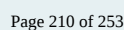
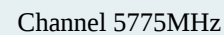
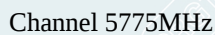
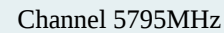
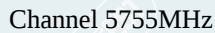
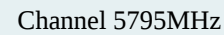


Channel 5755MHz



9. OUTPUT POWER

9.1. LIMITS

The FCC 15.407(a), The maximum conducted output power should not exceed:

Band	EUT Type	Limit
U-NII-1	Outdoor Access Point	1W(30dBm) (Max. e.i.r.p $\leq$ 125mW at any elevation angle above 30 degrees as measured from the horizon)
	Indoor Access Point	1W(30dBm)
	Fixed point-to-point Access Point	1W(30dBm)
	Mobile and Portable Client Device	250mW(23.98dBm)
U-NII-2A	All Device	250mW(23.98dBm) or 11dBm+10 log B, Which is lesser. (B is 26dB Bandwidth in MHz)
U-NII-2C	All Device	250mW(23.98dBm) or 11dBm+10 log B, Which is lesser. (B is 26dB Bandwidth in MHz)
U-NII-3	All Device	1W(30dBm)

9.2. TEST PROCEDURES

- 1) The RF output of EUT was connected to the broadband average RF power meter by RF cable and attenuator. The path loss was compensated to the results for each measurement.
- 2) Set to the maximum power setting and enable the EUT transmit continuously.
- 3) Measure the conducted output power and record the results in the test report.

9.3. TEST SETUP



9.4. TEST RESULTS

Test Mode	Band	Frequency (MHz)	AVG Conducted Output Power (dBm)		Limit (dBm)	Result
			antenna 1	antenna 2		
802.11a	U-NII-1	5180	14.12	13.75	18.38	Pass
		5200	13.85	13.72		Pass
		5240	13.25	13.65		Pass
	U-NII-2A	5260	14.04	13.55		Pass
		5300	13.65	13.37		Pass
		5320	13.83	13.65		Pass
	U-NII-2C	5500	13.62	14.21	24.38	Pass
		5580	13.65	13.68		Pass
		5700	14.02	13.47		Pass
	U-NII-3	5745	13.48	13.26		Pass
		5785	13.72	13.44		Pass
		5825	13.87	13.58		Pass

Test Mode	Band	Frequency (MHz)	AVG Conducted Output Power (dBm)			Limit (dBm)	Result
			antenna 1	antenna 2	total		
802.11n HT20	U-NII-1	5180	11.89	11.99	15.10	18.38	Pass
		5200	11.87	12.23	15.22		Pass
		5240	12.17	11.75	15.13		Pass
	U-NII-2A	5260	11.89	12.19	15.21		Pass
		5300	11.91	11.88	15.06		Pass
		5320	11.97	11.69	15.00		Pass
	U-NII-2C	5500	12.57	11.99	15.45	24.38	Pass
		5580	12.29	11.65	15.15		Pass
		5700	12.62	11.97	15.47		Pass
	U-NII-3	5745	12.84	12.41	15.79		Pass
		5785	12.94	12.54	15.91		Pass
		5825	12.71	12.68	15.86		Pass

Test Mode	Band	Frequency (MHz)	AVG Conducted Output Power (dBm)			Limit (dBm)	Result
			antenna 1	antenna 2	total		
IEEE 802.11ac VHT20	U-NII-1	5180	11.84	11.95	15.08	18.38	Pass
		5200	11.69	12.18	15.13		Pass
		5240	11.71	11.70	14.89		Pass
	U-NII-2A	5260	11.83	11.89	15.05		Pass
		5300	11.85	11.87	15.05		Pass
		5320	11.93	11.60	14.95		Pass
	U-NII-2C	5500	12.29	11.95	15.31		Pass
		5580	12.06	11.61	15.03		Pass
		5700	12.19	11.96	15.26		Pass
	U-NII-3	5745	12.78	12.38	15.77	24.38	Pass
		5785	12.63	12.45	15.73		Pass
		5825	12.68	12.51	15.78		Pass

Test Mode	Band	Frequency (MHz)	AVG Conducted Output Power (dBm)			Limit (dBm)	Result
			antenna 1	antenna 2	total		
802.11n HT40 mode	U-NII-1	5190	12.23	11.45	15.29	18.38	Pass
		5230	11.27	12.74	15.49		Pass
	U-NII-2A	5270	12.43	12.09	15.69		Pass
		5310	9.79	8.71	12.71		Pass
	U-NII-2C	5510	10.13	9.03	13.04		Pass
		5550	10.95	9.45	13.69		Pass
		5670	13.07	12.47	16.21		Pass
	U-NII-3	5755	12.66	12.71	16.11	24.38	Pass
		5795	12.27	12.78	15.96		Pass

Test Mode	Band	Frequency (MHz)	AVG Conducted Output Power (dBm)			Limit (dBm)	Result
			antenna 1	antenna 2	total		
802.11ac VHT40 mode	U-NII-1	5190	12.09	11.33	15.07	18.38	Pass
		5230	11.06	12.37	15.11		Pass
	U-NII-2A	5270	12.09	11.83	15.30		Pass
		5310	9.65	8.54	12.47		Pass
	U-NII-2C	5510	9.71	8.48	12.48		Pass
		5550	10.43	9.13	13.17		Pass
		5670	12.17	12.29	15.57		Pass
	U-NII-3	5755	12.24	12.44	15.68	24.38	Pass
		5795	12.06	12.53	15.64		Pass

Test Mode	Band	Frequency (MHz)	AVG Conducted Output Power (dBm)			Limit (dBm)	Result
			antenna 1	antenna 2	total		
802.11ac VHT80	U-NII-1	5210	8.22	8.46	12.26	18.38	Pass
	U-NII-2A	5290	7.13	7.59	11.29		Pass
	U-NII-2C	5530	9.55	10.33	13.88		Pass
		5610	10.11	9.78	13.87		Pass
	U-NII-3	5775	12.64	12.55	16.52	24.38	Pass

10. POWER SPECTRAL DENSITY

10.1. LIMITS

FCC 15.407(a)

The maximum power spectral density should not exceed:

Band	EUT Type	Limit
U-NII-1	Outdoor Access Point	17dBm/MHz
	Indoor Access Point	17dBm/MHz
	Fixed point-to-point Access Point	17dBm/MHz
	Mobile and Portable Client Device	11dBm/MHz
U-NII-2A	All Device	11dBm/MHz
U-NII-2C	All Device	11dBm/MHz
U-NII-3	All Device	30dBm/500KHz

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

10.2. TEST PROCEDURES

Spectrum Parameters	Setting
RBW	1MHz(For U-NII-1&U-NII-2A&U-NII-2C) 500KHz(For U-NII-3)
VBW	3MHz(For U-NII-1&U-NII-2A&U-NII-2C) 2MHz(For U-NII-3)
Span	encompass the entire 26 dB EBW or 99% OBW of the signal
Sweep Time	Auto
Number of Sweep Point	$\geq 2 \times \text{SPAN/RBW}$
Detector	RMS(power averaging)
Trace Average	≥ 100 traces

10.3. TEST SETUP



10.4. TEST RESULTS

Duty Cycle Calculation					
	Mode	ON Time	Total Time	Duty Cycle	Duty Factor
duty cycle<98%	802.11a	2.075	2.160	96.065%	0.17
	802.11n HT20	1.935	2.005	96.509%	0.15
	802.11n HT40	0.952	1.048	90.840%	0.42
	802.11ac VHT20	1.945	2.025	96.049%	0.18
	802.11ac VHT40	0.956	1.032	92.636%	0.33
	802.11ac VHT80	0.463	0.571	81.086%	0.91

Power Spectral Density

Test Mode	Band	Frequency (MHz)	PPSD (dBm)		Duty Factor	Total PSD with Duty Factor (dBm)		Limit	Result
			antenna 1	antenna 2		antenna 1	antenna 2		
802.11a	U-NII-1	5180	6.776	6.603	0.17	6.946	6.773	11dBm/MHz	Pass
		5200	7.308	7.055	0.17	7.478	7.225		Pass
		5240	6.462	6.361	0.17	6.632	6.531		Pass
	U-NII-2A	5260	8.225	8.021	0.17	8.395	8.191		Pass
		5300	7.150	6.445	0.17	7.320	6.615		Pass
		5320	7.458	7.031	0.17	7.628	7.201		Pass
	U-NII-2C	5500	7.372	7.409	0.17	7.542	7.579		Pass
		5580	7.573	7.061	0.17	7.743	7.231		Pass
		5700	7.369	6.301	0.17	7.539	6.471		Pass
	U-NII-3	5745	4.195	4.240	0.17	4.365	4.410	30dBm /500kHz	Pass
		5785	4.327	4.412	0.17	4.497	4.582		Pass
		5825	4.556	5.014	0.17	4.726	5.184		Pass

Test Mode	Band	Frequency (MHz)	PPSD (dBm)			Duty Factor	Total PSD with Duty Factor (dBm)	Limit	Result
			antenna 1	antenna 2	total				
802.11n HT20	U-NII-1	5180	4.536	4.714	7.636	0.15	7.786	8.38dBm /MHz	Pass
		5200	4.926	4.855	7.901	0.15	8.051		Pass
		5240	5.013	4.843	7.939	0.15	8.089		Pass
	U-NII-2A	5260	4.837	4.878	7.868	0.15	8.018		Pass
		5300	4.693	4.979	7.849	0.15	7.999		Pass
		5320	4.732	4.690	7.721	0.15	7.871		Pass
	U-NII-2C	5500	4.926	4.935	7.941	0.15	8.091		Pass
		5580	4.428	4.629	7.540	0.15	7.690		Pass
		5700	4.986	4.575	7.796	0.15	7.946		Pass
	U-NII-3	5745	2.898	3.474	6.206	0.15	6.356	27.38dBm /500kHz	Pass
		5785	1.543	2.789	5.221	0.15	5.371		Pass
		5825	2.768	3.172	5.985	0.15	6.135		Pass

Note1: Directional gain (dBi)= 8.62

Note2: Antenna gain is greater than 6,Band 1,2,3 Limit=11-(8.62-6)=8.38dBm/MHz

Note3: Antenna gain is greater than 6,Band 4 Limit=30-(8.62-6)=27.38dBm/MHz

Test Mode	Band	Frequency (MHz)	PPSD (dBm)			Duty Factor	Total PSD with Duty Factor (dBm)	Limit	Result
			antenna 1	antenna 2	total				
802.11ac VHT20	U-NII-1	5180	4.733	4.566	7.661	0.18	7.841	8.38dBm /MHz	Pass
		5200	4.741	4.626	7.694	0.18	7.874		Pass
		5240	4.917	4.767	7.853	0.18	8.033		Pass
	U-NII-2A	5260	4.826	4.813	7.830	0.18	8.01		Pass
		5300	4.289	4.997	7.668	0.18	7.848		Pass
		5320	4.408	4.857	7.649	0.18	7.829		Pass
	U-NII-2C	5500	4.883	4.649	7.778	0.18	7.958	27.38dBm /500kHz	Pass
		5580	4.815	4.676	7.756	0.18	7.936		Pass
		5700	4.712	4.812	7.773	0.18	7.953		Pass
	U-NII-3	5745	1.278	3.529	5.558	0.18	5.738		Pass
		5785	2.592	3.765	6.228	0.18	6.408		Pass
		5825	2.726	4.120	6.489	0.18	6.669		Pass

Note1: Directional gain (dBi)= 8.62

Note2: Antenna gain is greater than 6,Band 1,2,3 Limit=11-(8.62-6)=8.38dBm/MHz

Note3: Antenna gain is greater than 6,Band 4 Limit=30-(8.62-6)=27.38dBm/MHz

Test Mode	Band	Frequency (MHz)	PPSD (dBm)			Duty Factor	Total PSD with Duty Factor (dBm)	Limit	Result
			antenna 1	antenna 2	total				
802.11n HT40	U-NII-1	5190	2.397	2.288	5.353	0.42	5.773	8.38dBm /MHz	Pass
		5230	3.394	3.577	6.497	0.42	6.917		Pass
	U-NII-2A	5270	4.292	3.331	6.848	0.42	7.268		Pass
		5310	0.606	-0.905	2.926	0.42	3.346		Pass
	U-NII-2C	5510	1.094	-0.517	3.373	0.42	3.793		Pass
		5550	1.707	-0.186	3.873	0.42	4.293	27.38dBm /500kHz	Pass
		5670	2.376	2.648	5.524	0.42	3.068		Pass
	U-NII-3	5755	0.876	1.153	4.027	0.42	1.573		Pass
		5795	0.579	1.274	3.951	0.42	1.694		Pass

Note1: Directional gain (dBi)= 8.62

Note2: Antenna gain is greater than 6,Band 1,2,3 Limit=11-(8.62-6)=8.38dBm/MHz

Note3: Antenna gain is greater than 6,Band 4 Limit=30-(8.62-6)=27.38dBm/MHz

Test Mode	Band	Frequency (MHz)	PPSD (dBm)			Duty Factor	Total PSD with Duty Factor (dBm)	Limit	Result
			antenna 1	antenna 2	total				
802.11ac VHT40	U-NII-1	5190	3.287	1.901	5.659	0.33	5.989	8.38dBm /MHz	Pass
		5230	2.270	3.136	5.735	0.33	6.065		Pass
	U-NII-2A	5270	4.020	2.104	6.177	0.33	6.507		Pass
		5310	0.712	-0.629	3.103	0.33	3.433		Pass
	U-NII-2C	5510	1.094	-1.328	3.060	0.33	3.390		Pass
		5550	1.707	0.415	4.119	0.33	4.449		Pass
		5670	2.376	3.377	5.916	0.33	6.246	27.38dBm /500kHz	Pass
	U-NII-3	5755	0.876	1.153	4.027	0.33	4.357		Pass
		5795	0.579	1.274	3.951	0.33	4.281		Pass

Note1: Directional gain (dBi)= 8.62

Note2: Antenna gain is greater than 6,Band 1,2,3 Limit=11-(8.62-6)=8.38dBm/MHz

Note3: Antenna gain is greater than 6,Band 4 Limit=30-(8.62-6)=27.38dBm/MHz

Test Mode	Band	Frequency (MHz)	PPSD (dBm)			Duty Factor	Total PSD with Duty Factor (dBm)	Limit	Result
			antenna 1	antenna 2	total				
802.11ac VHT80	U-NII-1	5210	-2.377	-2.998	0.334	0.91	1.244	8.38dBm /MHz	Pass
	U-NII-2A	5290	-3.693	-3.676	-0.674	0.91	0.236		Pass
	U-NII-2C	5530	-1.414	-0.734	1.95	0.91	2.860		Pass
		5610	-0.746	-0.412	2.43	0.91	3.340		Pass
	U-NII-3	5775	-0.793	-0.493	2.37	0.91	3.280	27.38dBm /500kHz	Pass

Note1: Directional gain (dBi)= 8.62

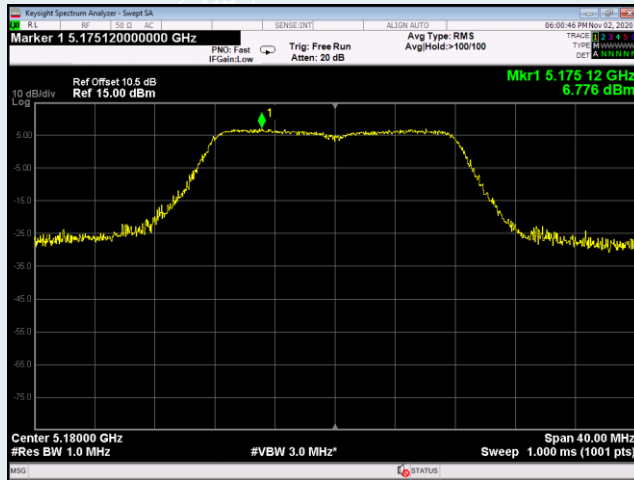
Note2: Antenna gain is greater than 6,Band 1,2,3 Limit=11-(8.62-6)=8.38dBm/MHz

Note3: Antenna gain is greater than 6,Band 4 Limit=30-(8.62-6)=27.38dBm/MHz

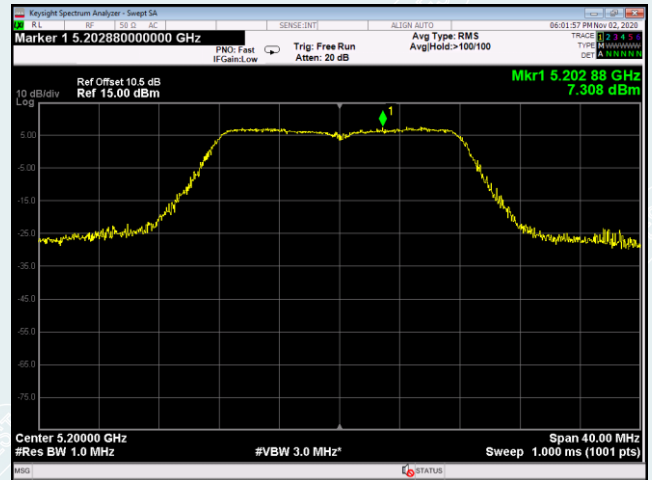
Test Results (plots) of PPSD

802.11a mode (antenna 1)

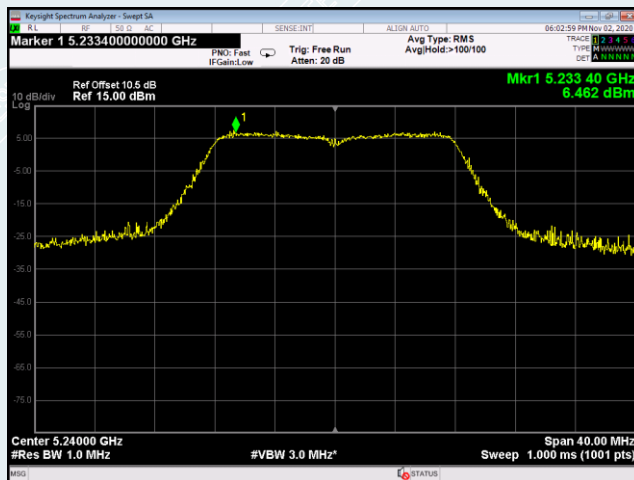
Channel 5180MHz



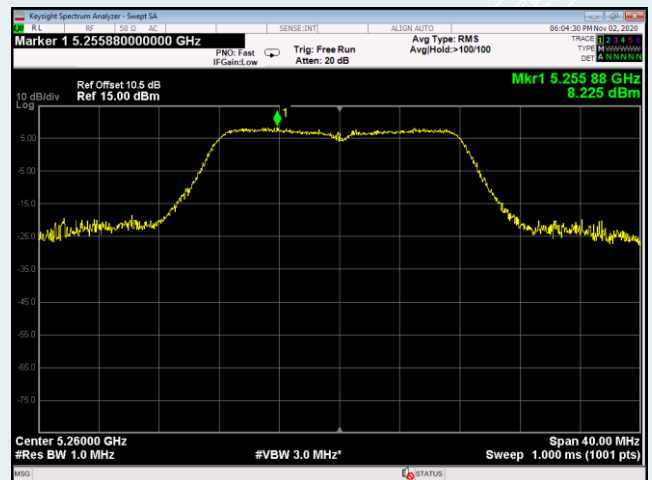
Channel 5200MHz



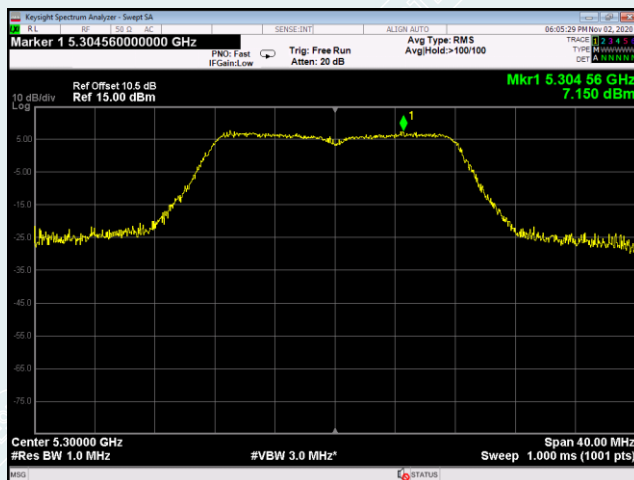
Channel 5240MHz



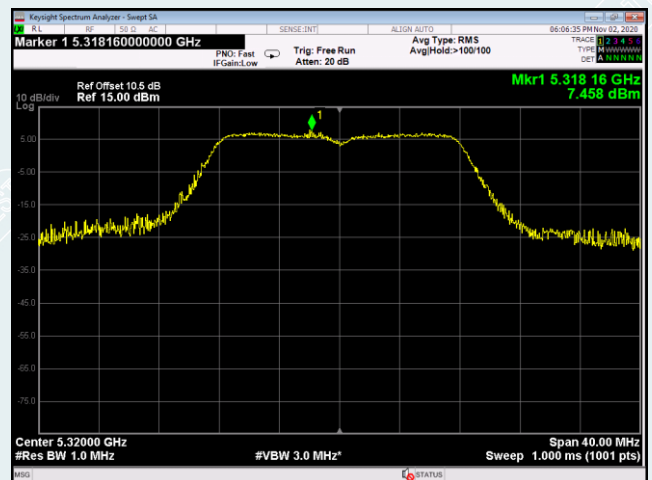
Channel 5260MHz



Channel 5300MHz

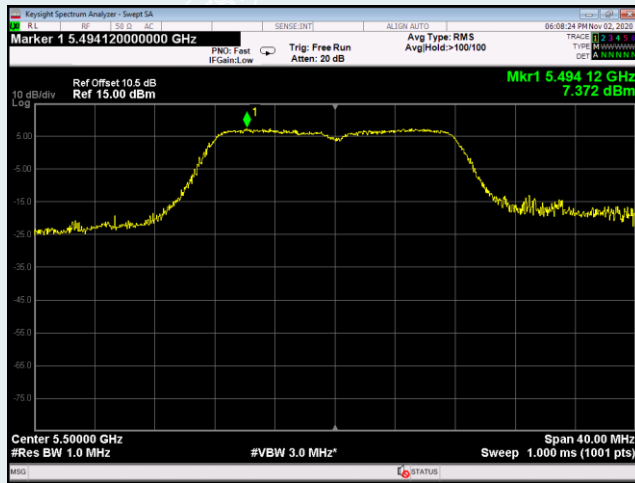


Channel 5320MHz

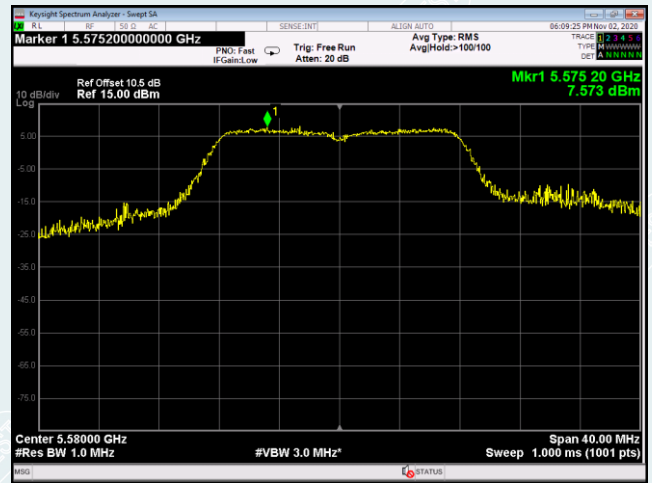


802.11a mode (antenna 1)

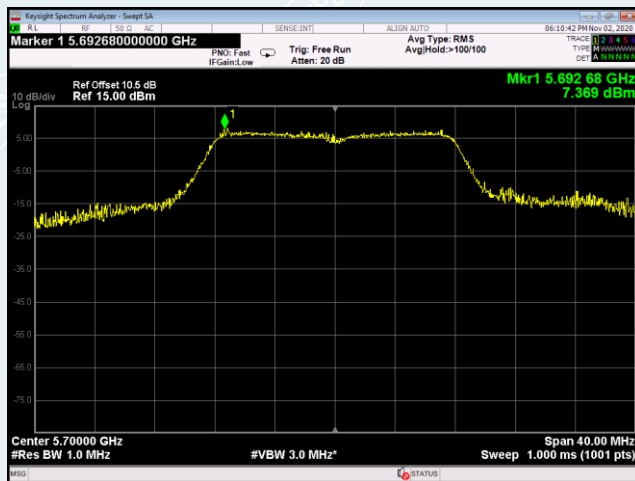
Channel 5500MHz



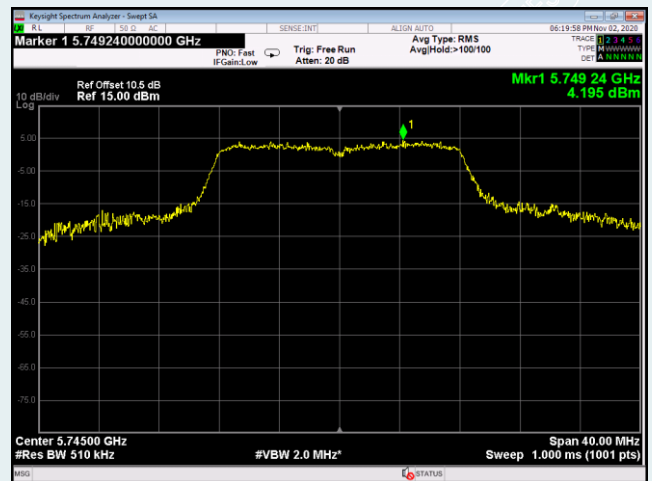
Channel 5580MHz



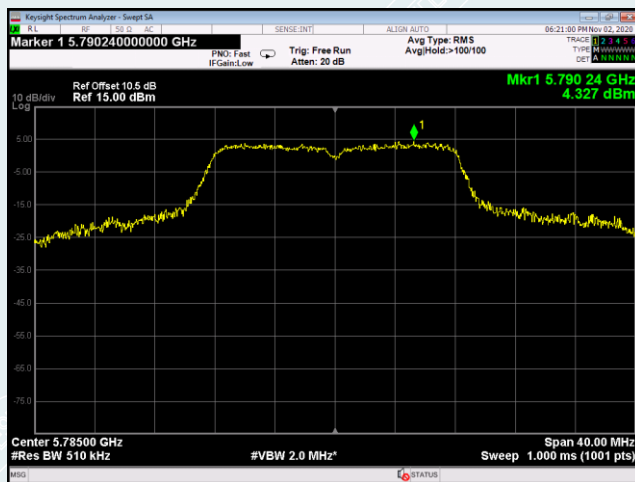
Channel 5700MHz



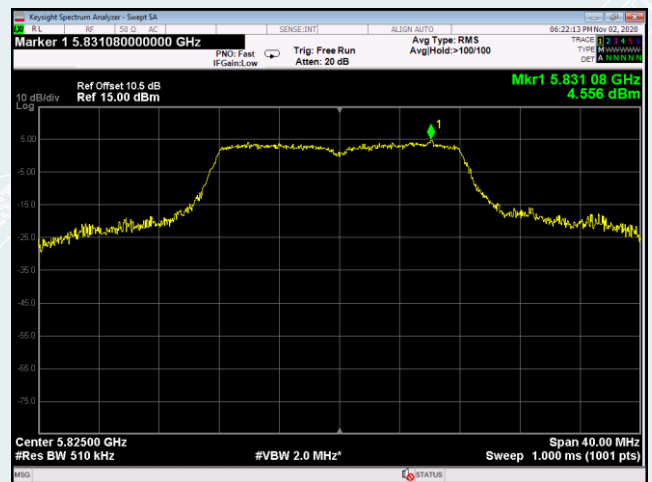
Channel 5745MHz



Channel 5785MHz

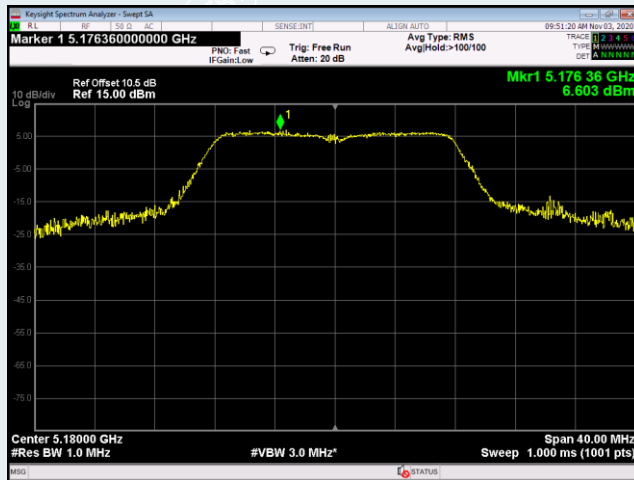


Channel 5825MHz

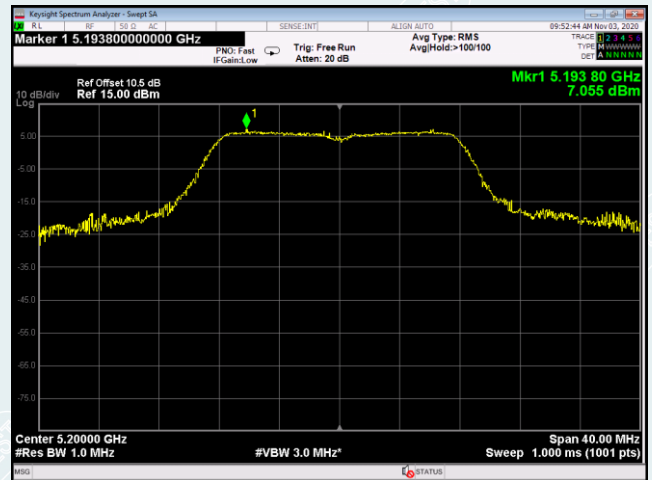


802.11a mode (antenna 2)

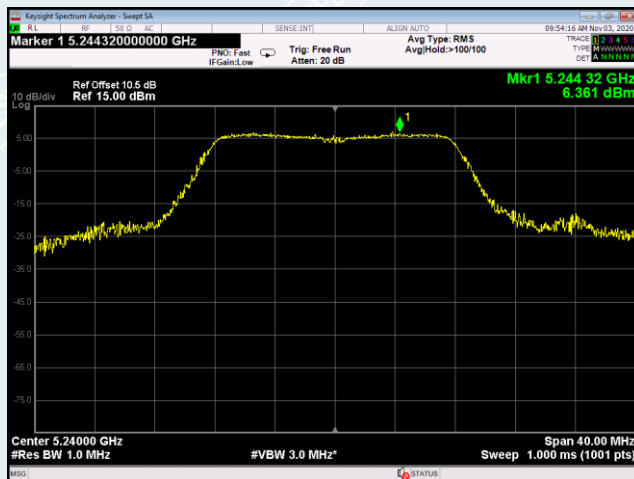
Channel 5180MHz



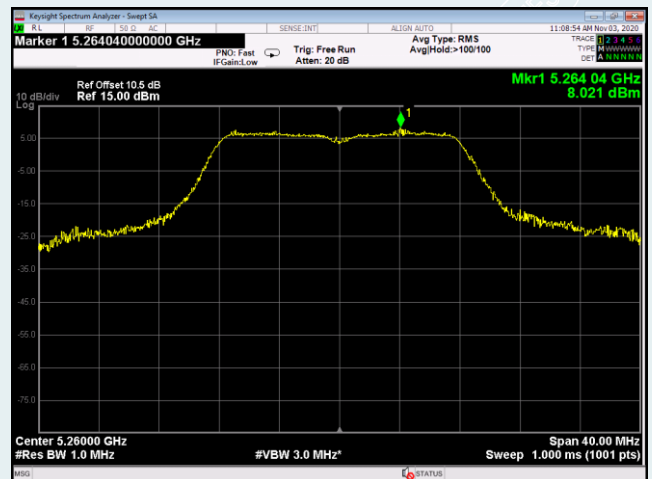
Channel 5200MHz



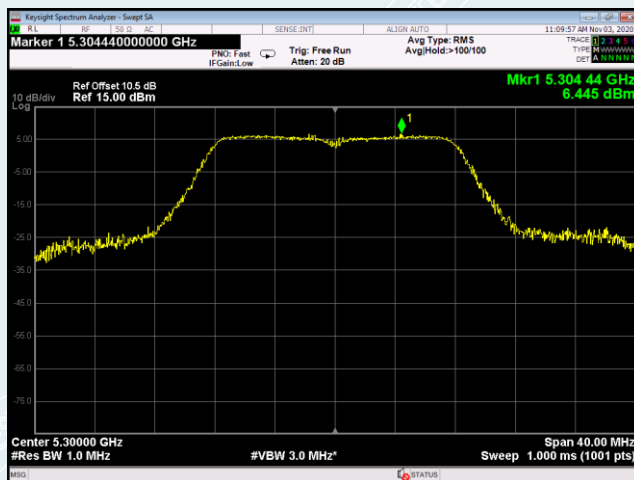
Channel 5240MHz



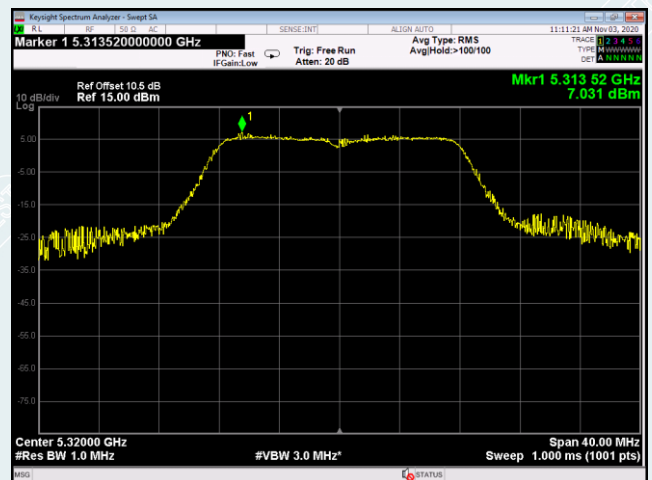
Channel 5260MHz



Channel 5300MHz

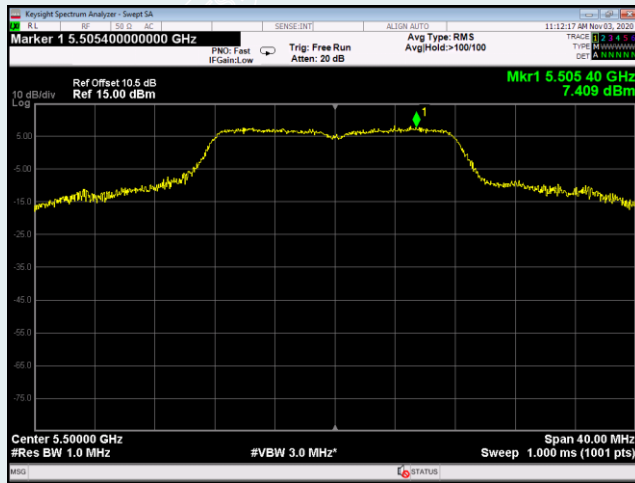


Channel 5320MHz

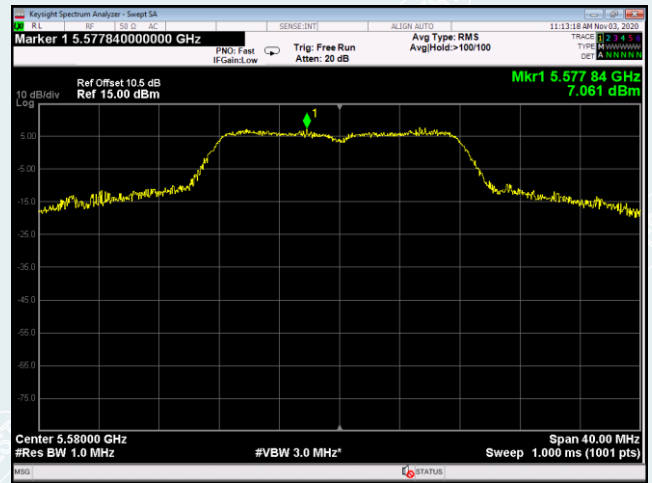


802.11a mode (antenna 2)

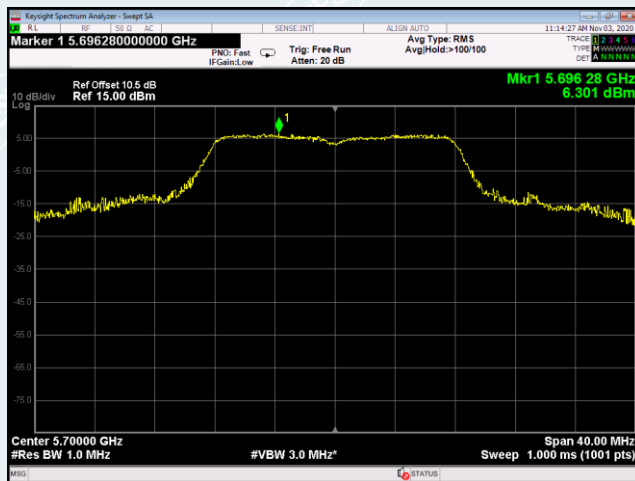
Channel 5500MHz



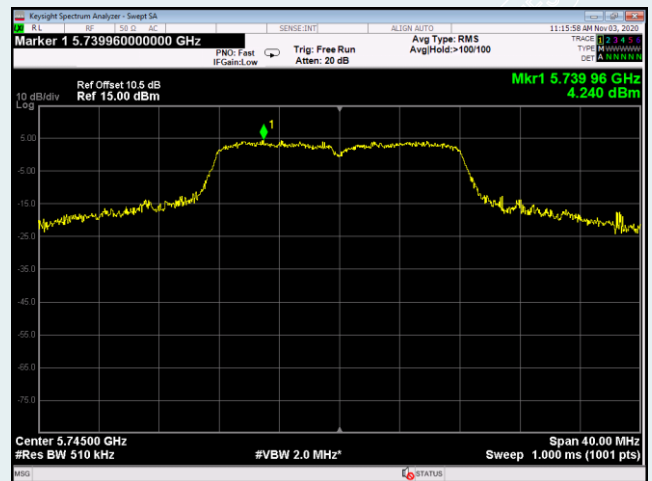
Channel 5580MHz



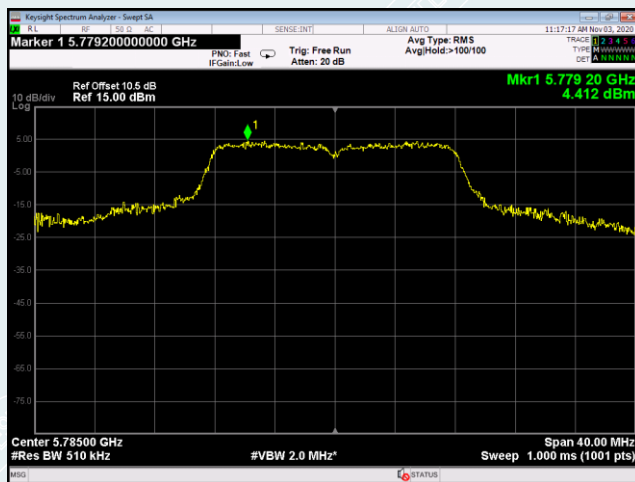
Channel 5700MHz



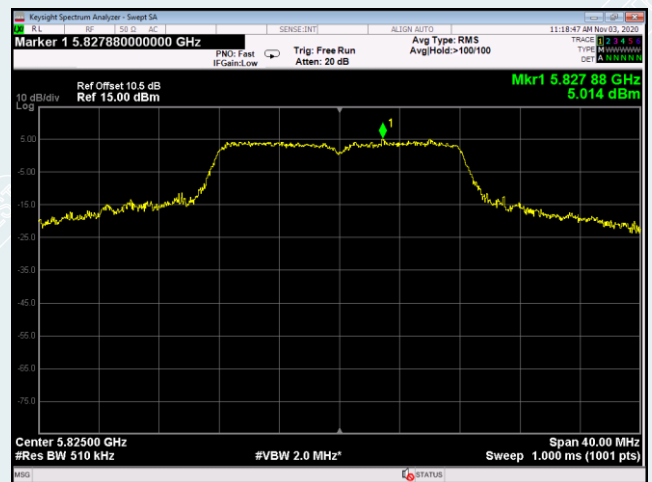
Channel 5745MHz



Channel 5785MHz

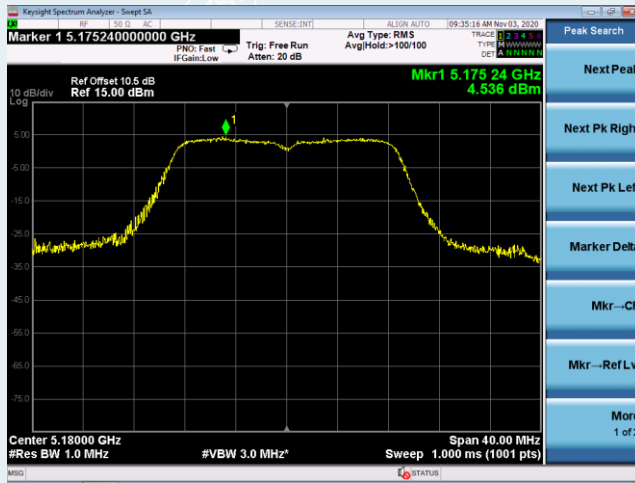


Channel 5825MHz

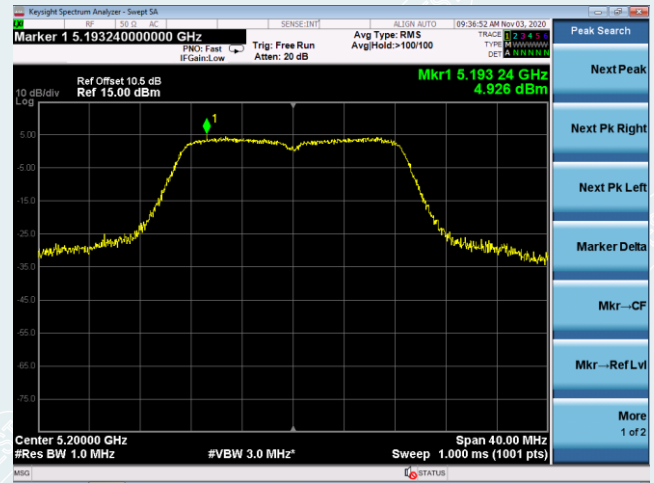


802.11n HT20 mode (antenna 1)

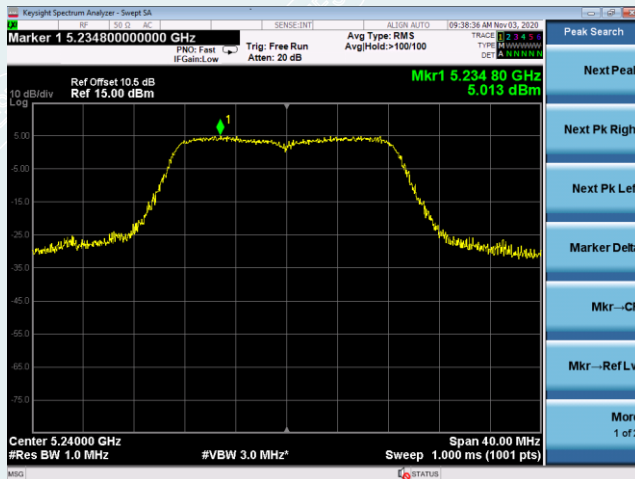
Channel 5180MHz



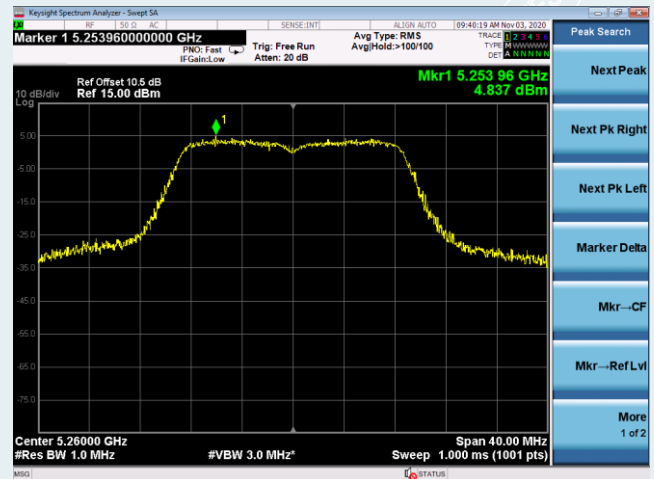
Channel 5200MHz



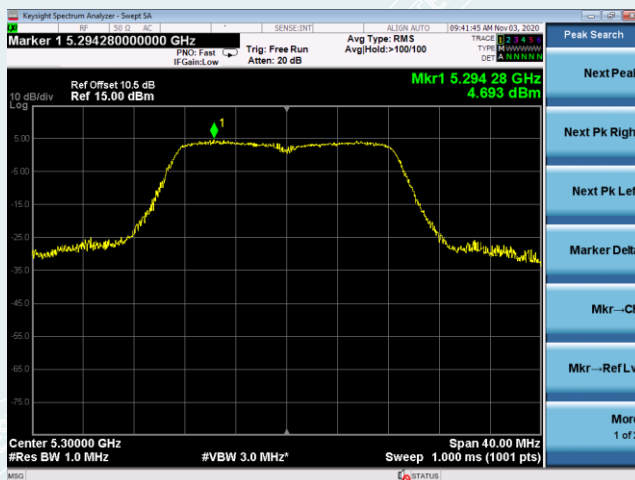
Channel 5240MHz



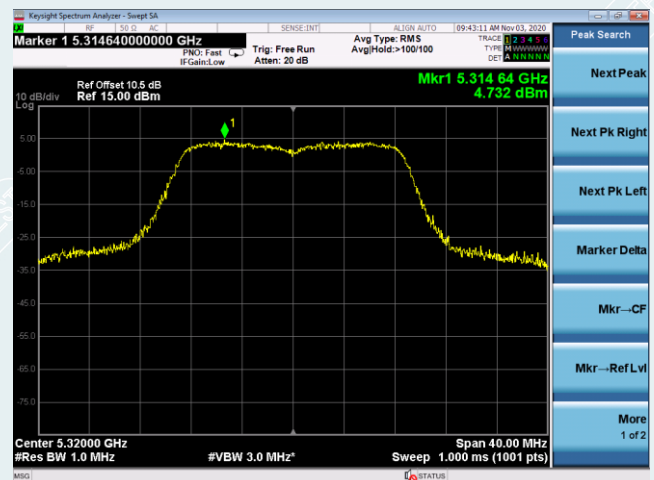
Channel 5260MHz



Channel 5300MHz

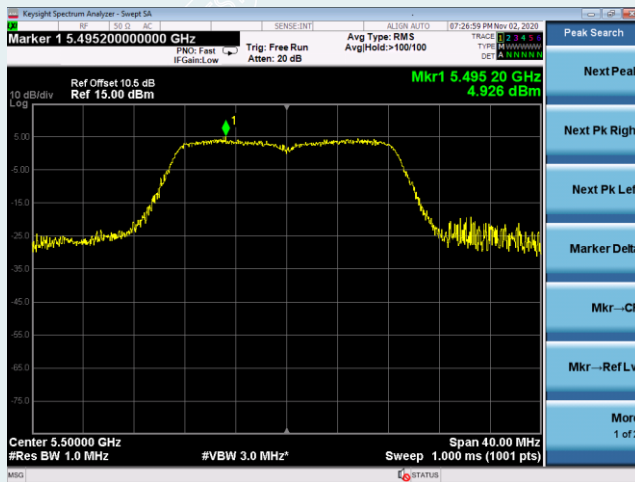


Channel 5320MHz

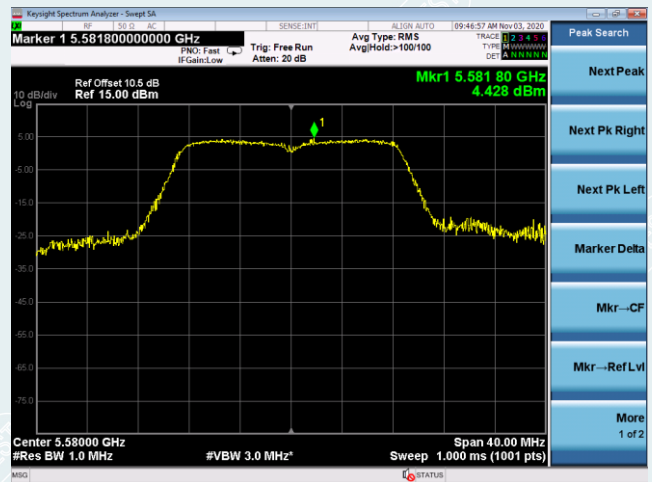


802.11n HT20 mode (antenna 1)

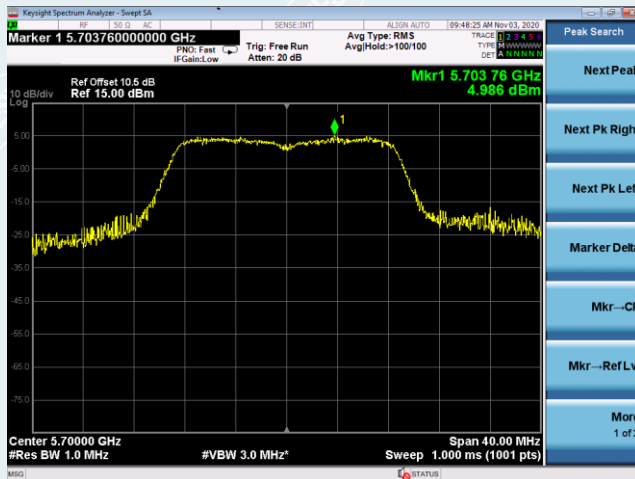
Channel 5500MHz



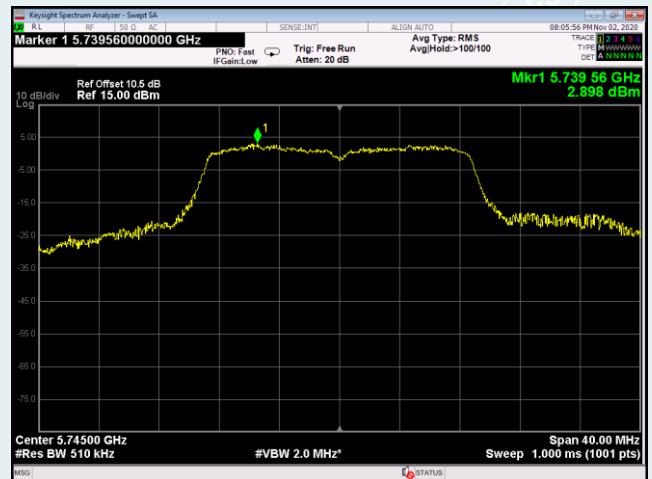
Channel 5580MHz



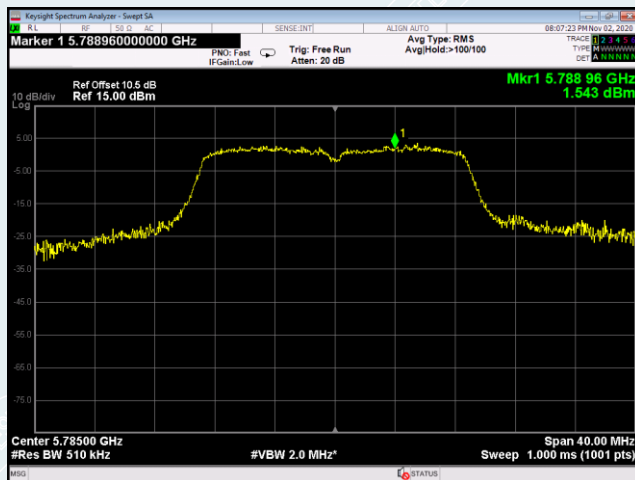
Channel 5700MHz



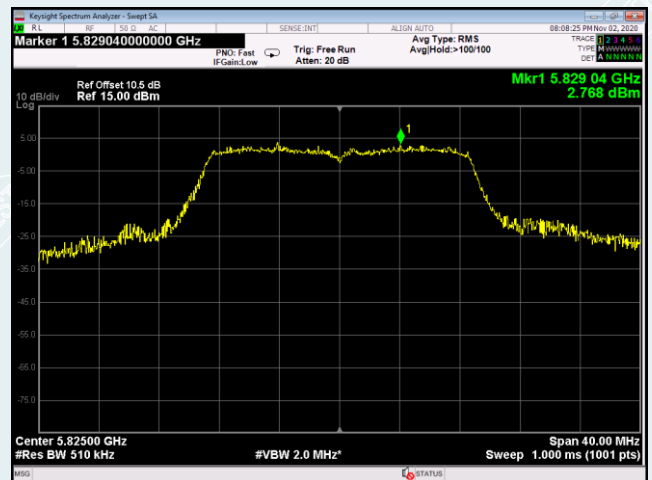
Channel 5745MHz



Channel 5785MHz

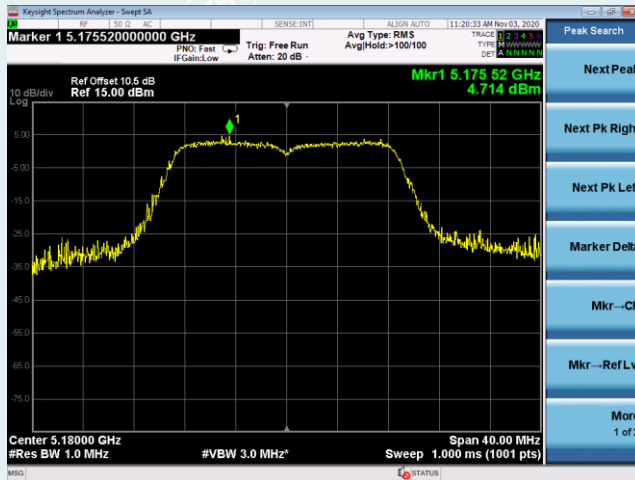


Channel 5825MHz

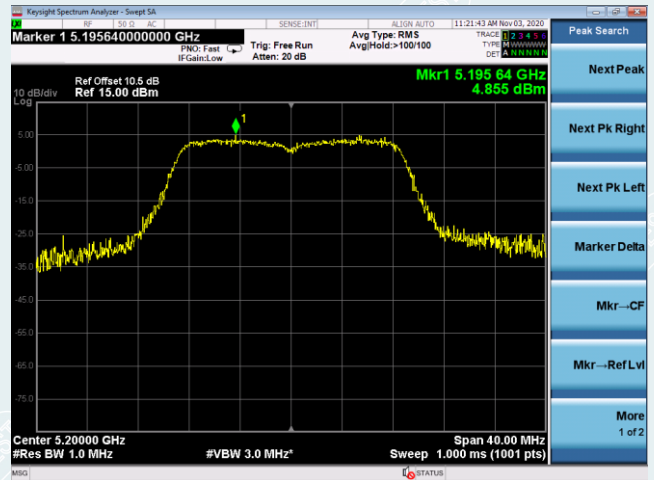


802.11n HT20 mode (antenna 2)

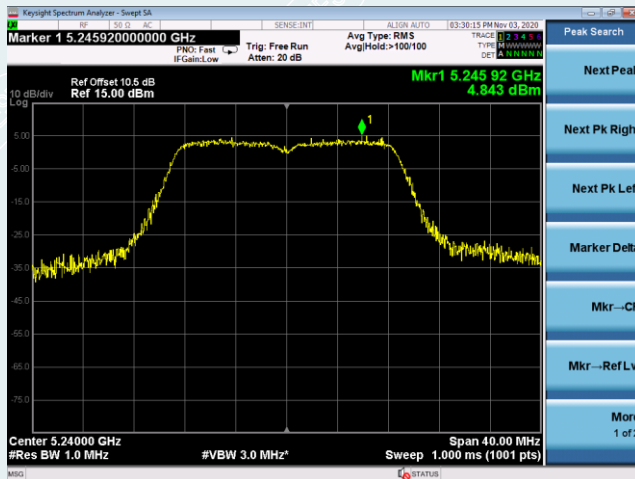
Channel 5180MHz



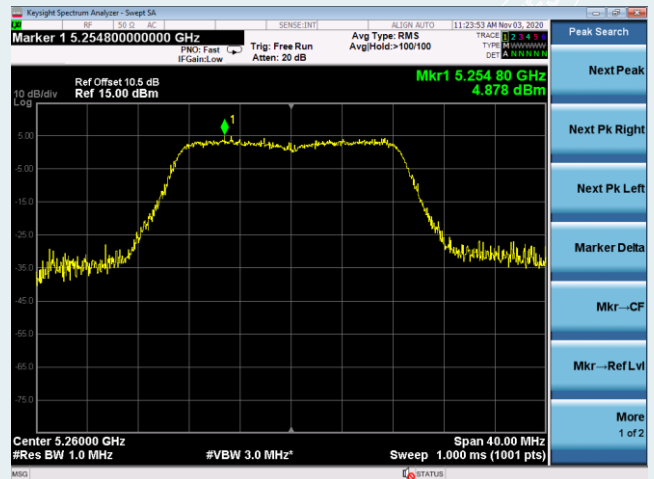
Channel 5200MHz



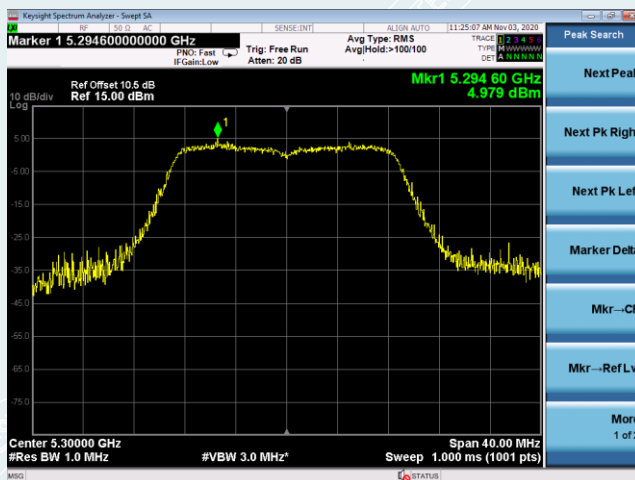
Channel 5240MHz



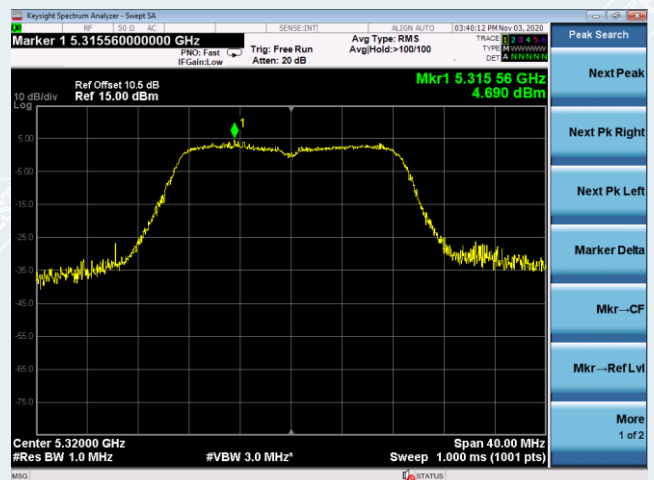
Channel 5260MHz



Channel 5300MHz

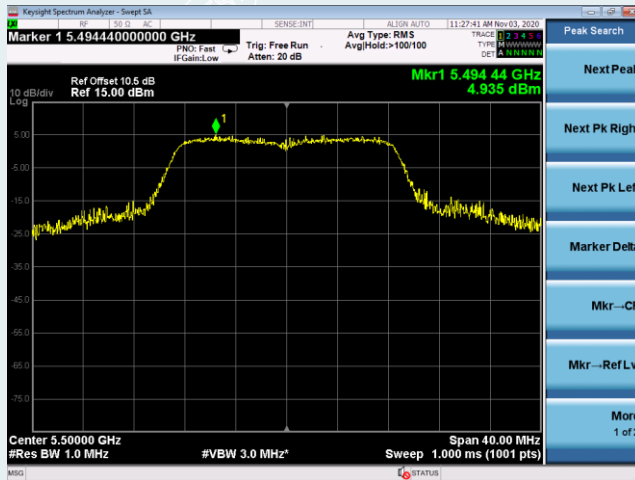


Channel 5320MHz

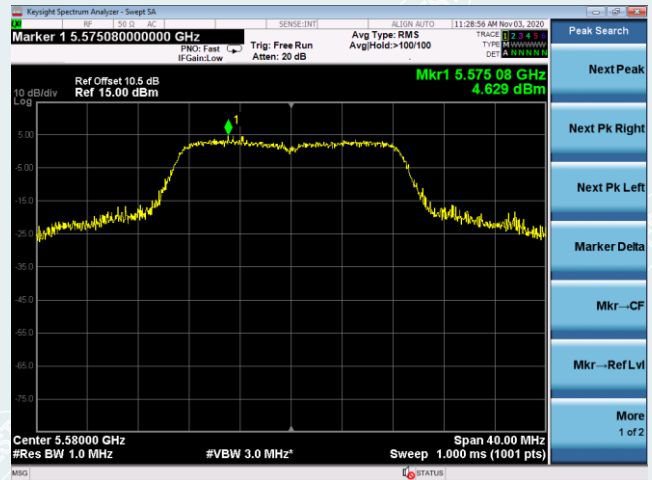


802.11n HT20 mode (antenna 2)

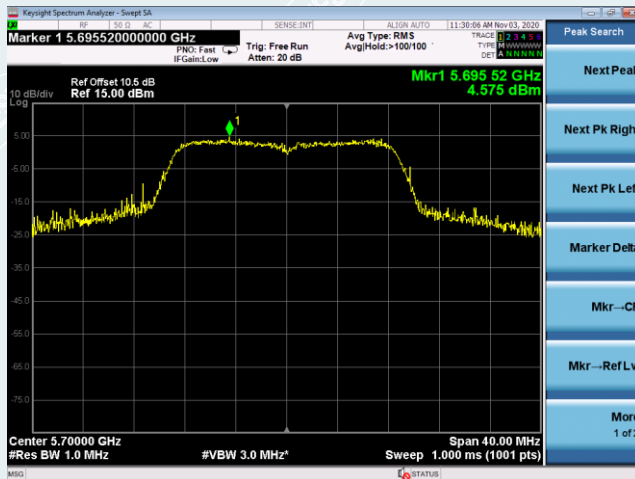
Channel 5500MHz



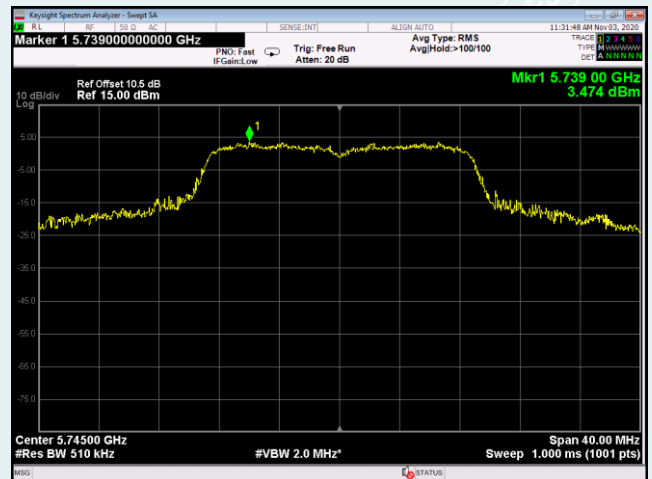
Channel 5580MHz



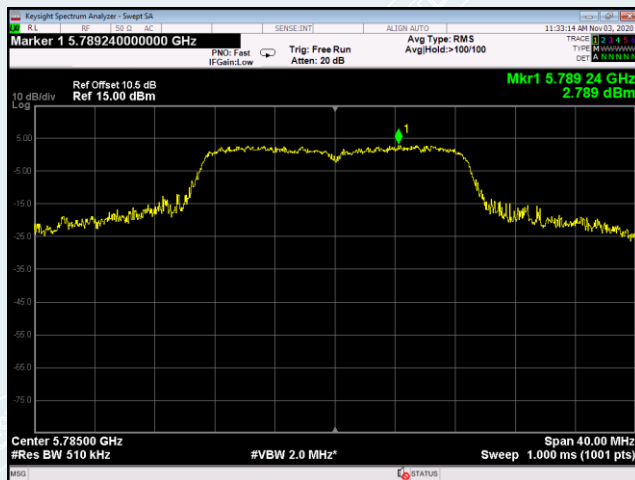
Channel 5700MHz



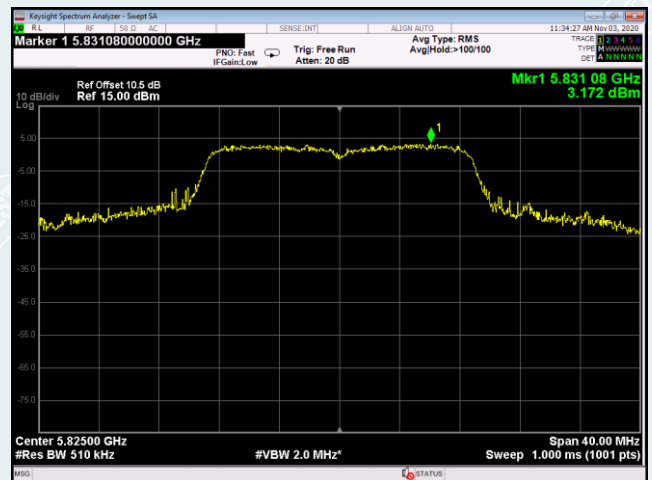
Channel 5745MHz



Channel 5785MHz

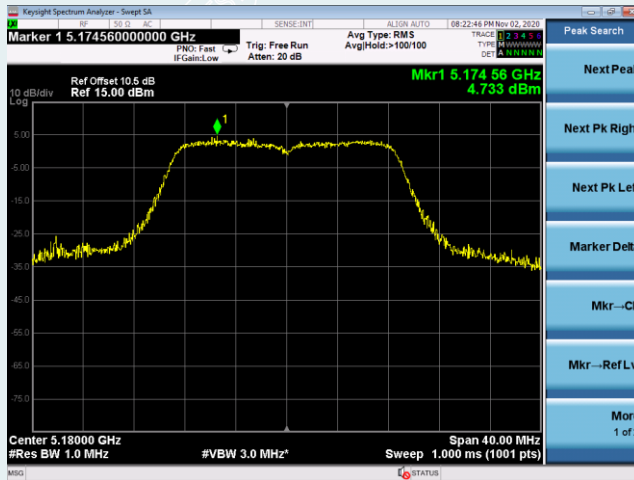


Channel 5825MHz

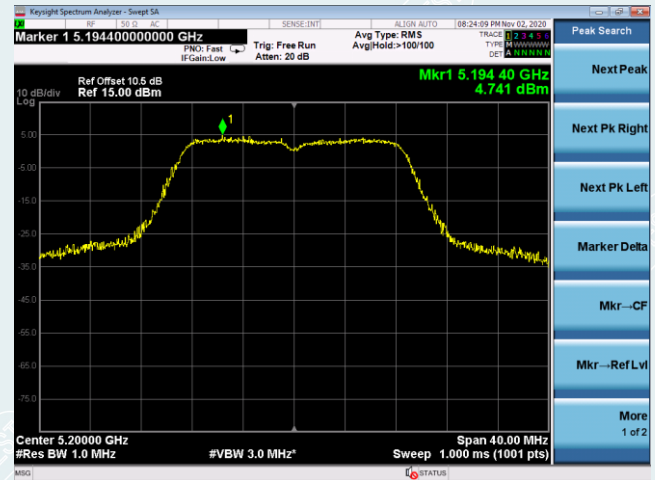


802.11ac VHT20 mode (antenna 1)

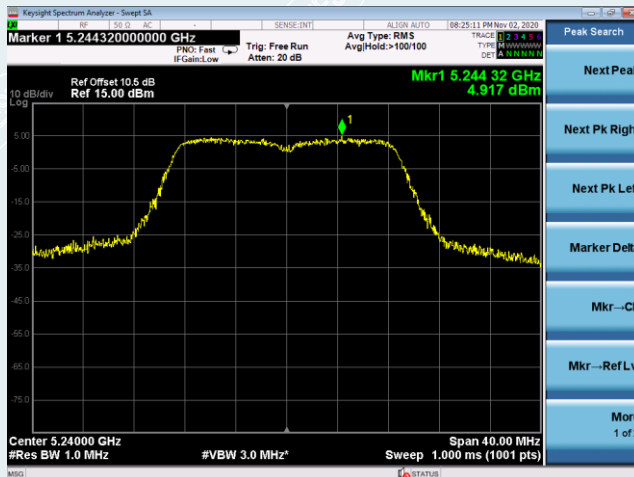
Channel 5180MHz



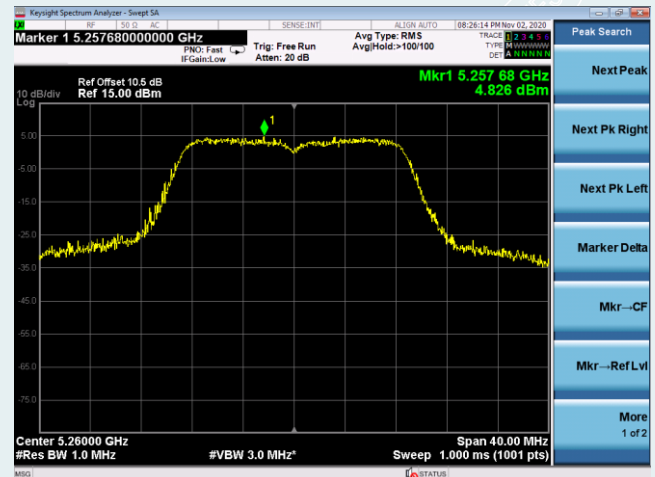
Channel 5200MHz



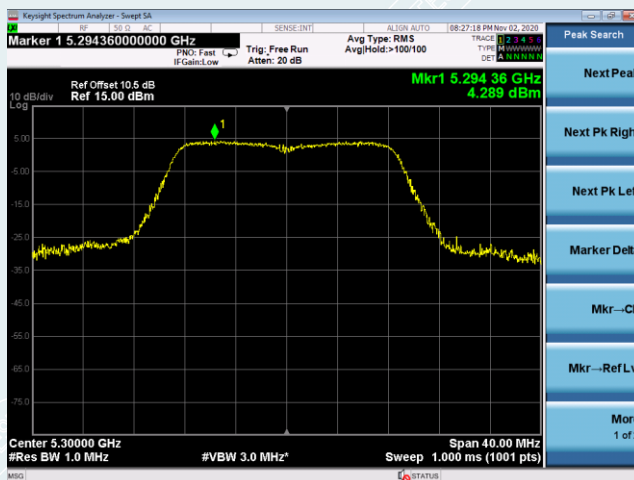
Channel 5240MHz



Channel 5260MHz



Channel 5300MHz



Channel 5320MHz

