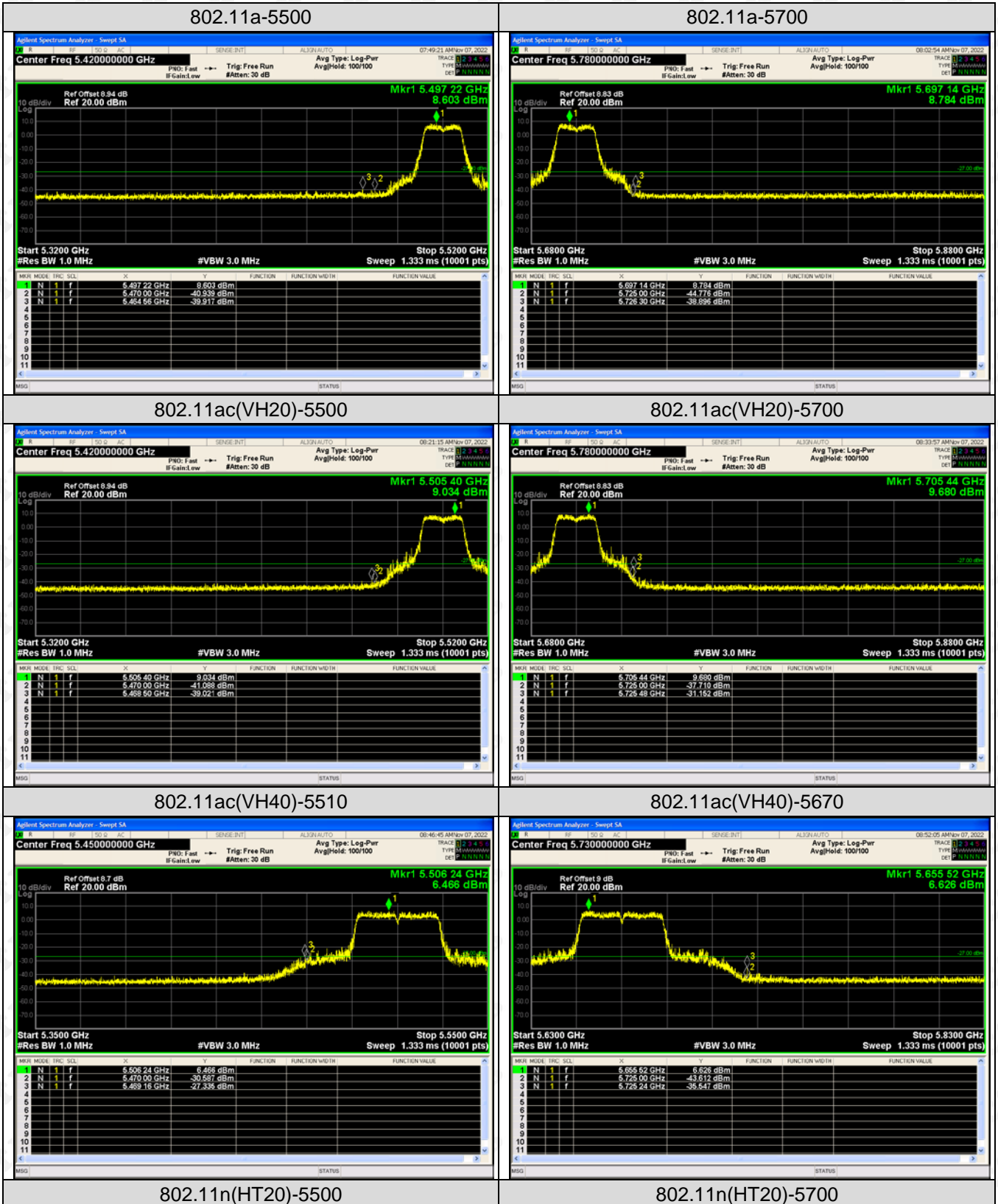
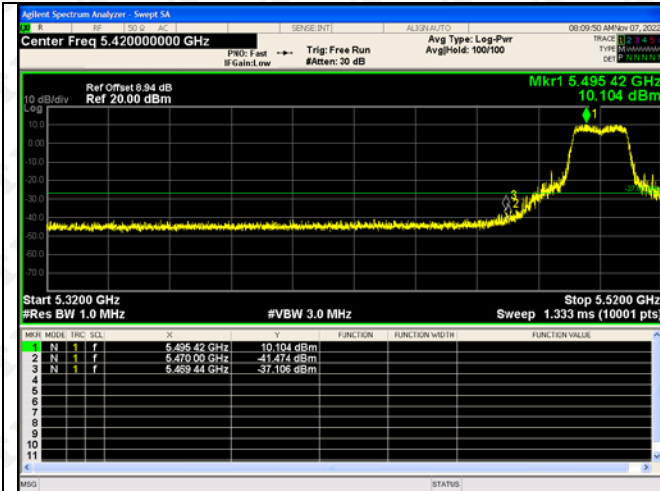
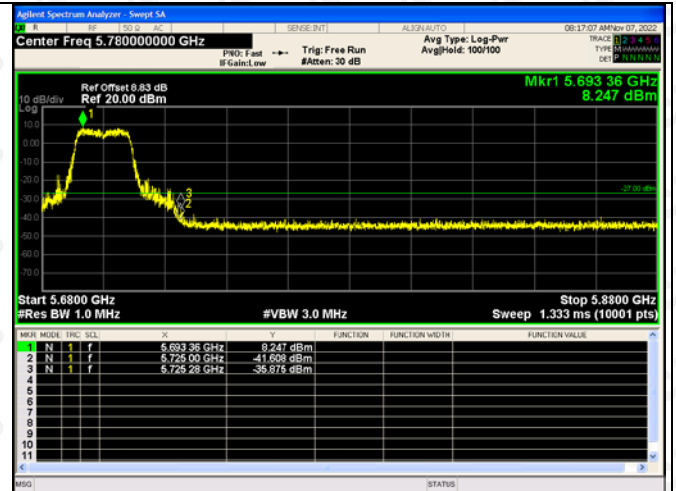


5500-5700MHz:
ANT1

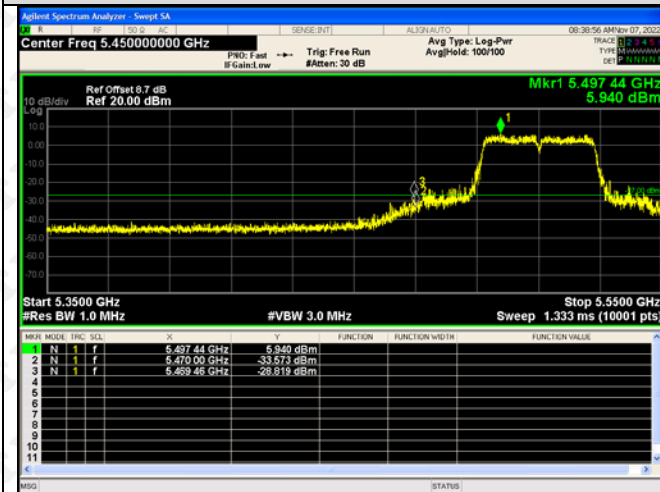




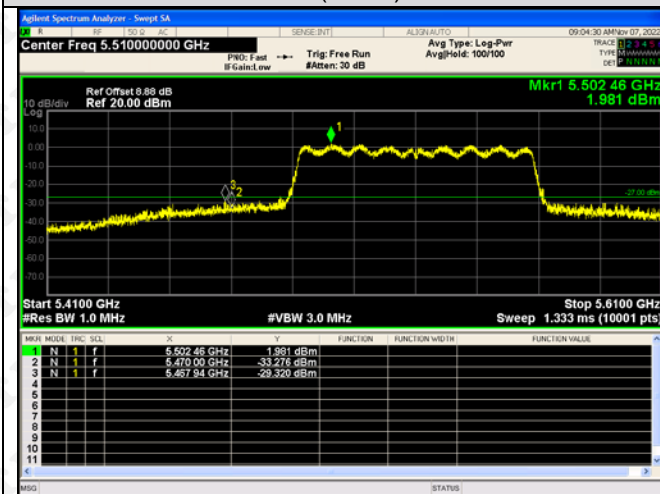
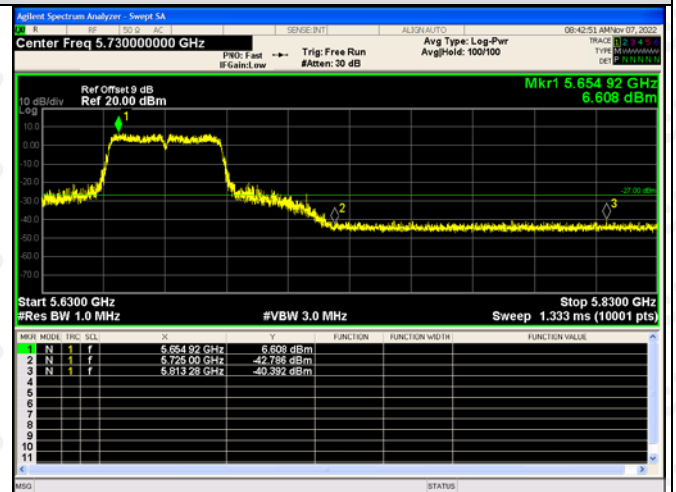
802.11n(HT40)-5510



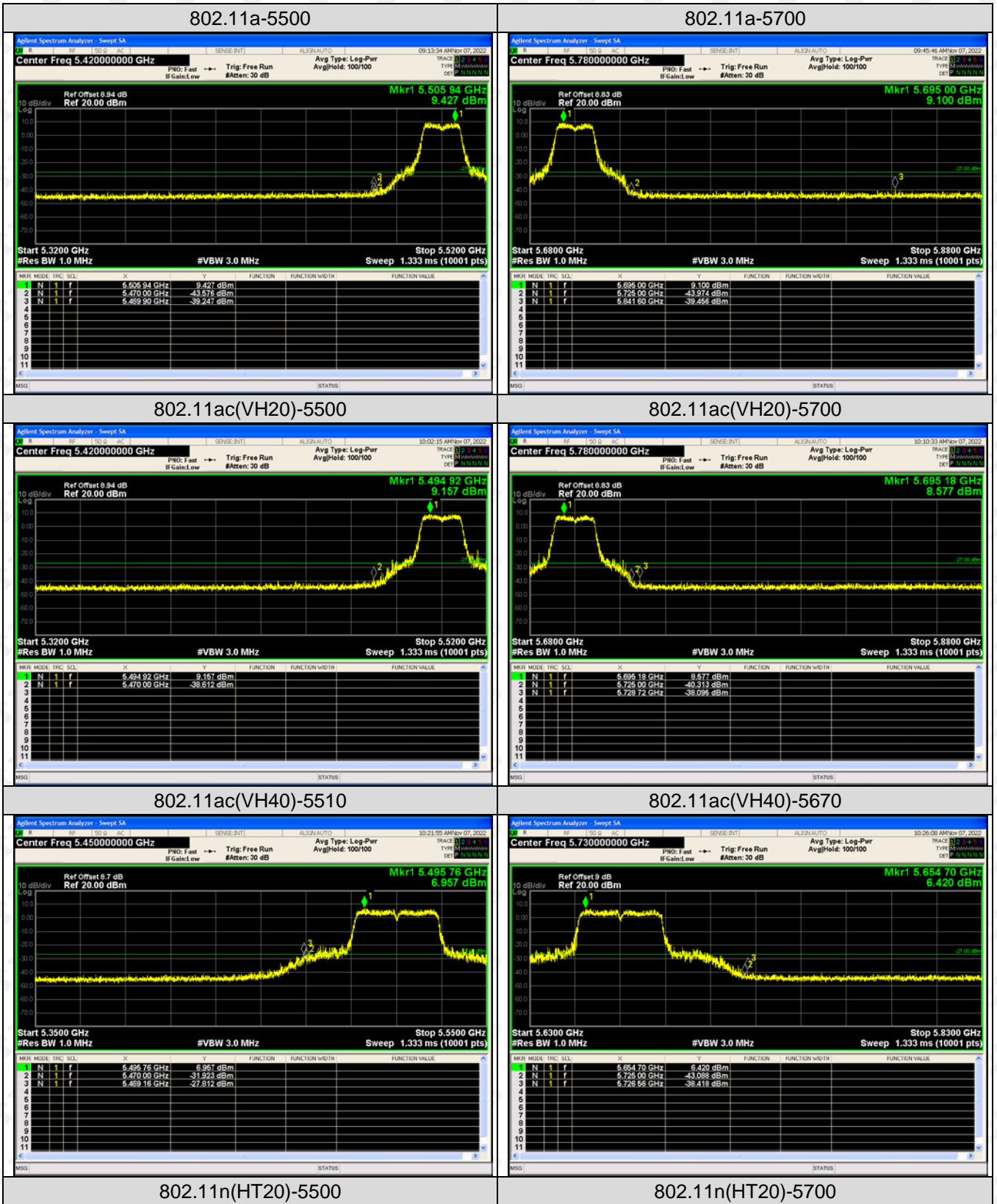
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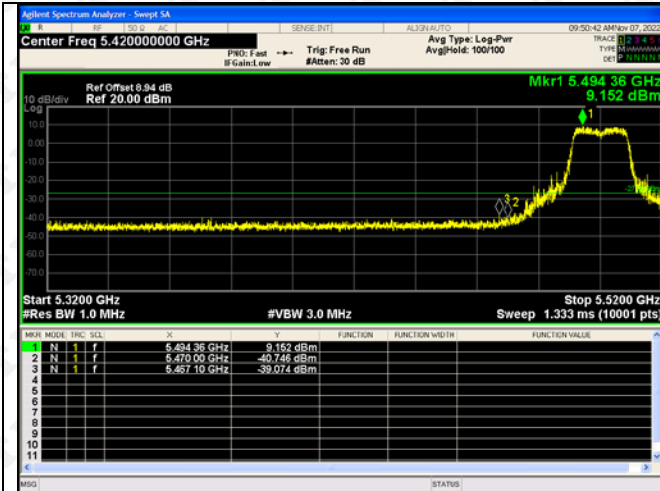


802.11ac(VH80)-5530

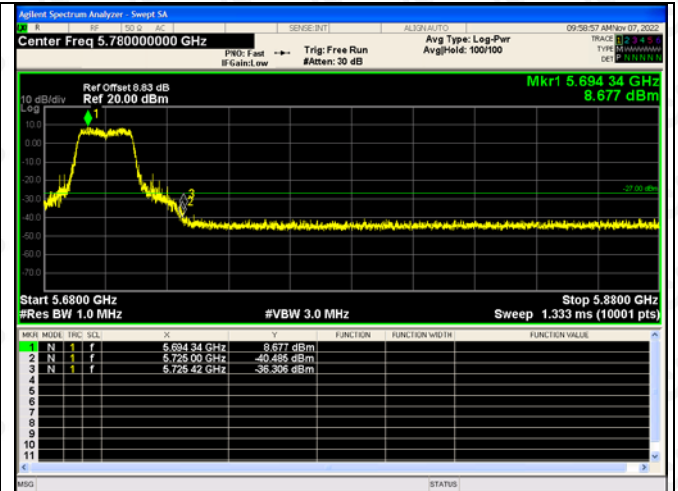


ANT2

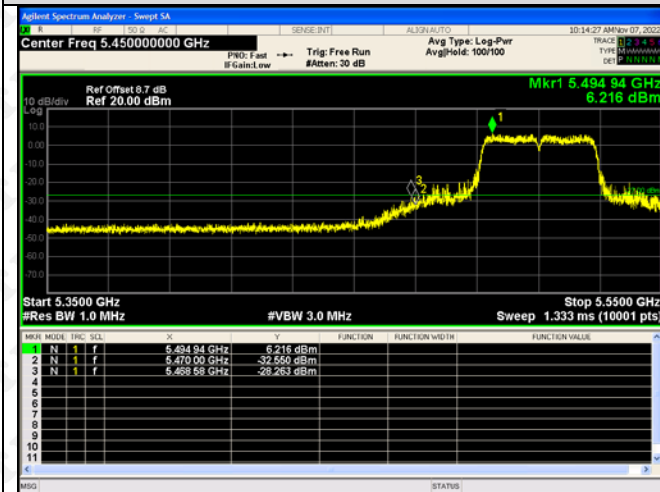




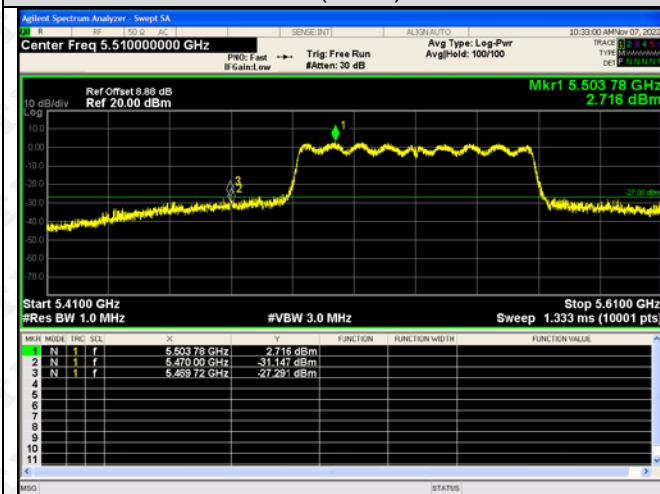
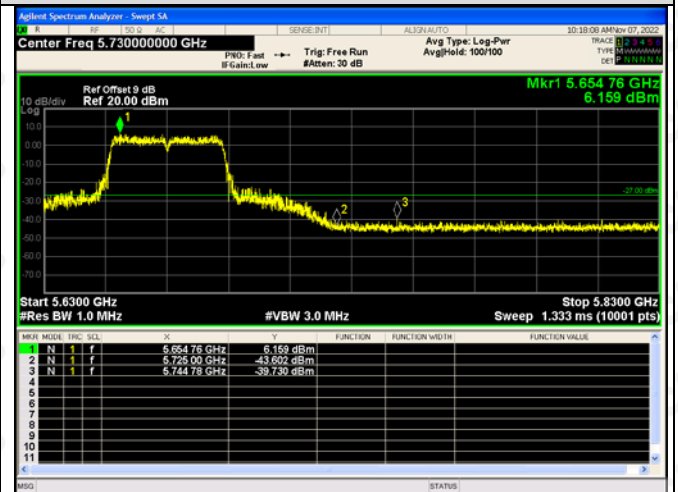
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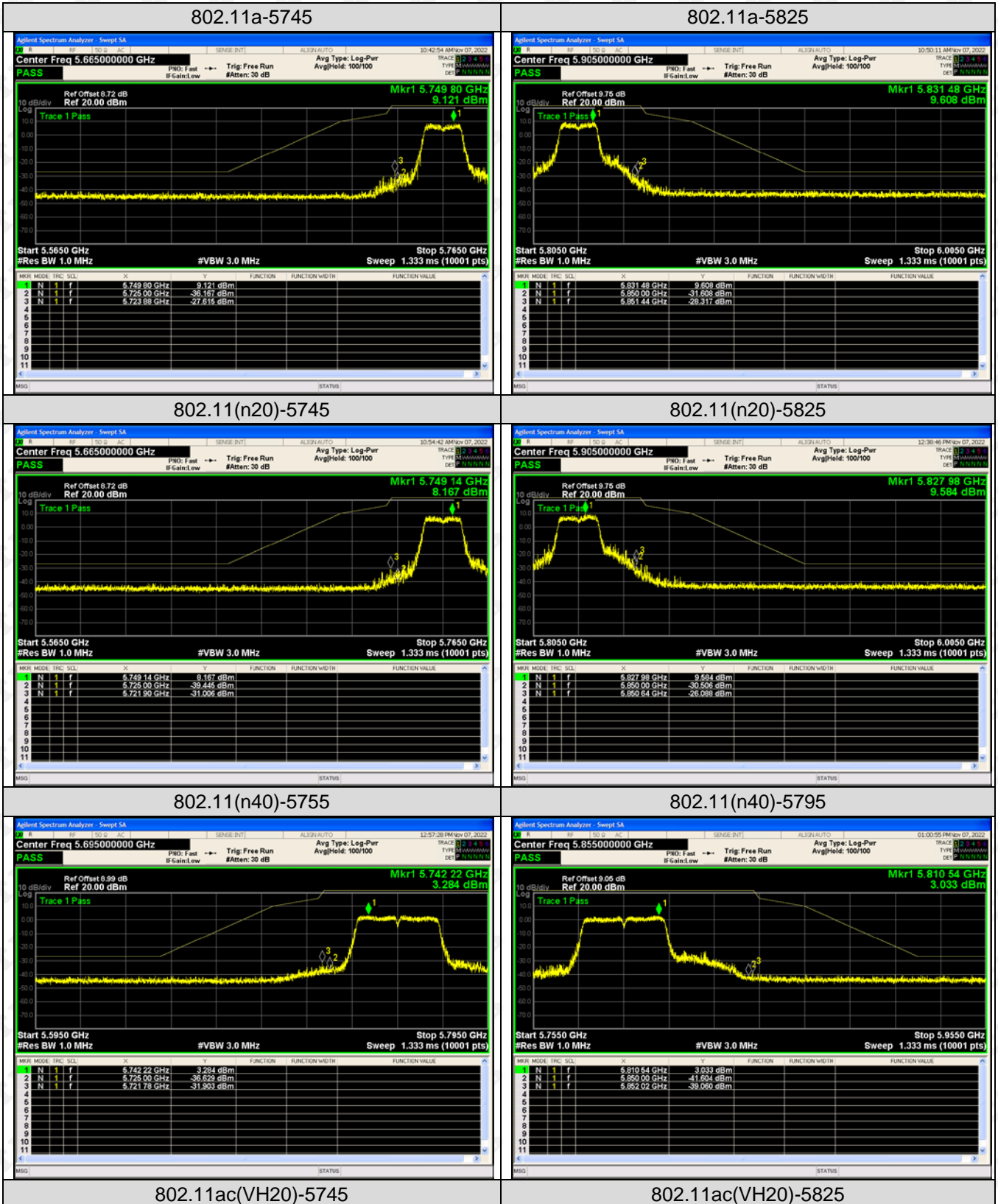
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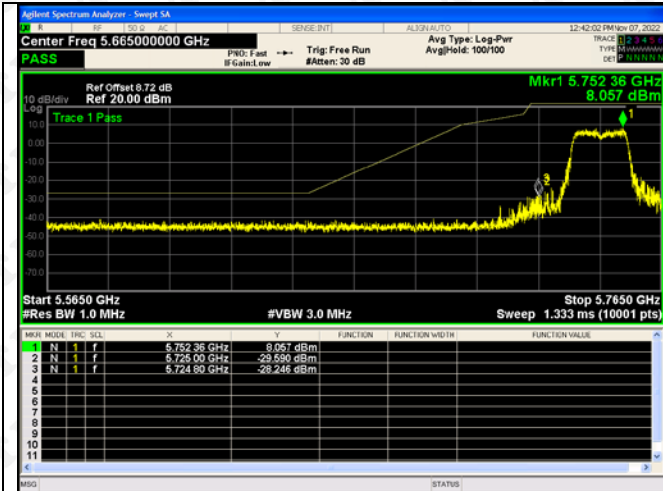


802.11ac(VH80)-5530

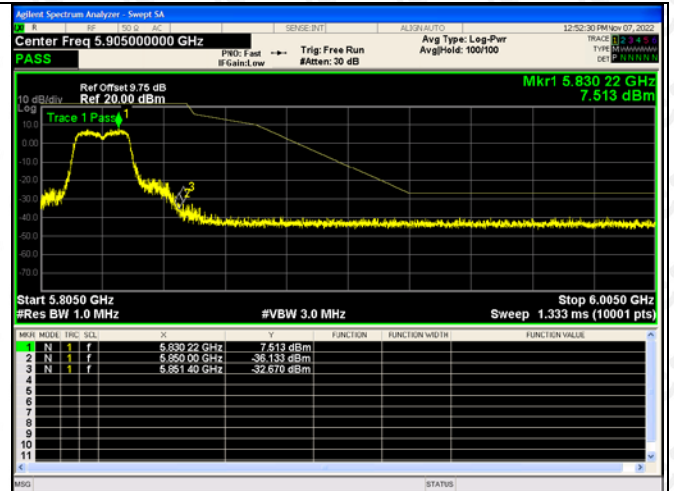


5745-5825MHz
ANT1

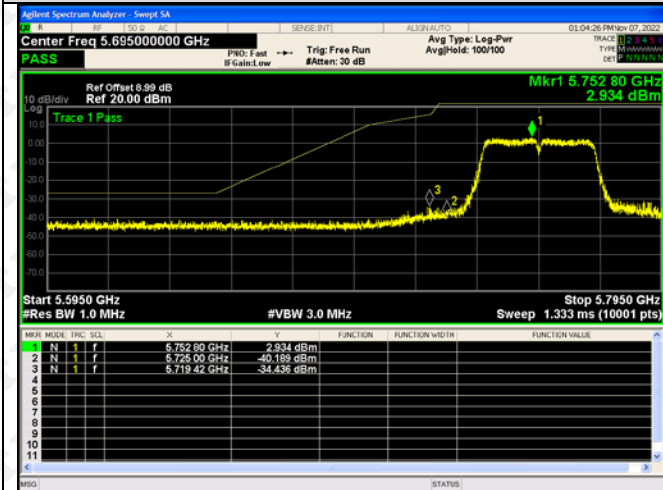




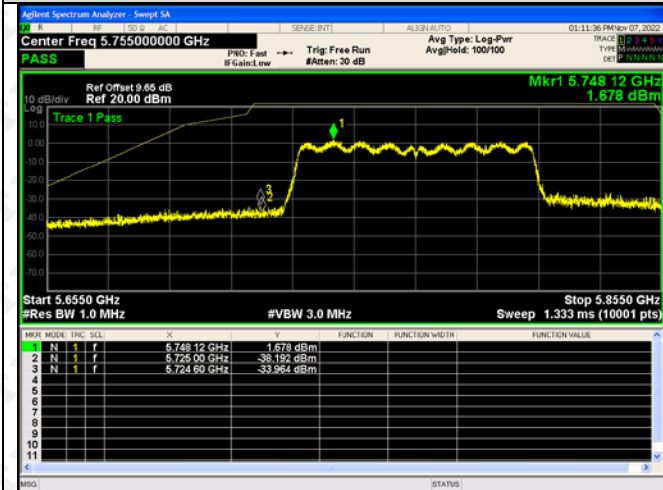
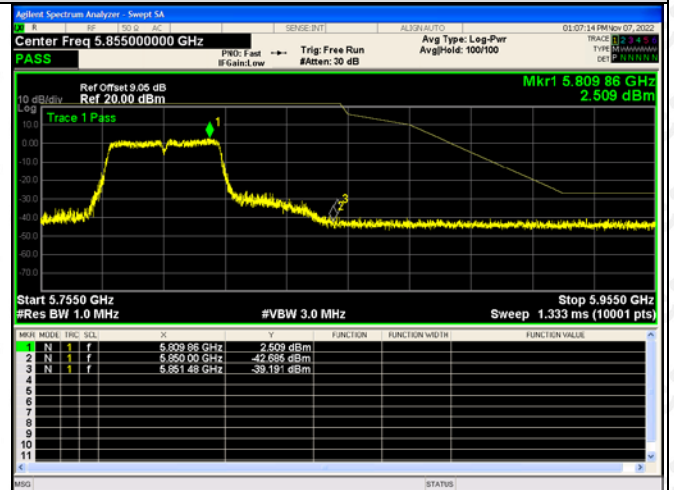
802.11ac(VH40)-5755



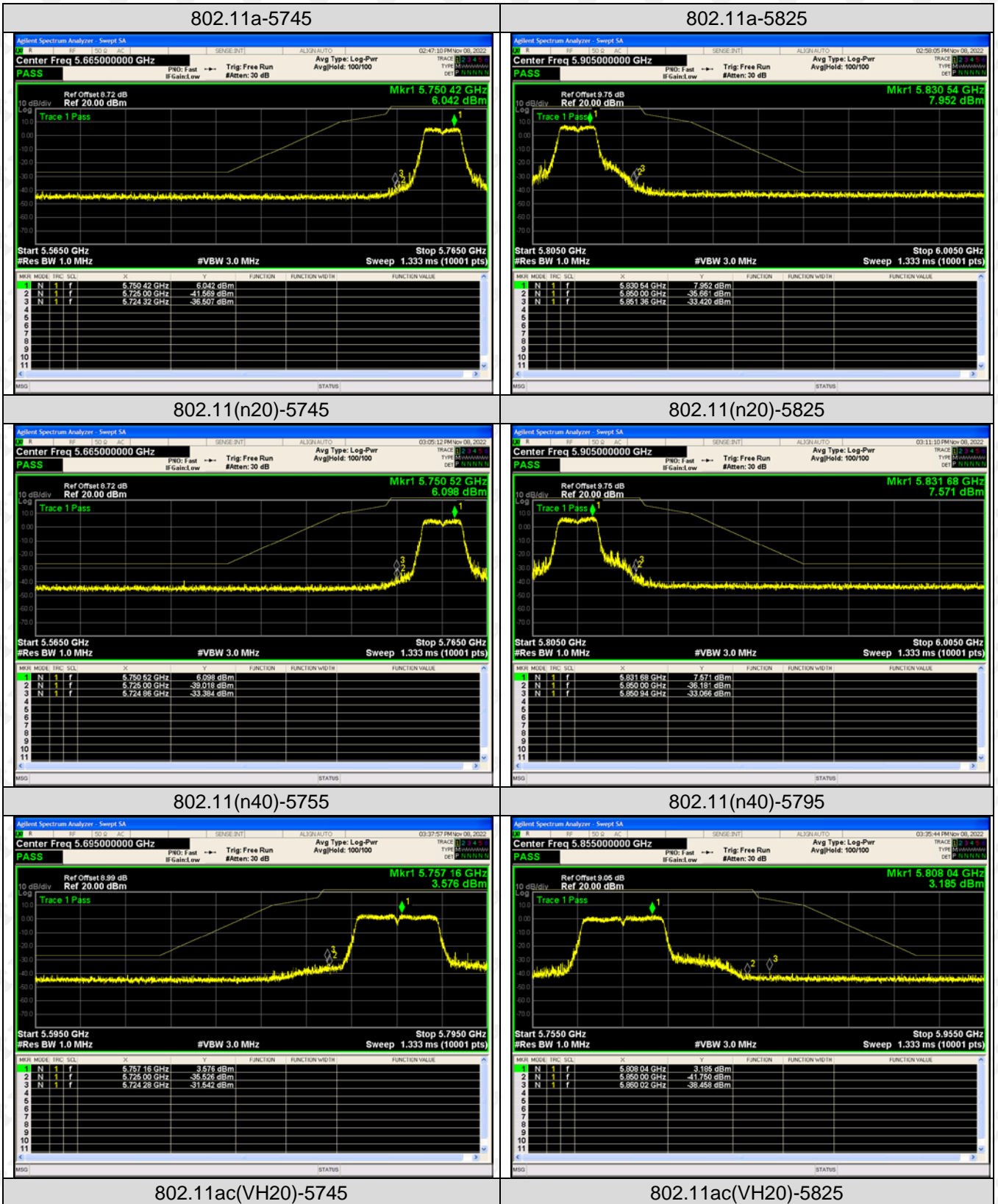
802.11ac(VH40)-5795

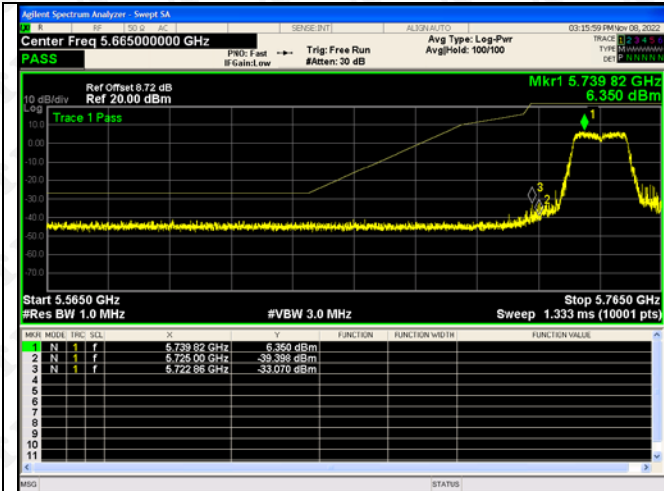


802.11ac(VH80)-5775



ANT2

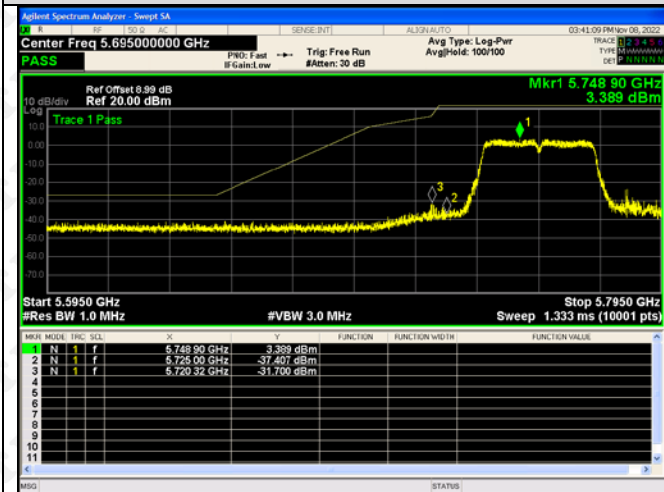




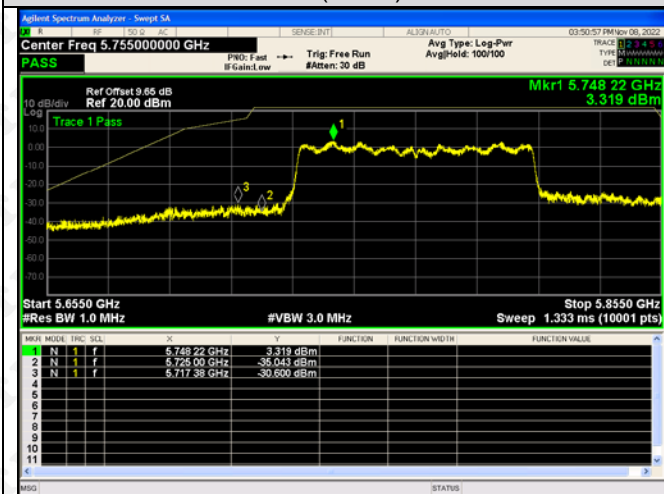
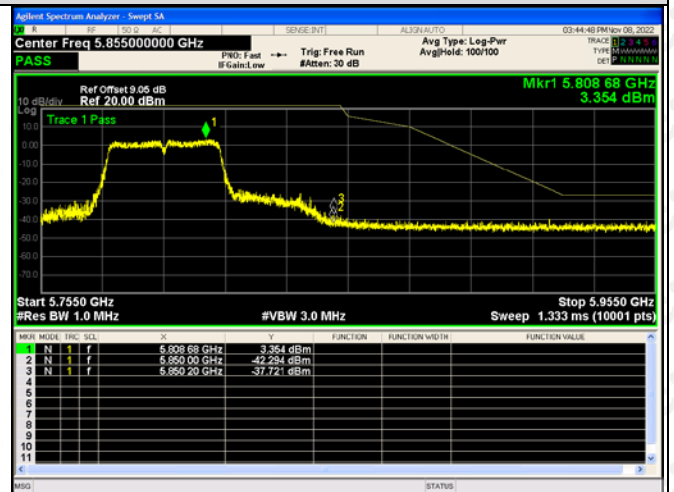
802.11ac(VH40)-5755



802.11ac(VH40)-5795

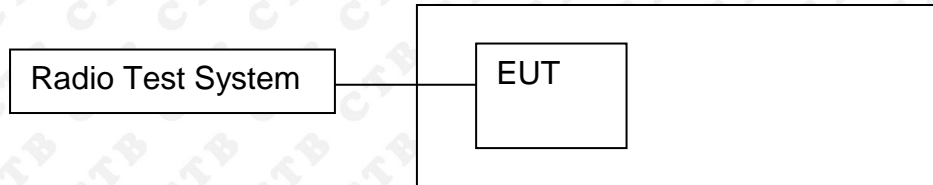


802.11ac(VH80)-5775



9. CONDUCTED PEAK OUTPUT POWER

9.1 Block Diagram Of Test Setup



9.2 Limit

(1) For the band 5.15-5.25 GHz.

(i) For an outdoor 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. In addition, the maximum power spectral density shall not exceed 17 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. The maximum e.i.r.p.

at any elevation angle above 30 degrees as measured from the horizon must not exceed 125 mW (21 dBm).

(ii) 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. In addition, the maximum power spectral density shall not exceed 17 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.

(iii) For fixed point-to-point access points 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. In addition, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band. Fixed point-to-point U-NII devices may employ antennas with directional gain up to 23 dBi without any corresponding reduction in the maximum conducted output power or maximum power spectral density. For fixed point-to-point transmitters that employ a directional antenna gain greater than 23 dBi, a 1 dB reduction in maximum conducted output power and maximum power spectral density is required for each 1 dB of antenna gain in excess of 23 dBi. 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.

(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.

(4) The maximum conducted output power must be measured over any interval of continuous transmission using instrumentation calibrated in terms of an rms-equivalent voltage.

(5) The maximum power spectral density is measured as a conducted emission by direct connection of a calibrated test instrument to the equipment under test. If the device cannot be connected directly, alternative techniques acceptable to the Commission may be used. Measurements in the 5.725-5.85 GHz band are made over a reference bandwidth of 500 kHz or the 26 dB emission bandwidth of the device, whichever is less. Measurements in the 5.15-5.25 GHz, 5.25-5.35 GHz, and the 5.47-5.725 GHz bands are made over a bandwidth of 1 MHz or the 26 dB emission bandwidth of the device, whichever is less. A narrower resolution bandwidth can be used, provided that the measured power is integrated over the full reference bandwidth.

(h) Transmit Power Control (TPC) and Dynamic Frequency Selection (DFS).

(1) Transmit power control (TPC). U-NII devices operating in the 5.25-5.35 GHz band and the 5.47-5.725 GHz band shall employ a TPC mechanism. The U-NII device is required to have the capability to operate at least 6 dB below the mean EIRP value of 30 dBm. A TPC mechanism is not required for systems with an e.i.r.p. of less than 500 mW.

9.3 Test procedure

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

(i) Set span to encompass the entire emission bandwidth (EBW) (or, alternatively, the entire 99% occupied bandwidth) of the signal.

(ii) Set RBW = 1 MHz.

(iii) Set VBW \geq 3 MHz.

(iv) Number of points in sweep $\geq 2 \times \text{span} / \text{RBW}$. (This ensures that bin-to-bin spacing is $\leq \text{RBW}/2$, so that narrowband signals are not lost between frequency bins.)

(v) Sweep time = auto.

(vi) Detector = power averaging (rms), if available. Otherwise, use sample detector mode.

(vii) If transmit duty cycle $< 98\%$, use a video trigger with the trigger level set to enable triggering only on full power pulses. Transmitter must operate at maximum power control level for the entire duration of every sweep. If the EUT transmits continuously (i.e., with no off intervals) or at duty cycle $\geq 98\%$, and if each transmission is entirely at the maximum power control level, then the trigger shall be set to "free run."

(viii) Trace average at least 100 traces in power averaging (rms) mode.

(ix) Compute power by integrating the spectrum across the EBW (or, alternatively, the entire 99% occupied bandwidth) of the signal using the instrument's band power measurement function with band limits set equal to the EBW (or occupied bandwidth) band edges. If the instrument does not have a band power function, sum the spectrum levels (in power units) at 1 MHz intervals extending across the EBW (or, alternatively, the entire 99% occupied bandwidth) of the spectrum.

9.4 Test Result

5180-5240MHz:

Test mode1	Test Channel (MHz)	Output Power dBm ANT1	Output Power dBm ANT2	Output Power dBm Total	Limit dBm
802.11a	5180	14.48	14.108	/	23.98
	5200	14.231	14.317	/	23.98
	5240	14.292	14.886	/	23.98
802.11ac20	5180	14.763	14.302	17.549	23.98
	5200	14.542	14.368	17.466	23.98
	5240	14.251	14.777	17.532	23.98
802.11ac40	5190	13.88	13.477	16.693	23.98
	5230	13.258	13.725	16.508	23.98
802.11ac80	5210	12.28	12.516	15.410	23.98
802.11n(HT20)	5180	14.082	14.068	17.085	23.98
	5200	14.639	14.274	17.471	23.98
	5240	14.533	14.602	17.578	23.98
802.11n(HT40)	5190	13.138	13.472	17.549	23.98
	5230	13.409	13.353	17.466	23.98

5260-5320MHz:

Test mode1	Test Channel (MHz)	Output Power dBm ANT1	Output Power dBm ANT2	Output Power dBm Total	Limit dBm
802.11a	5260	14.479	14.728	/	23.98
	5280	14.713	14.715	/	23.98
	5320	14.222	14.485	/	23.98
802.11ac20	5260	14.723	14.423	17.586	23.98
	5280	14.87	14.185	17.551	23.98
	5320	14.333	14.515	17.435	23.98
802.11ac40	5270	13.459	13.567	16.524	23.98
	5310	13.576	13.491	16.544	23.98
802.11ac80	5290	12.041	12.527	15.301	23.98
802.11n(HT20)	5260	14.538	14.446	17.503	23.98
	5280	14.781	14.873	17.838	23.98
	5320	14.481	14.462	17.482	23.98
802.11n(HT40)	5270	13.222	13.544	17.586	23.98
	5310	13.496	13.341	17.551	23.98

5500-5720MHz

Test mode1	Test Channel (MHz)	Output Power dBm ANT1	Output Power dBm ANT2	Output Power dBm Total	Limit dBm
802.11a	5500	14.465	14.444	/	23.98
	5580	14.13	14.208	/	23.98
	5700	14.235	14.018	/	23.98
802.11ac20	5500	14.12	14.483	17.316	23.98
	5580	14.533	14.02	17.294	23.98
	5700	13.969	13.744	16.868	23.98
802.11ac40	5510	13.742	13.6	16.682	23.98
	5670	13.68	13.119	16.419	23.98
802.11ac80	5530	11.574	12.217	14.918	23.98
802.11n(HT20)	5500	14.296	14.557	17.439	23.98
	5580	14.047	14.13	17.099	23.98
	5700	14.023	14.077	17.060	23.98
802.11n(HT40)	5510	13.202	13.095	17.316	23.98
	5670	13.278	13.775	17.294	23.98

5745-5825MHz

Test mode1	Test Channel (MHz)	Output Power dBm ANT1	Output Power dBm ANT2	Output Power dBm Total	Limit dBm
802.11a	5745	14.242	14.031	/	30
	5785	14.059	14.113	/	30
	5825	14.782	14.607	/	30
802.11ac20	5745	14.539	14.323	17.443	30
	5785	14.597	14.462	17.540	30
	5825	14.305	14.828	17.585	30
802.11ac40	5755	13.59	13.44	16.526	30
	5795	13.412	13.704	16.571	30
802.11ac80	5745	12.787	12.248	15.536	30
802.11n(HT20)	5785	14.072	14.424	17.262	30
	5825	13.603	14.086	16.862	30
	5755	14.737	14.816	17.787	30
802.11n(HT40)	5795	13.622	13.563	17.443	30
	5775	13.425	13.495	17.540	30

ANT1:

Duty cycle:

5180-5240MHz

Test mode1	Test Channel (MHz)	On time(ms)	Period (ms)	Duty Cycie(%)
802.11a	5180	100	100	100
	5200	100	100	100
	5240	100	100	100
802.11ac20	5180	100	100	100
	5200	100	100	100
	5240	100	100	100
802.11ac40	5190	100	100	100
	5230	100	100	100
802.11ac80	5210	100	100	100
802.11n(HT20)	5180	100	100	100
	5200	100	100	100
	5240	100	100	100
802.11n(HT40)	5190	100	100	100
	5230	100	100	100

5260-5320MHz

Test mode1	Test Channel (MHz)	On time(ms)	Period (ms)	Duty Cycie(%)
802.11a	5260	100	100	100
	5280	100	100	100
	5320	100	100	100
802.11ac20	5260	100	100	100
	5280	100	100	100
	5320	100	100	100
802.11ac40	5270	100	100	100
	5310	100	100	100
802.11ac80	5290	100	100	100
802.11n(HT20)	5260	100	100	100
	5280	100	100	100
	5320	100	100	100
802.11n(HT40)	5270	100	100	100
	5310	100	100	100

5500-5700MHz

Test mode1	Test Channel (MHz)	On time(ms)	Period (ms)	Duty Cycie(%)
802.11a	5500	100	100	100
	5580	100	100	100
	5700	100	100	100
802.11ac20	5500	100	100	100
	5580	100	100	100
	5700	100	100	100
802.11ac40	5510	100	100	100
	5670	100	100	100
802.11ac80	5530	100	100	100
802.11n(HT20)	5500	100	100	100
	5580	100	100	100
	5700	100	100	100
802.11n(HT40)	5510	100	100	100
	5670	100	100	100

5745-5825MHz

Test mode1	Test Channel (MHz)	On time(ms)	Period (ms)	Duty Cycie(%)
802.11a	5745	100	100	100
	5785	100	100	100
	5825	100	100	100
802.11ac20	5745	100	100	100
	5785	100	100	100
	5825	100	100	100
802.11ac40	5755	100	100	100
	5795	100	100	100
802.11ac80	5775	100	100	100
802.11n(HT20)	5745	100	100	100
	5785	100	100	100
	5825	100	100	100
802.11n(HT40)	5755	100	100	100
	5795	100	100	100

ANT2:

Duty cycle:

5180-5240MHz

Test mode1	Test Channel (MHz)	On time(ms)	Period (ms)	Duty Cycie(%)
802.11a	5180	100	100	100
	5200	100	100	100
	5240	100	100	100
802.11ac20	5180	100	100	100
	5200	100	100	100
	5240	100	100	100
802.11ac40	5190	100	100	100
	5230	100	100	100
802.11ac80	5210	100	100	100
802.11n(HT20)	5180	100	100	100
	5200	100	100	100
	5240	100	100	100
802.11n(HT40)	5190	100	100	100
	5230	100	100	100

5260-5320MHz

Test mode1	Test Channel (MHz)	On time(ms)	Period (ms)	Duty Cycie(%)
802.11a	5260	100	100	100
	5280	100	100	100
	5320	100	100	100
802.11ac20	5260	100	100	100
	5280	100	100	100
	5320	100	100	100
802.11ac40	5270	100	100	100
	5310	100	100	100
802.11ac80	5290	100	100	100
802.11n(HT20)	5260	100	100	100
	5280	100	100	100
	5320	100	100	100
802.11n(HT40)	5270	100	100	100
	5310	100	100	100

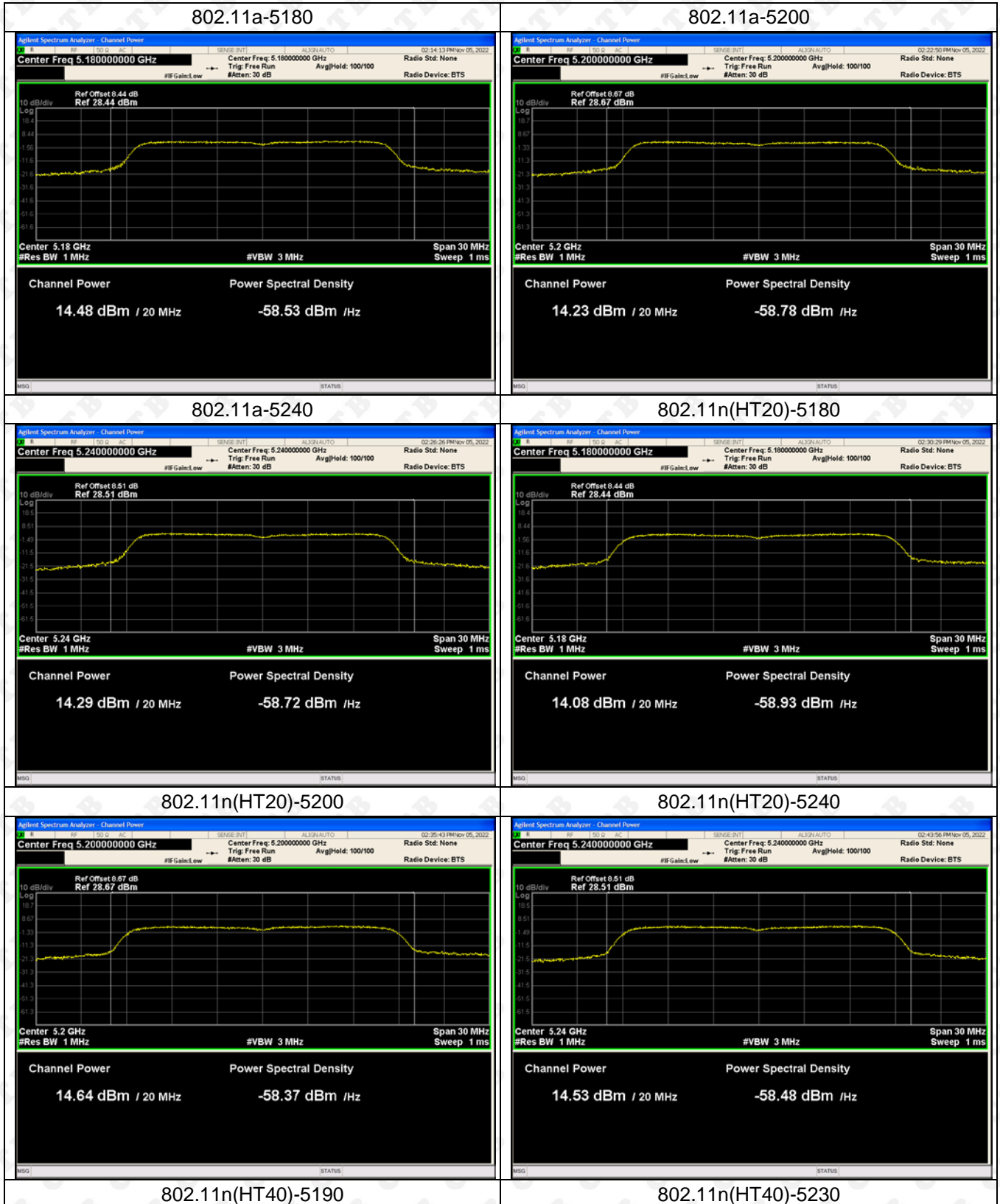
5500-5700MHz

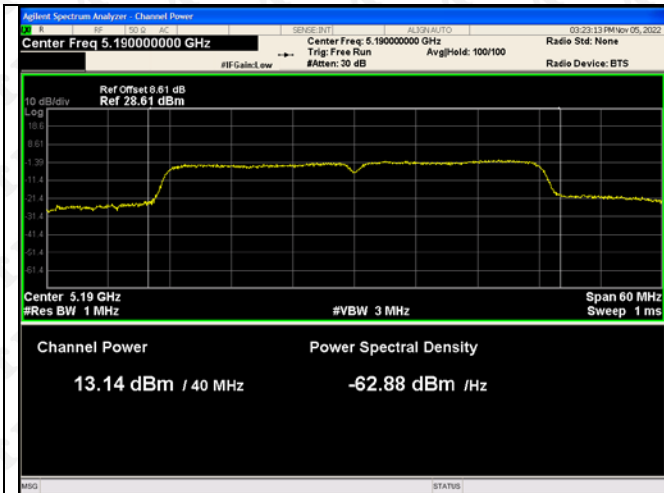
Test mode1	Test Channel (MHz)	On time(ms)	Period (ms)	Duty Cycie(%)
802.11a	5500	100	100	100
	5580	100	100	100
	5700	100	100	100
802.11ac20	5500	100	100	100
	5580	100	100	100
	5700	100	100	100
802.11ac40	5510	100	100	100
	5670	100	100	100
802.11ac80	5530	100	100	100
802.11n(HT20)	5500	100	100	100
	5580	100	100	100
	5700	100	100	100
802.11n(HT40)	5510	100	100	100
	5670	100	100	100

5745-5825MHz

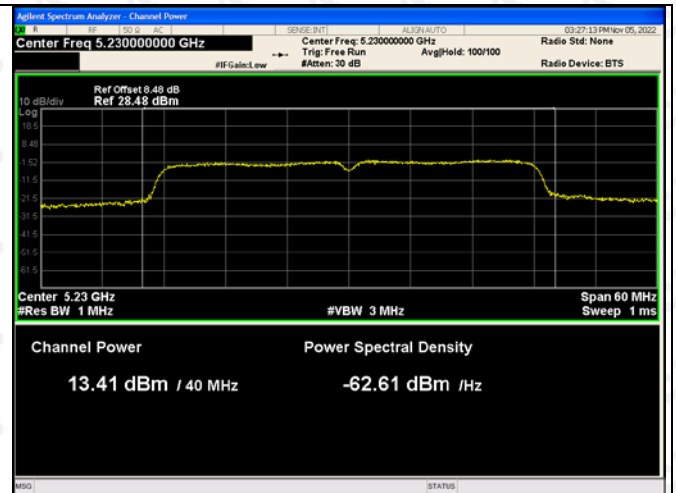
Test mode1	Test Channel (MHz)	On time(ms)	Period (ms)	Duty Cycie(%)
802.11a	5745	100	100	100
	5785	100	100	100
	5825	100	100	100
802.11ac20	5745	100	100	100
	5785	100	100	100
	5825	100	100	100
802.11ac40	5755	100	100	100
	5795	100	100	100
802.11ac80	5775	100	100	100
802.11n(HT20)	5745	100	100	100
	5785	100	100	100
	5825	100	100	100
802.11n(HT40)	5755	100	100	100
	5795	100	100	100

5180-5240MHz-Power
ANT1

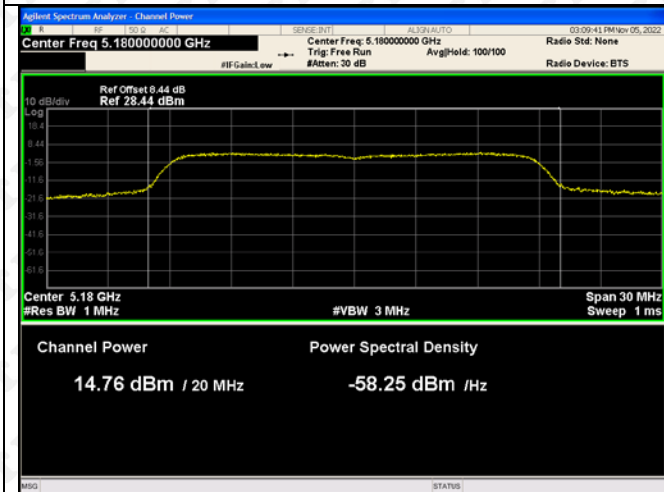




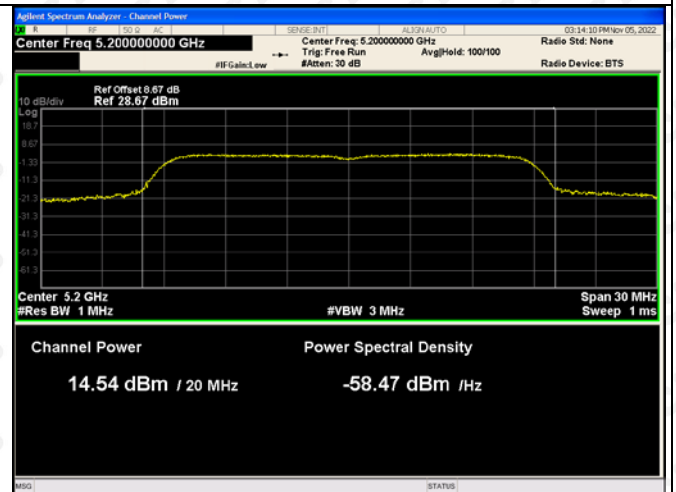
802.11ac(VH20)-5180



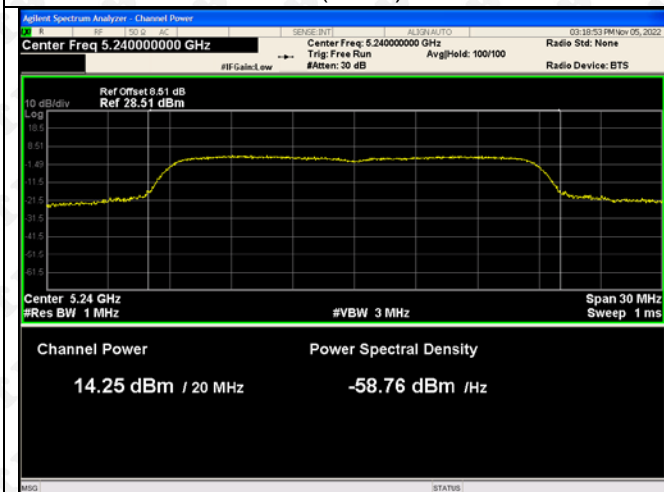
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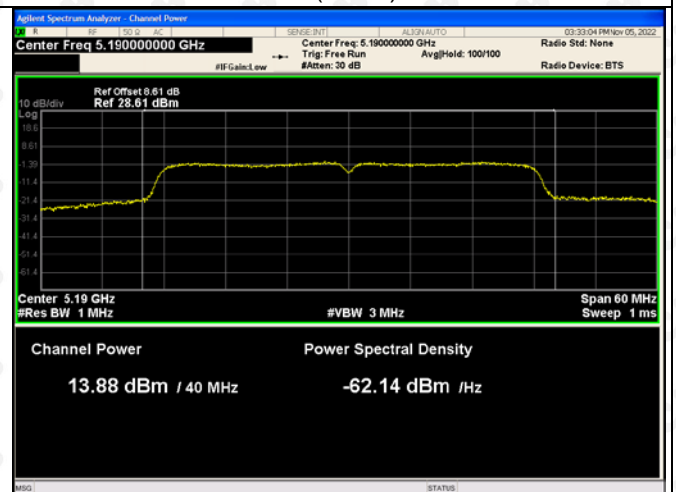
802.11ac(VH20)-5240



802.11ac(VH40)-5190



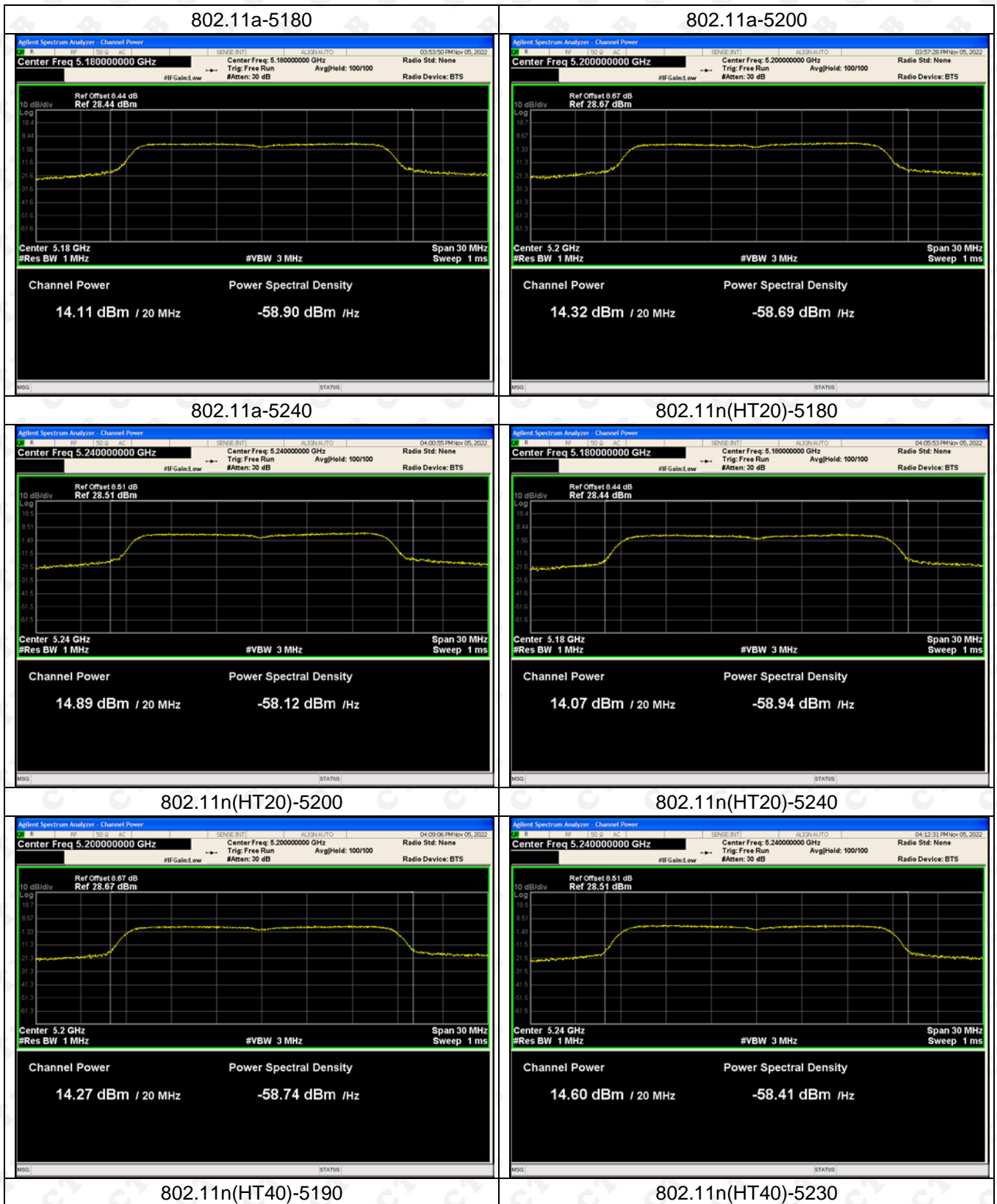
802.11ac(VH40)-5230

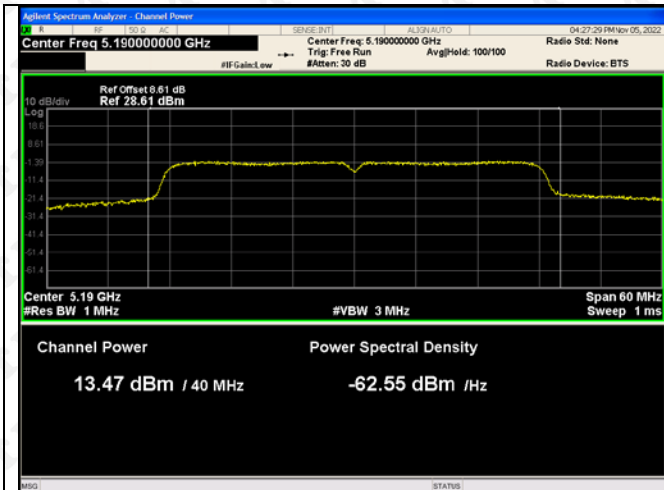


802.11ac(VH80)-5230

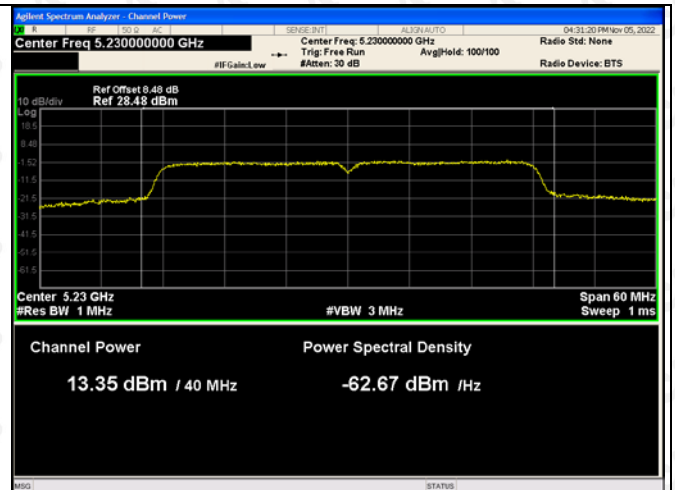


ANT2

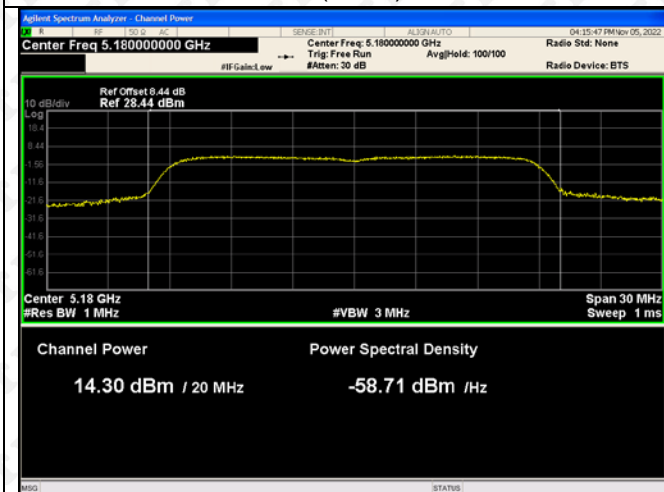




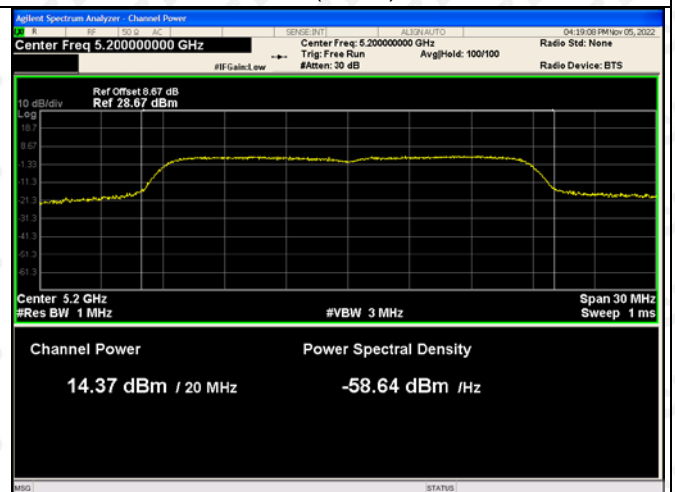
802.11ac(VH20)-5180



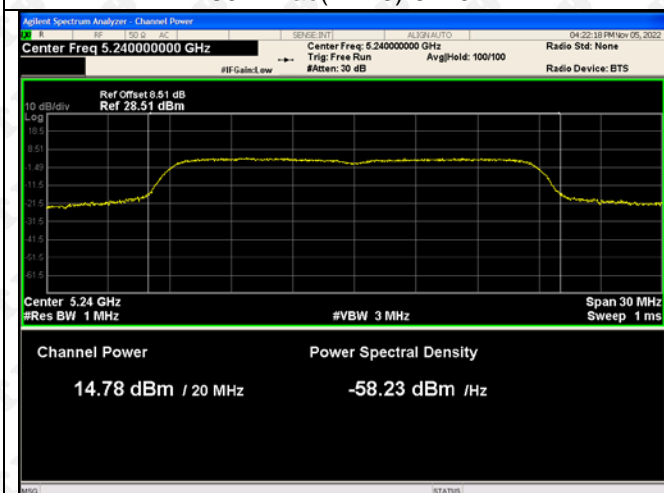
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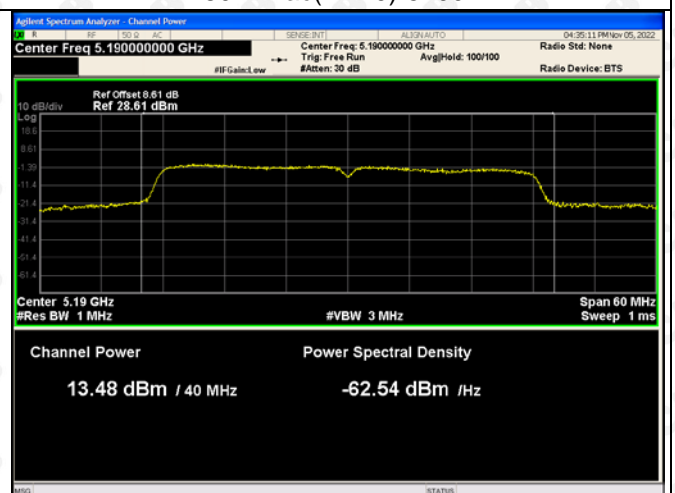
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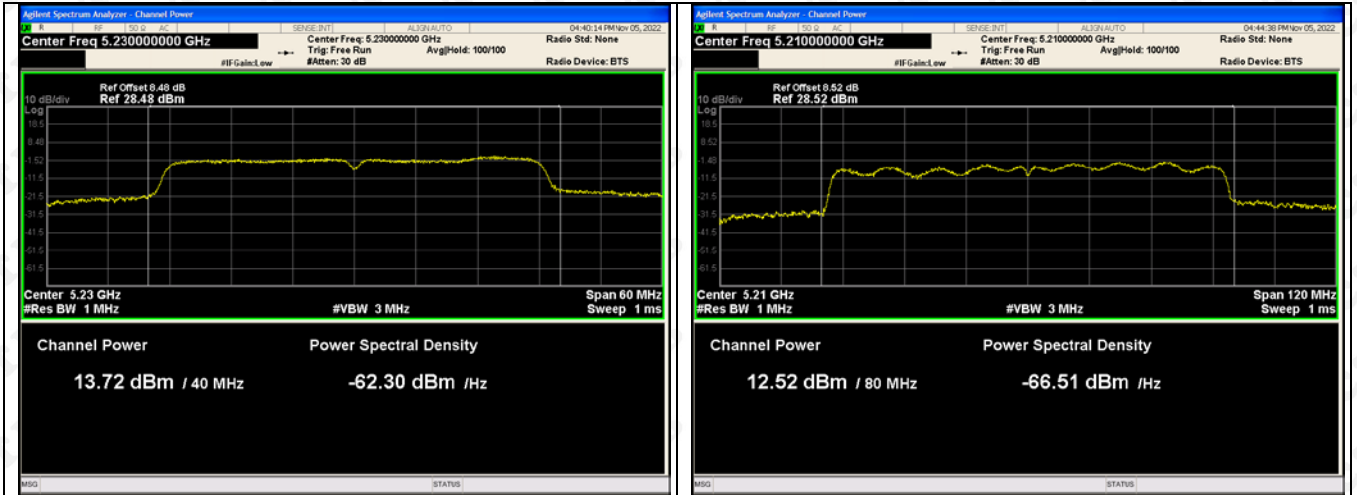
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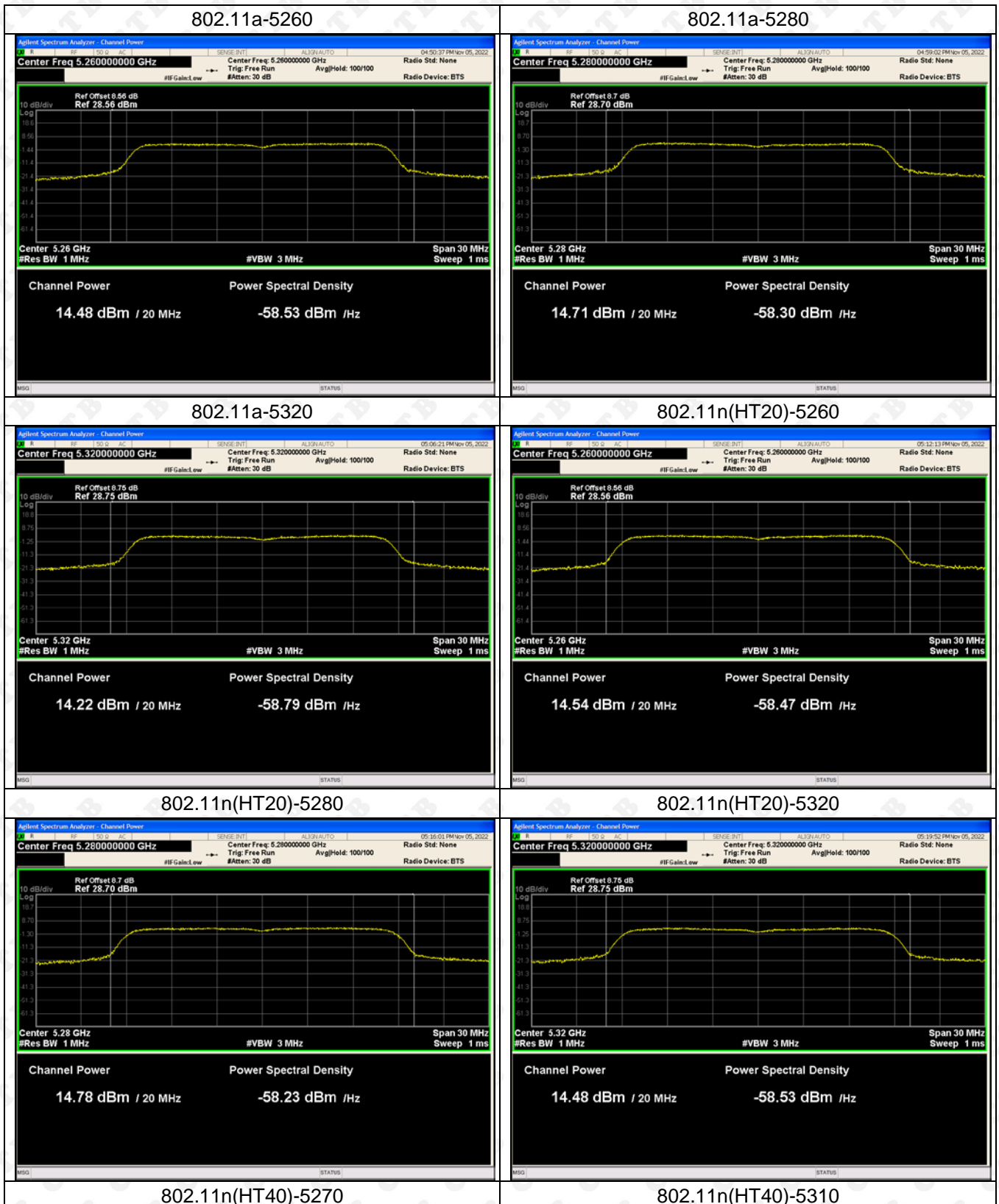
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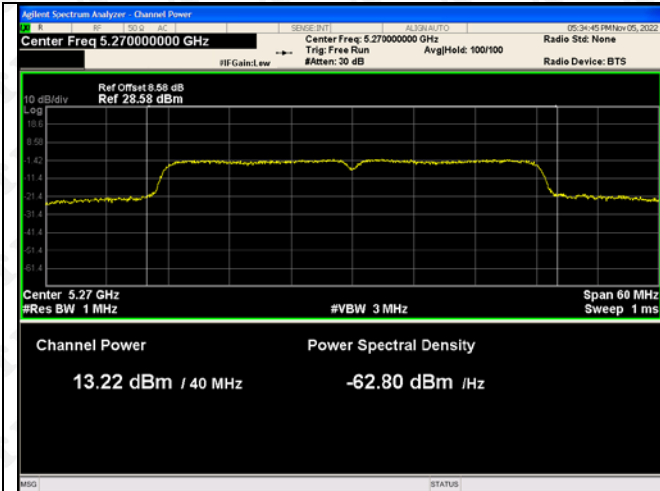


802.11ac(VH80)-5230

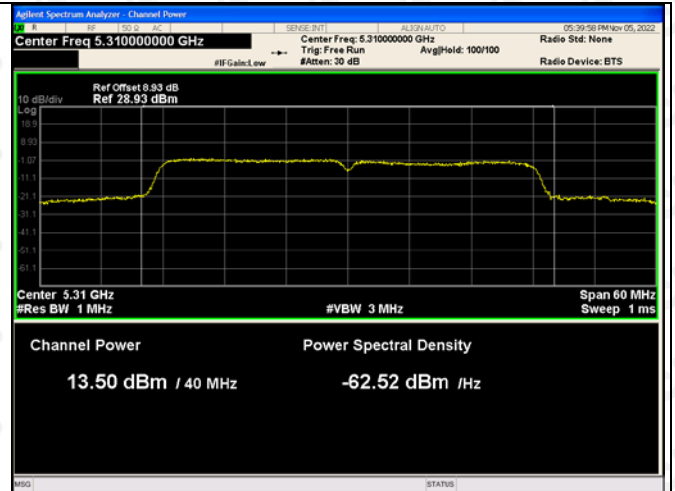


5260-5320MHz-Power
ANT1

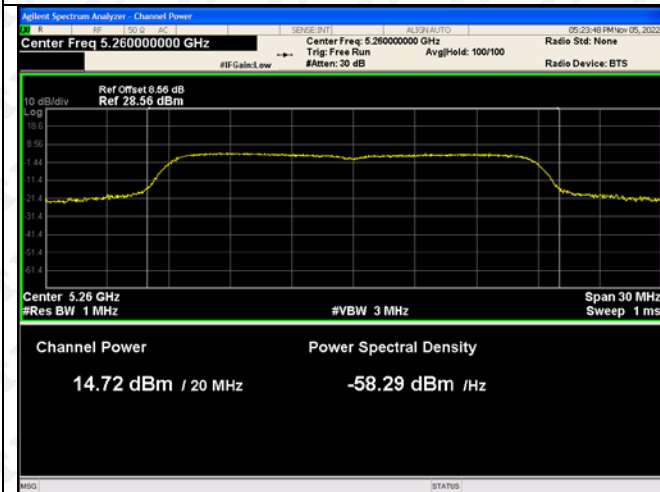




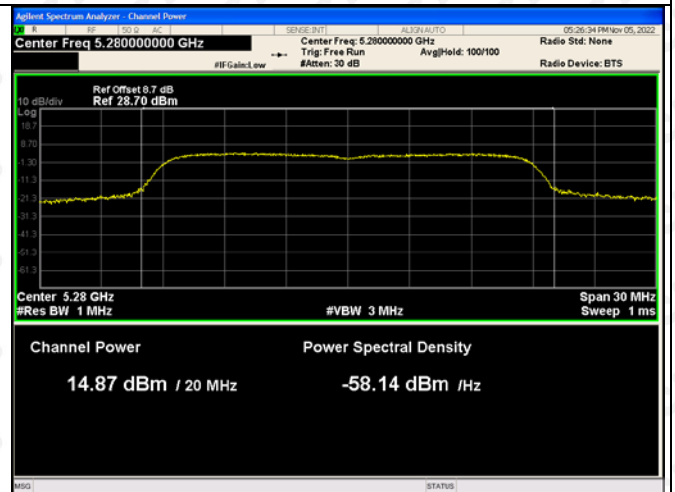
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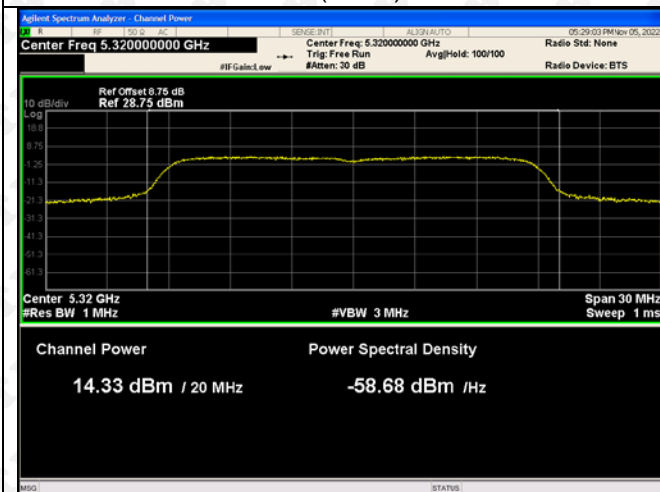
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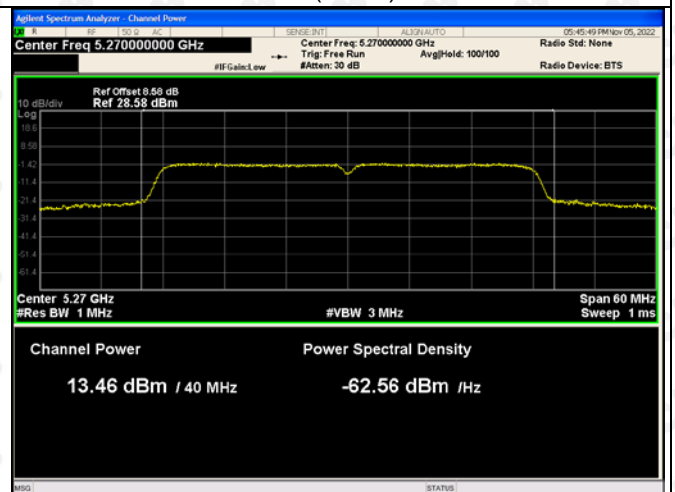
802.11ac(VH20)-5320



802.11ac(VH40)-5270



802.11ac(VH40)-5310



802.11ac(VH80)-5290

