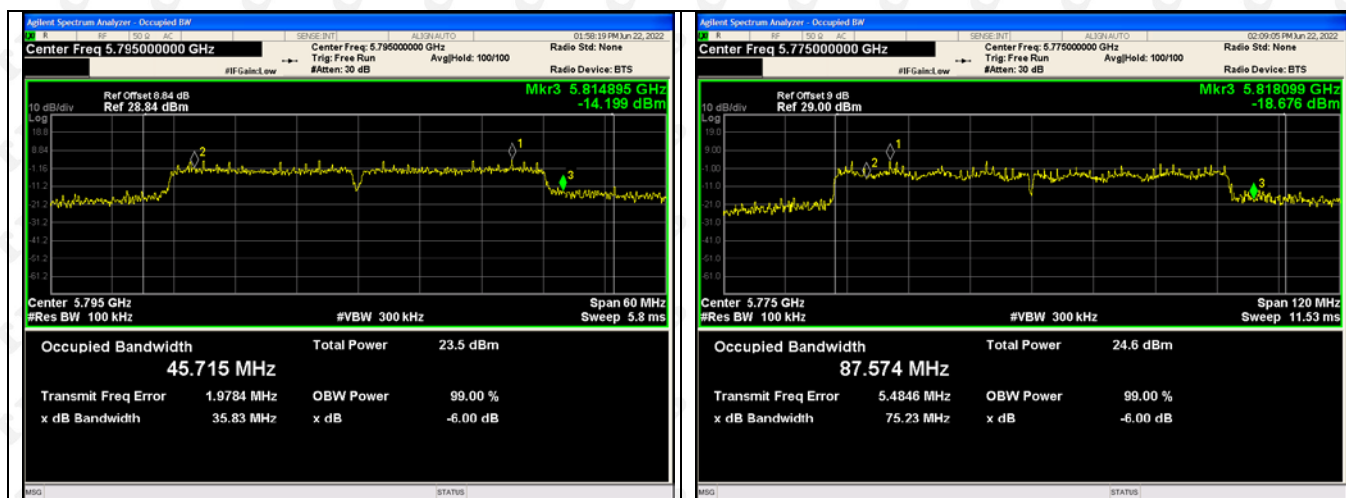
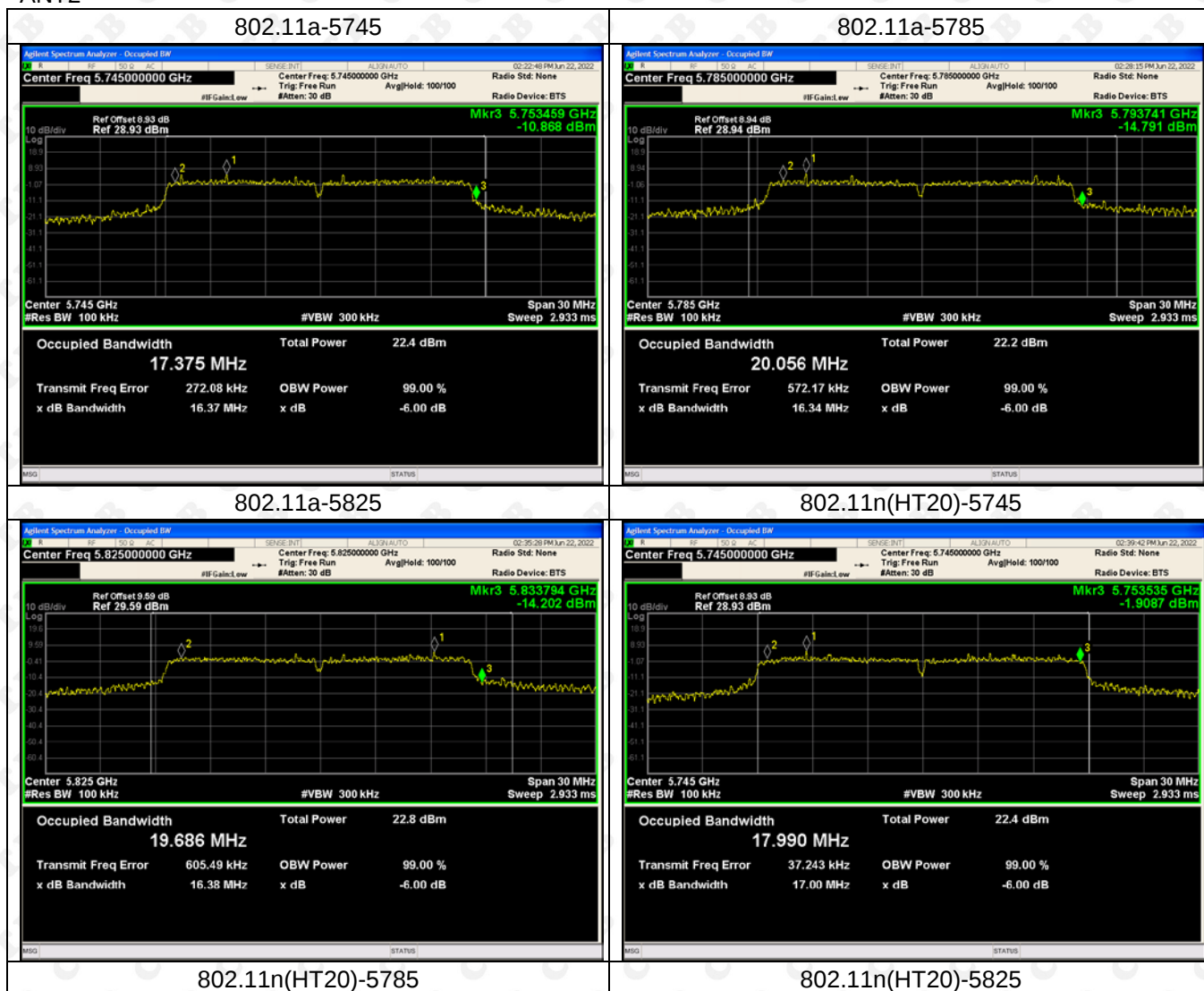
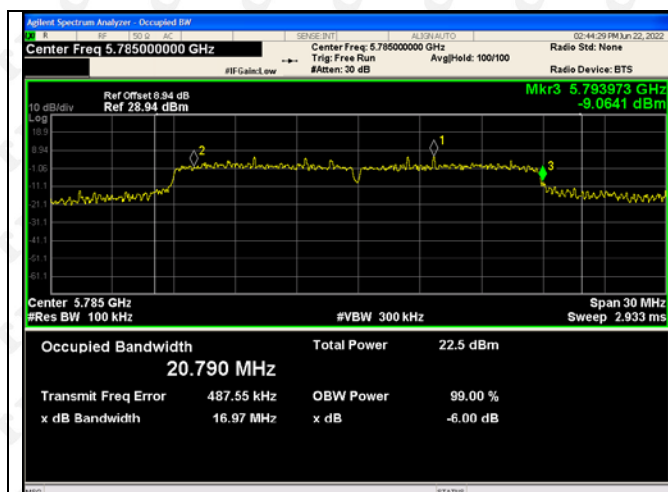


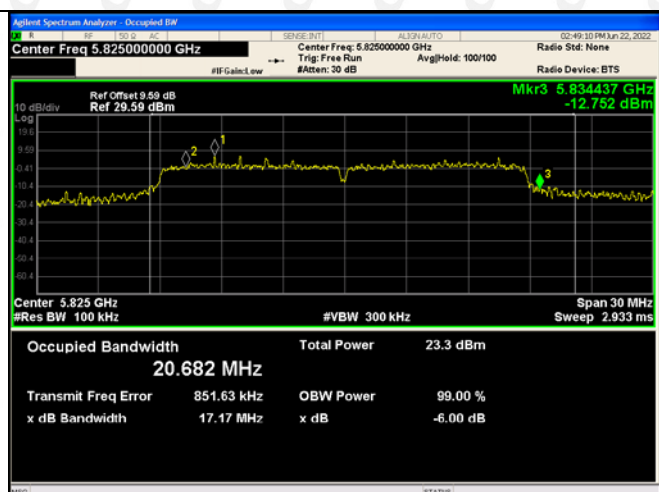


ANT2

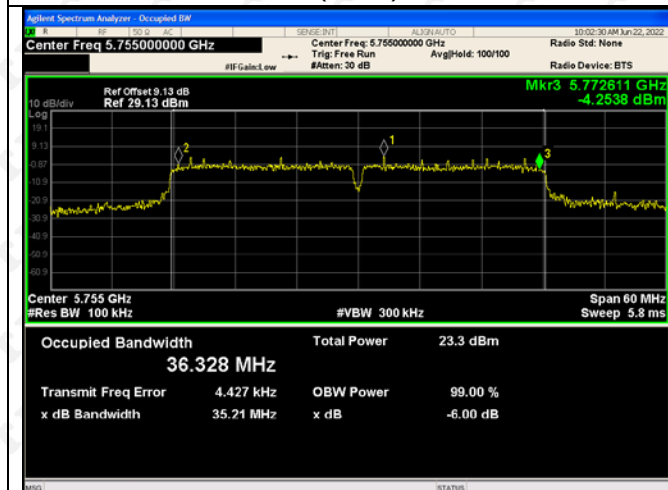




802.11n(HT40)-5755



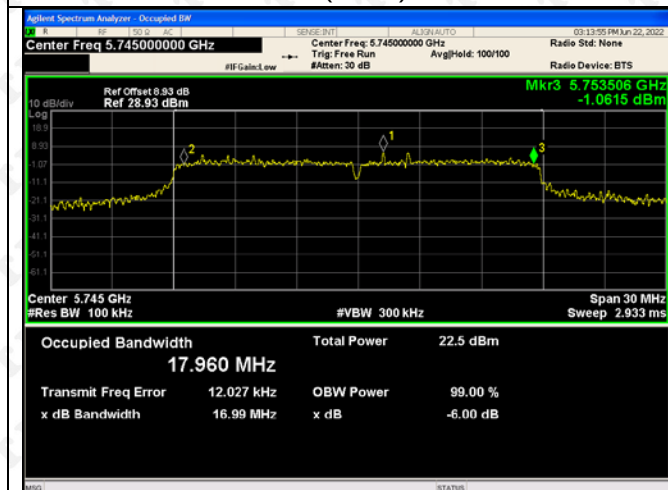
802.11n(HT40)-5795



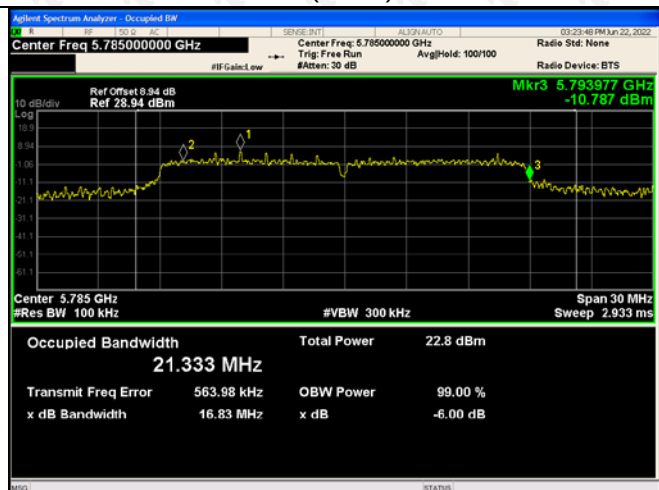
802.11ac(VH20)-5745



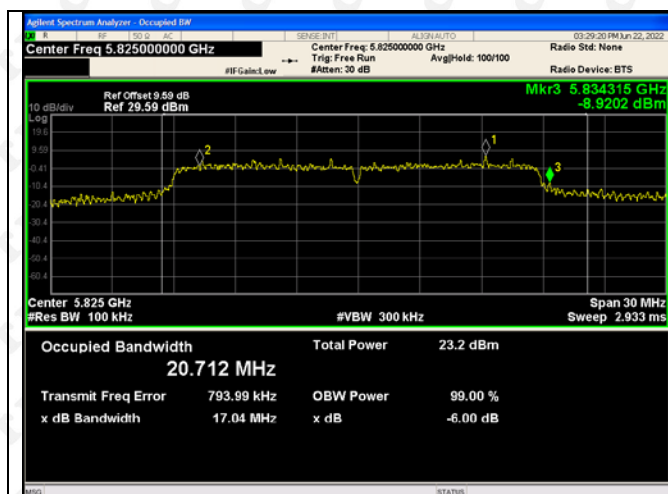
802.11ac(VH20)-5785



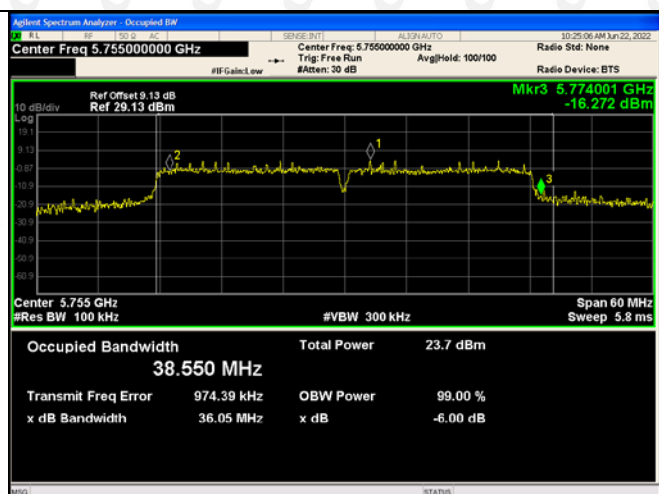
802.11ac(VH20)-5825



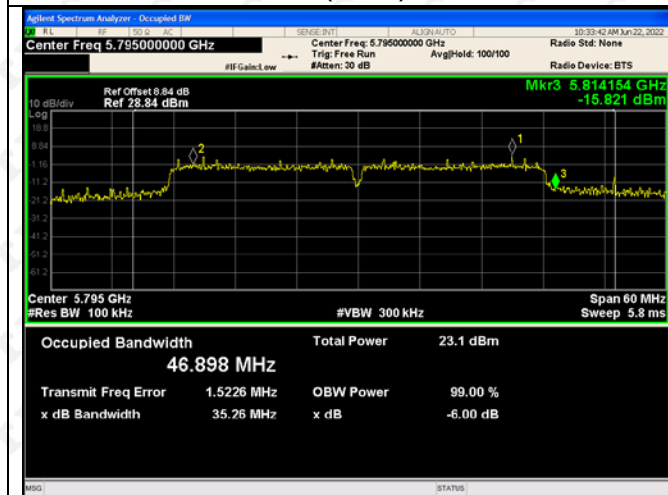
802.11ac(VH40)-5755



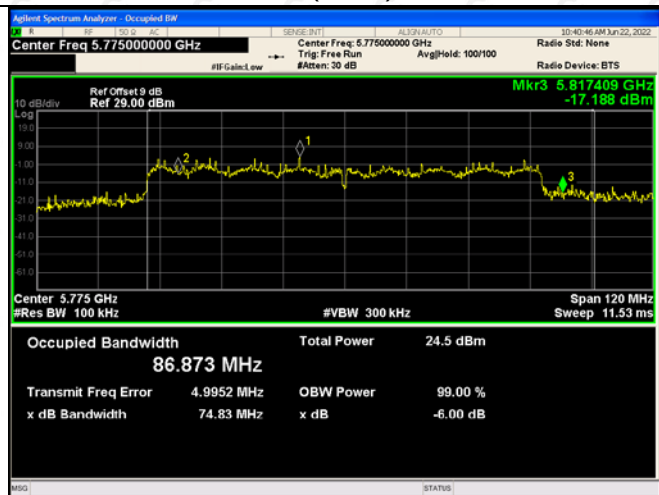
802.11ac(VH40)-5795



802.11ac(VH80)-5775

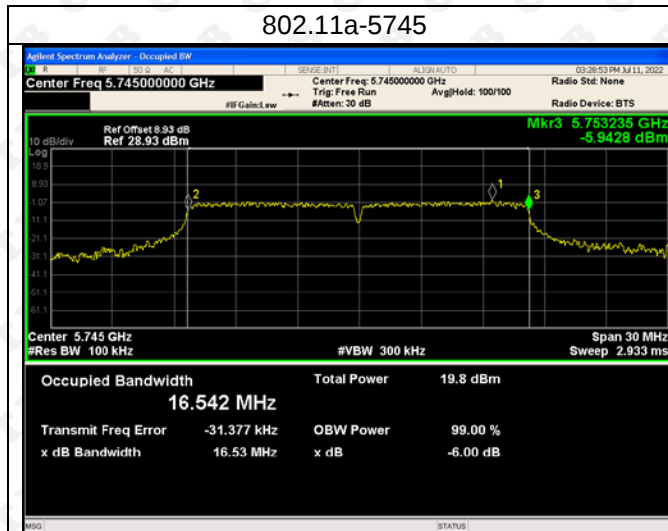


802.11ac(VH40)-5795

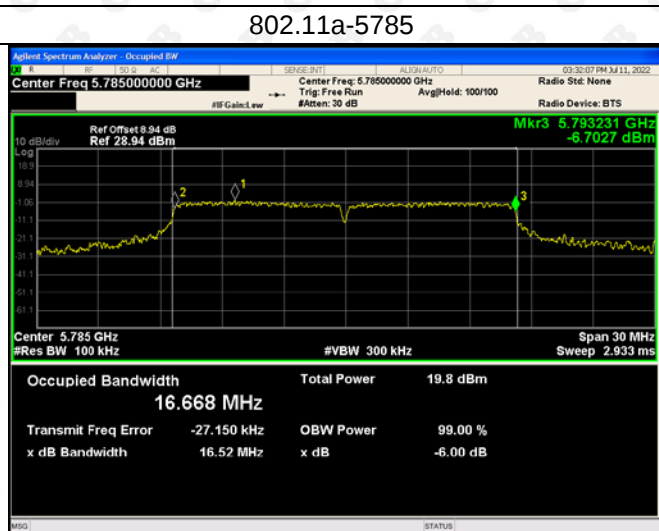


802.11ac(VH80)-5775

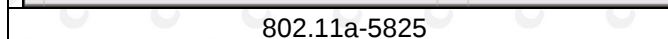
ANT3



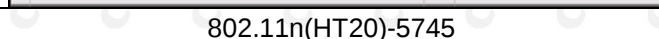
802.11a-5745



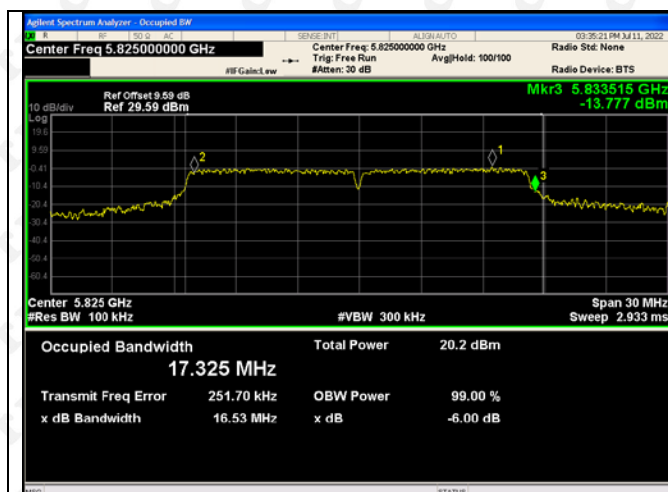
802.11a-5785



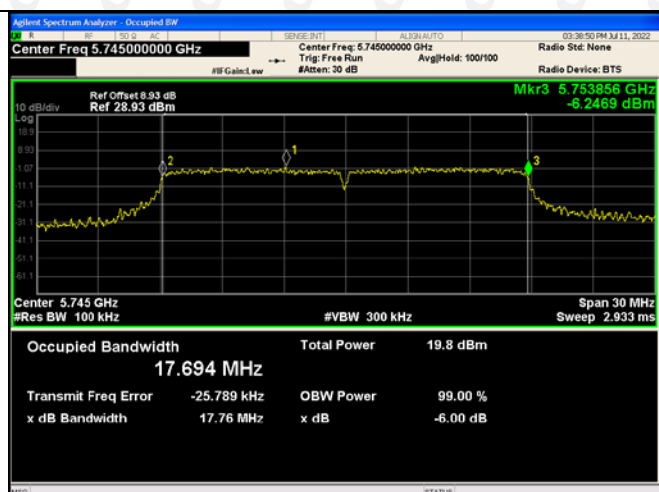
802.11a-5825



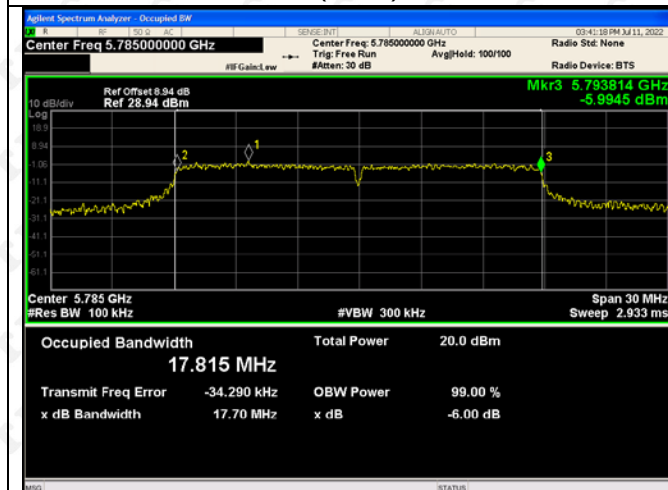
802.11n(HT20)-5745



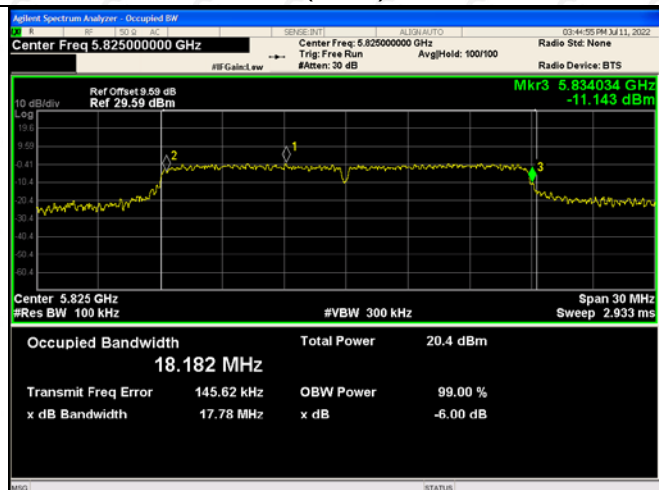
802.11n(HT20)-5785



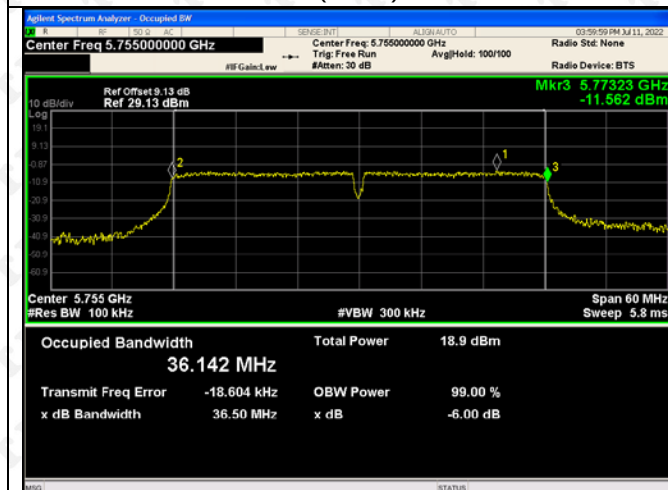
802.11n(HT20)-5825



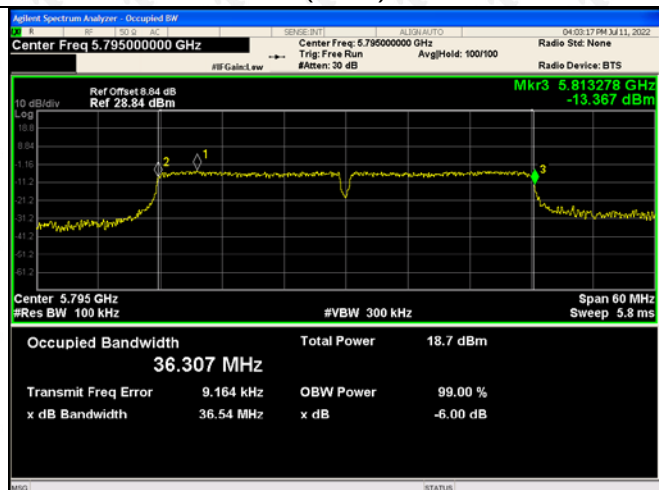
802.11n(HT40)-5755



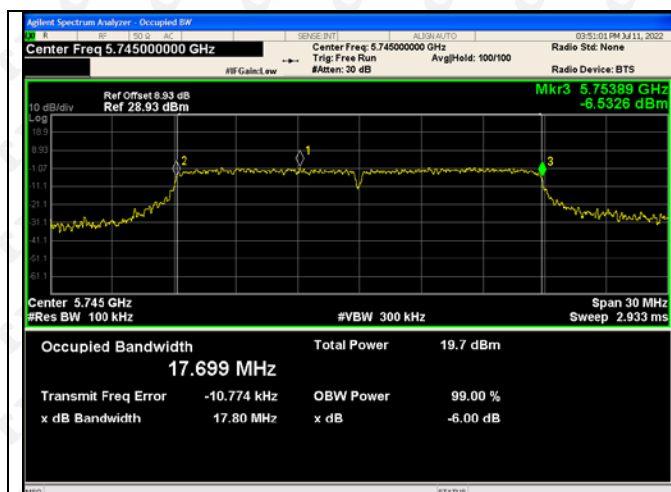
802.11n(HT40)-5795



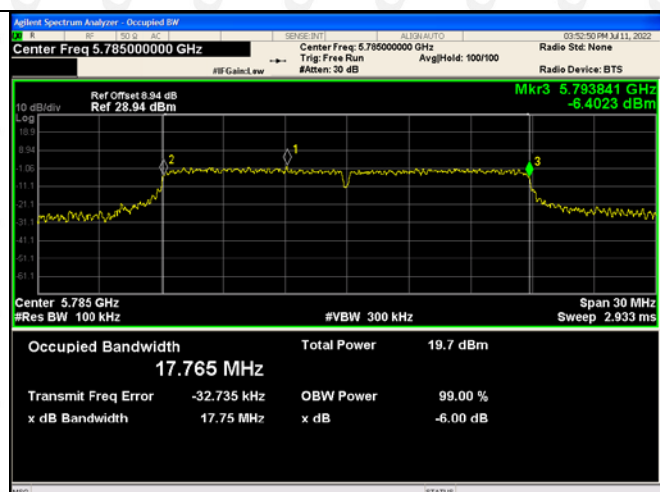
802.11ac(VH20)-5745



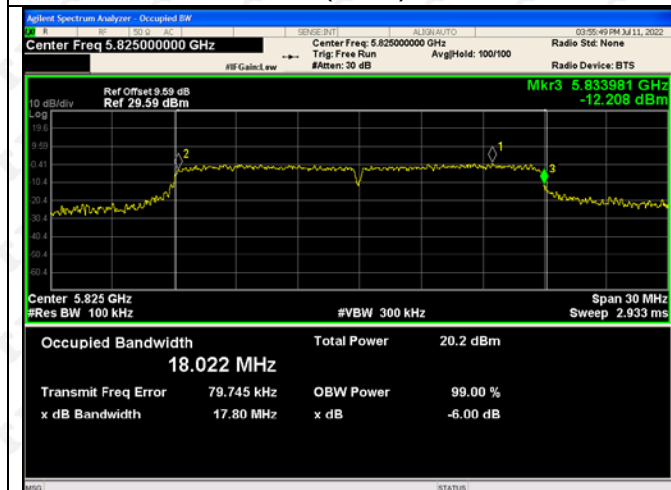
802.11ac(VH20)-5785



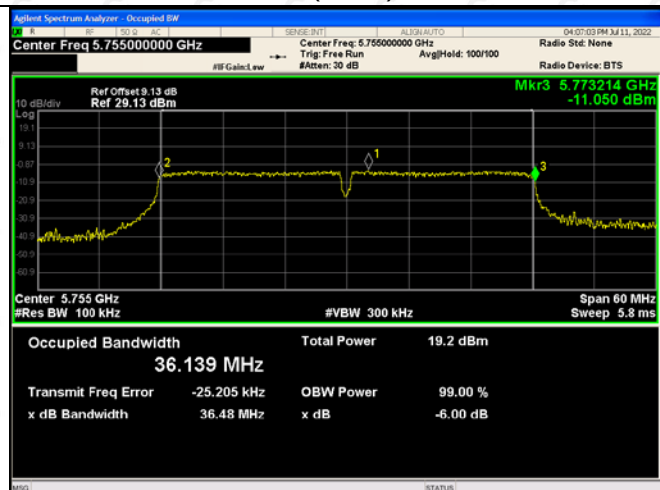
802.11ac(VH20)-5825



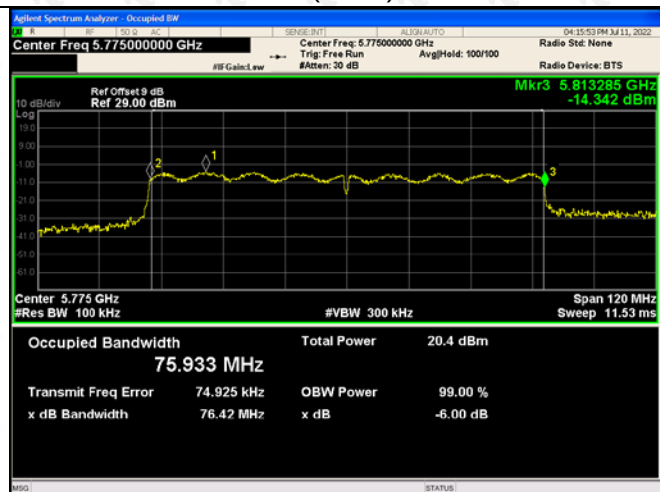
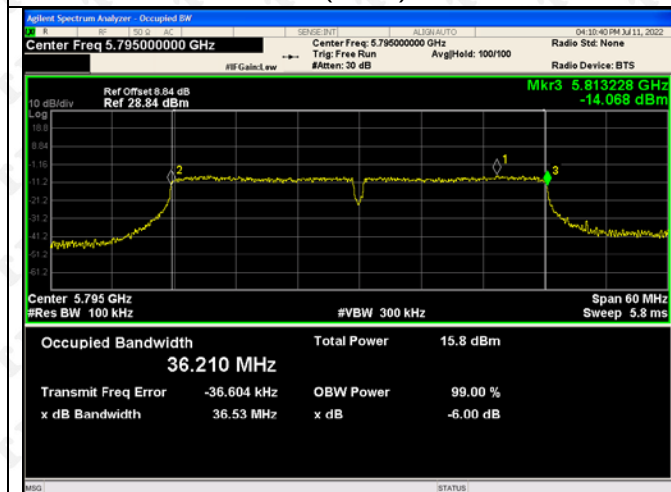
802.11ac(VH40)-5755



802.11ac(VH40)-5795

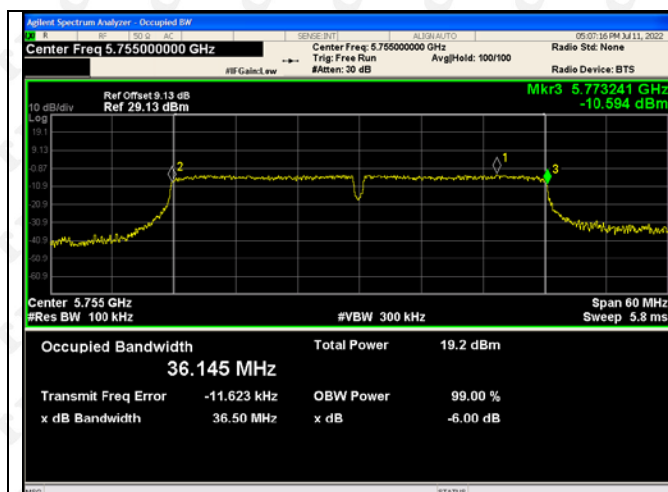


802.11ac(VH80)-5775

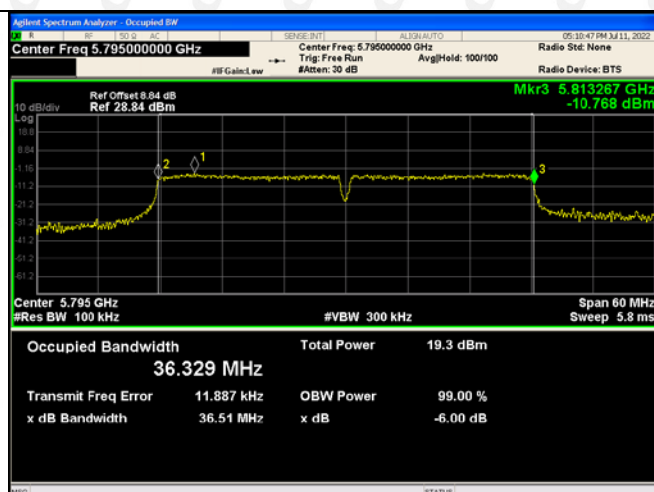


ANT4

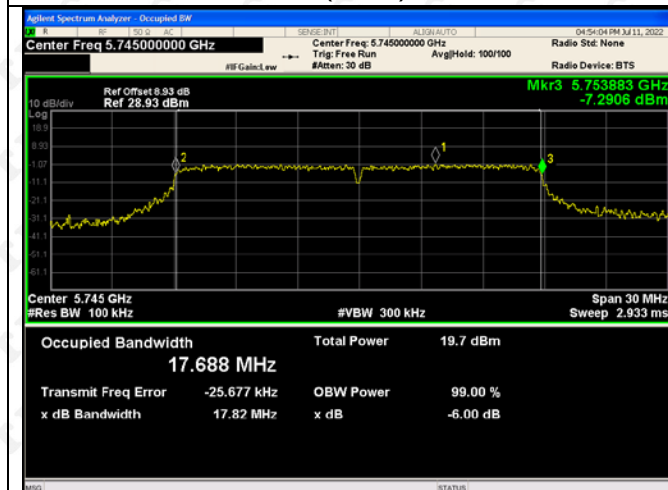




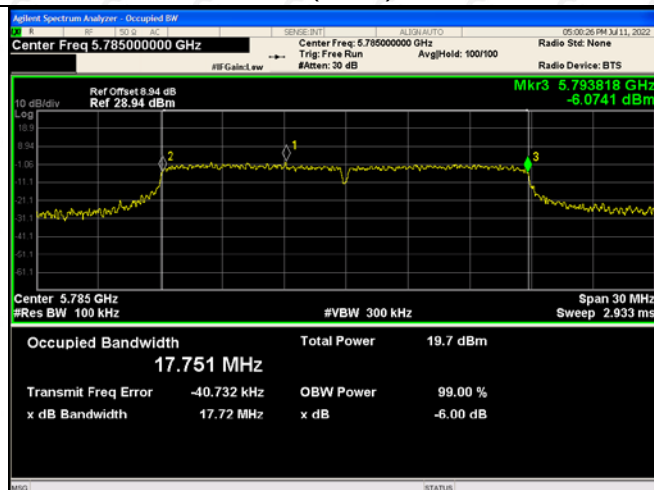
802.11ac(VH20)-5745



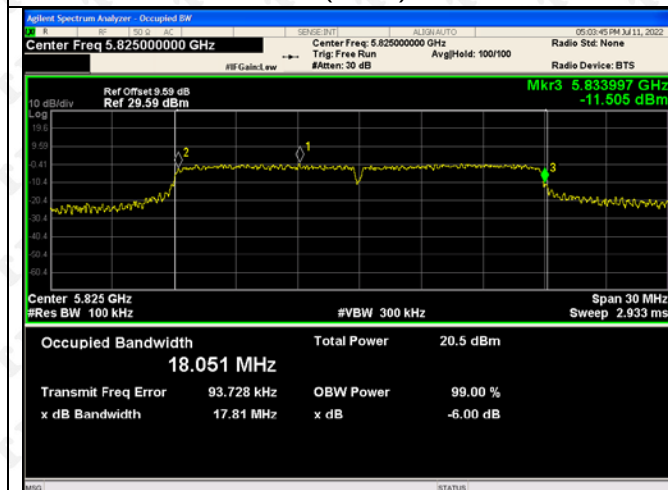
802.11ac(VH20)-5785



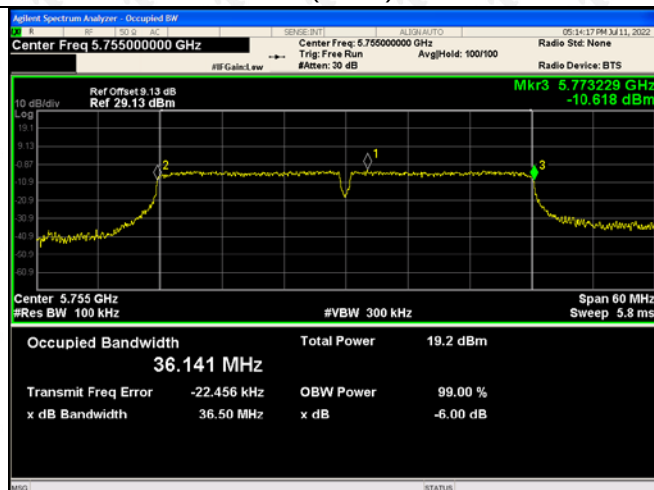
802.11ac(VH20)-5825



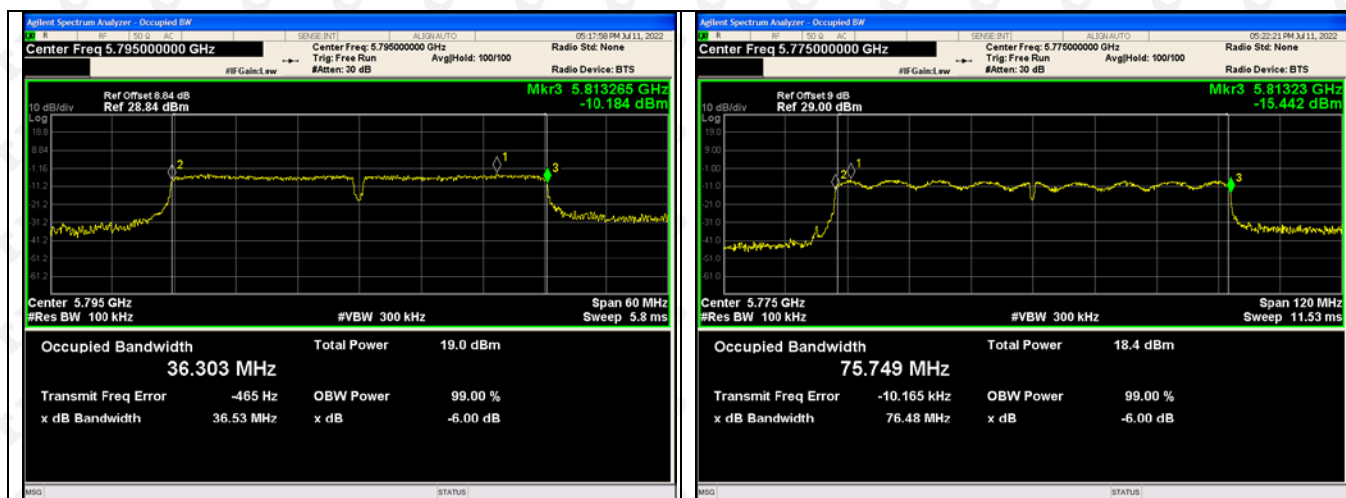
802.11ac(VH40)-5755



802.11ac(VH40)-5795

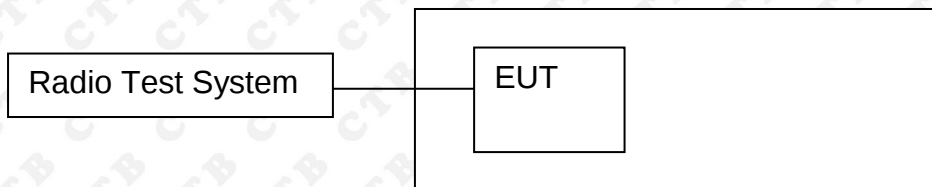


802.11ac(VH80)-5775



11. POWER SPECTRAL DENSITY

11.1 Block Diagram Of Test Setup



11.2 Limit

(1) For the band 5.15-5.25 GHz.

(iv) For mobile and portable client devices in the 5.15-5.25 GHz band, the maximum conducted output power over the frequency band of operation shall not exceed 250 mW provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

(2) For the 5.25-5.35 GHz and 5.47-5.725 GHz bands, the maximum conducted output power over the frequency bands of operation shall not exceed the lesser of 250 mW or $11 \text{ dBm} + 10 \log B$, where B is the 26 dB emission bandwidth in megahertz. In addition, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

(3) For the band 5.725-5.85 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. In addition, the maximum power spectral density shall not exceed 30 dBm in any 500-kHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. However, fixed point-to-point U-NII devices operating in this band may employ transmitting antennas with directional gain greater than 6 dBi without any corresponding reduction in transmitter conducted power. Fixed, point-to-point operations exclude the use of point-to-multipoint systems, omnidirectional applications, and multiple collocated transmitters transmitting the same information. The operator of the U-NII device, or if the equipment is professionally installed, the installer, is responsible for ensuring that systems employing high gain directional antennas are used exclusively for fixed, point-to-point operations.

11.3 Test procedure

According to KDB789033 D02v02r01 sectionE, the following is the measurement procedure.

For devices operating in the bands 5.15–5.25 GHz, 5.25–5.35 GHz, and 5.47–5.725 GHz, the preceding procedures make use of 1 MHz RBW to satisfy directly the 1 MHz reference bandwidth specified in Section 15.407(a)(5). For devices operating in the band 5.725–5.85 GHz, the rules specify a measurement bandwidth of 500 kHz. Many spectrum analyzers do not have 500 kHz RBW, thus a narrower RBW may need to be used. The rules permit the use of RBWs less than 1 MHz, or 500 kHz, “provided that the measured power is integrated over the full reference bandwidth” to show the total power over the specified measurement bandwidth (i.e., 1 MHz, or 500 kHz). If measurements are performed using a reduced resolution bandwidth (< 1 MHz, or < 500 kHz) and integrated over 1 MHz, or 500 kHz bandwidth, the following adjustments to the procedures apply:

a) Set $\text{RBW} \geq 1/T$, where T is defined in II.B.I.a).

b) Set $\text{VBW} \geq 3 \text{ RBW}$.

c) If measurement bandwidth of Maximum PSD is specified in 500 kHz, add $10 \log (500 \text{ kHz}/\text{RBW})$ to the measured result, whereas RBW (<500 kHz) is the reduced resolution bandwidth of the spectrum analyzer set during measurement.

d) If measurement bandwidth of Maximum PSD is specified in 1 MHz, add $10 \log (1\text{MHz}/\text{RBW})$ to the measured result, whereas RBW ($< 1 \text{ MHz}$) is the reduced resolution bandwidth of spectrum analyzer set during measurement.

e) Care must be taken to ensure that the measurements are performed during a period of continuous transmission or are corrected upward for duty cycle.

Note: As a practical matter, it is recommended to use reduced RBW of 100 kHz for the II.F.5.c) and II.F.5.d), since RBW=100 kHz is available on nearly all spectrum analyzers.

11.4 Test Result

5180-5240MHz

ANT1+ANT2

Test mode	Test Channel (MHz)	PSD [dBm/MHz] ANT 1	PSD [dBm/MHz] ANT 2	PSD [dBm/MHz] Total	Limit (dBm)	Result
802.11a	5180	4.621	3.927	7.298	11	Pass
	5200	5.154	6.203	8.720	11	Pass
	5240	8.818	6.227	10.723	11	Pass
802.11n(HT20)	5180	5.059	4.3	7.706	11	Pass
	5200	5.686	4.747	8.252	11	Pass
	5240	6.864	6.068	9.495	11	Pass
802.11n(HT40)	5190	2.484	4.261	6.473	11	Pass
	5230	4.704	5.148	7.942	11	Pass
802.11ac(VH20)	5210	3.694	2.791	6.276	11	Pass
	5180	4.898	4.512	7.720	11	Pass
	5200	6.834	4.788	8.941	11	Pass
802.11ac(VH40)	5240	3.241	6.753	8.353	11	Pass
	5190	5.067	4.424	7.768	11	Pass
802.11ac(VH80)	5230	3.517	6.251	8.106	11	Pass

ANT3+ANT4

Test mode	Test Channel (MHz)	PSD [dBm/MHz] ANT 3	PSD [dBm/MHz] ANT 4	PSD [dBm/MHz] Total	Limit (dBm)	Result
802.11a	5180	4.589	5.57	8.117	11	Pass
	5200	5.448	5.501	8.485	11	Pass
	5240	6.228	6.891	9.582	11	Pass
802.11n(HT20)	5180	3.659	4.072	6.881	11	Pass
	5200	4.637	5.065	7.867	11	Pass
	5240	6.721	6.723	9.732	11	Pass
802.11n(HT40)	5190	3.106	3.721	6.435	11	Pass
	5230	4.272	4.272	7.282	11	Pass
802.11ac(VH20)	5210	2.604	3.128	5.884	11	Pass
	5180	5.734	4.039	7.979	11	Pass
	5200	5.953	5.186	8.597	11	Pass
802.11ac(VH40)	5240	7.395	6.503	9.982	11	Pass
	5190	2.172	2.94	5.583	11	Pass
802.11ac(VH80)	5230	3.493	4.243	6.894	11	Pass

5260-5320MHz
ANT1+ANT2

Test mode	Test Channel (MHz)	PSD [dBm/MHz] ANT 1	PSD [dBm/MHz] ANT 2	PSD [dBm/MHz] Total	Limit (dBm)	Result
802.11a	5260	6.605	6.459	9.543	11	Pass
	5280	6.801	6.273	9.555	11	Pass
	5320	5.613	5.539	8.586	11	Pass
802.11n(HT20)	5260	5.205	5.862	8.556	11	Pass
	5280	6.096	5.867	8.993	11	Pass
	5320	6.092	6.197	9.155	11	Pass
802.11n(HT40)	5270	3.773	3.748	6.771	11	Pass
	5310	4.138	3.466	6.825	11	Pass
802.11ac(VH20)	5260	1.786	2.697	5.276	11	Pass
	5280	5.866	5.884	8.885	11	Pass
	5320	5.761	5.078	8.443	11	Pass
802.11ac(VH40)	5270	6.158	6.494	9.340	11	Pass
	5310	3.302	3.179	6.251	11	Pass
802.11ac(VH80)	5290	4.327	5.176	7.783	11	Pass

ANT3+ANT4

Test mode	Test Channel (MHz)	PSD [dBm/MHz] ANT 3	PSD [dBm/MHz] ANT 4	PSD [dBm/MHz] Total	Limit (dBm)	Result
802.11a	5260	5.863	5.304	8.603	11	Pass
	5280	5.383	6.154	8.796	11	Pass
	5320	5.548	7.04	9.368	11	Pass
802.11n(HT20)	5260	5.886	5.803	8.855	11	Pass
	5280	5.861	6.103	8.994	11	Pass
	5320	6.244	5.837	9.056	11	Pass
802.11n(HT40)	5270	4.166	3.309	6.769	11	Pass
	5310	3.781	3.975	6.889	11	Pass
802.11ac(VH20)	5260	0.624	3.563	5.348	11	Pass
	5280	4.717	6.483	8.699	11	Pass
	5320	4.9	5.984	8.486	11	Pass
802.11ac(VH40)	5270	5.906	6.531	9.240	11	Pass
	5310	3.168	3.178	6.183	11	Pass
802.11ac(VH80)	5290	3.432	3.432	6.442	11	Pass

5500-5700MHz
ANT1+ANT2

Test mode	Test Channel (MHz)	PSD [dBm/MHz] ANT 1	PSD [dBm/MHz] ANT 2	PSD [dBm/MHz] Total	Limit (dBm)	Result
802.11a	5500	5.075	6.388	8.791	11	Pass
	5580	4.872	5.921	8.438	11	Pass
	5700	4.853	5.9	8.418	11	Pass
802.11n(HT20)	5500	4.791	5.284	8.055	11	Pass
	5580	4.192	4.678	7.452	11	Pass
	5700	3.924	3.734	6.840	11	Pass
802.11n(HT40)	5510	2.575	3.607	6.132	11	Pass
	5670	2.906	2.658	5.794	11	Pass
802.11ac(VH20)	5530	4.852	4.907	7.890	11	Pass
	5500	4.587	4.337	7.474	11	Pass
	5580	4.93	4.19	7.586	11	Pass
802.11ac(VH40)	5700	2.724	3.11	5.932	11	Pass
	5510	1.901	2.223	5.075	11	Pass
802.11ac(VH80)	5670	1.434	1.583	4.519	11	Pass

ANT3+ANT4

Test mode	Test Channel (MHz)	PSD [dBm/MHz] ANT 3	PSD [dBm/MHz] ANT 4	PSD [dBm/MHz] Total	Limit (dBm)	Result
802.11a	5500	6.757	5.966	9.390	11	Pass
	5580	4.947	5.72	8.361	11	Pass
	5700	4.562	5.69	8.173	11	Pass
802.11n(HT20)	5500	6.101	5.053	8.619	11	Pass
	5580	4.529	4.865	7.711	11	Pass
	5700	5.55	4.581	8.103	11	Pass
802.11n(HT40)	5510	2.39	2.486	5.449	11	Pass
	5670	2.451	1.971	5.228	11	Pass
802.11ac(VH20)	5530	5.165	4.933	8.061	11	Pass
	5500	4.83	4.41	7.635	11	Pass
	5580	4.413	4.308	7.371	11	Pass
802.11ac(VH40)	5700	3.273	2.871	6.087	11	Pass
	5510	1.781	1.906	4.854	11	Pass
802.11ac(VH80)	5670	1.216	1.07	4.154	11	Pass

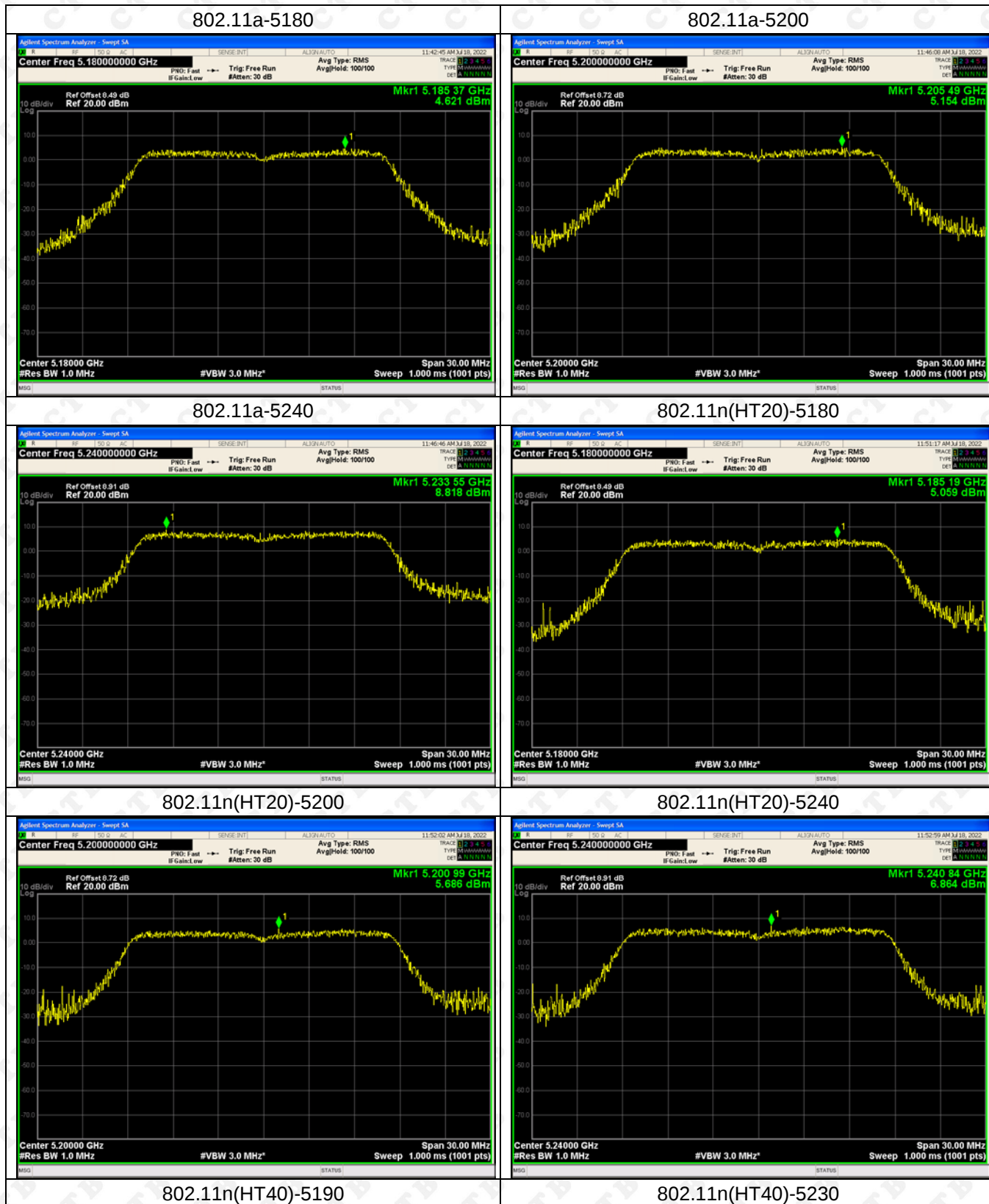
5745-5825MHz
ANT1+ANT2

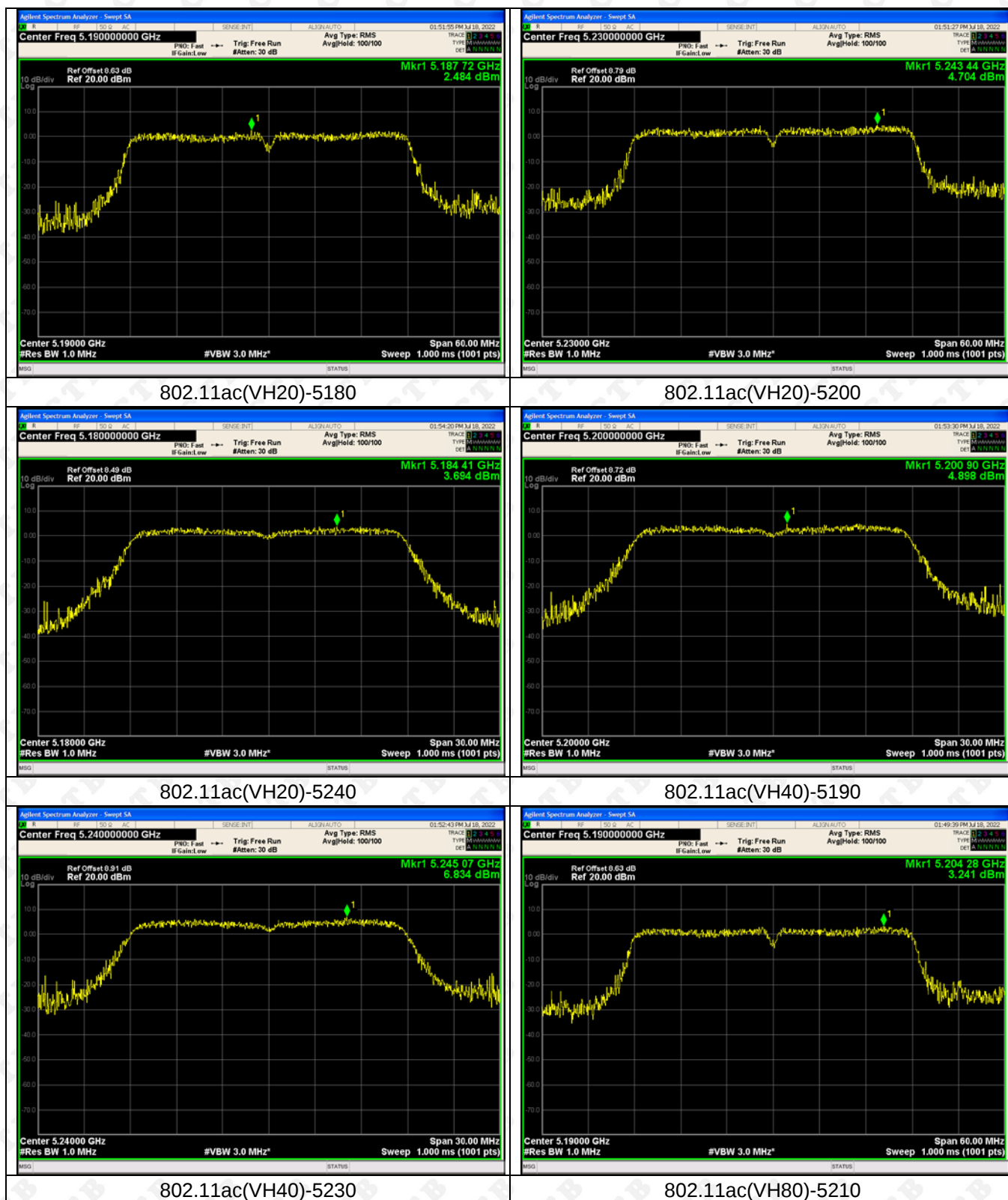
Test mode	Test Channel (MHz)	PSD [dBm/MHz] ANT 1	PSD [dBm/MHz] ANT 2	PSD [dBm/MHz] Total	Limit (dBm)	Result
802.11a	5745	7.402	9.394	11.522	30	Pass
	5785	8.453	7.917	11.204	30	Pass
	5825	8.986	9.016	12.011	30	Pass
802.11n(HT20)	5745	7.638	8.313	10.999	30	Pass
	5785	8.207	8.878	11.566	30	Pass
	5825	8.992	9.097	12.055	30	Pass
802.11n(HT40)	5755	6.868	5.845	9.397	30	Pass
	5795	5.929	6.733	9.360	30	Pass
802.11ac(VH20)	5745	4.774	4.597	7.697	30	Pass
	5785	8.35	8.8	11.591	30	Pass
	5825	8.954	8.239	11.621	30	Pass
802.11ac(VH40)	5755	8.79	9.044	11.929	30	Pass
	5795	6.097	5.919	9.019	30	Pass
802.11ac(VH80)	5775	6.095	5.974	9.045	30	Pass

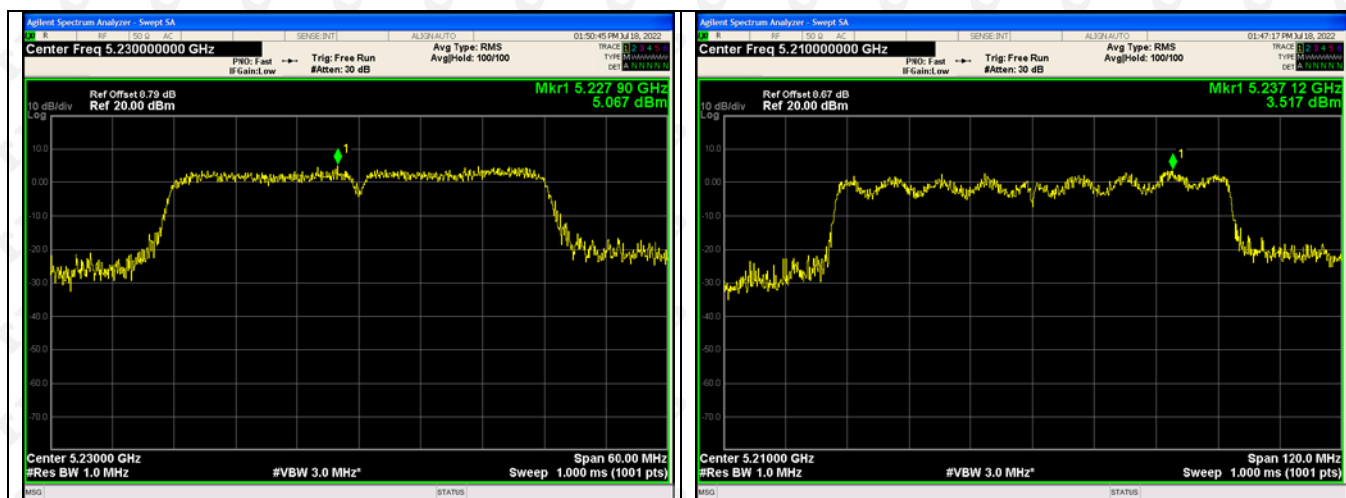
ANT3+ANT4

Test mode	Test Channel (MHz)	PSD [dBm/MHz] ANT 3	PSD [dBm/MHz] ANT 4	PSD [dBm/MHz] Total	Limit (dBm)	Result
802.11a	5745	5.752	6.173	8.978	30	Pass
	5785	6.108	5.792	8.963	30	Pass
	5825	6.79	6.874	9.843	30	Pass
802.11n(HT20)	5745	6.072	6.189	9.141	30	Pass
	5785	5.871	5.575	8.736	30	Pass
	5825	6.554	6.355	9.466	30	Pass
802.11n(HT40)	5755	1.771	2.026	4.911	30	Pass
	5795	-1.134	2.063	3.763	30	Pass
802.11ac(VH20)	5745	0.151	-1.576	2.383	30	Pass
	5785	5.943	5.753	8.859	30	Pass
	5825	6.489	5.997	9.260	30	Pass
802.11ac(VH40)	5755	6.447	0.177	7.367	30	Pass
	5795	1.806	1.854	4.840	30	Pass
802.11ac(VH80)	5775	2.495	2.176	5.349	30	Pass

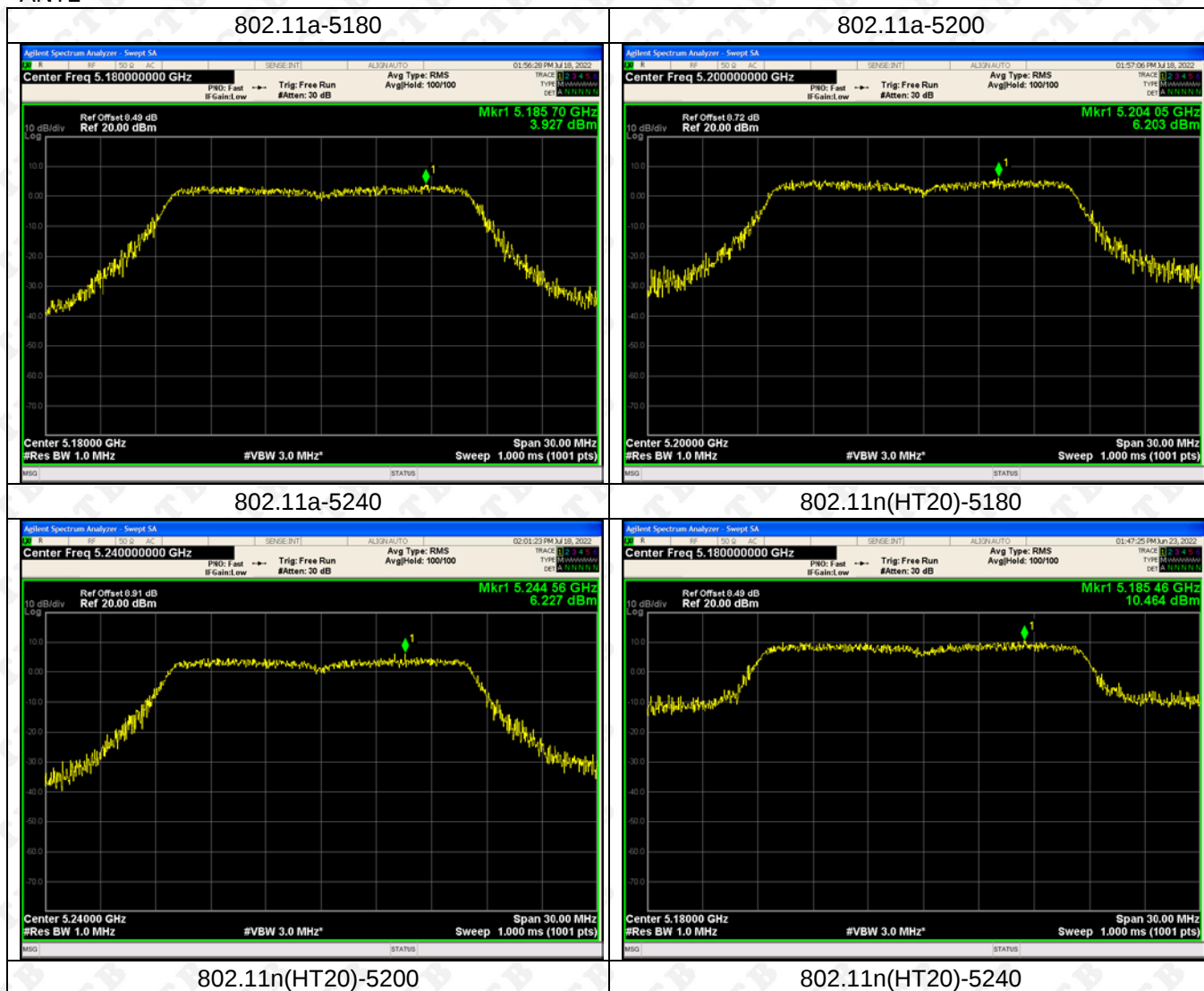
5180-5240MHz
ANT1

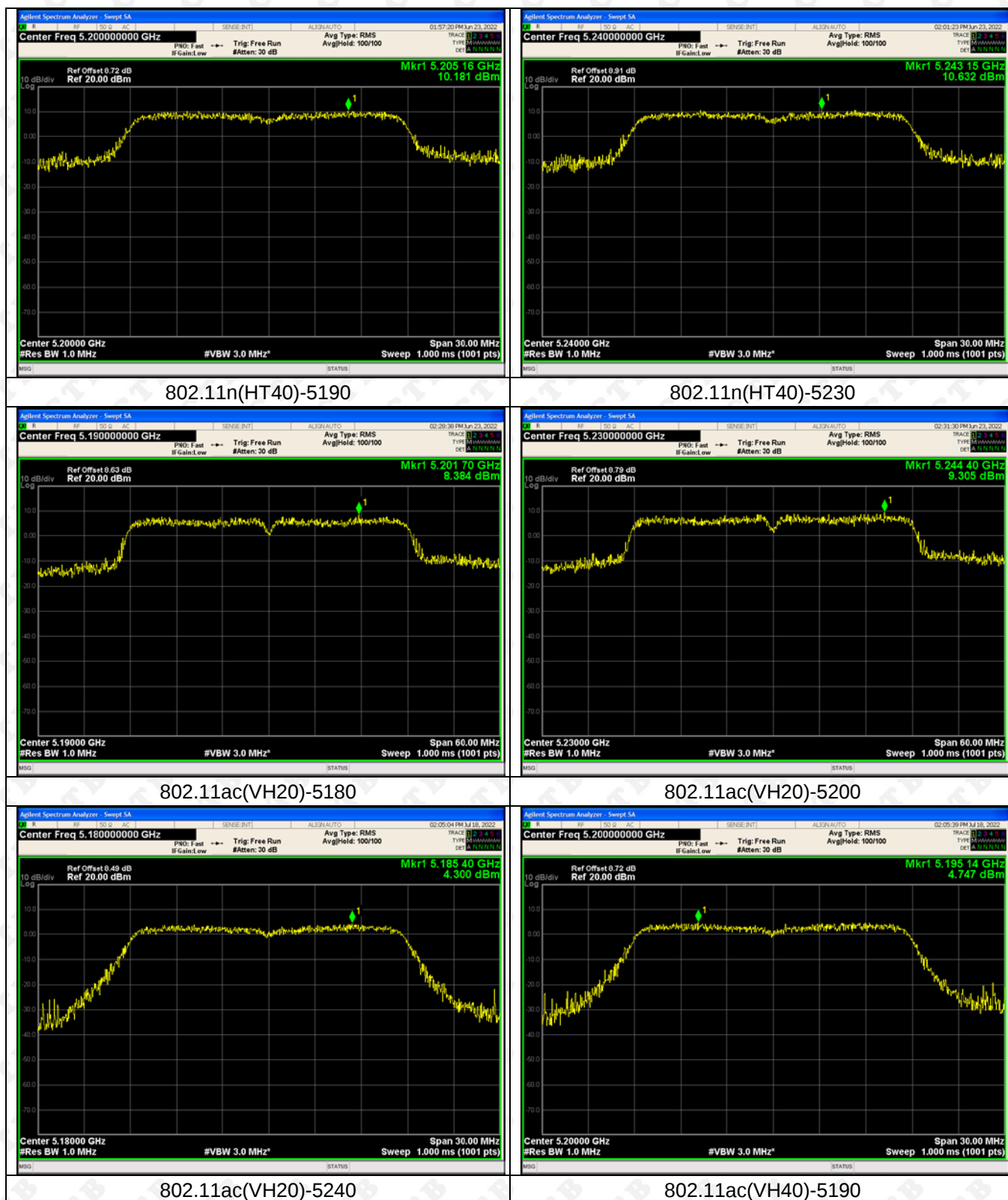


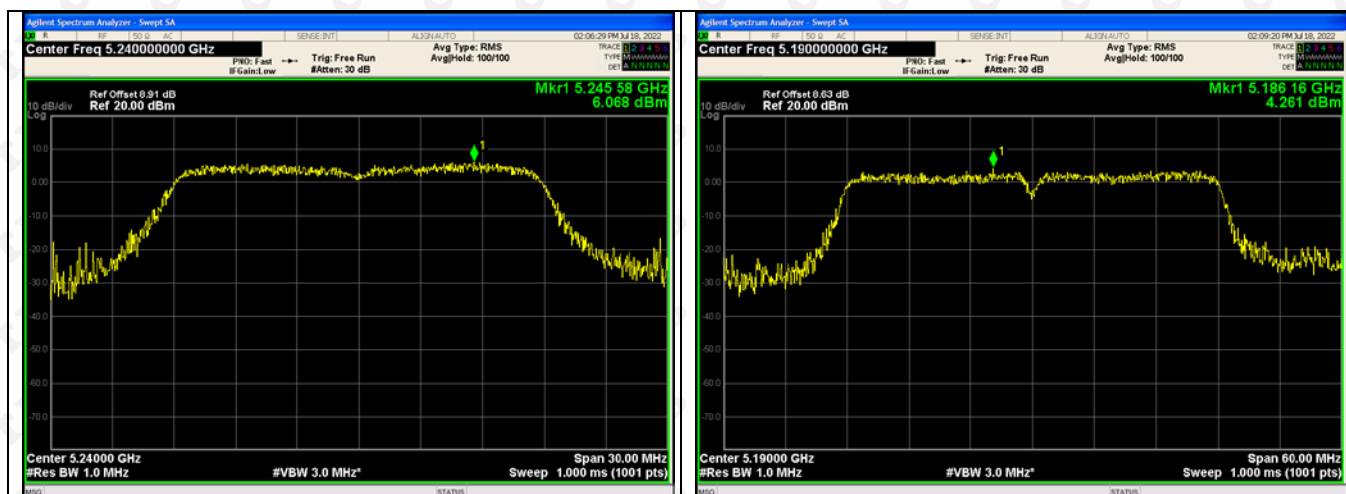




ANT2

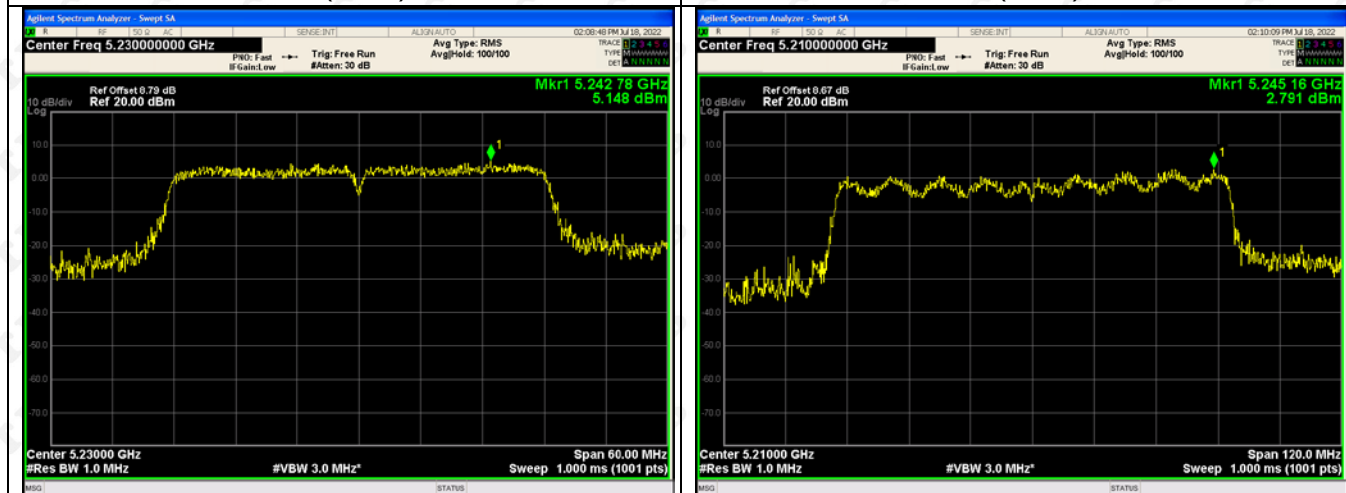






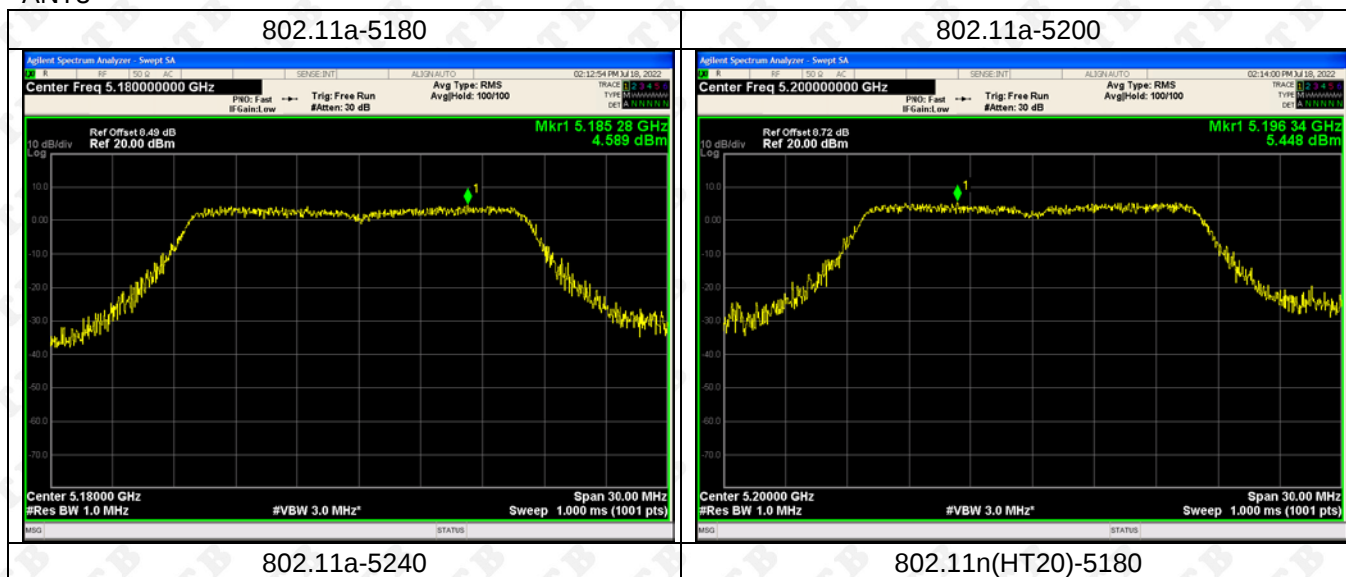
802.11ac(VH40)-5230

802.11ac(VH80)-5210



802.11a-5180

802.11a-5200



802.11a-5240

802.11n(HT20)-5180