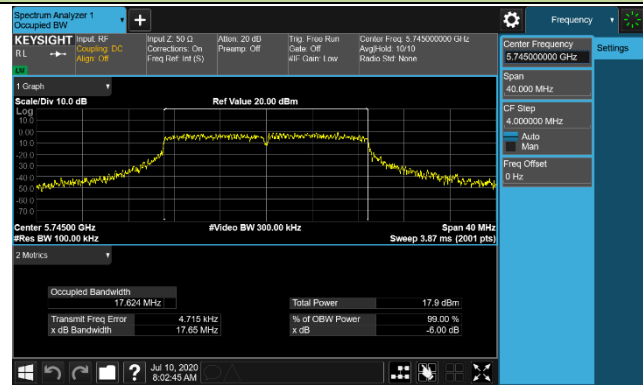
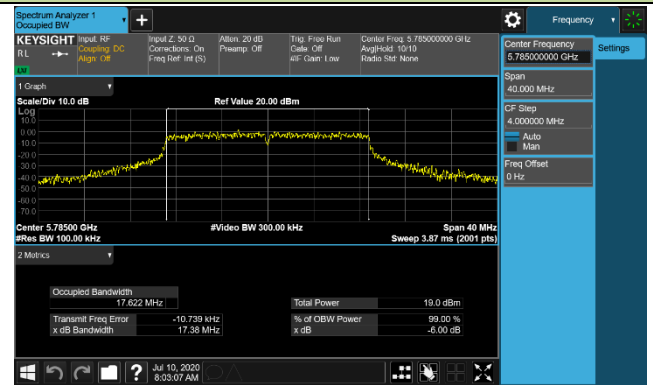


802.11ac-VHT20 6dB Bandwidth - Ant 0 / Ant 0 + 1

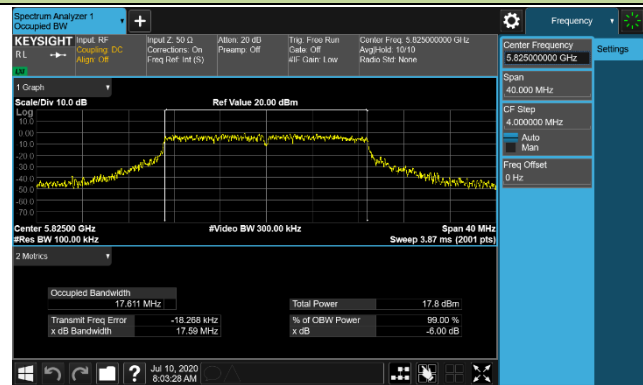
Channel 149 (5745MHz)



Channel 157 (5785MHz)

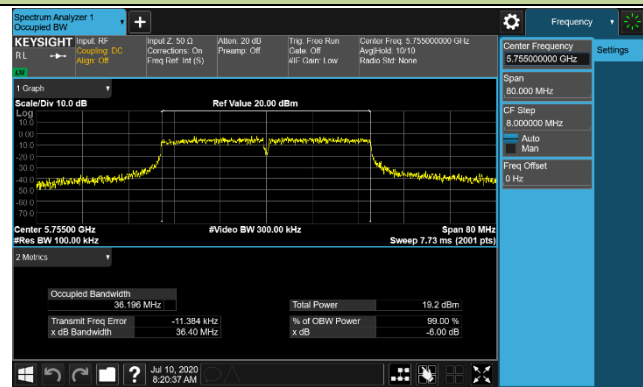


Channel 165 (5825MHz)

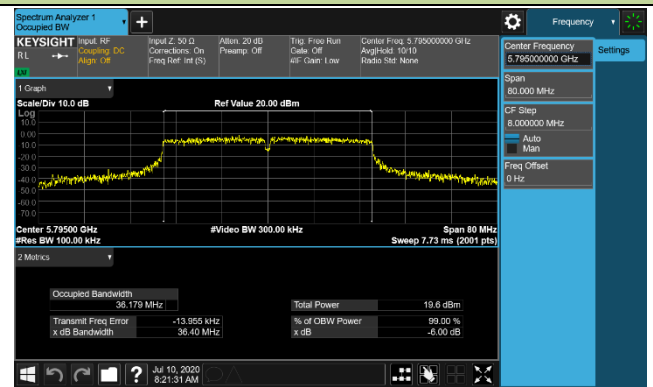


802.11ac-VHT40 6dB Bandwidth - Ant 0 / Ant 0 + 1

Channel 151 (5755MHz)

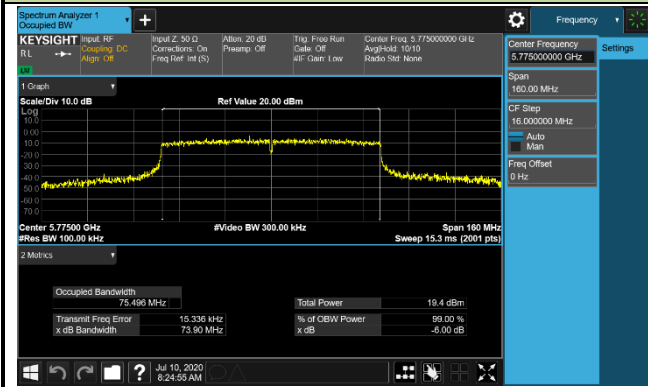


Channel 159 (5795MHz)



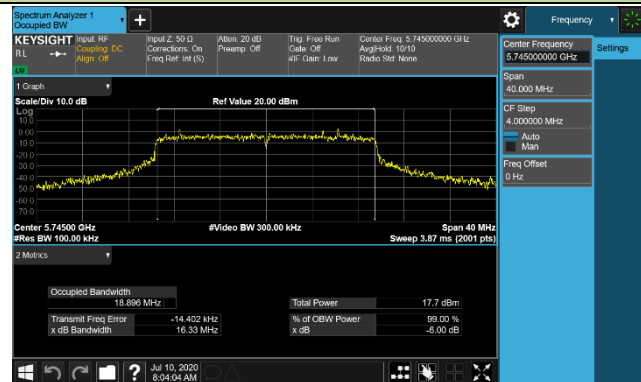
802.11ac-VHT80 6dB Bandwidth - Ant 0 / Ant 0 + 1

Channel 155 (5775MHz)

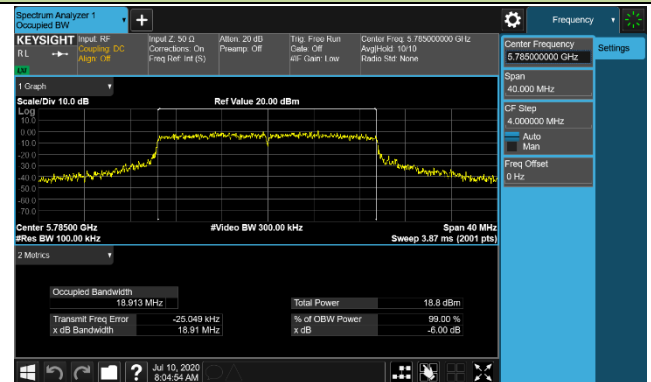


## 802.11ax-HE20 6dB Bandwidth - Ant 0 / Ant 0 + 1

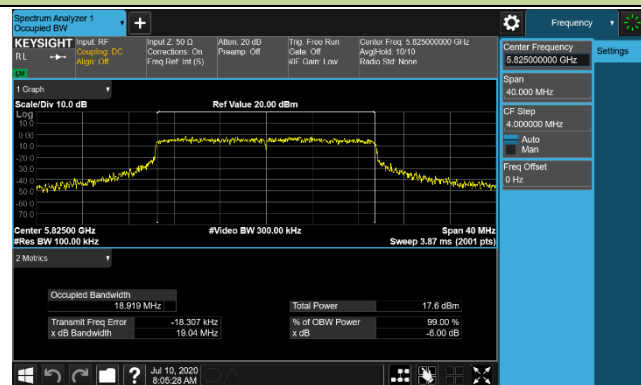
## Channel 149 (5745MHz)



## Channel 157 (5785MHz)

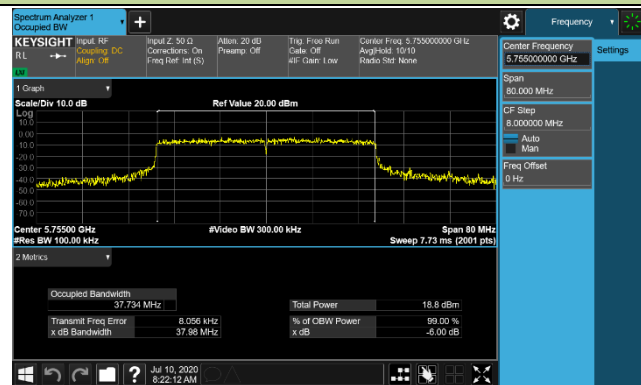


## Channel 165 (5825MHz)

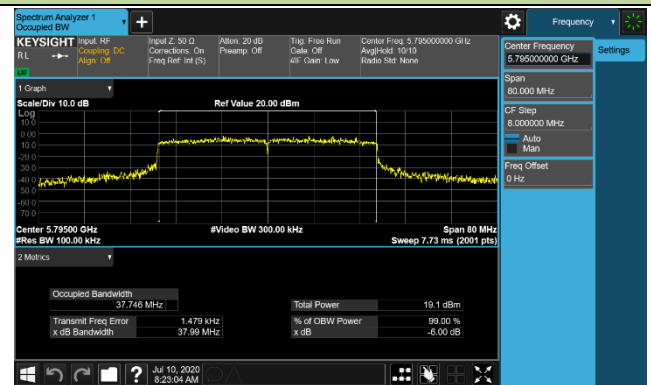


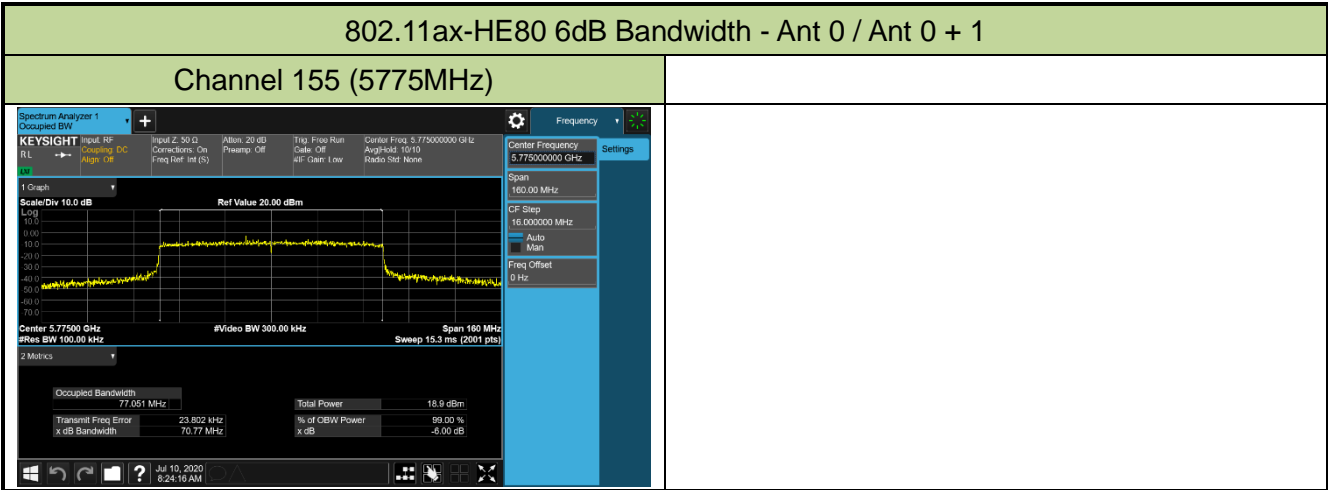
## 802.11ax-HE40 6dB Bandwidth - Ant 0 / Ant 0 + 1

## Channel 151 (5755MHz)



## Channel 159 (5795MHz)





## 5.4. Output Power Measurement

### 5.4.1. Test Limit

For an indoor access point operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W provided the maximum antenna gain does not exceed 6 dBi.

For the band 5.725-5.85 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W (30dBm).

If transmitting antennas of directional gain greater than 6dBi are used, the maximum conducted output power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6dBi.

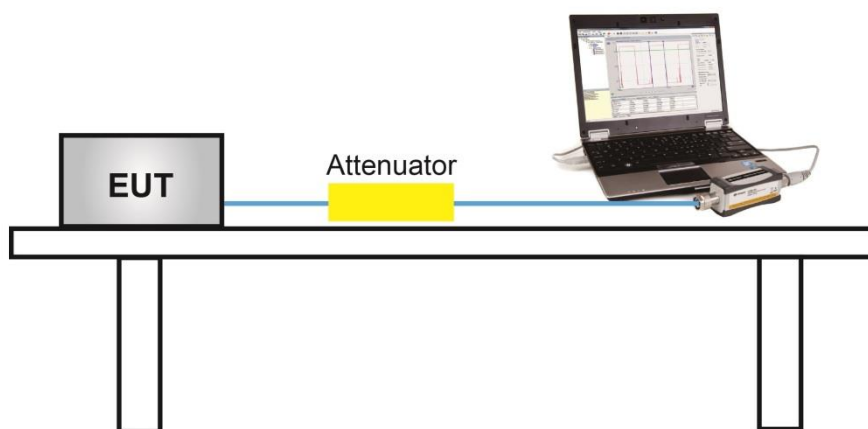
### 5.4.2. Test Procedure Used

KDB 789033D02v02r01- Section E)3)b) Method PM-G

### 5.4.3. Test Setting

Average power measurements were performed only when the EUT was transmitting at its maximum power control level using a broadband power meter with a pulse sensor. The power meter implemented triggering and gating capabilities which were set up such that power measurements were recorded only during the ON time of the transmitter. The trace was averaged over 100 traces to obtain the final measured average power.

### 5.4.4. Test Setup



### 5.4.5. Test Result

Product	GigaSpire BLAST	Test Engineer	Yuri Li
Test Date	2020/07/08~2020/08/16	Test Site	TR3
Test Mode	CDD Mode		

Test Mode	Data Rate/ MCS	Channel No.	Freq. (MHz)	Ant 0 Average Power (dBm)	Ant 1 Average Power (dBm)	Total Average Power (dBm)	Average Power Limit (dBm)	Result
11a	6Mbps	36	5180	23.89	23.53	26.72	≤ 30.00	Pass
11a	6Mbps	44	5220	23.71	22.38	26.11	≤ 30.00	Pass
11a	6Mbps	48	5240	23.01	23.17	26.10	≤ 30.00	Pass
11a	6Mbps	149	5745	24.50	24.74	27.63	≤ 30.00	Pass
11a	6Mbps	157	5785	24.12	24.76	27.46	≤ 30.00	Pass
11a	6Mbps	165	5825	24.47	23.94	27.22	≤ 30.00	Pass
11n-HT20	MCS0	36	5180	24.91	23.63	27.33	≤ 30.00	Pass
11n-HT20	MCS0	44	5220	24.45	24.20	27.34	≤ 30.00	Pass
11n-HT20	MCS0	48	5240	23.04	22.79	25.93	≤ 30.00	Pass
11n-HT20	MCS0	149	5745	24.80	24.67	27.75	≤ 30.00	Pass
11n-HT20	MCS0	157	5785	24.75	24.66	27.72	≤ 30.00	Pass
11n-HT20	MCS0	165	5825	24.35	23.88	27.13	≤ 30.00	Pass
11n-HT40	MCS0	38	5190	22.43	22.37	25.41	≤ 30.00	Pass
11n-HT40	MCS0	46	5230	25.86	25.18	28.54	≤ 30.00	Pass
11n-HT40	MCS0	151	5755	24.83	24.55	27.70	≤ 30.00	Pass
11n-HT40	MCS0	159	5795	24.38	24.32	27.36	≤ 30.00	Pass
11ac-VHT20	MCS0	36	5180	24.97	24.51	27.76	≤ 30.00	Pass
11ac-VHT20	MCS0	44	5220	24.53	24.17	27.36	≤ 30.00	Pass
11ac-VHT20	MCS0	48	5240	24.54	24.47	27.52	≤ 30.00	Pass
11ac-VHT20	MCS0	149	5745	24.78	24.57	27.69	≤ 30.00	Pass
11ac-VHT20	MCS0	157	5785	24.61	24.63	27.63	≤ 30.00	Pass
11ac-VHT20	MCS0	165	5825	24.23	24.04	27.15	≤ 30.00	Pass
11ac-VHT40	MCS0	38	5190	22.53	22.36	25.46	≤ 30.00	Pass
11ac-VHT40	MCS0	46	5230	25.81	24.23	28.10	≤ 30.00	Pass
11ac-VHT40	MCS0	151	5755	23.47	24.45	27.00	≤ 30.00	Pass
11ac-VHT40	MCS0	159	5795	24.54	24.11	27.34	≤ 30.00	Pass

Test Mode	Data Rate/ MCS	Channel No.	Freq. (MHz)	Ant 0 Average Power (dBm)	Ant 1 Average Power (dBm)	Total Average Power (dBm)	Average Power Limit (dBm)	Result
11ac-VHT80	MCS0	42	5210	21.34	20.45	23.93	≤ 30.00	Pass
11ac-VHT80	MCS0	155	5775	23.95	23.73	26.85	≤ 30.00	Pass
11ax-HE20	MCS0	36	5180	24.57	24.31	27.45	≤ 30.00	Pass
11ax-HE20	MCS0	44	5220	24.25	23.87	27.07	≤ 30.00	Pass
11ax-HE20	MCS0	48	5240	24.36	24.31	27.35	≤ 30.00	Pass
11ax-HE20	MCS0	149	5745	24.45	24.48	27.48	≤ 30.00	Pass
11ax-HE20	MCS0	157	5785	24.53	24.67	27.61	≤ 30.00	Pass
11ax-HE20	MCS0	165	5825	24.15	23.70	26.94	≤ 30.00	Pass
11ax-HE40	MCS0	38	5190	22.24	22.02	25.14	≤ 30.00	Pass
11ax-HE40	MCS0	46	5230	25.56	25.35	28.47	≤ 30.00	Pass
11ax-HE40	MCS0	151	5755	24.45	24.23	27.35	≤ 30.00	Pass
11ax-HE40	MCS0	159	5795	24.24	23.82	27.05	≤ 30.00	Pass
11ax-HE80	MCS0	42	5210	21.78	21.84	24.82	≤ 30.00	Pass
11ax-HE80	MCS0	155	5775	23.85	23.75	26.81	≤ 30.00	Pass

Note: The Total Average Power (dBm) =  $10 \cdot \log \{10^{(\text{Ant 0 Average Power} / 10)} + 10^{(\text{Ant 1 Average Power} / 10)}\}$ .

Product	GigaSpire BLAST	Test Engineer	Yuri Li
Test Date	2020/07/08~2020/08/18	Test Site	TR3
Test Mode	Beamforming Mode		

Test Mode	Data Rate/ MCS	Channel No.	Freq. (MHz)	Ant 0 Average Power (dBm)	Ant 1 Average Power (dBm)	Total Average Power (dBm)	Average Power Limit (dBm)	Result
11ac-VHT20	MCS0	36	5180	23.73	23.42	26.59	≤ 30.00	Pass
11ac-VHT20	MCS0	44	5220	24.53	24.17	27.36	≤ 30.00	Pass
11ac-VHT20	MCS0	48	5240	24.54	24.47	27.52	≤ 30.00	Pass
11ac-VHT20	MCS0	149	5745	24.78	24.57	27.69	≤ 30.00	Pass
11ac-VHT20	MCS0	157	5785	24.61	24.63	27.63	≤ 30.00	Pass
11ac-VHT20	MCS0	165	5825	24.23	24.04	27.15	≤ 30.00	Pass
11ac-VHT40	MCS0	38	5190	22.53	22.36	25.46	≤ 30.00	Pass
11ac-VHT40	MCS0	46	5230	25.81	24.23	28.10	≤ 30.00	Pass
11ac-VHT40	MCS0	151	5755	21.31	22.01	24.68	≤ 30.00	Pass
11ac-VHT40	MCS0	159	5795	24.54	24.11	27.34	≤ 30.00	Pass
11ac-VHT80	MCS0	42	5210	21.34	20.45	23.93	≤ 30.00	Pass
11ac-VHT80	MCS0	155	5775	23.95	23.73	26.85	≤ 30.00	Pass
11ax-HE20	MCS0	36	5180	24.57	24.31	27.45	≤ 30.00	Pass
11ax-HE20	MCS0	44	5220	24.25	23.87	27.07	≤ 30.00	Pass
11ax-HE20	MCS0	48	5240	24.36	24.31	27.35	≤ 30.00	Pass
11ax-HE20	MCS0	149	5745	24.45	24.48	27.48	≤ 30.00	Pass
11ax-HE20	MCS0	157	5785	24.53	24.67	27.61	≤ 30.00	Pass
11ax-HE20	MCS0	165	5825	24.15	23.70	26.94	≤ 30.00	Pass
11ax-HE40	MCS0	38	5190	21.18	21.02	24.11	≤ 30.00	Pass
11ax-HE40	MCS0	46	5230	25.56	25.35	28.47	≤ 30.00	Pass
11ax-HE40	MCS0	151	5755	24.45	24.23	27.35	≤ 30.00	Pass
11ax-HE40	MCS0	159	5795	24.24	23.82	27.05	≤ 30.00	Pass
11ax-HE80	MCS0	42	5210	21.78	21.84	24.82	≤ 30.00	Pass
11ax-HE80	MCS0	155	5775	23.85	23.75	26.81	≤ 30.00	Pass

Note: The Total Average Power (dBm) =  $10 \cdot \log \{10^{(\text{Ant 0 Average Power} / 10)} + 10^{(\text{Ant 1 Average Power} / 10)}\}$ .



## 5.5. Power Spectral Density Measurement

### 5.5.1. Test Limit

For an indoor access point operating in the band 5.15-5.25 GHz, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band.

For the band 5.725-5.85 GHz, the maximum power spectral density shall not exceed 30 dBm in any 500-kHz band.

If transmitting antennas of directional gain greater than 6dBi are used, the peak power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6dBi.

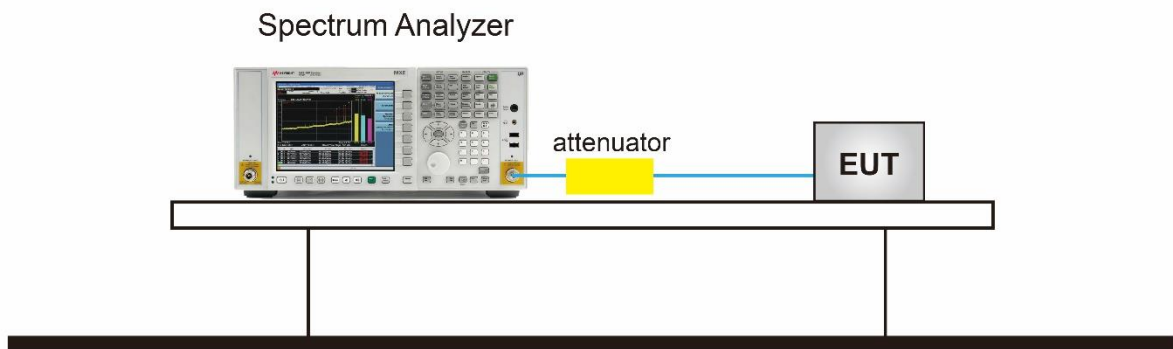
### 5.5.2. Test Procedure Used

KDB 789033 D02v02r01 -SectionF

### 5.5.3. Test Setting

1. Analyzer was set to the center frequency of the UNII channel under investigation
2. Span was set to encompass the entire 26dB EBW of the signal.
3. RBW = 1MHz, if measurement bandwidth of Maximum PSD is specified in 500 kHz,  
RBW = 100KHz
4. VBW  $\geq$  3RBW
5. Number of sweep points  $\geq 2 \times$  (span / RBW)
6. Detector = power averaging (Average)
7. Sweep time = auto
8. Trigger = free run
9. Use the peak search function on the instrument to find the peak of the spectrum and record its value.
10. Add  $10 \cdot \log(1/x)$ , where x is the duty cycle, to the measured power in order to compute the average power during the actual transmission times (because the measurement represents an average over both the on and off times of the transmission). For example, add  $10 \cdot \log(1/0.25) = 6$  dB if the duty cycle is 25 percent.
11. When the measurement bandwidth of Maximum PSD is specified in 500 kHz, add a constant factor  $10 \cdot \log(500\text{kHz}/100\text{kHz}) = 6.99$  dB to the measured result.

### 5.5.4. Test Setup



### 5.5.5. Test Result

Product	GigaSpire BLAST	Test Engineer	Yuri Li
Test Date	2020/07/02 ~ 2020/07/14	Test Site	TR3
Mode	Power Spectral Density (UNII- 1) CDD mode		

Test Mode	Data Rate /MCS	Ch. No.	Freq. (MHz)	Ant 0 PSD (dBm/MHz)	Ant 1 PSD (dBm/MHz)	Duty Cycle (%)	Total PSD (dBm/MHz)	PSD Limit (dBm/MHz)	Result
11a	6Mbps	36	5180	12.10	11.67	92.38	15.24	≤ 17.00	Pass
11a	6Mbps	44	5220	12.07	11.48	92.38	15.14	≤ 17.00	Pass
11a	6Mbps	48	5240	12.34	11.82	92.38	15.44	≤ 17.00	Pass
11n-HT20	MCS0	36	5180	12.56	11.74	94.26	15.44	≤ 17.00	Pass
11n-HT20	MCS0	44	5220	12.29	12.07	94.26	15.45	≤ 17.00	Pass
11n-HT20	MCS0	48	5240	11.80	11.32	94.26	14.83	≤ 17.00	Pass
11n-HT40	MCS0	38	5190	7.54	7.32	85.68	11.11	≤ 17.00	Pass
11n-HT40	MCS0	46	5230	11.68	11.37	85.68	15.21	≤ 17.00	Pass
11ac-VHT20	MCS0	36	5180	12.37	12.25	94.75	15.55	≤ 17.00	Pass
11ac-VHT20	MCS0	44	5220	12.34	11.86	94.75	15.35	≤ 17.00	Pass
11ac-VHT20	MCS0	48	5240	12.34	12.34	94.75	15.58	≤ 17.00	Pass
11ac-VHT40	MCS0	38	5190	7.40	7.53	85.08	11.18	≤ 17.00	Pass
11ac-VHT40	MCS0	46	5230	11.61	11.96	85.08	15.50	≤ 17.00	Pass
11ac-VHT80	MCS0	42	5210	3.33	3.44	94.50	6.64	≤ 17.00	Pass
11ax-HE20	MCS0	36	5180	12.45	12.18	94.50	15.57	≤ 17.00	Pass
11ax-HE20	MCS0	44	5220	12.04	12.11	94.50	15.33	≤ 17.00	Pass
11ax-HE20	MCS0	48	5240	12.35	12.21	94.50	15.54	≤ 17.00	Pass
11ax-HE40	MCS0	38	5190	7.49	7.55	95.50	10.73	≤ 17.00	Pass
11ax-HE40	MCS0	46	5230	11.63	11.56	95.50	14.80	≤ 17.00	Pass
11ax-HE80	MCS0	42	5210	4.28	4.50	91.45	7.79	≤ 17.00	Pass

Note 1: When EUT duty cycle ≥ 98%, the total PSD (dBm/MHz) =  $10 \cdot \log \{10^{(\text{Ant 0 PSD}/10)} + 10^{(\text{Ant 1 PSD}/10)}\}$  (dBm/MHz).

When EUT duty cycle < 98%, the total PSD (dBm/MHz) =  $10 \cdot \log \{10^{(\text{Ant 0 PSD}/10)} + 10^{(\text{Ant 1 PSD}/10)}\}$  (dBm/MHz) +  $10 \cdot \log (1/\text{Duty Cycle})$ .

Note 2: Due to the power setting of beamforming mode is not great than CDD mode, so beamforming mode result is not reported.

Product	GigaSpire BLAST	Test Engineer	Yuri Li
Test Date	2020/07/07	Test Site	TR3
Test Item	Power Spectral Density (UNII-3) CDD mode		

Test Mode	Data Rate/MCS	Ch. No.	Freq. (MHz)	Ant 0 PSD (dBm/100kHz)	Ant 1 PSD (dBm/100kHz)	Duty Cycle (%)	Constant Factor (dB)	Total PSD (dBm/500kHz)	Limit (dBm/500kHz)	Result
11a	6Mbps	149	5745	3.75	2.93	92.38	6.99	13.70	≤ 30.00	Pass
11a	6Mbps	157	5785	3.54	3.32	92.38	6.99	13.78	≤ 30.00	Pass
11a	6Mbps	165	5825	2.78	2.34	92.38	6.99	12.91	≤ 30.00	Pass
11n-HT20	MCS0	149	5745	2.89	2.58	94.26	6.99	12.99	≤ 30.00	Pass
11n-HT20	MCS0	157	5785	2.49	2.87	94.26	6.99	12.94	≤ 30.00	Pass
11n-HT20	MCS0	165	5825	1.87	1.60	94.26	6.99	11.99	≤ 30.00	Pass
11n-HT40	MCS0	151	5755	2.14	1.85	85.68	6.99	12.67	≤ 30.00	Pass
11n-HT40	MCS0	159	5795	1.41	1.48	85.68	6.99	12.12	≤ 30.00	Pass
11ac-VHT20	MCS0	149	5745	2.88	2.44	94.75	6.99	12.90	≤ 30.00	Pass
11ac-VHT20	MCS0	157	5785	2.48	2.96	94.75	6.99	12.96	≤ 30.00	Pass
11ac-VHT20	MCS0	165	5825	1.94	1.91	94.75	6.99	12.16	≤ 30.00	Pass
11ac-VHT40	MCS0	151	5755	2.04	1.66	85.08	6.99	12.56	≤ 30.00	Pass
11ac-VHT40	MCS0	159	5795	1.06	1.18	85.08	6.99	11.82	≤ 30.00	Pass
11ac-VHT80	MCS0	155	5775	-2.32	-1.94	94.50	6.99	8.12	≤ 30.00	Pass
11ax-HE20	MCS0	149	5745	1.95	1.01	94.50	6.99	11.75	≤ 30.00	Pass
11ax-HE20	MCS0	157	5785	1.43	1.62	94.50	6.99	11.77	≤ 30.00	Pass
11ax-HE20	MCS0	165	5825	0.51	0.45	94.50	6.99	10.73	≤ 30.00	Pass
11ax-HE40	MCS0	151	5755	0.81	0.56	95.50	6.99	10.89	≤ 30.00	Pass
11ax-HE40	MCS0	159	5795	0.39	0.33	95.50	6.99	10.56	≤ 30.00	Pass
11ax-HE80	MCS0	155	5775	-3.25	-3.23	91.45	6.99	7.15	≤ 30.00	Pass

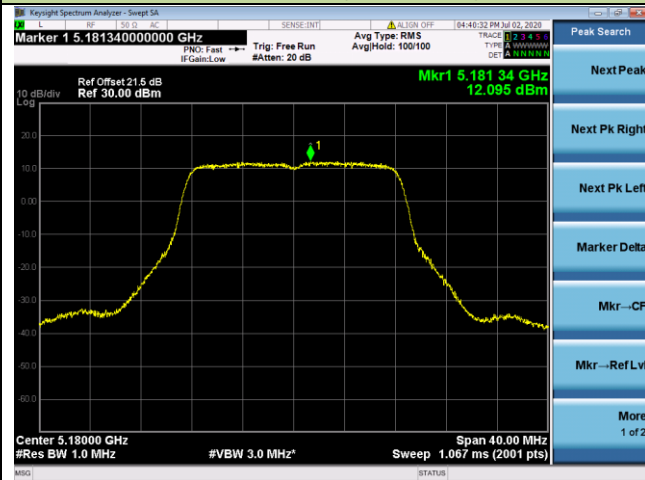
Note 1: When EUT duty cycle ≥ 98%, the total PSD (dBm/500kHz) =  $10 \cdot \log \{10^{(\text{Ant 0 PSD}/10)} + 10^{(\text{Ant 1 PSD}/10)}\}$  (dBm/100kHz) + Constant Factor (dB)

When EUT duty cycle < 98%, the total PSD (dBm/500kHz) =  $10 \cdot \log \{10^{(\text{Ant 0 PSD}/10)} + 10^{(\text{Ant 1 PSD}/10)}\}$  (dBm/100kHz) +  $10 \cdot \log (1/\text{Duty Cycle})$  + Constant Factor (dB).

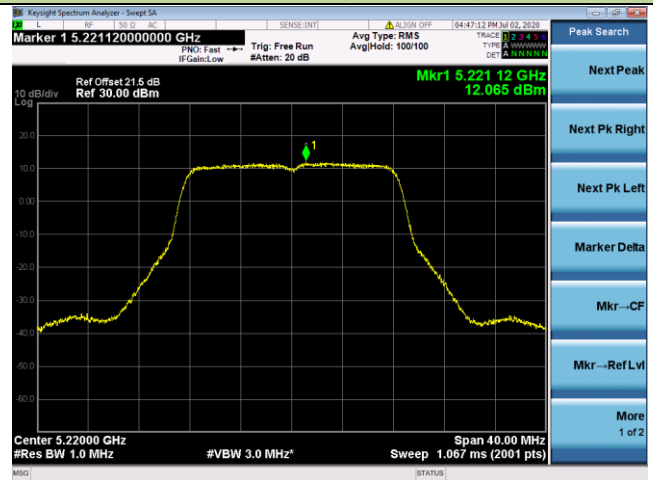
Note 2: Due to the power setting of beamforming mode is not great than CDD mode, so beamforming mode result is not reported.

## 802.11a Power Spectral Density - Ant 0 / Ant 0 + 1

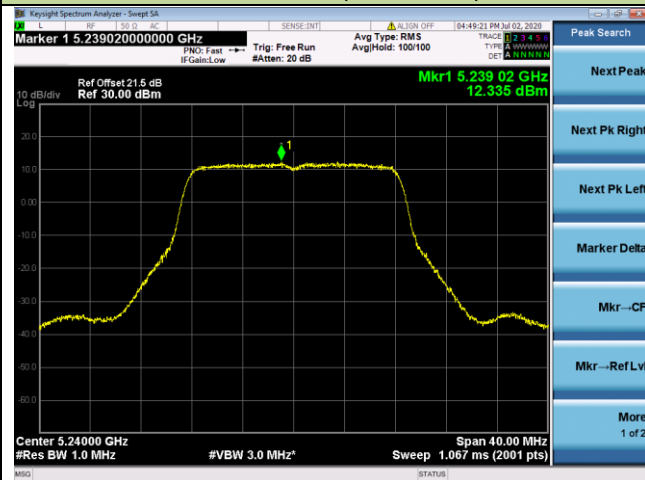
Channel 36 (5180MHz)



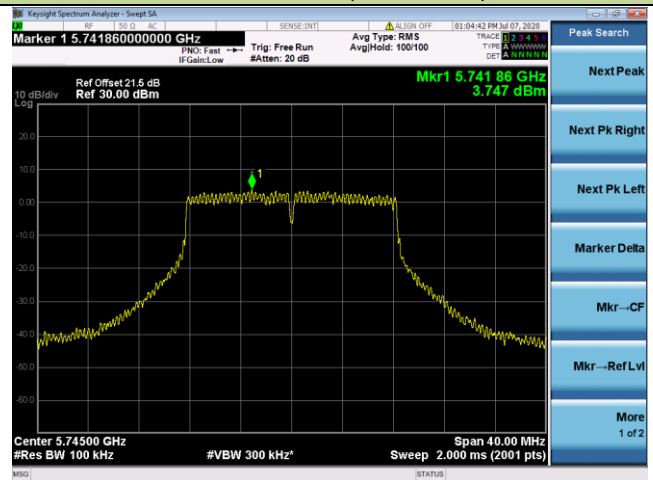
Channel 44 (5220MHz)



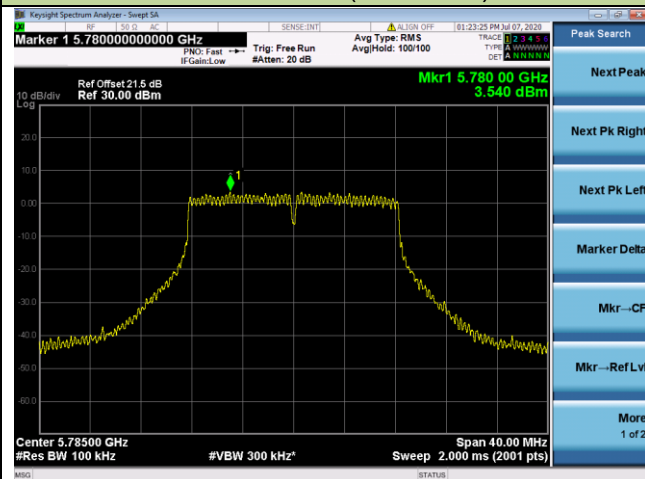
Channel 48 (5240MHz)



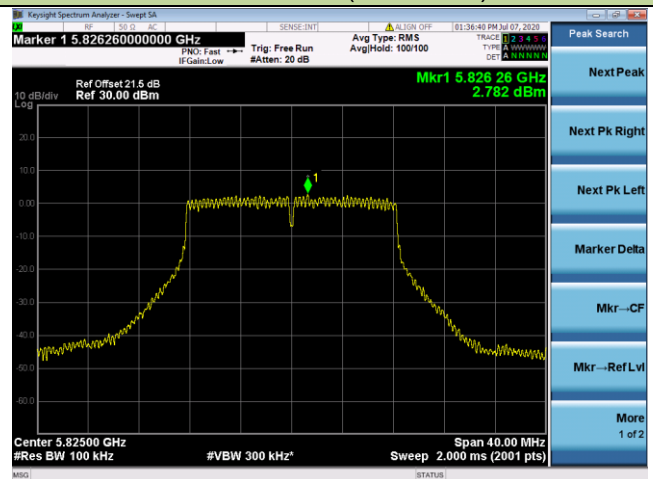
Channel 149 (5745MHz)



Channel 157 (5785MHz)

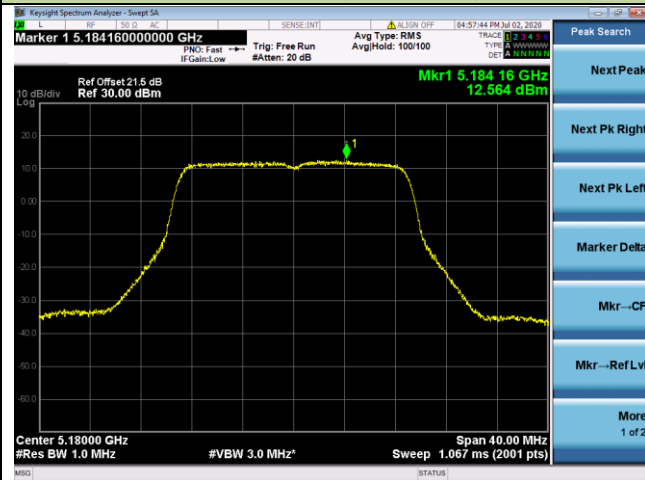


Channel 165 (5825MHz)

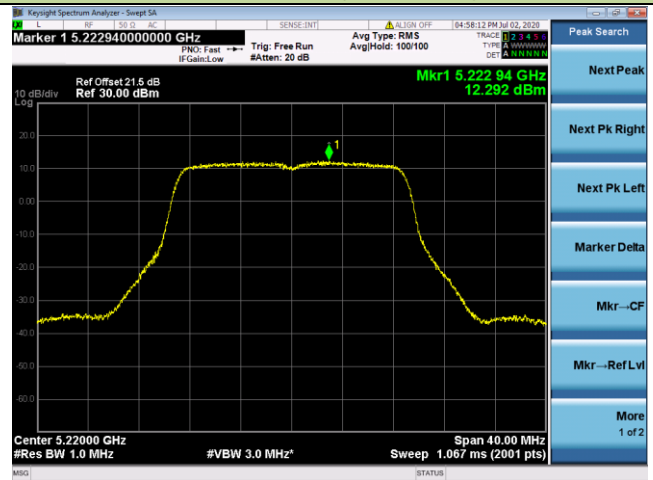


## 802.11n-HT20 Power Spectral Density - Ant 0 / Ant 0 + 1

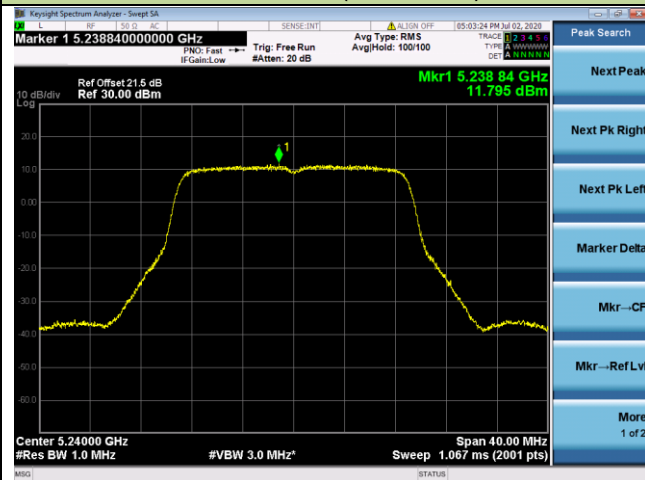
Channel 36 (5180MHz)



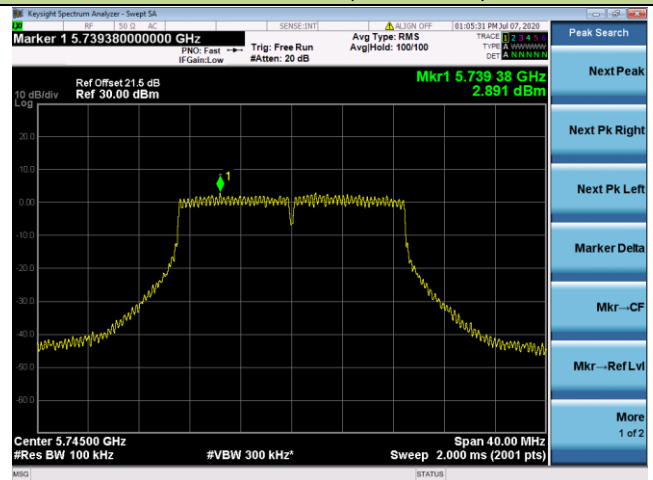
Channel 44 (5220MHz)



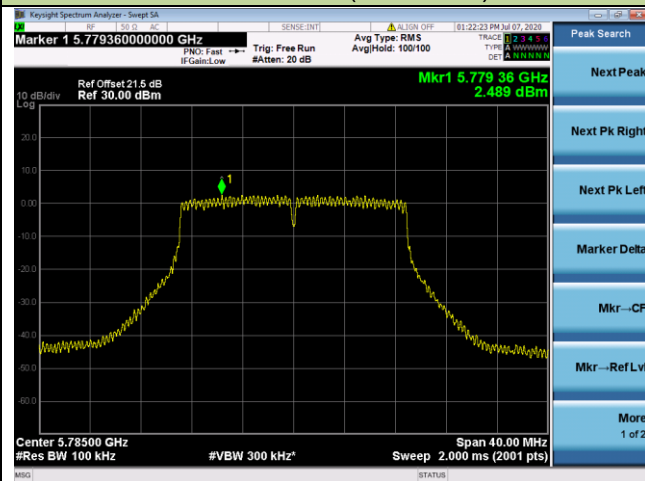
Channel 48 (5240MHz)



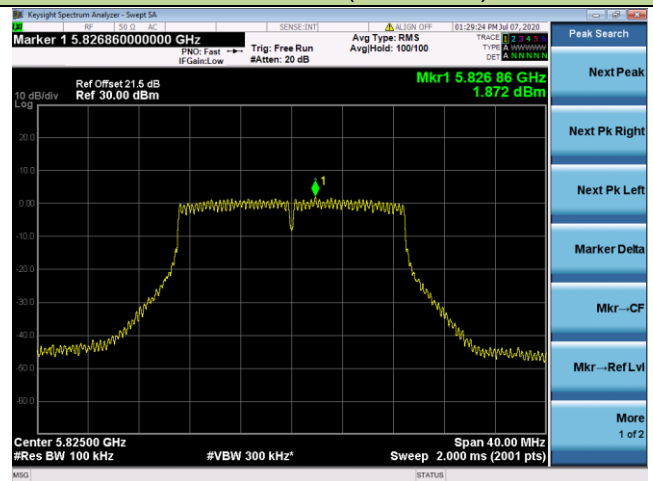
Channel 149 (5745MHz)



Channel 157 (5785MHz)

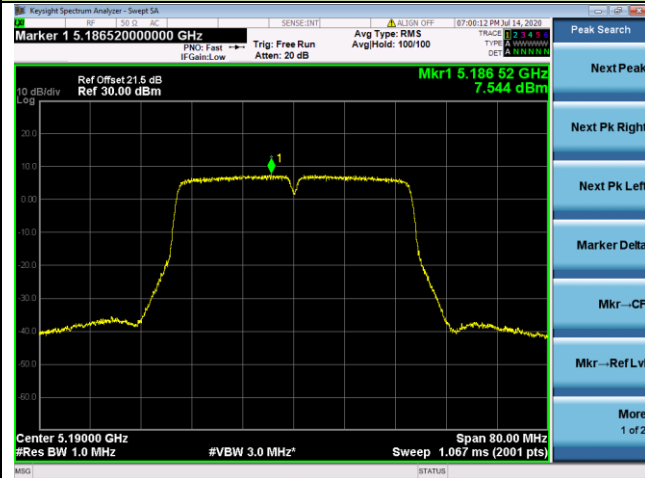


Channel 165 (5825MHz)

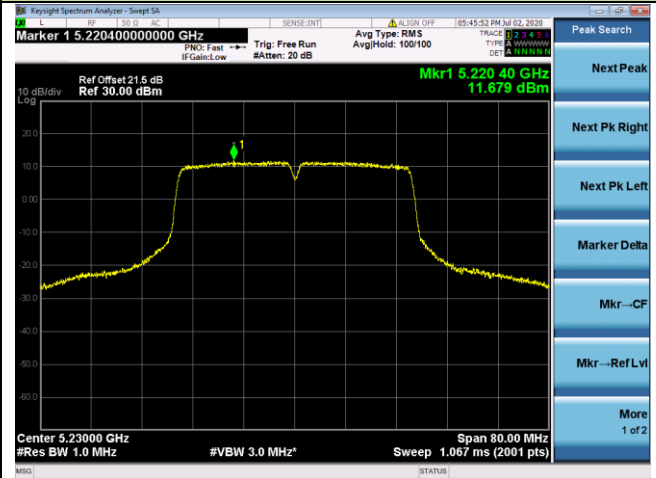


802.11n-HT40 Power Spectral Density - Ant 0 / Ant 0 + 1

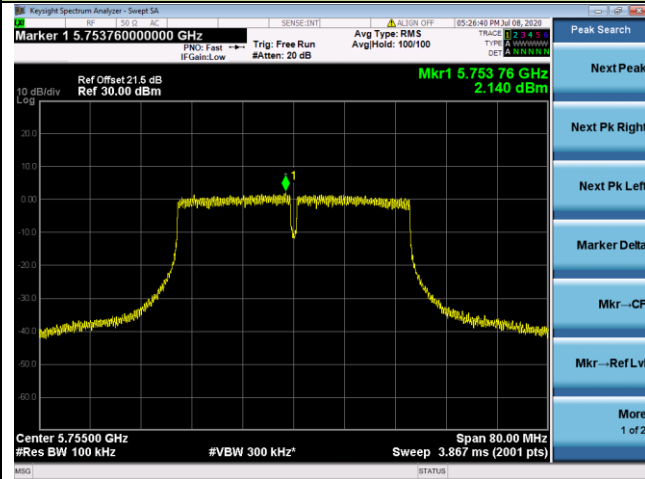
Channel 38 (5190MHz)



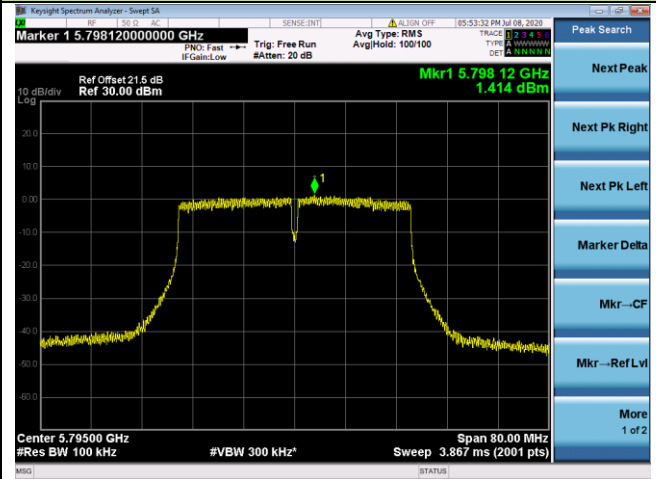
Channel 46 (5230MHz)



Channel 151 (5755MHz)

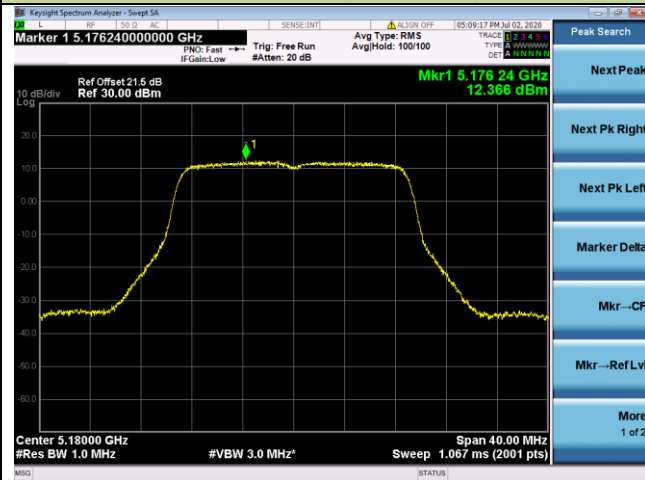


Channel 159 (5795MHz)

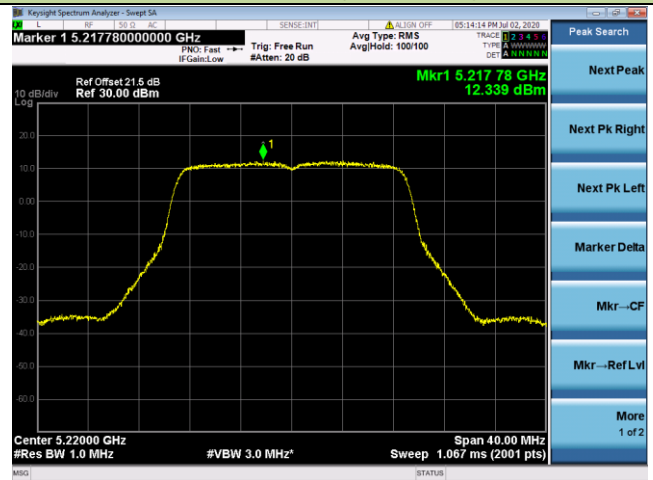


## 802.11ac-VHT20 Power Spectral Density - Ant 0 / Ant 0 + 1

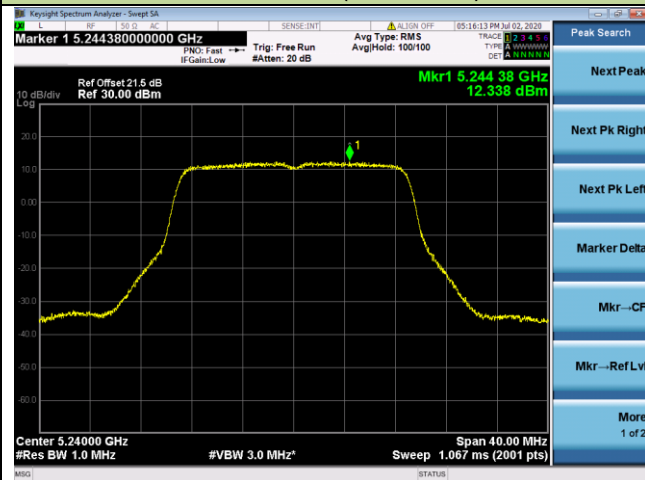
Channel 36 (5180MHz)



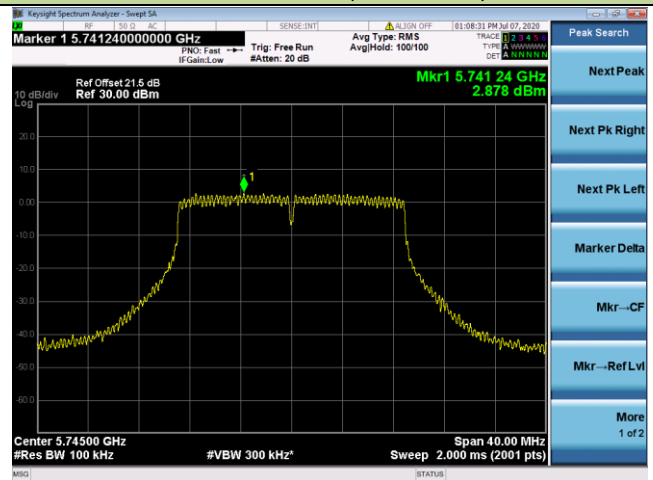
Channel 44 (5220MHz)



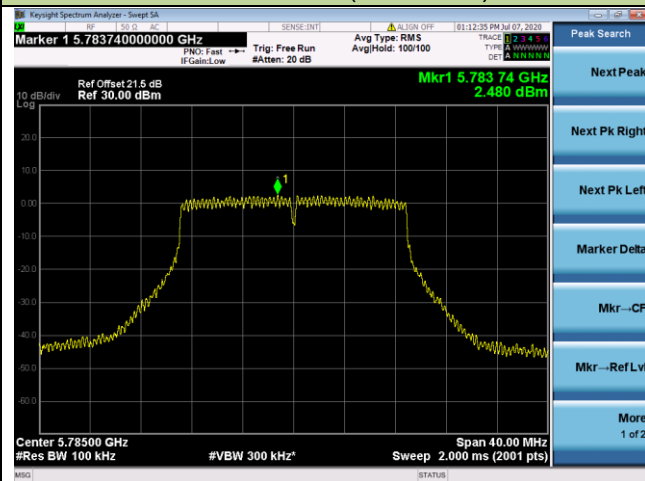
Channel 48 (5240MHz)



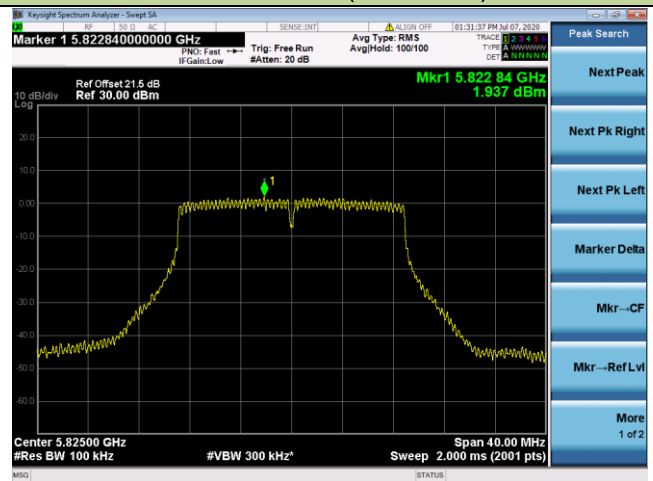
Channel 149 (5745MHz)



Channel 157 (5785MHz)



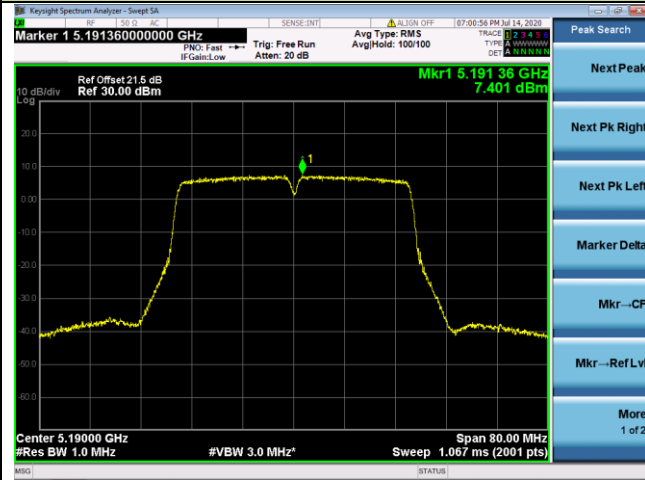
Channel 165 (5825MHz)



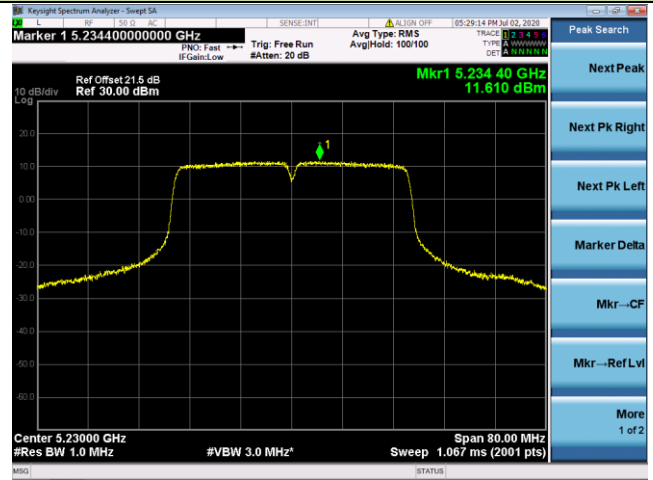


## 802.11ac-VHT40 Power Spectral Density - Ant 0 / Ant 0 + 1

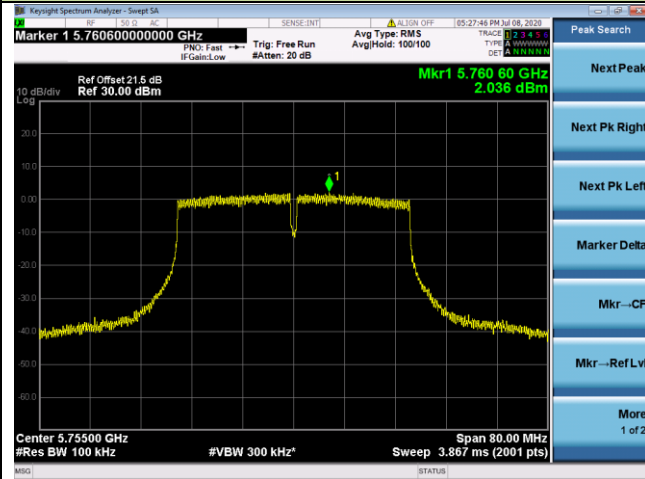
Channel 38 (5190MHz)



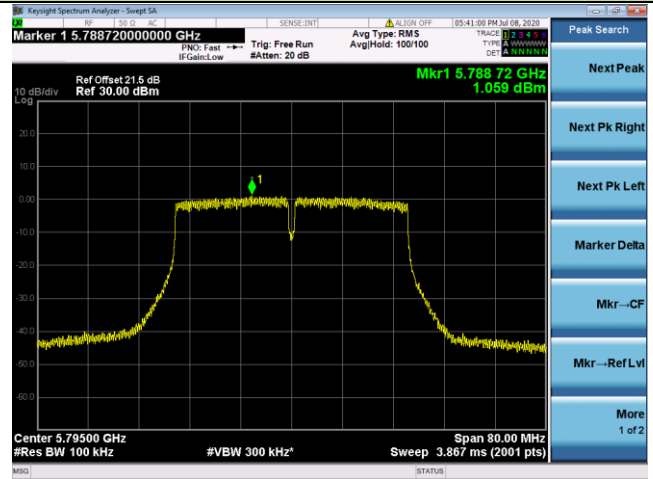
Channel 46 (5230MHz)



Channel 151 (5755MHz)

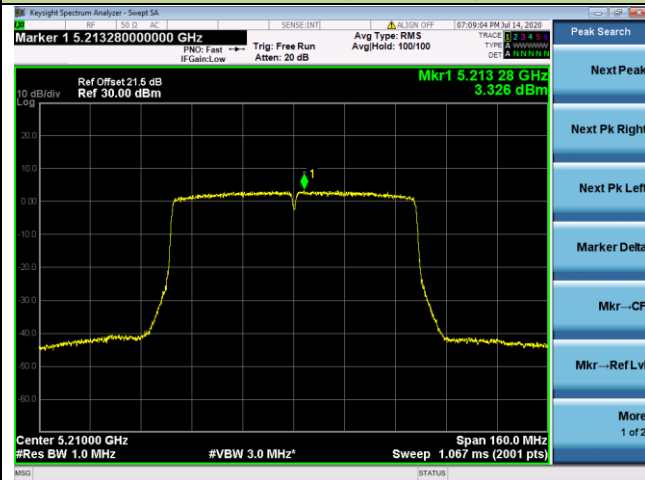


Channel 159 (5795MHz)

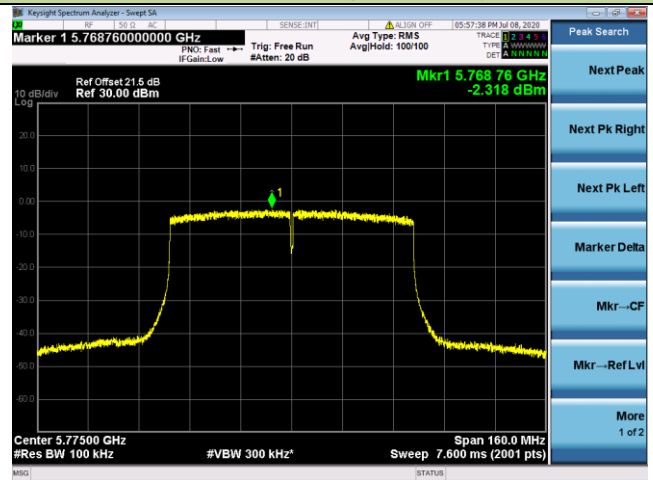


## 802.11ac-VHT80 Power Spectral Density - Ant 0 / Ant 0 + 1

Channel 42 (5210MHz)

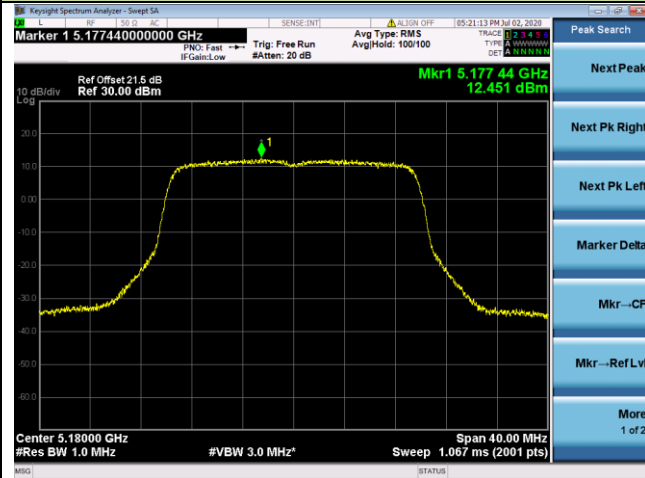


Channel 155 (5775MHz)

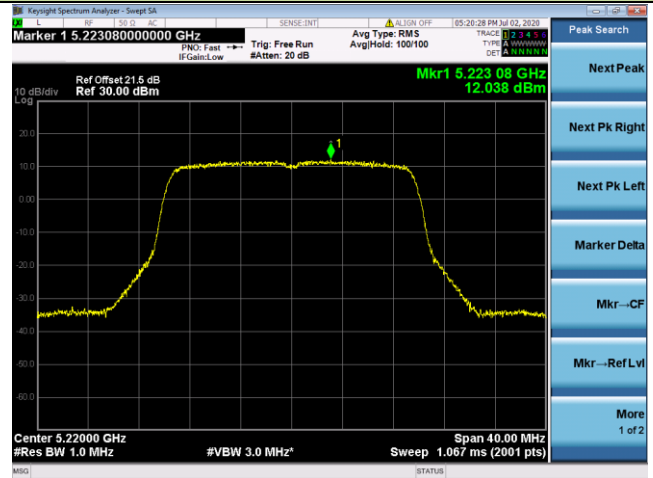


## 802.11ax-HE20 Power Spectral Density - Ant 0 / Ant 0 + 1

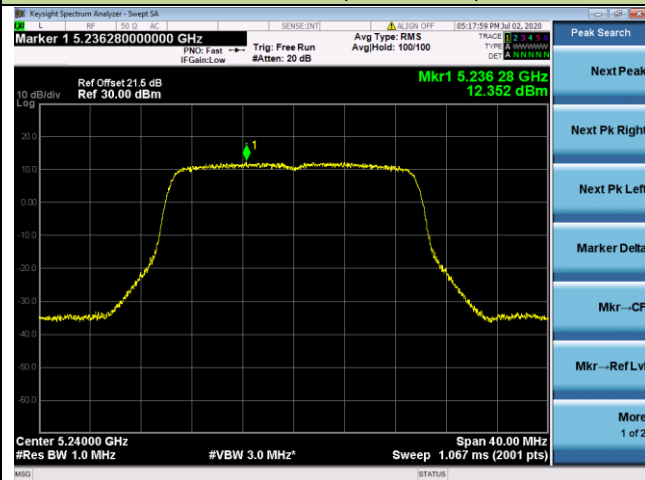
Channel 36 (5180MHz)



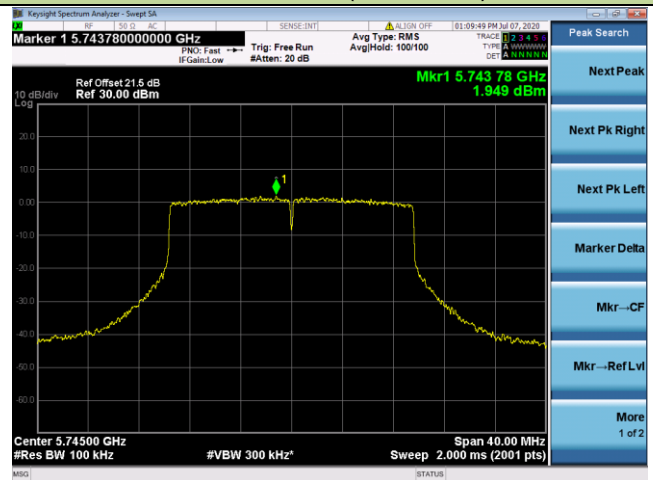
Channel 44 (5220MHz)



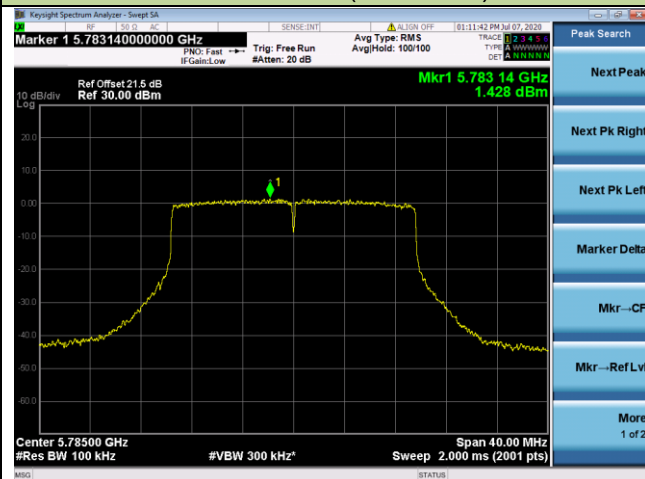
Channel 48 (5240MHz)



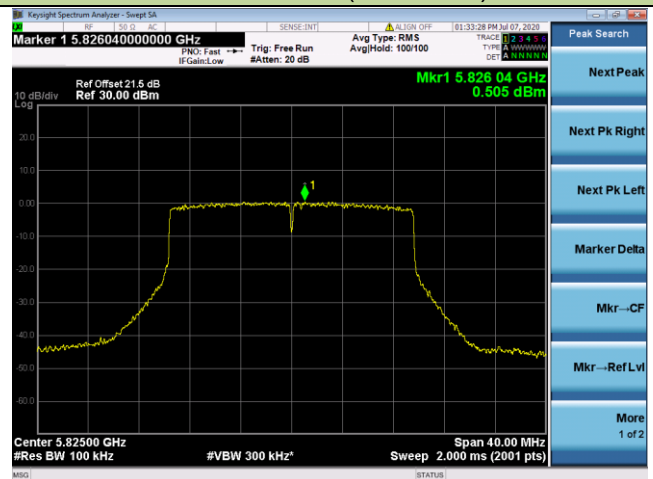
Channel 149 (5745MHz)



Channel 157 (5785MHz)

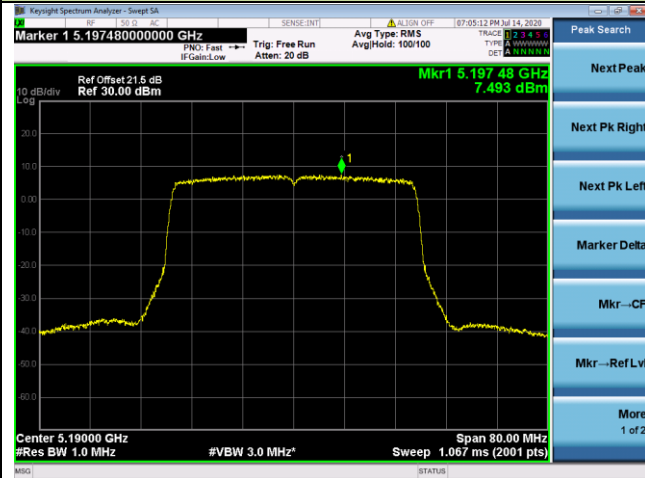


Channel 165 (5825MHz)

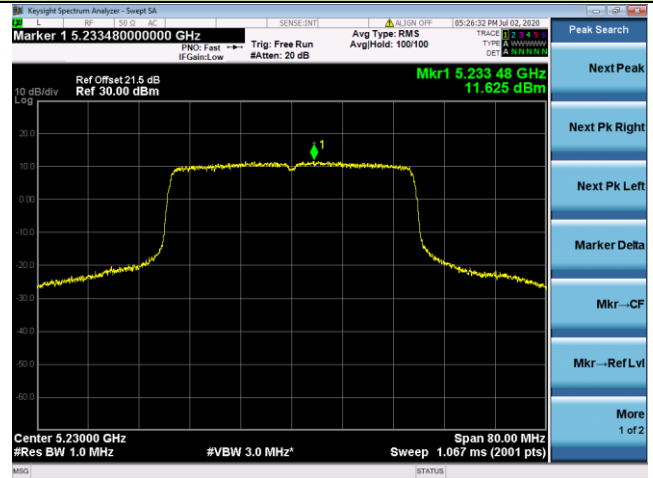


## 802.11ax-HE40 Power Spectral Density - Ant 0 / Ant 0 + 1

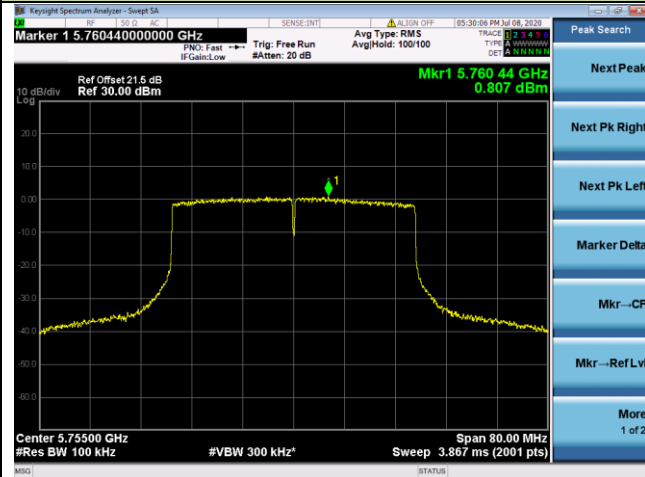
Channel 38 (5190MHz)



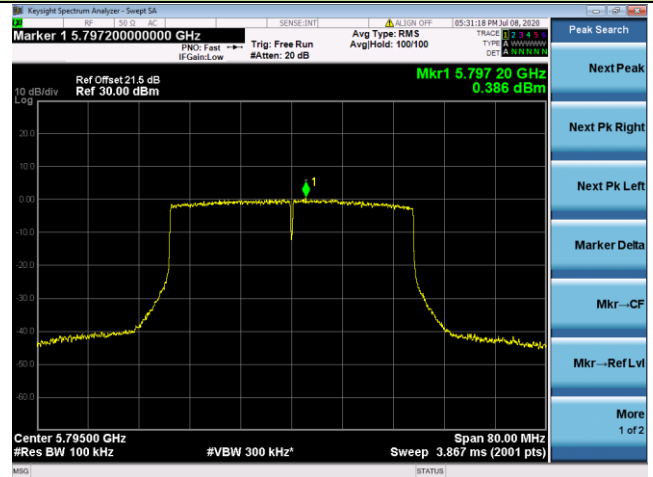
Channel 46 (5230MHz)



Channel 151 (5755MHz)

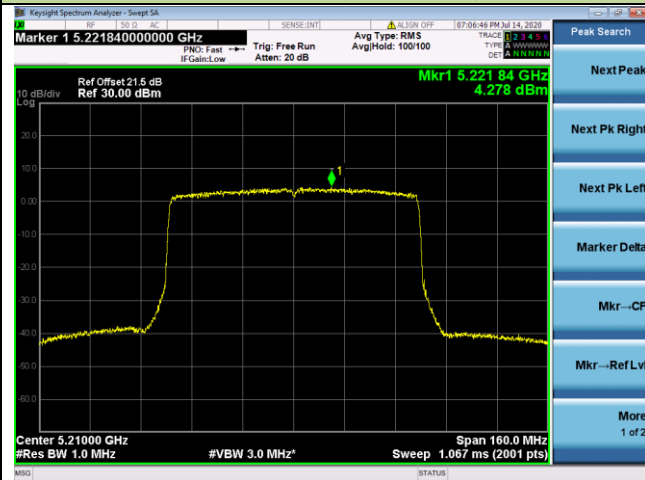


Channel 159 (5795MHz)

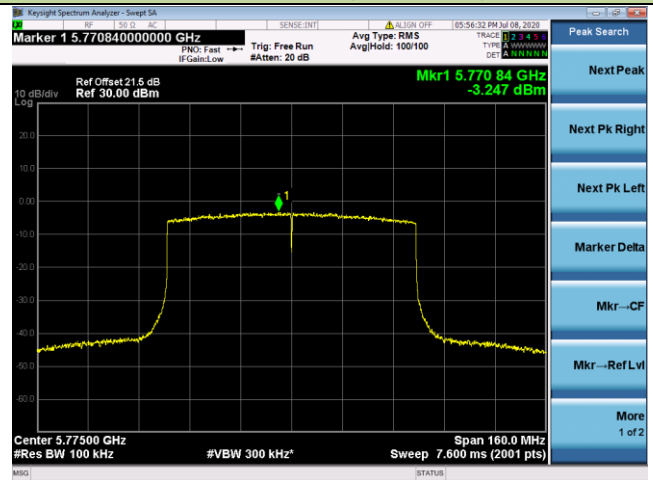


## 802.11ax-HE80 Power Spectral Density - Ant 0 / Ant 0 + 1 (CDD Mode)

Channel 42 (5210MHz)

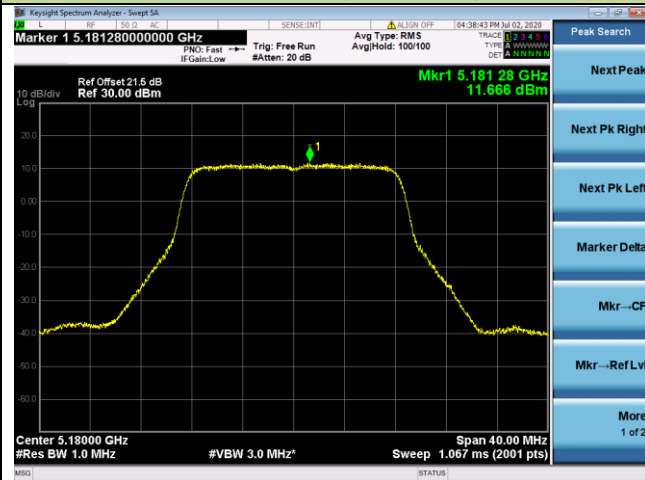


Channel 155 (5775MHz)

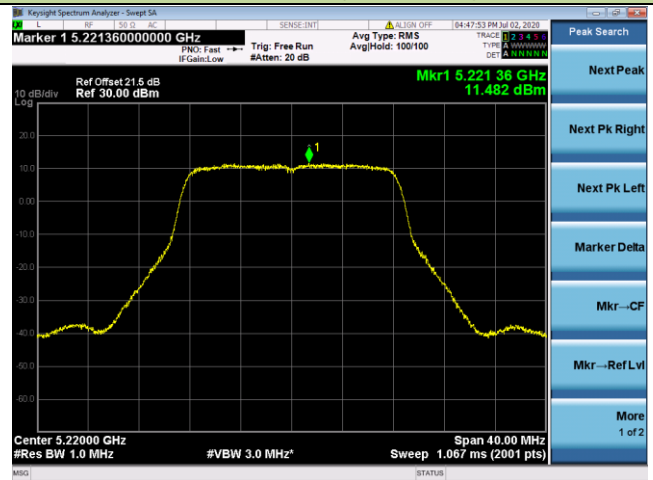


## 802.11a Power Spectral Density - Ant 1 / Ant 0 + 1

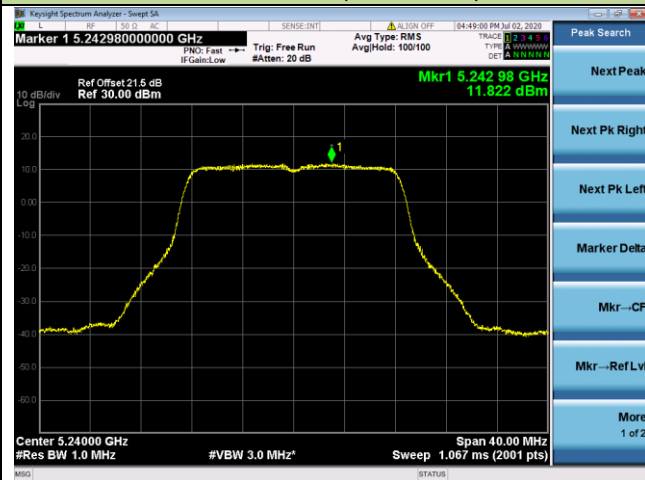
Channel 36 (5180MHz)



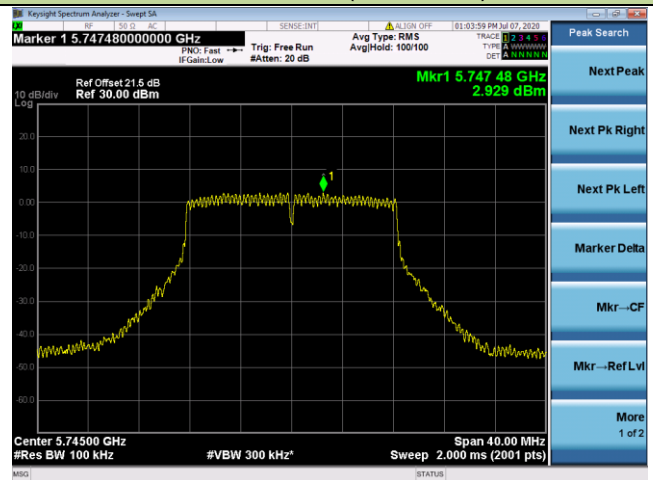
Channel 44 (5220MHz)



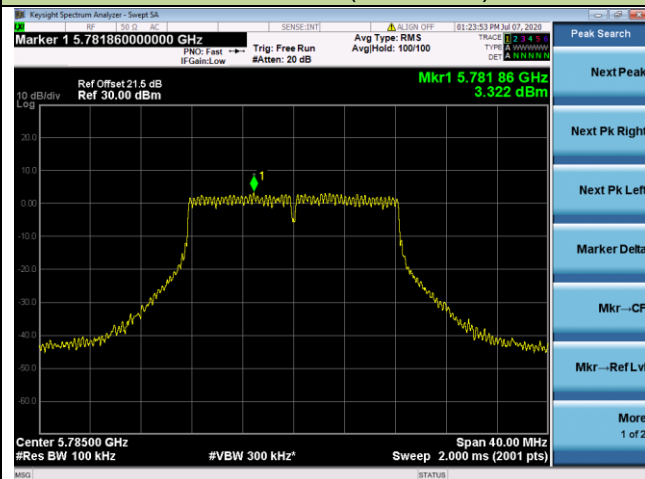
Channel 48 (5240MHz)



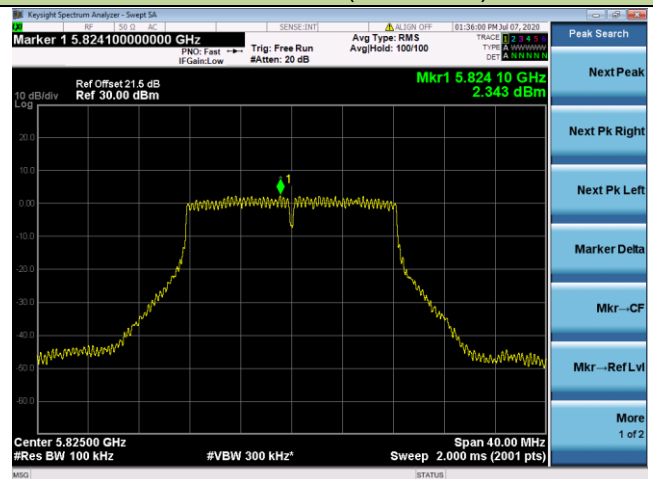
Channel 149 (5745MHz)



Channel 157 (5785MHz)

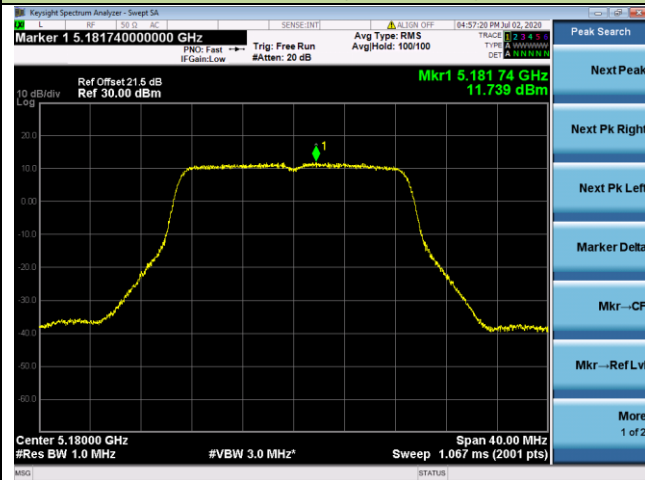


Channel 165 (5825MHz)

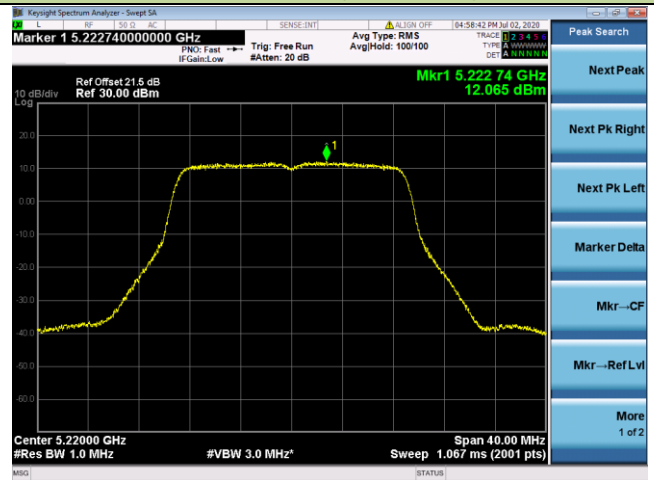


## 802.11n-HT20 Power Spectral Density - Ant 1 / Ant 0 + 1

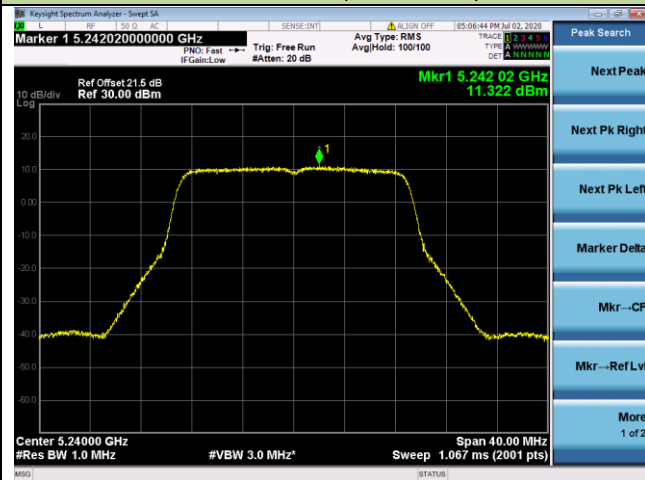
Channel 36 (5180MHz)



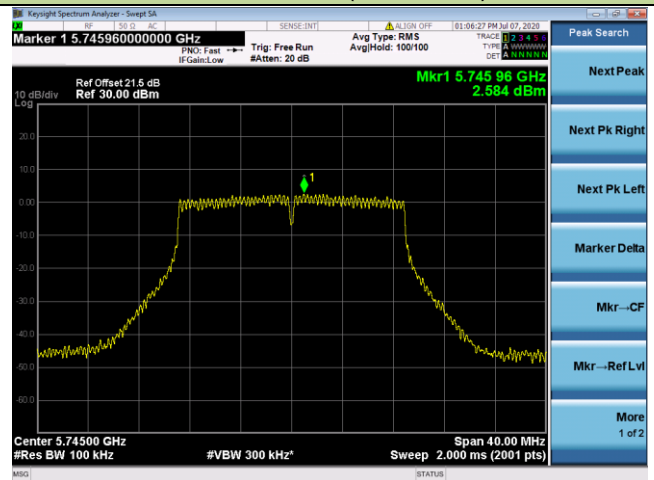
Channel 44 (5220MHz)



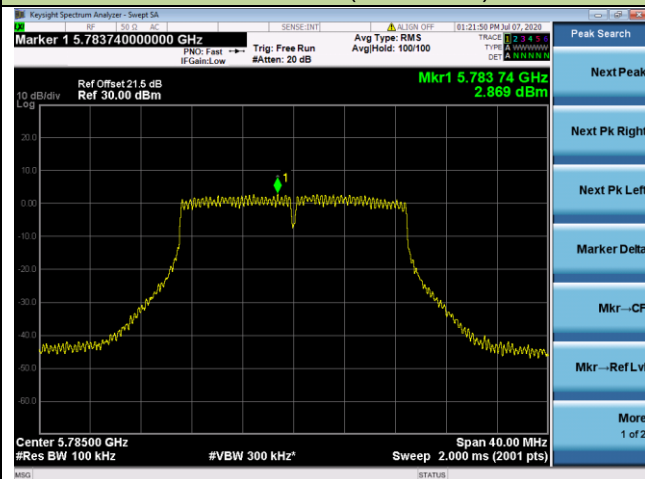
Channel 48 (5240MHz)



Channel 149 (5745MHz)



Channel 157 (5785MHz)



Channel 165 (5825MHz)

