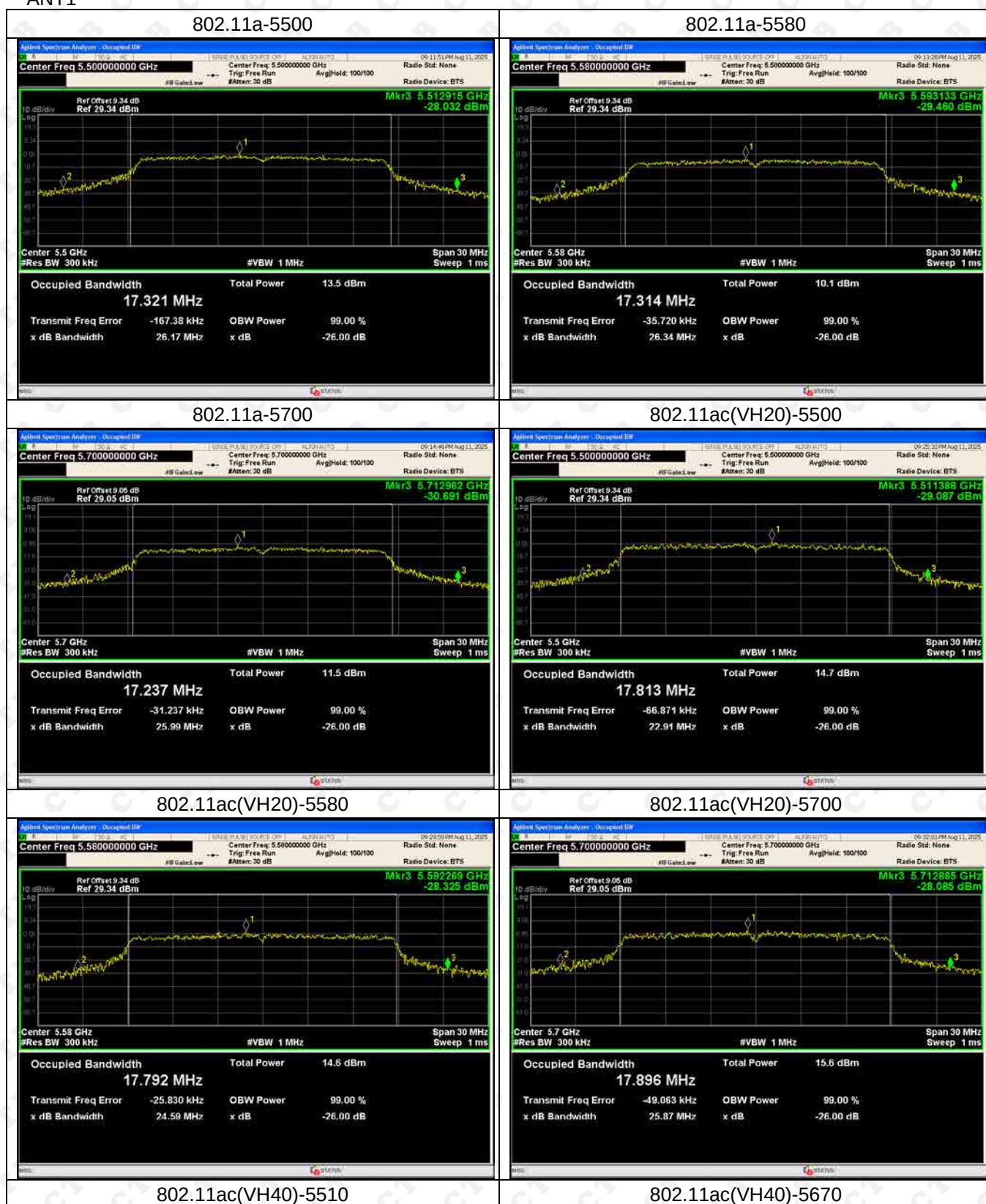


5470-5725MHz
ANT1

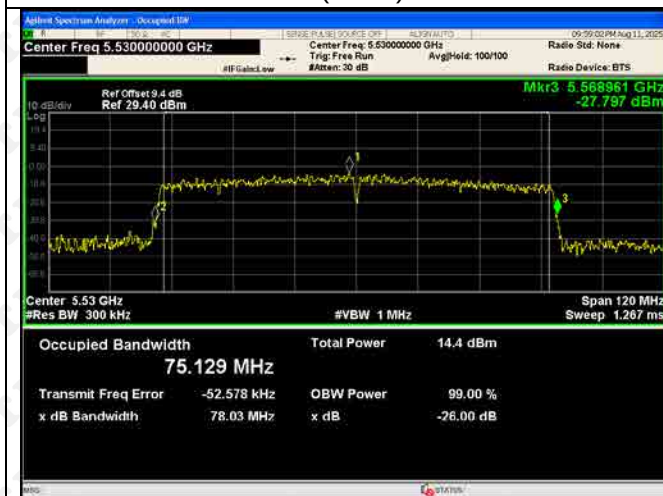




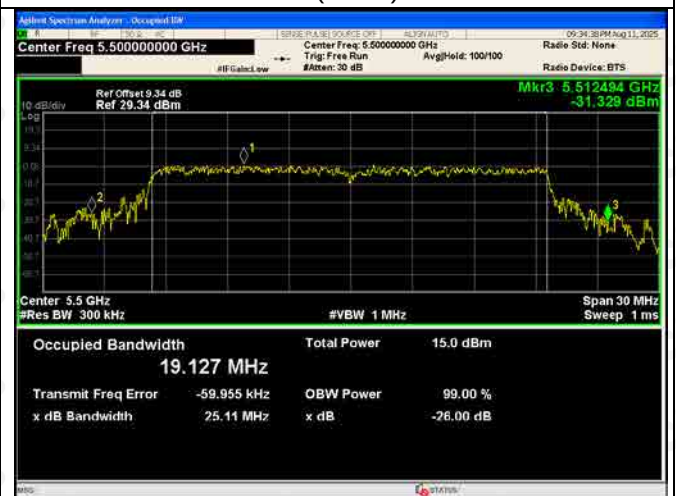
802.11ac(VH80)-5530



802.11ax(VH20)-5500



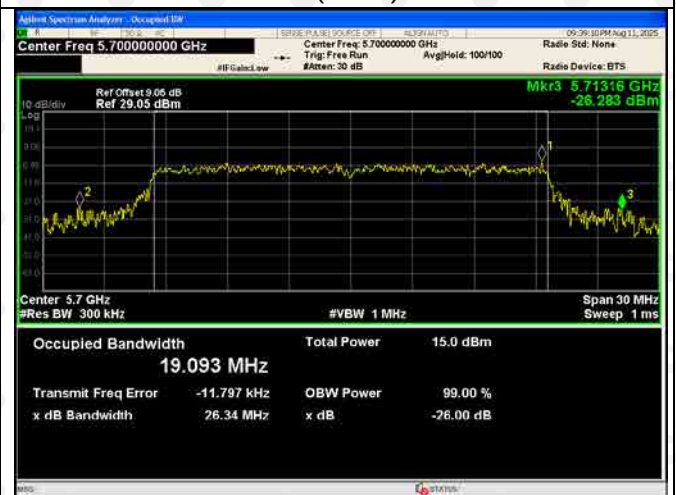
802.11ax(VH20)-5580



802.11ax(VH20)-5700



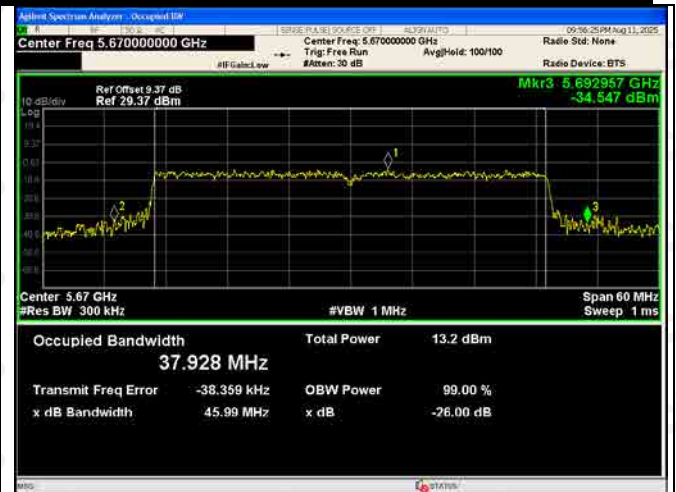
802.11ax(VH40)-5510



802.11ax(VH40)-5670



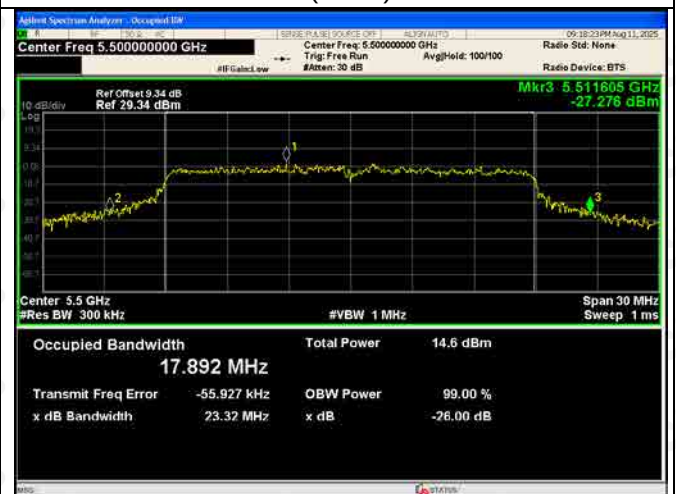
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802.11n(HT20)-5500



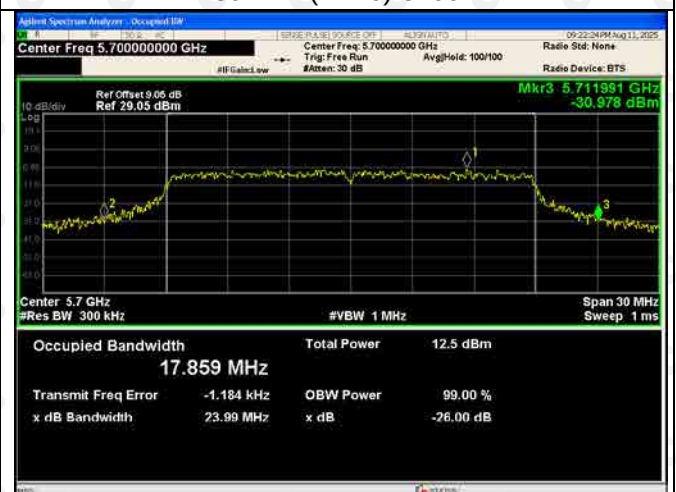
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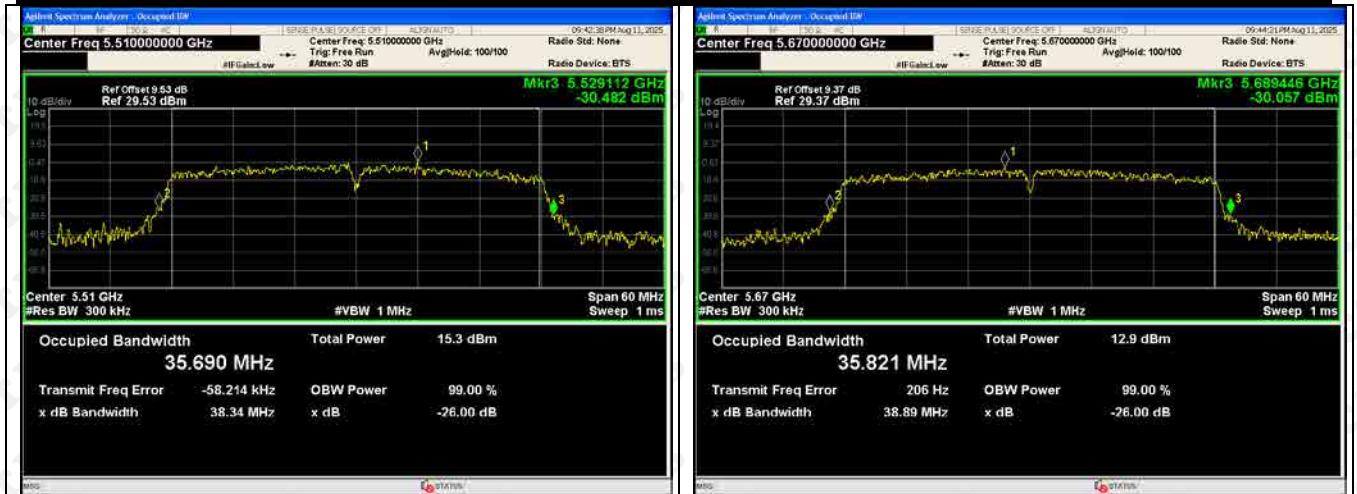
802.11n(HT20)-5700



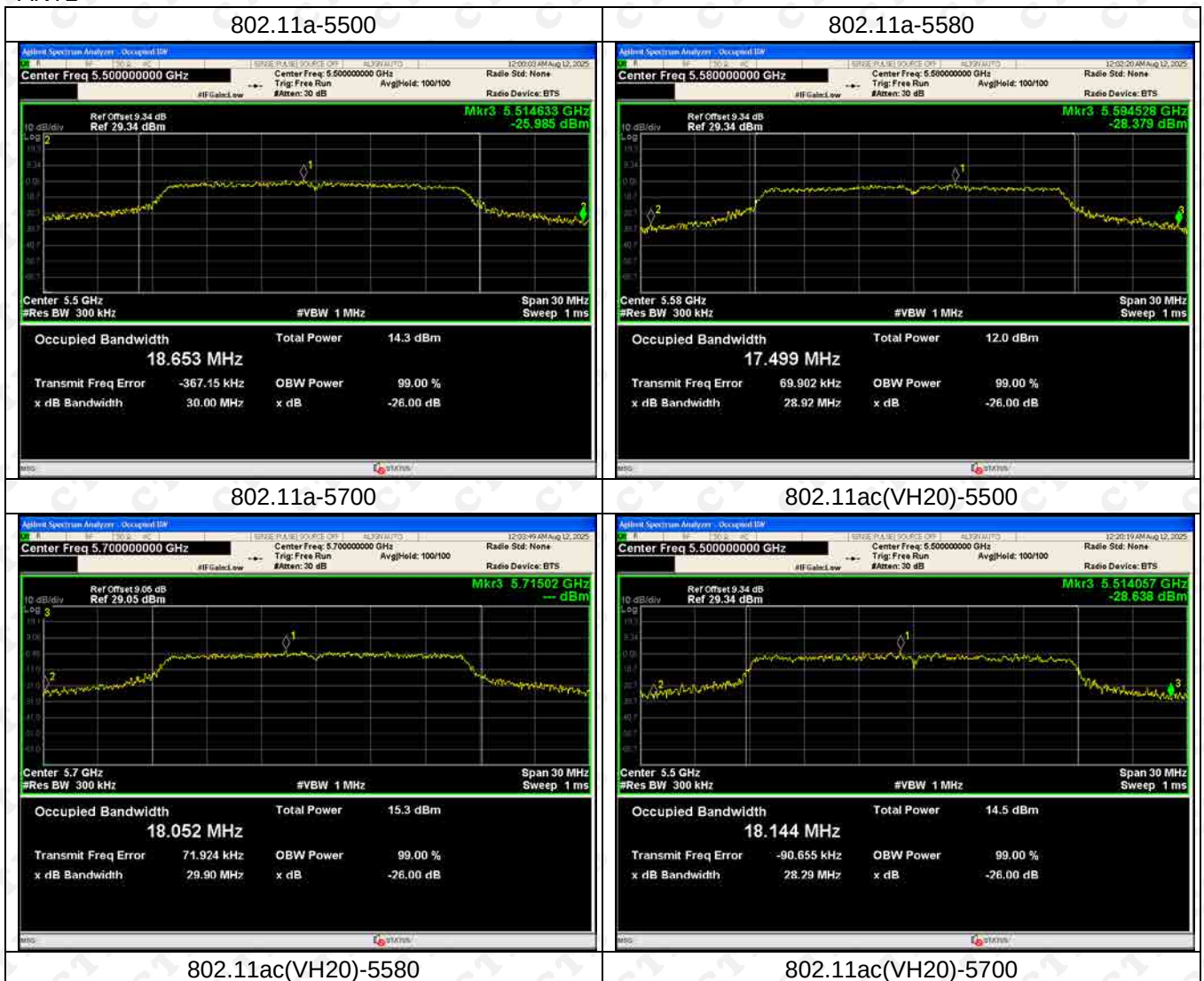
802.11n(HT40)-5510



802.11n(HT40)-5670



ANT2





802.11ac(VH40)-5510



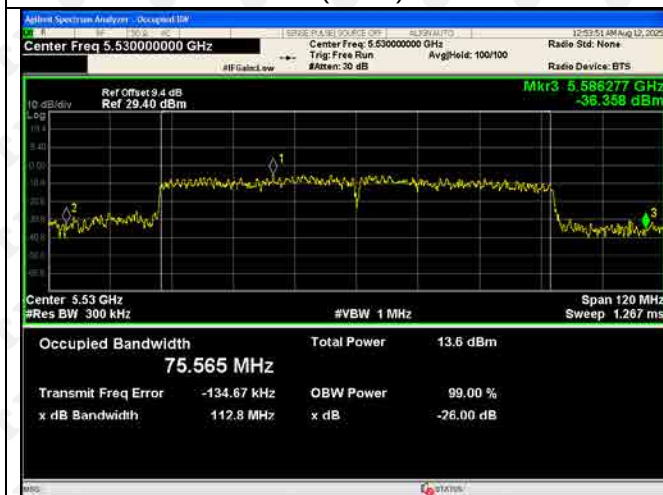
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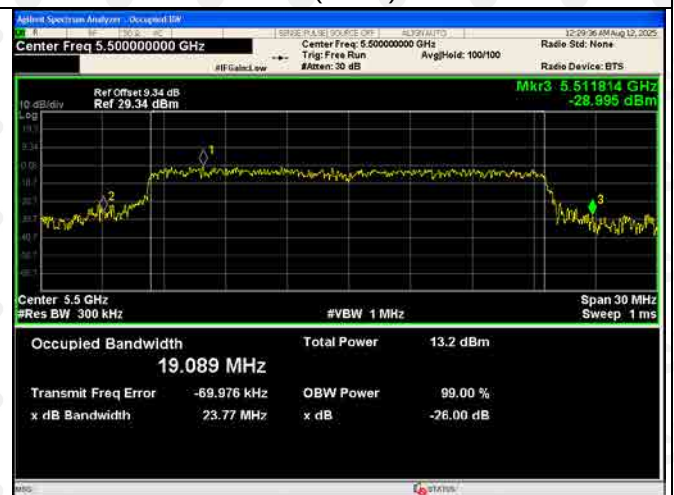
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802.11ax(VH20)-5500



802.11ax(VH20)-5580



802.11ax(VH20)-5700



802.11ax(VH40)-5510



802.11ax(VH40)-5670



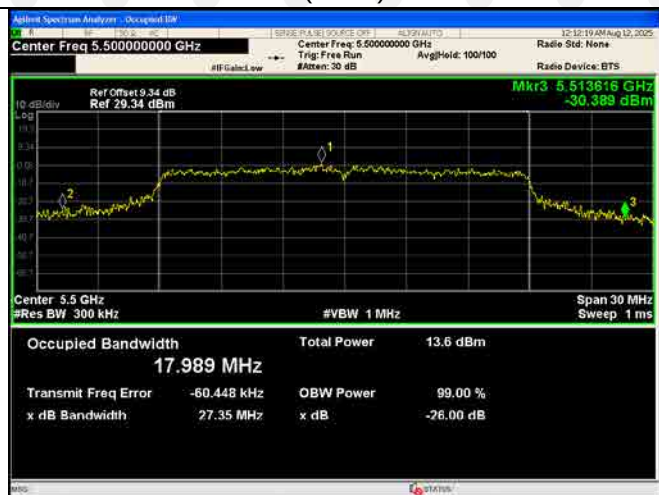
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802.11n(HT20)-5500



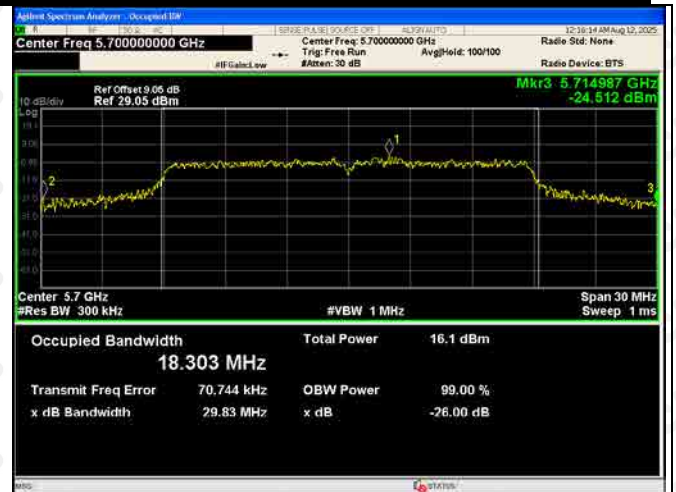
802.11n(HT20)-5580



802.11n(HT20)-5700



802.11n(HT40)-5510



802.11n(HT40)-5670



5725-5850MHz
ANT1

802.11a-5745



802.11a-5785



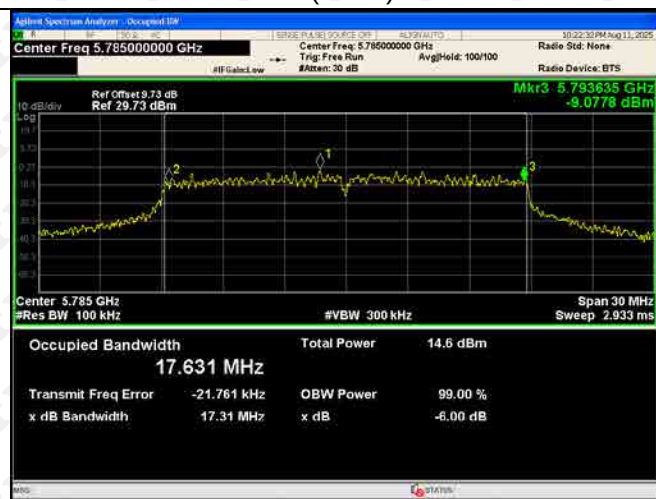
802.11a-5825



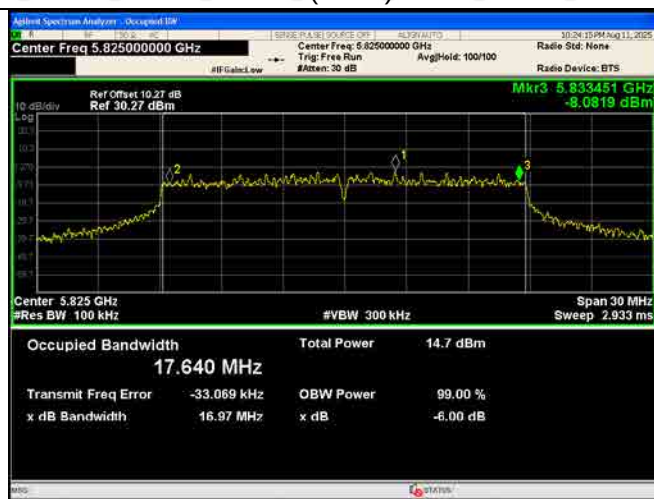
802.11ac(VH20)-5745



802.11ac(VH20)-5785

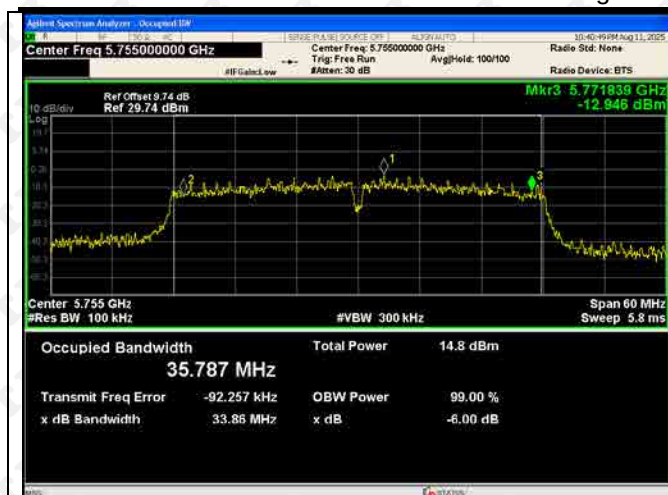


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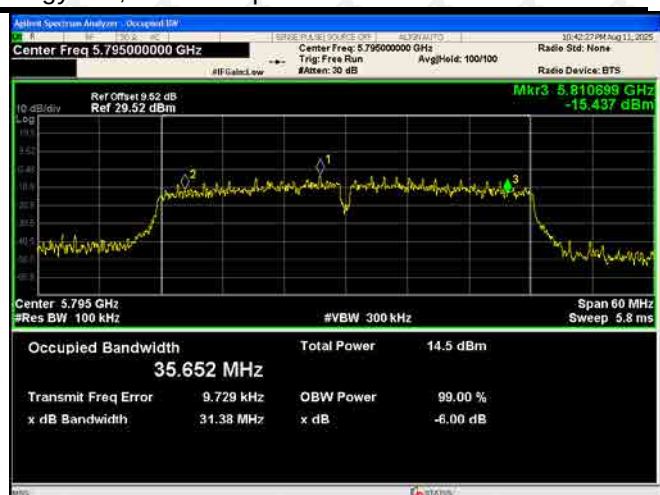


802.11ac(VH40)-5755

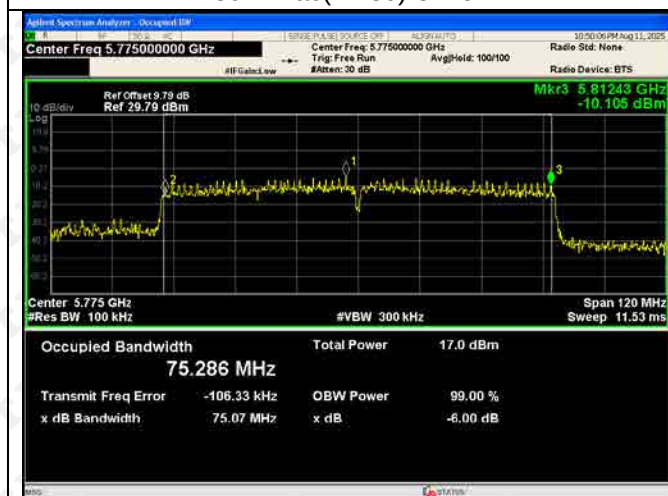
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802.11ac(VH80)-5775



802.11ax(VH20)-5745



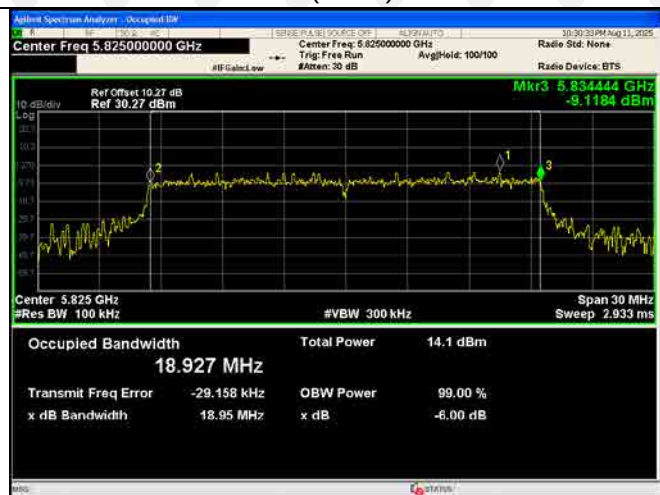
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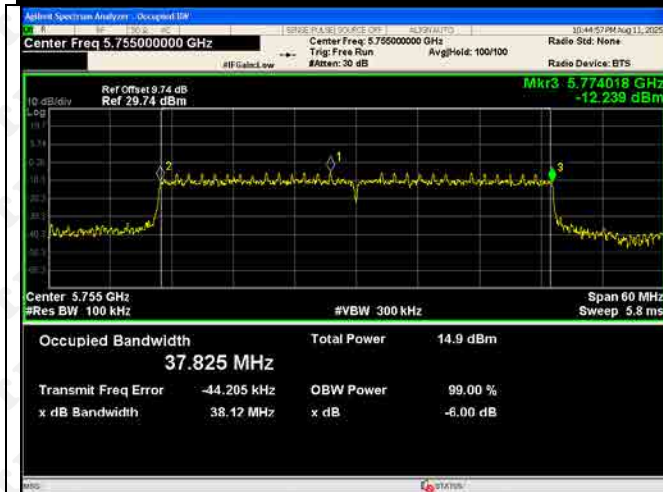
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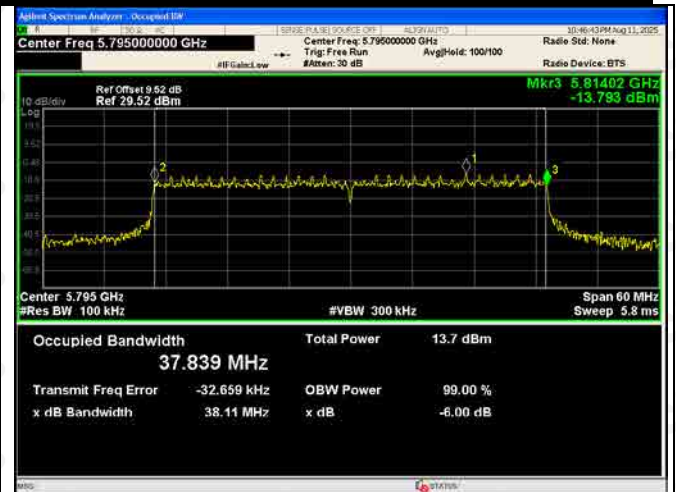
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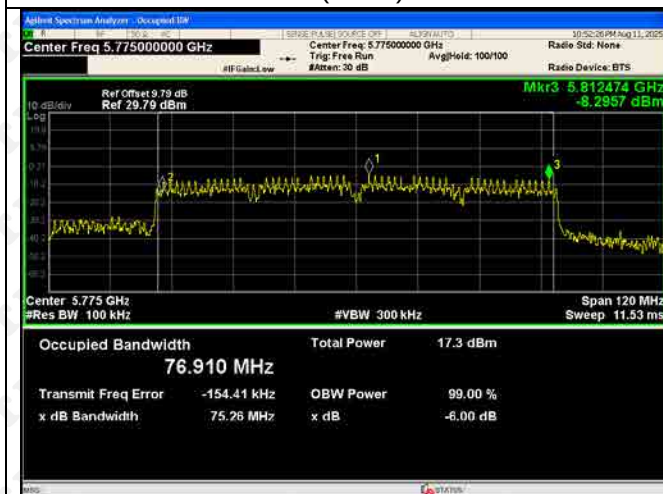
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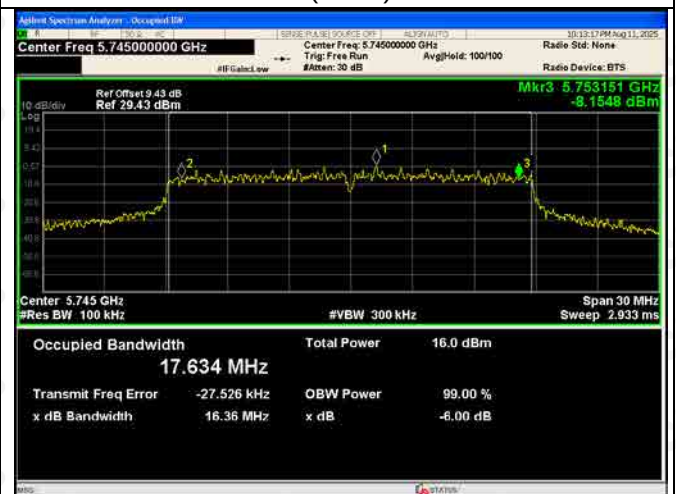
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802.11n(HT20)-5745



802.11n(HT20)-5785



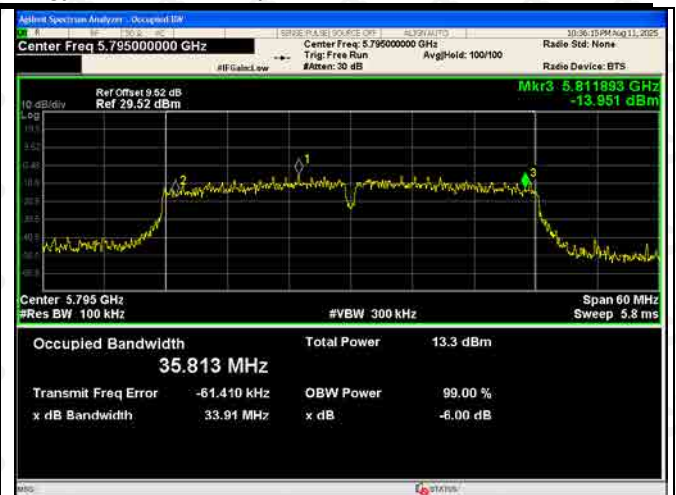
802.11n(HT20)-5825



802.11n(HT40)-5755



802.11n(HT40)-5795



ANT2

802.11a-5745



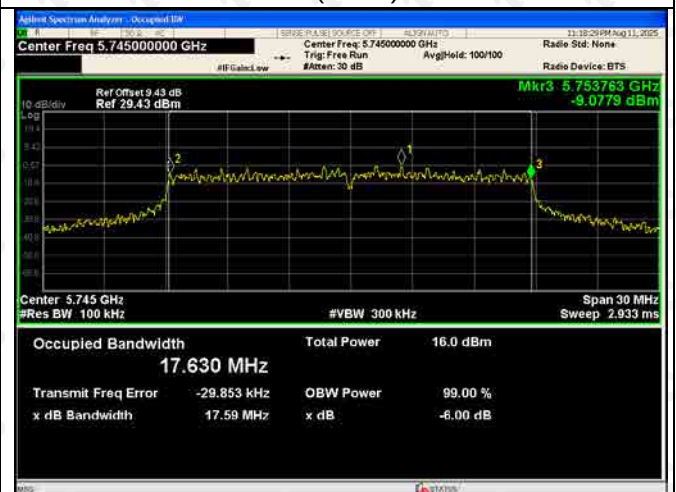
802.11a-5785



802.11a-5825



802.11ac(VH20)-5745

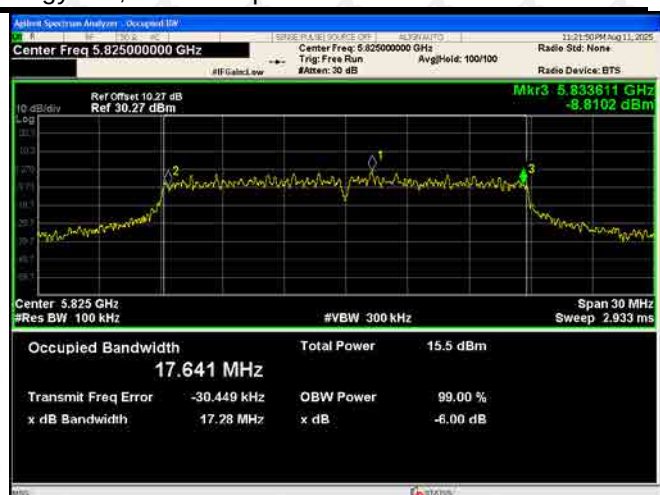


802.11ac(VH20)-5785

802.11ac(VH20)-5825



802.11ac(VH40)-5755



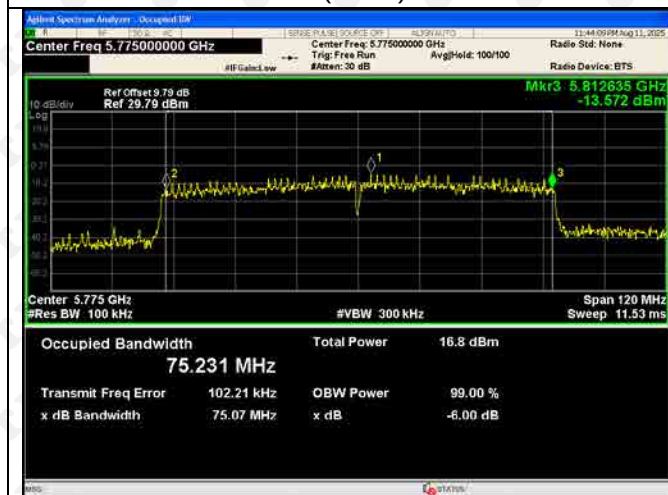
802.11ac(VH40)-5795



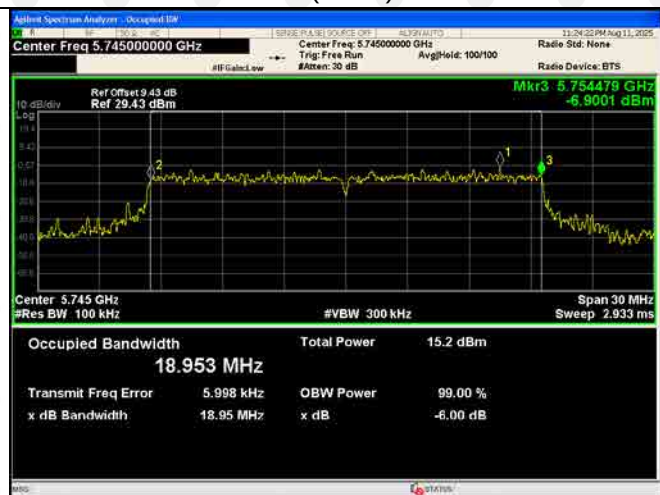
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802.11ax(VH20)-5745



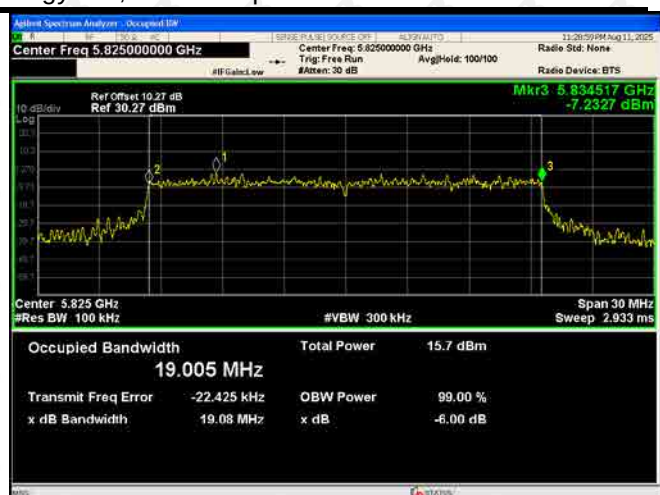
802.11ax(VH20)-5785



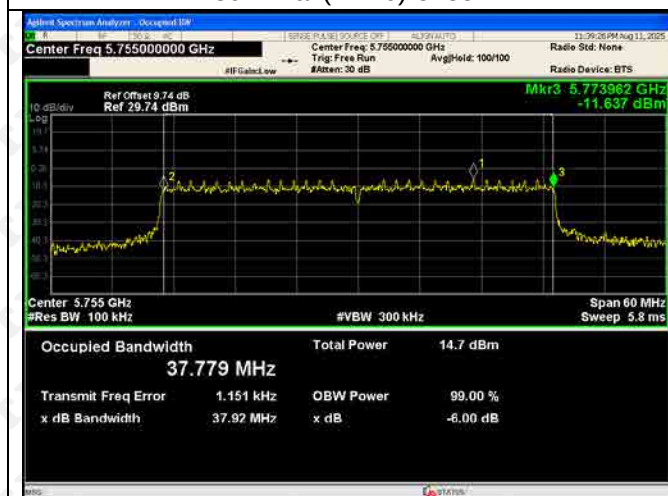
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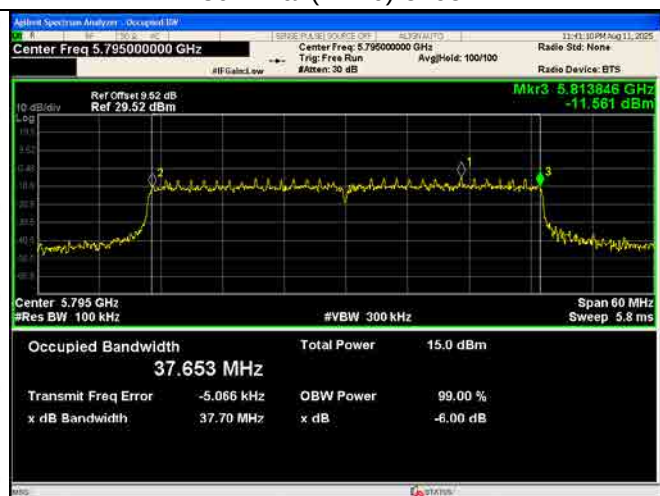
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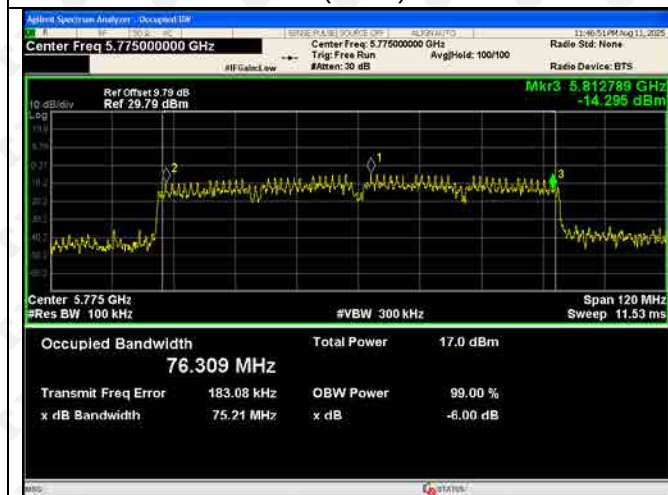
802.11ax(VH40)-5795



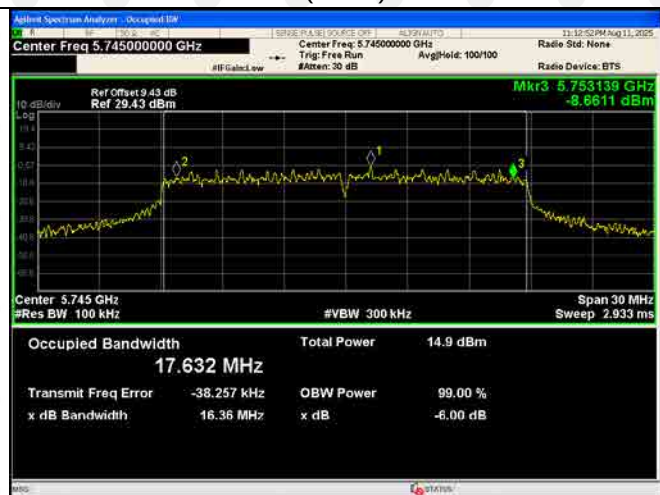
802.11ax(VH80)-5775



802.11n(HT20)-5745



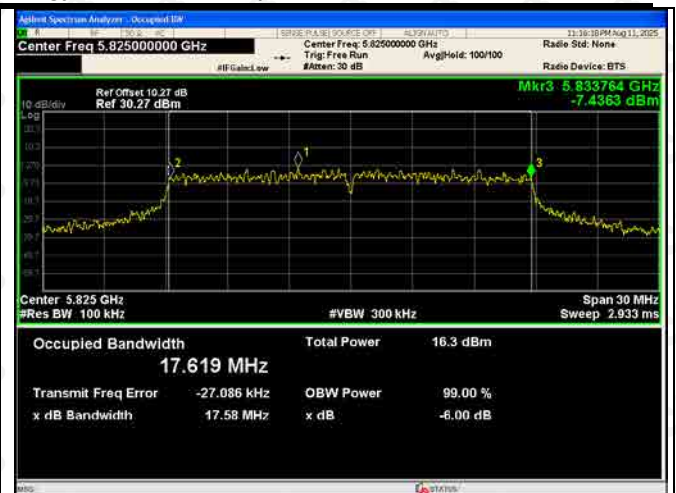
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802.11n(HT20)-5825



802.11n(HT40)-5755

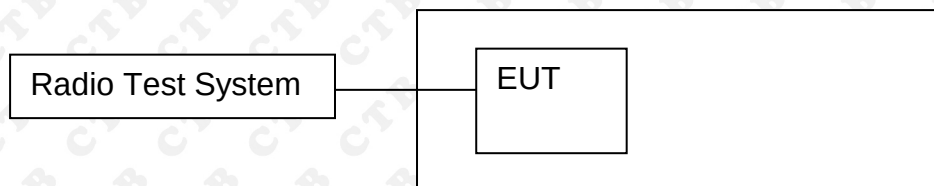


802.11n(HT40)-5795



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 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

5150-5250MHz:MHz

ANT1+ANT2

Test mode	Test Channel (MHz)	PSD [dBm/MHz] ANT 1	PSD [dBm/MHz] ANT 2	PSD [dBm/MHz] Total	Limit (dBm/MHz)	Result
802.11a	5180	-3.026	-3.384	/	11	Pass
	5200	-2.709	-2.818	/	11	Pass
	5240	-0.788	-1.258	/	11	Pass
802.11ac(VHT20)	5180	-8.265	-6.224	-4.115	11	Pass
	5200	-8.112	-5.554	-3.637	11	Pass
	5240	-7.502	-8.124	-4.792	11	Pass
802.11ac(VHT40)	5190	-11.67	-10.901	-8.258	11	Pass
	5230	-11.077	-10.367	-7.697	11	Pass
802.11ac(VHT80)	5230	-15.749	-14.966	-12.330	11	Pass
802.11ax(HE20)	5180	-8.995	-7.979	-5.447	11	Pass
	5200	-8.772	-8.505	-5.626	11	Pass
	5240	-9.684	-9.817	-6.740	11	Pass
802.11ax(HE40)	5190	-8.52	-7.092	-4.737	11	Pass
	5230	-7.192	-5.836	-3.451	11	Pass
802.11ax(HE80)	5210	-9.811	-7.331	-5.386	11	Pass
802.11n(HT20)	5180	-7.1	-6.535	-3.798	11	Pass
	5200	-7.115	-6.975	-4.034	11	Pass
	5240	-7.672	-7.41	-4.529	11	Pass
802.11n(HT40)	5190	-11.449	-11.639	-8.533	11	Pass
	5230	-11.013	-9.544	-7.206	11	Pass

5250-5350 MHz

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	-2.385	-3.884	/	11	Pass
	5280	-2.995	-4.043	/	11	Pass
	5320	-1.374	-3.239	/	11	Pass
802.11ac(VH20)	5260	-6.462	-8.836	-4.478	11	Pass
	5280	-7.227	-9.209	-5.096	11	Pass
	5320	-6.779	-8.033	-4.351	11	Pass
802.11ac(VH40)	5270	-10.415	-10.515	-7.454	11	Pass
	5310	-10.044	-10.221	-7.121	11	Pass
802.11ac(VH80)	5290	-13.909	-15.716	-11.709	11	Pass
802.11ax(VH20)	5260	-8.132	-8.628	-5.363	11	Pass
	5280	-8.479	-8.681	-5.569	11	Pass
	5320	-9.042	-7.992	-5.475	11	Pass
802.11ax(VH40)	5270	-7.437	-6.789	-4.091	11	Pass
	5310	-7.344	-6.564	-3.926	11	Pass
802.11ax(VH80)	5290	-8.159	-7.662	-4.893	11	Pass
802.11n(HT20)	5260	-6.62	-8.405	-4.411	11	Pass
	5280	-6.37	-9.458	-4.635	11	Pass
	5320	-8.322	-9.08	-5.674	11	Pass
802.11n(HT40)	5270	-10.413	-10.134	-7.261	11	Pass
	5310	-9.521	-9.399	-6.449	11	Pass

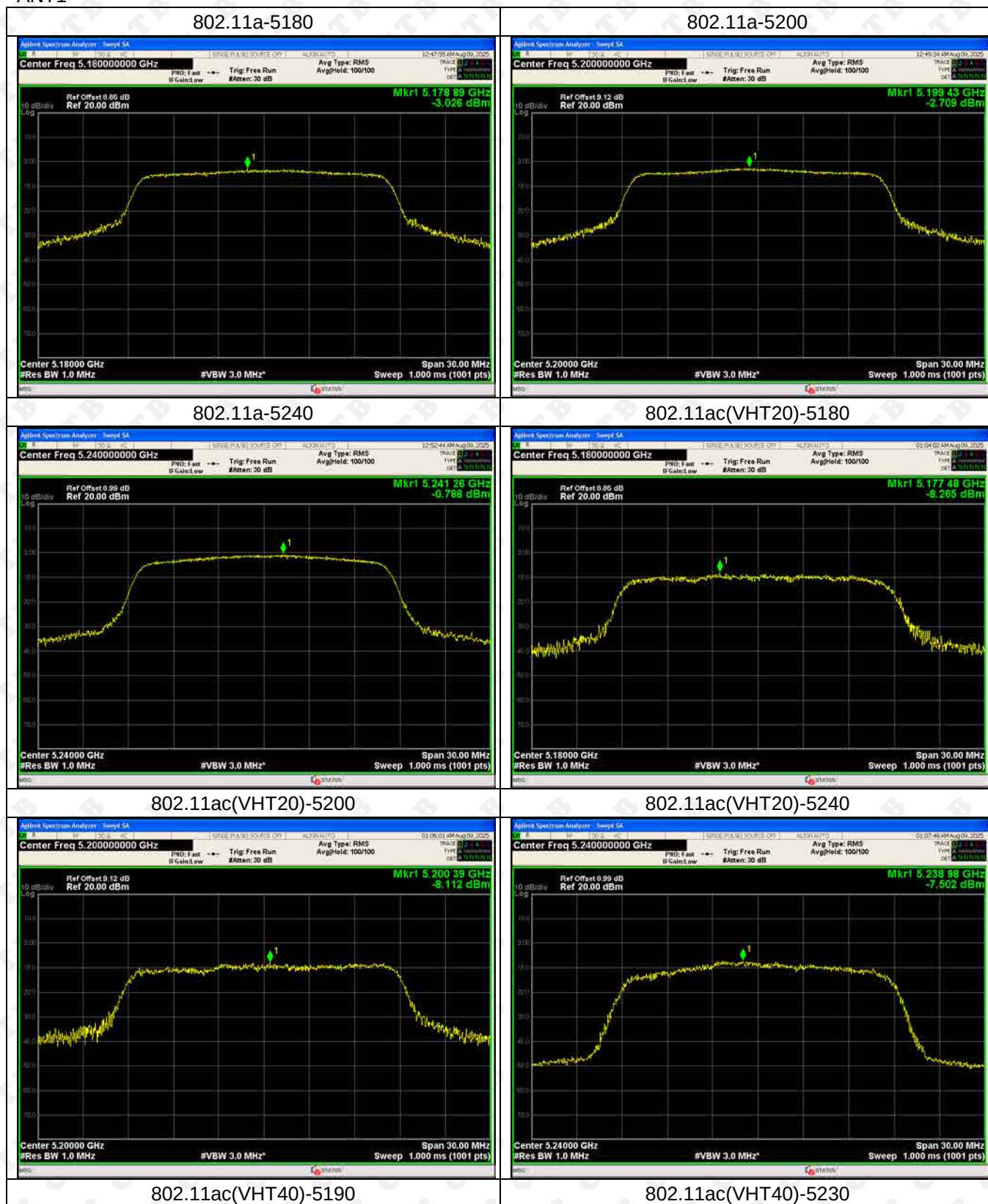
5470-5725MHz:
ANT1+ANT2

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	-3.723	-3.741	/	30	Pass
	5580	-7.307	-5.549	/	30	Pass
	5700	-6.33	-2.433	/	30	Pass
802.11ac(VH20)	5500	-7.41	-6.879	-4.126	30	Pass
	5580	-7.282	-10.613	-5.625	30	Pass
	5700	-6.906	-5.145	-2.927	30	Pass
802.11ac(VH40)	5510	-10.887	-11.827	-8.321	30	Pass
	5670	-11.623	-10.518	-8.025	30	Pass
802.11ac(VH80)	5530	-14.557	-16.729	-12.498	30	Pass
802.11ax(VH20)	5500	-8.097	-9.861	-5.880	30	Pass
	5580	-11.396	-11.398	-8.387	30	Pass
	5700	-7.607	-7.492	-4.539	30	Pass
802.11ax(VH40)	5510	-7.405	-7.43	-4.407	30	Pass
	5670	-8.387	-6.702	-4.453	30	Pass
802.11ax(VH80)	5530	-7.205	-8.482	-4.786	30	Pass
802.11n(HT20)	5500	-7.868	-8.087	-4.966	30	Pass
	5580	-10.282	-9.73	-6.987	30	Pass
	5700	-8.919	-5.865	-4.119	30	Pass
802.11n(HT40)	5510	-10.322	-11.206	-7.731	30	Pass
	5670	-12.035	-10.663	-8.285	30	Pass

5725-5850MHz:
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	-4.985	-6.377	/	30	Pass
	5785	-5.294	-5.708	/	30	Pass
	5825	-3.383	-5.273	/	30	Pass
802.11ac(VH20)	5745	-10.973	-9.603	-7.224	30	Pass
	5785	-11.151	-8.848	-6.838	30	Pass
	5825	-10.425	-9.396	-6.870	30	Pass
802.11ac(VH40)	5755	-14.507	-12.331	-10.274	30	Pass
	5795	-15.19	-11.129	-9.691	30	Pass
802.11ac(VH80)	5775	-17.361	-16.029	-13.634	30	Pass
802.11ax(VH20)	5745	-11.808	-10.825	-8.278	30	Pass
	5785	-11.873	-10.934	-8.368	30	Pass
	5825	-12.24	-10.926	-8.523	30	Pass
802.11ax(VH40)	5755	-9.508	-9.782	-6.633	30	Pass
	5795	-10.994	-9.641	-7.255	30	Pass
802.11ax(VH80)	5775	-9.073	-9.357	-6.202	30	Pass
802.11n(HT20)	5745	-9.44	-10.597	-6.970	30	Pass
	5785	-9.689	-8.858	-6.243	30	Pass
	5825	-3.479	-7.922	-2.145	30	Pass
802.11n(HT40)	5755	-13.93	-11.647	-9.630	30	Pass
	5795	-14.826	-12.425	-10.451	30	Pass

Test Graph:
5150-5250MHz
ANT1





802.11ac(VHT80)-5210



802.11ax(HE20)-5180



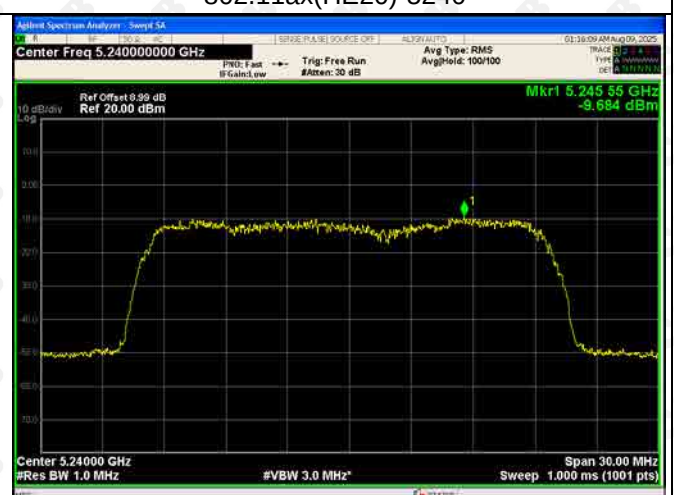
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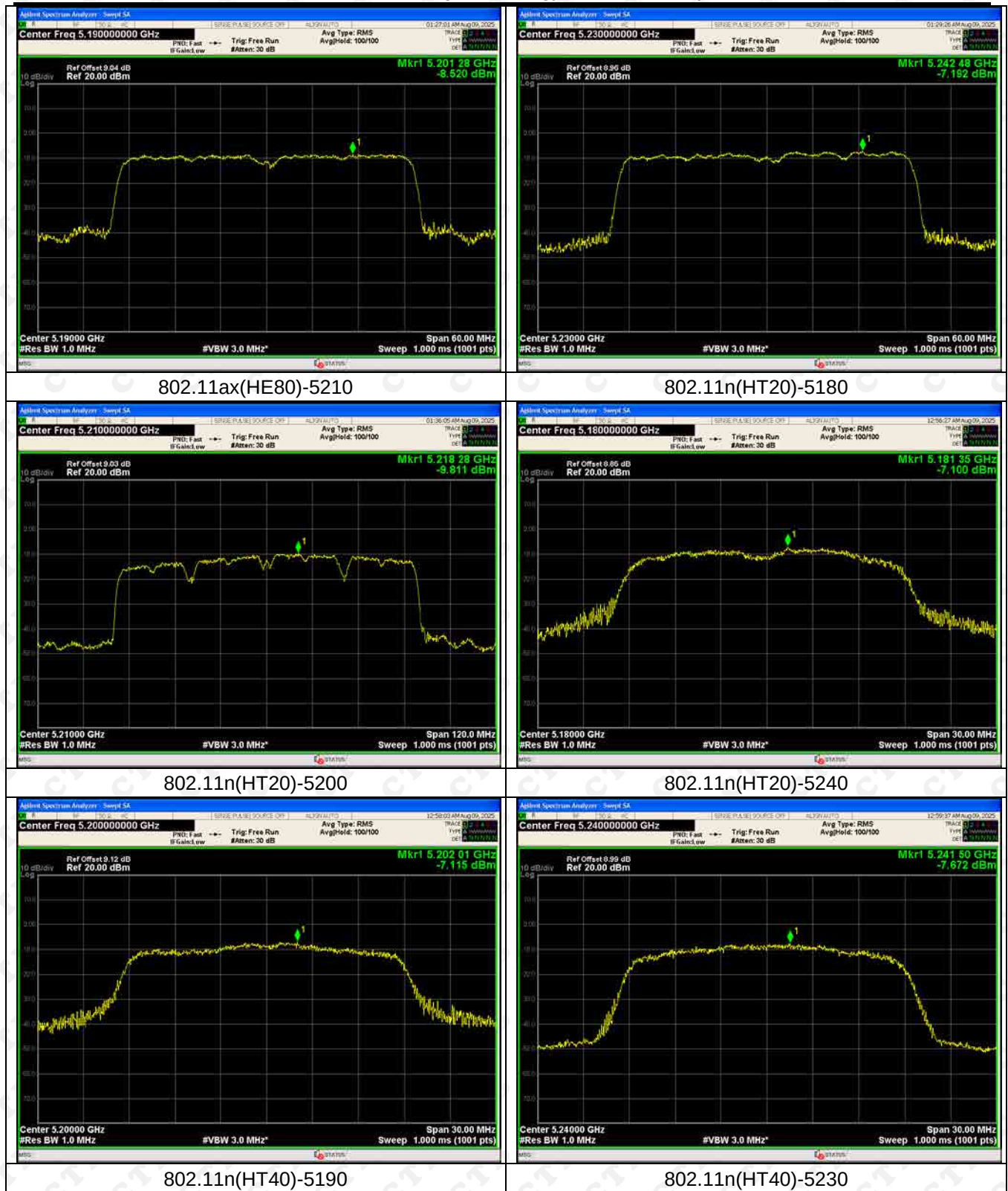
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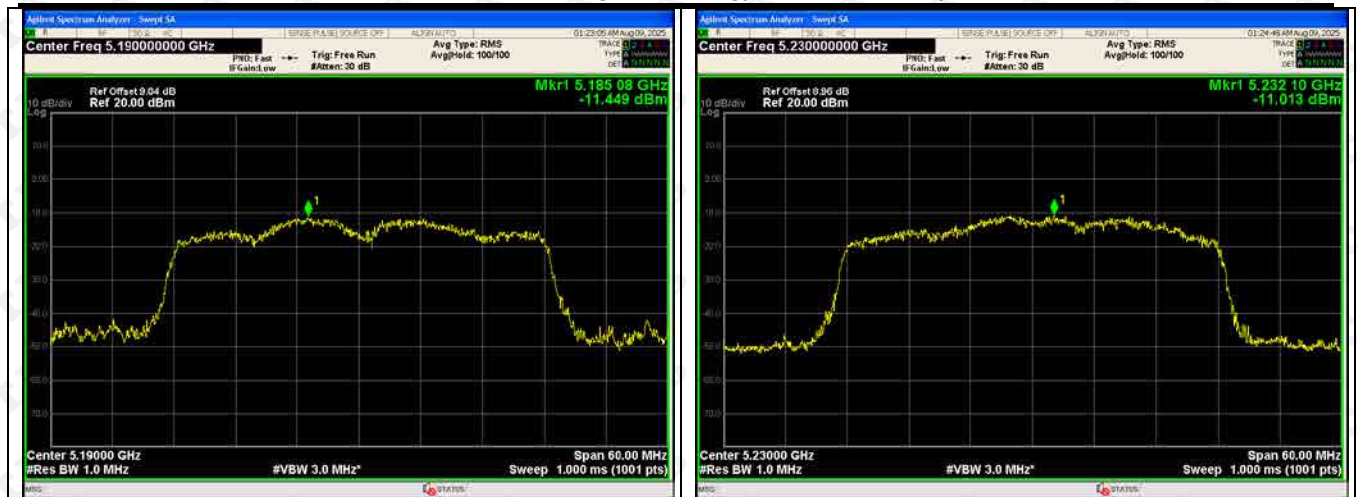


802.11ax(HE40)-5190



802.11ax(HE40)-5230





ANT2

