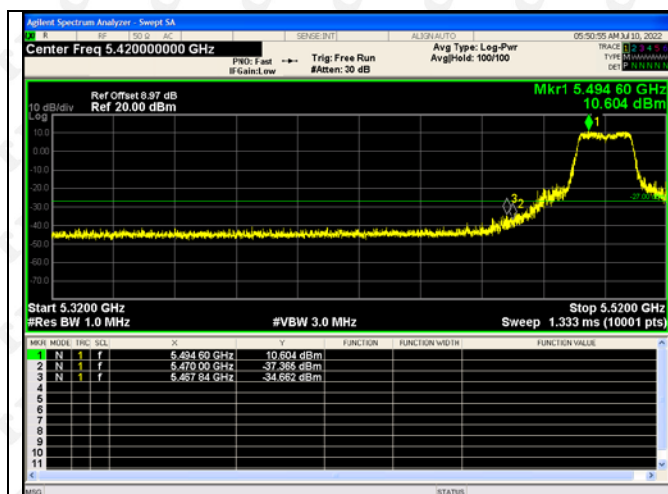
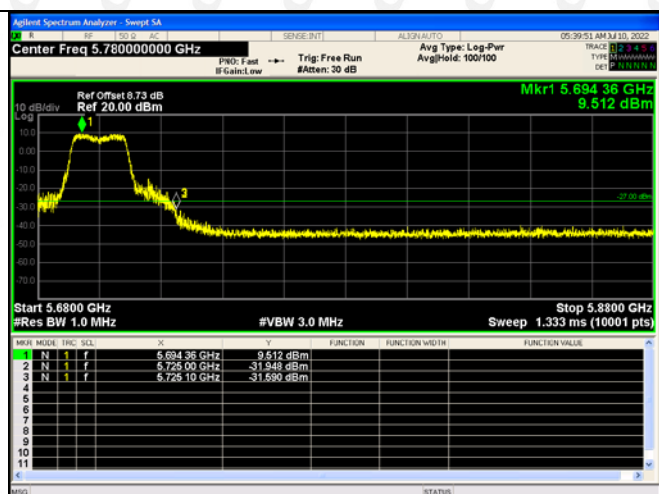
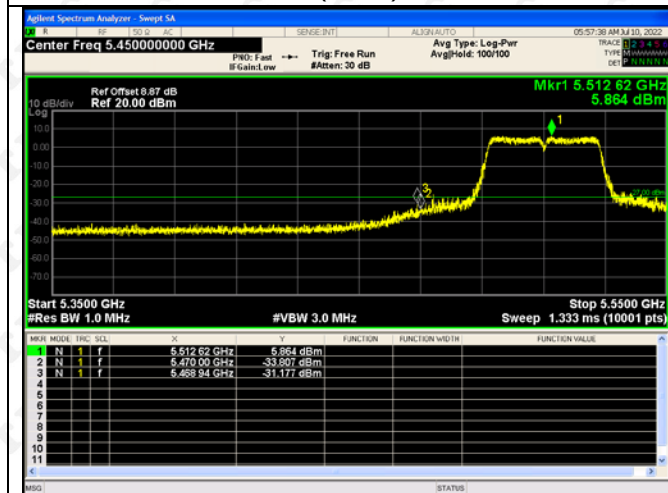




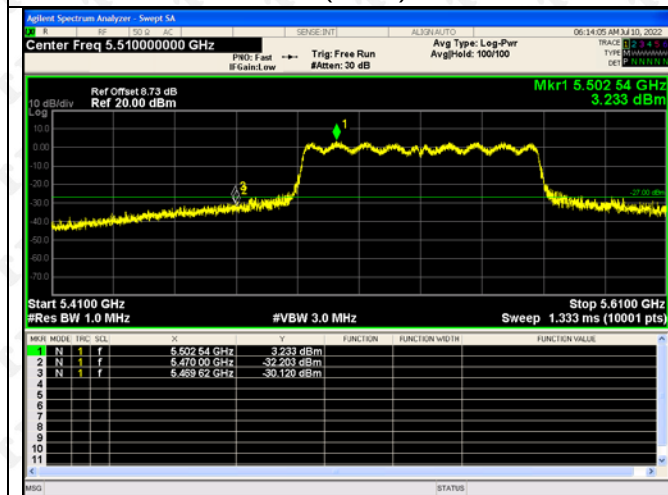
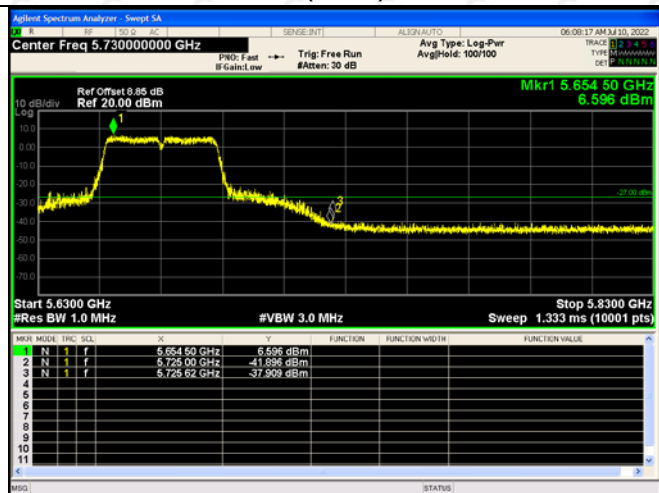
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802.11n(HT40)-5670

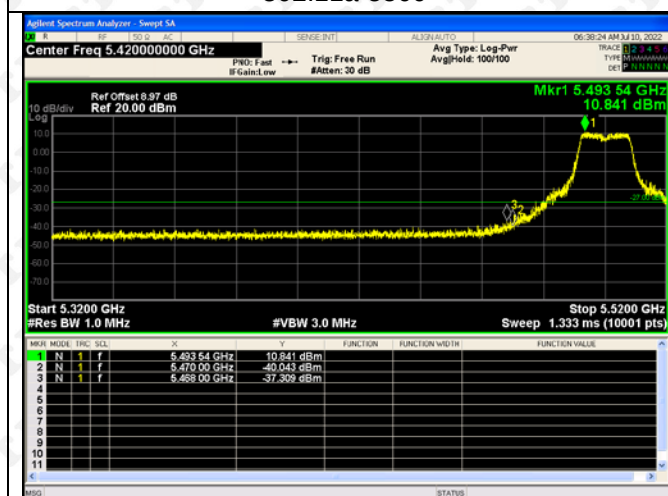


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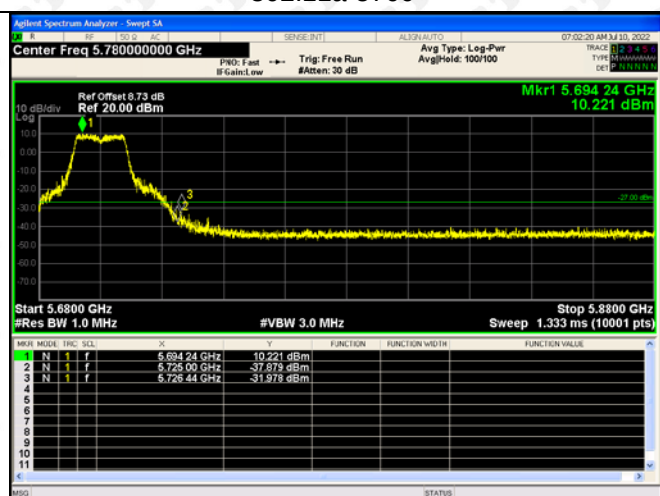


ANT4

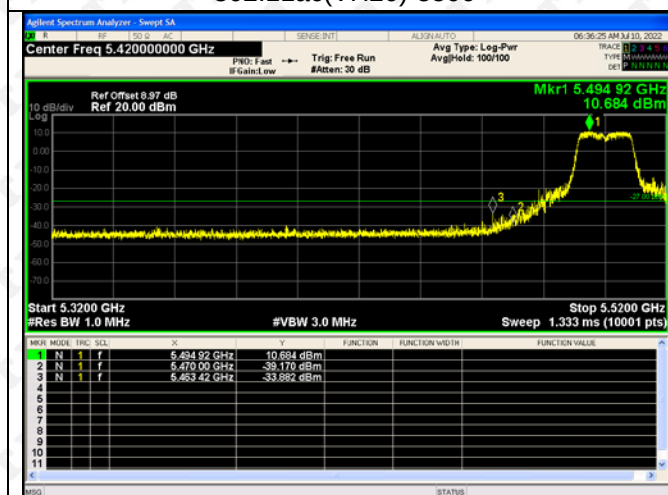
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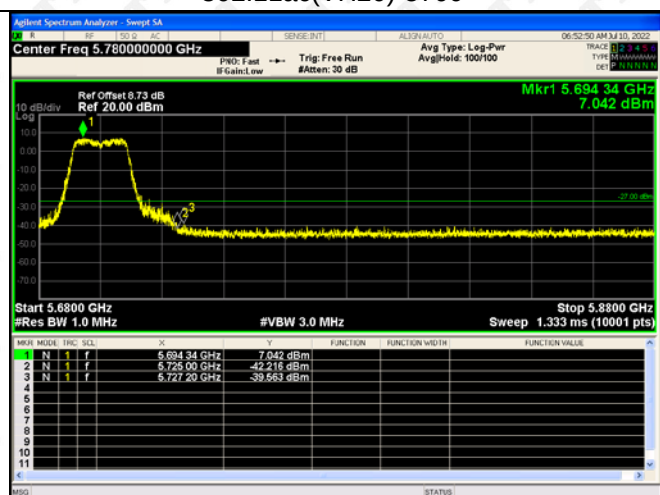
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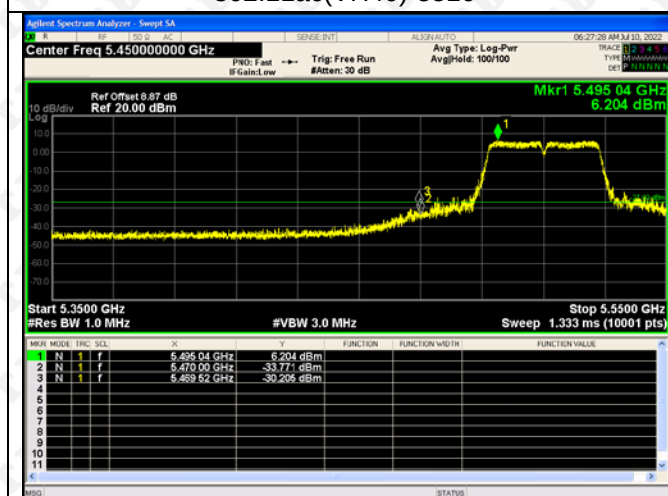
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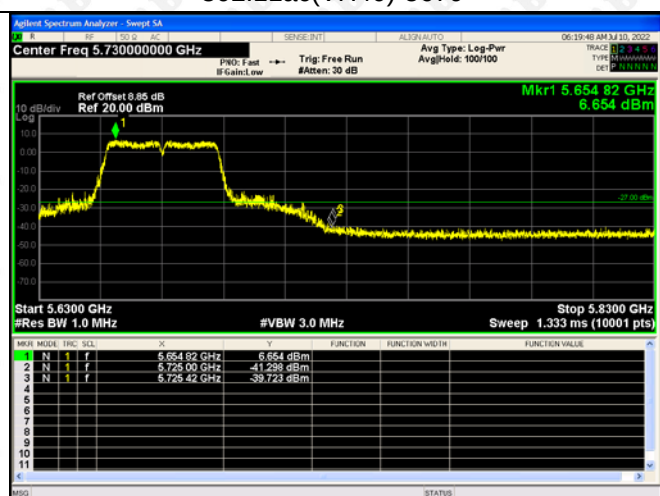
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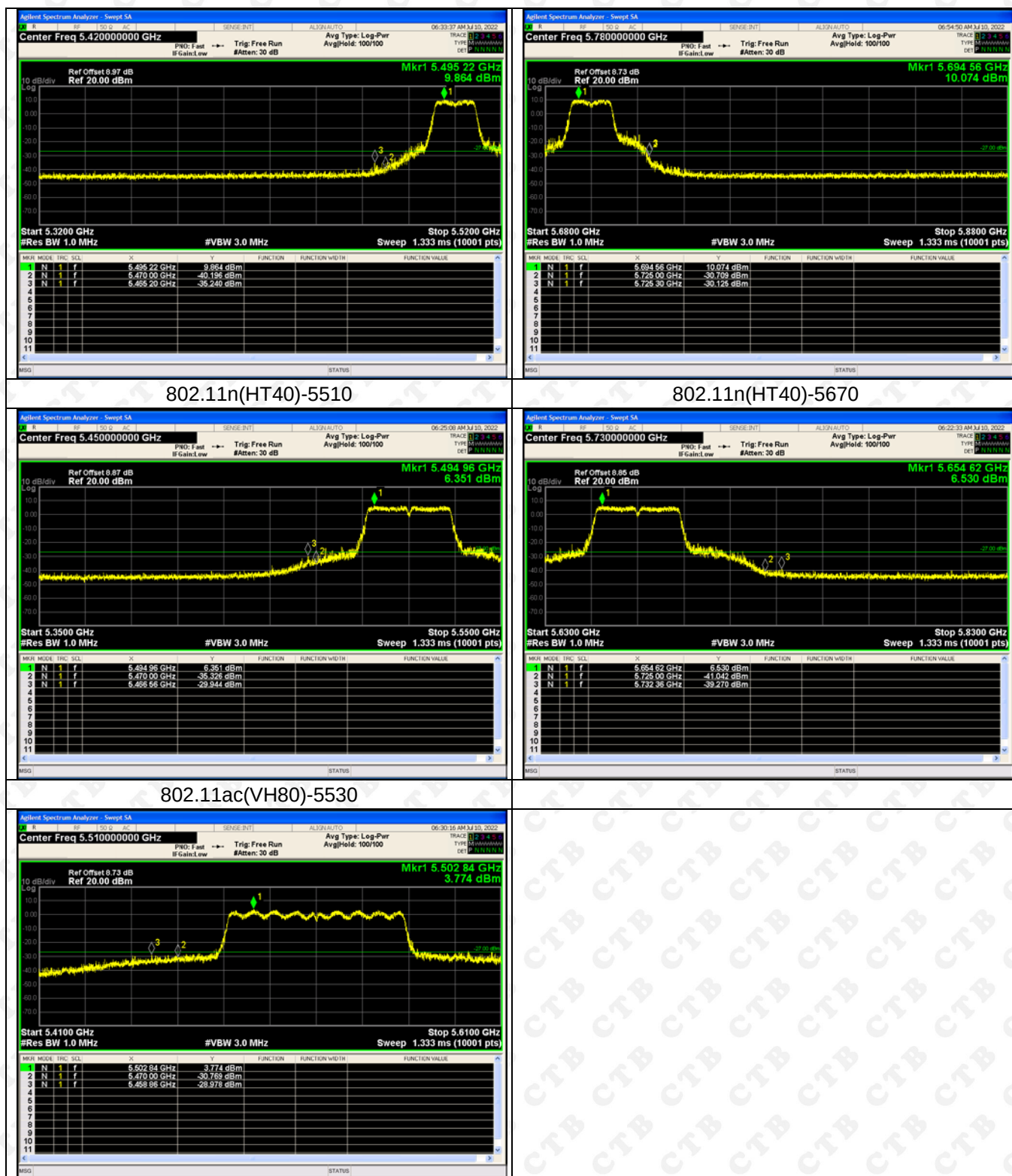


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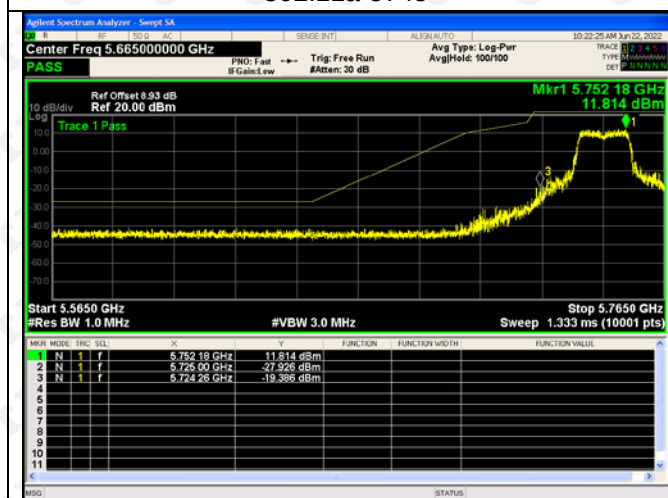
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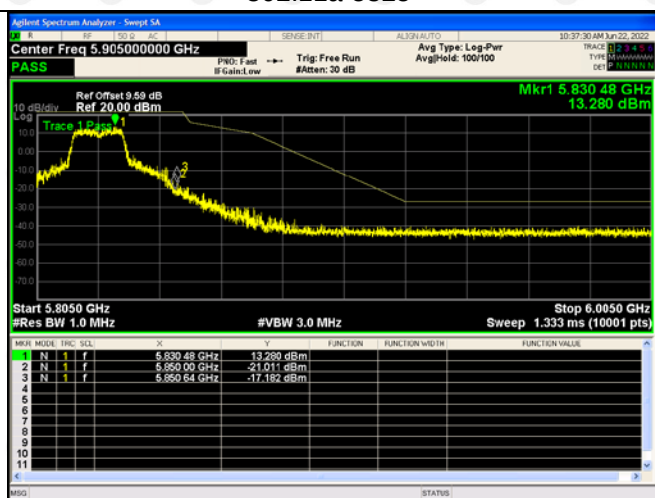


5725-5850MHz
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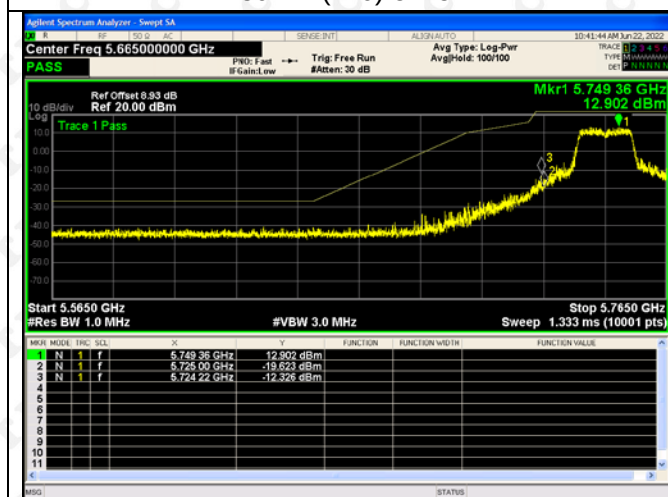
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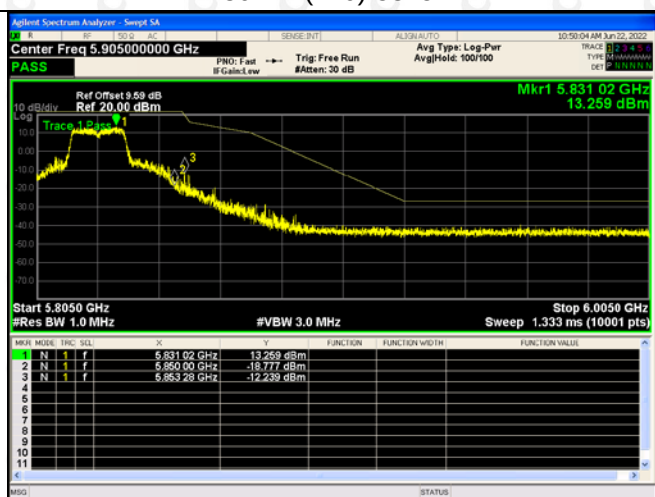
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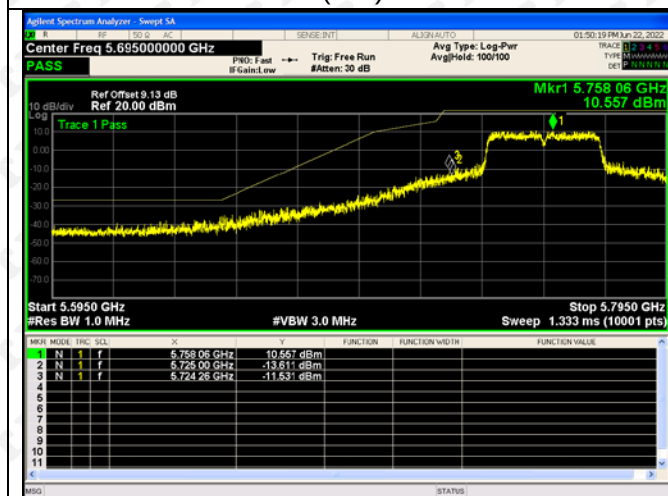
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802.11(n20)-5825



802.11(n40)-5755



802.11(n40)-5795

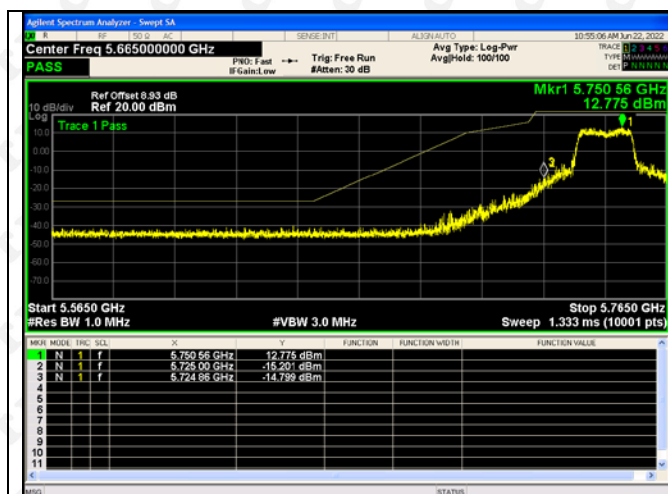


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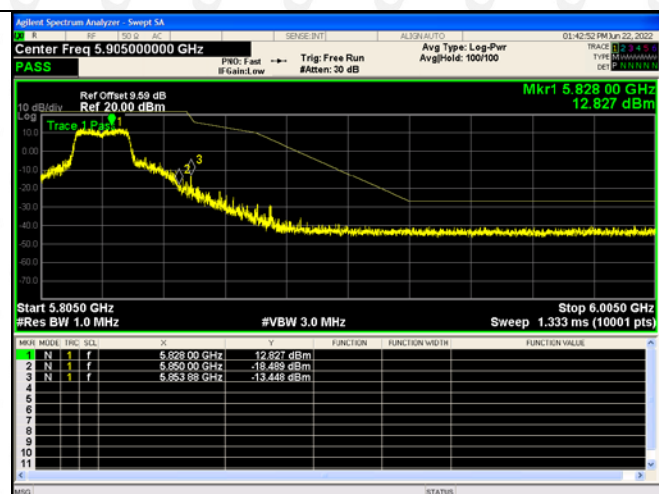


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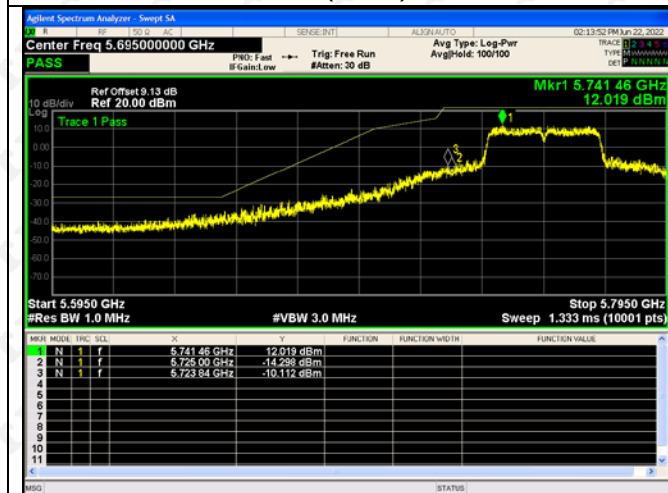




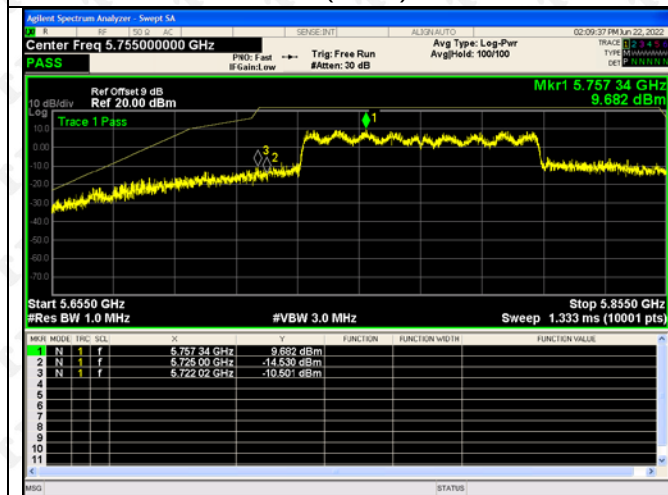
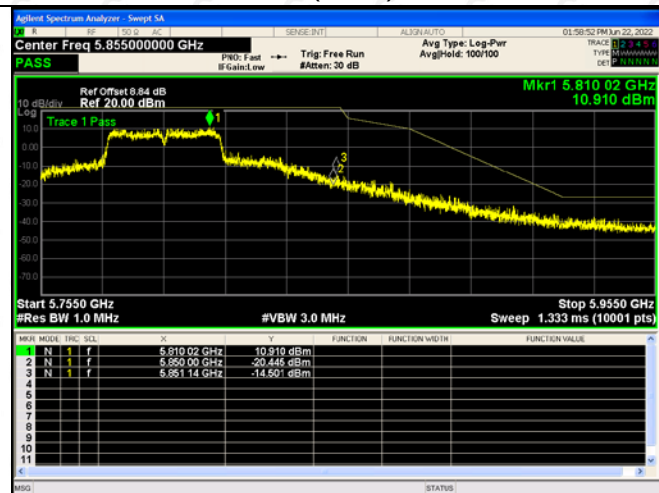
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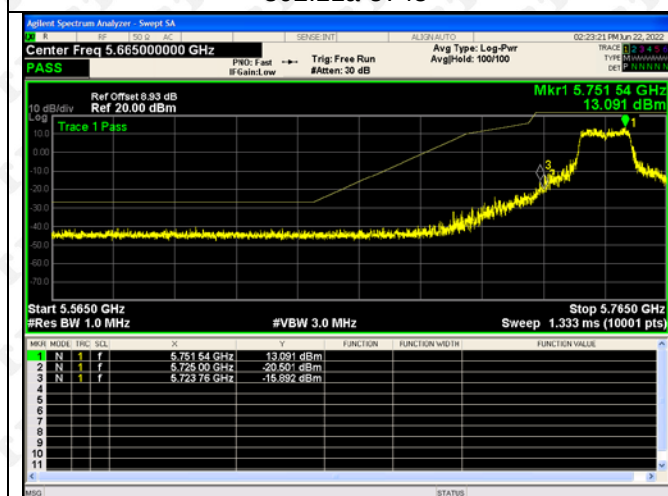


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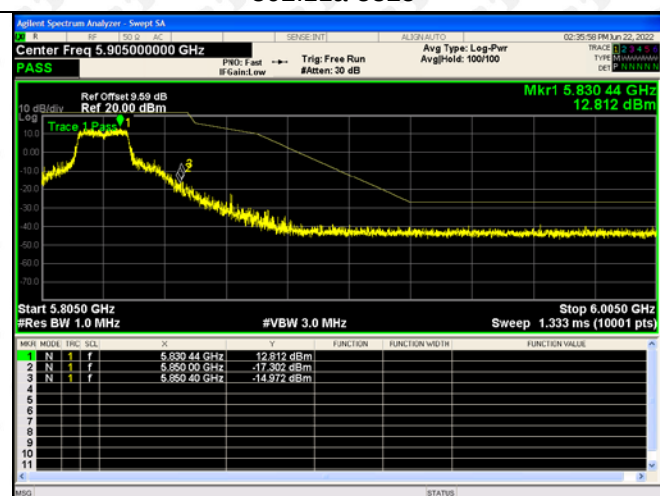


ANT2

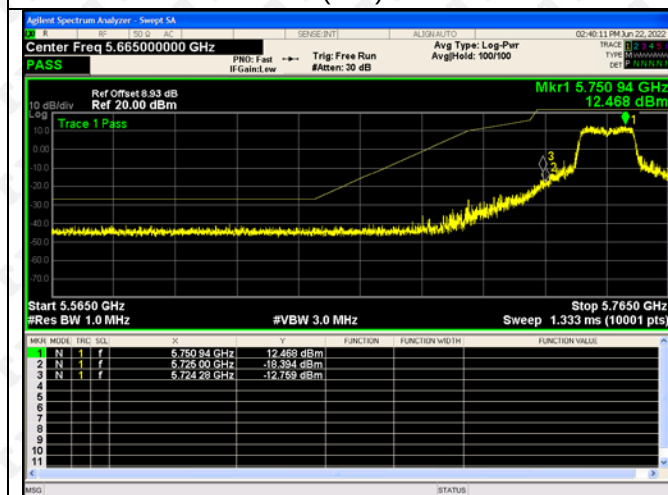
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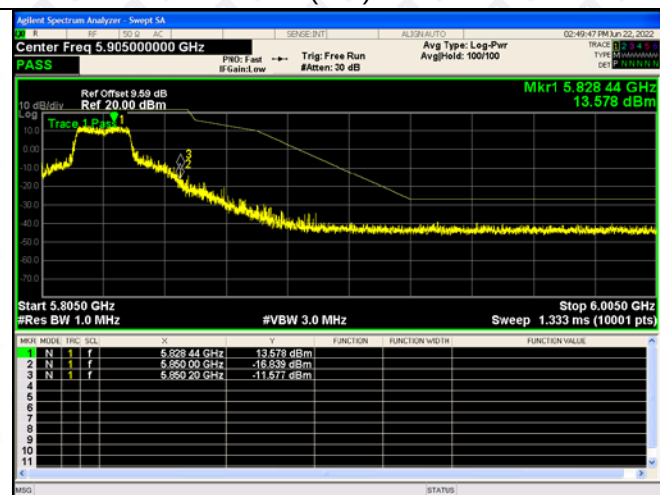
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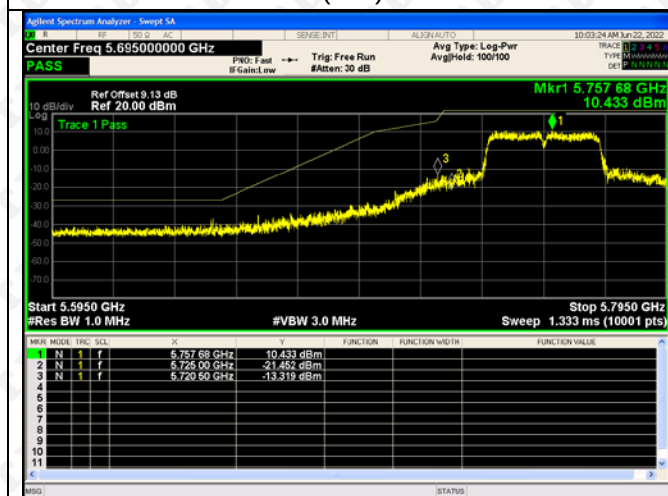
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802.11(n20)-5825



802.11(n40)-5755

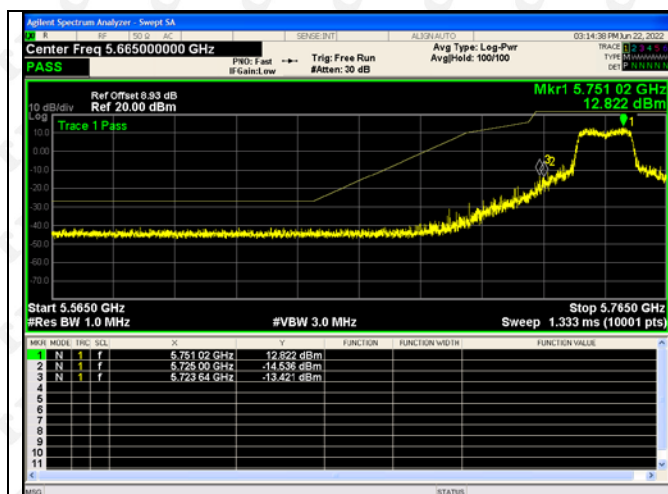


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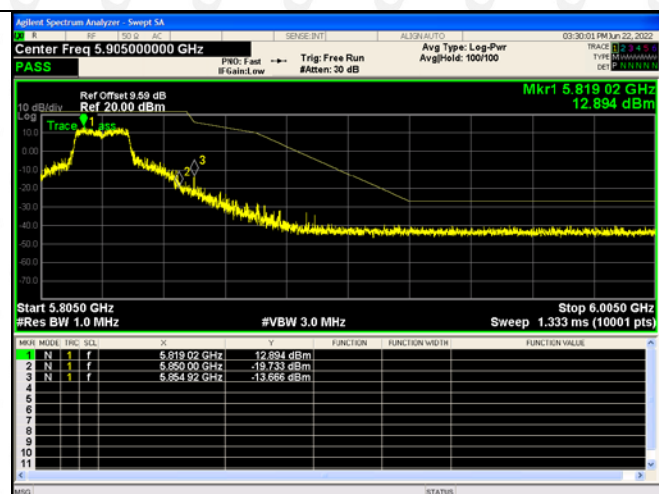


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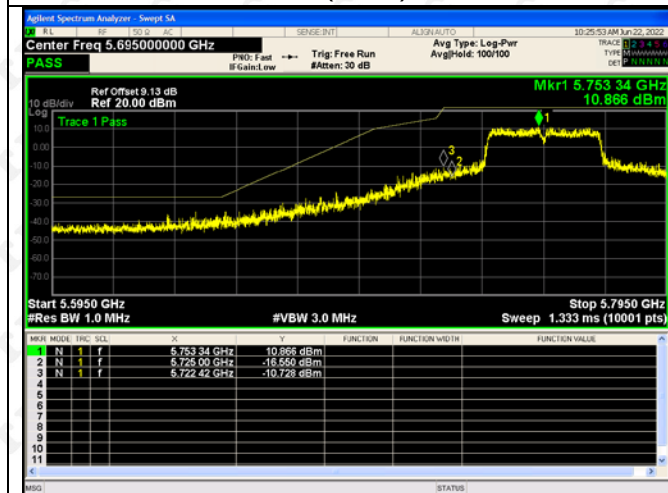
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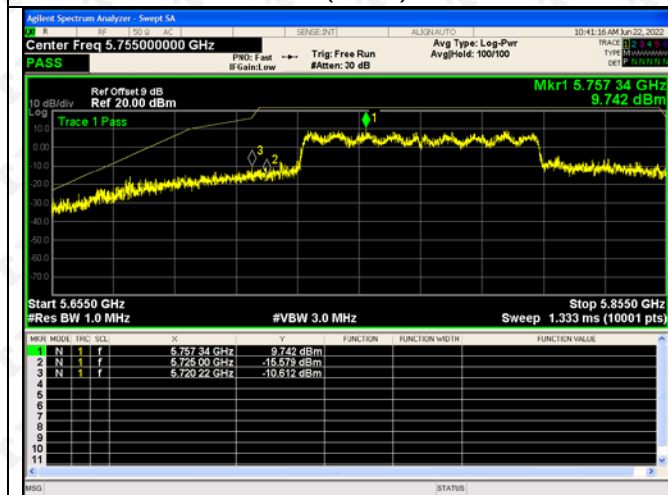
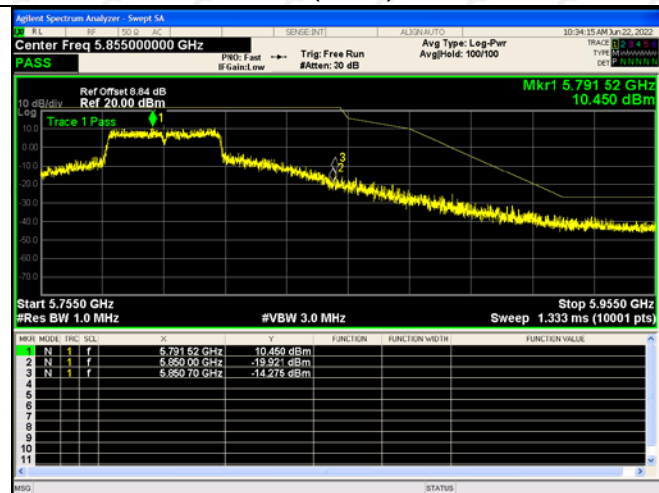
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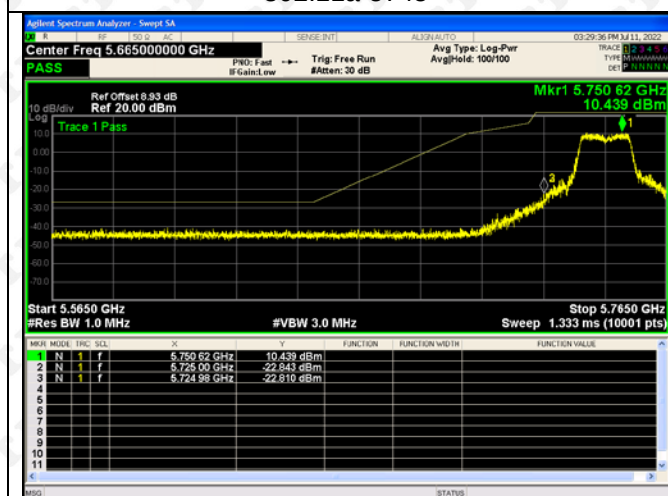


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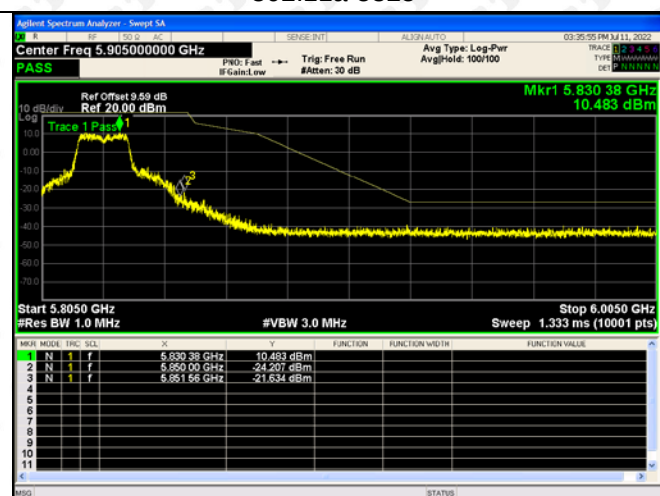


ANT3

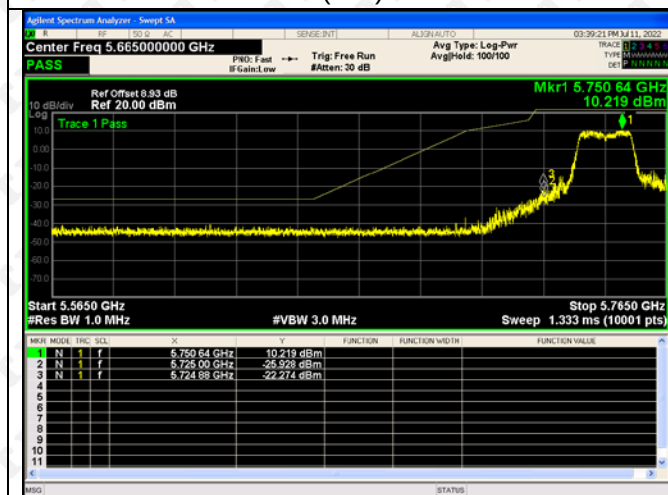
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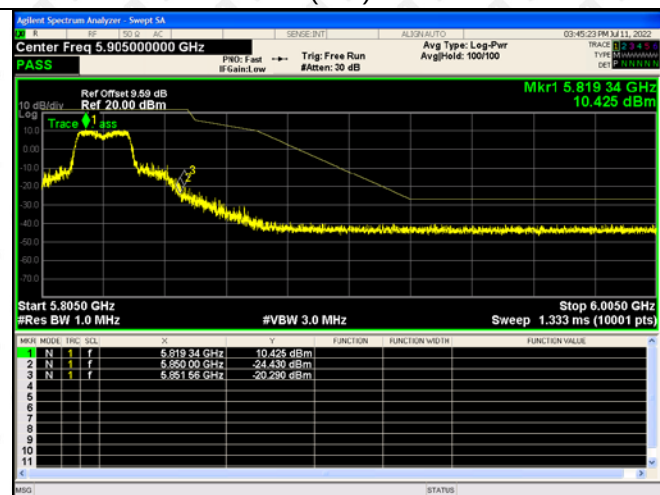
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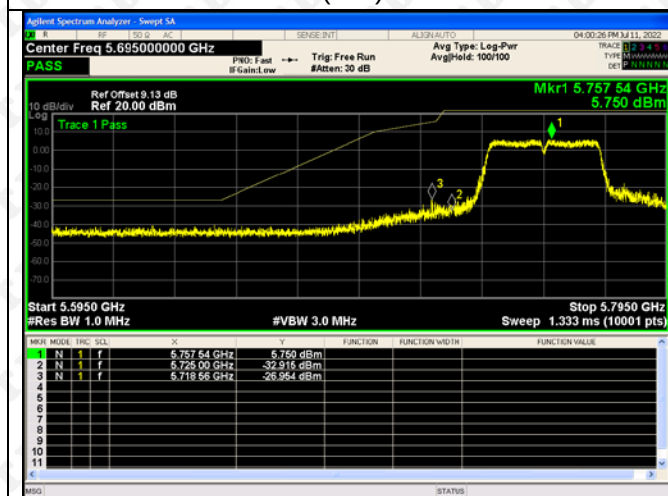
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802.11(n20)-5825



802.11(n40)-5755

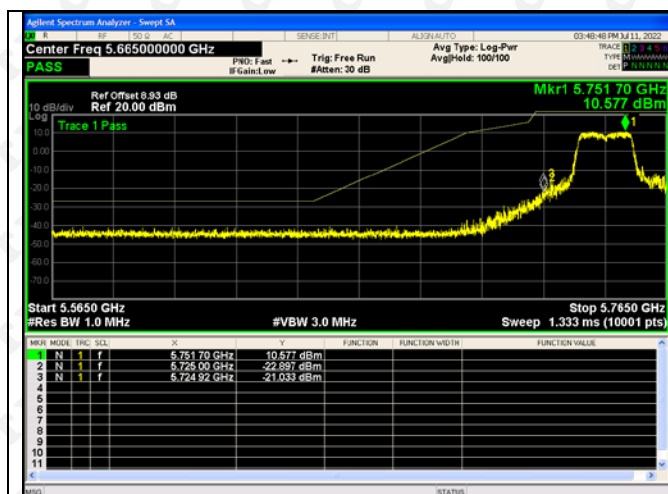


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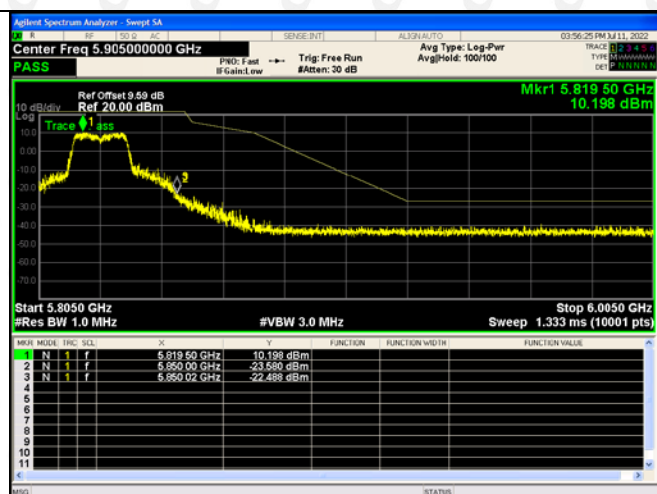


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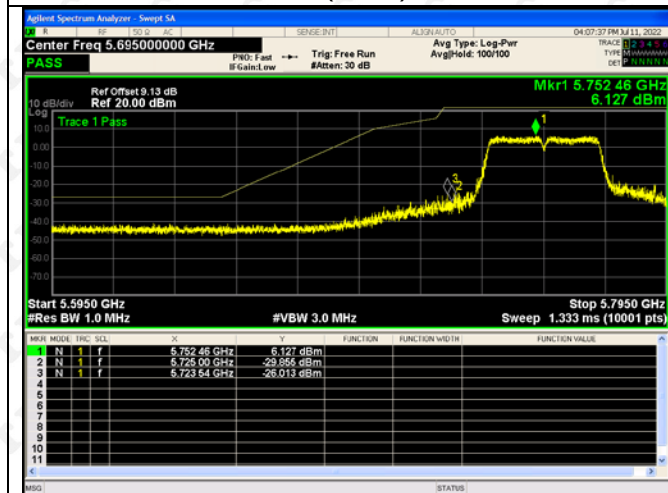
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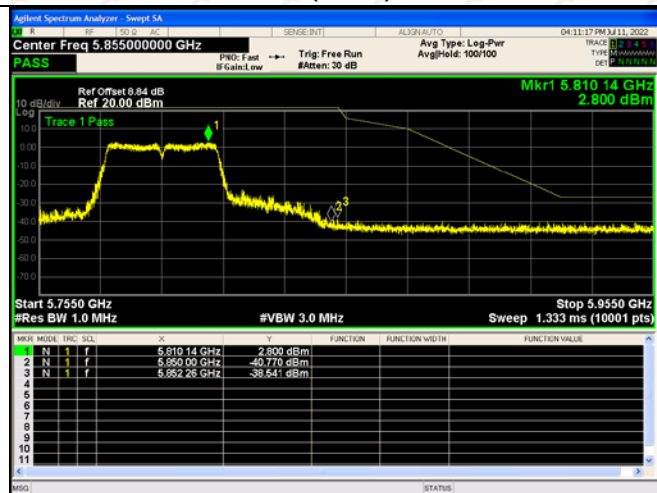
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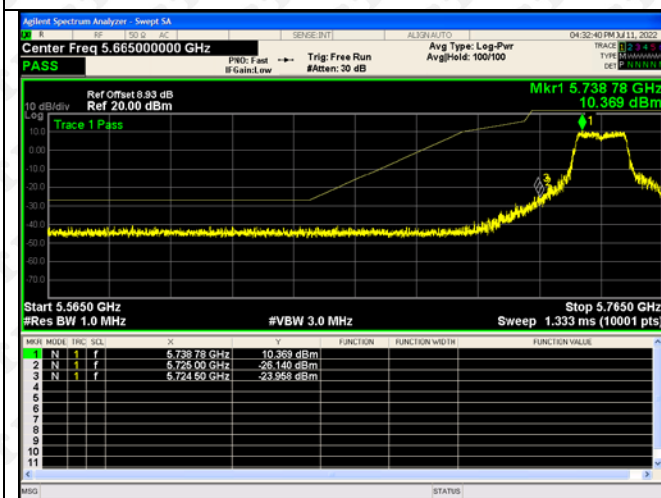


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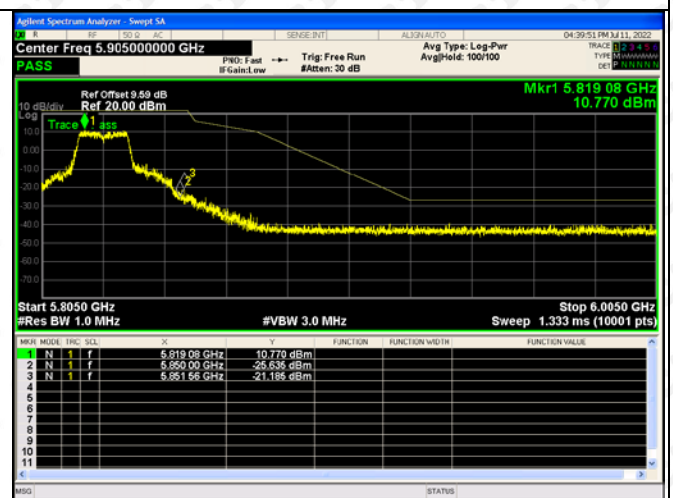


ANT4

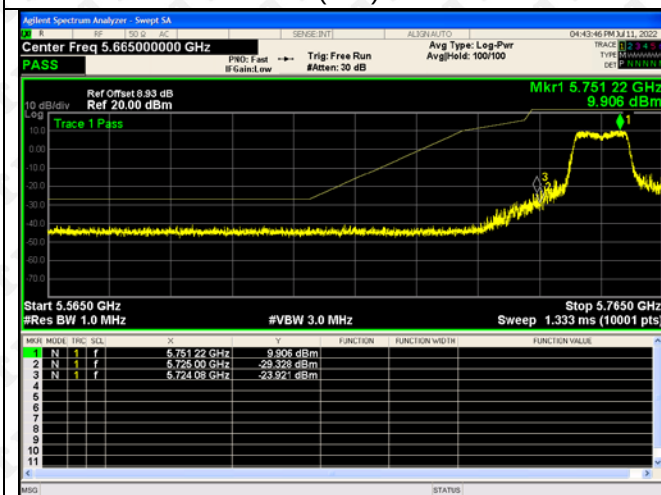
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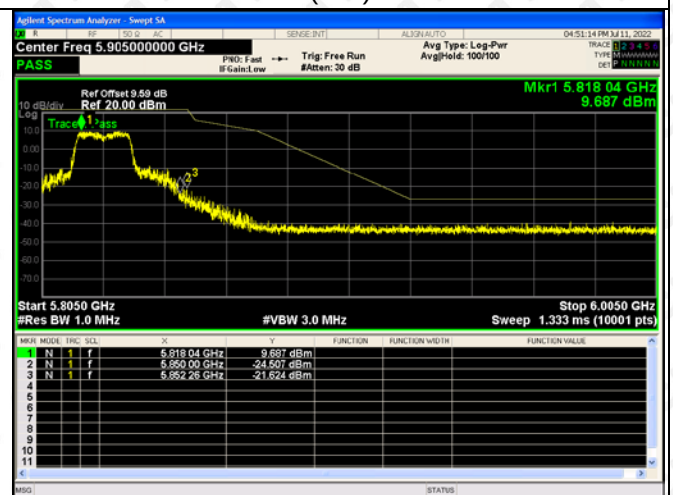
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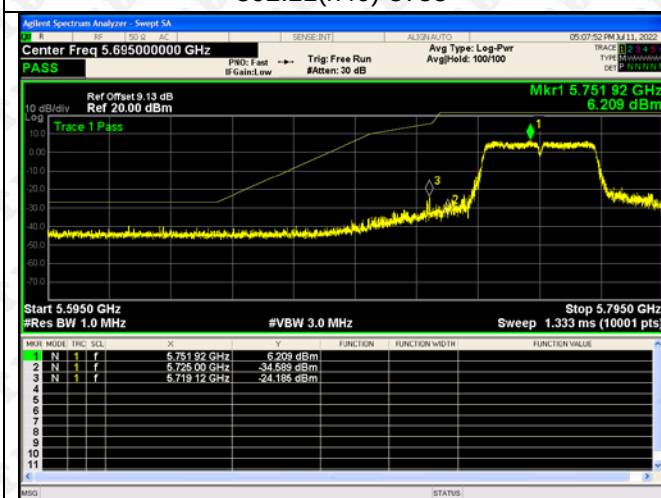
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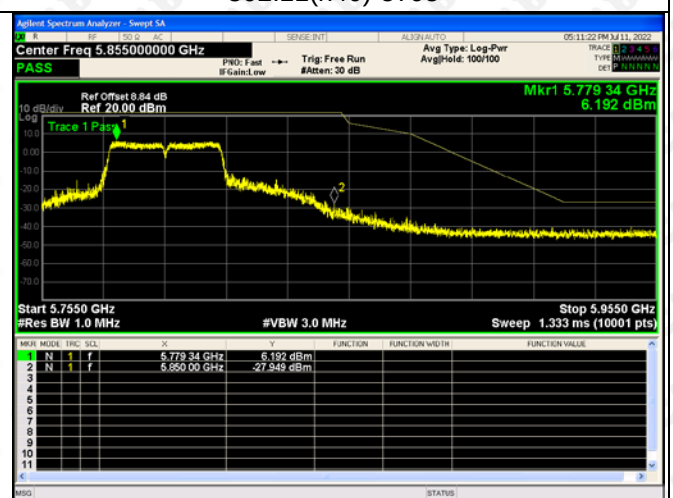
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802.11(n40)-5795

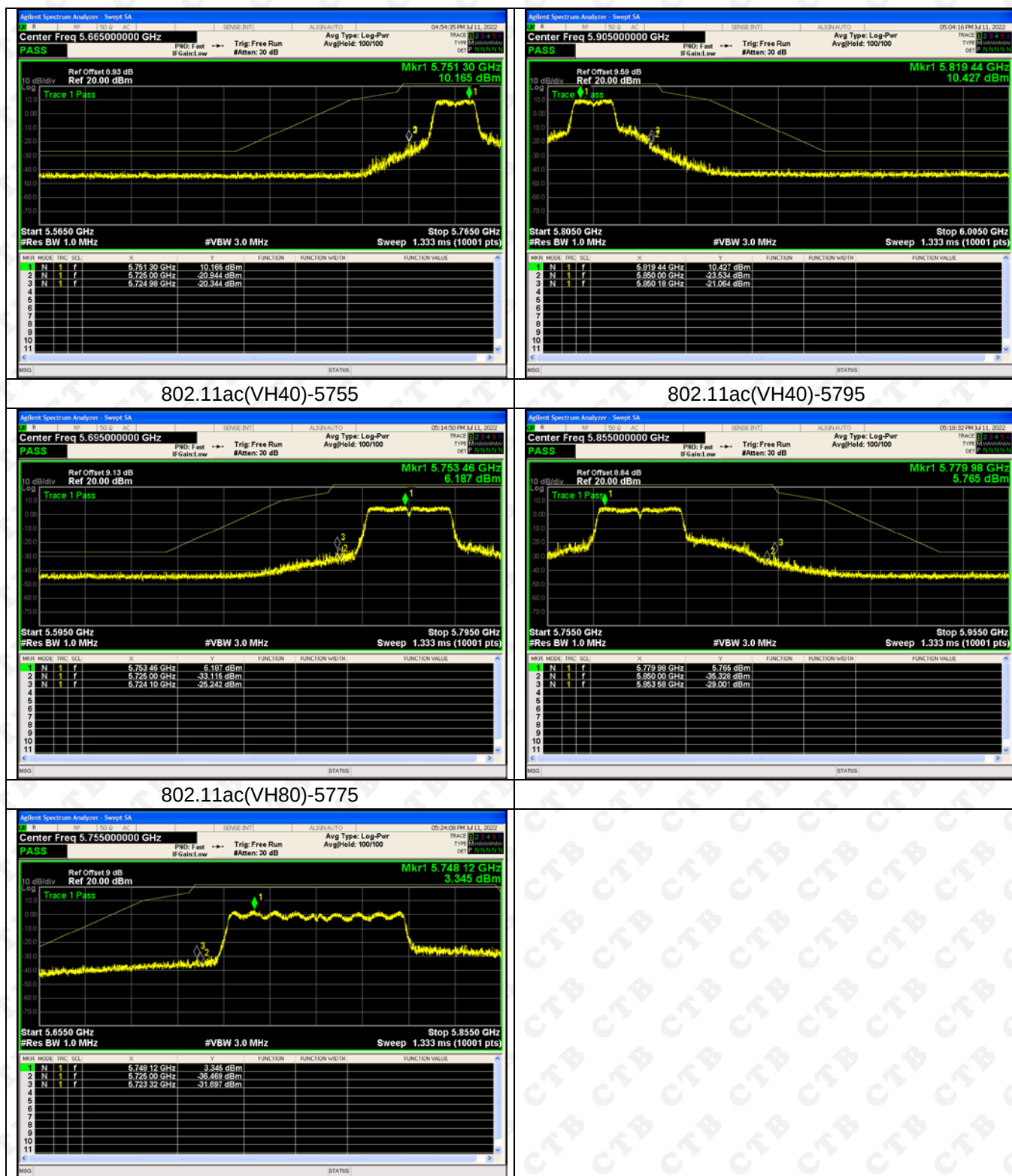


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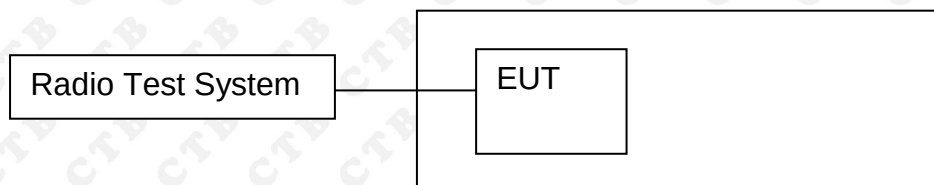




1.The margin of worst case ANT(1) test data has over 3dB, so the MIMO mode shall be passed.

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

5150-5250MHz

Test mode1	Test Channel (MHz)	Output Power dBm ANT1	Output Power dBm ANT2	Output Power dBm Total	Limit dBm
802.11a	5180	14.118	14.318	17.229	23.98
	5200	14.395	14.304	17.360	23.98
	5240	14.678	14.531	17.615	23.98
802.11ac20	5180	14.377	14.219	17.309	23.98
	5200	14.55	14.088	17.335	23.98
	5240	14.872	14.51	17.705	23.98
802.11ac40	5190	13.334	13.358	16.356	23.98
	5230	13.355	13.785	16.586	23.98
802.11ac80	5210	12.327	12.619	15.486	23.98
802.11n(HT20)	5180	14.051	14.006	17.039	23.98
	5200	14.036	14.076	17.066	23.98
	5240	14.305	14.166	17.246	23.98
802.11n(HT40)	5190	13.357	13.269	16.324	23.98
	5230	13.785	13.759	16.782	23.98

Test mode1	Test Channel (MHz)	Output Power dBm ANT3	Output Power dBm ANT4	Output Power dBm Total	Limit dBm
802.11a	5180	14.495	14.249	17.384	23.98
	5200	14.84	14.355	17.615	23.98
	5240	14.618	14.551	17.595	23.98
802.11ac20	5180	14.174	14.085	17.140	23.98
	5200	14.6	14.055	17.346	23.98
	5240	15.053	14.825	17.951	23.98
802.11ac40	5190	13.109	13.312	16.222	23.98
	5230	13.551	13.653	16.613	23.98
802.11ac80	5210	12.299	12.304	15.312	23.98
802.11n(HT20)	5180	14.275	14.142	17.219	23.98
	5200	14.523	14.265	17.406	23.98
	5240	14.025	14.501	17.280	23.98
802.11n(HT40)	5190	13.515	13.698	16.618	23.98
	5230	13.629	13.334	16.494	23.98

5250-5350MHz

Test mode1	Test Channel (MHz)	Output Power dBm ANT1	Output Power dBm ANT2	Output Power dBm Total	Limit dBm
802.11a	5260	14.478	14.033	17.271	23.98
	5280	14.612	14.01	17.332	23.98
	5320	14.299	14.446	17.383	23.98
802.11ac20	5260	14.14	14.613	17.393	23.98
	5280	14.335	14.9	17.637	23.98
	5320	14.181	14.58	17.395	23.98
802.11ac40	5270	13.198	13.098	16.159	23.98
	5310	13.172	13.24	16.216	23.98
802.11ac80	5290	12.176	12.909	15.568	23.98
802.11n(HT20)	5260	14.276	14.852	17.584	23.98
	5280	14.203	14.31	17.267	23.98
	5320	14.072	14.787	17.454	23.98
802.11n(HT40)	5270	13.802	13.13	16.489	23.98
	5310	13.483	13.482	16.493	23.98

Test mode1	Test Channel (MHz)	Output Power dBm ANT3	Output Power dBm ANT4	Output Power dBm Total	Limit dBm
802.11a	5260	14.401	14.441	17.431	23.98
	5280	14.125	14.364	17.256	23.98
	5320	14.638	14.546	17.603	23.98
802.11ac20	5260	14.625	14.031	17.348	23.98
	5280	14.233	14.033	17.144	23.98
	5320	14.182	14.22	17.211	23.98
802.11ac40	5270	13.117	13.326	16.233	23.98
	5310	13.388	13.469	16.439	23.98
802.11ac80	5290	12.195	12.19	15.203	23.98
802.11n(HT20)	5260	14.32	14.548	17.446	23.98
	5280	14.349	14.511	17.441	23.98
	5320	14.364	14.566	17.476	23.98
802.11n(HT40)	5270	13.108	13.436	16.285	23.98
	5310	13.203	13.162	16.193	23.98

5470-5725MHz

Test mode1	Test Channel (MHz)	Output Power dBm ANT1	Output Power dBm ANT2	Output Power dBm Total	Limit dBm
802.11a	5500	14.221	14.156	17.199	23.98
	5580	14.743	14.705	17.734	23.98
	5700	14.025	14.037	17.041	23.98
802.11ac20	5500	14.313	14.037	17.187	23.98
	5580	14.148	14.323	17.247	23.98
	5700	14.513	14.149	17.345	23.98
802.11ac40	5510	13.35	13.343	16.357	23.98
	5670	13.32	13.509	16.426	23.98
802.11ac80	5530	12.859	12.288	15.593	23.98
802.11n(HT20)	5500	14.159	14.589	17.390	23.98
	5580	14.205	14.833	17.541	23.98
	5700	14	14.189	17.106	23.98
802.11n(HT40)	5510	13.305	13.378	16.352	23.98
	5670	13.757	13.189	16.493	23.98

Test mode1	Test Channel (MHz)	Output Power dBm ANT3	Output Power dBm ANT4	Output Power dBm Total	Limit dBm
802.11a	5500	14.154	14.783	17.490	23.98
	5580	14.24	14.297	17.279	23.98
	5700	14.563	14.375	17.480	23.98
802.11ac20	5500	14.611	14.767	17.700	23.98
	5580	14.176	14.136	17.166	23.98
	5700	14.335	14.364	17.360	23.98
802.11ac40	5510	13.142	13.512	16.341	23.98
	5670	13.411	13.555	16.494	23.98
802.11ac80	5530	12.367	12.784	15.591	23.98
802.11n(HT20)	5500	14.714	14.108	17.432	23.98
	5580	14.428	14.075	17.265	23.98
	5700	14.269	14.165	17.228	23.98
802.11n(HT40)	5510	13.257	13.663	16.475	23.98
	5670	13.424	13.536	16.491	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	14.421	14.563	17.503	30
	5785	14.158	14.524	17.355	30
	5825	14.251	14.62	17.450	30
802.11ac20	5745	14.17	14.693	17.450	30
	5785	14.056	14.253	17.166	30
	5825	14.322	14.726	17.539	30
802.11ac40	5755	13.8	13.697	16.759	30
	5795	13.494	13.591	16.553	30
802.11ac80	5775	12.392	12.068	15.243	30
802.11n(HT20)	5745	14.037	14.323	17.193	30
	5785	14.341	14.301	17.331	30
	5825	14.775	14.78	17.788	30
802.11n(HT40)	5755	13.141	13.512	16.341	30
	5795	13.061	13.181	16.132	30

Test mode1	Test Channel (MHz)	Output Power dBm ANT3	Output Power dBm ANT4	Output Power dBm Total	Limit dBm
802.11a	5745	14.492	14.411	17.462	30
	5785	14.265	14.147	17.217	30
	5825	14.552	15.097	17.843	30
802.11ac20	5745	14.624	14.255	17.454	30
	5785	14.25	14.354	17.313	30
	5825	14.568	14.891	17.743	30
802.11ac40	5755	13.695	13.415	16.568	30
	5795	13.64	13.211	16.441	30
802.11ac80	5775	12.524	12.318	15.433	30
802.11n(HT20)	5745	14.445	14.023	17.249	30
	5785	14.512	14.206	17.372	30
	5825	14.857	14.617	17.749	30
802.11n(HT40)	5755	13.351	13.545	16.459	30
	5795	13.074	13.513	16.309	30

5150-5250MHz-Power
ANT1
