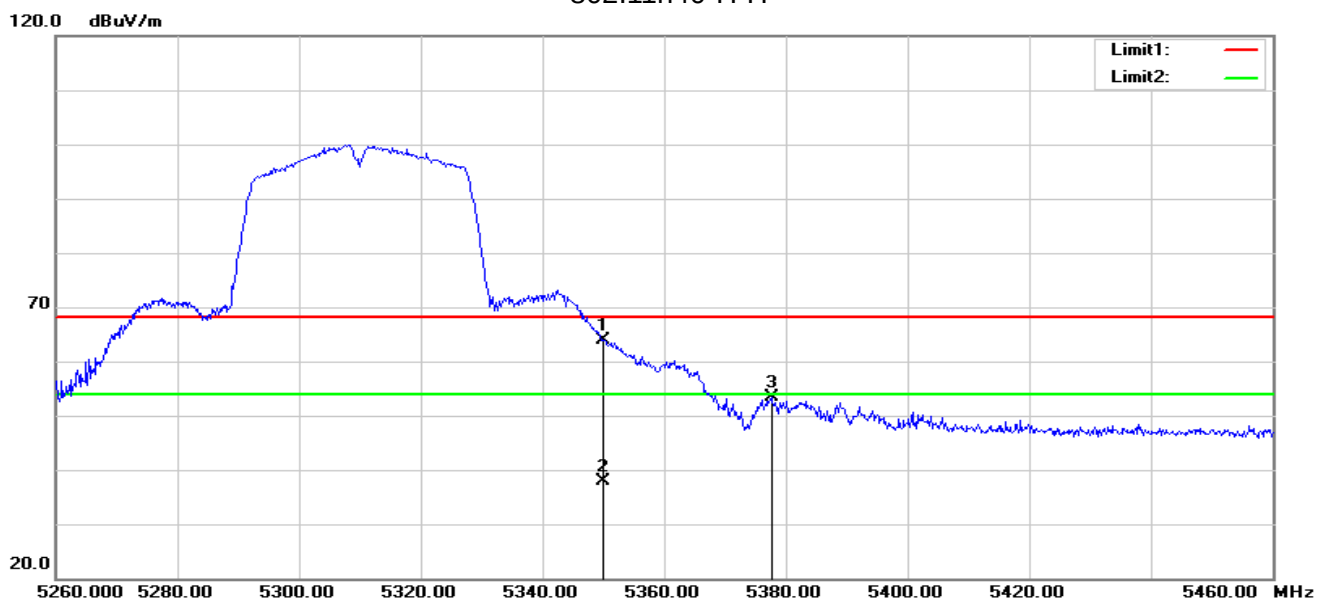


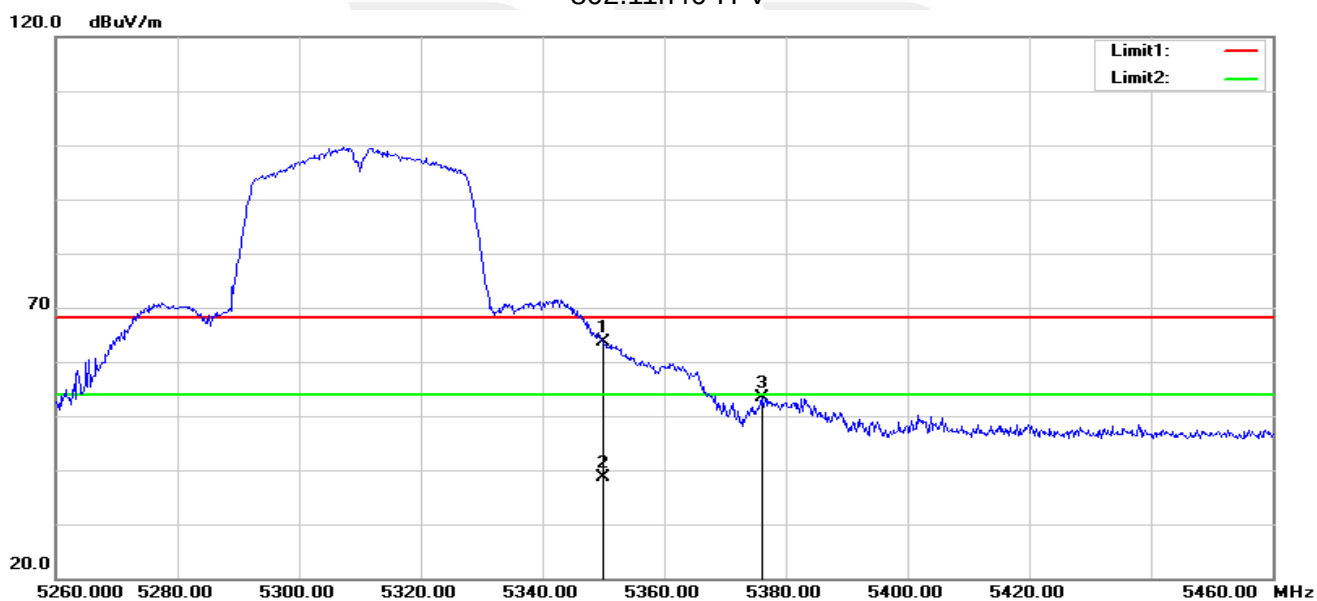


802.11n40-H-H



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5350.000	69.15	-5.23	63.92	68.20	-4.28	peak
2	5350.000	43.04	-5.23	37.81	54.00	-16.19	AVG
3	5377.600	58.58	-5.24	53.34	68.20	-14.86	peak

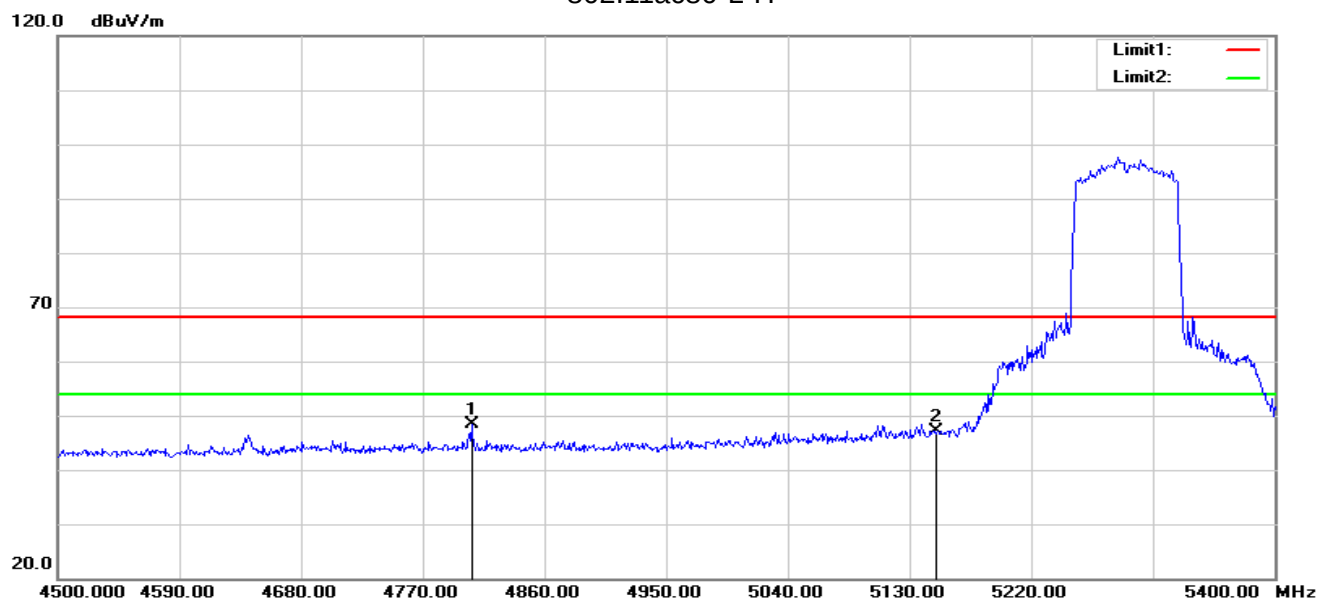
802.11n40-H-V



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5350.000	68.97	-5.23	63.74	68.20	-4.46	peak
2	5350.000	43.84	-5.23	38.61	54.00	-15.39	AVG
3	5376.000	58.55	-5.24	53.31	68.20	-14.89	peak

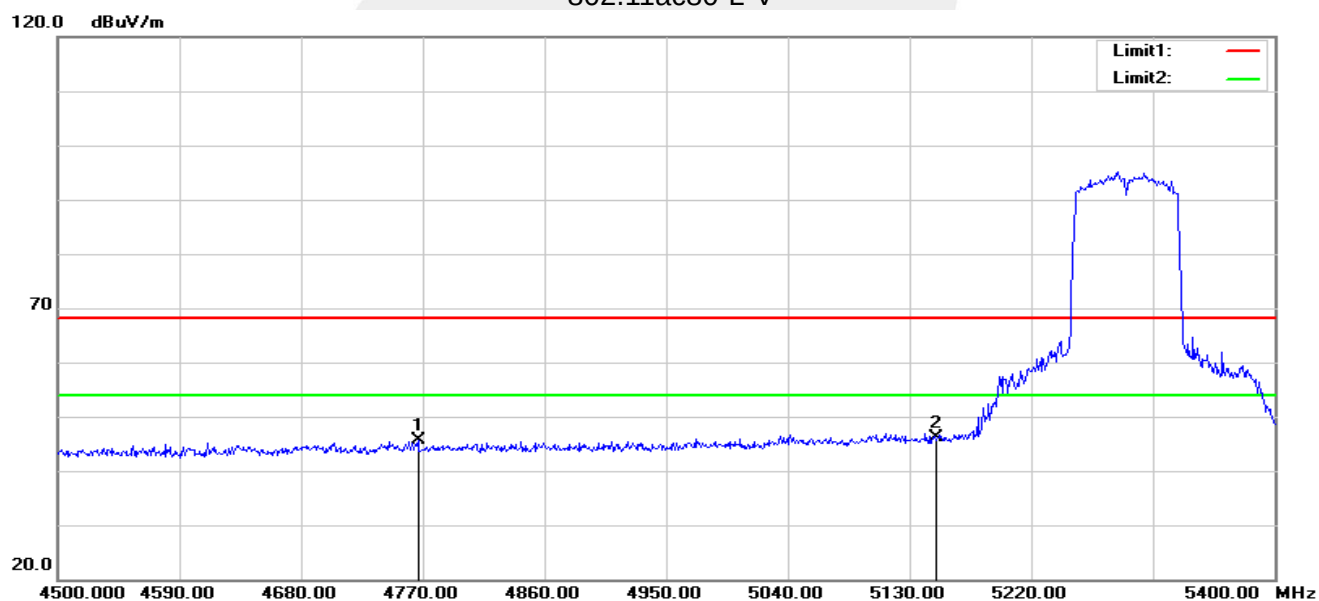


802.11ac80-L-H



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	4806.000	55.54	-7.20	48.34	68.20	-19.86	peak
2	5150.000	52.90	-5.73	47.17	68.20	-21.03	peak

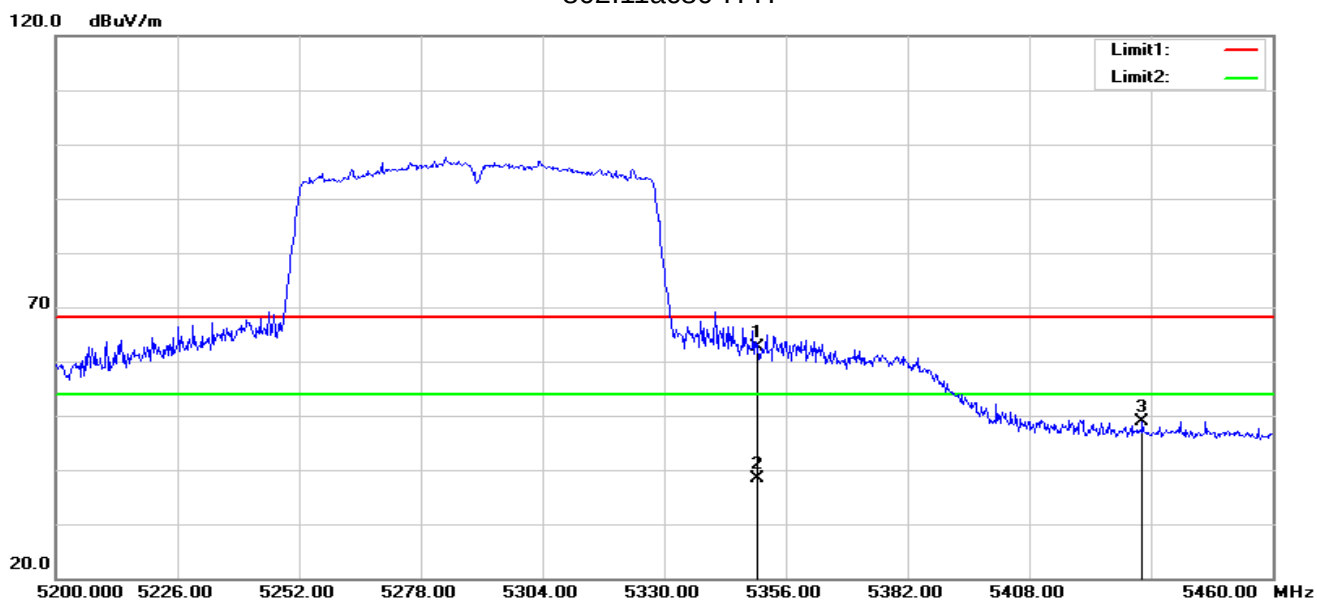
802.11ac80-L-V



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	4766.400	52.83	-7.27	45.56	68.20	-22.64	peak
2	5150.000	51.96	-5.73	46.23	68.20	-21.97	peak

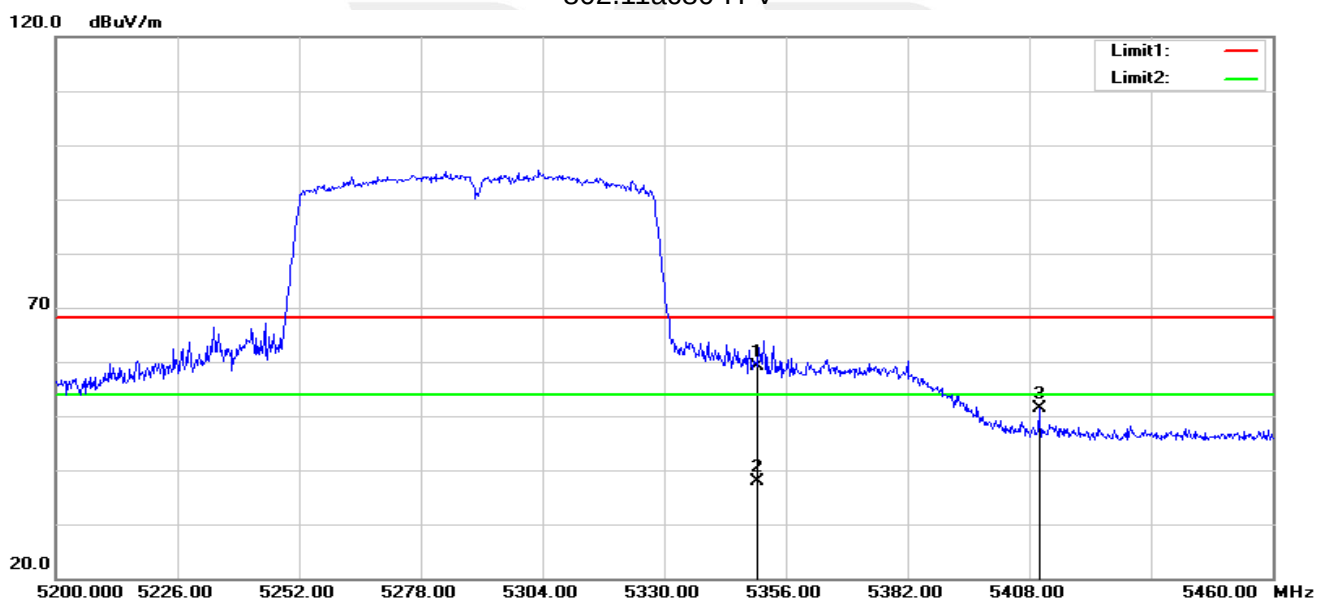


802.11ac80-H-H



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5350.000	67.88	-5.23	62.65	68.20	-5.55	peak
2	5350.000	43.68	-5.23	38.45	54.00	-15.55	AVG
3	5432.180	54.01	-5.17	48.84	68.20	-19.36	peak

802.11ac80-H-V



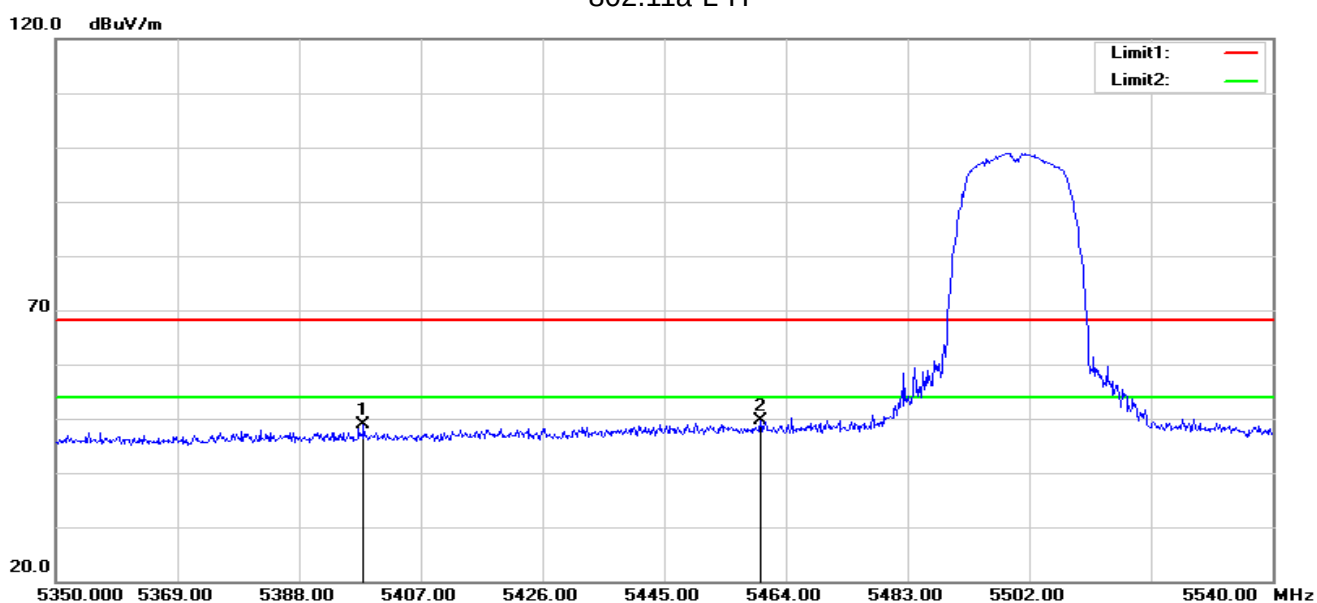
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5350.000	64.31	-5.23	59.08	68.20	-9.12	peak
2	5350.000	43.14	-5.23	37.91	54.00	-16.09	AVG
3	5410.080	56.63	-5.22	51.41	68.20	-16.79	peak

Note: All modes have been tested. Only the worst mode shown in the report.



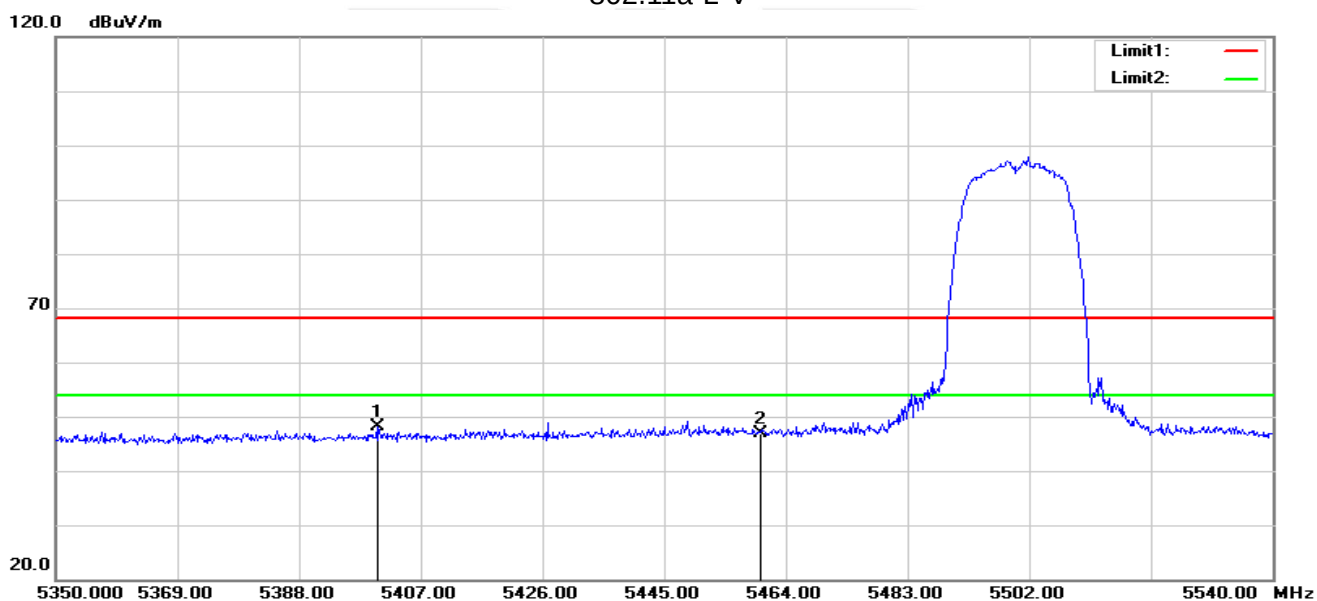
Band III 5470-5725MHz

802.11a-L-H



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5398.070	54.24	-5.25	48.99	68.20	-19.21	peak
2	5460.000	54.74	-5.11	49.63	68.20	-18.57	peak

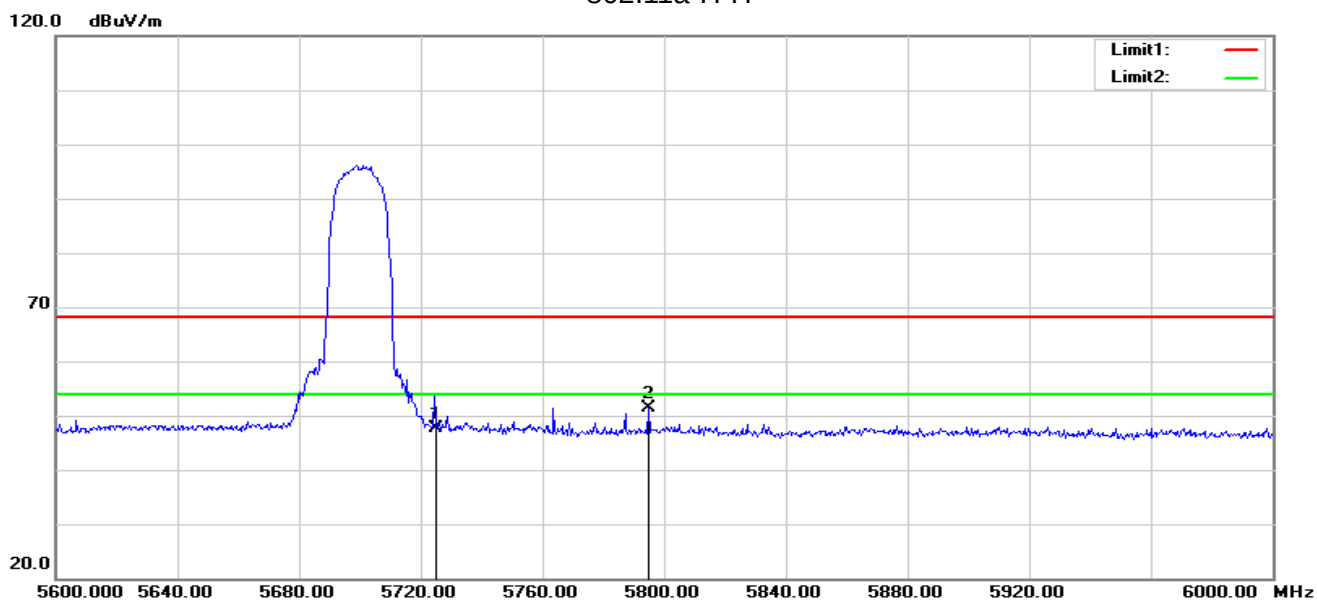
802.11a-L-V



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5400.160	53.47	-5.25	48.22	68.20	-19.98	peak
2	5460.000	52.11	-5.11	47.00	68.20	-21.20	peak

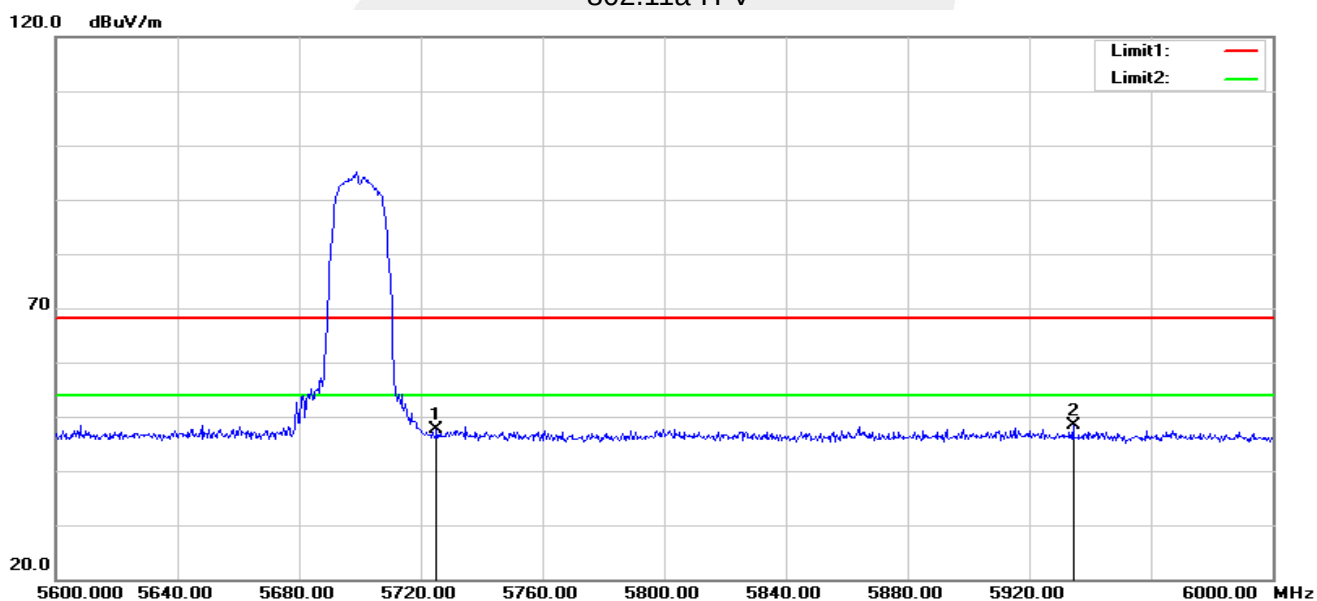


802.11a-H-H



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5725.000	52.24	-4.57	47.67	68.20	-20.53	peak
2	5794.800	55.68	-4.34	51.34	68.20	-16.86	peak

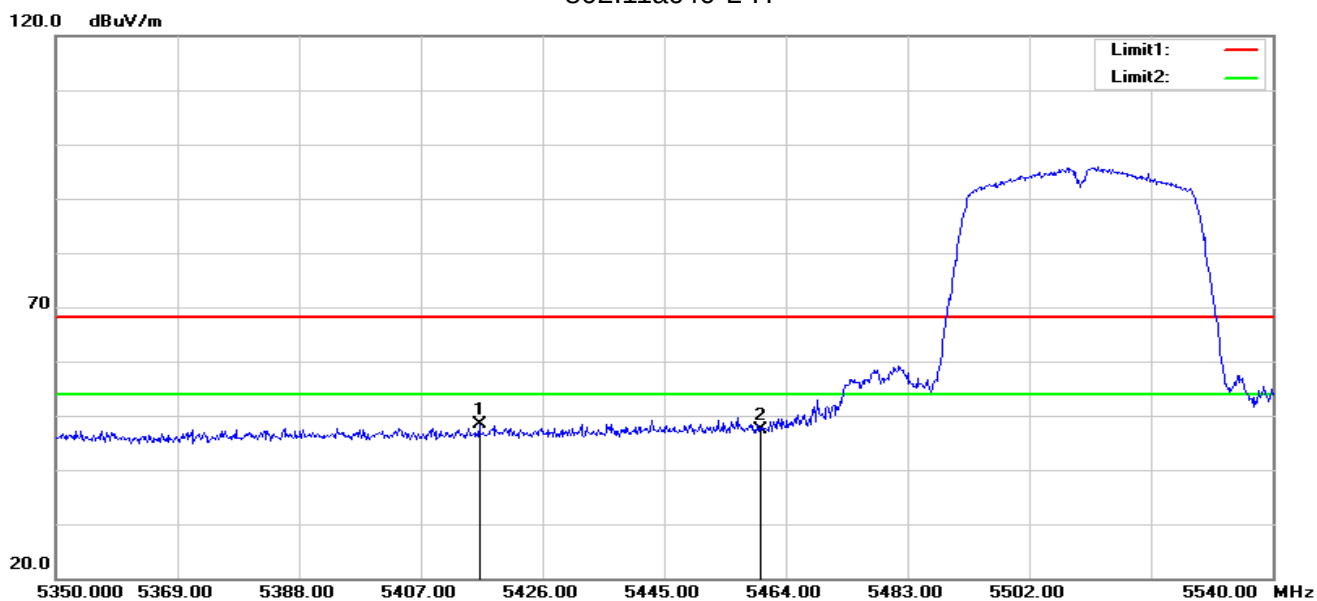
802.11a-H-V



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5725.000	52.11	-4.57	47.54	68.20	-20.66	peak
2	5934.400	52.32	-3.93	48.39	68.20	-19.81	peak

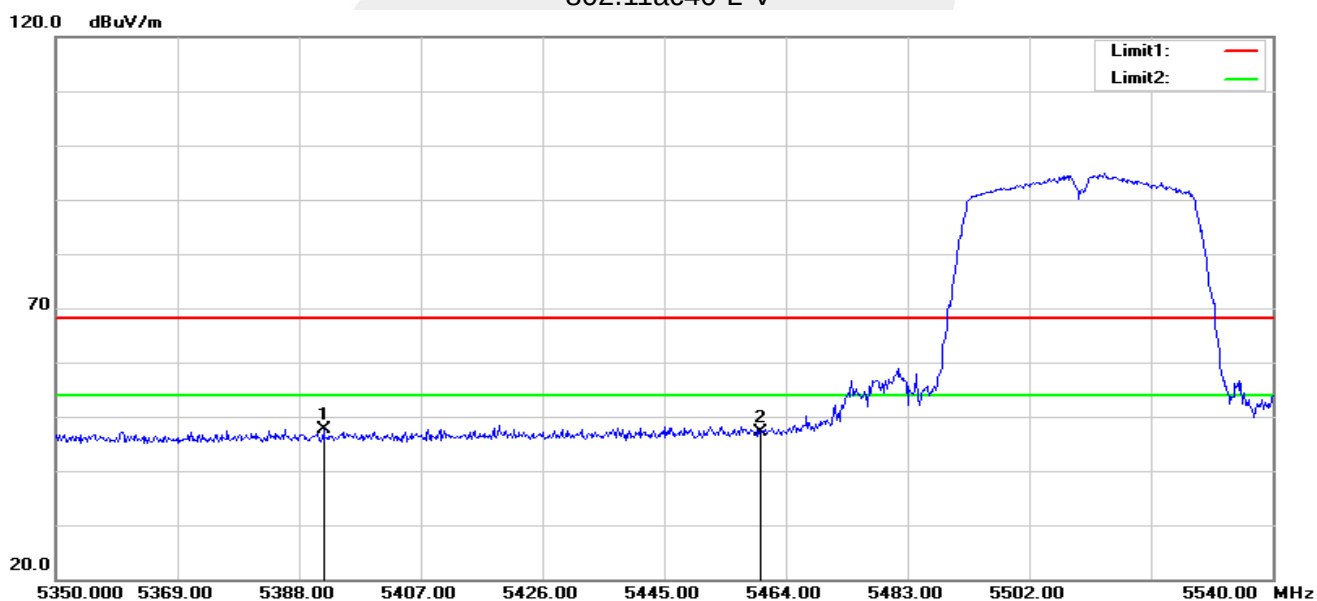


802.11ac40-L-H



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5416.120	53.66	-5.22	48.44	68.20	-19.76	peak
2	5460.000	52.43	-5.11	47.32	68.20	-20.88	peak

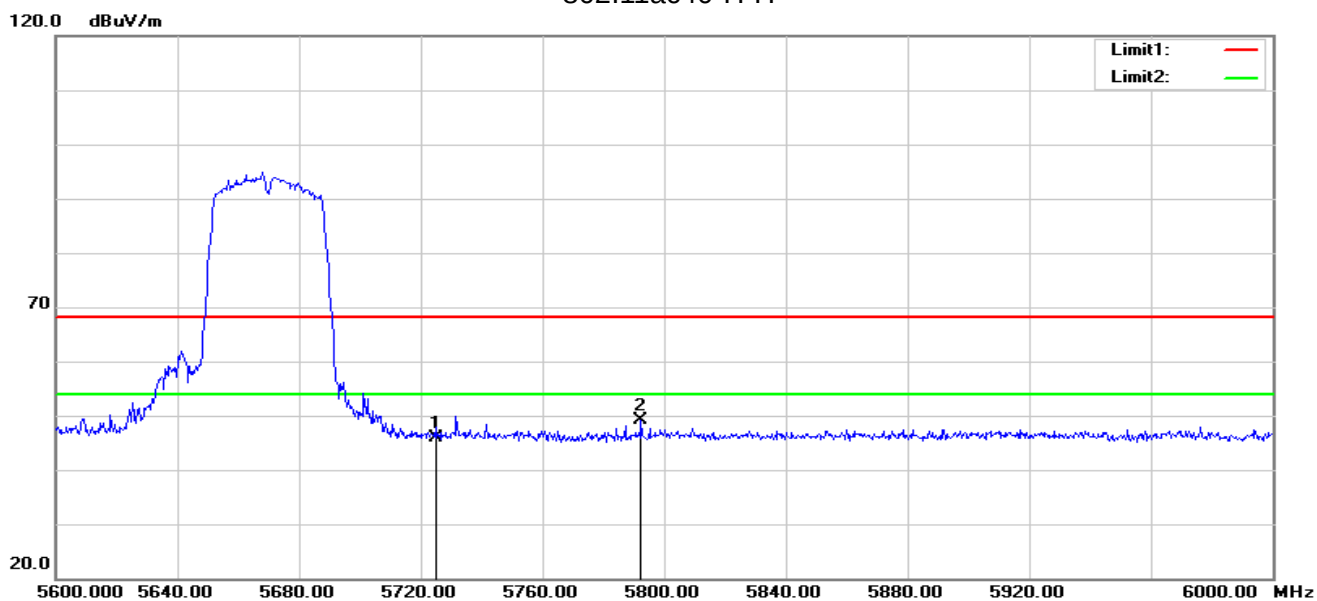
802.11ac40-L-V



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5391.800	52.98	-5.25	47.73	68.20	-20.47	peak
2	5460.000	52.15	-5.11	47.04	68.20	-21.16	peak

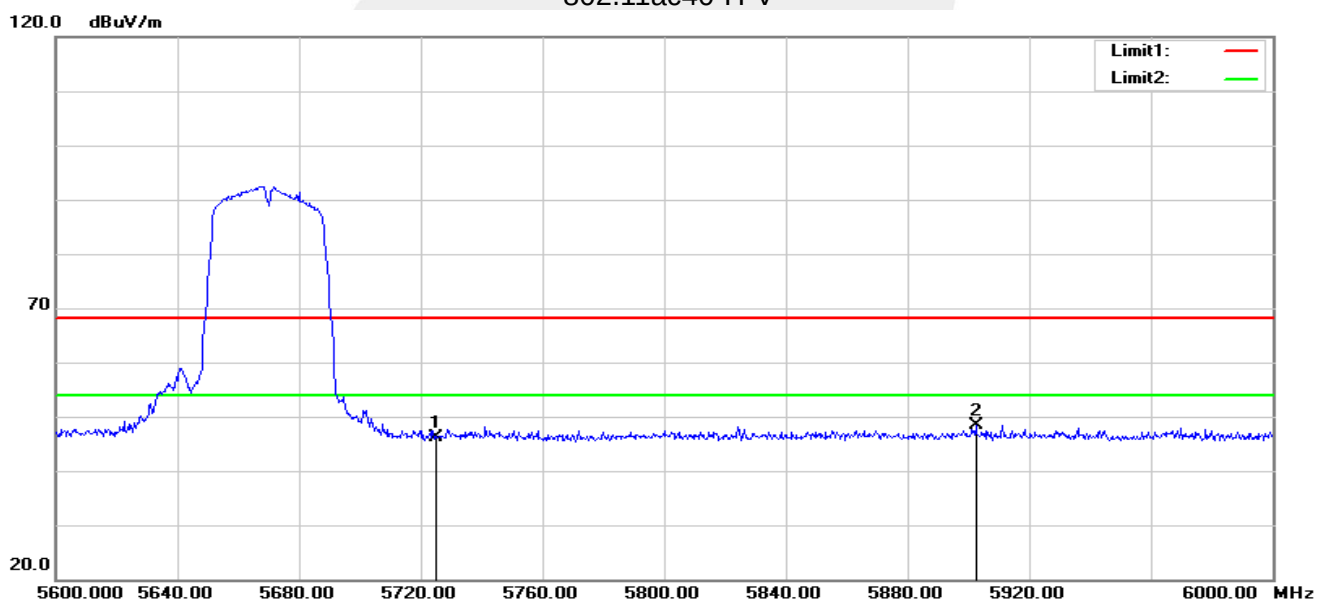


802.11ac40-H-H



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5725.000	50.36	-4.57	45.79	68.20	-22.41	peak
2	5792.400	53.46	-4.34	49.12	68.20	-19.08	peak

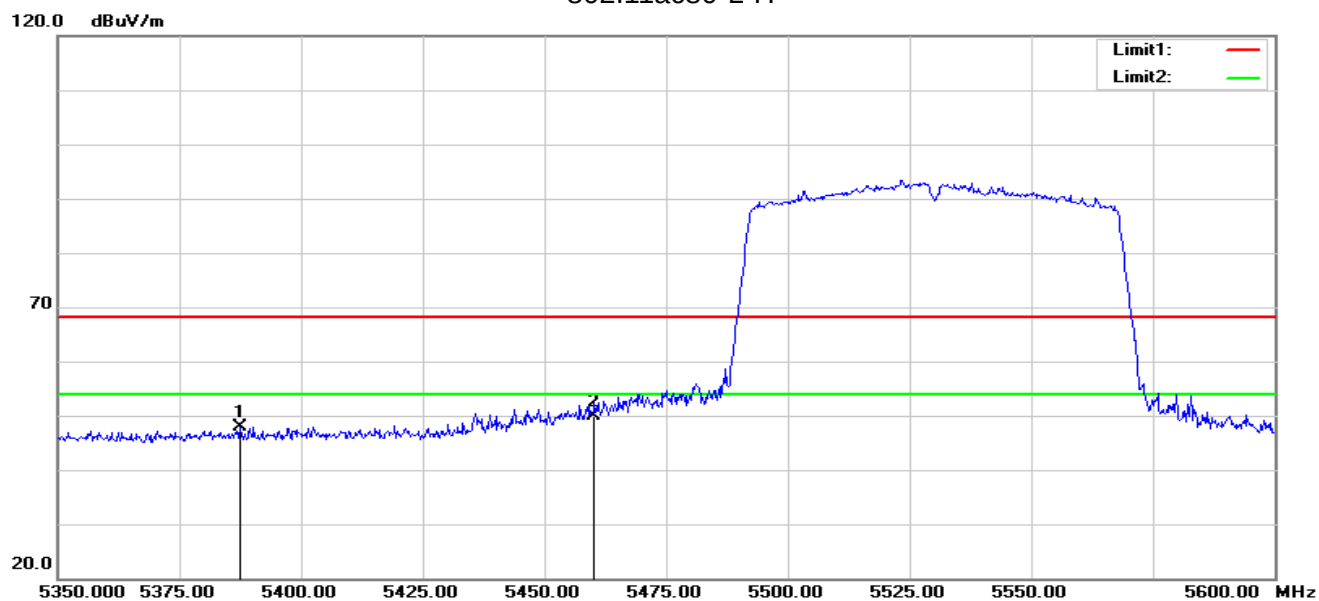
802.11ac40-H-V



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5725.000	50.70	-4.57	46.13	68.20	-22.07	peak
2	5902.400	52.21	-3.89	48.32	68.20	-19.88	peak

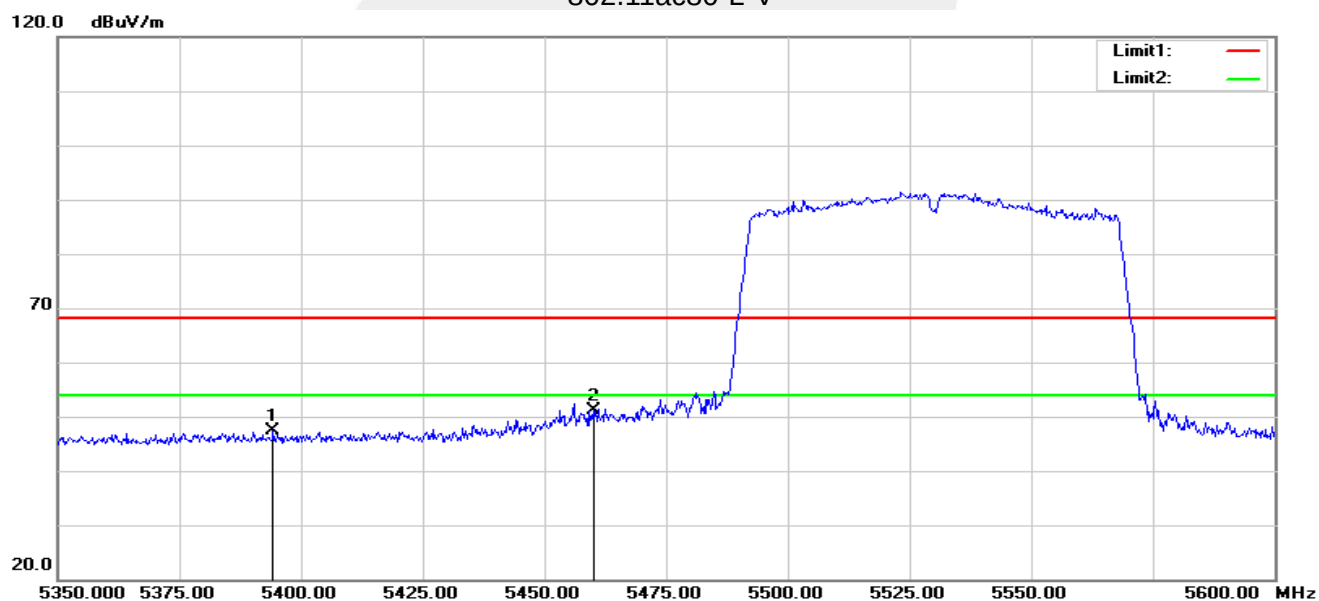


802.11ac80-L-H



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5387.500	53.19	-5.25	47.94	68.20	-20.26	peak
2	5460.000	55.03	-5.11	49.92	68.20	-18.28	peak

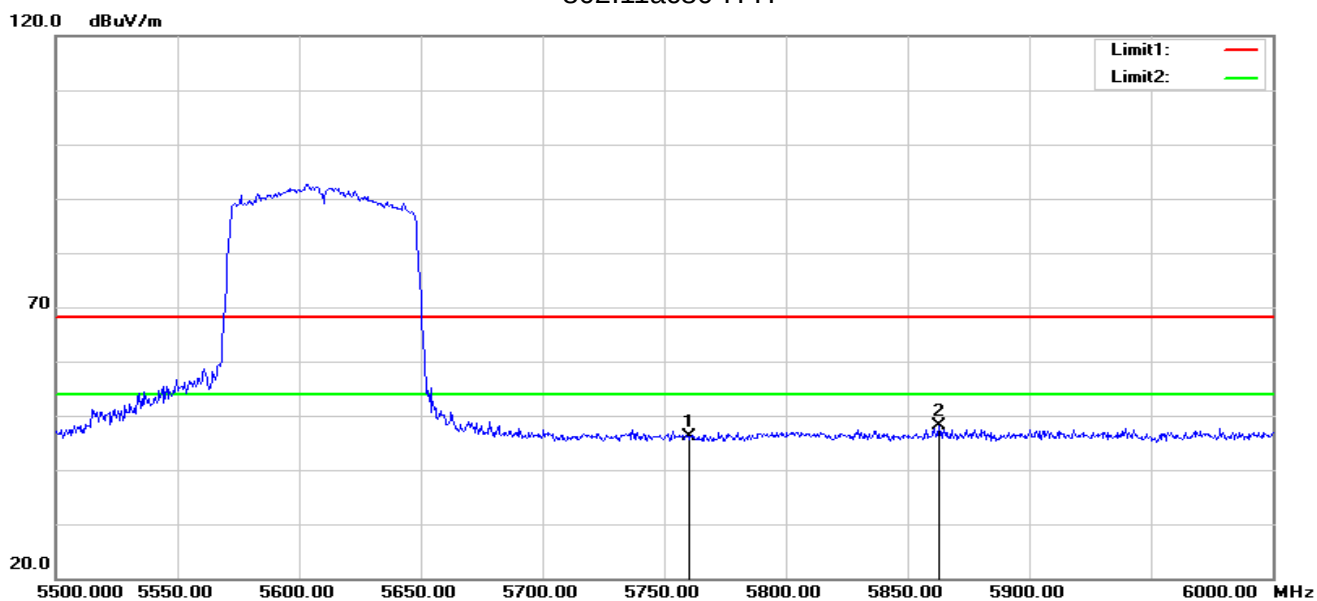
802.11ac80-L-V



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5394.250	52.70	-5.24	47.46	68.20	-20.74	peak
2	5460.000	56.14	-5.11	51.03	68.20	-17.17	peak

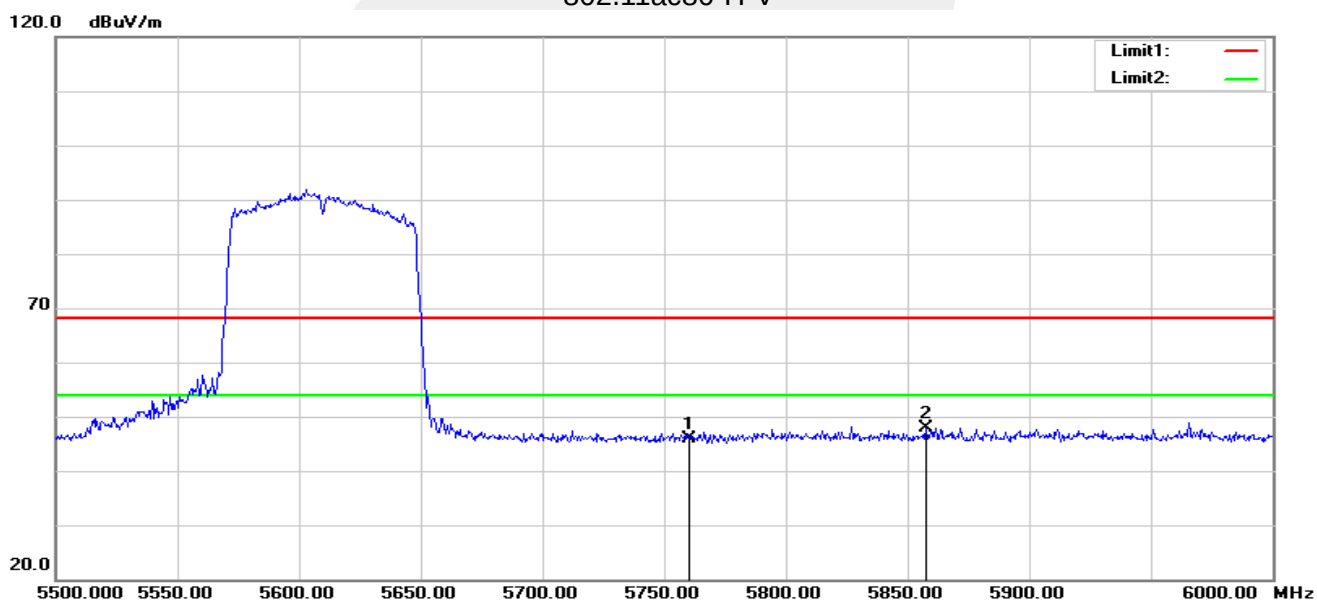


802.11ac80-H-H



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5760.000	50.63	-4.45	46.18	68.20	-22.02	peak
2	5863.000	52.06	-4.04	48.02	68.20	-20.18	peak

802.11ac80-H-V



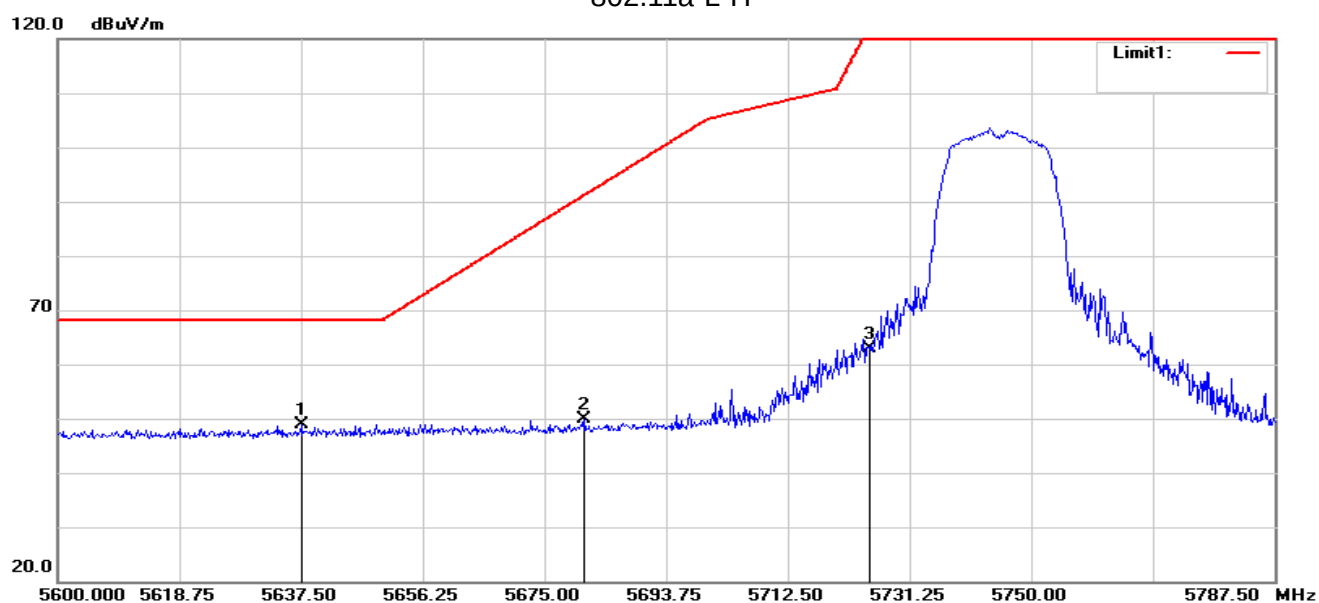
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5760.000	50.28	-4.45	45.83	68.20	-22.37	peak
2	5857.500	51.98	-4.07	47.91	68.20	-20.29	peak

Note: All modes have been tested. Only the worst mode shown in the report.



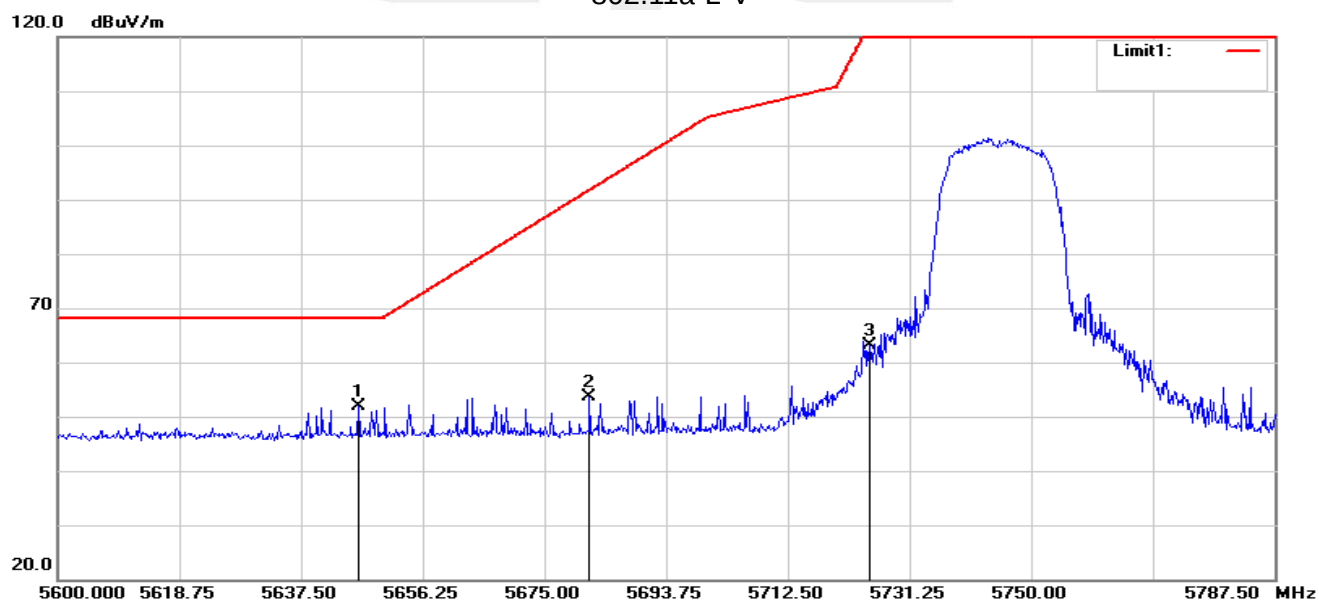
Band IV(5.725-5.85 GHz)

802.11a-L-H



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5637.500	53.67	-4.69	48.98	68.20	-19.22	peak
2	5681.188	54.58	-4.67	49.91	91.28	-41.37	peak
3	5725.000	67.53	-4.57	62.96	122.20	-59.24	peak

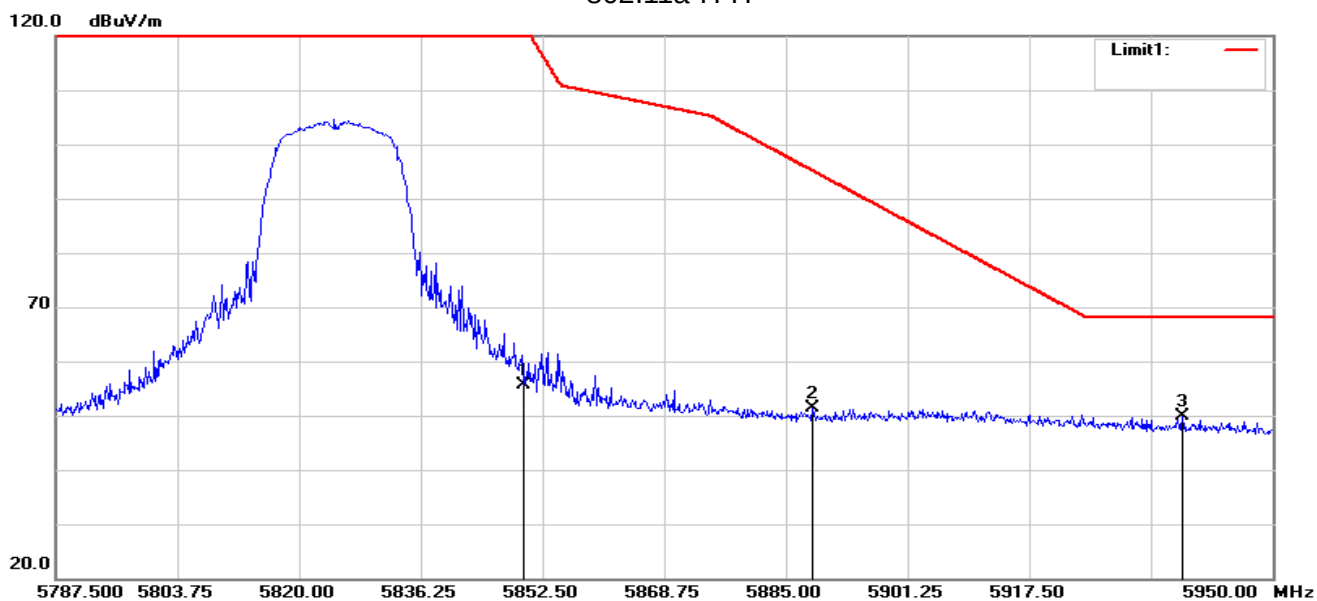
802.11a-L-V



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5646.313	56.54	-4.69	51.85	68.20	-16.35	peak
2	5681.938	58.40	-4.67	53.73	91.83	-38.10	peak
3	5725.000	67.80	-4.57	63.23	122.20	-58.97	peak

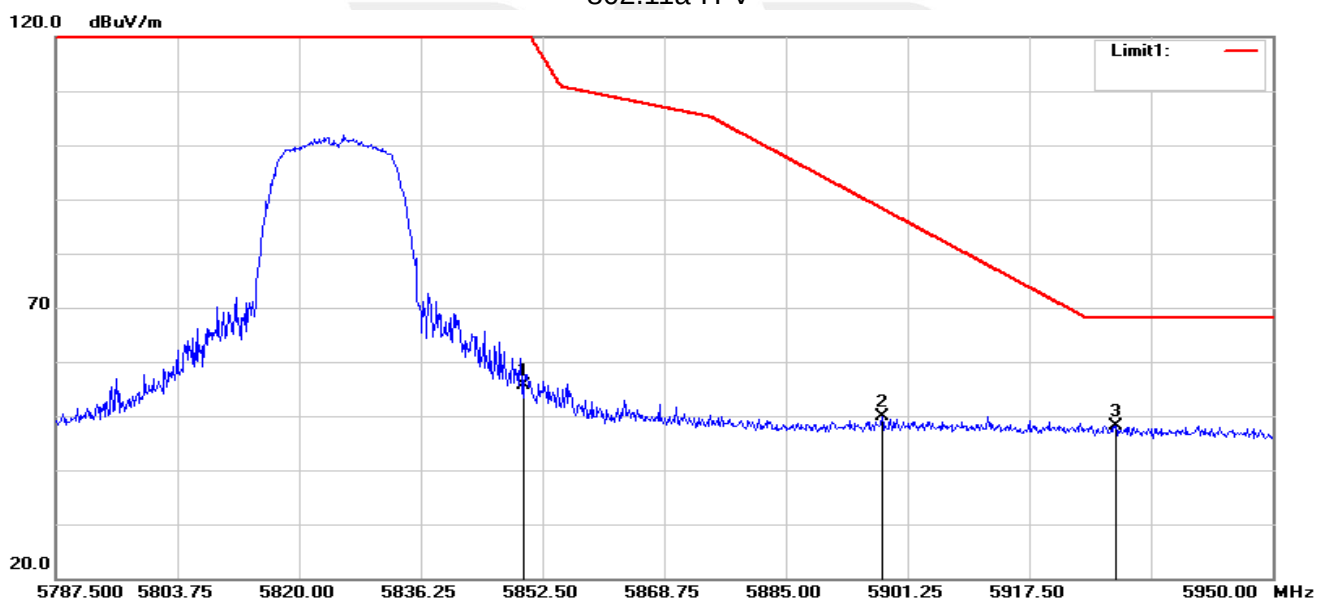


802.11a-H-H



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5850.000	59.65	-4.10	55.55	122.20	-66.65	peak
2	5888.575	55.38	-3.93	51.45	95.15	-43.70	peak
3	5937.975	53.81	-3.95	49.86	68.20	-18.34	peak

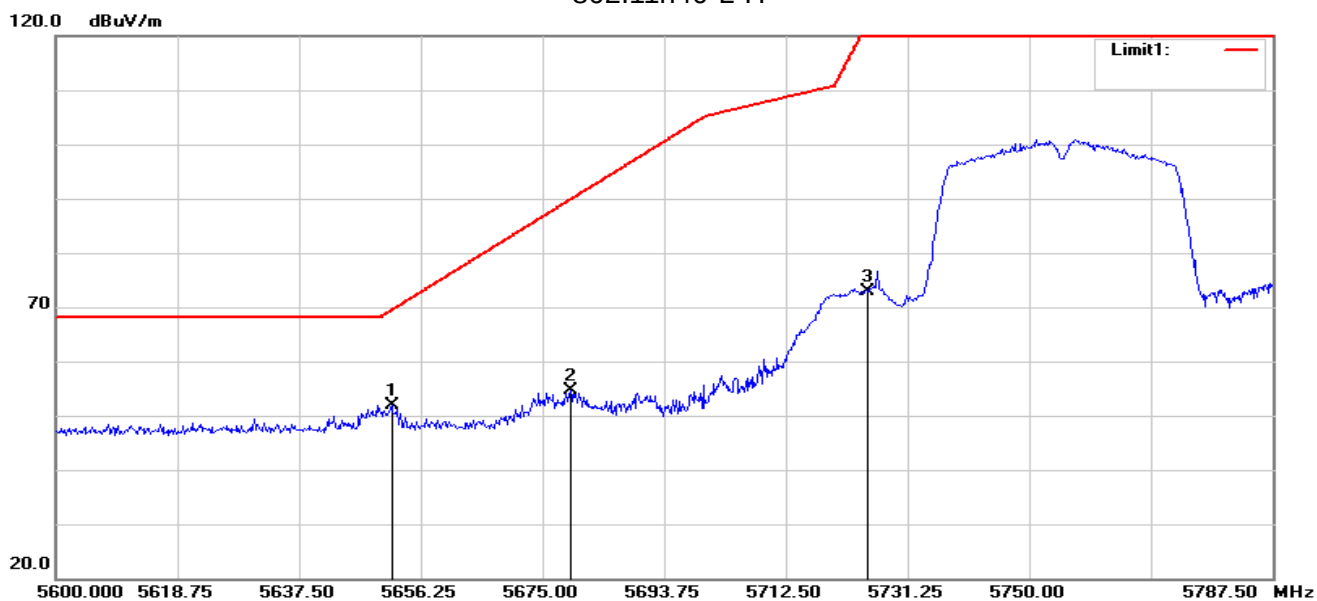
802.11a-H-V



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5850.000	59.84	-4.10	55.74	122.20	-66.46	peak
2	5897.837	53.80	-3.89	49.91	88.30	-38.39	peak
3	5929.038	52.17	-3.93	48.24	68.20	-19.96	peak

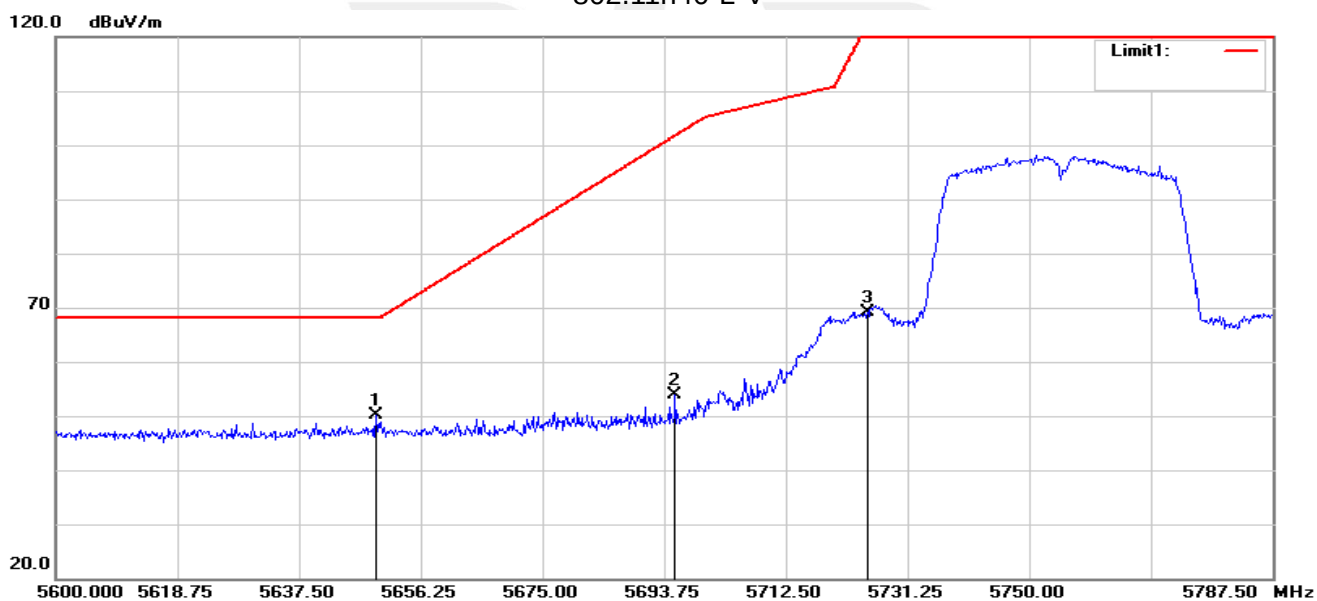


802.11n40-L-H



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5651.750	56.61	-4.68	51.93	69.50	-17.57	peak
2	5679.313	59.36	-4.67	54.69	89.89	-35.20	peak
3	5725.000	77.53	-4.57	72.96	122.20	-49.24	peak

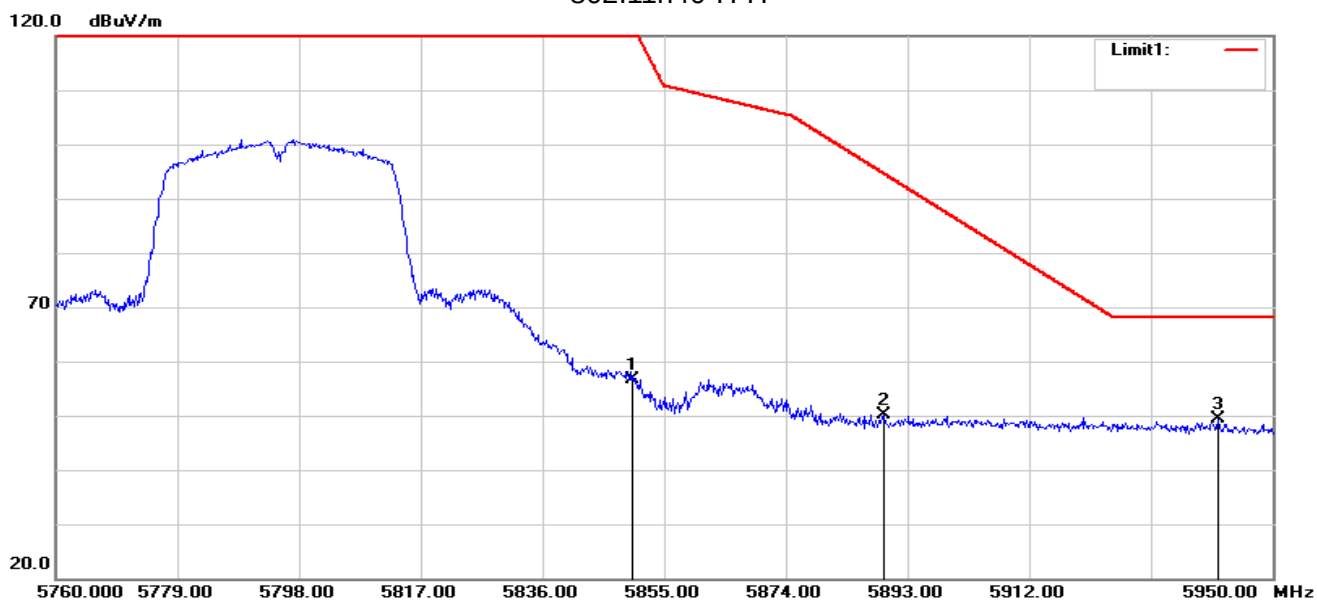
802.11n40-L-V



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5649.313	54.78	-4.68	50.10	68.20	-18.10	peak
2	5695.438	58.43	-4.66	53.77	101.82	-48.05	peak
3	5725.000	73.73	-4.57	69.16	122.20	-53.04	peak

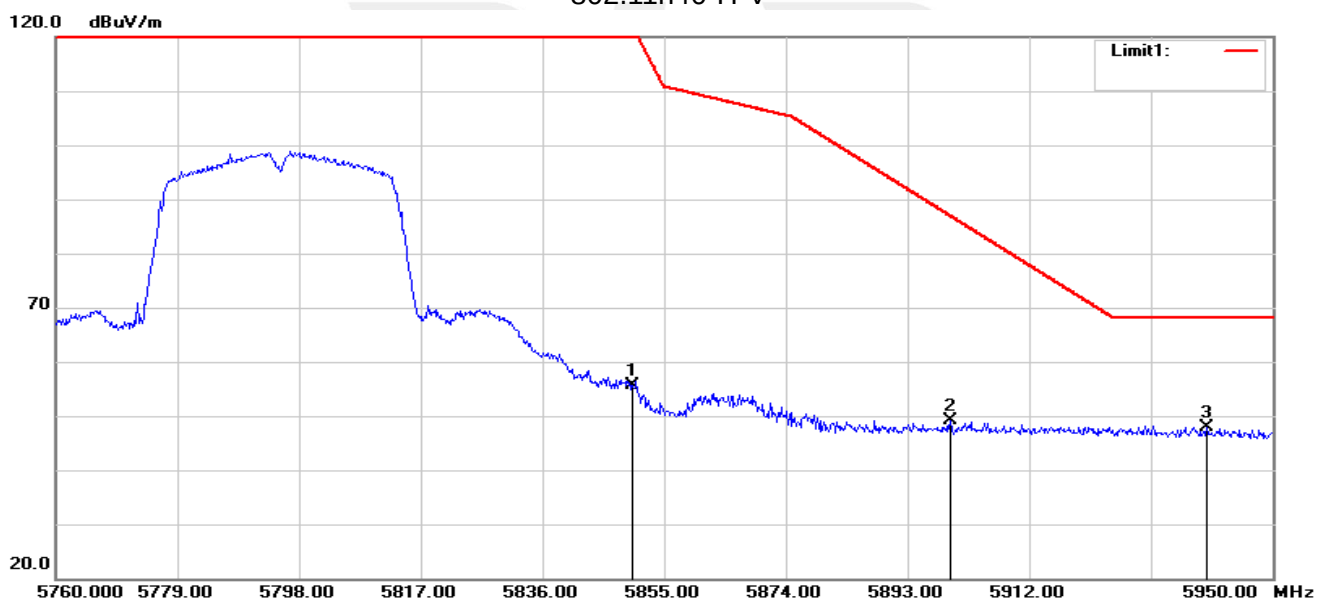


802.11n40-H-H



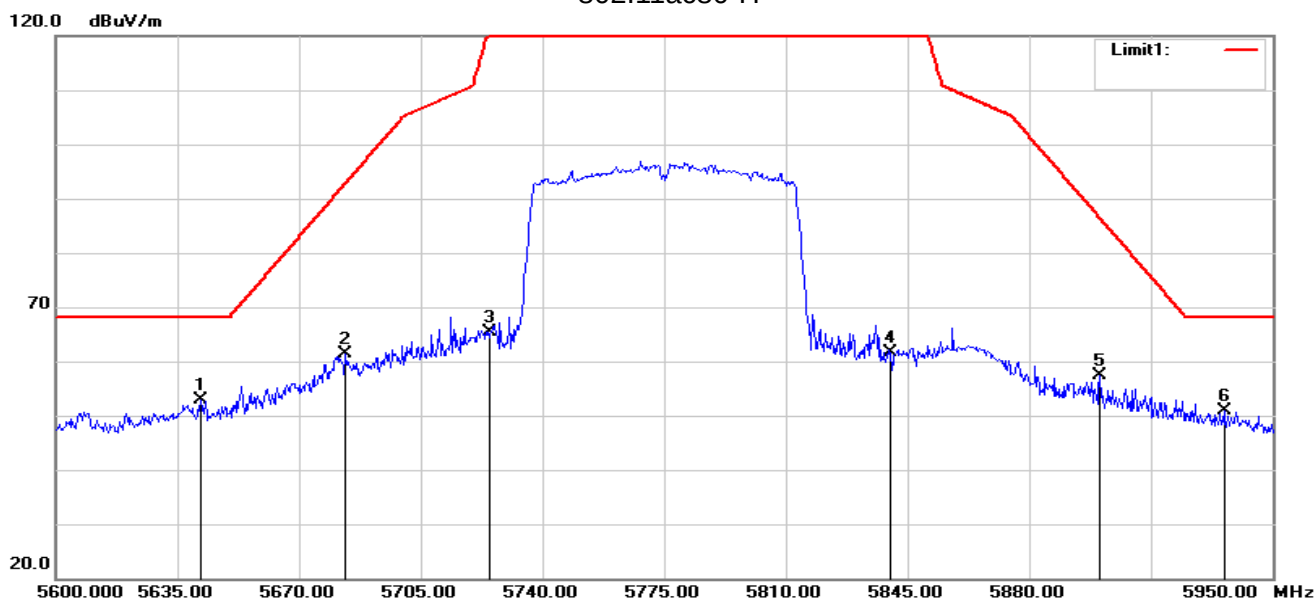
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5850.000	60.85	-4.10	56.75	122.20	-65.45	peak
2	5889.200	54.15	-3.93	50.22	94.69	-44.47	peak
3	5941.450	53.34	-3.95	49.39	68.20	-18.81	peak

802.11n40-H-V



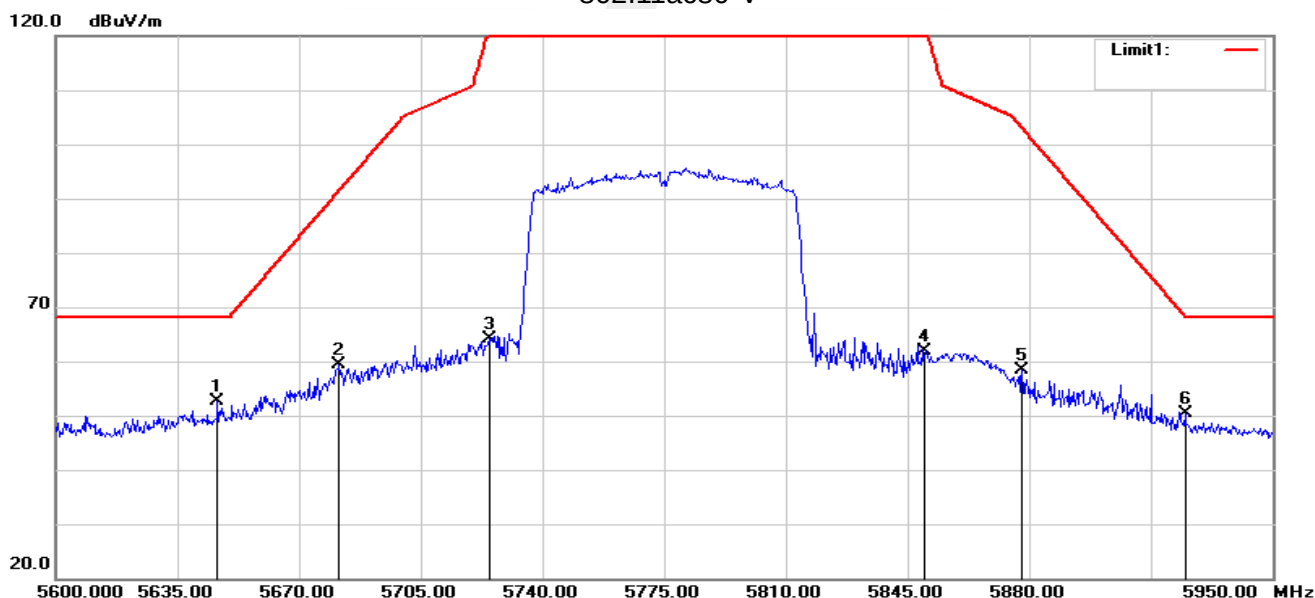
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5850.000	59.73	-4.10	55.63	122.20	-66.57	peak
2	5899.650	53.03	-3.88	49.15	86.96	-37.81	peak
3	5939.740	51.84	-3.95	47.89	68.20	-20.31	peak

802.11ac80-H



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5641.650	57.57	-4.68	52.89	68.20	-15.31	peak
2	5683.300	66.05	-4.67	61.38	92.84	-31.46	peak
3	5725.000	69.92	-4.57	65.35	122.20	-56.85	peak
4	5840.000	65.71	-4.15	61.56	122.20	-60.64	peak
5	5900.300	61.21	-3.88	57.33	86.48	-29.15	peak
6	5936.000	54.71	-3.94	50.77	68.20	-17.43	peak

802.11ac80-V



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5646.550	57.30	-4.69	52.61	68.20	-15.59	peak
2	5681.550	63.95	-4.67	59.28	91.55	-32.27	peak
3	5725.000	68.61	-4.57	64.04	122.20	-58.16	peak
4	5850.000	66.01	-4.10	61.91	122.20	-60.29	peak
5	5877.900	62.47	-3.98	58.49	103.05	-44.56	peak
6	5924.800	54.28	-3.92	50.36	68.35	-17.99	peak

Note: All modes have been tested. Only the worst mode shown in the report.



4. POWER SPECTRAL DENSITY TEST

4.1 LIMIT

1. 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 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 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 5.725-5.850 GHz, the peak power spectral density shall not exceed 30 dBm in any 500KHz band. If transmitting antenna directional gain is greater than 6 dBi, both the maximum conducted output power and the peak power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

4.2 TEST PROCEDURE

1. The setting follows Method SA-1 of FCC KDB D02 General UNII Test Procedures New Rules v01r03.

For devices operating in the band, 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 a 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 $RBW \geq 1/T$, where T is defined in section II.B.I.a).
- b) Set $VBW \geq 3$ RBW.
- c) If measurement bandwidth of Maximum PSD is specified in 500 kHz, add $10 \log (500\text{kHz}/RBW)$ 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 $10 \log (1\text{MHz}/RBW)$ 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.

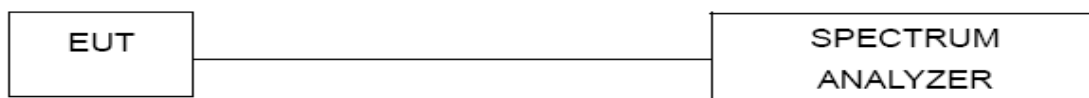
Note: As a practical matter, it is recommended to use reduced RBW of 100 kHz for the sections 5.c) and 5.d) above, since RBW=100 KHZ is available on nearly all spectrum analyzers.



4.3 DEVIATION FROM STANDARD

No deviation.

4.4 TEST SETUP



4.5 EUT OPERATION CONDITIONS

The EUT tested system was configured as the statements of 2.1 Unless otherwise a special operating condition is specified in the follows during the testing.

4.6 TEST RESULTS

5150-5250MHz					
Frequency	Direct measurement Power Density (dBm)	Duty cycle factor (dB)	Final Power Density (dBm)	Limit (dBm)	Result
802.11a					
5180	-3.908	0.110	-3.798	11	PASS
5200	-3.704	0.110	-3.594	11	PASS
5240	-3.528	0.110	-3.418	11	PASS
802.11n20					
5180	-4.332	0.118	-4.214	11	PASS
5200	-4.262	0.118	-4.144	11	PASS
5240	-3.941	0.118	-3.823	11	PASS
802.11n40					
5190	-7.289	0.245	-7.044	11	PASS
5230	-7.372	0.245	-7.127	11	PASS
802.11ac20					
5180	-4.305	0.104	-4.201	11	PASS
5200	-3.831	0.104	-3.727	11	PASS
5240	-4.221	0.104	-4.117	11	PASS
802.11ac40					
5190	-7.249	0.244	-7.005	11	PASS
5230	-6.845	0.244	-6.601	11	PASS
802.11ac80					
5210	-10.515	0.500	-10.015	11	PASS



5250-5350MHz					
Frequency	Direct measurement Power Density (dBm)	Duty cycle factor (dB)	Final Power Density (dBm)	Limit (dBm)	Result
802.11a					
5260	-6.111	0.110	-6.001	11	PASS
5300	-5.435	0.110	-5.325	11	PASS
5320	-4.686	0.110	-4.576	11	PASS
802.11n20					
5260	-6.323	0.104	-6.219	11	PASS
5300	-5.832	0.104	-5.728	11	PASS
5320	-4.995	0.104	-4.891	11	PASS
802.11n40					
5270	-9.021	0.232	-8.789	11	PASS
5310	-8.694	0.232	-8.462	11	PASS
802.11ac20					
5260	-6.080	0.117	-5.963	11	PASS
5300	-5.927	0.117	-5.810	11	PASS
5320	-4.815	0.117	-4.698	11	PASS
802.11ac40					
5270	-8.926	0.231	-8.695	11	PASS
5310	-8.387	0.231	-8.156	11	PASS
802.11ac80					
5290	-12.935	0.477	-12.458	11	PASS



5470-5725MHz					
Frequency	Direct measurement Power Density (dBm)	Duty cycle factor (dB)	Final Power Density (dBm)	Limit (dBm)	Result
802.11a					
5500	-6.089	0.098	-5.991	11	PASS
5580	-6.660	0.098	-6.562	11	PASS
5700	-9.268	0.098	-9.170	11	PASS
802.11n20					
5500	-6.497	0.091	-6.406	11	PASS
5580	-7.046	0.091	-6.955	11	PASS
5700	-9.275	0.091	-9.184	11	PASS
802.11n40					
5510	-9.529	0.245	-9.284	11	PASS
5550	-9.650	0.245	-9.405	11	PASS
5670	-12.577	0.245	-12.332	11	PASS
802.11ac20					
5500	-6.097	0.117	-5.980	11	PASS
5580	-7.085	0.117	-6.968	11	PASS
5700	-9.581	0.117	-9.464	11	PASS
802.11ac40					
5510	-9.010	0.244	-8.766	11	PASS
5550	-9.607	0.244	-9.363	11	PASS
5670	-12.309	0.244	-12.065	11	PASS
802.11ac80					
5530	-12.748	0.498	-12.250	11	PASS
5610	-14.129	0.498	-13.631	11	PASS



5725-5850MHz						
Frequency	Use RBW 510KHz direct measurement Direct measurement Power Density (dBm)	Convert to RBW 500KHz direct measurement Power Density (dBm)	Duty cycle factor (dB)	Final Power Density (dBm)	Limit (dBm)	Result
802.11a						
5745	-6.109	-6.195	0.098	-6.097	30	PASS
5785	-6.780	-6.866	0.098	-6.768	30	PASS
5825	-7.617	-7.703	0.098	-7.605	30	PASS
802.11n20						
5745	-6.437	-6.523	0.105	-6.418	30	PASS
5785	-7.336	-7.422	0.105	-7.317	30	PASS
5825	-7.817	-7.903	0.105	-7.798	30	PASS
802.11n40						
5755	-9.702	-9.788	0.220	-9.568	30	PASS
5795	-10.663	-10.749	0.220	-10.529	30	PASS
802.11ac20						
5745	-6.306	-6.392	0.104	-6.288	30	PASS
5785	-6.848	-6.934	0.104	-6.830	30	PASS
5825	-7.936	-8.022	0.104	-7.918	30	PASS
802.11ac40						
5755	-9.545	-9.631	0.244	-9.387	30	PASS
5795	-10.477	-10.563	0.244	-10.319	30	PASS
802.11ac80						
5775	-13.770	-13.856	0.477	-13.379	30	PASS

Note: 1. RB conversion formula: $10 \cdot \log(500\text{KHz}/\text{RBW})$

2. Test plots see Attachment A.



5. BANDWIDTH MEASUREMENT

5.1 EMISSION BANDWIDTH (EBW) 26 BANDWID PROCEDURES / LIMIT

The following procedure shall be used for measuring 26 bandwidth.

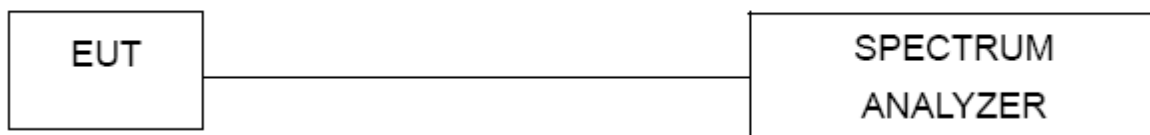
5.1.1 TEST PROCEDURE

1. The testing follows FCC KDB 789033 D02 General UNII Test Procedures New Rules v02r01
2. Set RBW = approximately 1% of the emission bandwidth.
3. Set the VBW $\geq$ RBW.
4. Detector = Peak.
5. Trace mode = max hold.
6. Measure the maximum width of the emission that is 26 dB down from the peak of the emission. Compare this with the RBW setting of the analyzer. Readjust RBW and repeat measurement as needed until the RBW/EBW ratio is approximately 1%.

5.1.2 DEVIATION FROM STANDARD

No deviation.

5.1.3 TEST SETUP



5.1.4 EUT OPERATION CONDITIONS

The EUT tested system was configured as the statements of 2.4 Unless otherwise a special operating condition is specified in the follows during the testing.

**5.1.5 TEST RESULTS**

Frequency (MHz)	26dB Bandwidth (MHz)	Pass/Fail
802.11a		
5180	19.72	Pass
5200	19.71	Pass
5240	19.82	Pass
802.11n(HT20)		
5180	20.24	Pass
5200	20.05	Pass
5240	20.02	Pass
802.11n(HT40)		
5190	40.45	Pass
5230	40.57	Pass
802.11ac(VHT20)		
5180	20.11	Pass
5200	20.11	Pass
5240	20.11	Pass
802.11ac(VHT40)		
5190	40.39	Pass
5230	39.65	Pass
802.11ac(VHT80)		
5210	80.45	Pass



Frequency (MHz)	26dB Bandwidth (MHz)	Pass/Fail
802.11a		
5260	19.90	Pass
5300	19.78	Pass
5320	19.68	Pass
802.11n(HT20)		
5260	20.02	Pass
5300	20.09	Pass
5320	20.07	Pass
802.11n(HT40)		
5270	40.26	Pass
5310	40.25	Pass
802.11ac(VHT20)		
5260	19.94	Pass
5300	20.07	Pass
5320	20.29	Pass
802.11ac(VHT40)		
5270	40.47	Pass
5310	40.51	Pass
802.11ac(VHT80)		
5290	80.86	Pass



Frequency (MHz)	26dB Bandwidth (MHz)	Pass/Fail
802.11a		
5500	19.71	Pass
5580	19.84	Pass
5700	19.73	Pass
802.11n(HT20)		
5500	20.16	Pass
5580	19.93	Pass
5700	19.92	Pass
802.11n(HT40)		
5510	40.04	Pass
5550	40.45	Pass
5670	40.46	Pass
802.11ac(VHT20)		
5500	20.22	Pass
5580	20.22	Pass
5700	20.08	Pass
802.11ac(VHT40)		
5510	40.18	Pass
5550	40.22	Pass
5670	40.20	Pass
802.11ac(VHT80)		
5530	80.36	Pass
5610	80.49	Pass



Frequency (MHz)	26dB Bandwidth (MHz)	Pass/Fail
802.11a		
5745	19.58	Pass
5785	19.68	Pass
5825	19.60	Pass
802.11n(HT20)		
5745	19.95	Pass
5785	20.09	Pass
5825	20.11	Pass
802.11n(HT40)		
5755	40.35	Pass
5795	40.33	Pass
802.11ac(VHT20)		
5745	20.08	Pass
5785	19.87	Pass
5825	20.03	Pass
802.11ac(VHT40)		
5755	40.30	Pass
5795	40.31	Pass
802.11ac(VHT80)		
5775	80.74	Pass

Test plot see Attachment B.



5.2 OCCUPIED BANDWIDTH (99%) TEST APPLIED PROCEDURES / LIMIT

The following procedure shall be used for measuring (99 %) power bandwidth.

5.2.1 TEST PROCEDURE

1. The testing follows FCC KDB 789033 D02 General UNII Test Procedures v02r01.

The following procedure shall be used for measuring (99 %) power bandwidth:

1. Set center frequency to the nominal EUT channel center frequency.
2. Set span = 1.5 times to 5.0 times the OBW.
3. Set RBW = 1 % to 5 % of the OBW
4. Set VBW $\geq 3 \cdot$ RBW
5. Video averaging is not permitted. Where practical, a sample detection and single sweep mode shall be used. Otherwise, peak detection and max hold mode (until the trace stabilizes) shall be used.
6. Use the 99 % power bandwidth function of the instrument (if available).
7. If the instrument does not have a 99 % power bandwidth function, the trace data points are recovered and directly summed in power units. The recovered amplitude data points, beginning at the lowest frequency, are placed in a running sum until 0.5 % of the total is reached; that frequency is recorded as the lower frequency. The process is repeated until 99.5 % of the total is reached; that frequency is recorded as the upper frequency. The 99% occupied bandwidth is the difference between these two frequencies.

5.2.2 DEVIATION FROM STANDARD

No deviation.

5.2.3 TEST SETUP



5.2.4 EUT OPERATION CONDITIONS

The EUT tested system was configured as the statements of 2.4 Unless otherwise a special operating condition is specified in the follows during the testing.

**5.2.5 TEST RESULTS**

Frequency (MHz)	99% Bandwidth (MHz)	Pass/Fail
802.11a		
5180	16.41	Pass
5200	16.41	Pass
5240	16.39	Pass
802.11n(HT20)		
5180	17.54	Pass
5200	17.54	Pass
5240	17.52	Pass
802.11n(HT40)		
5190	35.97	Pass
5230	35.96	Pass
802.11ac(VHT20)		
5180	17.54	Pass
5200	17.55	Pass
5240	17.54	Pass
802.11ac(VHT40)		
5190	35.93	Pass
5230	35.93	Pass
802.11ac(VHT80)		
5210	75.30	Pass



Frequency (MHz)	99% Bandwidth (MHz)	Pass/Fail
802.11a		
5260	16.41	Pass
5300	16.40	Pass
5320	16.40	Pass
802.11n(HT20)		
5260	17.54	Pass
5300	17.55	Pass
5320	17.54	Pass
802.11n(HT40)		
5270	35.96	Pass
5310	35.99	Pass
802.11ac(VHT20)		
5260	17.55	Pass
5300	17.52	Pass
5320	17.54	Pass
802.11ac(VHT40)		
5270	35.95	Pass
5310	35.93	Pass
802.11ac(VHT80)		
5290	75.43	Pass



Frequency (MHz)	99% Bandwidth (MHz)	Pass/Fail
802.11a		
5500	16.39	Pass
5580	16.38	Pass
5700	16.40	Pass
802.11n(HT20)		
5500	17.51	Pass
5580	17.53	Pass
5700	17.54	Pass
802.11n(HT40)		
5510	35.96	Pass
5550	35.933	Pass
5670	35.98	Pass
802.11ac(VHT20)		
5500	17.53	Pass
5580	17.51	Pass
5700	17.52	Pass
802.11ac(VHT40)		
5510	35.95	Pass
5550	35.96	Pass
5670	35.98	Pass
802.11ac(VHT80)		
5530	75.23	Pass
5610	75.23	Pass



Frequency (MHz)	99% Bandwidth (MHz)	Pass/Fail
802.11a		
5745	16.40	Pass
5785	16.40	Pass
5825	16.43	Pass
802.11n(HT20)		
5745	17.53	Pass
5785	17.52	Pass
5825	17.55	Pass
802.11n(HT40)		
5755	35.95	Pass
5795	35.96	Pass
802.11ac(VHT20)		
5745	17.53	Pass
5785	17.51	Pass
5825	17.53	Pass
802.11ac(VHT40)		
5755	35.93	Pass
5795	35.97	Pass
802.11ac(VHT80)		
5775	75.26	Pass

Test plot See Attachment B.

5.3 MINIMUM EMISSION BANDWIDTH(6 DB) PROCEDURES / LIMIT

Section 15.407(e) specifies the minimum 6 dB emission bandwidth of at least 500 KHz for the band 5.725-5.85 GHz. The following procedure shall be used for measuring this bandwidth.

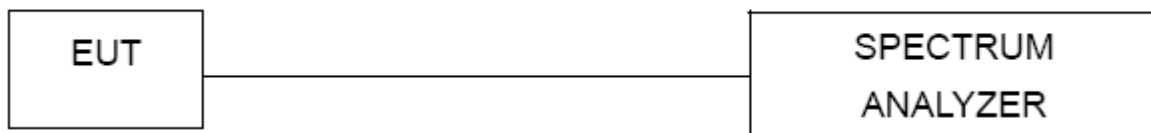
5.3.1 TEST PROCEDURE

1. The testing follows FCC KDB 789033 D02 General UNII Test Procedures v02r01.
 - a) Set RBW = 100 kHz.
 - b) Set the video bandwidth (VBW) $\geq 3 \times$ RBW.
 - c) Detector = Peak.
 - d) Trace mode = max hold.
 - e) Sweep = auto couple.
 - f) Allow the trace to stabilize.
 - g) Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.

5.3.2 DEVIATION FROM STANDARD

No deviation.

5.3.3 TEST SETUP



5.3.4 EUT OPERATION CONDITIONS

The EUT tested system was configured as the statements of 2.4 Unless otherwise a special operating condition is specified in the follows during the testing.

**5.3.5 TEST RESULTS**

Frequency (MHz)	6dB Bandwidth (MHz)	Pass/Fail
802.11a		
5745	15.10	Pass
5785	15.08	Pass
5825	15.06	Pass
802.11n(HT20)		
5745	15.11	Pass
5785	15.69	Pass
5825	15.09	Pass
802.11n(HT40)		
5755	35.10	Pass
5795	35.11	Pass
802.11ac(VHT20)		
5745	15.11	Pass
5785	15.11	Pass
5825	15.01	Pass
802.11ac(VHT40)		
5755	35.11	Pass
5795	35.00	Pass
802.11ac(VHT80)		
5775	75.15	Pass

Test plots see Attachment C.

6. MAXIMUM CONDUCTED OUTPUT POWER

6.1 LIMIT

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. 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.

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, If transmitting antennas of directional gain greater than 6 dBi are used.

For the band 5.725-5.85 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. If transmitting antennas of directional gain greater than 6 dBi are used.

FCC Part15 (15.407) , Subpart E				
Section	Test Item	Limit	Frequency Range (MHz)	Result
15.407(a) (1) (iv)	Peak Output Power	0.25 watt	5150-5250	PASS
		The lesser of 250 mW or 11 dBm + 10 log (26 dB emission bandwidth)	5250-5350 5470-5725	
15.407(a) (3)		1 watt	5725-5825	

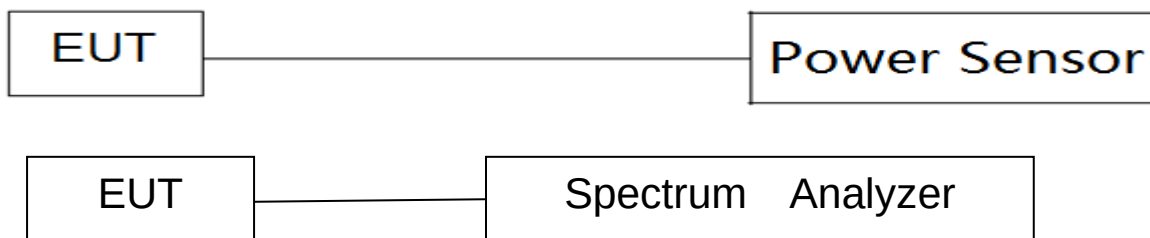
6.2 TEST PROCEDURE

The EUT was directly connected to the Power Sensor&PC

6.3 DEVIATION FROM STANDARD

No deviation.

6.4 TEST SETUP



6.5 EUT OPERATION CONDITIONS

The EUT tested system was configured as the statements of 5 Unless otherwise a special operating condition is specified in the follows during the testing.



6.6 TEST RESULTS

Band I (5.15-5.25GHz)					
Test Channel	Frequency (MHz)	Direct measurement AV Power (dBm)	Duty cycle factor (dB)	Final AV Power (dBm)	LIMIT (dBm)
802.11a					
36	5180	4.52	0.110	4.63	23.98
40	5200	4.37	0.110	4.48	23.98
48	5240	4.36	0.110	4.47	23.98
802.11n(HT20)					
36	5180	4.33	0.118	4.45	23.98
40	5200	4.23	0.118	4.35	23.98
48	5240	4.28	0.118	4.40	23.98
802.11n(HT40)					
38	5190	4.37	0.245	4.62	23.98
46	5230	4.32	0.245	4.57	23.98
802.11ac(VHT20)					
36	5180	4.52	0.104	4.62	23.98
40	5200	4.52	0.104	4.62	23.98
48	5240	4.55	0.104	4.65	23.98
802.11ac(VHT40)					
38	5190	4.27	0.244	4.51	23.98
46	5230	4.26	0.244	4.50	23.98
802.11ac(VHT80)					
42	5210	4.02	0.500	4.52	23.98



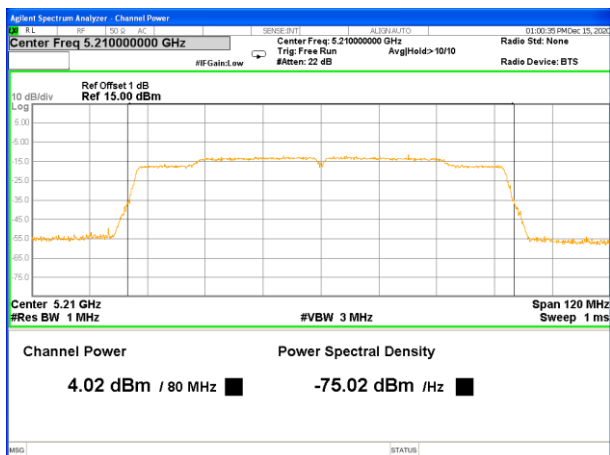
Band II(5.25-5.35GHz)					
Test Channel	Frequency (MHz)	Direct measurement AV Power (dBm)	Duty cycle factor (dB)	Final AV Power (dBm)	LIMIT (dBm)
802.11a					
52	5260	4.60	0.110	4.71	23.98
60	5300	5.11	0.110	5.22	23.96
64	5320	5.45	0.110	5.56	23.94
802.11n(HT20)					
52	5260	4.53	0.104	4.63	23.98
60	5300	5.02	0.104	5.12	23.98
64	5320	5.32	0.104	5.42	23.98
802.11n(HT40)					
54	5270	4.46	0.232	4.69	23.98
62	5310	4.84	0.232	5.07	23.98
802.11ac(VHT20)					
52	5260	4.54	0.117	4.66	23.98
60	5300	4.95	0.117	5.07	23.98
64	5320	5.24	0.117	5.36	23.98
802.11ac(VHT40)					
54	5270	4.44	0.231	4.67	23.98
62	5310	4.82	0.231	5.05	23.98
802.11ac(VHT80)					
58	5290	4.03	0.477	4.51	23.98



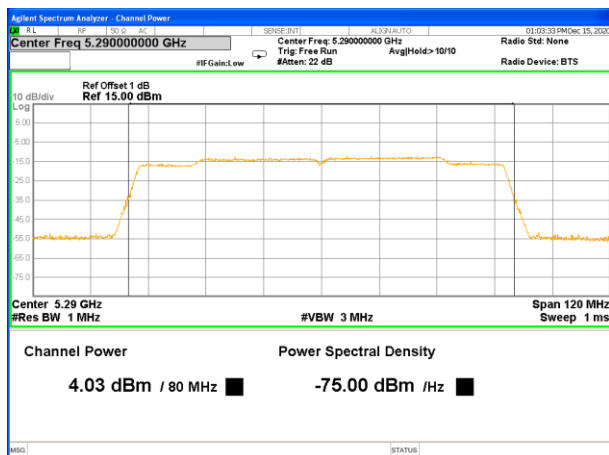
Band III(5.47-5.725GHz)					
Test Channel	Frequency (MHz)	Direct measurement AV Power (dBm)	Duty cycle factor (dB)	Final AV Power (dBm)	LIMIT (dBm)
802.11a					
100	5500	3.63	0.098	3.73	23.95
116	5580	2.76	0.098	2.86	23.98
140	5700	1.13	0.098	1.23	23.95
802.11n(HT20)					
100	5500	3.41	0.091	3.50	23.98
116	5580	2.52	0.091	2.61	23.98
140	5700	1.21	0.091	1.30	23.98
802.11n(HT40)					
102	5510	3.10	0.245	3.35	23.98
110	5550	2.71	0.245	2.96	23.98
134	5670	1.03	0.245	1.28	23.98
802.11ac(VHT20)					
100	5500	3.18	0.117	3.30	23.98
116	5580	2.22	0.117	2.34	23.98
140	5700	1.01	0.117	1.13	23.98
802.11ac(VHT40)					
102	5510	2.93	0.244	3.17	23.98
110	5550	2.71	0.244	2.95	23.98
134	5670	0.89	0.244	1.13	23.98
802.11ac(VHT80)					
106	5530	2.39	0.498	2.89	23.98
122	5610	0.91	0.498	1.41	23.98



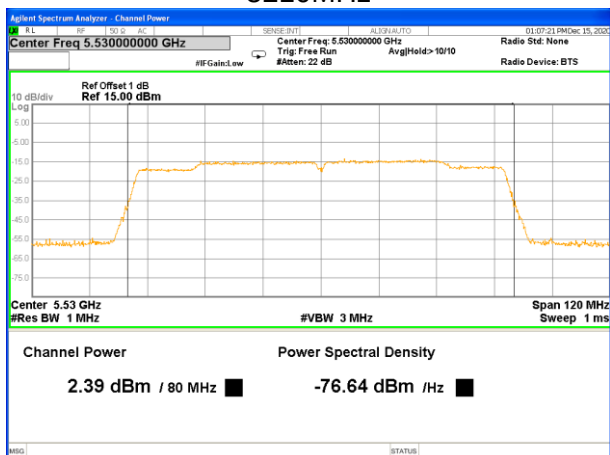
Band IV (5.725-5.85GHz)					
Test Channel	Frequency (MHz)	Direct measurement AV Power (dBm)	Duty cycle factor (dB)	Final AV Power (dBm)	LIMIT (dBm)
802.11a					
149	5745	4.62	0.098	4.72	30.00
157	5785	4.19	0.098	4.29	30.00
165	5825	4.40	0.098	4.50	30.00
802.11n(HT20)					
149	5745	4.44	0.105	4.54	30.00
157	5785	3.75	0.105	3.85	30.00
165	5825	3.70	0.105	3.80	30.00
802.11n(HT40)					
151	5755	4.16	0.220	4.38	30.00
159	5795	3.52	0.220	3.74	30.00
802.11ac(VHT20)					
149	5745	4.51	0.104	4.61	30.00
157	5785	3.15	0.104	3.25	30.00
165	5825	3.15	0.104	3.25	30.00
802.11ac(VHT40)					
151	5755	3.62	0.244	3.86	30.00
159	5795	3.06	0.244	3.30	30.00
802.11ac(VHT80)					
155	5775	3.22	0.477	3.70	30.00



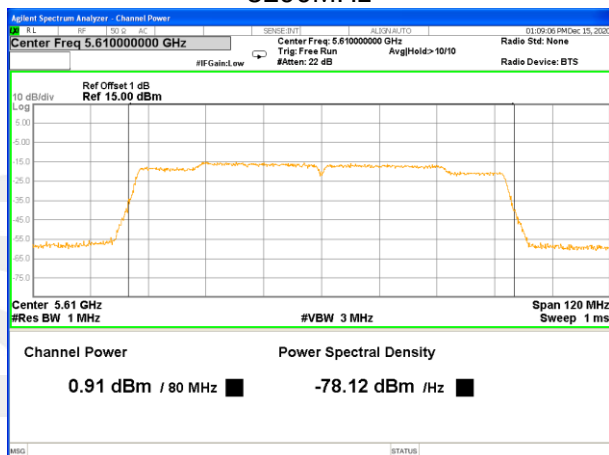
5210MHz



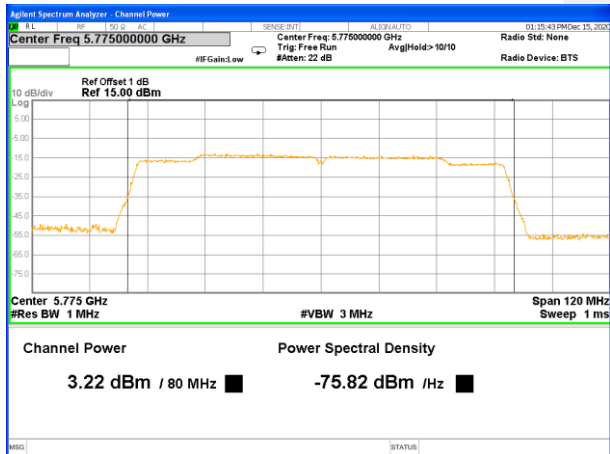
5290MHz



5530MHz



5610MHz



5775MHz



Duty Cycle

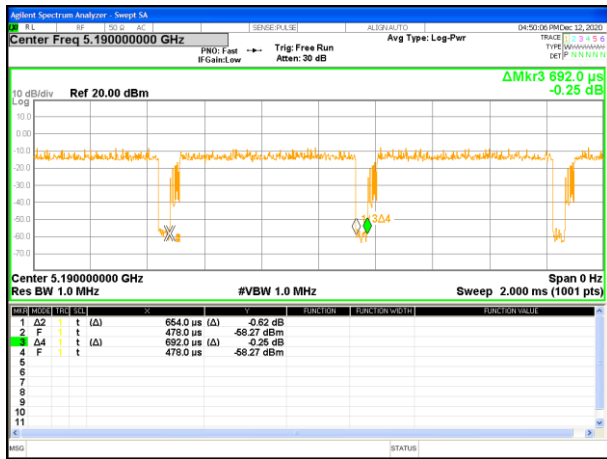
Band1				
Mode	Ton(ms)	Tp(ms)	Duty cycle(%)	Duty factor(dB)
a	1.400	1.436	97.49%	0.110
n20	1.308	1.344	97.32%	0.118
n40	0.654	0.692	94.51%	0.245
ac20	1.324	1.356	97.64%	0.104
ac40	0.658	0.696	94.54%	0.244
ac80	0.328	0.368	89.13%	0.500
Band2				
Mode	Ton(ms)	Tp(ms)	Duty cycle(%)	Duty factor(dB)
a	1.400	1.436	97.49%	0.110
n20	1.316	1.348	97.63%	0.104
n40	0.657	0.693	94.81%	0.232
ac20	1.320	1.356	97.35%	0.117
ac40	0.660	0.696	94.83%	0.231
ac80	0.330	0.368	89.59%	0.477
Band3				
Mode	Ton(ms)	Tp(ms)	Duty cycle(%)	Duty factor(dB)
a	1.404	1.436	97.77%	0.098
n20	1.316	1.344	97.92%	0.091
n40	0.654	0.692	94.51%	0.245
ac20	1.320	1.356	97.35%	0.117
ac40	0.658	0.696	94.54%	0.244
ac80	0.328	0.368	89.16%	0.498
Band4				
Mode	Ton(ms)	Tp(ms)	Duty cycle(%)	Duty factor(dB)
a	1.404	1.436	97.77%	0.098
n20	1.312	1.344	97.62%	0.105
n40	0.654	0.688	95.06%	0.220
ac20	1.324	1.356	97.64%	0.104
ac40	0.658	0.696	94.54%	0.244
ac80	0.330	0.368	89.59%	0.477



Band 1-a20



Band 1-n20



Band 1-n40



Band 1-ac20



Band 1-ac40



Band 1-ac80



Band 2-a20



Band 2-n20



Band 2-n40



Band 2-ac20



Band 2-ac40



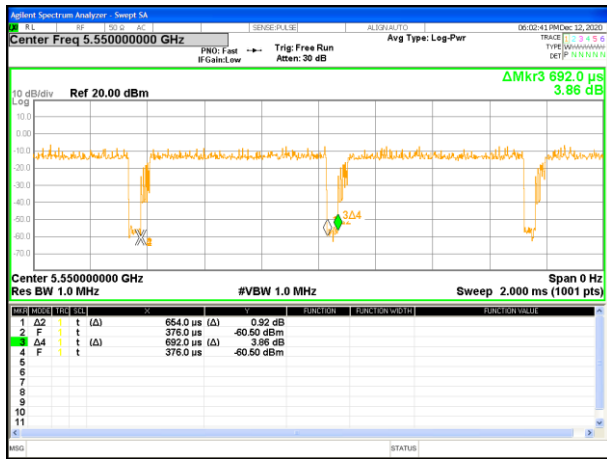
Band 2-ac80



Band 3-a20



Band 3-n20



Band 3-n40



Band 3-ac20



Band 3-ac40



Band 3-ac80



Band 4-a20



Band 4-n20



Band 4-n40



Band 4-ac20



Band 4-ac40



Band 4-ac80



7. AUTOMATICALLY DISCONTINUE TRANSMISSION

7.1 LIMIT OF AUTOMATICALLY DISCONTINUE TRANSMISSION

The device shall automatically discontinue transmission in case of either absence of information to transmit or operational failure. These provisions are not intended to preclude the transmission of control or signaling information or the use of repetitive codes used by certain digital technologies to complete frame or burst intervals. Applicants shall include in their application for equipment authorization to describe how this requirement is met.

7.2 TEST RESULT OF AUTOMATICALLY DISCONTINUE TRANSMISSION

During no any information transmission, the EUT can automatically discontinue transmission and become standby mode for power saving. The EUT can detect the controlling signal of ACK message transmitting from remote device and verify whether it shall resend or discontinue transmission





8. ANTENNA REQUIREMENT

8.1 STANDARD REQUIREMENT

15.203 requirement: For intentional device, according to 15.203: an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device.

8.2 EUT ANTENNA

The EUT antenna is PIFA Antenna. It comply with the standard requirement.



**APPENDIX - PHOTOS OF TEST SETUP**

Note: See test photos in setup photo document for the actual connections between Product and support equipment.

※※※※※END OF THE REPORT※※※※※

