7	Test Dates: 6/3/2022-7/29/2022	EUT Type: Portable Handset	Page 145 of 189

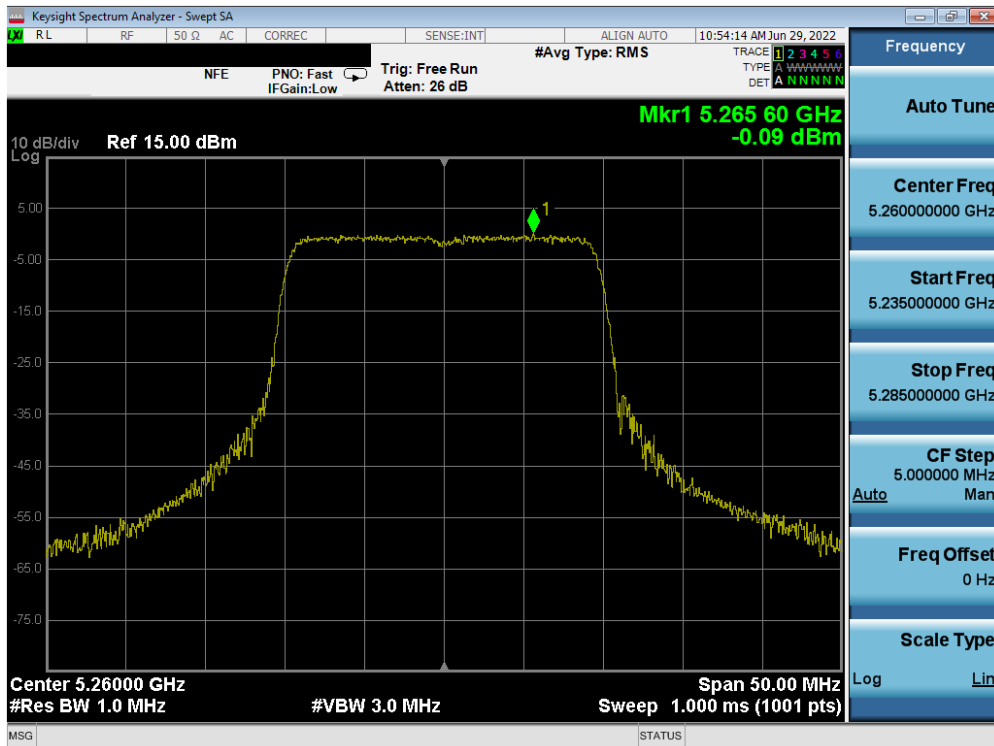


Plot 7-217. Power Spectral Density Plot MIMO ANT2 (80MHz BW 802.11ax – Full Tones (UNII Band 1) – Ch. 42)

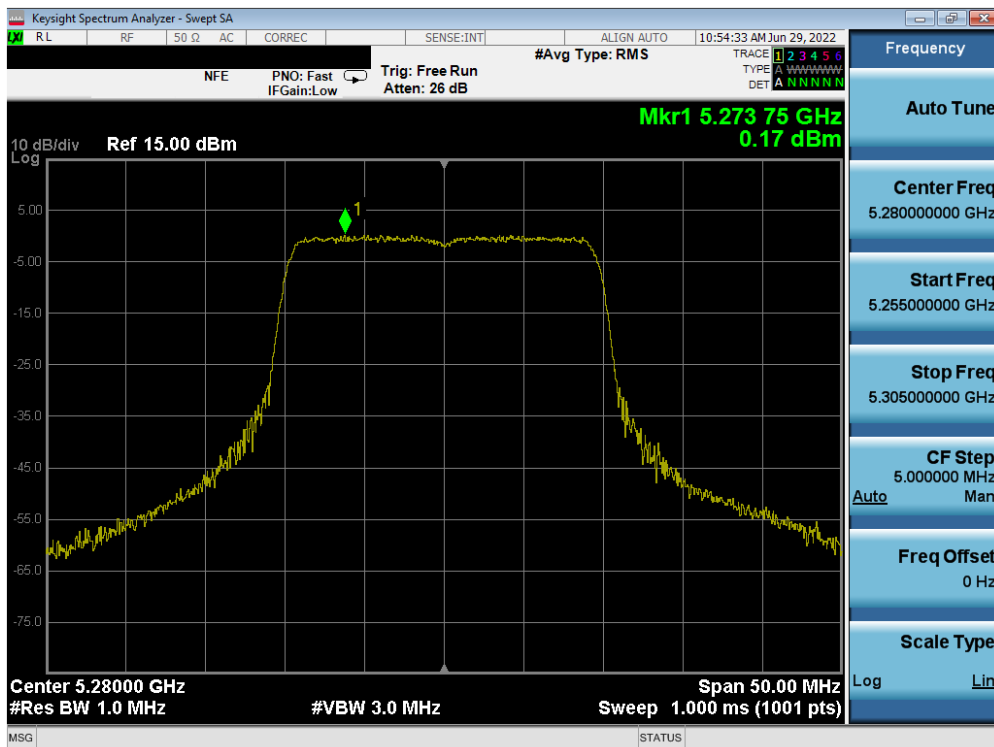


Plot 7-218. Power Spectral Density Plot MIMO ANT2 (160MHz BW 802.11ax – Full Tones (UNII Band 1/2A) – Ch. 50)

FCC ID: PY7-76056F	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2205240063-16.PY7	Test Dates: 6/3/2022-7/29/2022	EUT Type: Portable Handset	Page 146 of 189



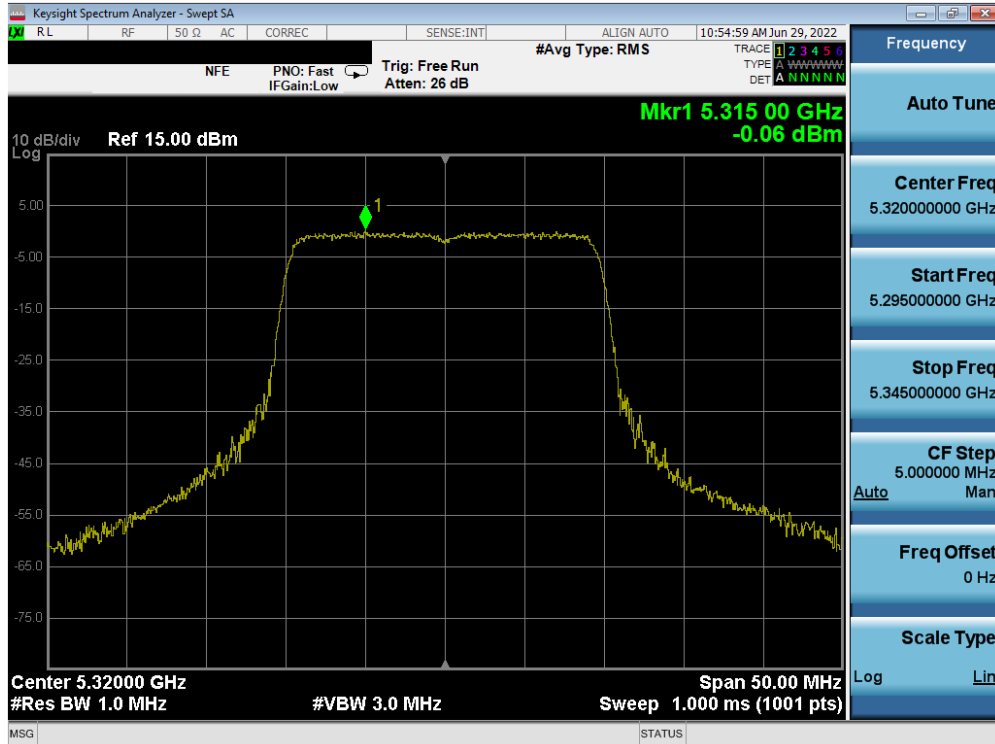
Plot 7-219. Power Spectral Density Plot MIMO ANT2 (20MHz BW 802.11ax – Full Tones (UNII Band 2A) – Ch. 52)



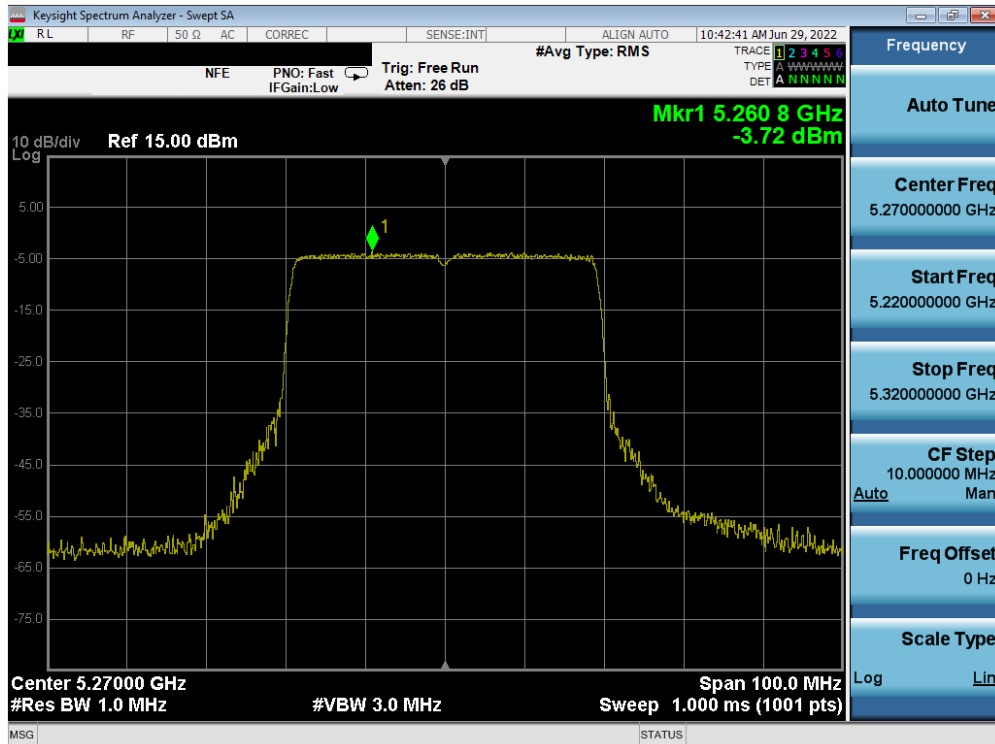
Plot 7-220. Power Spectral Density Plot MIMO ANT2 (20MHz BW 802.11ax – Full Tones (UNII Band 2A) – Ch. 56)

FCC ID: PY7-76056F	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2205240063-16.PY7	Test Dates: 6/3/2022-7/29/2022	EUT Type: Portable Handset	Page 147 of 189



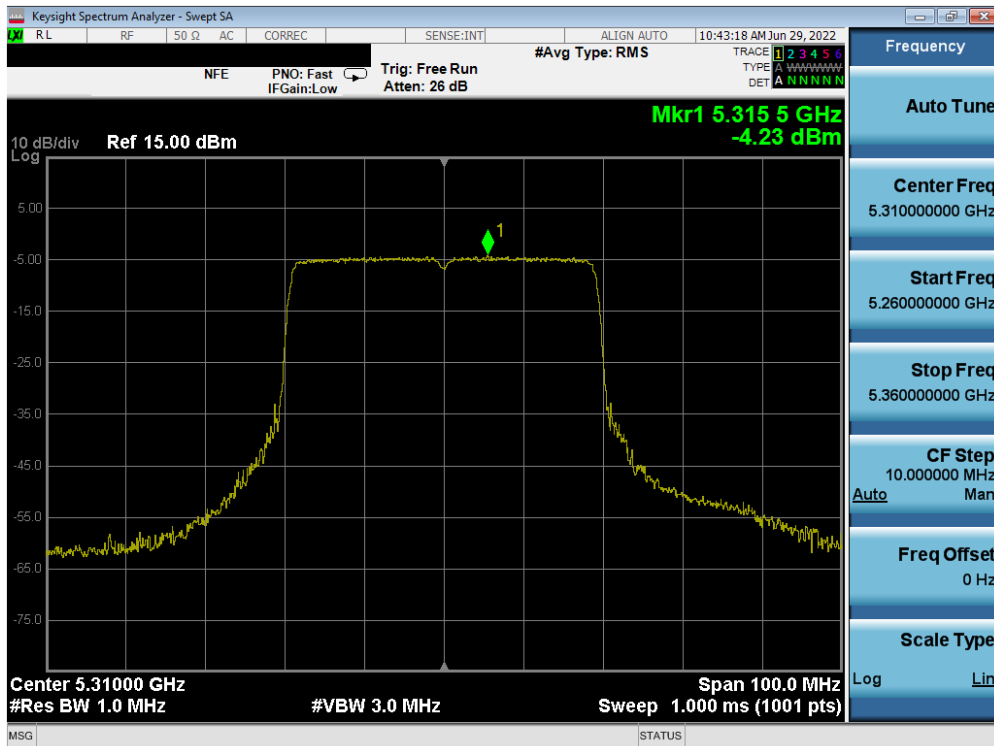


Plot 7-221. Power Spectral Density Plot MIMO ANT2 (20MHz BW 802.11ax – Full Tones (UNII Band 2A) – Ch. 64)

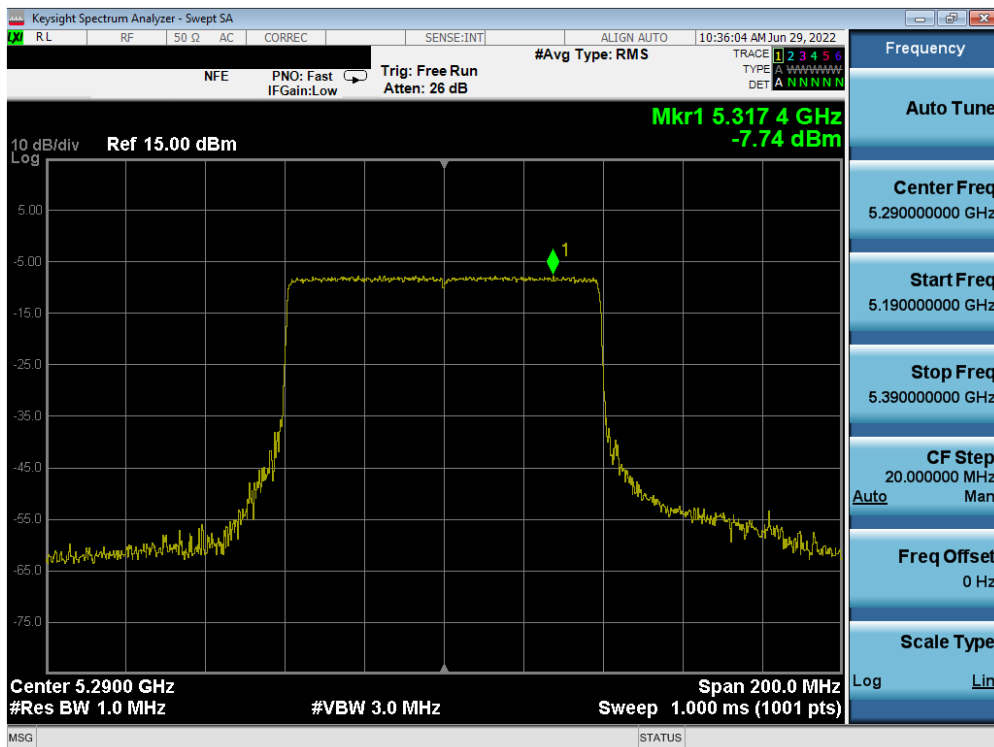


Plot 7-222. Power Spectral Density Plot MIMO ANT2 (40MHz BW 802.11ax – Full Tones (UNII Band 2A) – Ch. 54)

FCC ID: PY7-76056F	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2205240063-16.PY7	Test Dates: 6/3/2022-7/29/2022	EUT Type: Portable Handset	Page 148 of 189

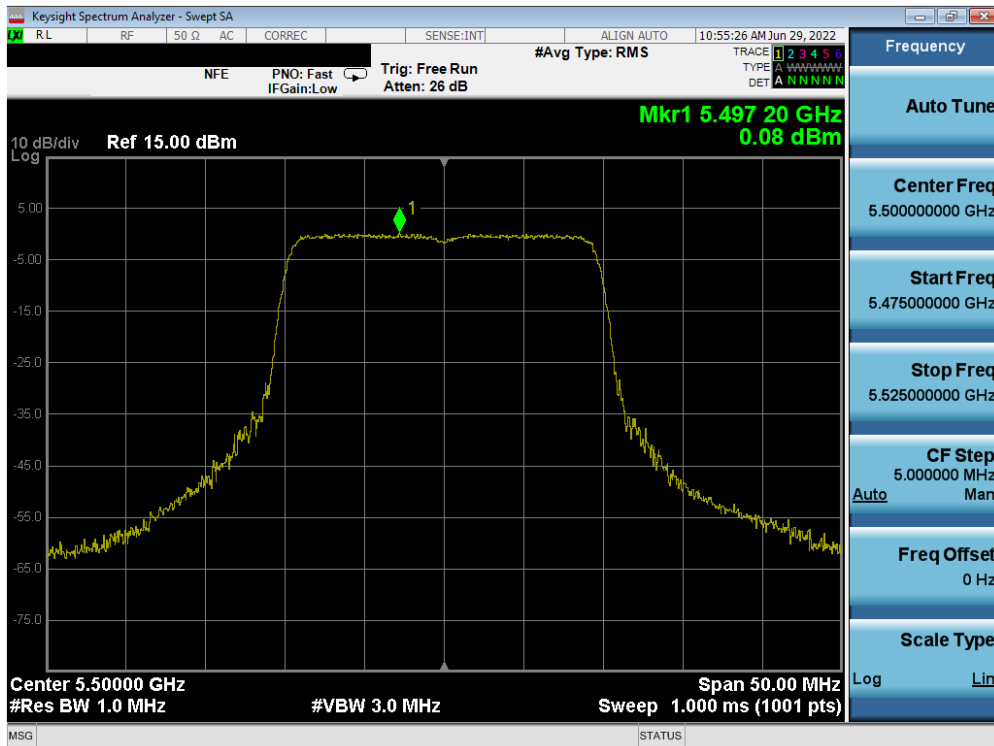


Plot 7-223. Power Spectral Density Plot MIMO ANT2 (40MHz BW 802.11ax – Full Tones (UNII Band 2A) – Ch. 62)

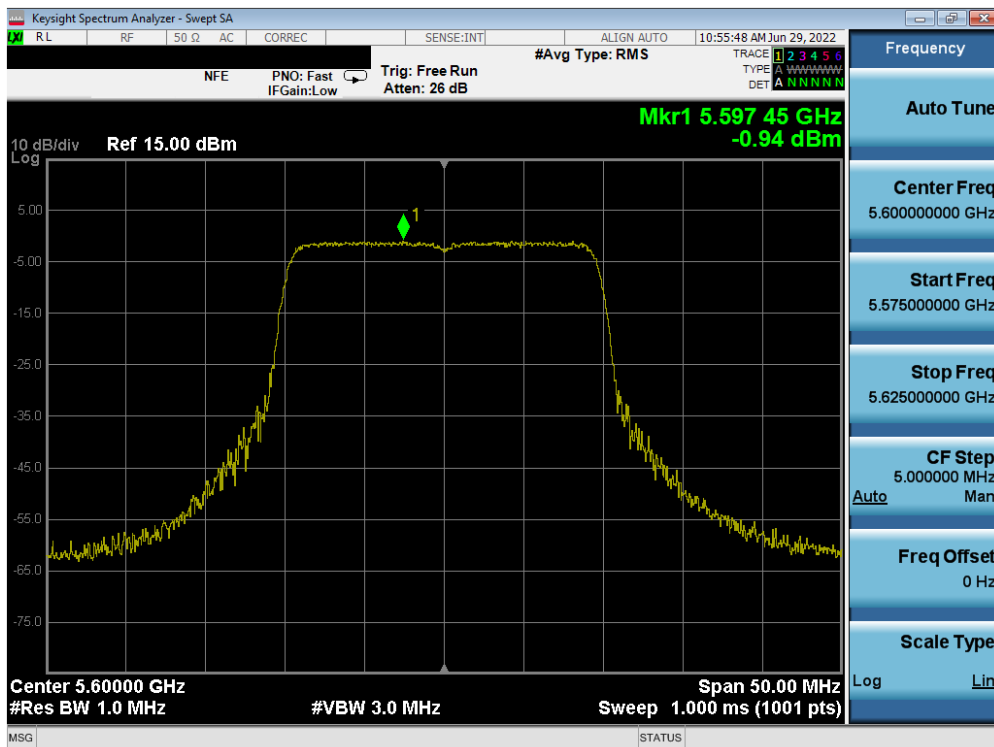


Plot 7-224. Power Spectral Density Plot MIMO ANT2 (80MHz BW 802.11ax – Full Tones (UNII Band 2A) – Ch. 58)

FCC ID: PY7-76056F	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2205240063-16.PY7	Test Dates: 6/3/2022-7/29/2022	EUT Type: Portable Handset	Page 149 of 189

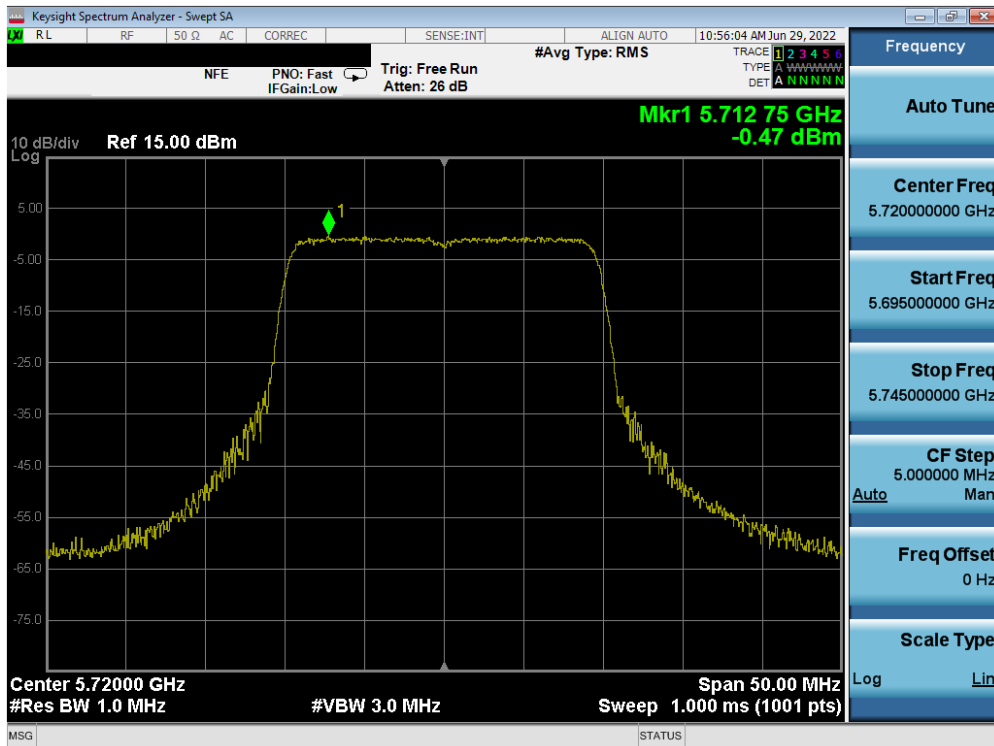


Plot 7-225. Power Spectral Density Plot MIMO ANT2 (20MHz BW 802.11ax – Full Tones (UNII Band 2C) – Ch. 100)

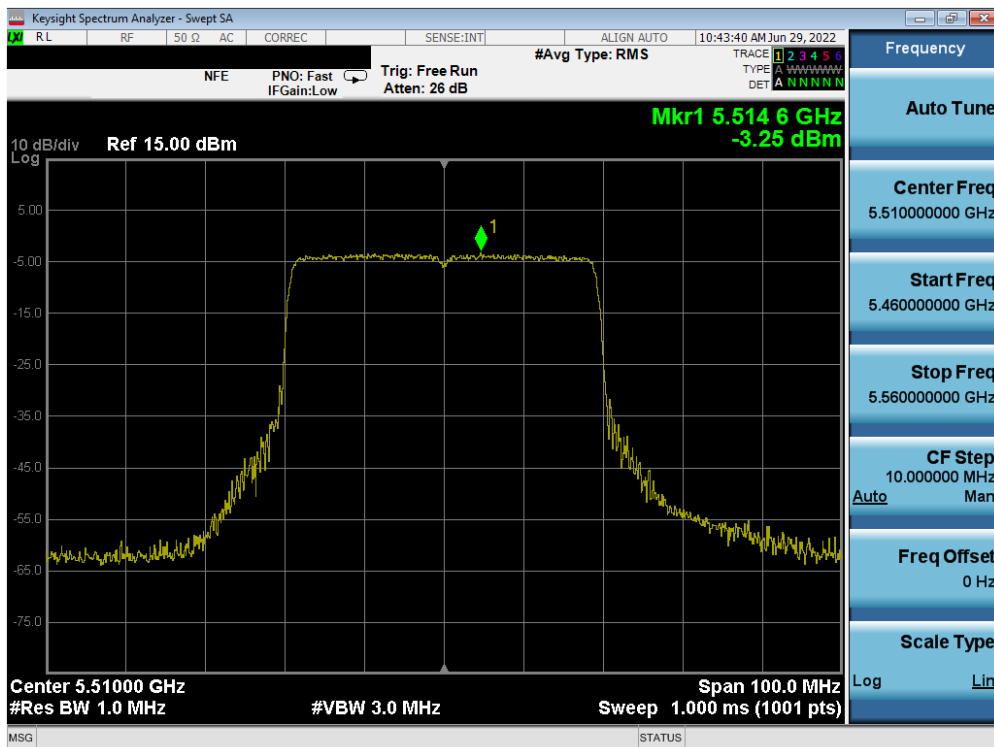


Plot 7-226. Power Spectral Density Plot MIMO ANT2 (20MHz BW 802.11ax – Full Tones (UNII Band 2C) – Ch. 120)

FCC ID: PY7-76056F	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2205240063-16.PY7	Test Dates: 6/3/2022-7/29/2022	EUT Type: Portable Handset	Page 150 of 189

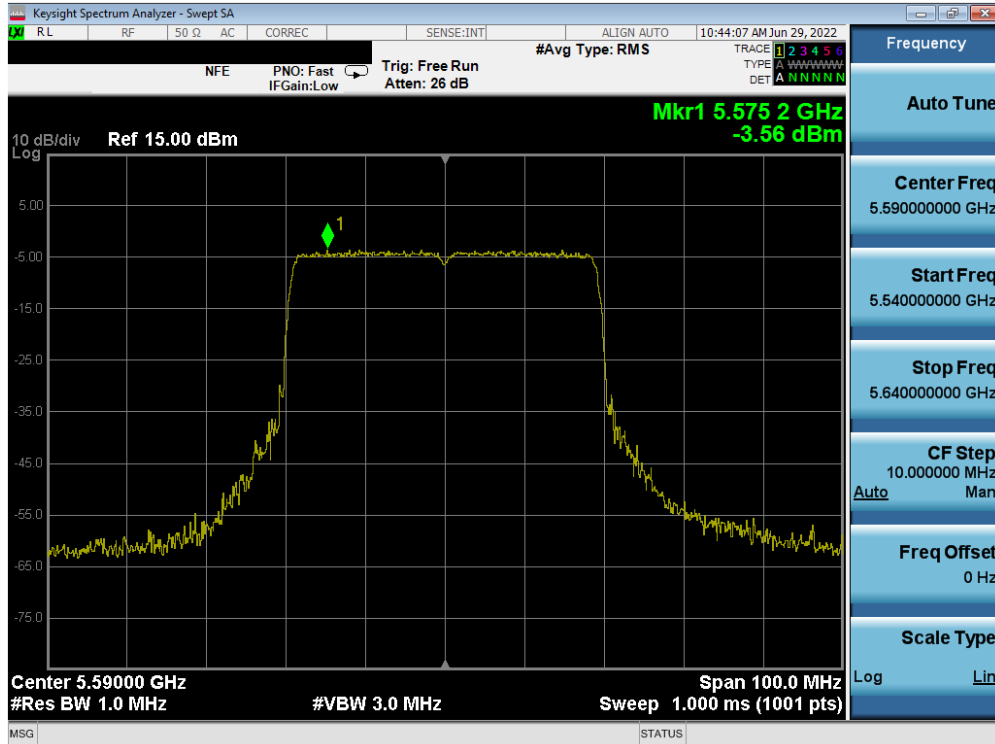


Plot 7-227. Power Spectral Density Plot MIMO ANT2 (20MHz BW 802.11ax – Full Tones (UNII Band 2C) – Ch. 144)

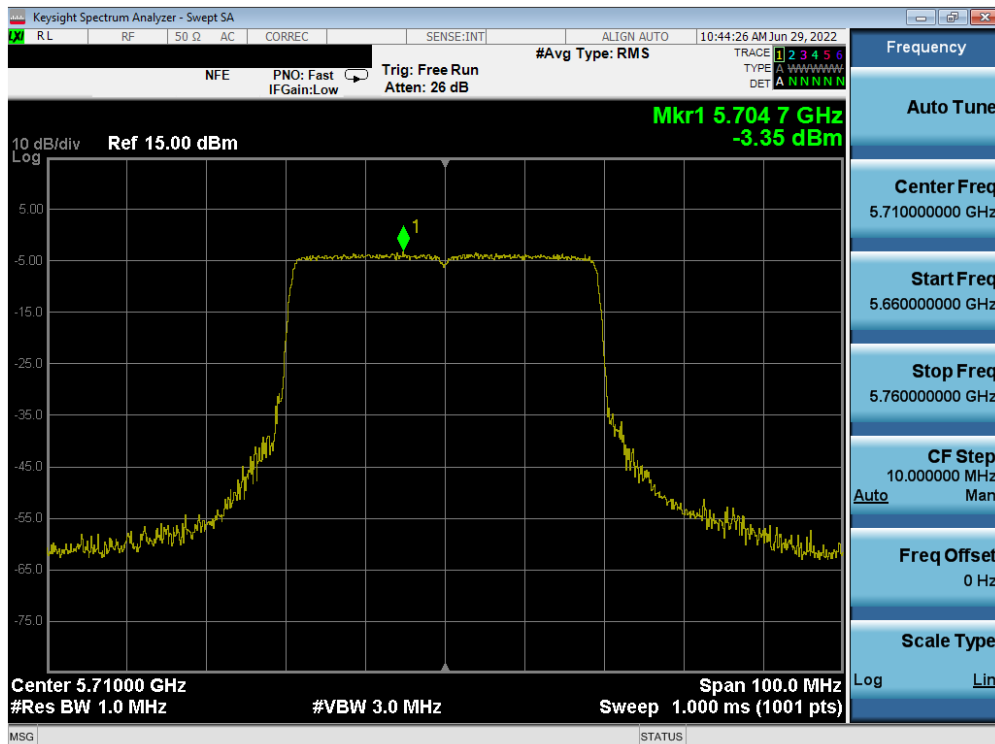


Plot 7-228. Power Spectral Density Plot MIMO ANT2 (40MHz BW 802.11ax – Full Tones (UNII Band 2C) – Ch. 102)

FCC ID: PY7-76056F	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2205240063-16.PY7	Test Dates: 6/3/2022-7/29/2022	EUT Type: Portable Handset	Page 151 of 189

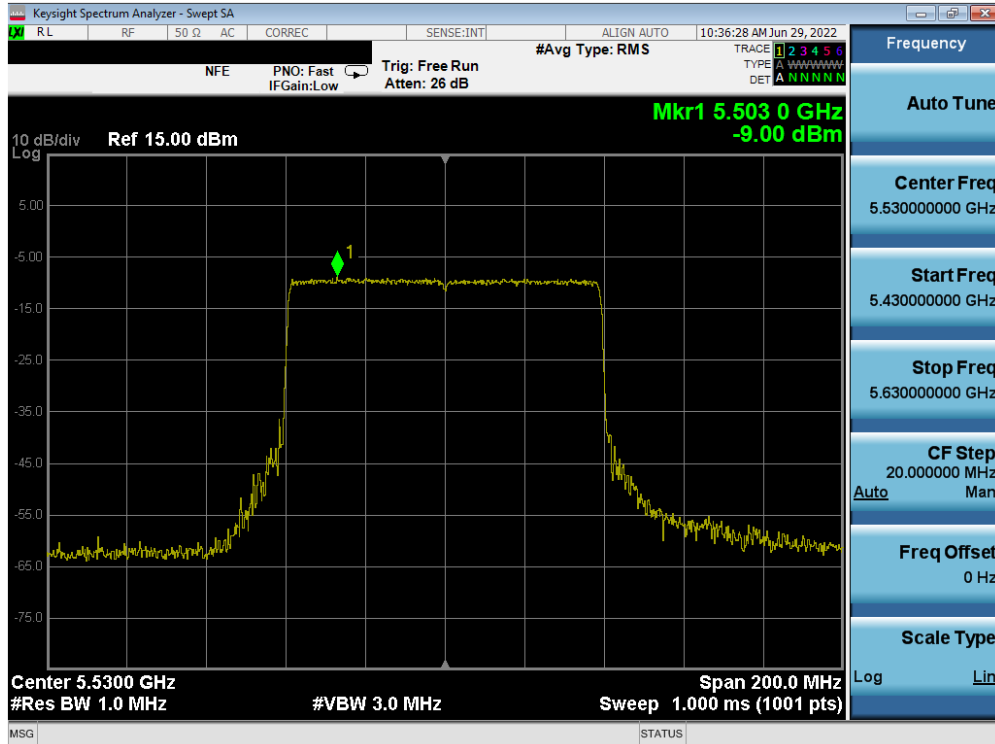


Plot 7-229. Power Spectral Density Plot MIMO ANT2 (40MHz BW 802.11ax – Full Tones (UNII Band 2C) – Ch. 118)

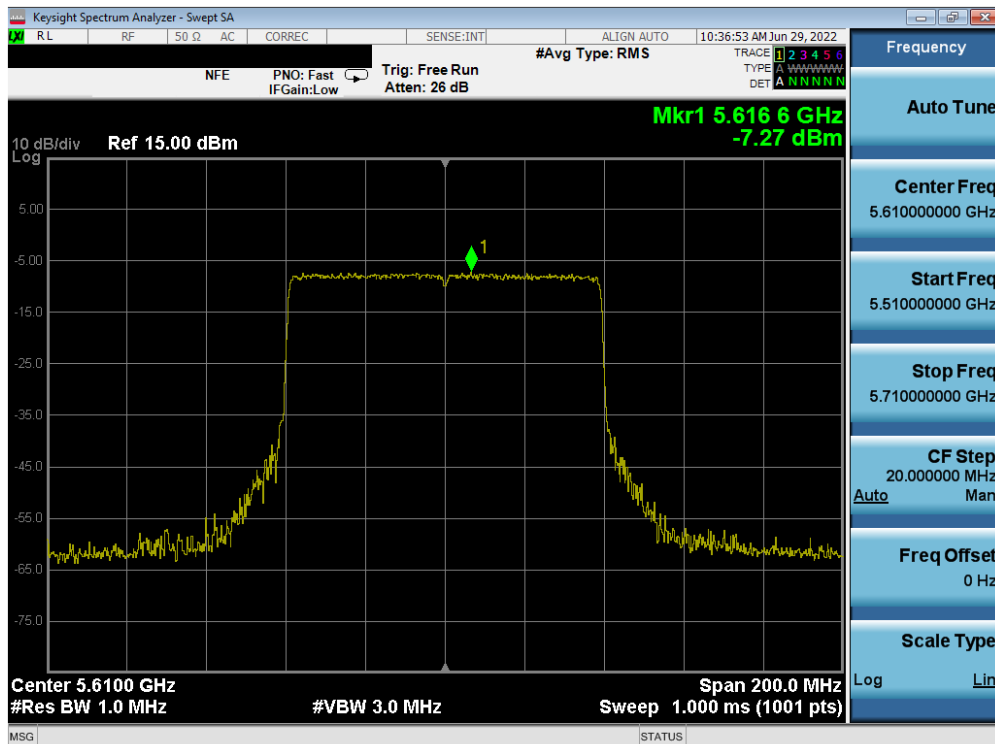


Plot 7-230. Power Spectral Density Plot MIMO ANT2 (40MHz BW 802.11ax – Full Tones (UNII Band 2C) – Ch. 142)

FCC ID: PY7-76056F	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2205240063-16.PY7	Test Dates: 6/3/2022-7/29/2022	EUT Type: Portable Handset	Page 152 of 189

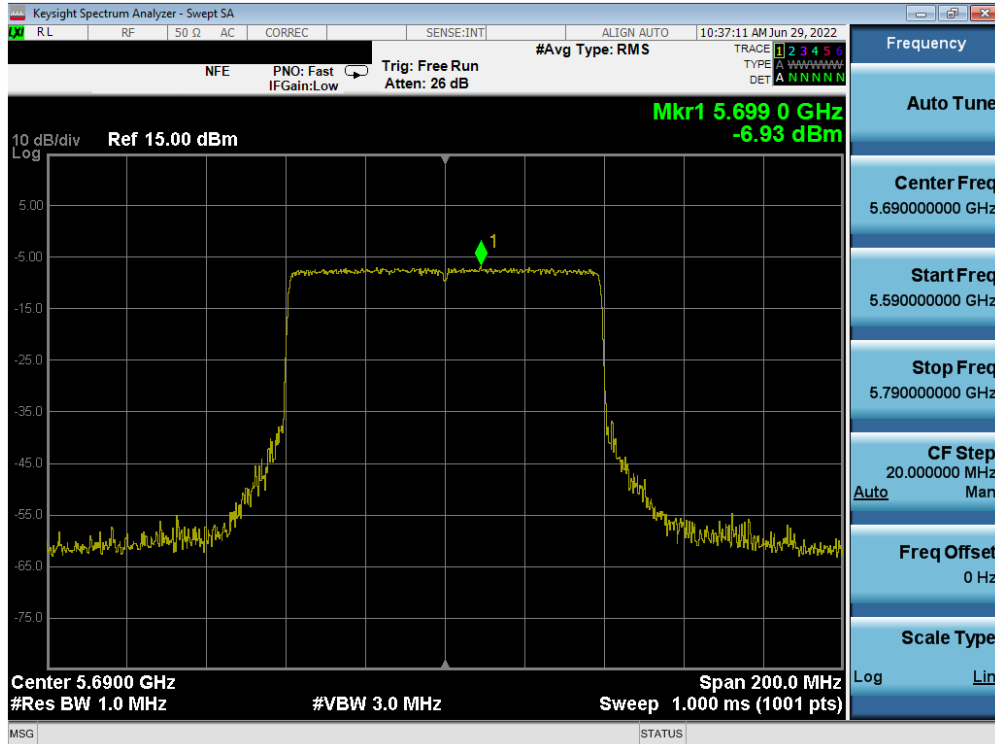


Plot 7-231. Power Spectral Density Plot MIMO ANT2 (80MHz BW 802.11ax – Full Tones (UNII Band 2C) – Ch. 106)

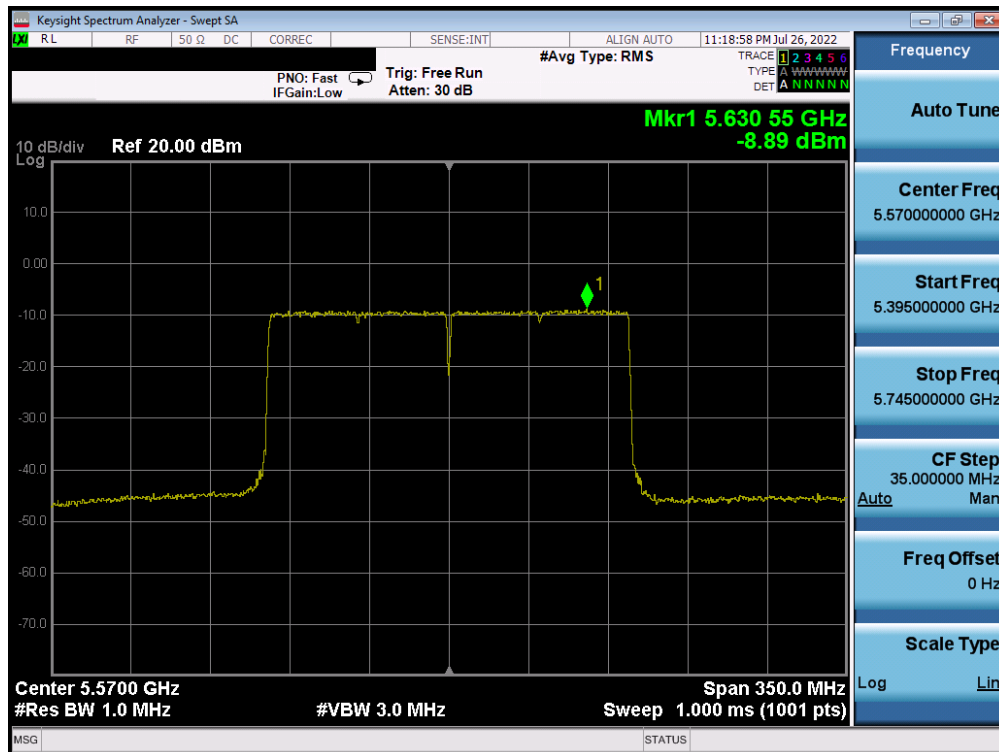


Plot 7-232. Power Spectral Density Plot MIMO ANT2 (80MHz BW 802.11ax – Full Tones (UNII Band 2C) – Ch. 122)

FCC ID: PY7-76056F	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2205240063-16.PY7	Test Dates: 6/3/2022-7/29/2022	EUT Type: Portable Handset	Page 153 of 189

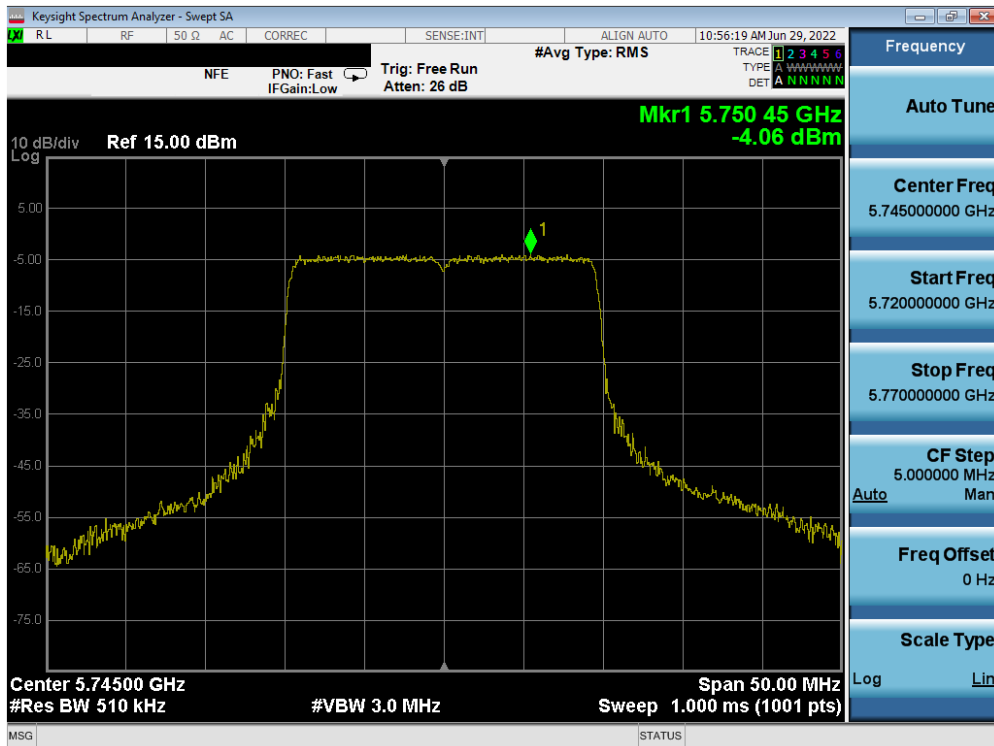


Plot 7-233. Power Spectral Density Plot MIMO ANT2 (80MHz BW 802.11ax – Full Tones (UNII Band 2C) – Ch. 138)

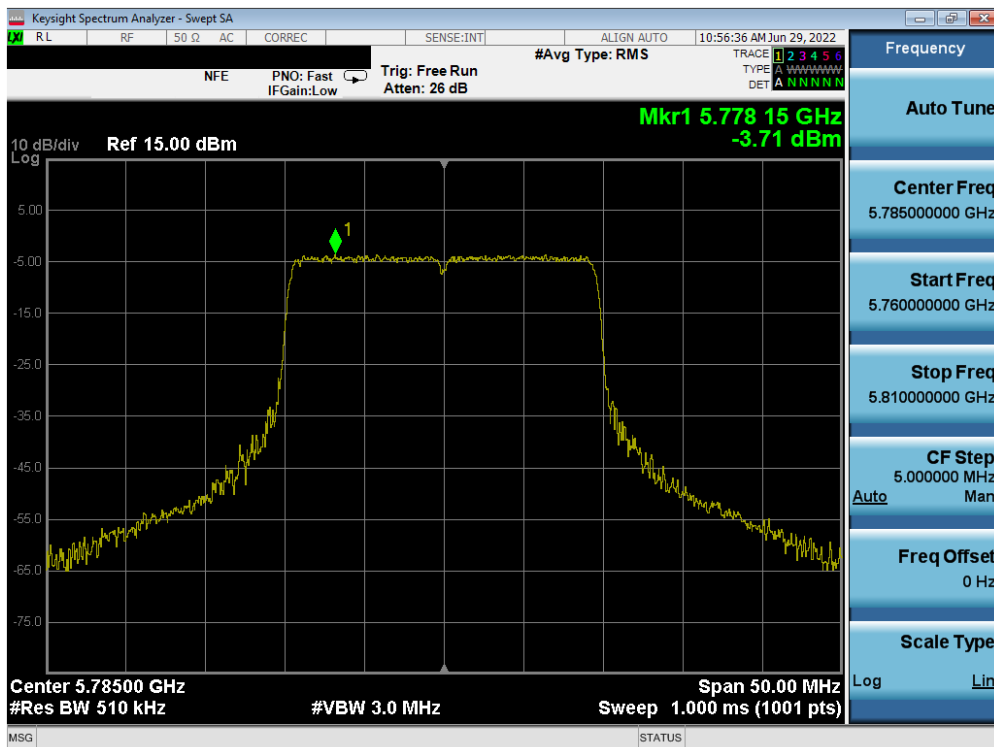


Plot 7-234. Power Spectral Density Plot MIMO ANT2 (160MHz BW 802.11ax – Full Tones (UNII Band 2C) – Ch. 114)

FCC ID: PY7-76056F	<b>MEASUREMENT REPORT (CERTIFICATION)</b>		Approved by: Technical Manager
Test Report S/N: 1M2205240063-16.PY7	Test Dates: 6/3/2022-7/29/2022	EUT Type: Portable Handset	Page 154 of 189



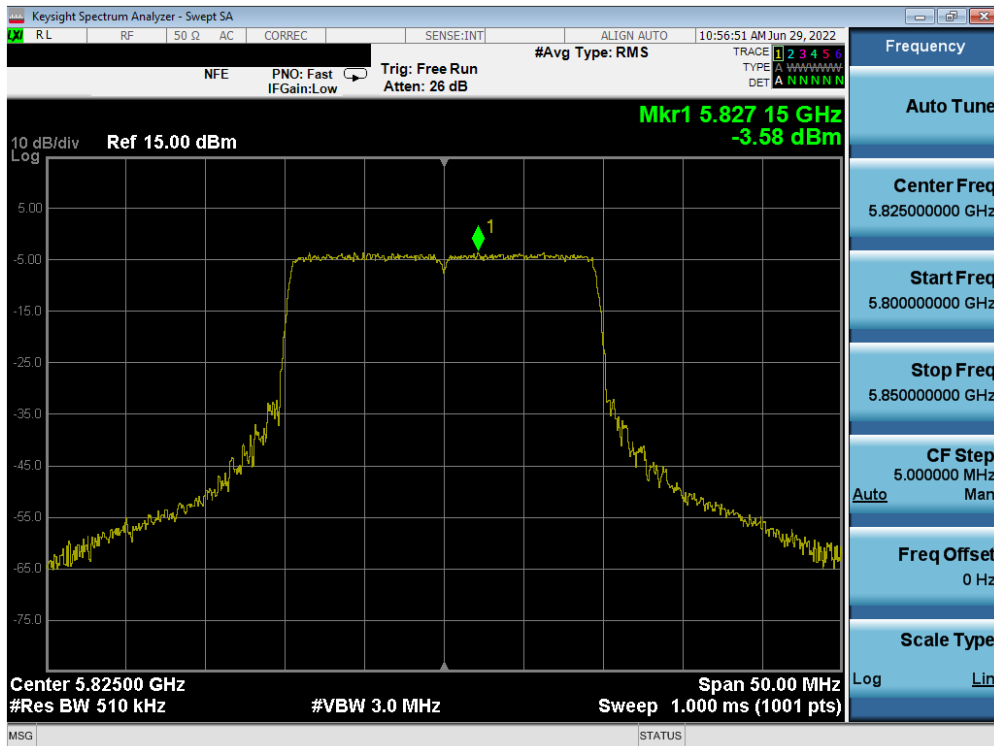
Plot 7-235. Power Spectral Density Plot MIMO ANT2 (20MHz BW 802.11ax – Full Tones (UNII Band 3) – Ch. 149)



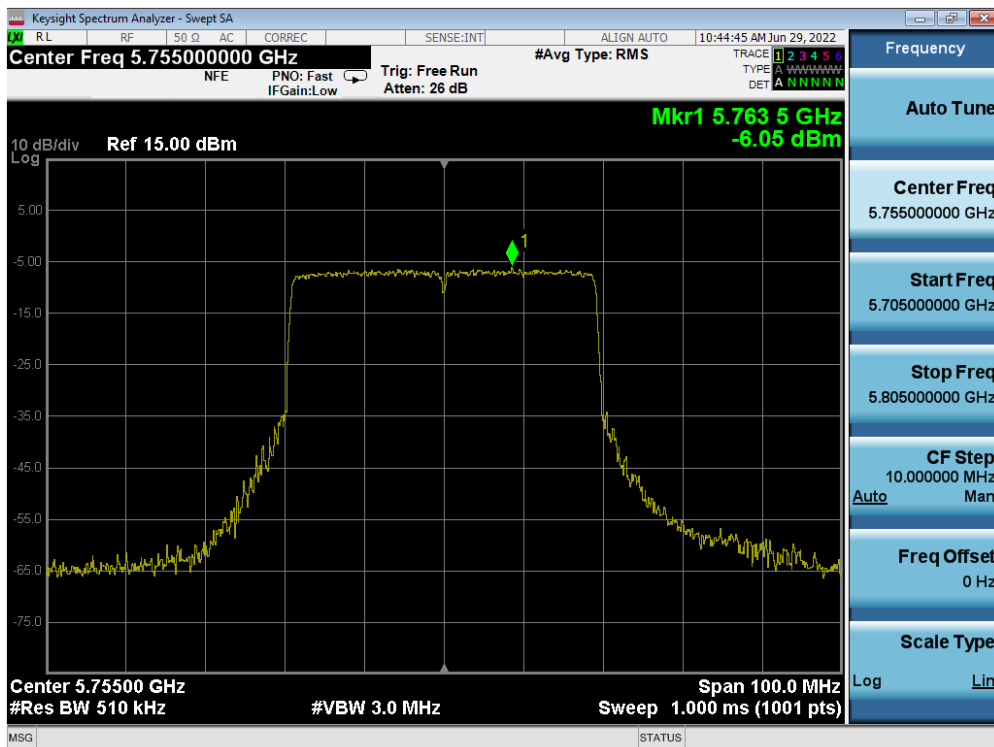
Plot 7-236. Power Spectral Density Plot MIMO ANT2 (20MHz BW 802.11ax – Full Tones (UNII Band 3) – Ch. 157)

FCC ID: PY7-76056F	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2205240063-16.PY7	Test Dates: 6/3/2022-7/29/2022	EUT Type: Portable Handset	Page 155 of 189



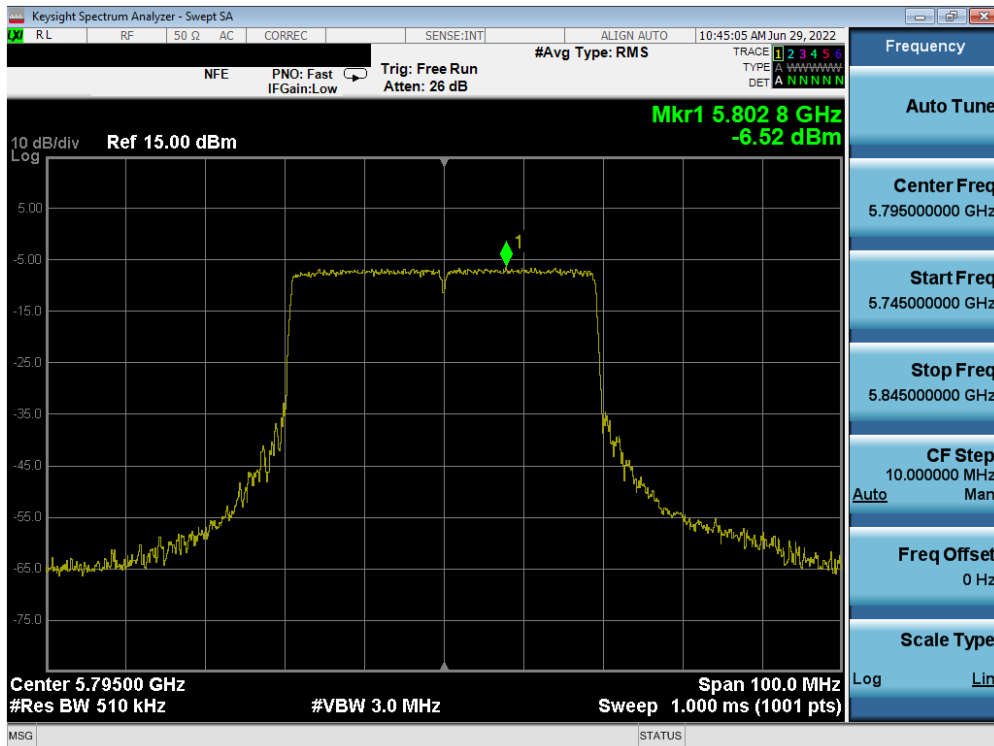


Plot 7-237. Power Spectral Density Plot MIMO ANT2 (20MHz BW 802.11ax – Full Tones (UNII Band 3) – Ch. 165)

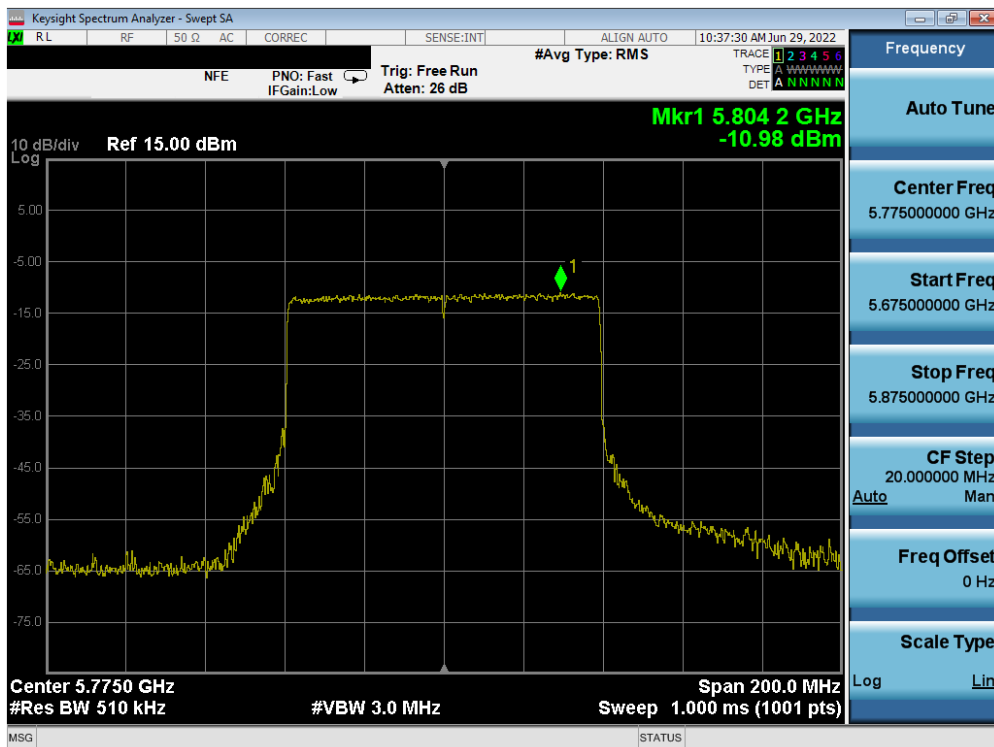


Plot 7-238. Power Spectral Density Plot MIMO ANT2 (40MHz BW 802.11ax – Full Tones (UNII Band 3) – Ch. 151)

FCC ID: PY7-76056F	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2205240063-16.PY7	Test Dates: 6/3/2022-7/29/2022	EUT Type: Portable Handset	Page 156 of 189



Plot 7-239. Power Spectral Density Plot MIMO ANT2 (40MHz BW 802.11ax – Full Tones (UNII Band 3) – Ch. 159)



Plot 7-240. Power Spectral Density Plot MIMO ANT2 (80MHz BW 802.11ax – Full Tones (UNII Band 3) – Ch. 155)

FCC ID: PY7-76056F	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2205240063-16.PY7	Test Dates: 6/3/2022-7/29/2022	EUT Type: Portable Handset	Page 157 of 189

## 7.6 Radiated Spurious Emission Measurements – Above 1GHz

§15.407(b) §15.205 §15.209; RSS-Gen [8.9]

### Test Overview and Limit

All out of band radiated spurious emissions are measured with a spectrum analyzer connected to a receive antenna while the EUT is operating at its maximum duty cycle, at its maximum power control level, as defined in ANSI C63.10-2013 and KDB 789033 D02 v02r01, and at the appropriate frequencies. All channels, modes (e.g. 26 Tones, 52 Tones, 106 Tones, 242 Tones, 484 Tones and 996 Tones), and modulations/data rates were investigated among all UNII bands. Only the radiated emissions of the configuration that produced the worst case emissions are reported in this section.

***For transmitters operating in the 5.15-5.25 GHz and 5.25-5.35 GHz band: All emissions outside of the 5.15-5.35 GHz band shall not exceed an EIRP of -27 dBm/MHz.***

***For transmitters operating in the 5.47-5.725 GHz band: All emissions outside of the 5.47-5.725 GHz band shall not exceed an EIRP of -27 dBm/MHz.***

***For transmitters operating in the 5.725-5.85 GHz band: All emissions shall be limited to a level of -27 dBm/MHz at 75 MHz or more above or below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above or below the band edge, and from 25 MHz above or below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above or below the band edge, and from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge.***

***All out of band emissions appearing in a restricted band as specified in Section 15.205 of the Title 47 CFR and Table 6 of RSS-Gen (8.10) must not exceed the limits shown in Table 7-29 per Section 15.209 and RSS-Gen (8.9).***

Frequency	Field Strength [ $\mu$ V/m]	Measured Distance [Meters]
Above 960.0 MHz	500	3

Table 7-29. Radiated Limits

### Test Procedures Used

ANSI C63.10-2013 – Sections 12.7.7.2, 12.7.6, 12.7.5  
KDB 789033 D02 v02r01 – Section G

### Test Settings

#### Average Measurements above 1GHz (Method AD)

1. Analyzer center frequency was set to the frequency of the radiated spurious emission of interest
2. RBW = 1MHz
3. VBW = 3MHz
4. Detector = power average (RMS)
5. Number of measurement points = 1001 (Number of points must be  $\geq 2 \times \text{span/RBW}$ )
6. Averaging type = power (RMS)
7. Sweep time = auto couple
8. Trace was averaged over 100 sweeps

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**Peak Measurements above 1GHz**

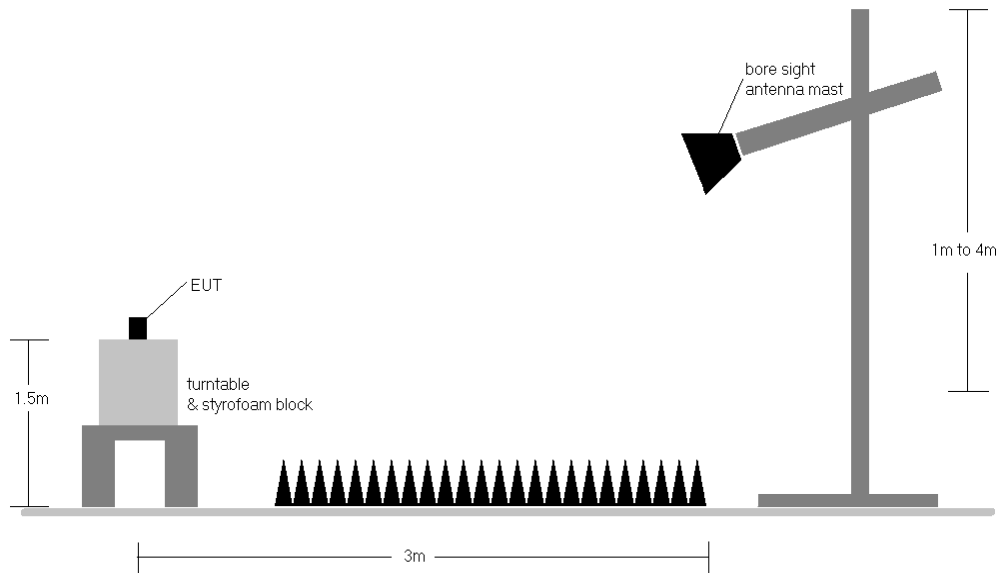
1. Analyzer center frequency was set to the frequency of the radiated spurious emission of interest
2. RBW = 1MHz
3. VBW = 3MHz
4. Detector = peak
5. Sweep time = auto couple
6. Trace mode = max hold
7. Trace was allowed to stabilize

**Peak Measurements below 1GHz**

1. Analyzer center frequency was set to the frequency of the radiated spurious emission of interest
2. Span was set greater than 1MHz
3. RBW = 120kHz
4. Detector = CISPR quasi-peak
5. Sweep time = auto couple
6. Trace was allowed to stabilize

**Test Setup**

The EUT and measurement equipment were set up as shown in the diagram below.



**Figure 7-5. Test Instrument & Measurement Setup**

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## Test Notes

1. All emissions that lie in the restricted bands (denoted by a \* next to the frequency) specified in §15.205 and Section 8.10 of RSS-Gen are below the limit shown in Table 7-29.
2. All spurious emissions lying in restricted bands specified in §15.205 and Section 8.10 of RSS-Gen are below the limit shown in Table 7-29. All spurious emissions that do not lie in a restricted band are subject to a peak limit of -27dBm/MHz. At a distance of 3 meters, the field strength limit in dB $\mu$ V/m can be determined by adding a “conversion” factor of 95.2dB to the EIRP limit of -27dBm/MHz to obtain the limit for out of band spurious emissions of 68.2dB $\mu$ V/m.
3. The antenna is manipulated through typical positions, polarity and length during the tests. The EUT is manipulated through three orthogonal planes.
4. This unit was tested with its standard battery.
5. The spectrum is measured from 9kHz to the 10th harmonic of the fundamental frequency of the transmitter using CISPR quasi peak detector below 1GHz. Above 1 GHz, average and peak measurements were taken using linearly polarized horn antennas. The worst-case emissions are reported however emissions whose levels were not within 20dB of the respective limits were not reported.
6. Emissions below 18GHz were measured at a 3 meter test distance while emissions above 18GHz were measured at a 1 meter test distance with the application of a distance correction factor.
7. The wide spectrum spurious emissions plots shown on the following pages are used only for the purpose of emission identification. Any emissions found to be within 20dB of the limit are fully investigated and the results are shown in this section.
8. The "-" shown in the following RSE tables are used to denote a noise floor measurement.
9. For radiated measurements, emissions were investigated for the fully-loaded RU configuration and for all of the partially-loaded RU configurations. Among all of the available partially-loaded RU configurations, only the configuration with the worst case emissions is reported.

## Sample Calculations

### Determining Spurious Emissions Levels

- Field Strength Level [dB $\mu$ V/m] = Analyzer Level [dBm] + 107 + AFCL [dB/m]
- AFCL [dB/m] = Antenna Factor [dB/m] + Cable Loss [dB]
- Margin [dB] = Field Strength Level [dB $\mu$ V/m] – Limit [dB $\mu$ V/m]

### Radiated Band Edge Measurement Offset

- The amplitude offset shown in the radiated restricted band edge plots in Section 7.6 was calculated using the formula:  
Offset (dB) = (Antenna Factor + Cable Loss + Attenuator) – Preamplifier Gain

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