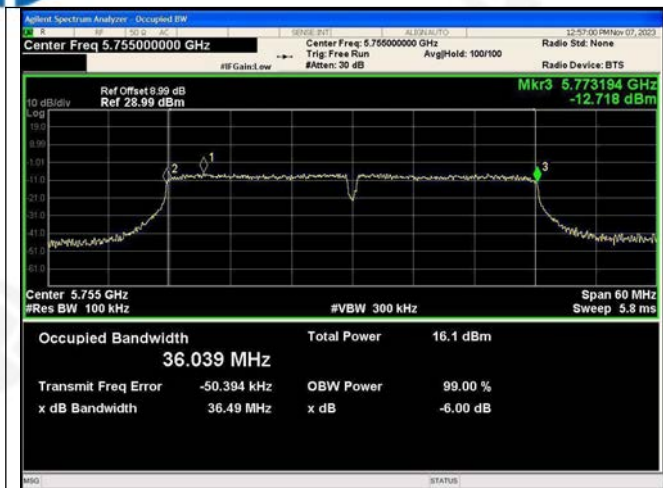
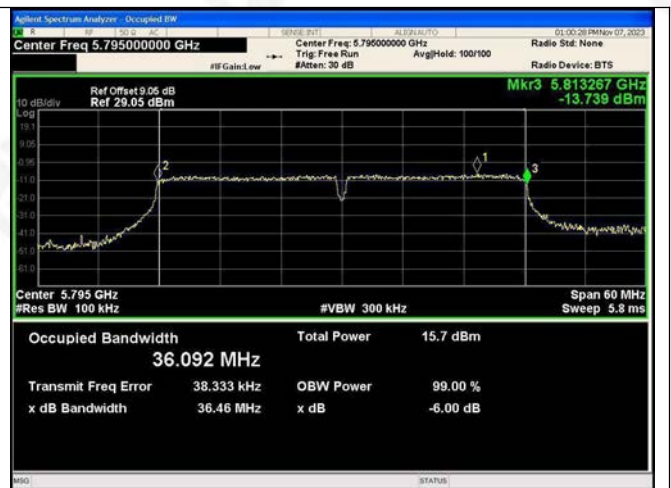




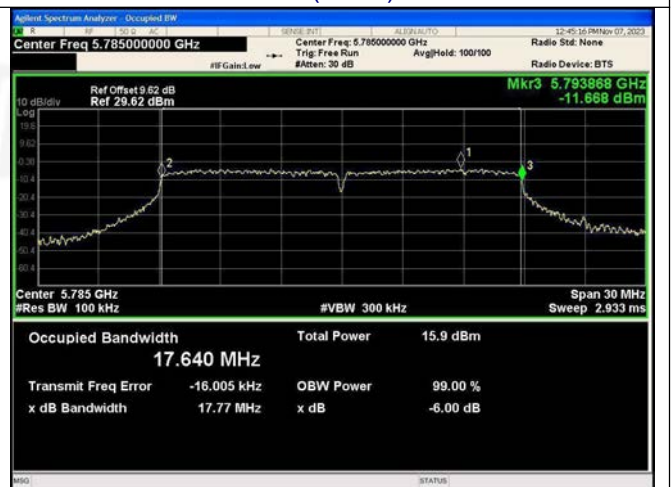
802.11ac(VH20)-5745



802.11ac(VH20)-5785



802.11ac(VH20)-5825



802.11ac(VH40)-5755



802.11ac(VH40)-5795



802.11ac(VH80)-5775





ANT2

802.11a-5745



802.11a-5785



802.11a-5825



802.11n(HT20)-5745



802.11n(HT20)-5785



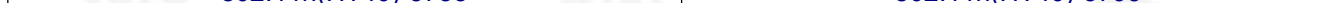
802.11n(HT20)-5825

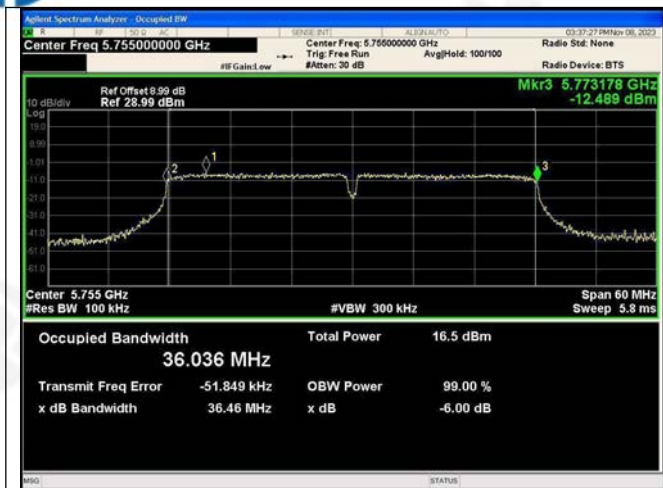


802.11n(HT40)-5755

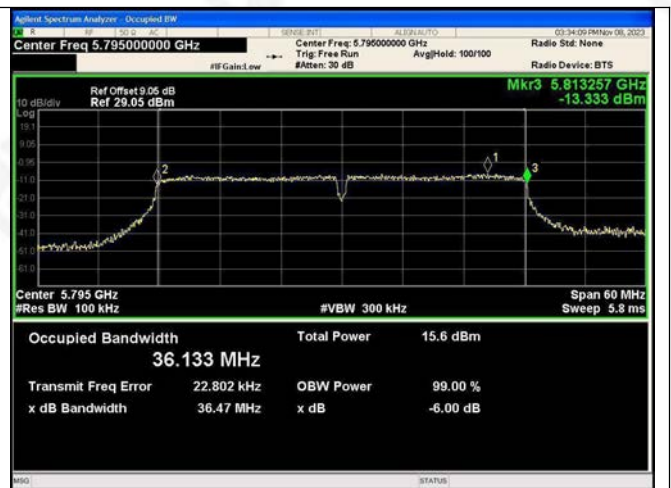


802.11n(HT40)-5795





802.11ac(VH20)-5745



802.11ac(VH20)-5785



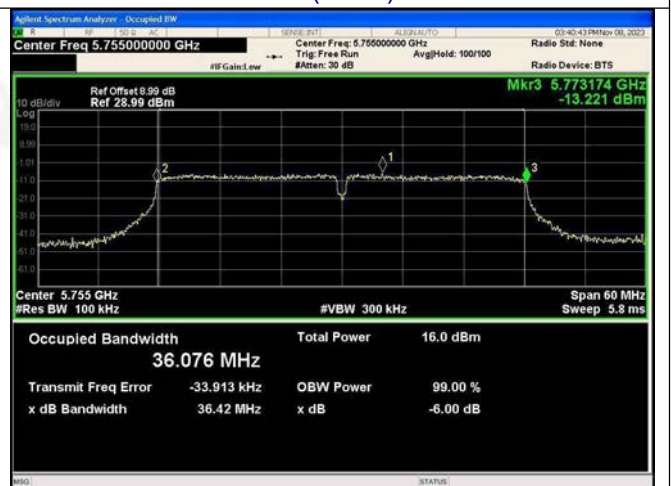
802.11ac(VH20)-5825



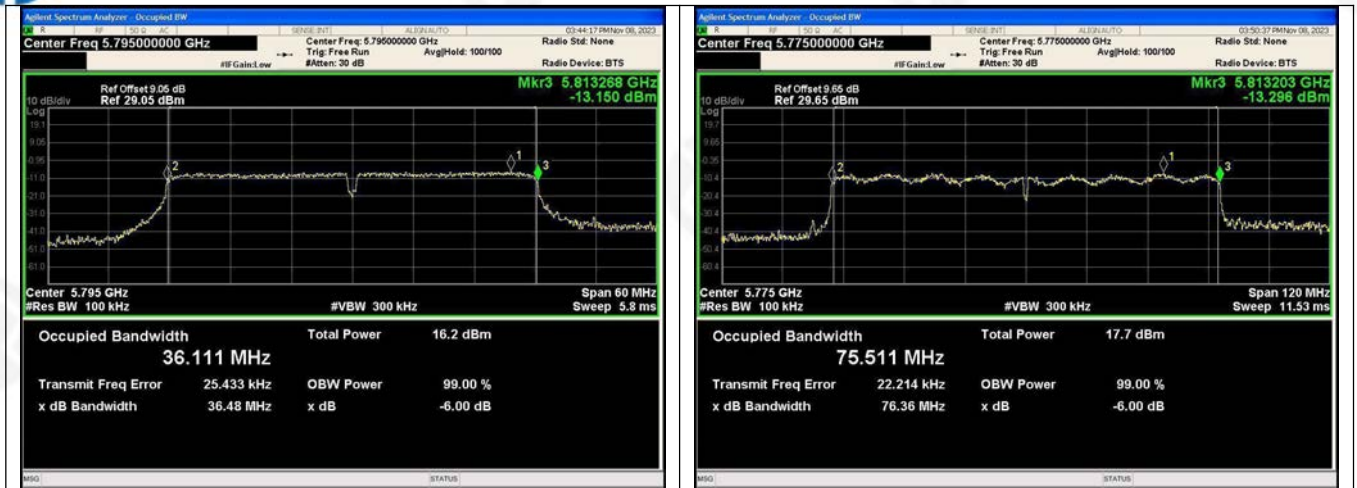
802.11ac(VH40)-5755



802.11ac(VH40)-5795



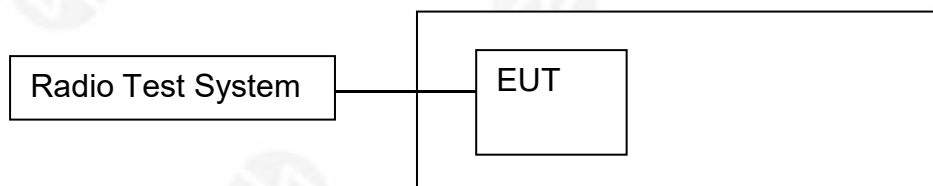
802.11ac(VH80)-5775





11. POWER SPECTRAL DENSITY

11.1 Block Diagram Of Test Setup



11.2 Limit

3.5.1 Limit

FCC Part15, Subpart E (15.407)			
Section	Test Item	Limit	Frequency Range (MHz)
15.407(a)	Power Spectral Density	Master device: 17 dBm/MHz Client device: 11 dBm/MHz	5150-5250
		11 dBm/MHz	5250-5350
		11 dBm/MHz	5470-5725
		30 dBm/500 kHz	5725-5850

Note: 1. For UNII-3, according to KDB publication 789033 D02 General UNII Test Procedures New Rules v02r01, section II.F.5., it is acceptable to set RBW at 300kHz and VBW at 1500kHz if the spectrum analyzer does not have 500 kHz RBW. Then, add $10 \log (500 \text{ kHz}/300 \text{ kHz})$ to the measured result, i.e. 2.22 dB. 2. During the test of U-NII 3 PSD, the measurement result with RBW=300kHz has been added 2.22 dB by compensating offset, offset=cable loss+duty factor+ $10\log(500\text{kHz}/300\text{kHz})$.

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

5180-5240MHz

ANT1+ANT2

Test mode	Test Channel (MHz)	PSD (dBm/MHz) ANT 1	PSD (dBm/MHz) ANT 2	PSD [dBm] Total	Limit (dBm/MHz)	Result
802.11a	5180	6.619	6.898	/	11	Pass
	5200	6.987	6.516	/	11	Pass
	5240	6.848	6.976	/	11	Pass
802.11n(HT20)	5180	6.353	6.219	9.771	11	Pass
	5200	6.56	6.704	9.768	11	Pass
	5240	7.037	7.217	9.923	11	Pass
802.11n(HT40)	5190	4.545	3.964	9.297	11	Pass
	5230	4.297	4.745	9.643	11	Pass
802.11ac(VH20)	5210	2.603	2.689	10.138	11	Pass
	5180	6.445	7.019	7.275	11	Pass
	5200	6.946	6.64	7.537	11	Pass
802.11ac(VH40)	5240	7.166	6.88	5.657	11	Pass
	5190	3.964	4.111	9.752	11	Pass
802.11ac(VH80)	5230	4.357	4.314	9.806	11	Pass
802.11ax(VH80)	5230	-16.925	-17.899	-14.37	11	Pass

5260-5320MHz

ANT1+ANT2

Test mode	Test Channel (MHz)	PSD (dBm/MHz) ANT 1	PSD (dBm/MHz) ANT 2	PSD [dBm] Total	Limit (dBm/MHz)	Result
802.11a	5260	7.111	7.265	/	11	Pass
	5280	7.037	6.68	/	11	Pass
	5320	7.453	6.727	/	11	Pass
802.11n(HT20)	5260	6.762	6.975	9.880	11	Pass
	5280	6.663	6.58	9.632	11	Pass
	5320	6.377	6.339	9.368	11	Pass
802.11n(HT40)	5270	3.735	4.157	6.961	11	Pass
	5310	4.298	4.248	7.283	11	Pass
802.11ac(VH20)	5260	2.775	2.691	5.744	11	Pass
	5280	6.692	6.705	9.709	11	Pass
	5320	6.735	6.71	9.733	11	Pass
802.11ac(VH40)	5270	6.517	6.688	9.614	11	Pass
	5310	6.418	3.856	10.199	11	Pass
802.11ac(VH80)	5290	4.384	4.672	9.872	11	Pass

5500-5700MHz
ANT1+ANT2

Test mode	Test Channel (MHz)	PSD (dBm/MHz) ANT 1	PSD (dBm/MHz) ANT 2	PSD [dBm] Total	Limit (dBm/MHz)	Result
802.11a	5500	6.548	7.13	/	11	Pass
	5580	7.351	7.374	/	11	Pass
	5700	6.47	6.971	/	11	Pass
802.11n(HT20)	5500	6.795	6.834	9.825	11	Pass
	5580	6.694	6.366	9.543	11	Pass
	5700	5.958	6.005	8.992	11	Pass
802.11n(HT40)	5510	4.619	4.757	7.699	11	Pass
	5670	4.354	4.062	7.221	11	Pass
802.11ac(VH20)	5530	1.61	3.172	5.471	11	Pass
	5500	7.385	7.233	10.320	11	Pass
	5580	6.662	6.64	9.661	11	Pass
802.11ac(VH40)	5700	5.956	6.192	9.086	11	Pass
	5510	4.406	3.864	9.825	11	Pass
802.11ac(VH80)	5530	4.304	3.966	9.825	11	Pass
	5670	4.078	3.445	9.543	11	Pass

5745-5825MHz
ANT1+ANT2

Test mode	Test Channel (MHz)	PSD (dBm/500kHz) ANT 1	PSD (dBm/500kHz) ANT 2	PSD [dBm] Total	Limit (dBm/500kHz)	Result
802.11a	5745	4.088	1.436	/	30	Pass
	5785	3.827	1.629	/	30	Pass
	5825	4.742	3.954	/	30	Pass
802.11n(HT20)	5745	3.926	2.788	6.404	30	Pass
	5785	2.282	1.807	5.061	30	Pass
	5825	3.562	3.594	6.588	30	Pass
802.11n(HT40)	5755	-1.422	-1.165	1.719	30	Pass
	5795	-1.212	-0.272	2.294	30	Pass
802.11ac(VH20)	5745	-2.801	-1.273	1.040	30	Pass
	5785	3.355	1.829	5.669	30	Pass
	5825	3.645	2.139	5.967	30	Pass
802.11ac(VH40)	5755	4.847	3.897	7.408	30	Pass
	5795	-1.081	-0.19	6.404	30	Pass
802.11ac(VH80)	5775	-1.355	-1.429	5.061	30	Pass



5180-5240MHz
ANT1

802.11a-5180



802.11a-5200



802.11a-5240



802.11n(HT20)-5180



802.11n(HT20)-5200



802.11n(HT20)-5240



802.11n(HT40)-5190

802.11n(HT40)-5230



802.11ac(VH20)-5180



802.11ac(VH20)-5200



802.11ac(VH20)-5240



802.11ac(VH40)-5190



802.11ac(VH40)-5230



802.11ac(VH80)-5210



802.11ax(VH80)-5210





ANT2

802.11a-5180



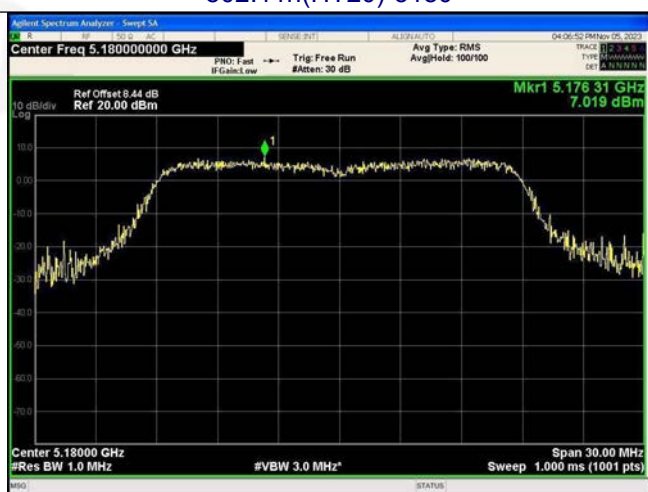
802.11a-5200



802.11a-5240



802.11n(HT20)-5180



802.11n(HT20)-5200



802.11n(HT20)-5240



802.11n(HT40)-5190

802.11n(HT40)-5230



802.11ac(VH20)-5180



802.11ac(VH20)-5200



802.11ac(VH20)-5240



802.11ac(VH40)-5190



802.11ac(VH40)-5230



802.11ac(VH80)-5210



802.11ax(VH80)-5210





5260-5320MHz
ANT1

802.11a-5260



802.11a-5280



802.11a-5320



802.11ac(VH20)-5260



802.11ac(VH20)-5280



802.11ac(VH20)-5320



802.11ac(VH40)-5270

802.11ac(VH40)-5310



802.11n(HT20)-5260



802.11n(HT20)-5280



802.11n(HT20)-5320



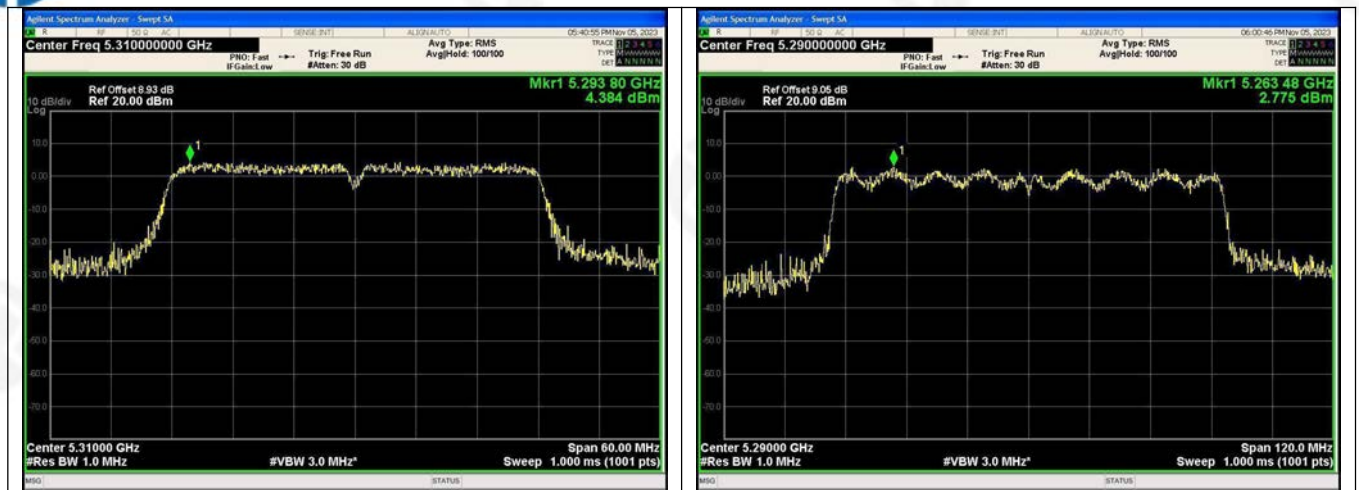
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802.11n(HT40)-5310



802.11ac(HT80)-5290



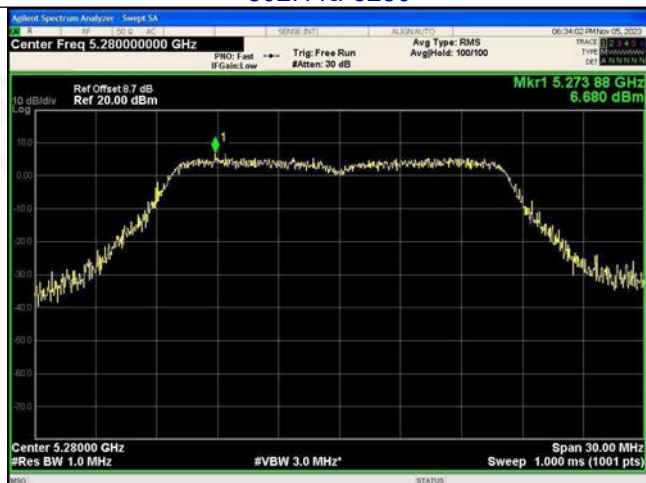


ANT2

802.11a-5260



802.11a-5280



802.11a-5320



802.11ac(VH20)-5260



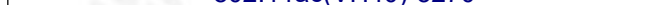
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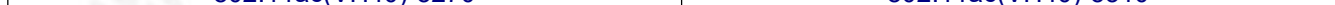
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802.11ac(VH40)-5270



802.11ac(VH40)-5310





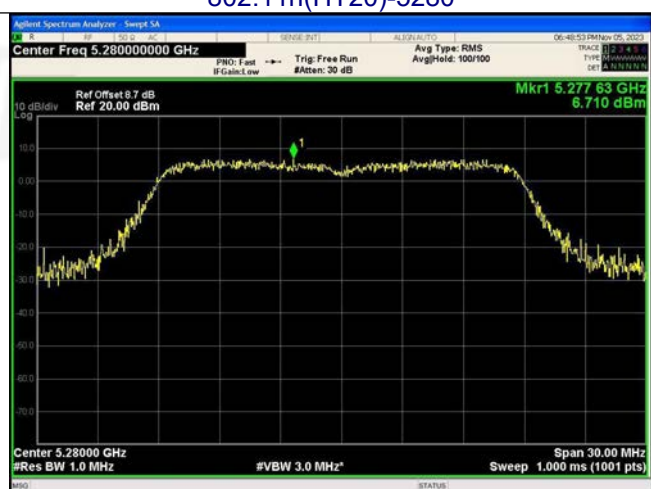
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802.11n(HT20)-5280



802.11n(HT20)-5320



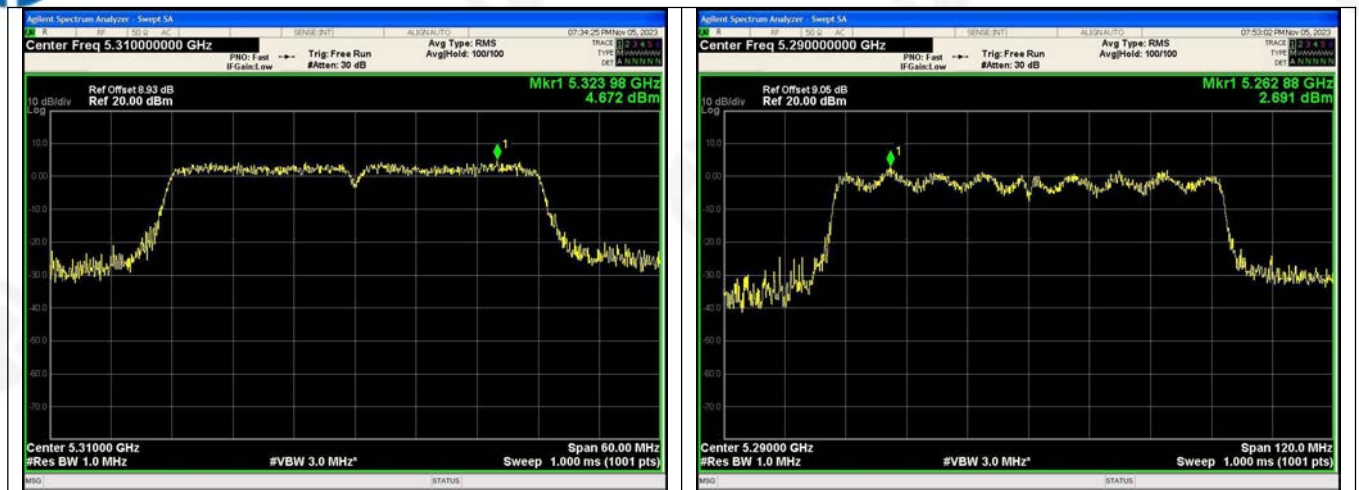
802.11n(HT40)-5270



802.11n(HT40)-5310



802.11ac(HT80)-5290





5500-5700MHz
ANT1

802.11a-5500



802.11a-5580



802.11a-5700



802.11n(HT20)-5500



802.11n(HT20)-5580



802.11n(HT20)-5700

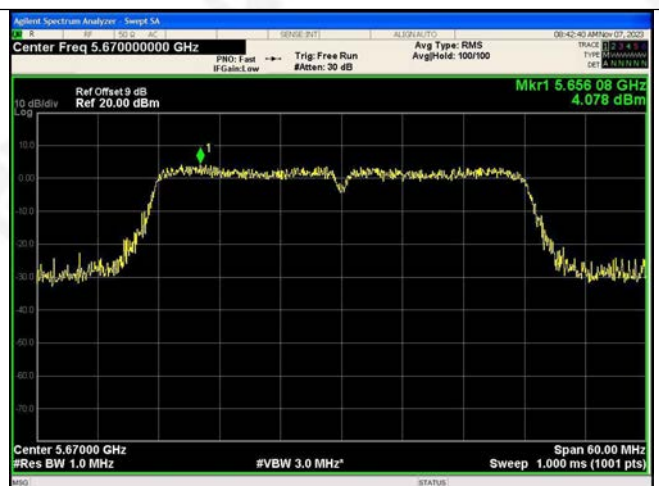


802.11n(HT40)-5510

802.11n(HT40)-5670



802.11ac(VH20)-5500



802.11ac(VH20)-5580



802.11ac(VH20)-5700



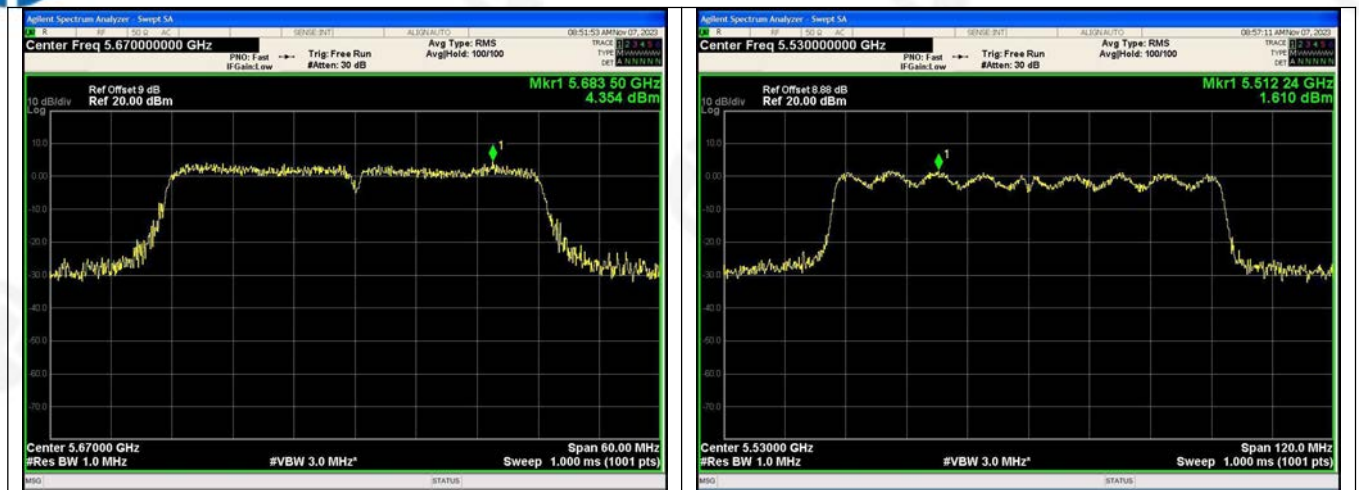
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802.11ac(VH40)-5670



802.11ac(VH80)-5530





ANT2

802.11a-5500



802.11a-5580



802.11a-5700



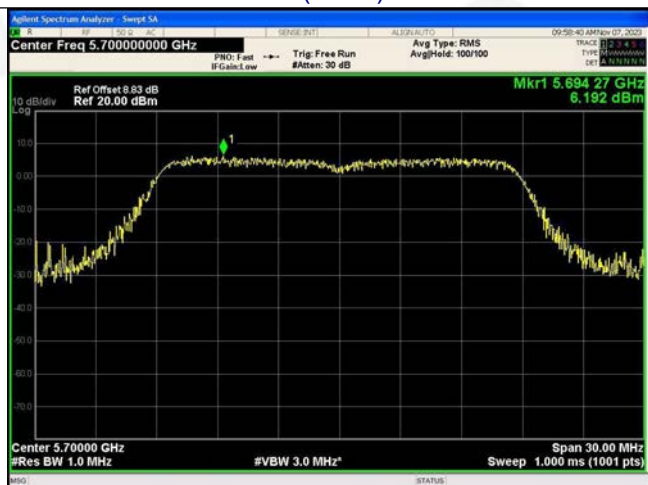
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802.11n(HT20)-5580



802.11n(HT20)-5700



802.11n(HT40)-5510

802.11n(HT40)-5670



802.11ac(VH20)-5500



802.11ac(VH20)-5580



802.11ac(VH20)-5700



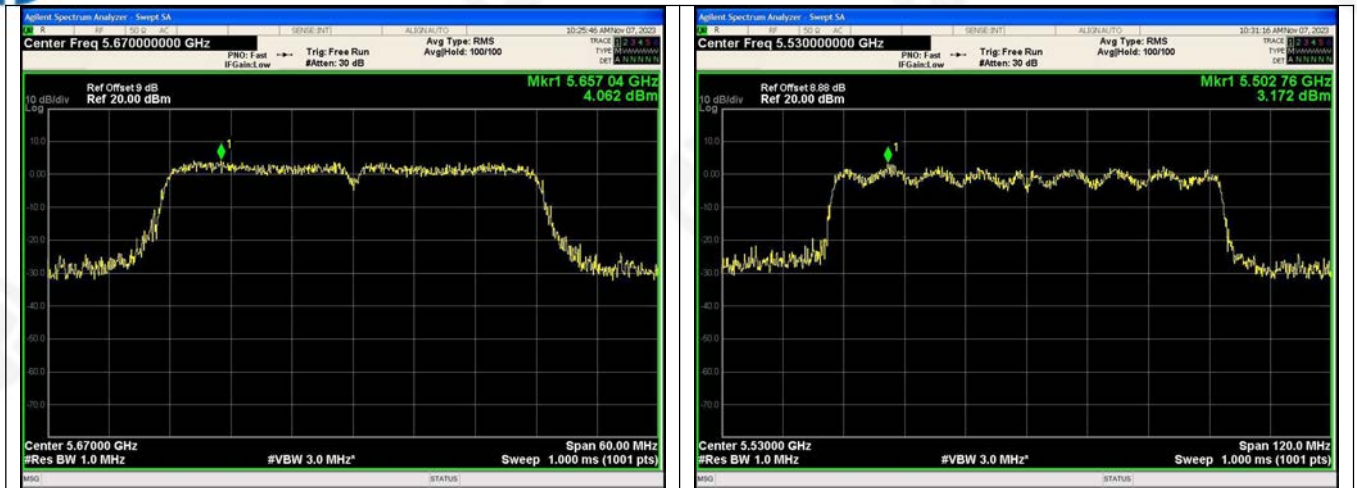
802.11ac(VH40)-5510



802.11ac(VH40)-5670



802.11ac(VH80)-5530





5745-5825MHz
ANT1

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

