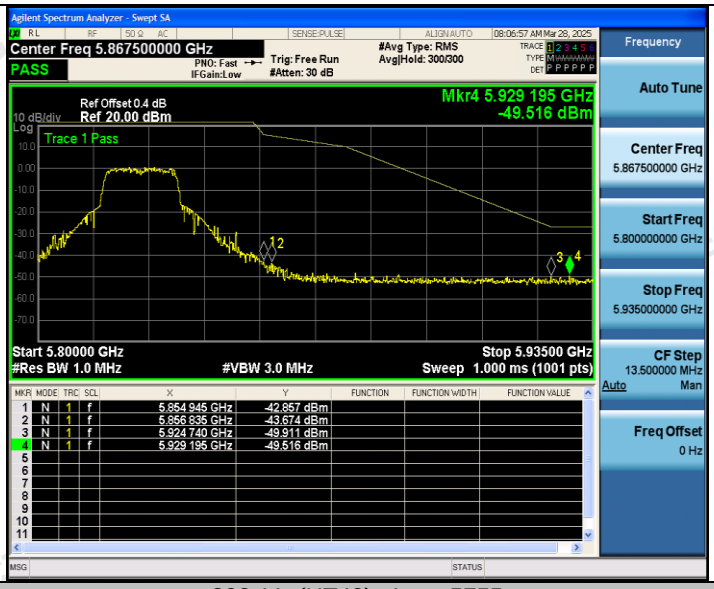
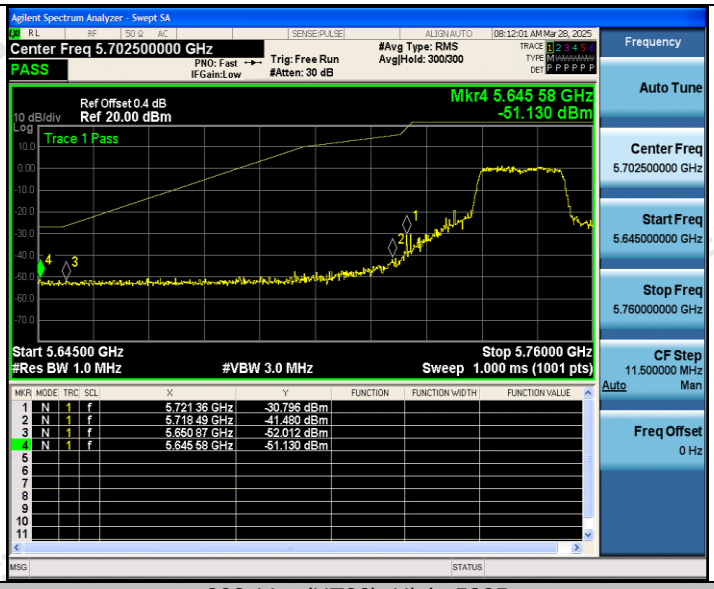


802.11n(HT40) _Low_5755

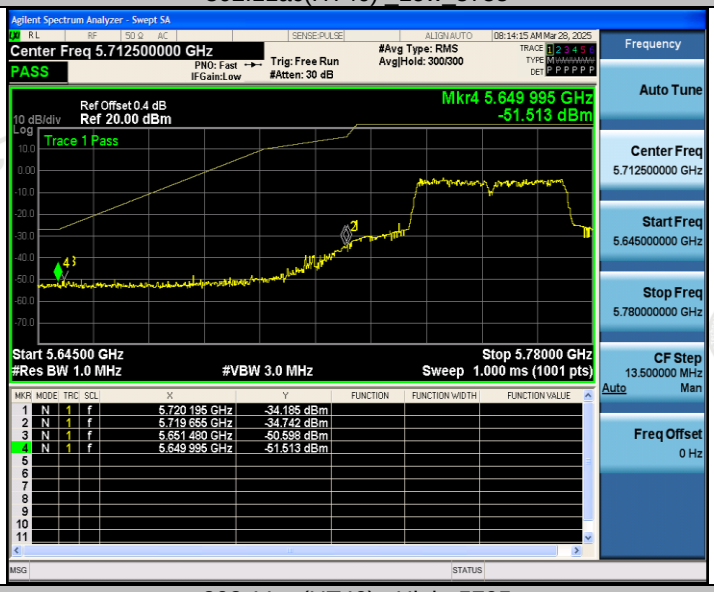
802.11n(HT40) _High_5795

802.11ac(HT20)_Low_5745



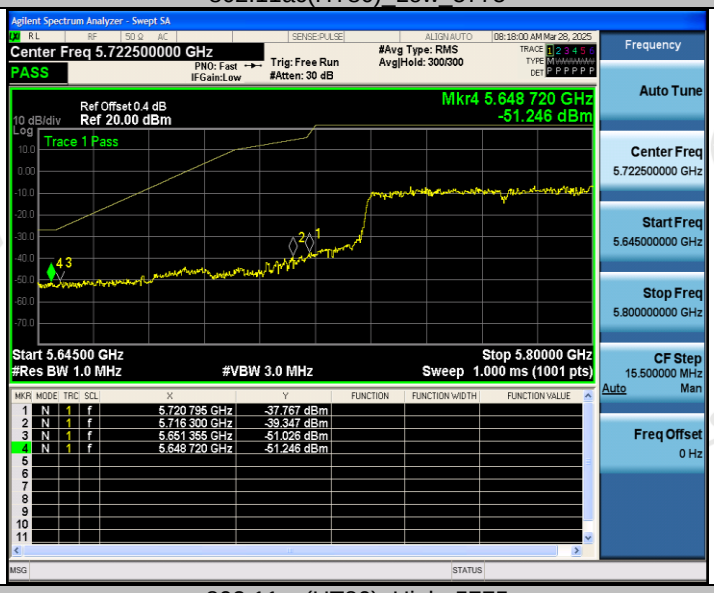
802.11ac(HT20)_High_5825

802.11ac(HT40)_Low_5755



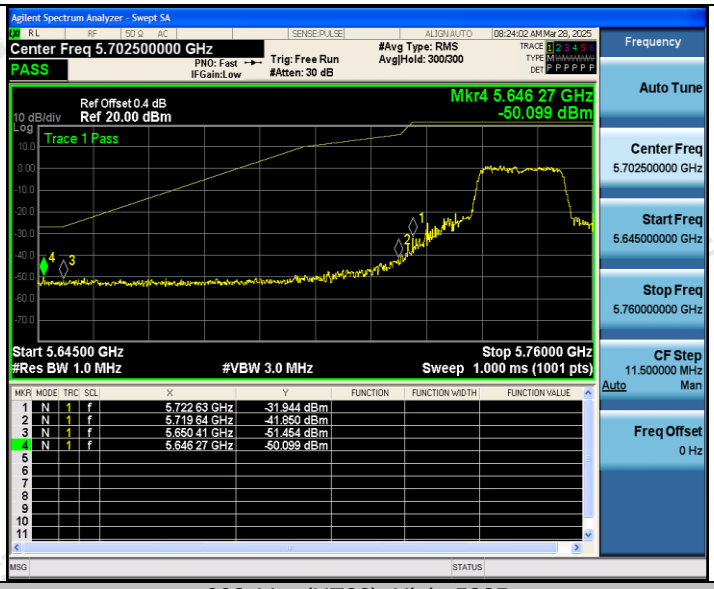
802.11ac(HT40)_High_5795

802.11ac(HT80)_Low_5775

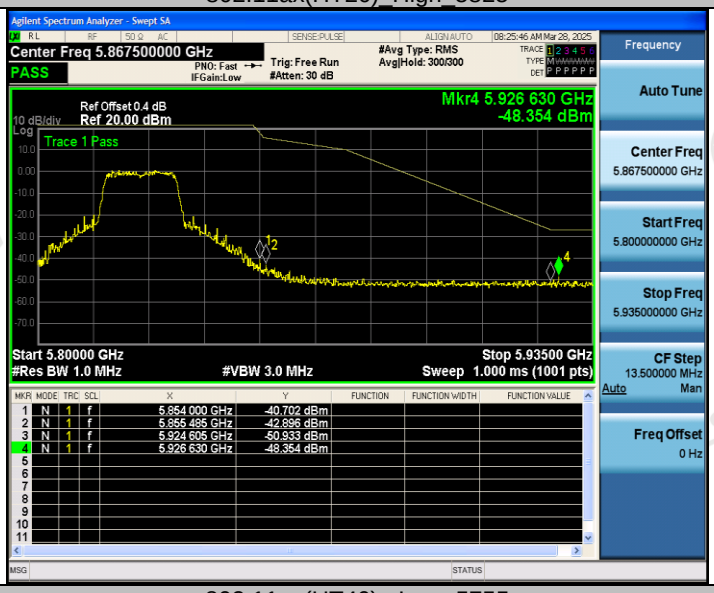


802.11ac(HT80)_High_5775

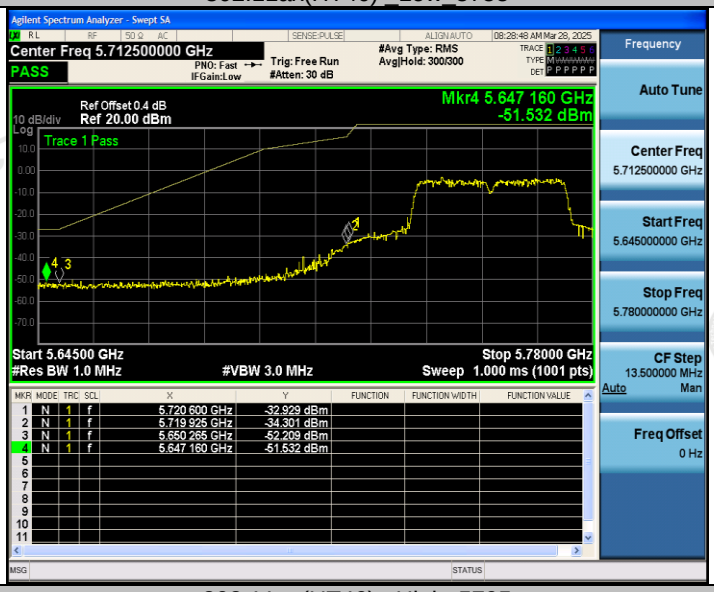
802.11ax(HT20)_Low_5745



802.11ax(HT20)_High_5825

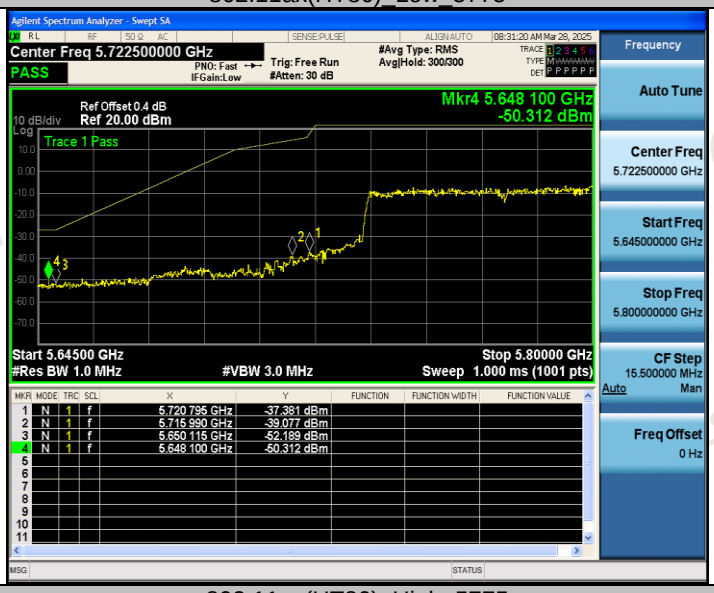


802.11ax(HT40)_Low_5755



802.11ax(HT40)_High_5795

802.11ax(HT80)_Low_5775



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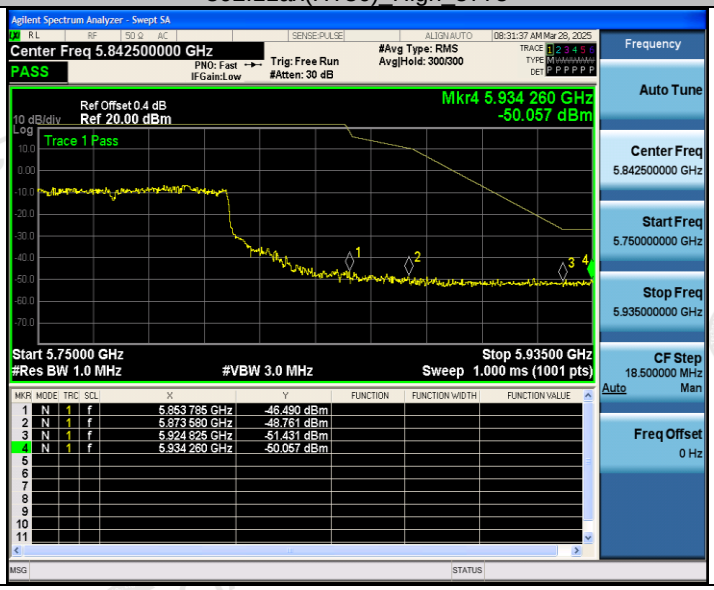


4.3 Maximum Conducted Average Output Power

Limit

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.

(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.

(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.

(iv) For 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.

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 dBm + 10 log B, where B is the 26 dB emission bandwidth in megahertz.

For the band 5.725-5.85 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W

Test Procedure

Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the power sensor.

Test Configuration

Test Results

U-NII 1

ANT 1

Type	Channel	Output power (dBm)	Limit (dBm)	Result
802.11a	36	5.83	24.0	Pass
	40	5.63		
	48	6.02		
802.11n(HT20)	36	6.45	24.0	Pass
	44	6.04		
	48	6.34		
802.11n(HT40)	38	5.13	24.0	Pass
	46	5.10		
802.11ac(HT20)	36	6.31	24.0	Pass
	44	5.75		
	48	5.97		
802.11ac(HT40)	38	5.23	24.0	Pass
	46	4.96		
802.11ac(HT80)	42	7.26	24.0	Pass
802.11ax(HT20)	36	6.36	24.0	Pass
	44	5.80		
	48	6.82		
802.11ax(HT40)	38	4.18	24.0	Pass
	46	5.06		
802.11ax(HT80)	42	5.43	24.0	Pass

U-NII 1

ANT 2

Type	Channel	Output power (dBm)	Limit (dBm)	Result
802.11a	36	5.90	24.0	Pass
	40	6.29		
	48	6.01		
802.11n(HT20)	36	6.21	24.0	Pass
	44	6.53		
	48	5.94		
802.11n(HT40)	38	4.87	24.0	Pass
	46	5.46		
802.11ac(HT20)	36	6.42	24.0	Pass
	44	6.40		
	48	5.95		
802.11ac(HT40)	38	5.13	24.0	Pass
	46	5.16		
802.11ac(HT80)	42	7.32	24.0	PASS
802.11ax(HT20)	36	6.49	24.0	Pass
	44	5.89		
	48	5.96		
802.11ax(HT40)	38	5.14	24.0	Pass
	46	4.62		
802.11ax(HT80)	42	6.61	24.0	Pass

U-NII 3

ANT 1

Type	Channel	Output power (dBm)	Limit (dBm)	Result
802.11a	149	5.36	30.00	Pass
	157	4.42		
	165	4.29		
802.11n(HT20)	149	4.62	30.00	Pass
	157	3.89		
	165	4.15		
802.11n(HT40)	151	3.72	30.00	Pass
	159	2.41		
802.11ac(HT20)	149	4.90	30.00	Pass
	157	3.74		
	165	3.67		
802.11ac(HT40)	151	3.14	30.00	Pass
	159	2.45		
802.11ac(HT80)	155	5.61	30.00	Pass
802.11ax(HT20)	149	4.63	30.00	Pass
	157	4.32		
	165	3.61		
802.11ax(HT40)	151	2.90	30.00	Pass
	159	2.79		
802.11ax(HT80)	155	5.57	30.00	Pass

U-NII 3

ANT 2

Type	Channel	Output power (dBm)	Limit (dBm)	Result
802.11a	149	4.99	30.00	Pass
	157	3.98		
	165	3.95		
802.11n(HT20)	149	5.56	30.00	Pass
	157	3.94		
	165	4.52		
802.11n(HT40)	151	4.00	30.00	Pass
	159	2.69		
802.11ac(HT20)	149	5.02	30.00	Pass
	157	4.30		
	165	4.27		
802.11ac(HT40)	151	3.20	30.00	Pass
	159	2.40		
802.11ac(HT80)	155	5.79	30.00	Pass
802.11ax(HT20)	149	4.91	30.00	Pass
	157	4.07		
	165	4.44		
802.11ax(HT40)	151	3.37	30.00	Pass
	159	3.18		
802.11ax(HT80)	155	5.87	30.00	Pass

For MIMO：

U-NII 1

Type	Channel	Output power (dBm) ANT1	Output power (dBm) ANT2	Output power (dBm) MIMO	Limit (dBm)	Result
802.11n(HT20)	36	6.45	6.21	9.34	24.0	Pass
	44	6.04	6.53	9.30		
	48	6.34	5.94	9.15		
802.11n(HT40)	38	5.13	4.87	8.01	24.0	Pass
	46	5.10	5.46	8.29		
802.11ac(HT20)	36	6.31	6.42	9.38	24.0	Pass
	44	5.75	6.40	9.10		
	48	5.97	5.95	8.97		
802.11ac(HT40)	38	5.23	5.13	8.19	24.0	Pass
	46	4.96	5.16	8.07		
802.11ac(HT80)	42	7.26	7.32	10.30	24.0	Pass
802.11ax(HT20)	36	6.36	6.49	9.44	24.0	Pass
	44	5.80	5.89	8.86		
	48	6.82	5.96	9.42		
802.11ax(HT40)	38	4.18	5.14	7.70	24.0	Pass
	46	5.06	4.62	7.86		
802.11ax(HT80)	42	5.43	6.61	9.07	24.0	Pass

U-NII 3

Type	Channel	Output power (dBm) ANT1	Output power (dBm) ANT2	Output power (dBm) MIMO	Limit (dBm)	Result
802.11n(HT20)	149	4.62	5.56	8.13	30.0	Pass
	157	3.89	3.94	6.93		
	165	4.15	4.52	7.35		
802.11n(HT40)	151	3.72	4.00	6.87	30.0	Pass
	159	2.41	2.69	5.56		
802.11ac(HT20)	149	4.90	5.02	7.97	30.0	Pass
	157	3.74	4.30	7.04		
	165	3.67	4.27	6.99		
802.11ac(HT40)	151	3.14	3.20	6.18	30.0	Pass
	159	2.45	2.40	5.44		
802.11ac(HT80)	155	5.61	5.79	8.71	30.0	Pass
802.11ax(HT20)	149	4.63	4.91	7.78	30.0	Pass
	157	4.32	4.07	7.21		
	165	3.61	4.44	7.06		
802.11ax(HT40)	151	2.90	3.37	6.15	30.0	Pass
	159	2.79	3.18	6.00		
802.11ax(HT80)	155	5.57	5.87	8.73	30.0	Pass

4.4 Power Spectral Density

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 power spectral density shall not exceed 17 dBm in any 1 MHz band.note1

(ii) For an indoor access point operating in the band 5.15 - 5.25 GHz, the maximum power spectral density shall not exceed 17 dBm in any 1 MHz band.note1

(iii) For fixed point-to-point access points operating in the band 5.15 - 5.25 GHz, transmitters that employ a directional antenna gain greater than 23 dBi, a 1 dB reduction in maximum power spectral density is required for each 1 dB of antenna gain in excess of 23 dBi.

(iv) For mobile and portable client devices in the 5.15 - 5.25 GHz band, the maximum power spectral density shall not exceed 11 dBm in any 1 MHz band. note1

(2) For the 5.25 - 5.35 GHz and 5.47 - 5.725 GHz bands, the peak power spectral density shall not exceed 11 dBm in any 1 MHz band. note1

(3) For the band 5.725 - 5.85 GHz, the maximum power spectral density shall not exceed 30 dBm in any 500 kHz band. note1, note2

Note1: If transmitting antennas of directional gain greater than 6 dBi are used, the peak power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

Note2: 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.

Test Procedure

1. Use this procedure when the maximum peak conducted output power in the fundamental emission is used to demonstrate compliance.
2. Set the RBW = 1MHz for U-NII 1, U-NII 2A, U-NII C band and 510KHz for U-NII 3 band.
3. Set the VBW ≥ 3× RBW.
4. Set the span to encompass the entire EBW.
5. Detector = peak.
6. Sweep time = auto couple.
7. Trace mode = max hold.
8. Allow trace to fully stabilize.
9. Use the peak marker function to determine the maximum power level.

Test Configuration

Test Results

U-NII 1

ANT 1

Type	Bands	Channel	Power Spectral Density (dBm/MHz)	Limit (dBm/MHz)	Result
802.11a	U-NII 1	36	-4.82	11.0	Pass
		44	-5.35		
		48	-4.86		
802.11n (HT20)	U-NII 1	36	-4.02		
		40	-5.09		
		48	-4.55		
802.11n (HT40)	U-NII 1	38	-8.74		
		46	-8.33		
802.11ac (HT20)	U-NII 1	36	-4.47		
		44	-5.24		
		48	-5.38		
802.11ac (HT40)	U-NII 1	38	-8.56		
		46	-9.03		
802.11ac (HT80)	U-NII 1	42	-9.30		
802.11ax (HT20)	U-NII 1	36	-4.94		
		44	-5.41		
		48	-4.15		
802.11ax (HT40)	U-NII 1	38	-9.66		
		46	-8.70		
802.11ax (HT80)	U-NII 1	42	-10.92		

U-NII 3

Type	Bands	Channel	Power Spectral Density (dBm/300KHz)	Power Spectral Density (dBm/500KHz)	Limit (dBm/500KHz)	Result
802.11a	U-NII 3	149	-7.39	-5.17	30.0	Pass
		157	-8.83	-6.61		
		165	-9.23	-7.01		
802.11n (HT20)	U-NII 3	149	-8.31	-6.09		
		157	-9.36	-7.14		
		165	-9.09	-6.87		
802.11n (HT40)	U-NII 3	151	-11.45	-9.23		
		159	-12.06	-9.84		
802.11ac (HT20)	U-NII 3	149	-8.20	-5.98		
		157	-9.28	-7.06		
		165	-9.42	-7.20		
802.11ac (HT40)	U-NII 3	151	-12.16	-9.94		
		159	-12.69	-10.47		
802.11ac (HT80)	U-NII 3	155	-12.20	-9.98		
802.11ax (HT20)	U-NII 3	149	-7.96	-5.74		
		157	-8.33	-6.11		
		165	-9.38	-7.16		
802.11ax (HT40)	U-NII 3	151	-12.39	-10.17		
		159	-11.89	-9.67		
802.11ax (HT80)	U-NII 3	155	-11.93	-9.71		

U-NII 1

ANT 2

Type	Bands	Channel	Power Spectral Density (dBm/MHz)	Limit (dBm/MHz)	Result
802.11a	U-NII 1	36	-5.12	11.0	Pass
		44	-4.57		
		48	-4.99		
802.11n (HT20)	U-NII 1	36	-4.72		
		40	-4.39		
		48	-4.74		
802.11n (HT40)	U-NII 1	38	-8.72		
		46	-8.44		
802.11ac (HT20)	U-NII 1	36	-4.69		
		44	-4.59		
		48	-5.30		
802.11ac (HT40)	U-NII 1	38	-8.69		
		46	-8.87		
802.11ac (HT80)	U-NII 1	42	-8.76		
802.11ax (HT20)	U-NII 1	36	-4.51		
		44	-4.71		
		48	-5.33		
802.11ax (HT40)	U-NII 1	38	-8.39		
		46	-8.53		
802.11ax (HT80)	U-NII 1	42	-9.47		

U-NII 3

Type	Bands	Channel	Power Spectral Density (dBm/300KHz)	Power Spectral Density (dBm/500KHz)	Limit (dBm/500KHz)	Result
802.11a	U-NII 3	149	-8.29	-6.07	30.0	Pass
		157	-9.37	-7.15		
		165	-9.65	-7.43		
802.11n (HT20)	U-NII 3	149	-7.39	-5.17		
		157	-9.08	-6.86		
		165	-8.22	-6.00		
802.11n (HT40)	U-NII 3	151	-10.78	-8.56		
		159	-11.61	-9.39		
802.11ac (HT20)	U-NII 3	149	-8.05	-5.83		
		157	-8.95	-6.73		
		165	-9.01	-6.79		
802.11ac (HT40)	U-NII 3	151	-12.36	-10.14		
		159	-12.79	-10.57		
802.11ac (HT80)	U-NII 3	155	-11.27	-9.05		
802.11ax (HT20)	U-NII 3	149	-7.94	-5.72		
		157	-9.07	-6.85		
		165	-8.63	-6.41		
802.11ax (HT40)	U-NII 3	151	-12.25	-10.03		
		159	-11.91	-9.69		
802.11ax (HT80)	U-NII 3	155	-11.89	-9.67		

Remark: P.S.D(dBm/500KHz)= P.S.D(dBm/300KHz)+10 log (500 kHz/300KHz).

For MIMO:

U-NII 1

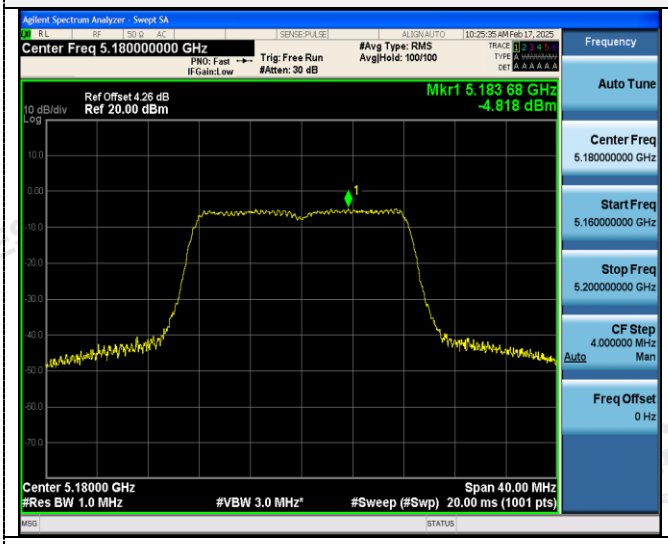
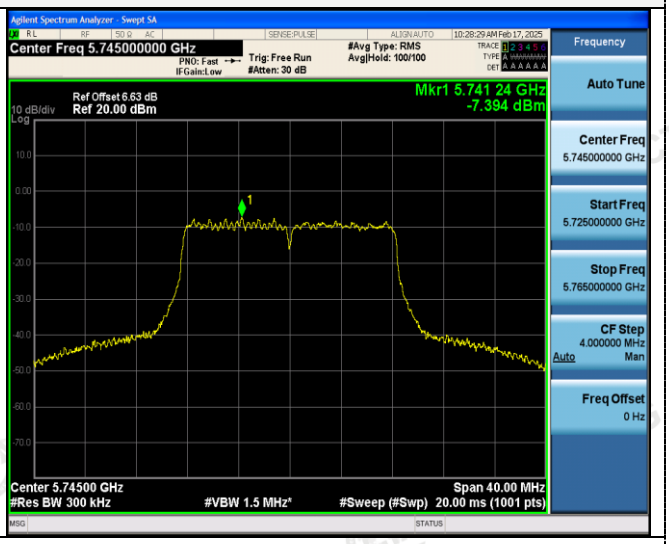
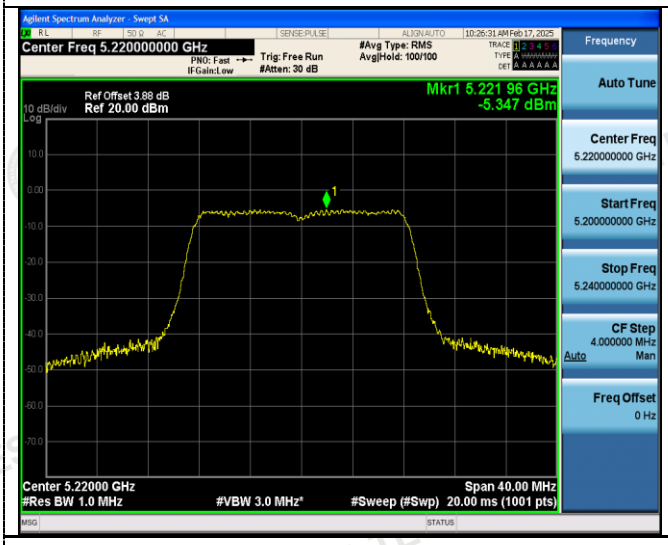
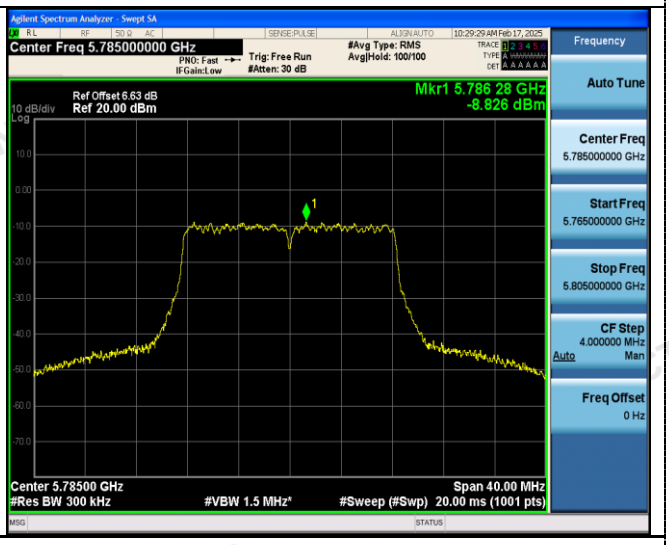
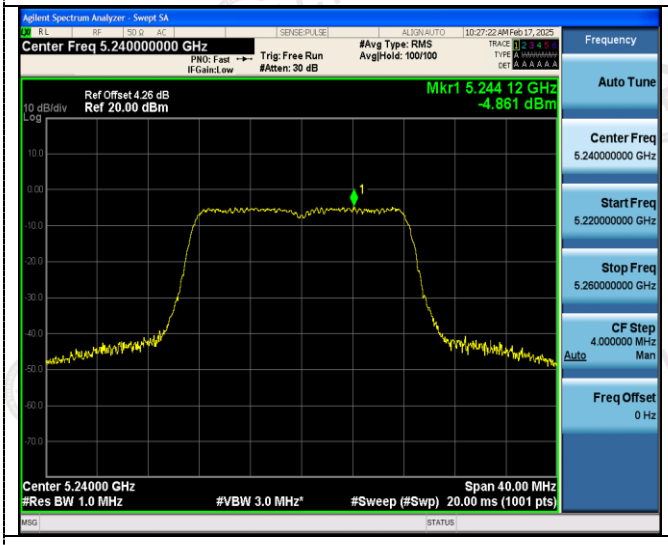
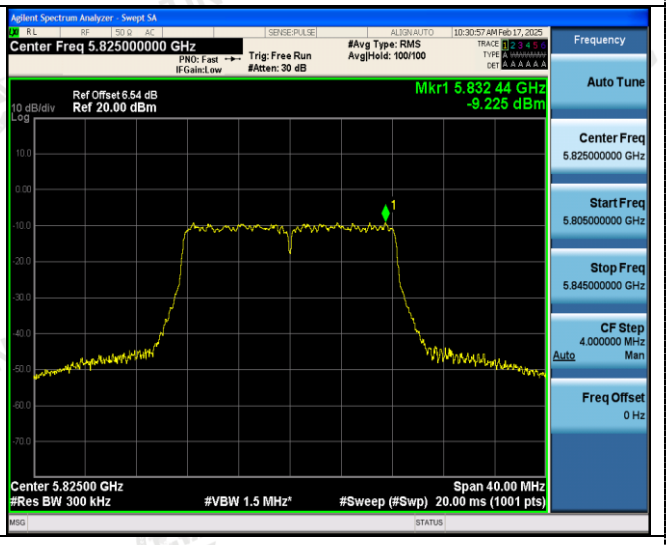
Type	Channel	Power Spectral Density ANT1	Power Spectral Density ANT2	Power Spectral Density MIMO	Limit (dBm)	Result
802.11n(HT20)	36	-4.02	-4.72	-1.35	11.0	PASS
	44	-5.09	-4.39	-1.72		
	48	-4.55	-4.74	-1.63		
802.11n(HT40)	38	-8.74	-8.72	-5.72		
	46	-8.33	-8.44	-5.37		
802.11ac(HT20)	36	-4.47	-4.69	-1.57		
	44	-5.24	-4.59	-1.89		
	48	-5.38	-5.30	-2.33		
802.11ac(HT40)	38	-8.56	-8.69	-5.61		
	46	-9.03	-8.87	-5.94		
802.11ac (HT80)	42	-9.30	-8.76	-6.01		
802.11ax(HT20)	36	-4.94	-4.51	-1.71		
	44	-5.41	-4.71	-2.04		
	48	-4.15	-5.33	-1.69		
802.11ax(HT40)	38	-9.66	-8.39	-5.97		
	46	-8.70	-8.53	-5.60		
802.11ax (HT80)	42	-10.92	-9.47	-7.12		

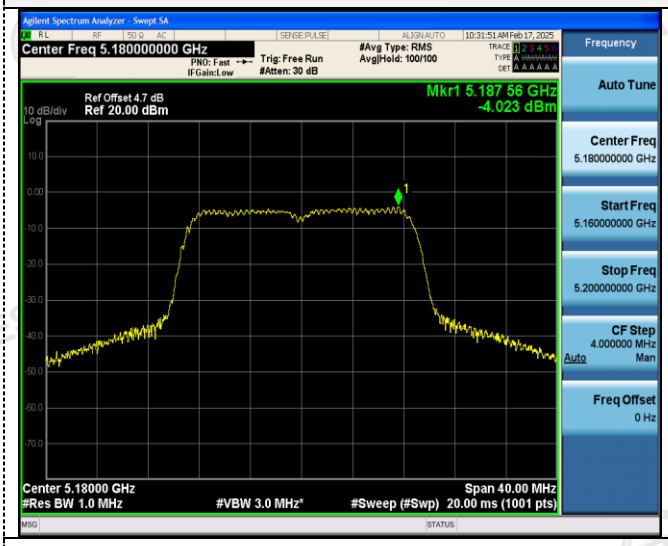
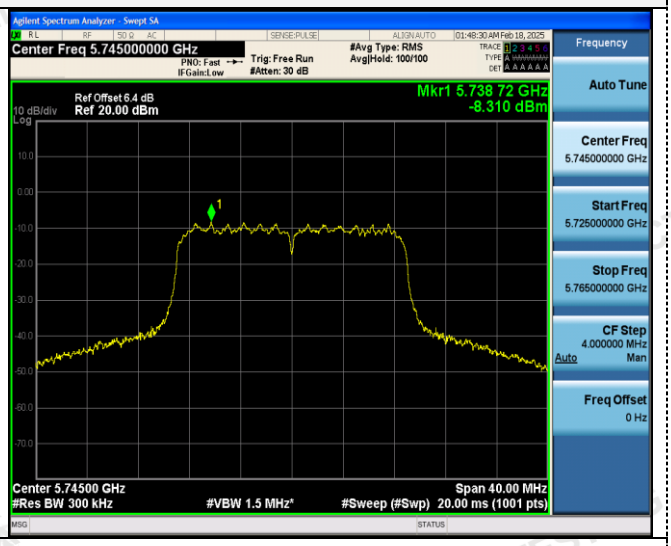
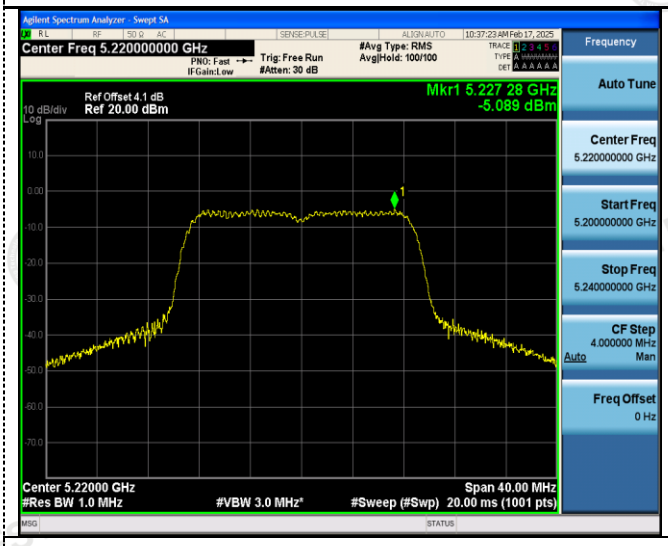
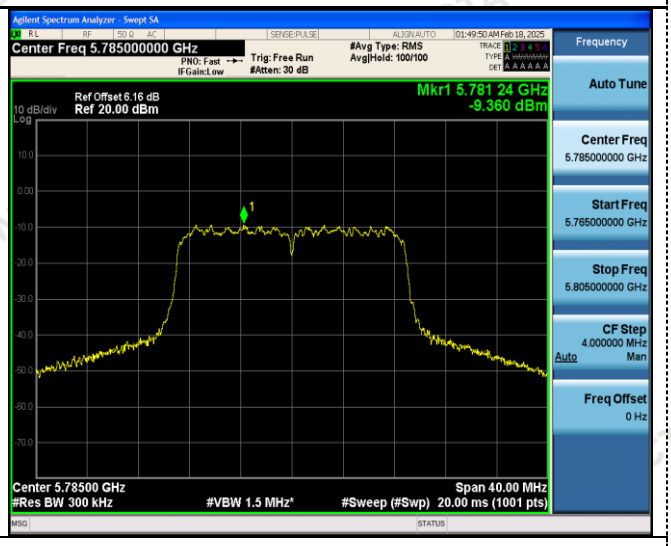
U-NII 3

Type	Channel	Power Spectral Density (dBm/500KHz) ANT1	Power Spectral Density (dBm/500KHz) ANT2	Power Spectral Density (dBm/500KHz) MIMO	Limit (dBm)	Result
802.11n(HT20)	149	-6.09	-5.17	-2.60	30.0	Pass
	157	-7.14	-6.86	-3.99		
	165	-6.87	-6.00	-3.40		
802.11n(HT40)	151	-9.23	-8.56	-5.87		
	159	-9.84	-9.39	-6.60		
802.11ac(HT20)	149	-5.98	-5.83	-2.89		
	157	-7.06	-6.73	-3.88		
	165	-7.20	-6.79	-3.98		
802.11ac(HT40)	151	-9.94	-10.14	-7.03		
	159	-10.47	-10.57	-7.51		
802.11ac(HT80)	155	-9.98	-9.05	-6.48		
802.11ax(HT20)	149	-5.74	-5.72	-2.72		
	157	-6.11	-6.85	-3.45		
	165	-7.16	-6.41	-3.76		
802.11ax(HT40)	151	-10.17	-10.03	-7.09		
	159	-9.67	-9.69	-6.67		
802.11ac(HT80)	155	-9.71	-9.67	-6.68		

Test plot as follows

ANT 1

802.11a	
U-NII 1	U-NII 3
	
CH36	CH149
	
CH40	CH157
	
CH48	CH165

802.11n(HT20)	
U-NII 1	U-NII 3
	
CH36	CH149
	
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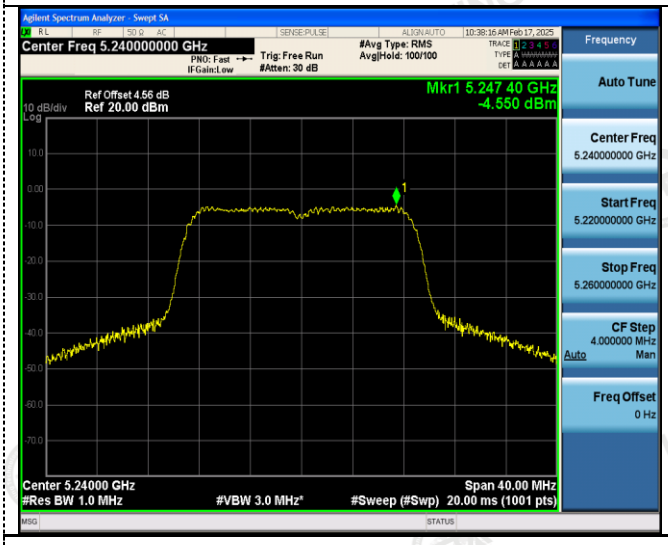	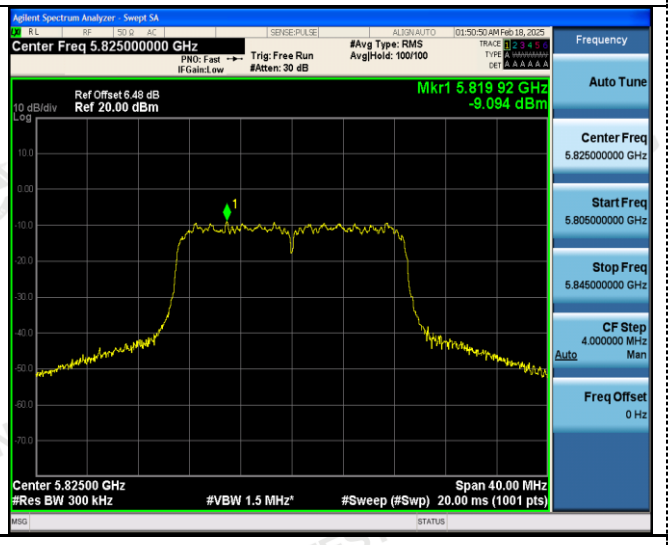
CH48	CH165

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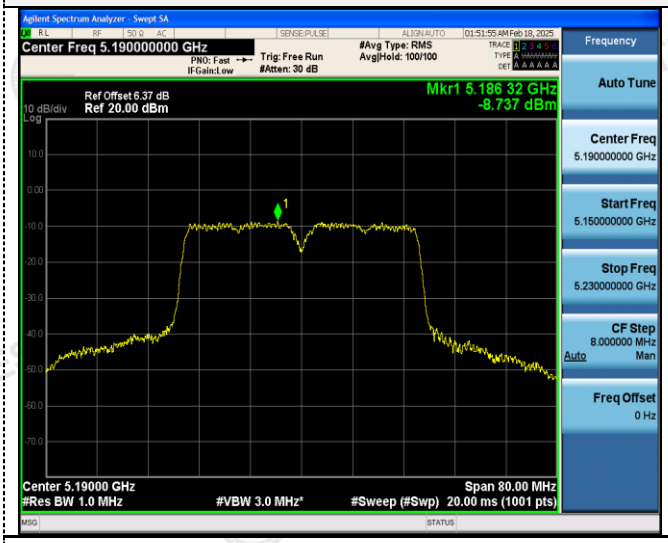	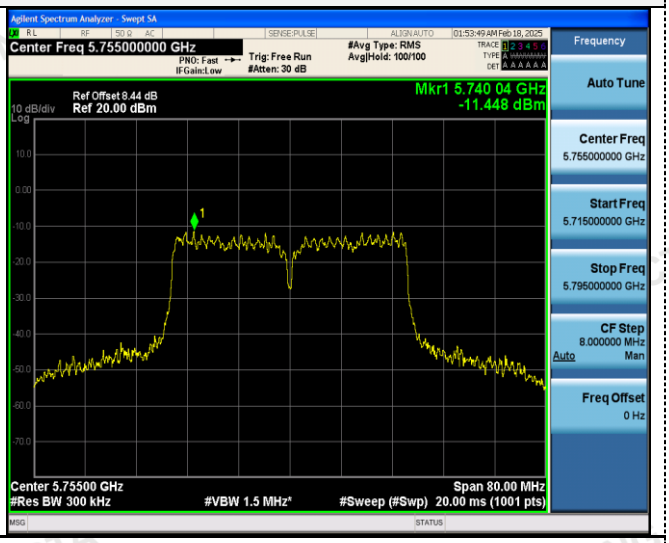
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	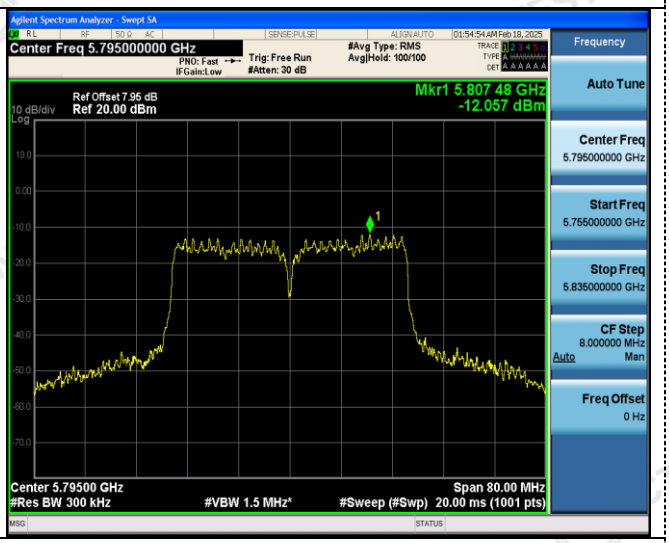
CH46	CH159

802.11ac(HT20)	
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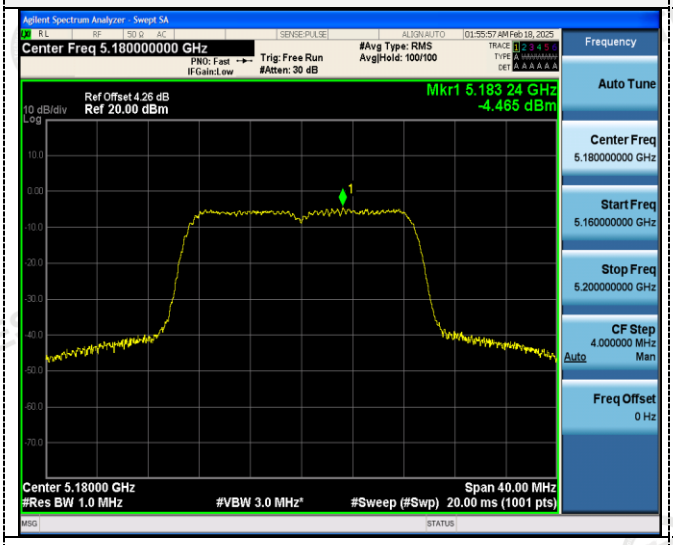	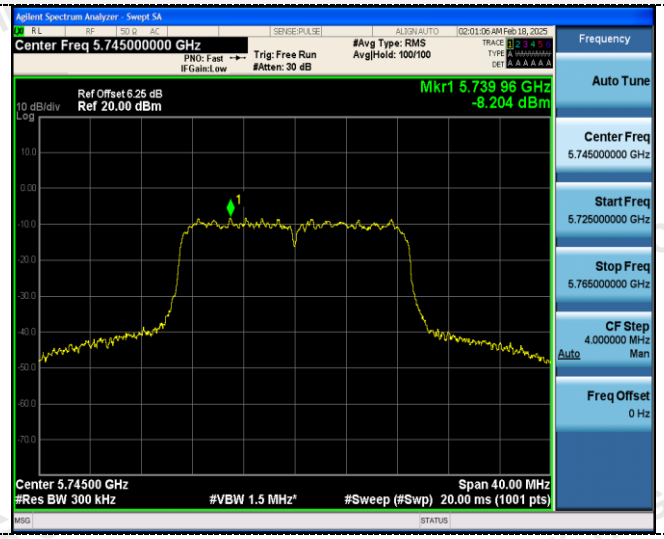
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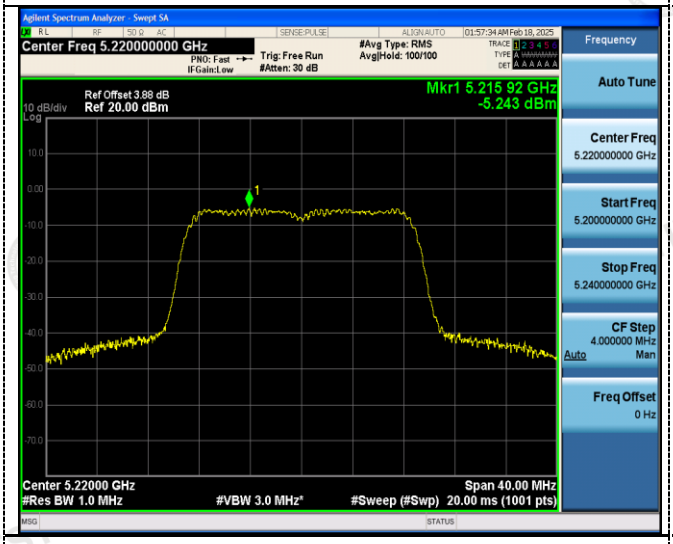	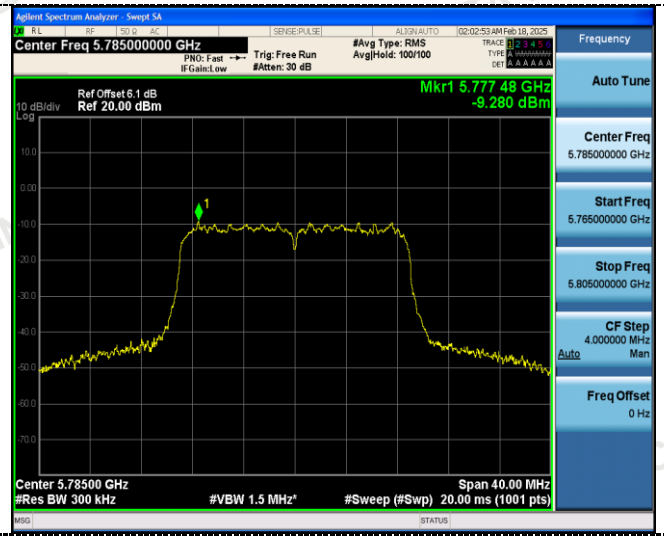
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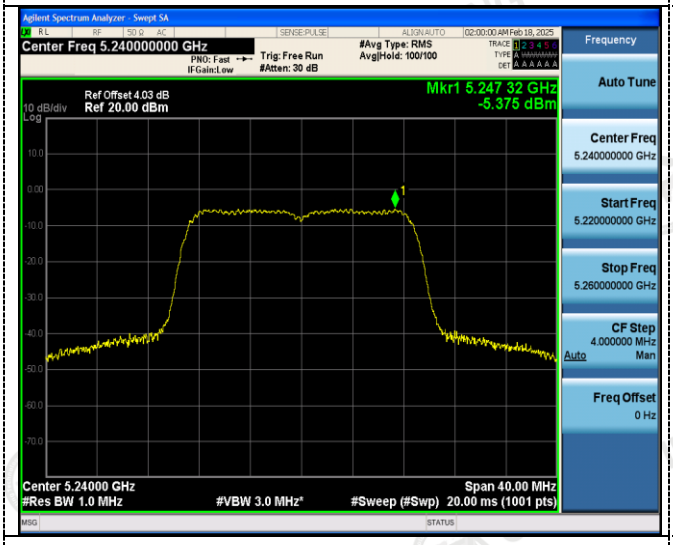	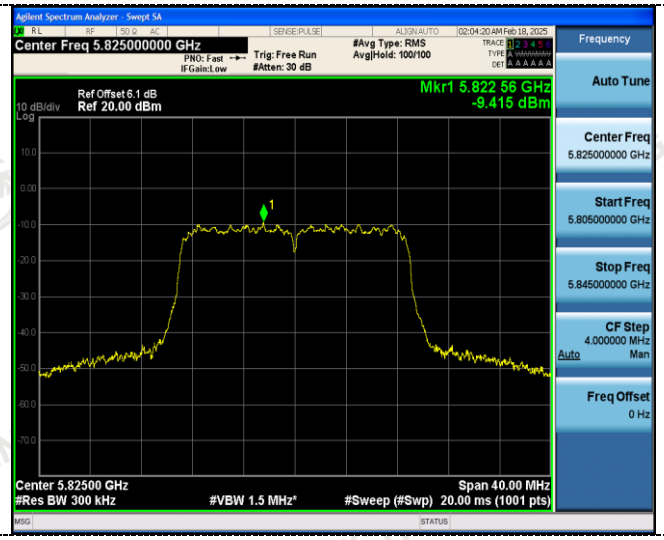
CH48	CH165

802.11ac(HT40)	
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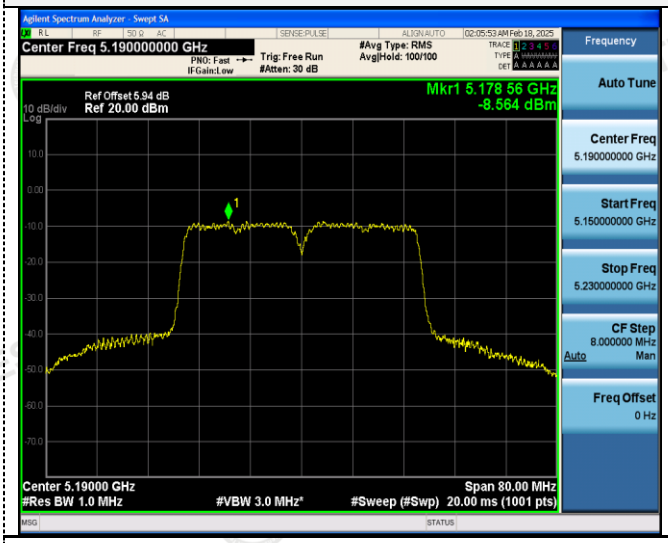	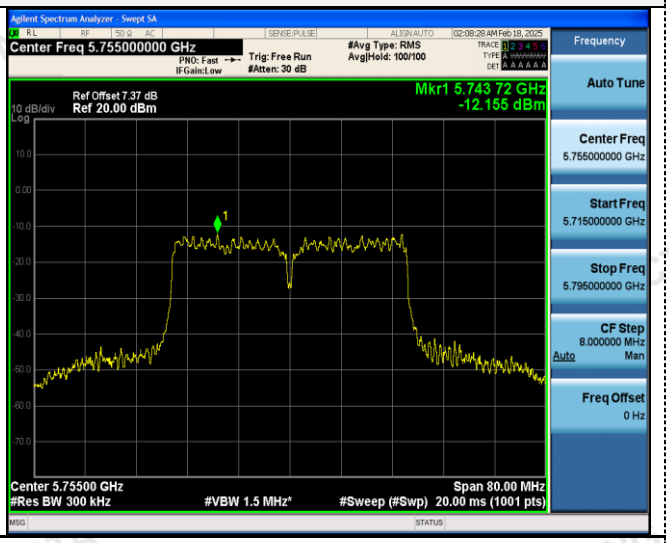
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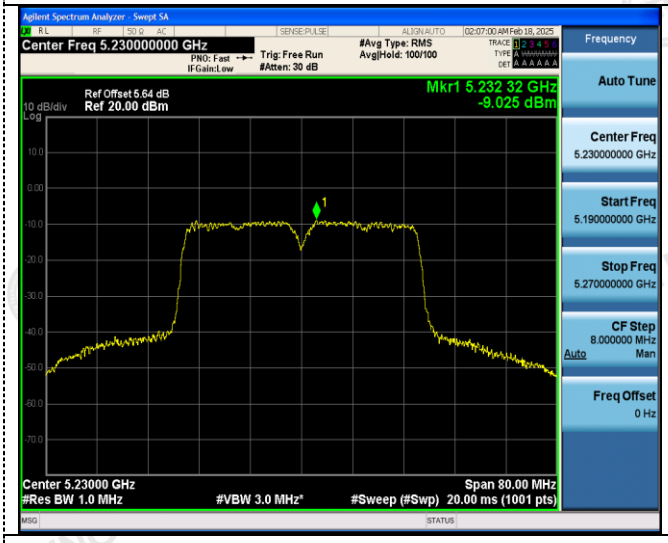
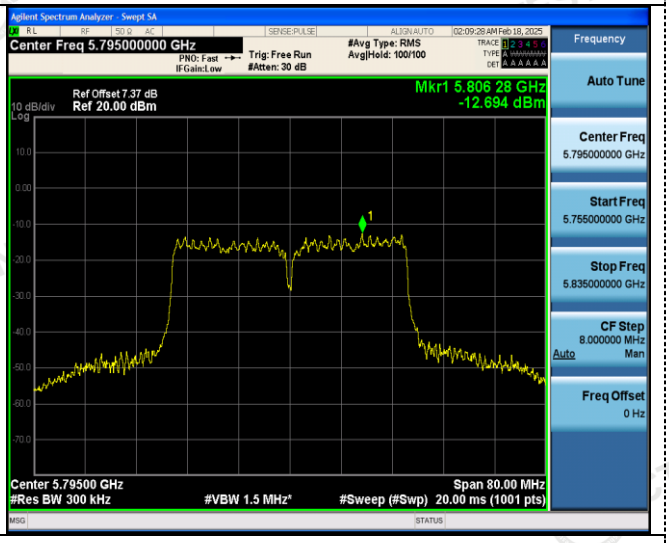
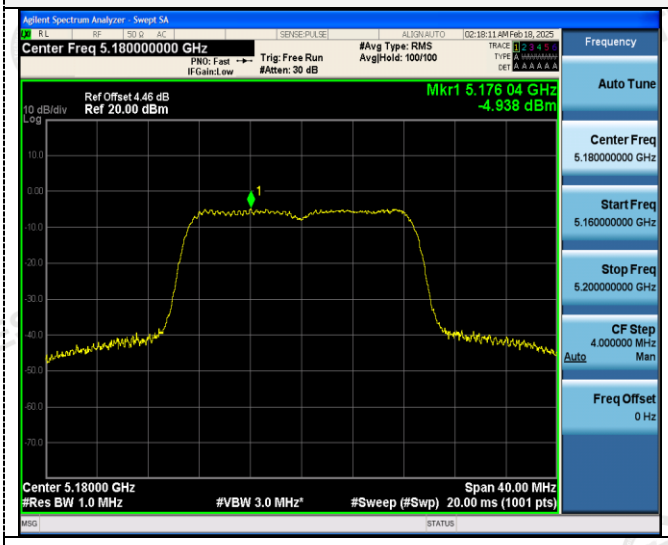
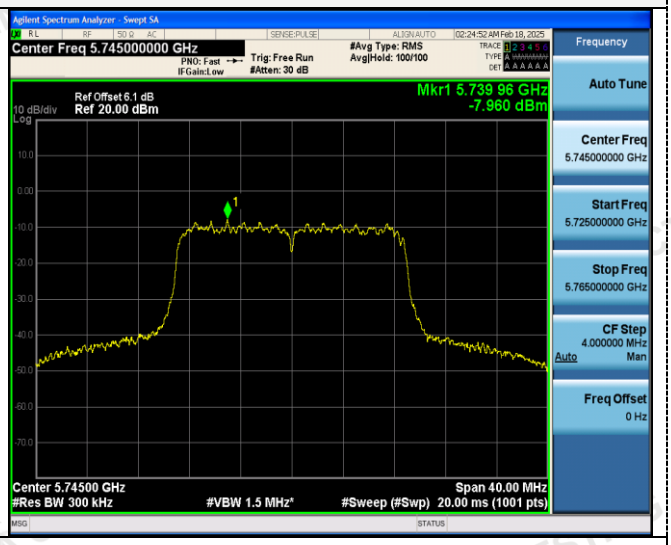
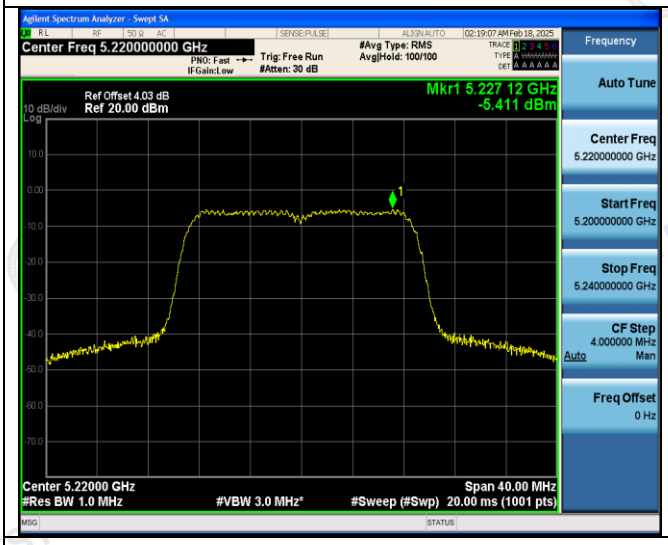
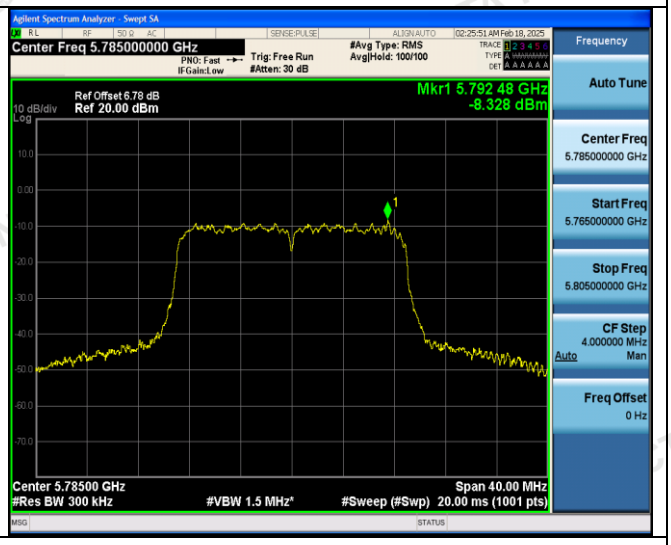
	
CH46	CH159
802.11ac(HT80)	
U-NII 1	U-NII 3
	
CH42	CH155

802.11ax(HT20)	
U-NII 1	U-NII 3
	
CH36	CH149
	
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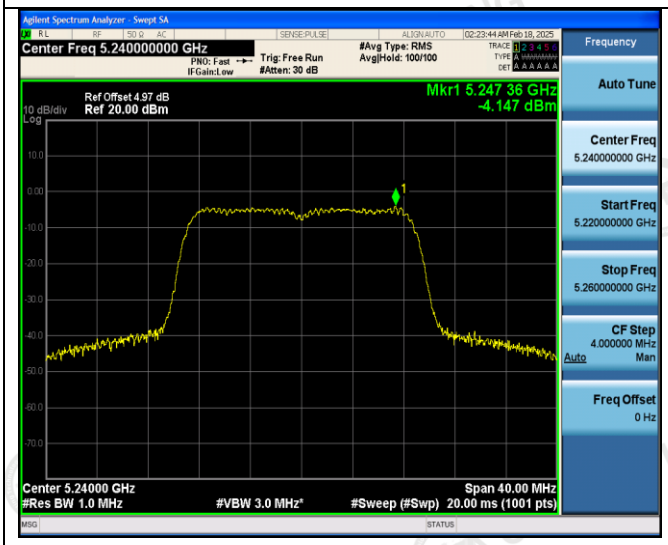	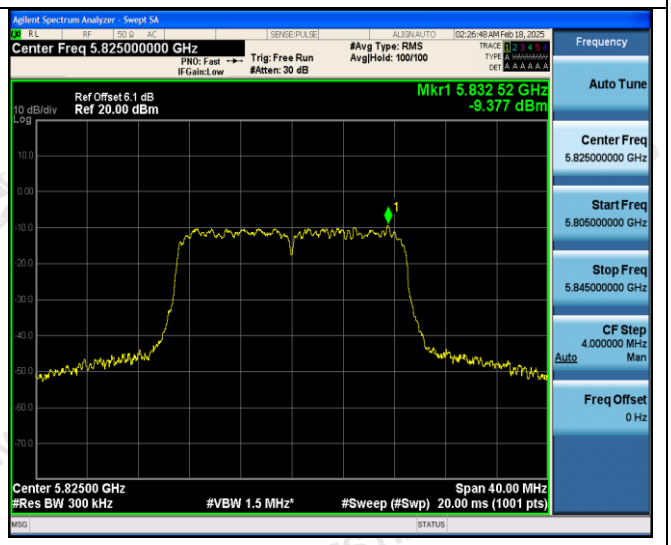
CH48	CH165