

Output Power measurement result for 5.3GHz

Type	Test mode	Freq (MHz)	CH	Conducted Power (dBm)			Limit (dBm)	Result
				Chain0	Chain1	Combined Power		
Output Power	802.11a	5260	Low	21.03	20.83	23.94	24	Pass
	802.11a	5280	Mid	20.50	20.67	23.60	24	Pass
	802.11a	5320	High	18.84	19.25	22.06	24	Pass
	802.11n-20M	5260	Low	20.71	20.83	23.78	24	Pass
	802.11n-20M	5280	Mid	20.65	20.93	23.80	24	Pass
	802.11n-20M	5320	High	18.30	18.38	21.35	24	Pass
	802.11n-40M	5270	Low	20.86	20.77	23.83	24	Pass
	802.11n-40M	5310	Mid	16.43	16.19	19.32	24	Pass
	802.11ac-80M	5290	High	14.28	16.00	18.24	24	Pass

Output Power measurement result for 5.5GHz

Type	Test mode	Freq (MHz)	CH	Conducted Power (dBm)			Limit (dBm)	Result
				Chain0	Chain1	Combined Power		
Output Power	802.11a	5500	Low	19.76	20.13	22.96	24	Pass
	802.11a	5580	Mid	20.18	20.65	23.43	24	Pass
	802.11a	5700	High	20.72	20.27	23.51	24	Pass
	802.11n-20M	5500	Low	20.18	20.04	23.12	24	Pass
	802.11n-20M	5580	Mid	20.25	20.86	23.57	24	Pass
	802.11n-20M	5700	High	20.45	20.61	23.54	24	Pass
	802.11n-40M	5510	Low	16.36	17.12	19.77	24	Pass
	802.11n-40M	5550	Mid	20.92	20.53	23.74	24	Pass
	802.11n-40M	5670	High	20.93	20.94	23.95	24	Pass
	802.11ac-80M	5530	Low	16.00	15.44	18.74	24	Pass
	802.11ac-80M	5610	High	17.71	20.99	22.66	24	Pass

Note: Two chains are cross-polarized, additional gain is $10 \log_{10}(\text{NANT})=0\text{dB}$, $N=1$, max directional gain of the EUT is 3.5dBi. No limit adjustment is needed. All the mode transmission is MIMO.

Output Power measurement result for CROSS channels (in band 5470-5725MHz)

Type	Test mode	Freq (MHz)	CH	Conducted Power (dBm)			Limit (dBm)	Result
				Chain0	Chain1	Combined Power		
	802.11a	5720	CROSS	19.67	19.26	22.48	24	Pass
	802.11n-20M	5720	CROSS	19.36	19.03	22.21	24	Pass
	802.11n-40M	5710	CROSS	19.90	19.82	22.87	24	Pass
	802.11ac-80M	5690	CROSS	18.31	19.99	22.24	24	Pass

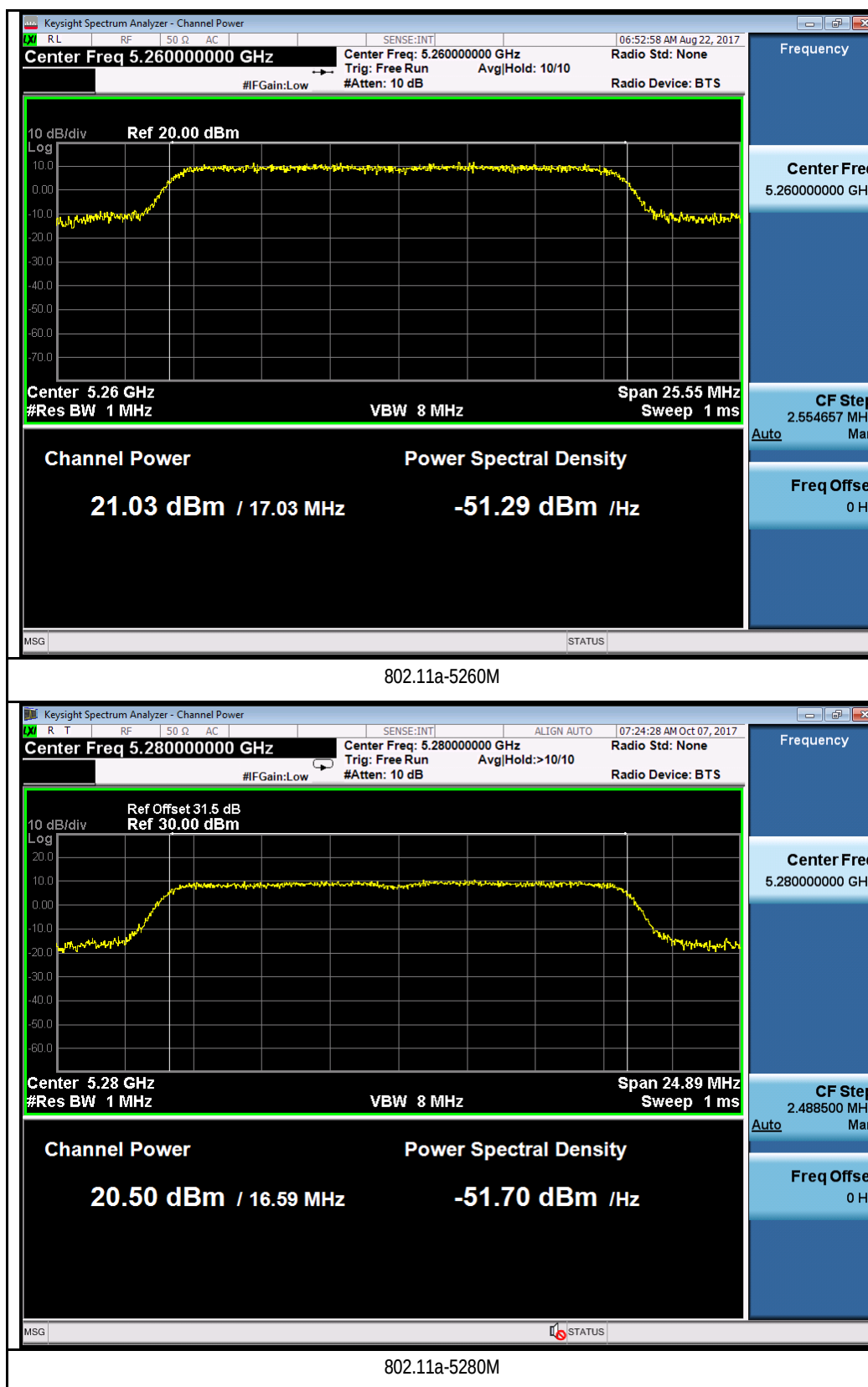
Output Power measurement result for CROSS channels (in band 5725-5850MHz)

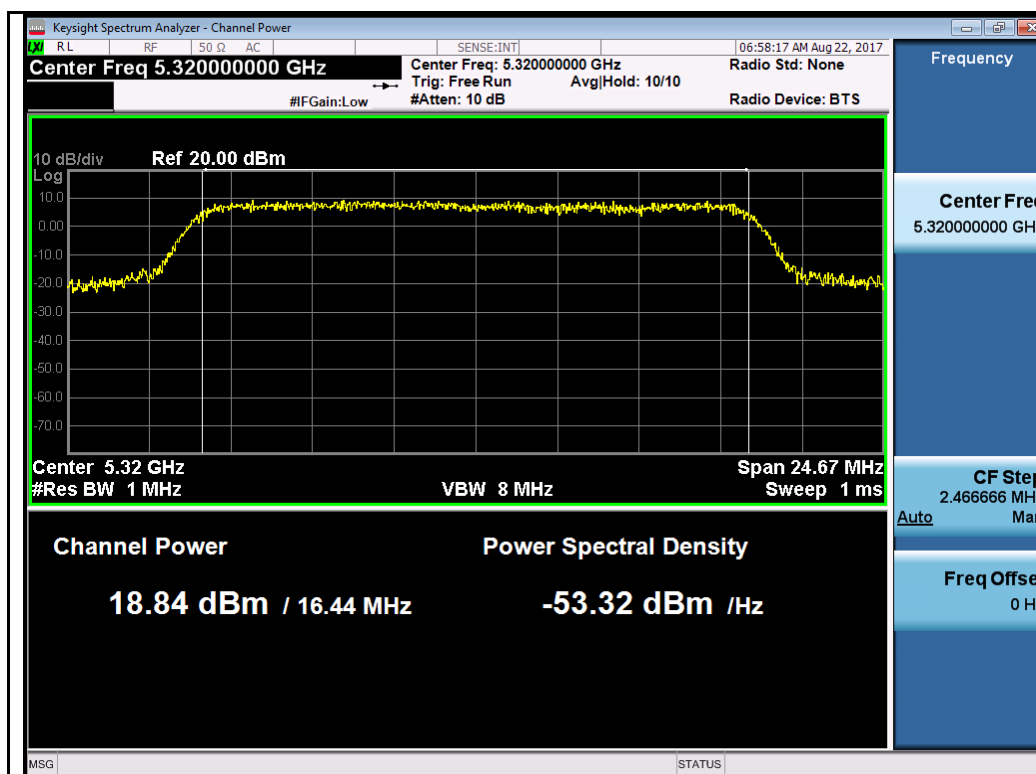
Type	Test mode	Freq (MHz)	CH	Conducted Power (dBm)			Limit (dBm)	Result
				Chain0	Chain1	Combined Power		
Output Power	802.11a	5720	CROSS	19.67	19.26	22.48	30	Pass
	802.11n-20M	5720	CROSS	19.36	19.03	22.21	30	Pass
	802.11n-40M	5710	CROSS	19.90	19.82	22.87	30	Pass
	802.11ac-80M	5690	CROSS	18.31	19.99	22.24	30	Pass

Note: Two chains are cross-polarized, additional gain is $10 \log_{10}(NANT)=0\text{dB}$, $N=1$, max directional gain of the EUT is 3.5dBi. No limit adjustment is needed. All the mode transmission is MIMO.

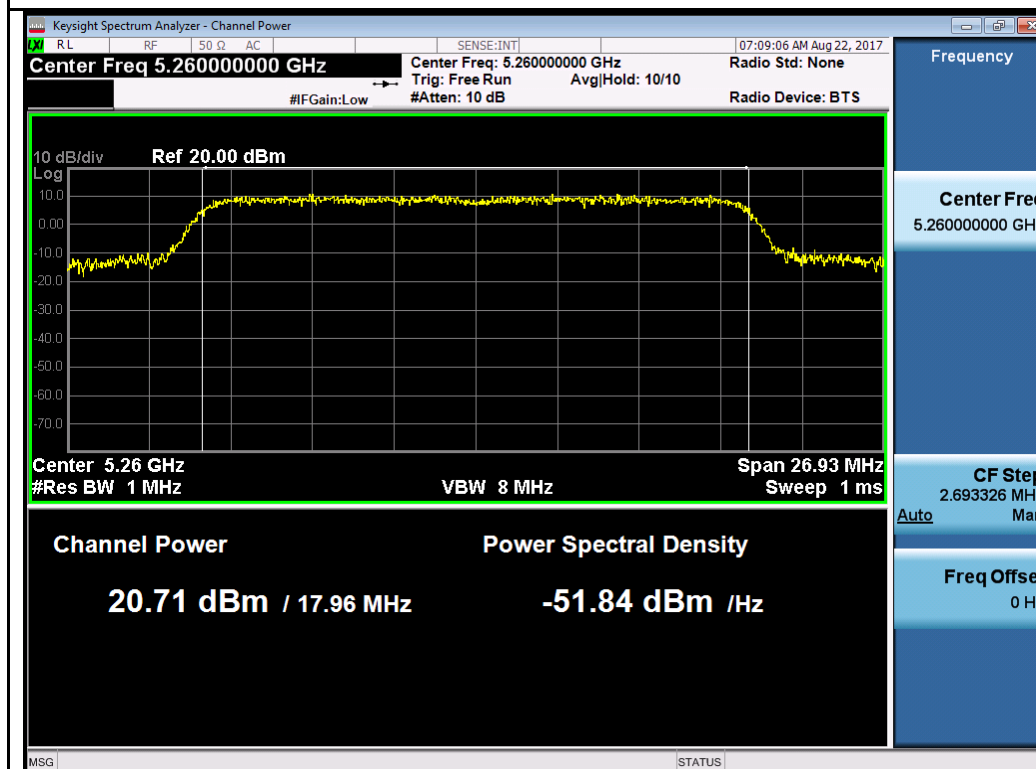
Test Plot for W53:

Chain 0:

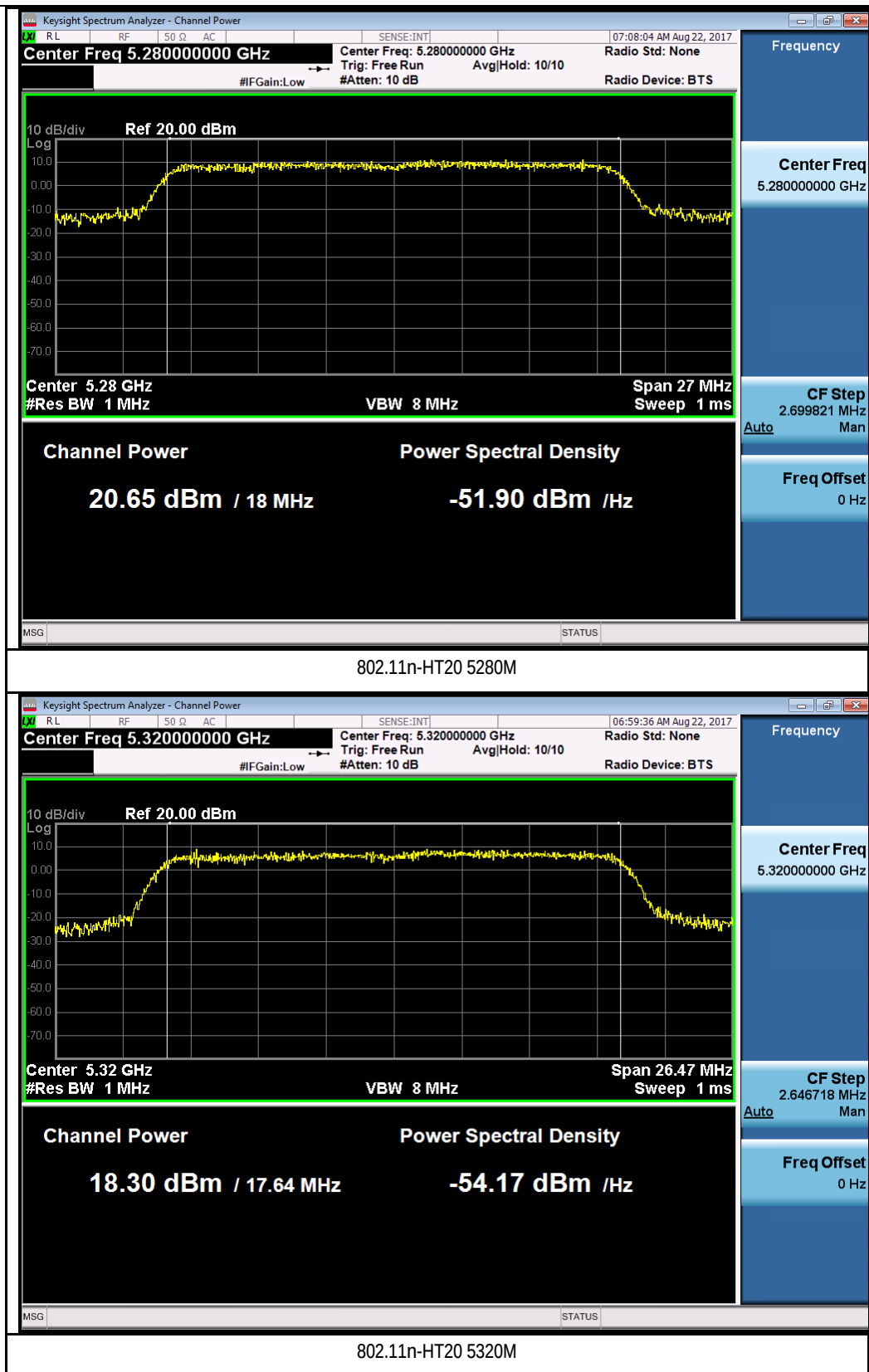


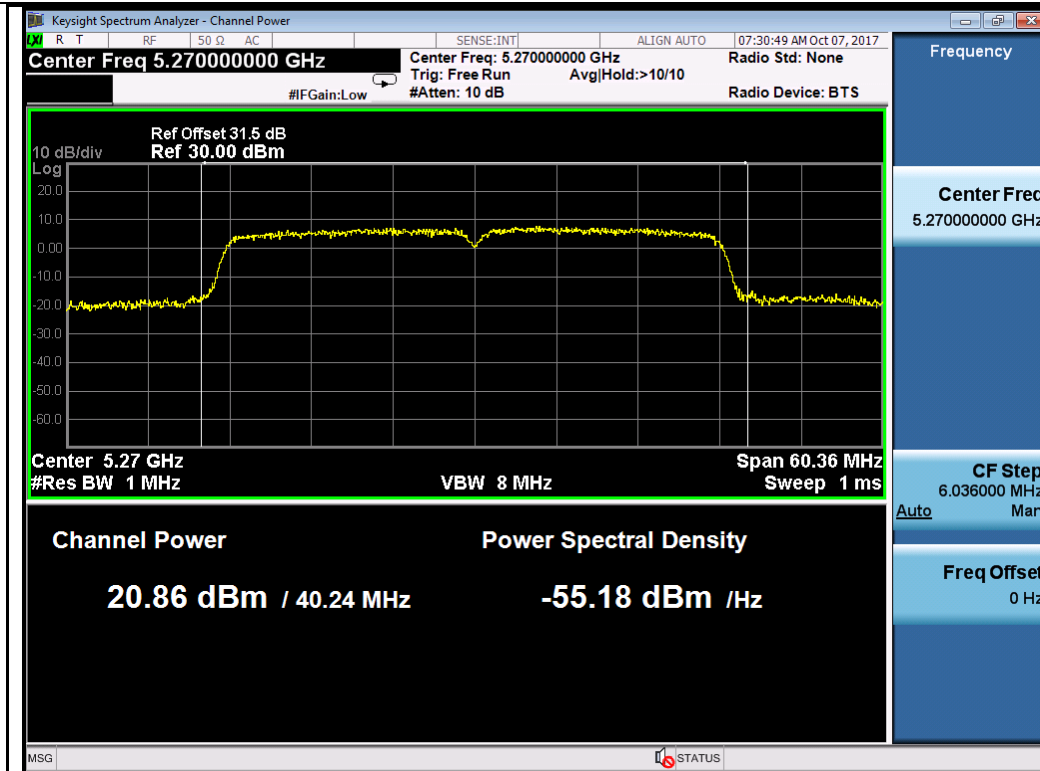


802.11a-5320M

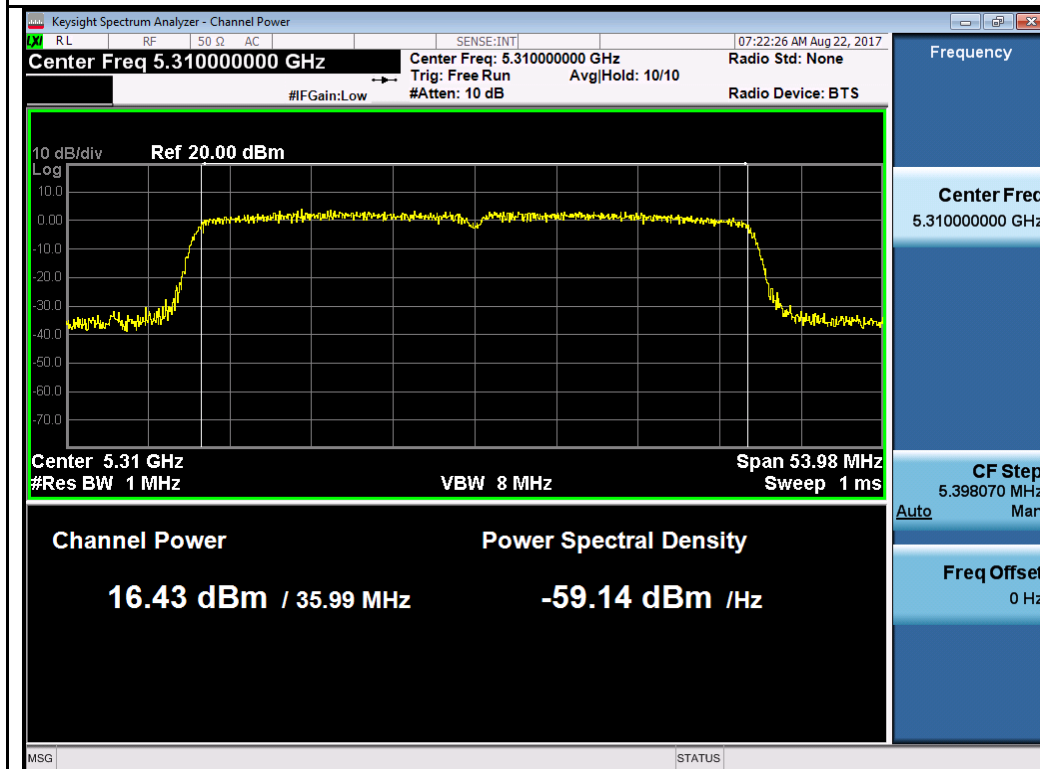


802.11n-HT20 5260M

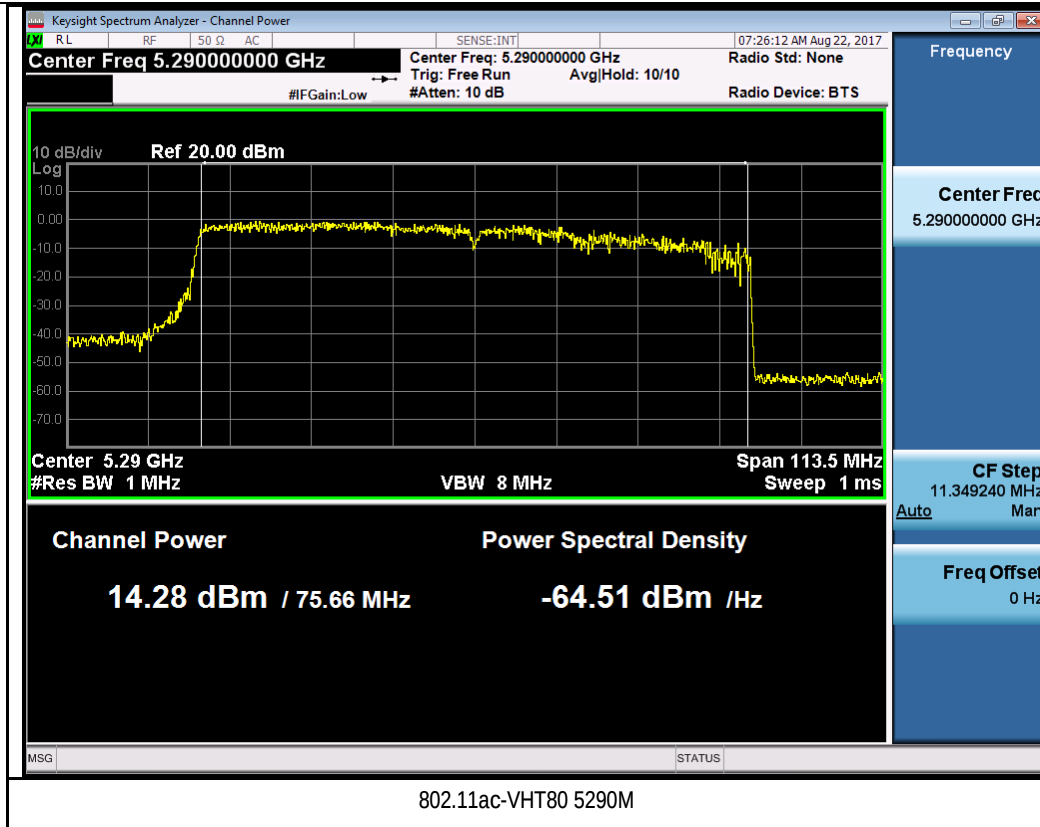




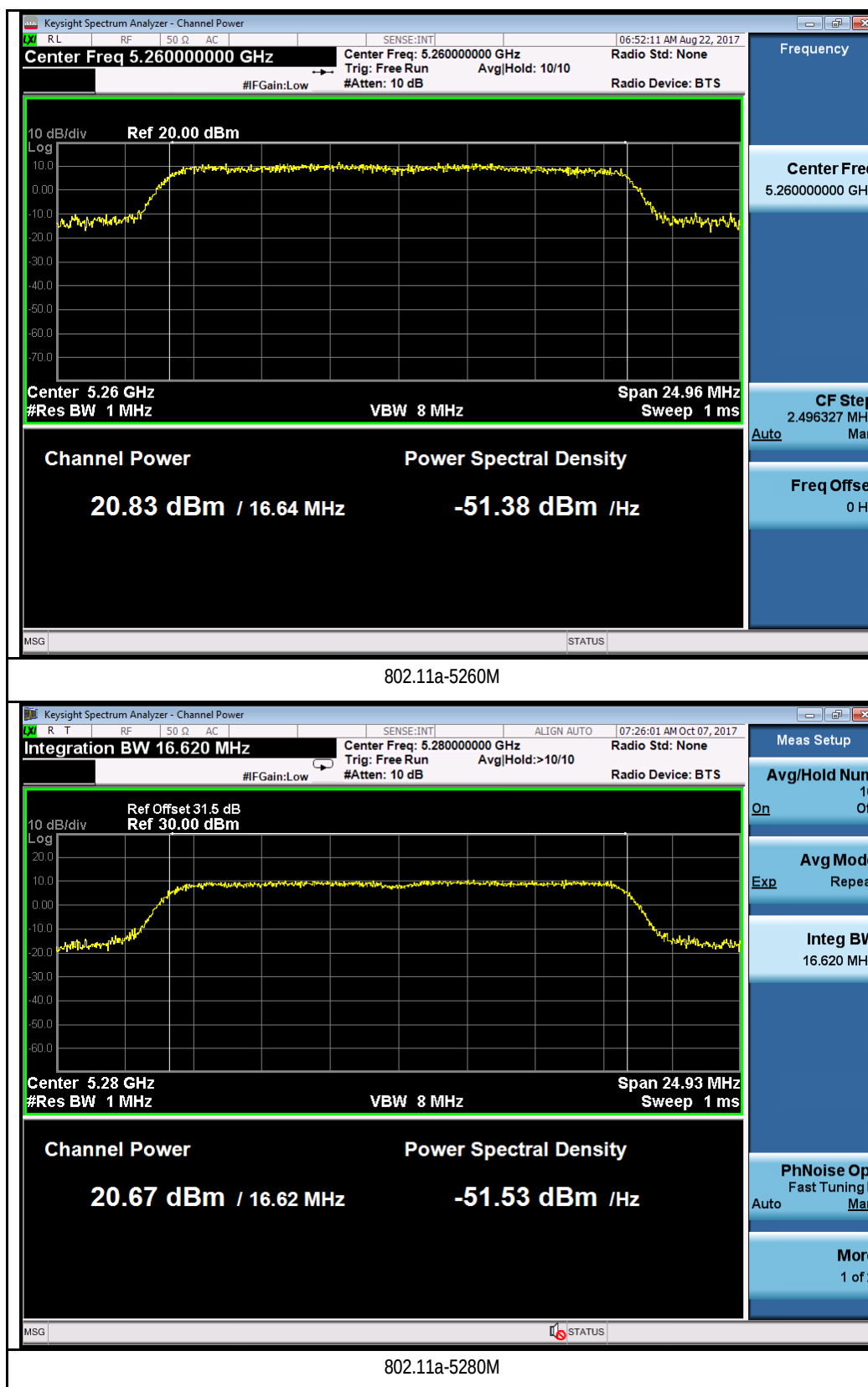
802.11n-HT40 5270M

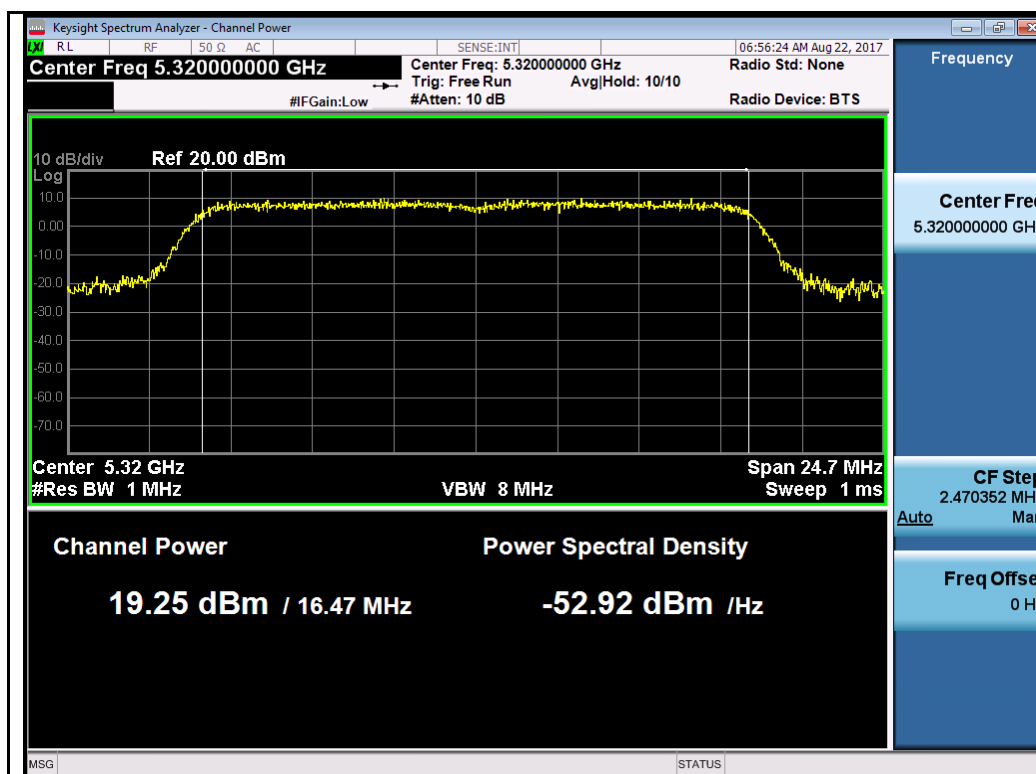


802.11n-HT40 5310M

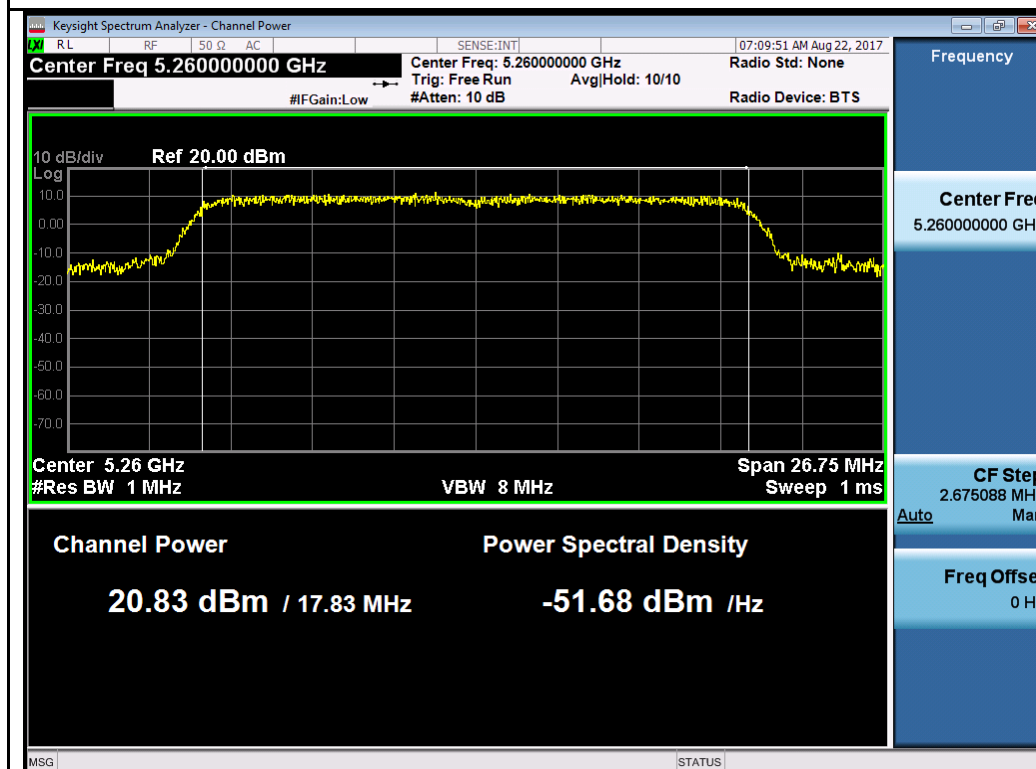


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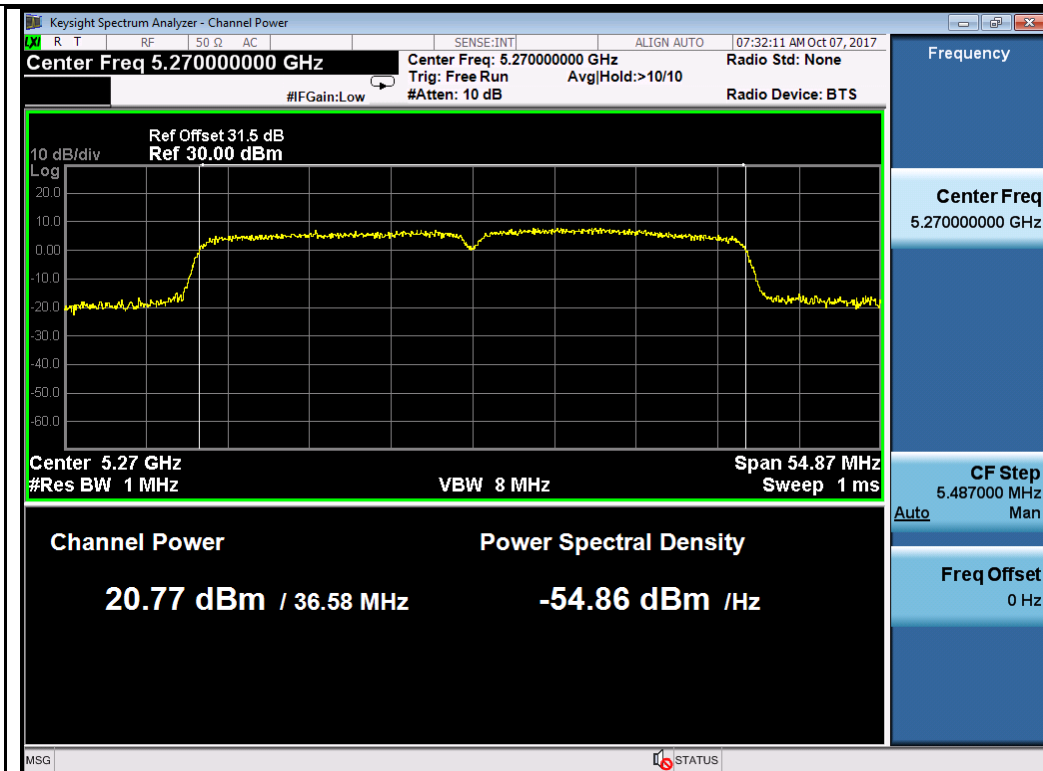


802.11a-5320M

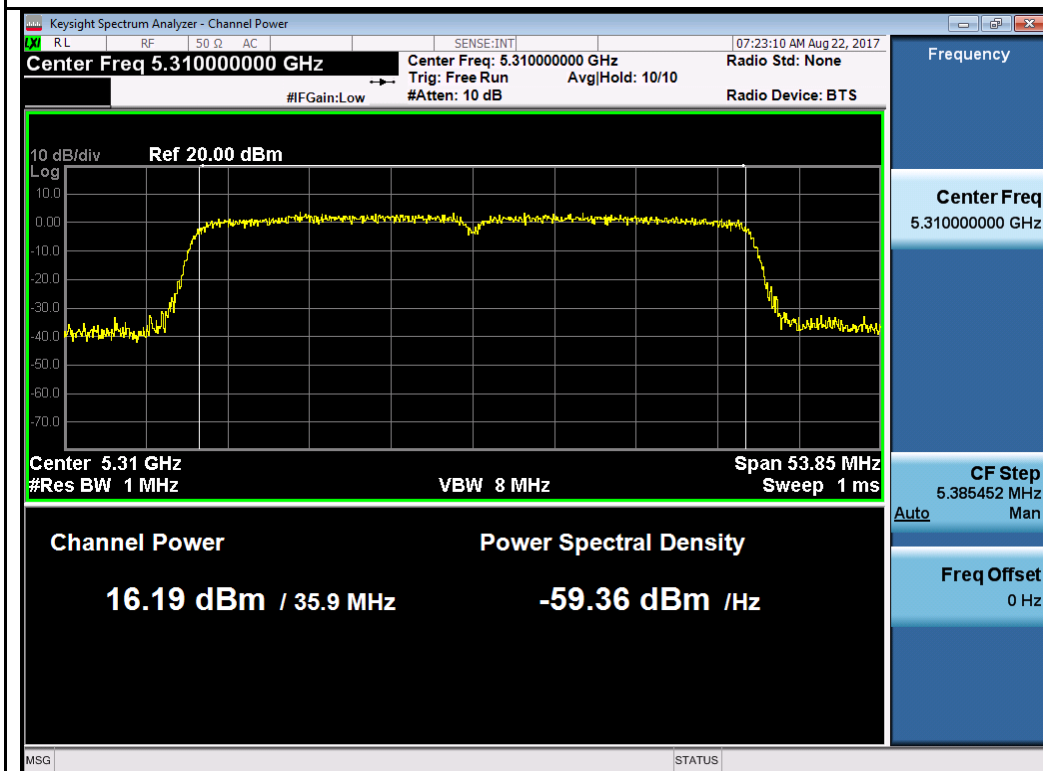


802.11n-HT20 5260M

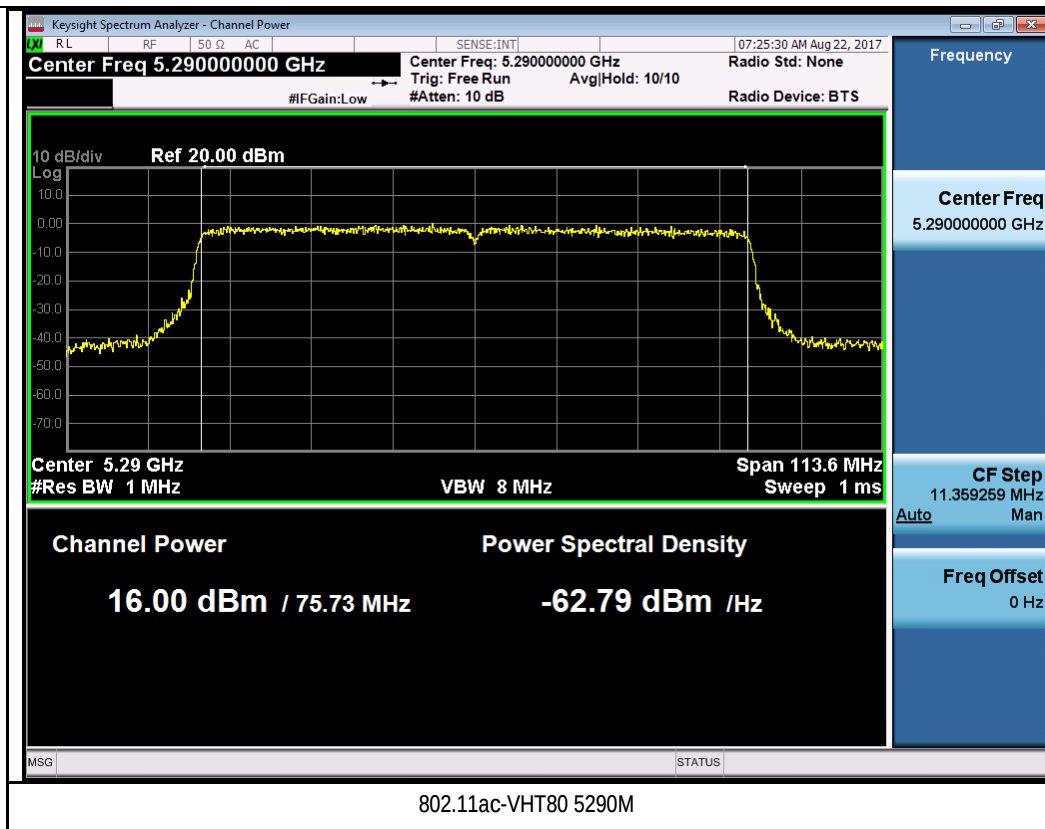




802.11n-HT40 5270M



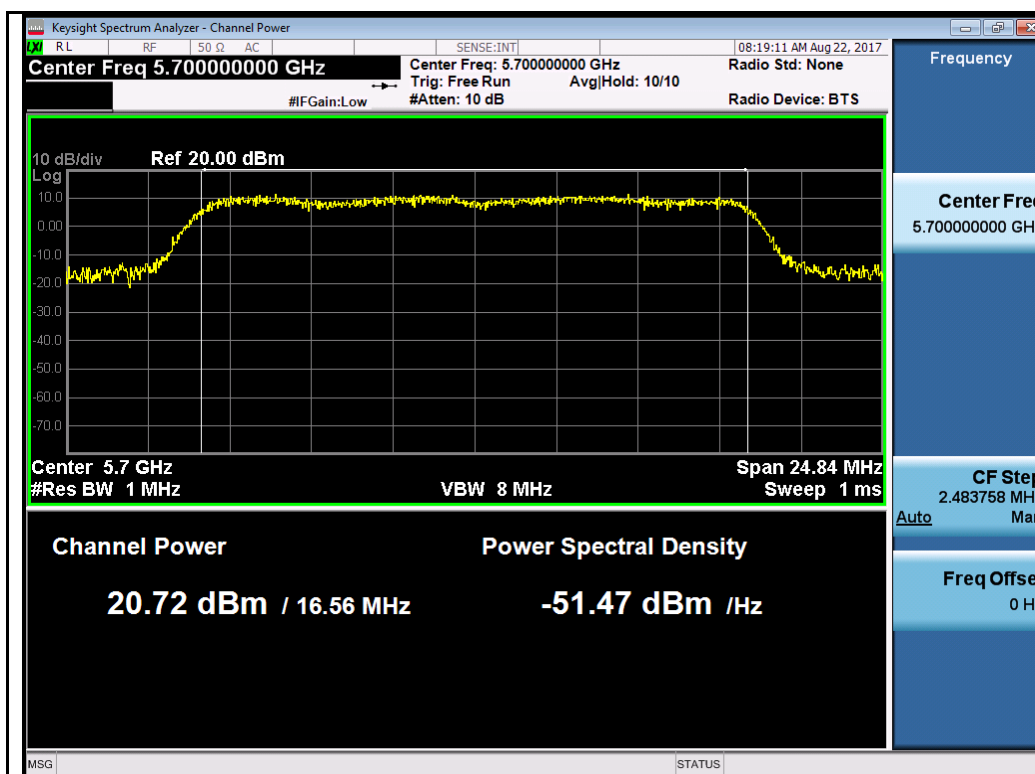
802.11n-HT40 5310M



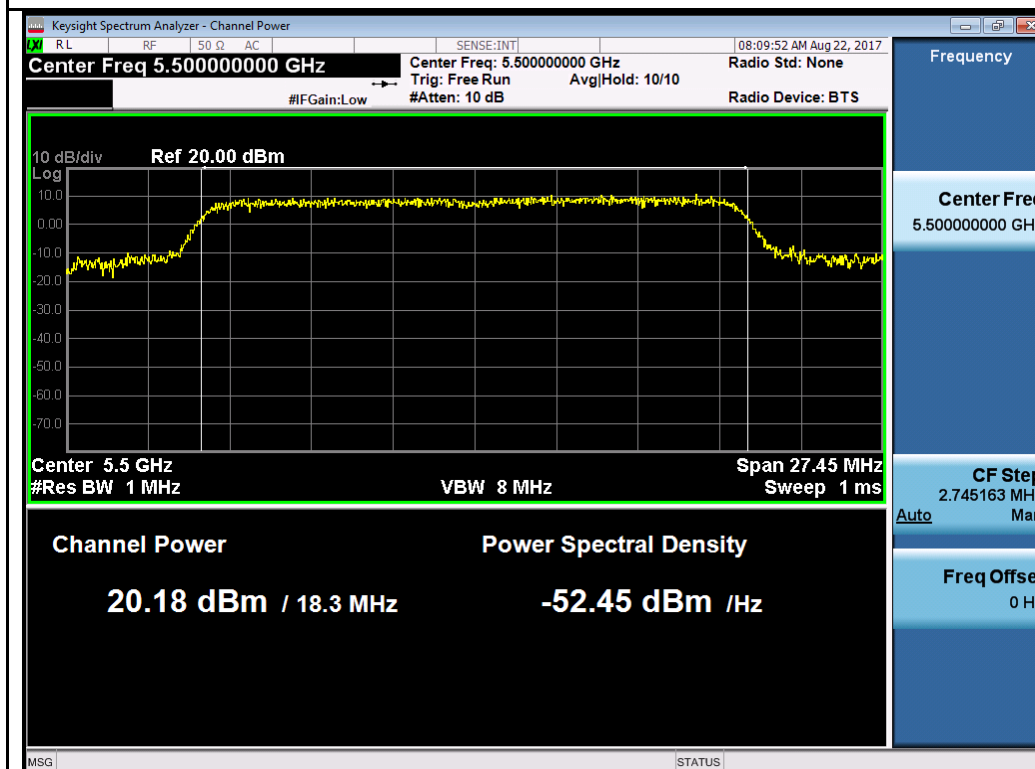
Test Plot for W56:

Chain 0:

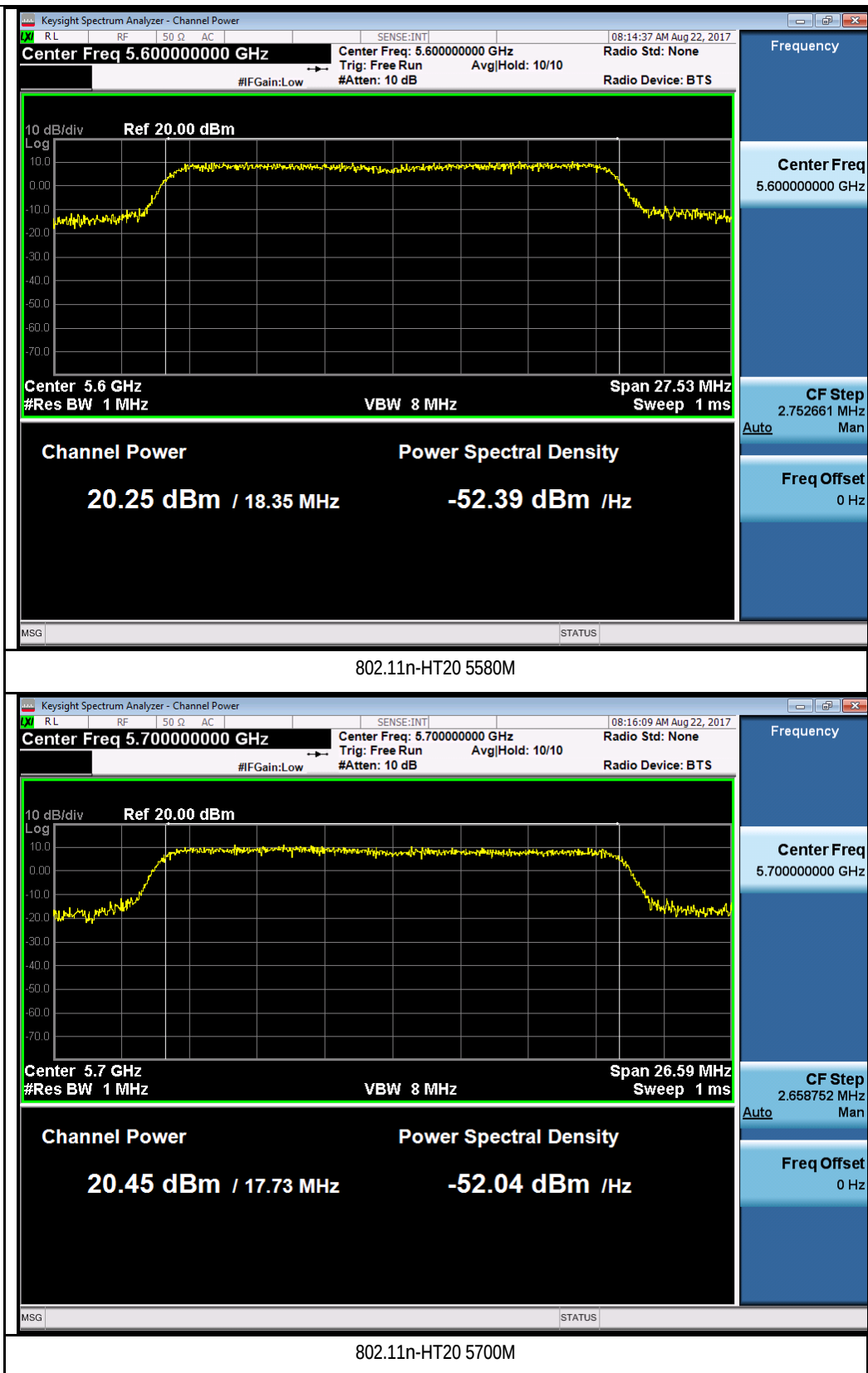


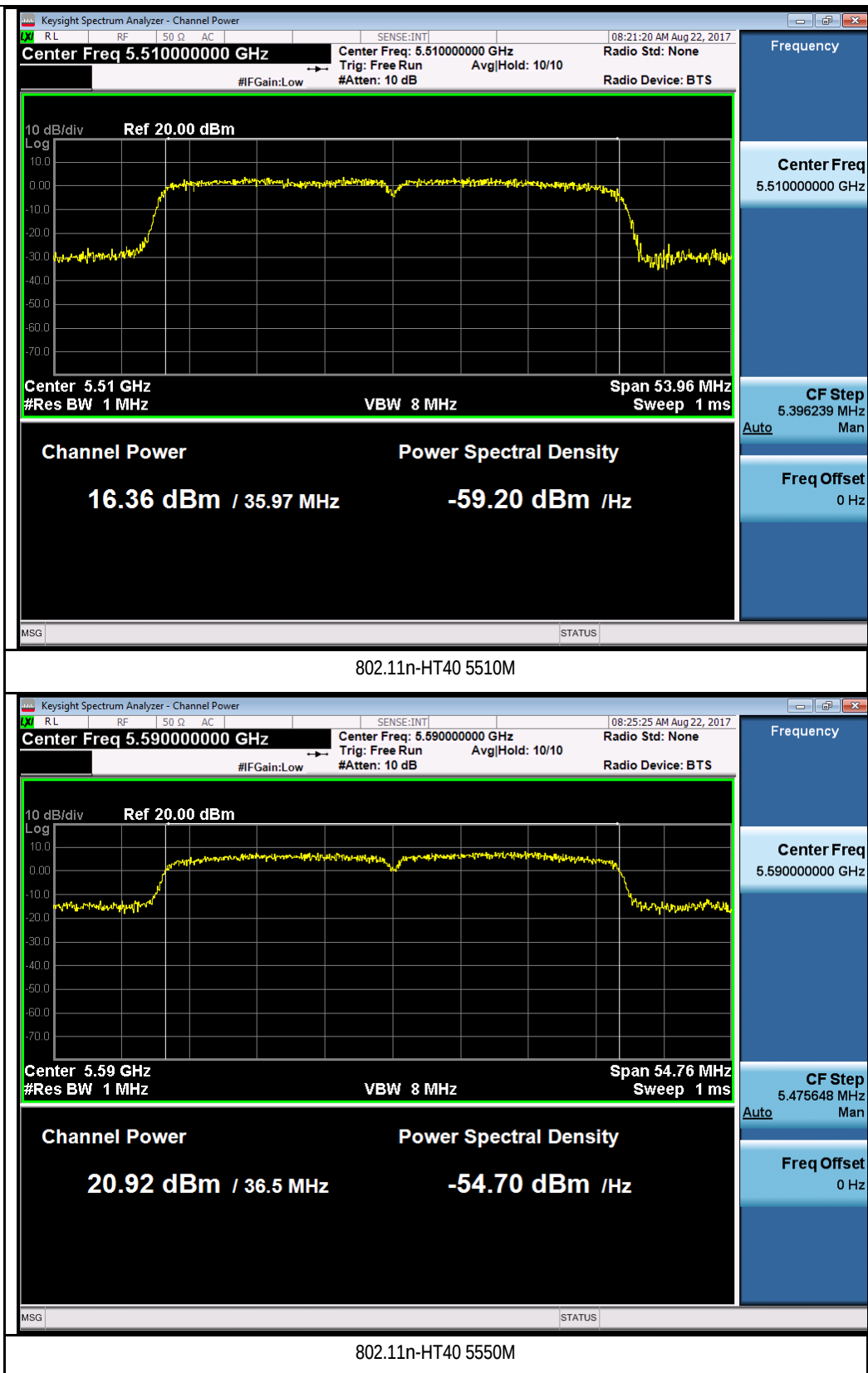


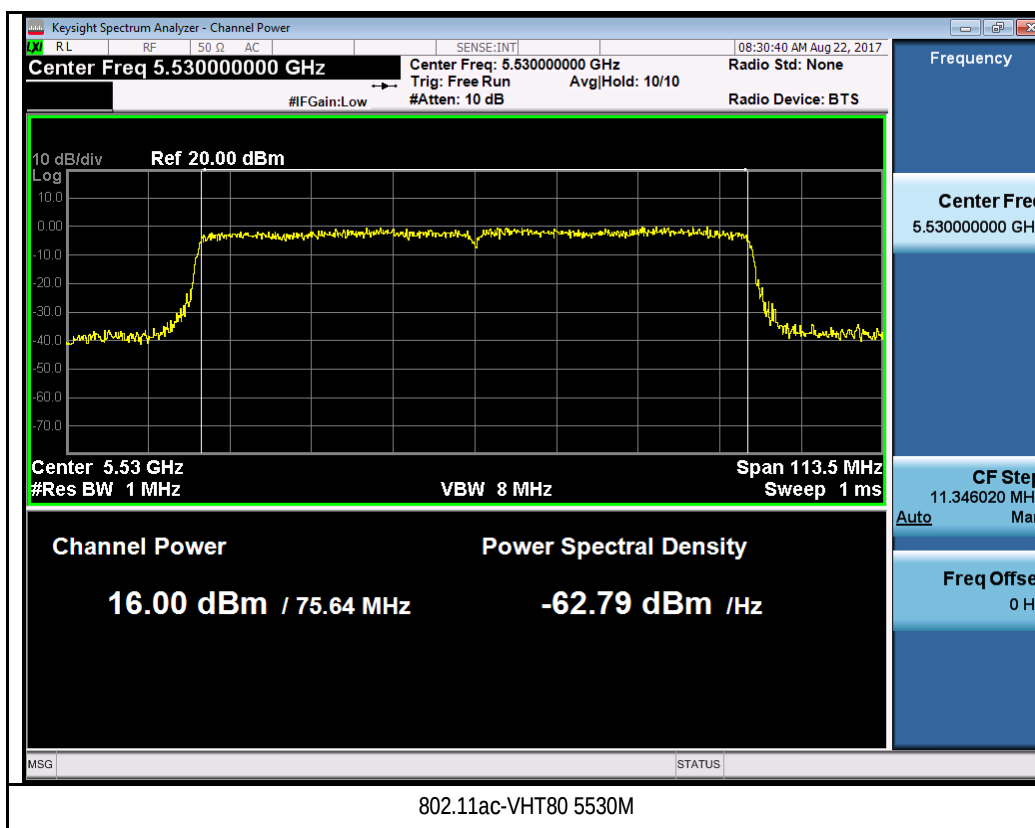
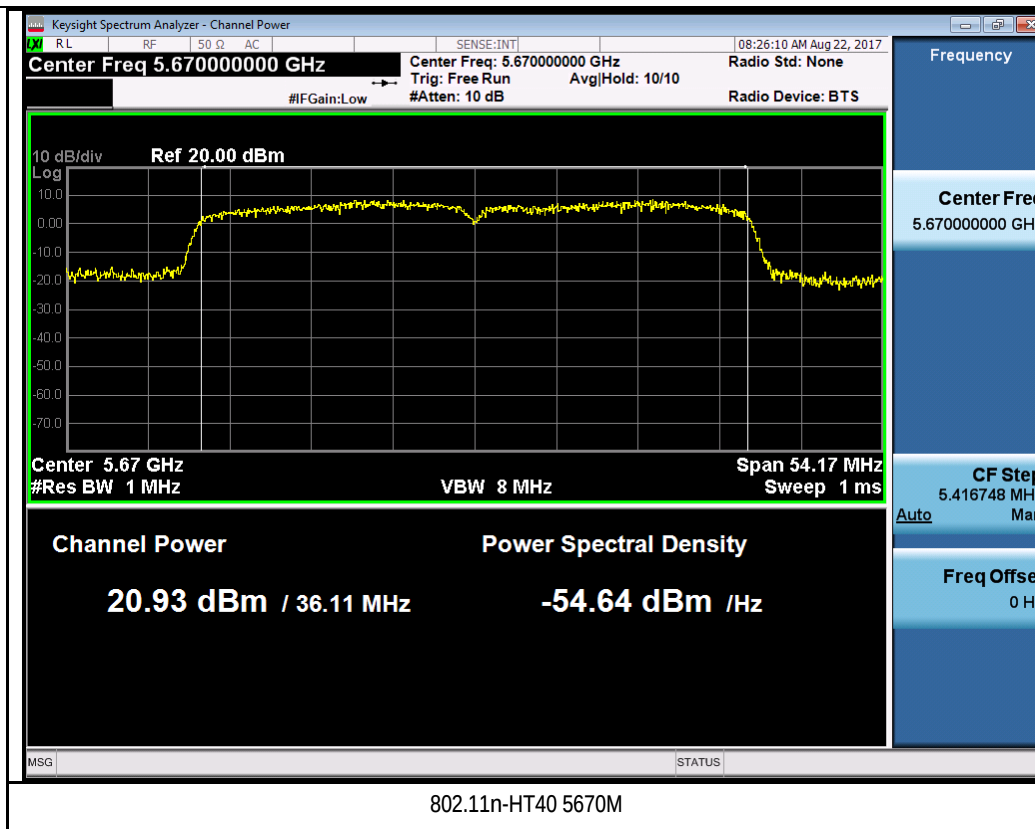
802.11a-5700M

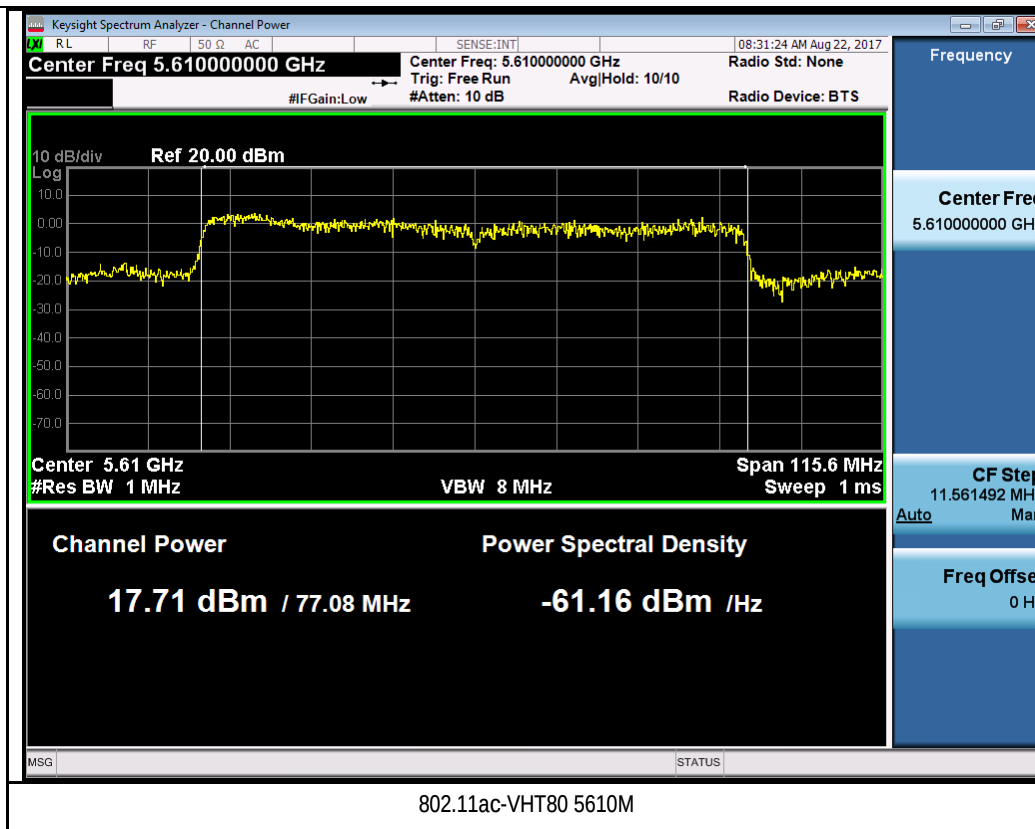


802.11n-HT20 5500M

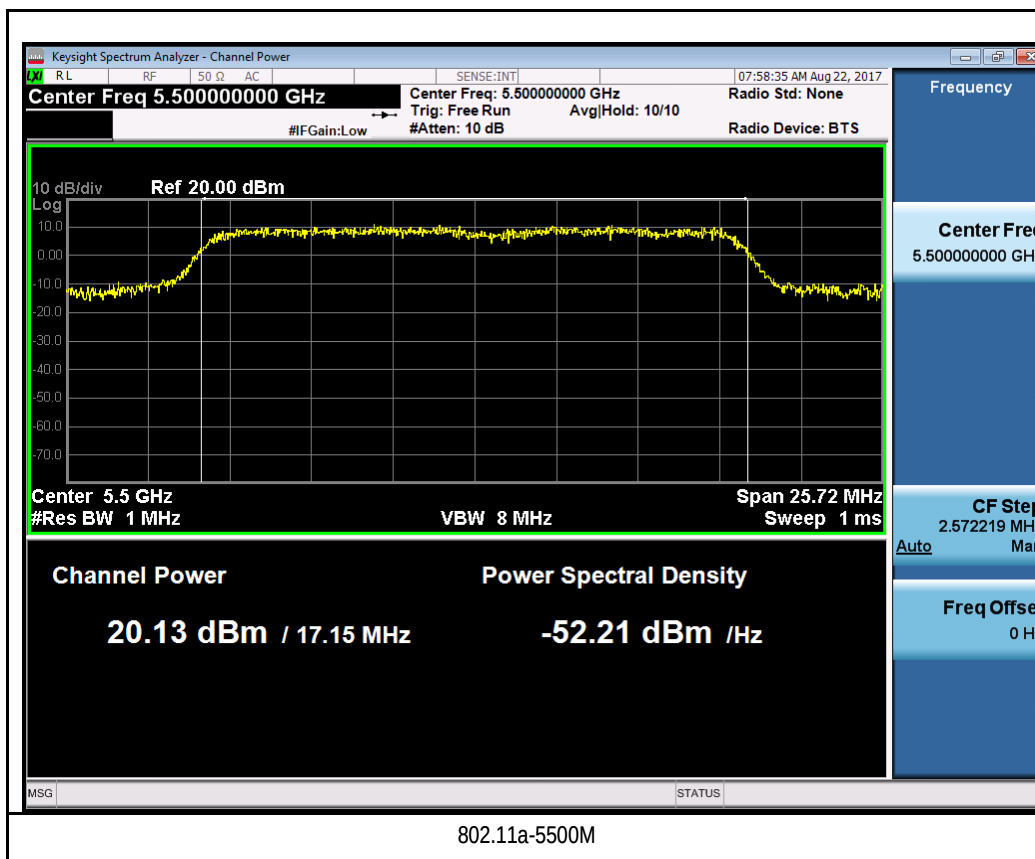


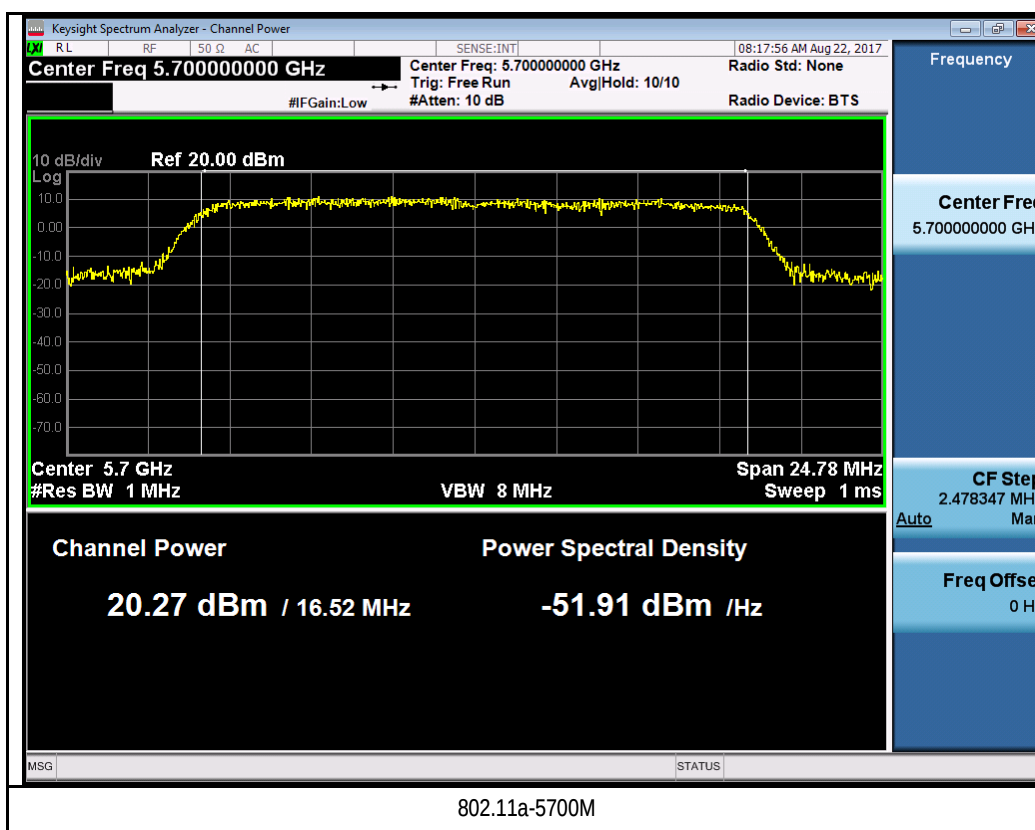
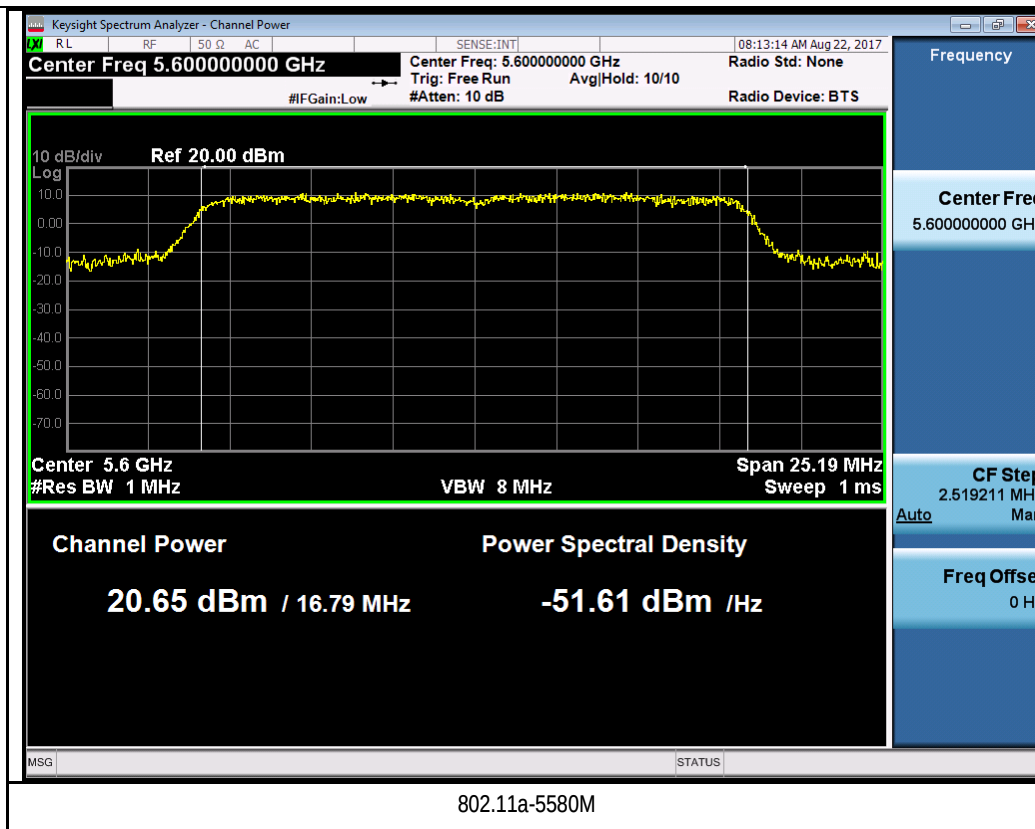


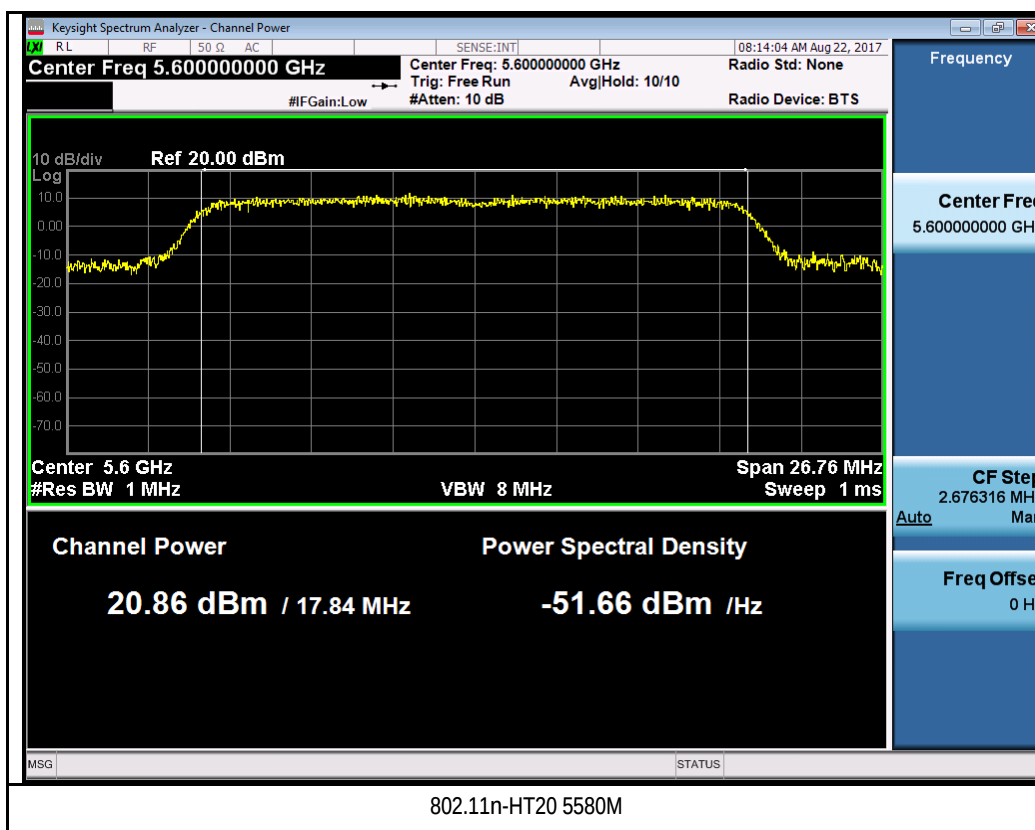
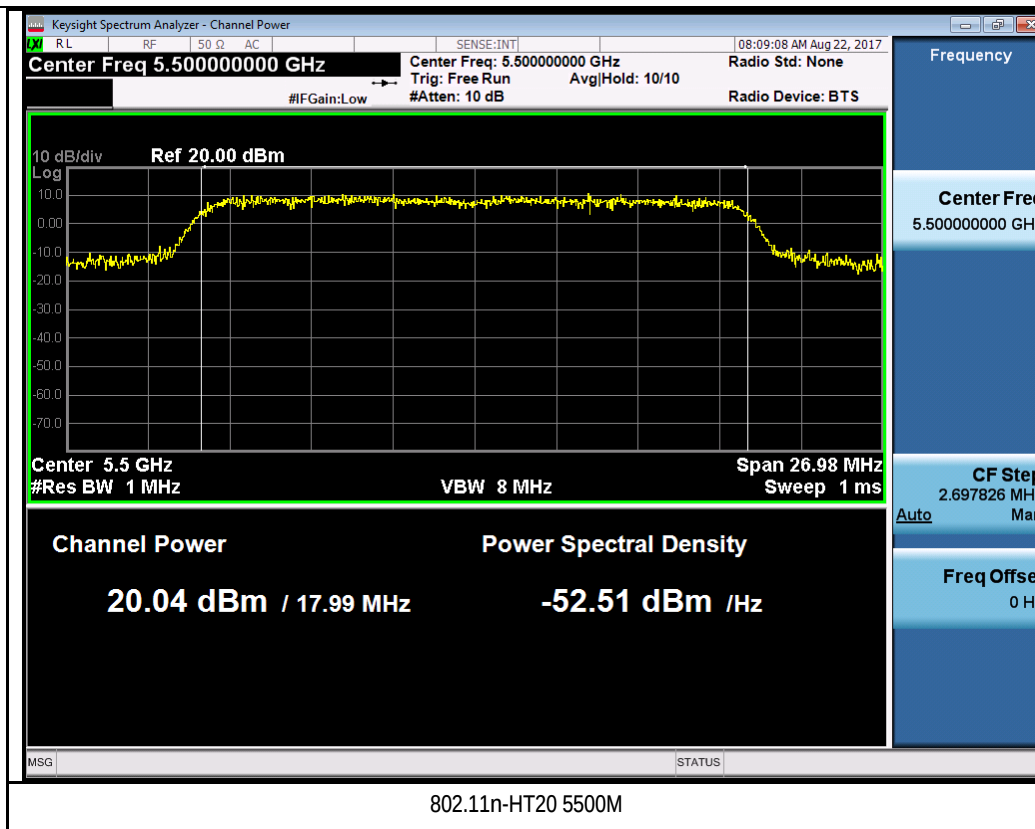


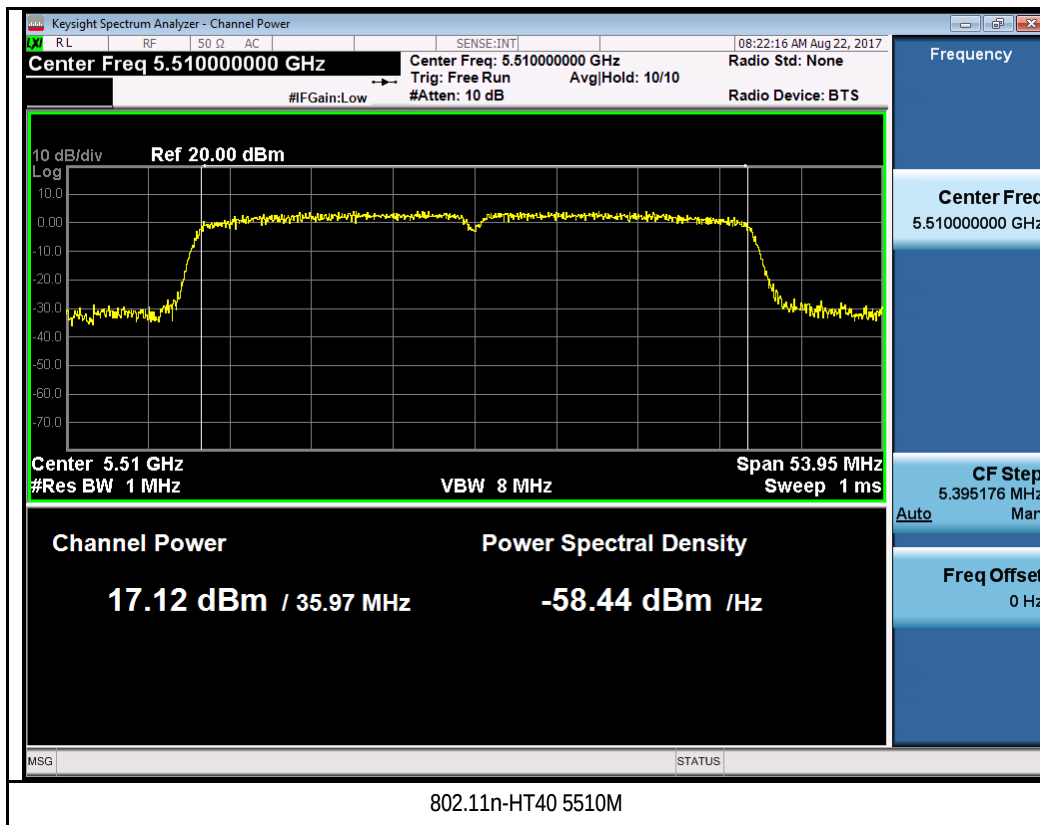
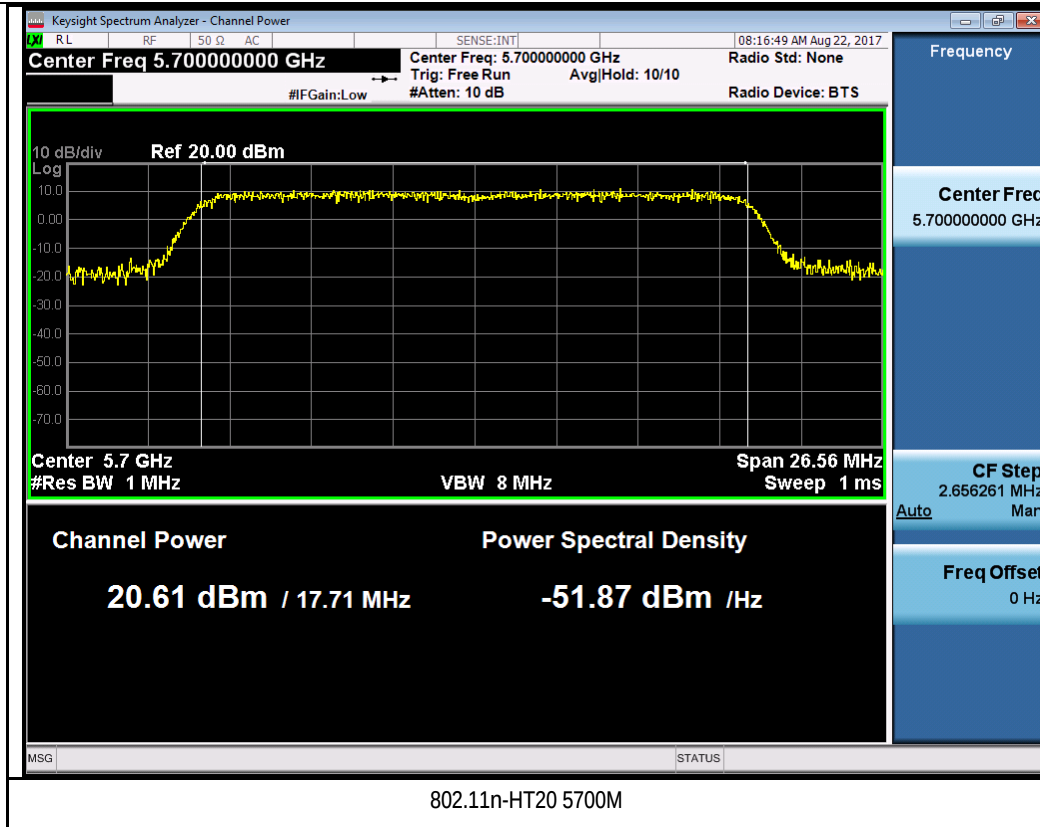


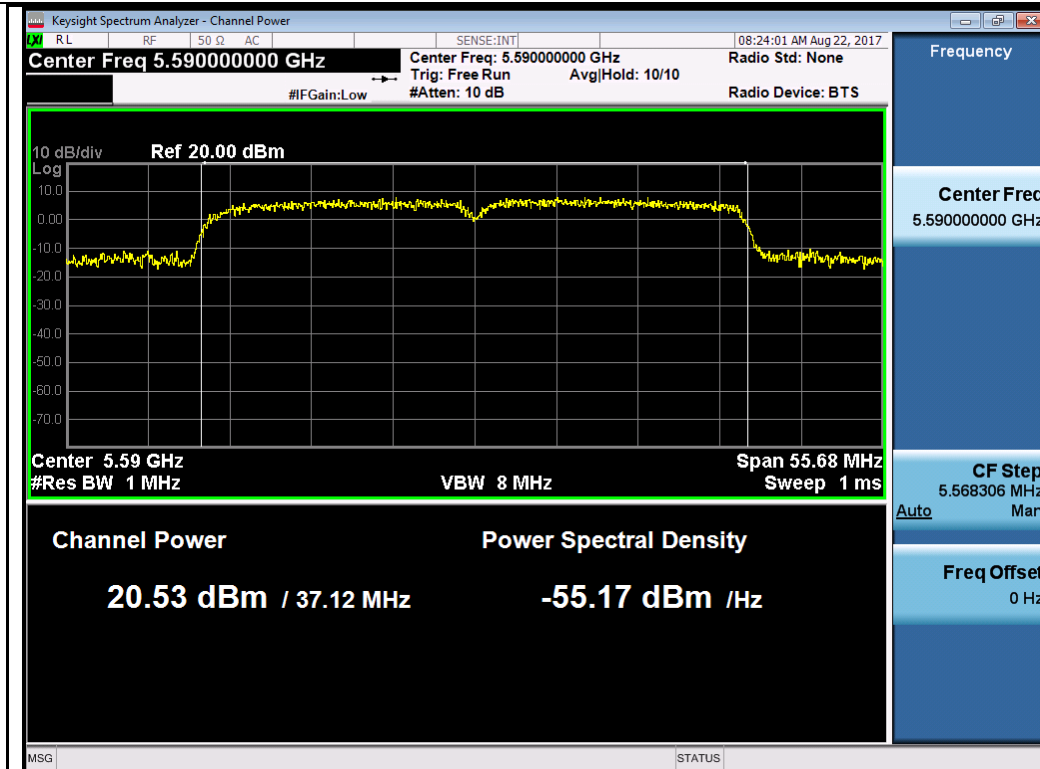
Chain 1:



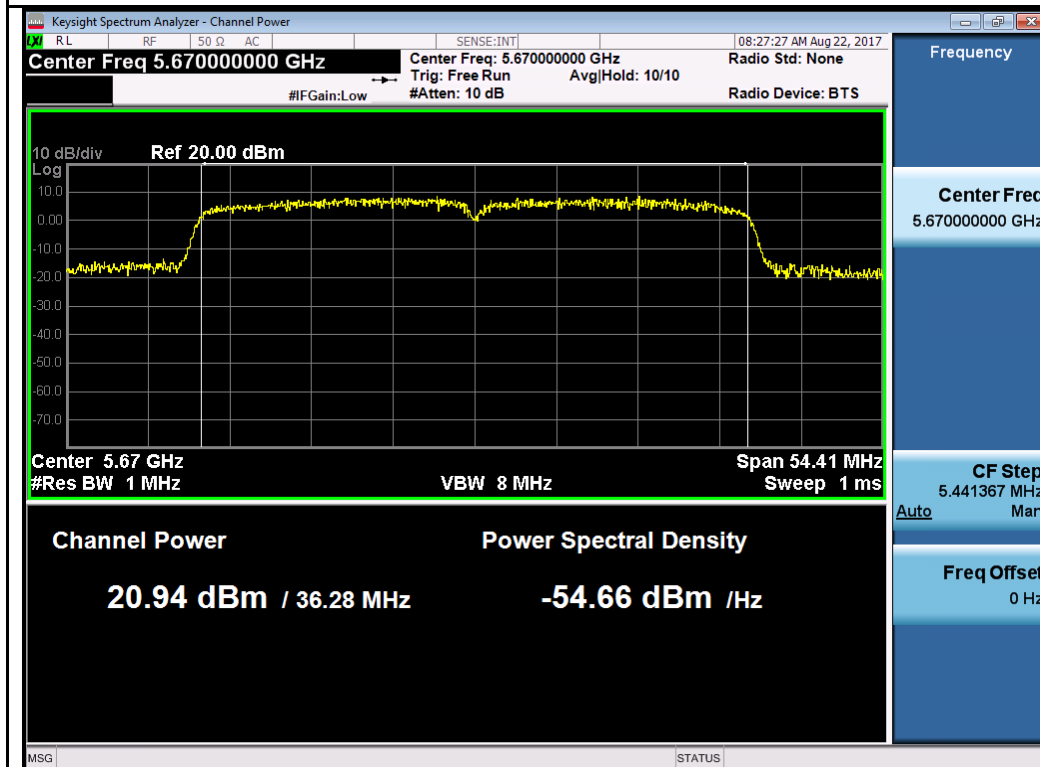




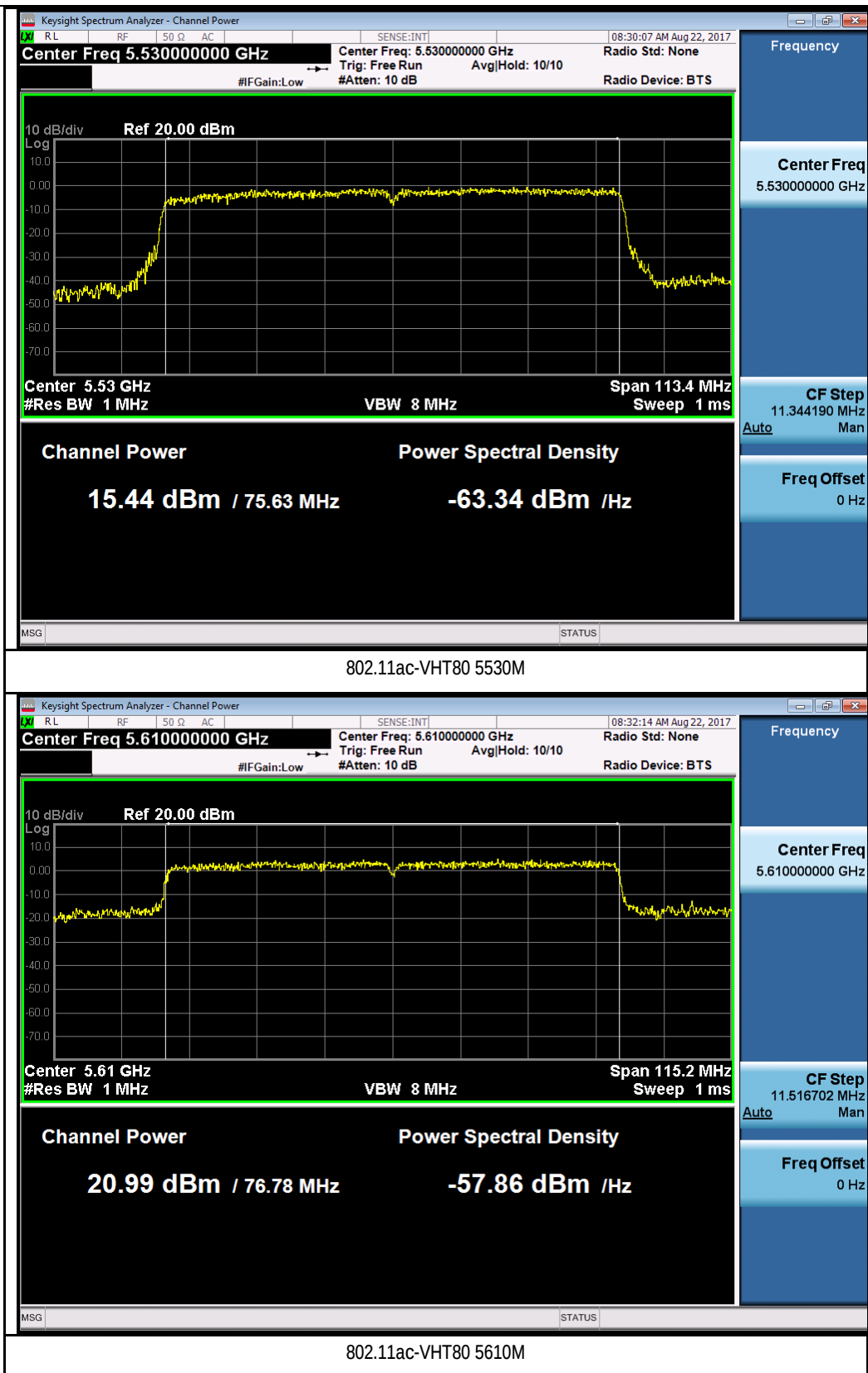




802.11n-HT40 5550M

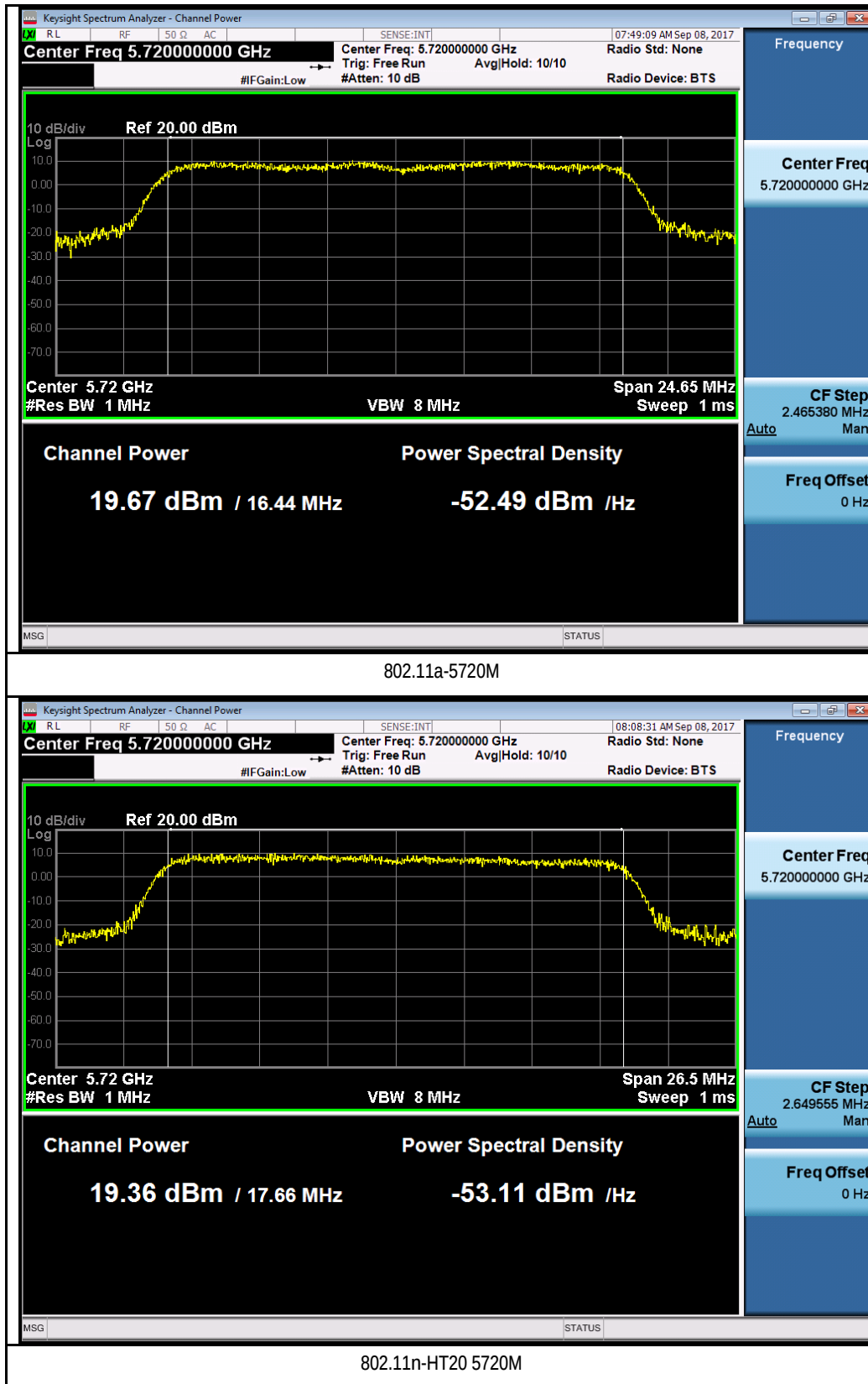


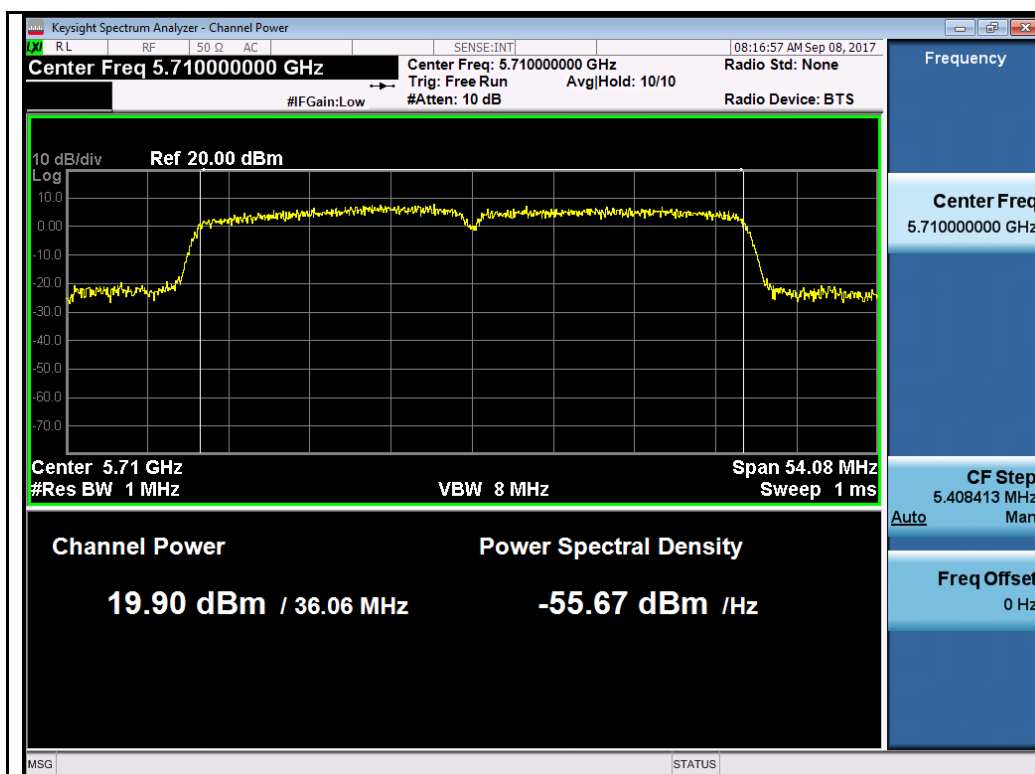
802.11n-HT40 5670M



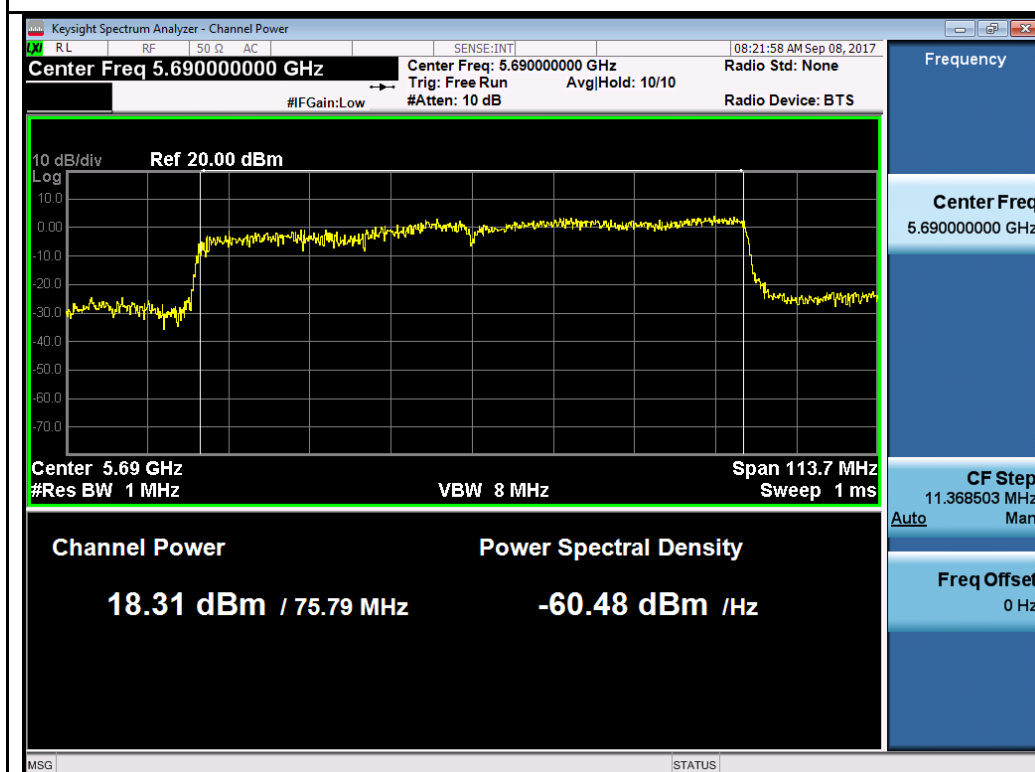
Test Plot for Crossband (W56 procedure):

Chain 0:





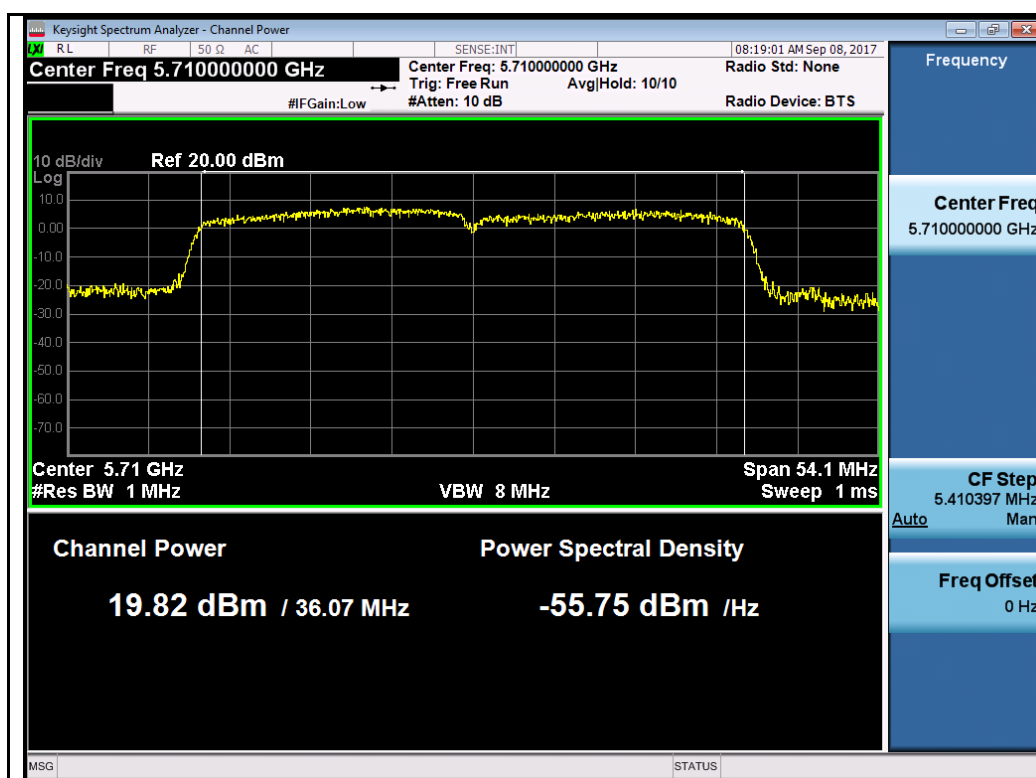
802.11n-HT40 5710M



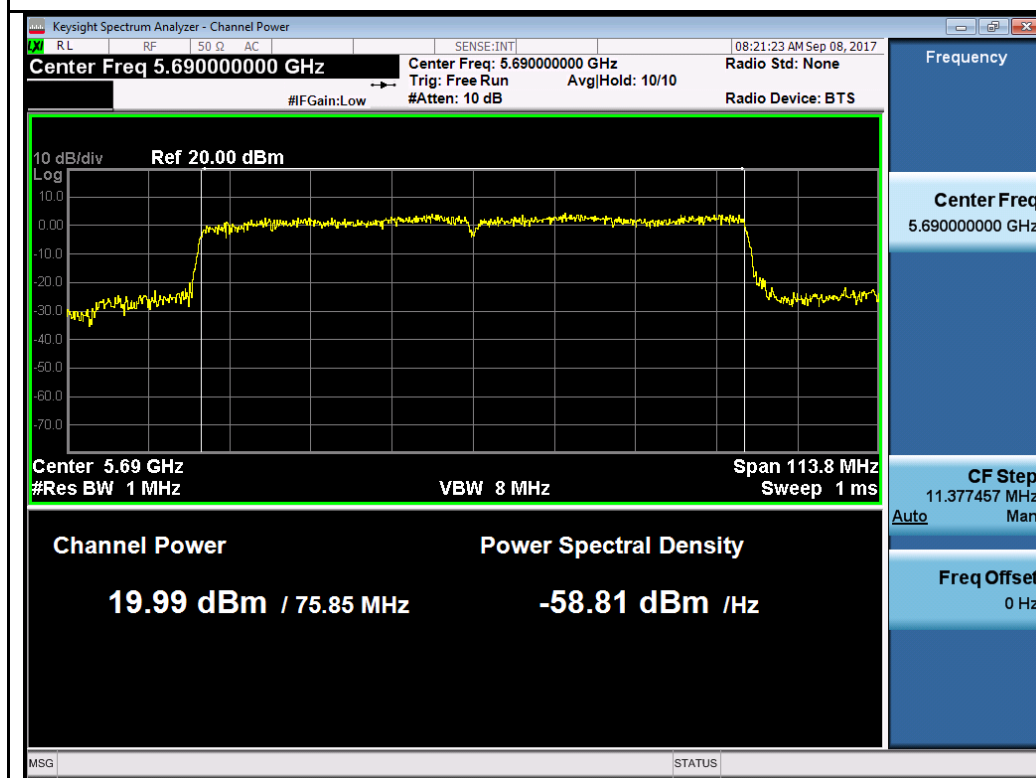
802.11ac-VHT80 5690M

Chain 1:





802.11n-HT40 5710M



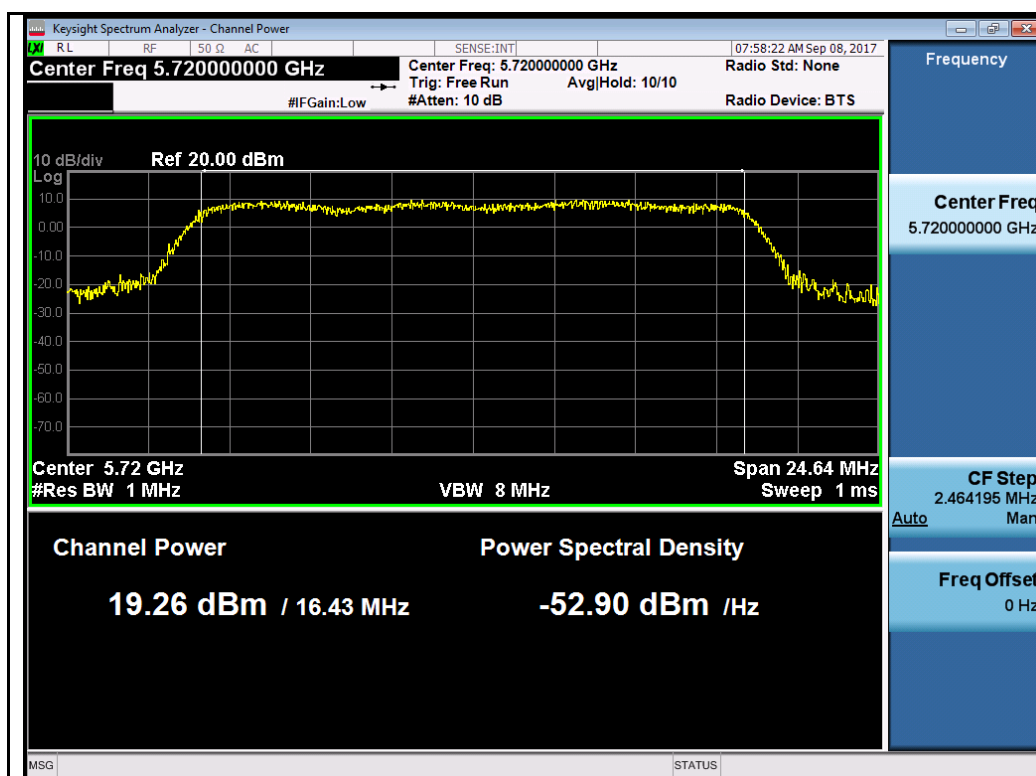
802.11ac-VHT80 5690M

Test Plot for Crossband (W58 procedure):
Chain 0:

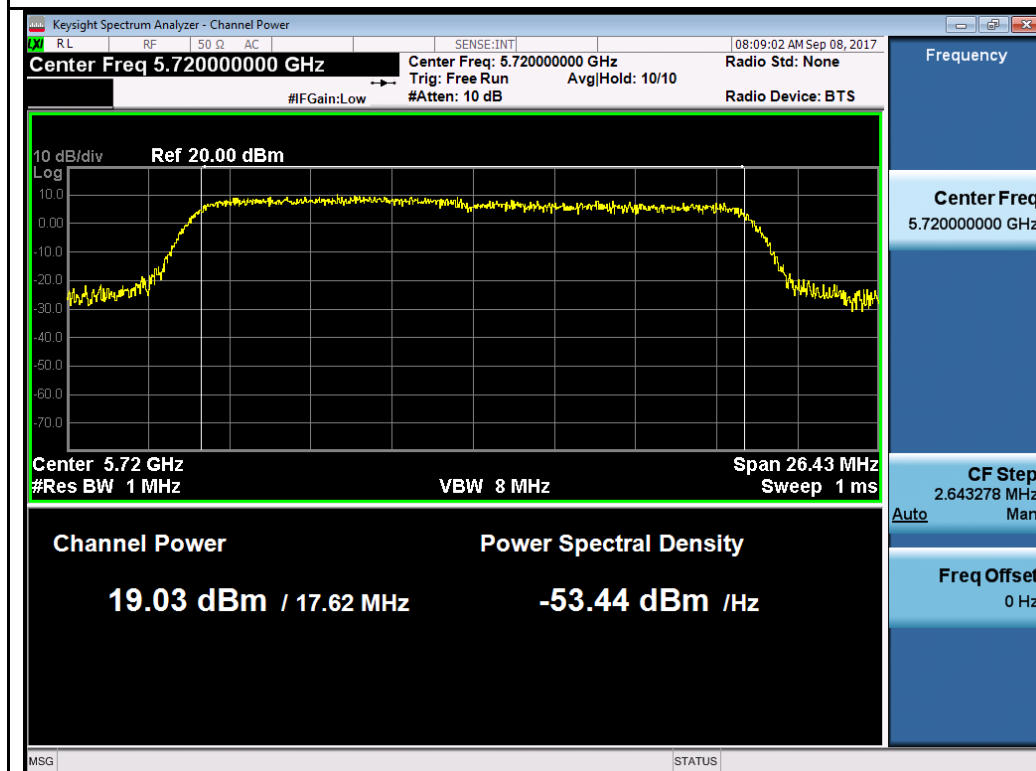




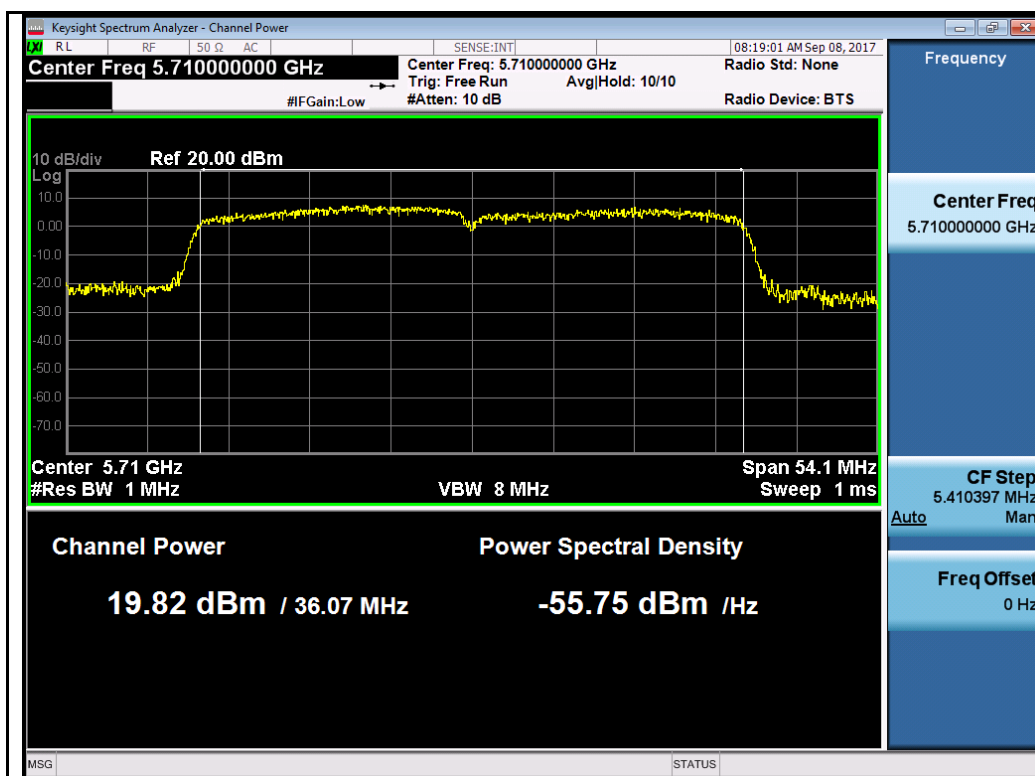
Chain 1:



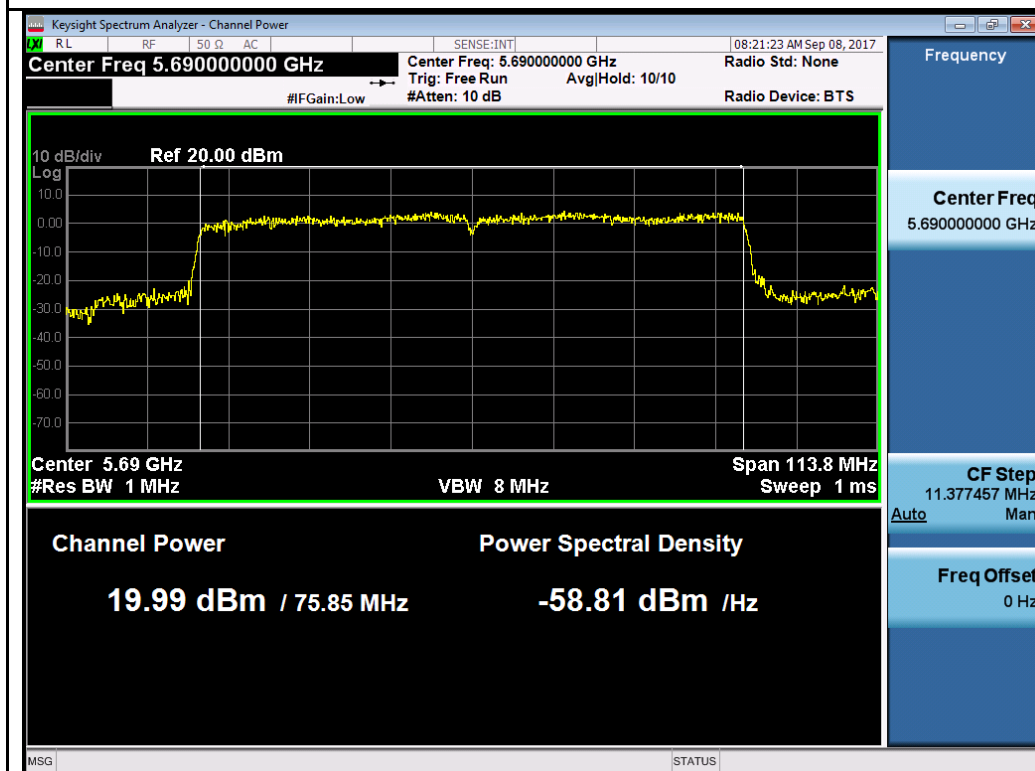
802.11a-5720M



802.11n-HT20 5720M



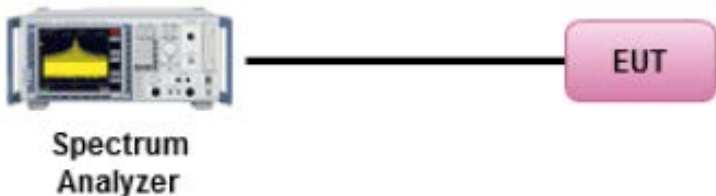
802.11n-HT40 5710M



802.11ac-VHT80 5690M

10.4 Peak Power Spectral Density

Requirement(s):

Spec	Item	Requirement	Applicable
§ 15.407	a)(1)(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 megahertz band.	☐
	a)(1)(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 megahertz band.	☐
	a)(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.	☒
	a)(3)	For the band 5.725-5.85 GHz, the maximum power spectral density shall not exceed 30 dBm in any 500-kHz band.	☒
Test Setup			
Test Procedure	789033 D02 General UNII Test Procedures New Rules v01, II.F. Method SA-1 <u>Maximum spectral density measurement procedure</u> - Set span to encompass the entire emission bandwidth (EBW) (or, alternatively, the entire 99% occupied bandwidth) of the signal. - Set RBW = 1 MHz - Set VBW ≥ 3 MHz - Detector = RMS. - Sweep time = auto couple. - Trace mode = max hold. - Trace average at least 100 traces in power averaging - Use the peak marker function to determine the maximum amplitude level within the RBW. Apply correction to the result if different RBW is used.		
Test Date	08/21/2017-10/05/2017	Environmental condition	Temperature 22°C Relative Humidity 46% Atmospheric Pressure 1020mbar
Remark	N/A		
Result	☒ Pass ☐ Fail		

Test Data ☒ Yes ☐ N/A

Test Plot ☒ Yes (See below) ☐ N/A

Test was done by Cipher at RF test site.

PSD measurement result for 5.3GHz

Type	Test mode	Freq (MHz)	CH	Conducted PSD (dBm/MHz)			Limit (dBm)	Result
				Chain0	Chain1	Combined Power		
PSD	802.11a	5260	Low	7.423	7.249	10.347	11	Pass
	802.11a	5280	Mid	7.787	7.628	10.719	11	Pass
	802.11a	5320	High	6.841	7.101	9.983	11	Pass
	802.11n-20M	5260	Low	7.095	7.232	10.174	11	Pass
	802.11n-20M	5280	Mid	7.275	7.074	10.186	11	Pass
	802.11n-20M	5320	High	5.943	6.138	9.052	11	Pass
	802.11n-40M	5270	Low	6.149	6.336	9.254	11	Pass
	802.11n-40M	5310	Mid	1.099	1.062	4.091	11	Pass
	802.11ac-80M	5290	High	-3.013	-3.350	-0.168	11	Pass

PSD measurement result for 5.5GHz

Type	Test mode	Freq (MHz)	CH	Conducted PSD (dBm/MHz)			Limit (dBm)	Result
				Chain0	Chain1	Combined Power		
PSD	802.11a	5500	Low	7.979	7.926	10.963	11	Pass
	802.11a	5580	Mid	7.347	7.499	10.434	11	Pass
	802.11a	5700	High	7.197	7.336	10.277	11	Pass
	802.11n-20M	5500	Low	7.856	7.769	10.823	11	Pass
	802.11n-20M	5580	Mid	7.383	7.745	10.578	11	Pass
	802.11n-20M	5700	High	7.168	7.475	10.335	11	Pass
	802.11n-40M	5510	Low	1.950	1.611	4.794	11	Pass
	802.11n-40M	5550	Mid	5.609	5.740	8.685	11	Pass
	802.11n-40M	5670	High	5.788	5.675	8.742	11	Pass
	802.11ac-80M	5530	Low	-2.664	-3.290	0.045	11	Pass
	802.11ac-80M	5610	High	1.995	1.800	4.909	11	Pass

Note: Two chains are cross-polarized, additional gain is $10 \log_{10}(\text{NANT})=0\text{dB}$, $N=1$, max directional gain of the EUT is 3.5dBi. No limit adjustment is needed. All the mode transmission is MIMO.

PSD measurement result for cross channels (in band 5470-5725MHz)

Type	Test mode	Freq (MHz)	CH	Conducted PSD (dBm/MHz)			Limit (dBm)	Result
				Chain0	Chain1	Combined Power		
PSD	802.11a	5720	CROSS	8.045	7.612	10.844	11	Pass
	802.11n-20M	5720	CROSS	7.443	7.285	10.375	11	Pass
	802.11n-40M	5710	CROSS	4.959	5.038	8.009	11	Pass
	802.11ac-80M	5690	CROSS	1.498	1.616	4.568	11	Pass

PSD measurement result for cross channels (in band 5725-5850MHz)

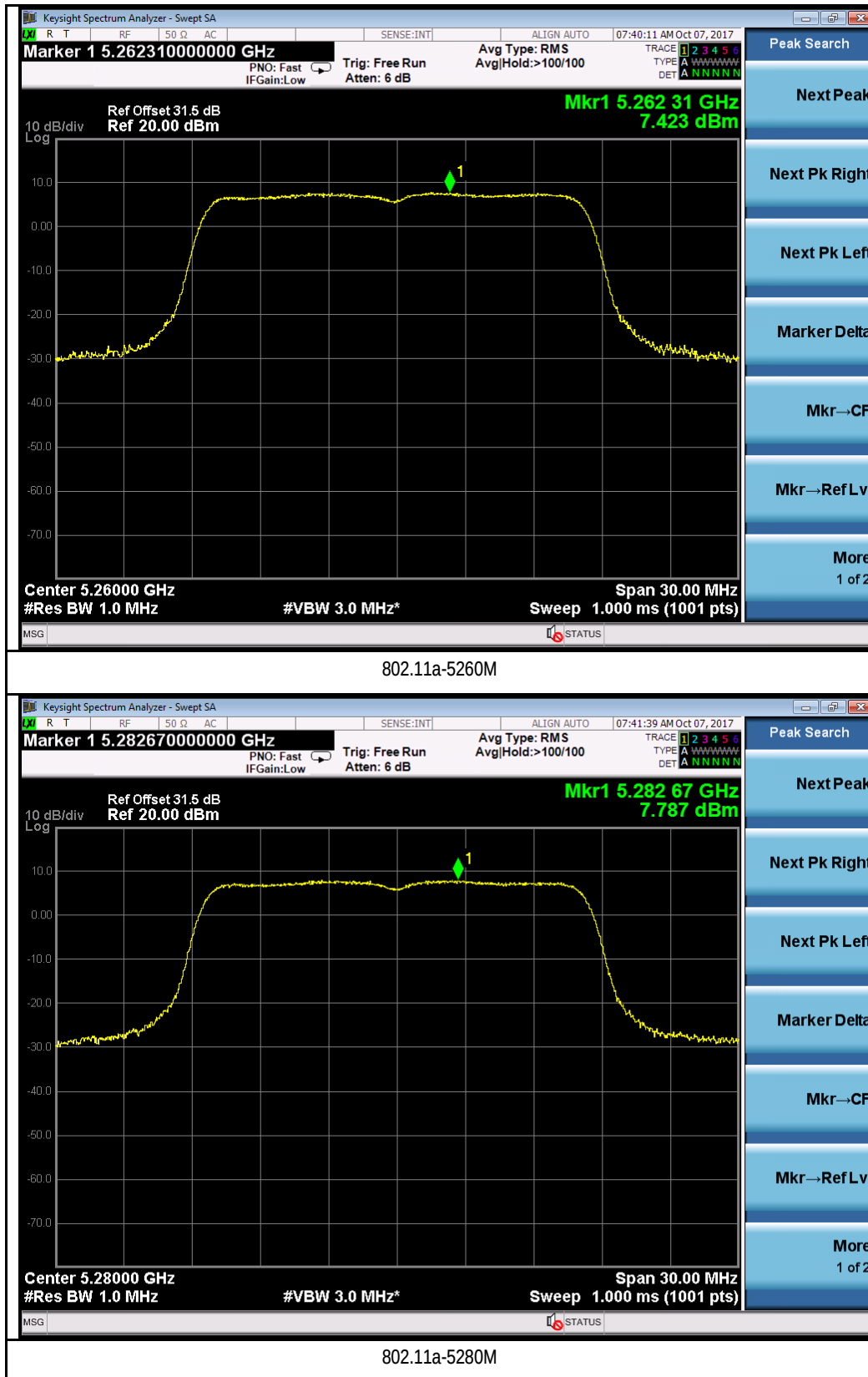
Test mode	Freq (MHz)	CH	Conducted PSD (dBm/MHz)			Corrected Level (dBm/500kHz)	Limit (dBm/500kHz)	Result
			Chain0	Chain1	Combined PSD			
802.11a	5720	CROSS	-0.408	-0.343	2.635	9.625	30	Pass
802.11n-20M	5720	CROSS	-0.653	-0.496	2.437	9.427	30	Pass
802.11n-40M	5710	CROSS	-2.927	-2.595	0.252	7.242	30	Pass
802.11ac-80M	5690	CROSS	-6.465	-6.555	-3.499	3.491	30	Pass

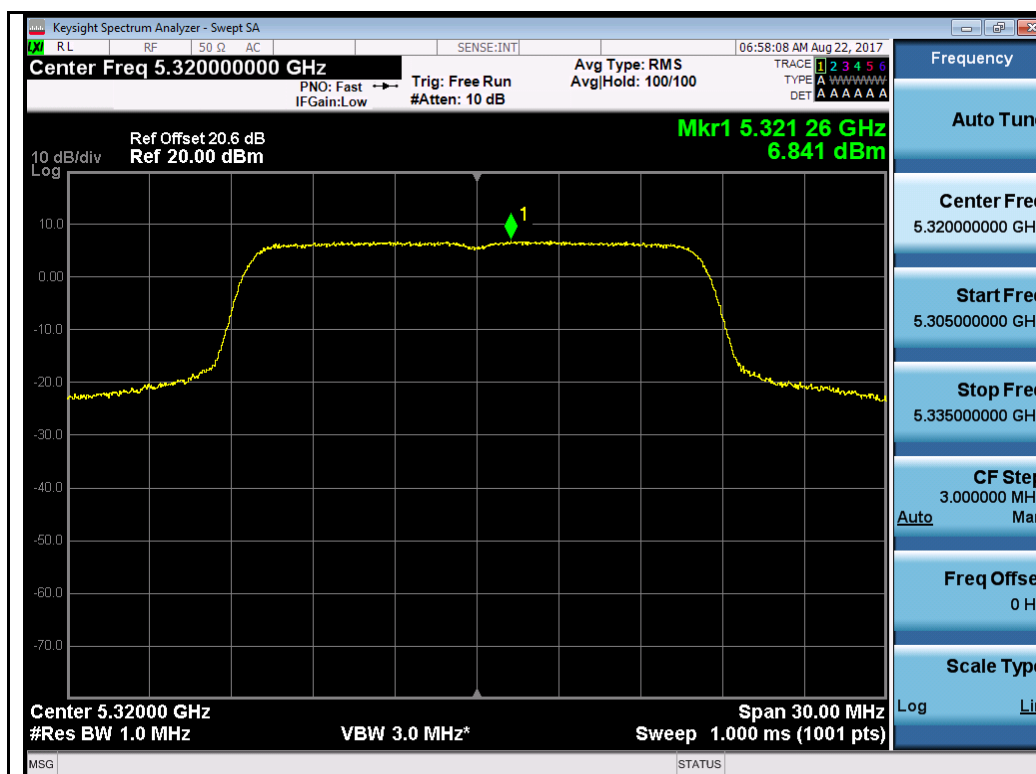
Correction factor= $10 \cdot \log(500/100)=6.99$

Note: Two chains are cross-polarized, additional gain is $10 \log_{10}(NANT)=0\text{dB}$, $N=1$, max directional gain of the EUT is 3.5dBi. No limit adjustment is needed. All the mode transmission is MIMO.

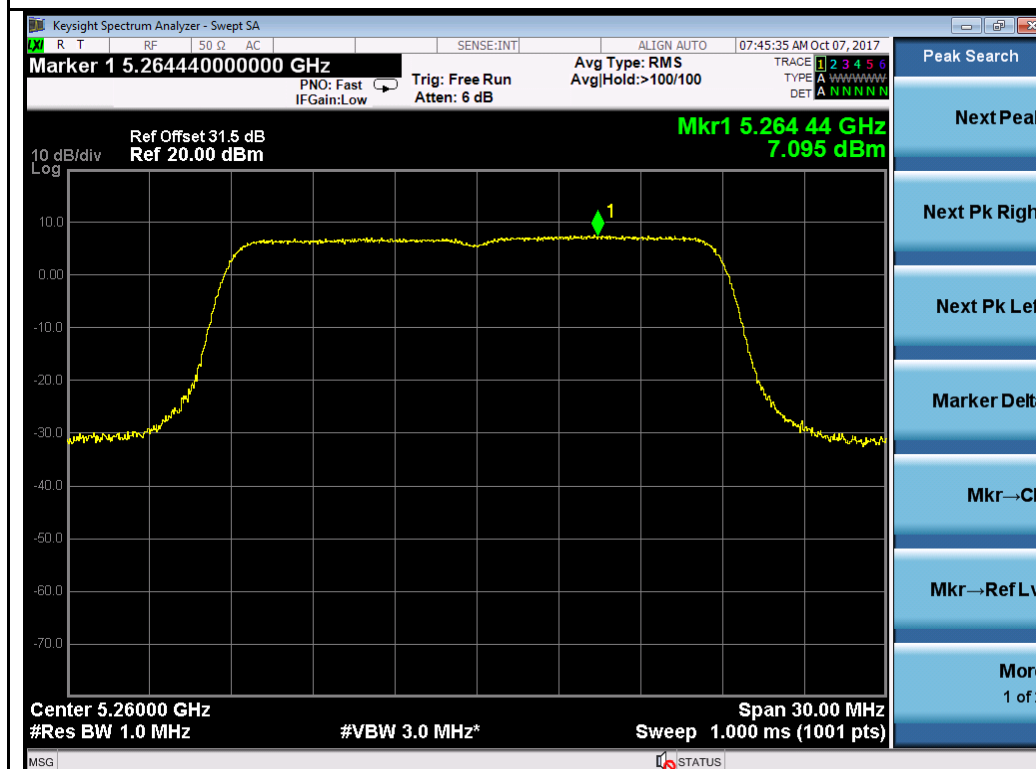
Test Plot for W53:

Chain 0:

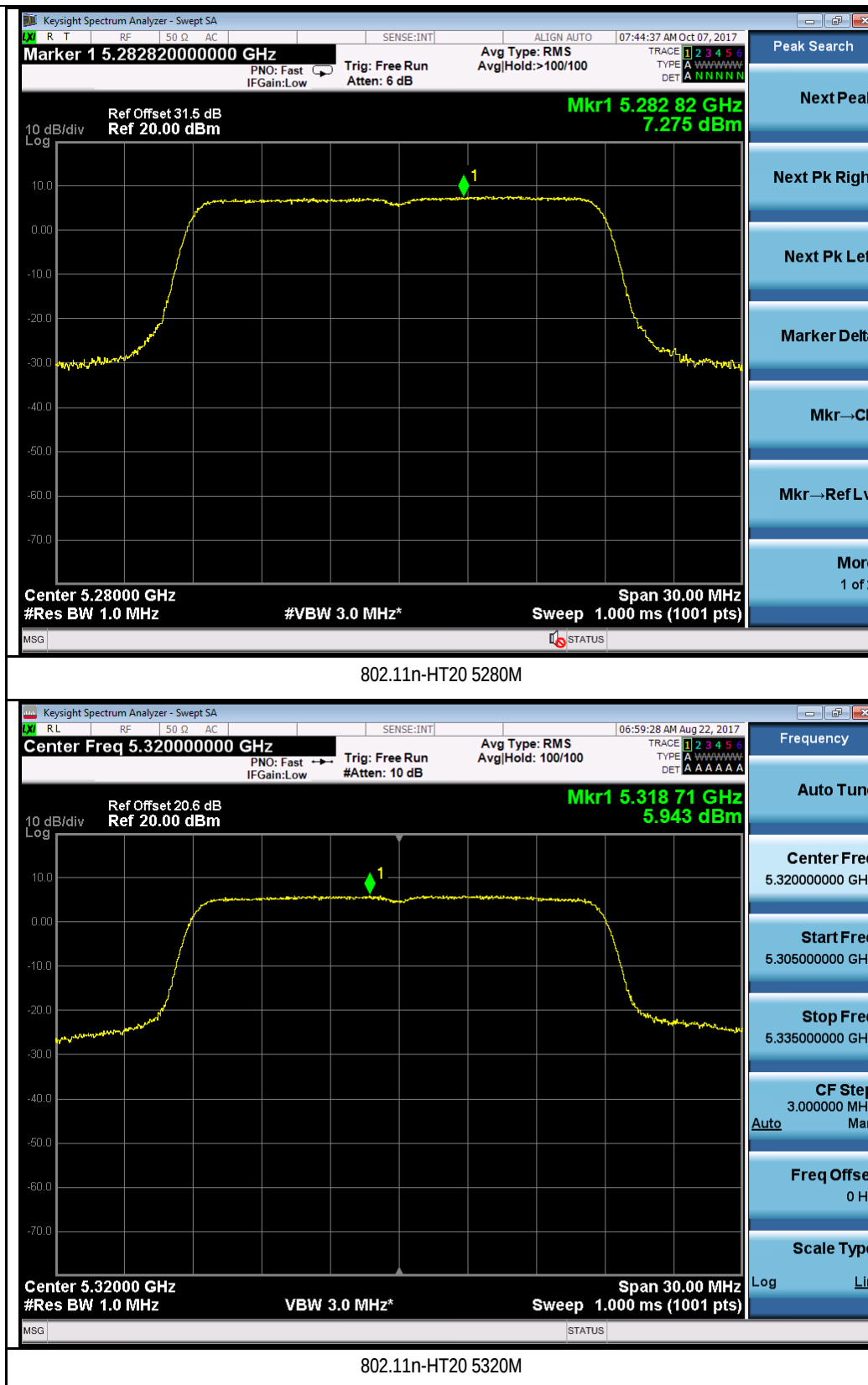


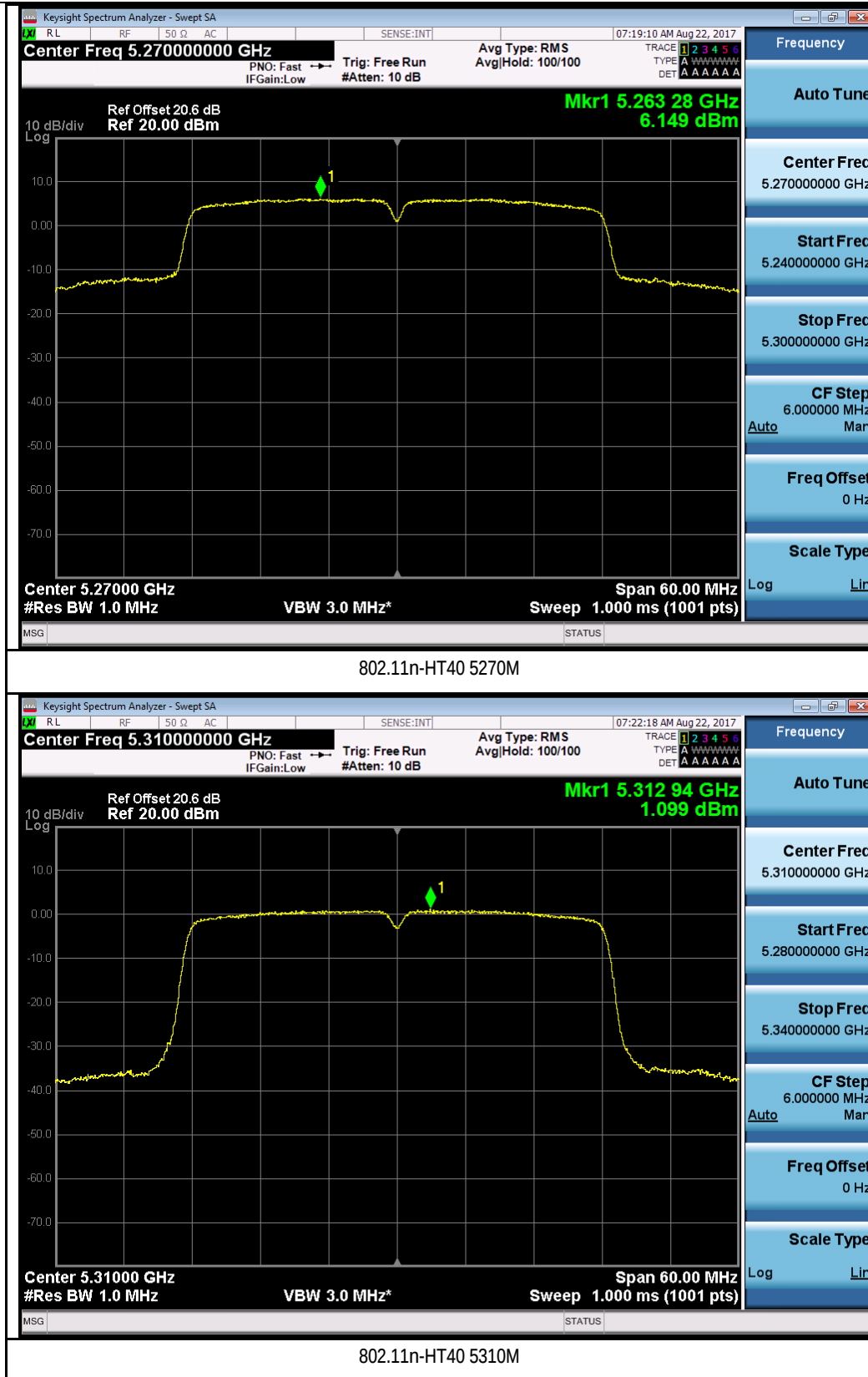


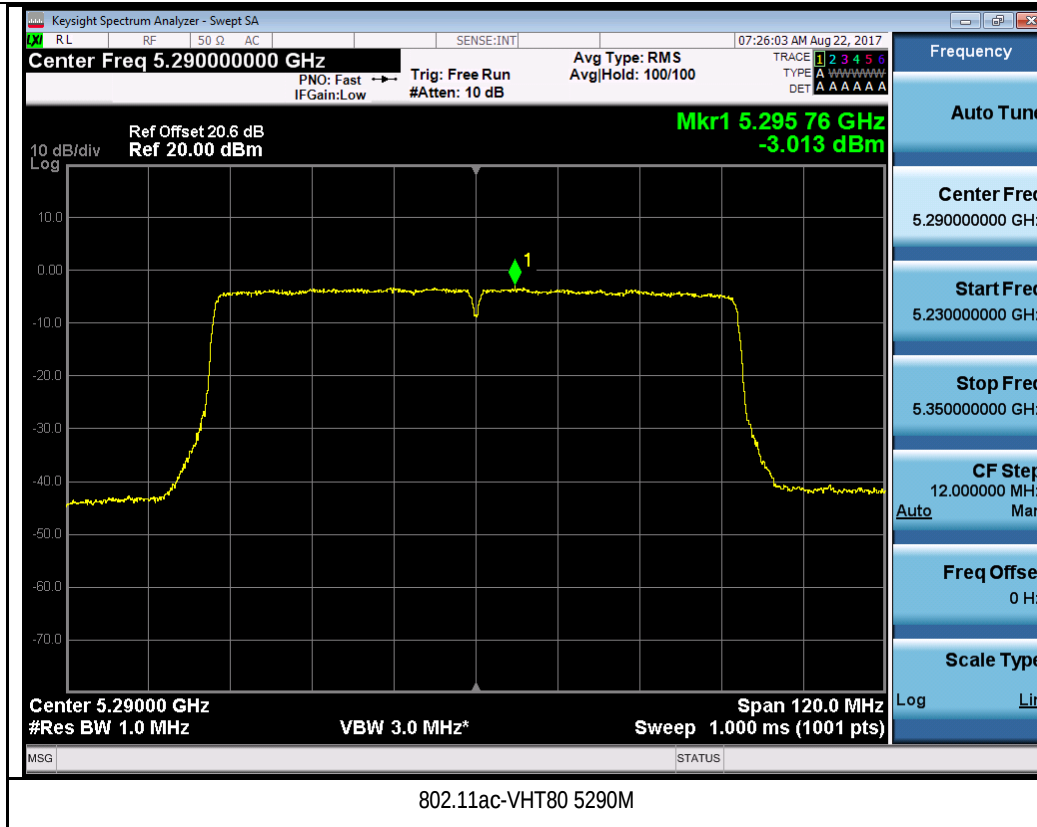
802.11a-5320M



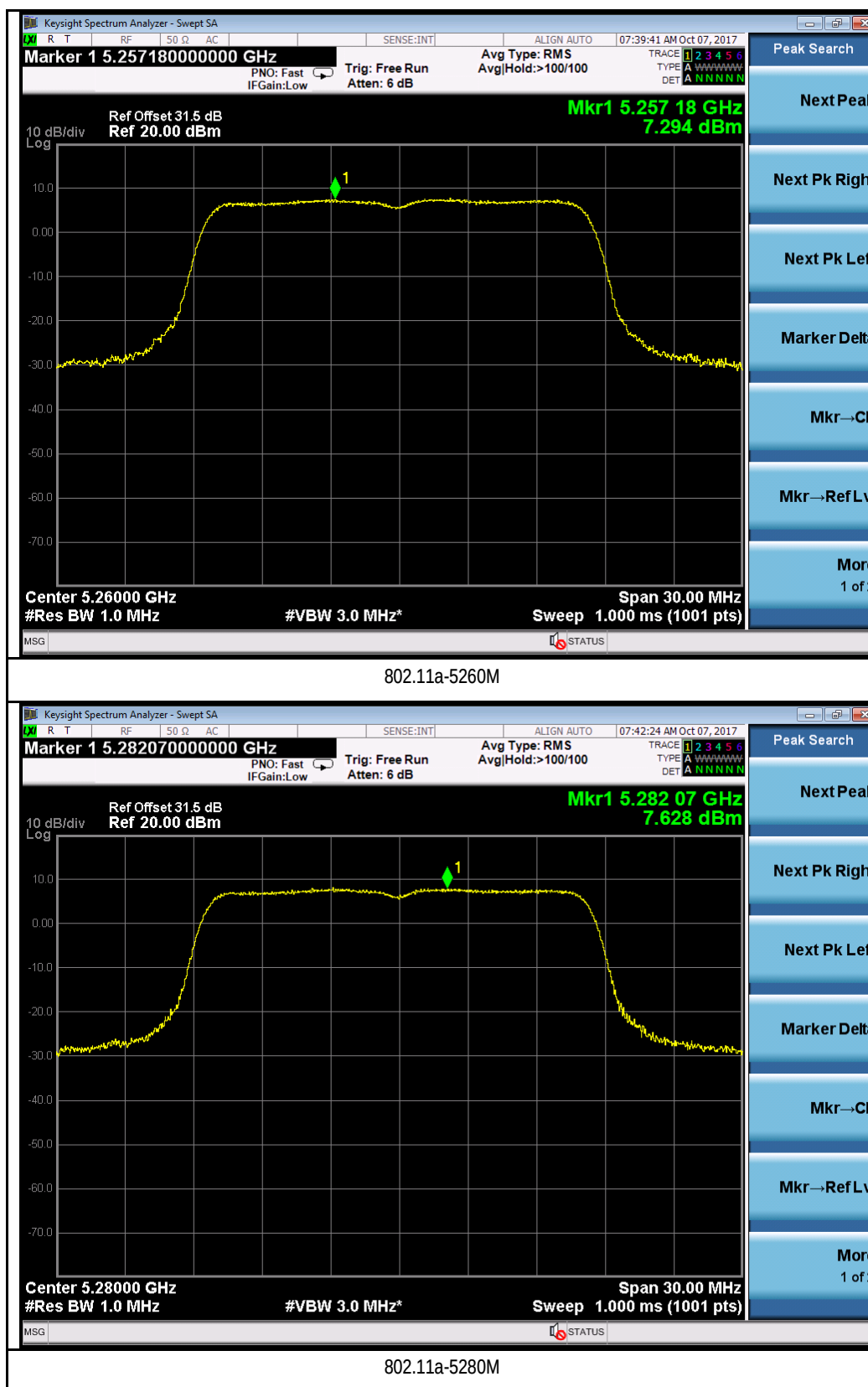
802.11n-HT20 5260M

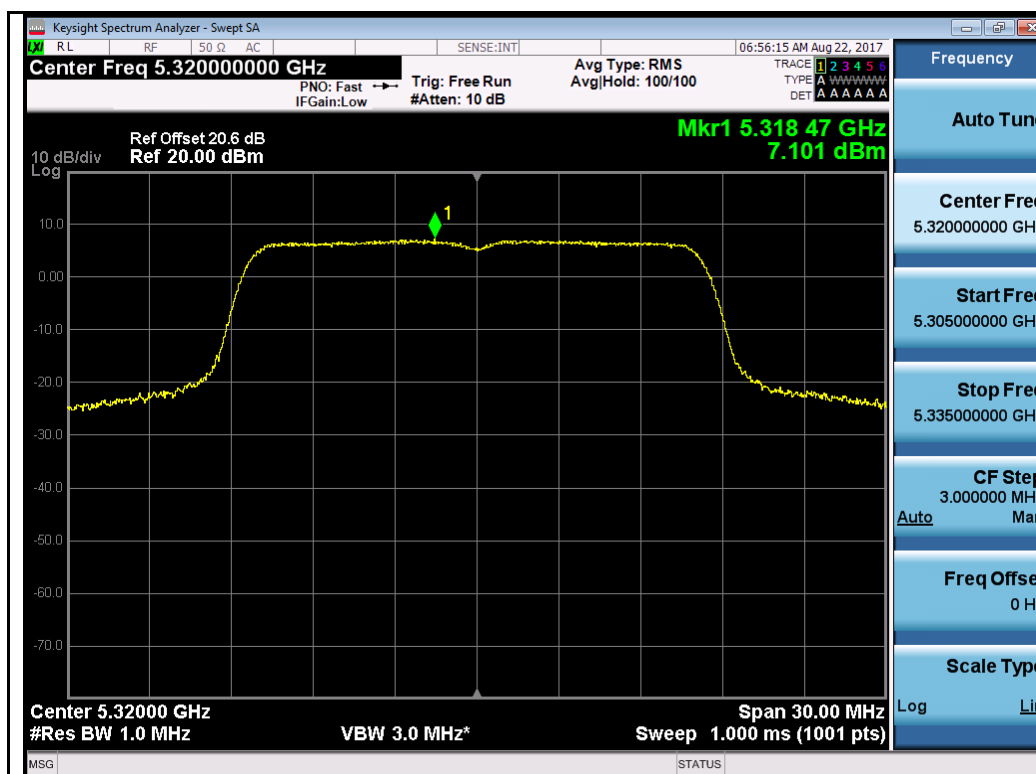




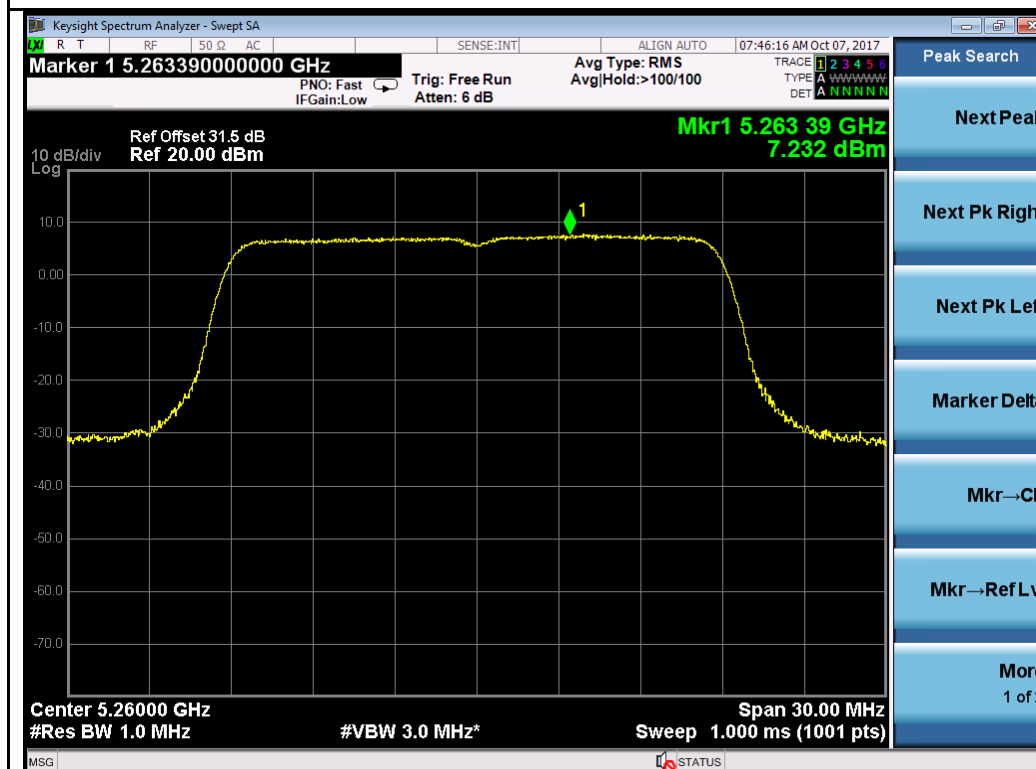


Chain 1:

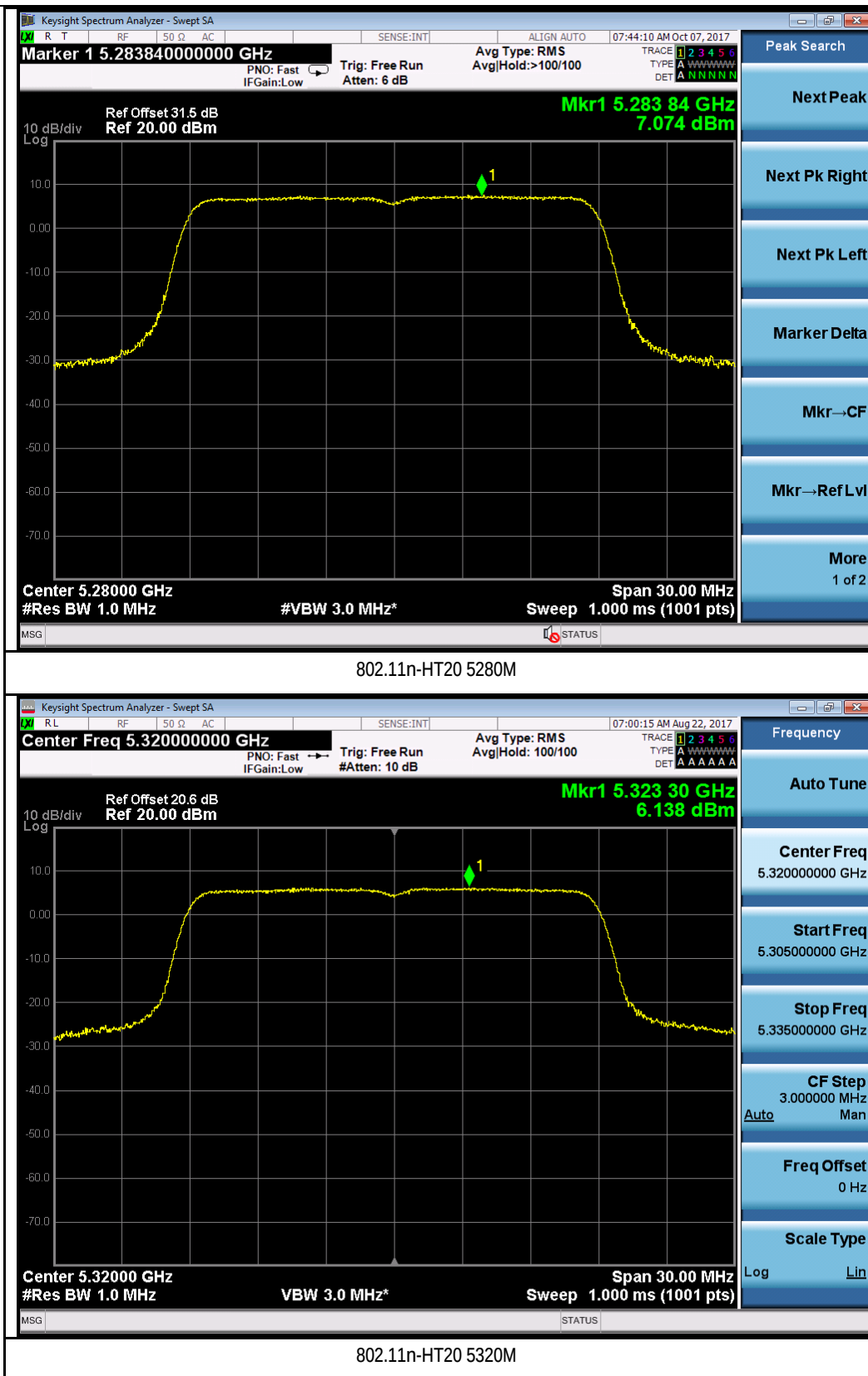


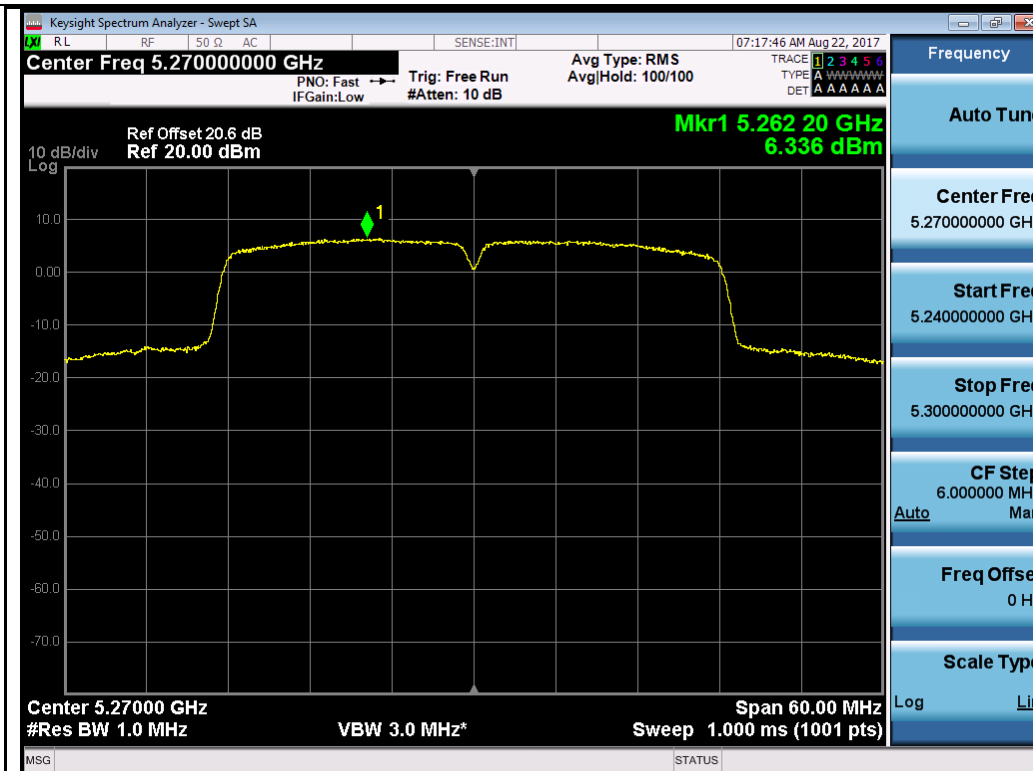


802.11a-5320M

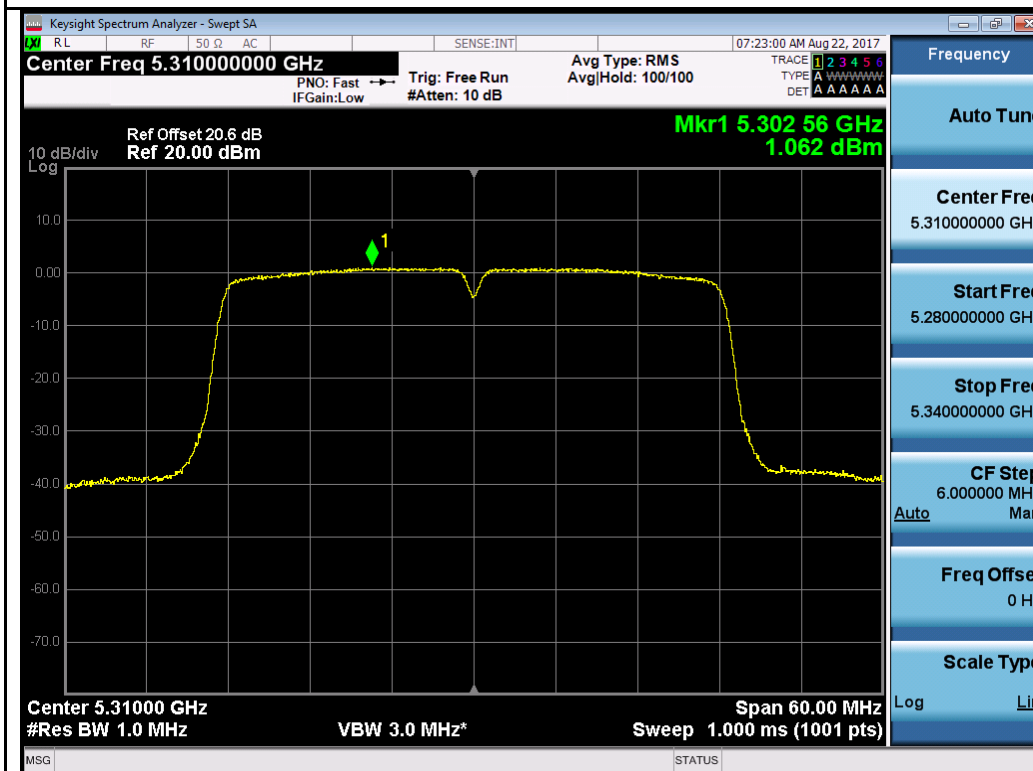


802.11n-HT20 5260M

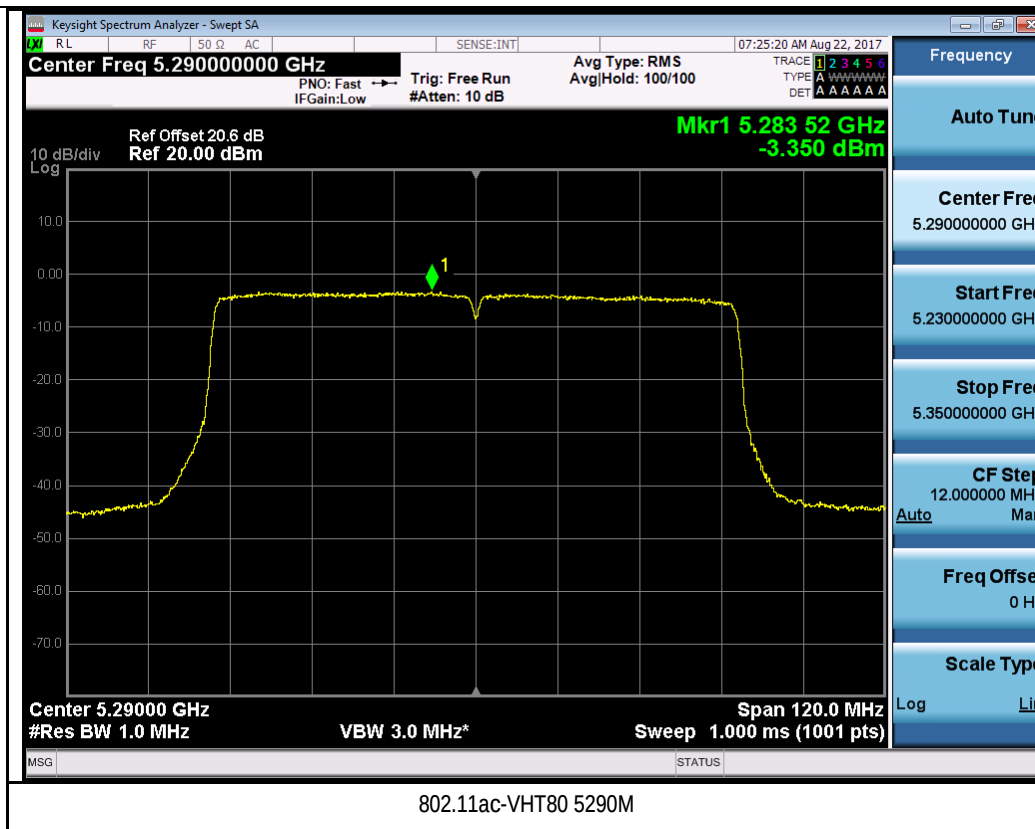




802.11n-HT40 5270M

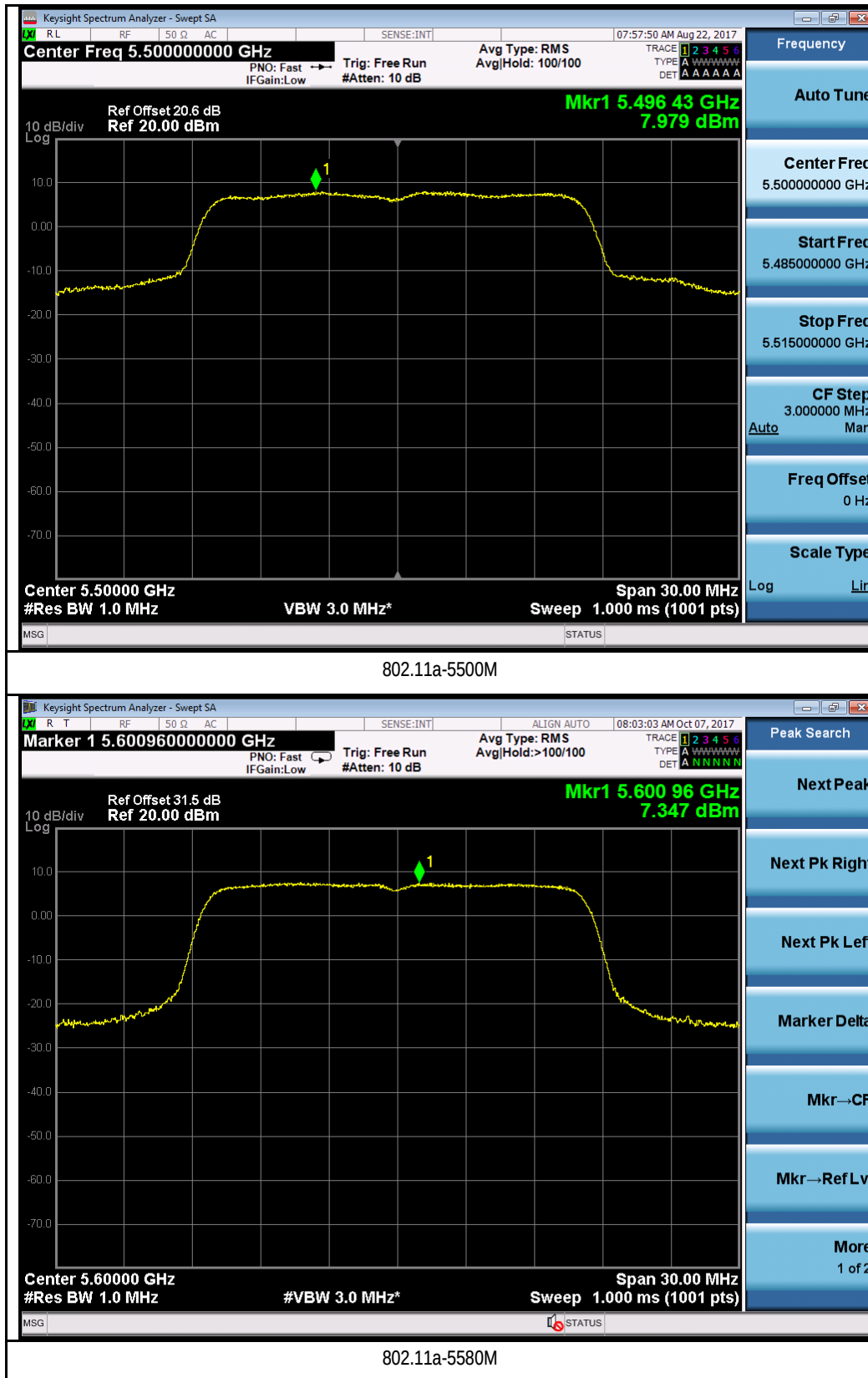


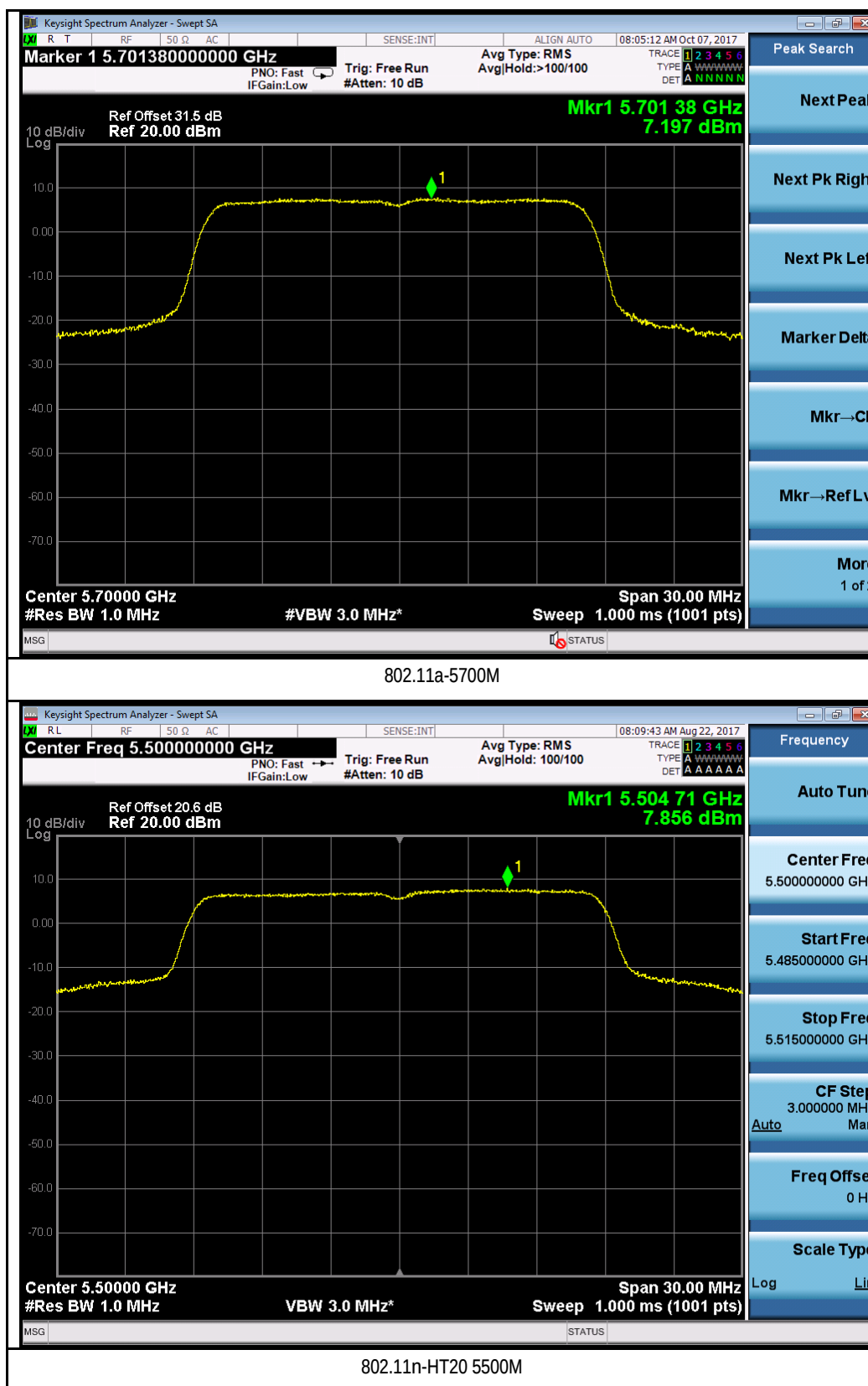
802.11n-HT40 5310M

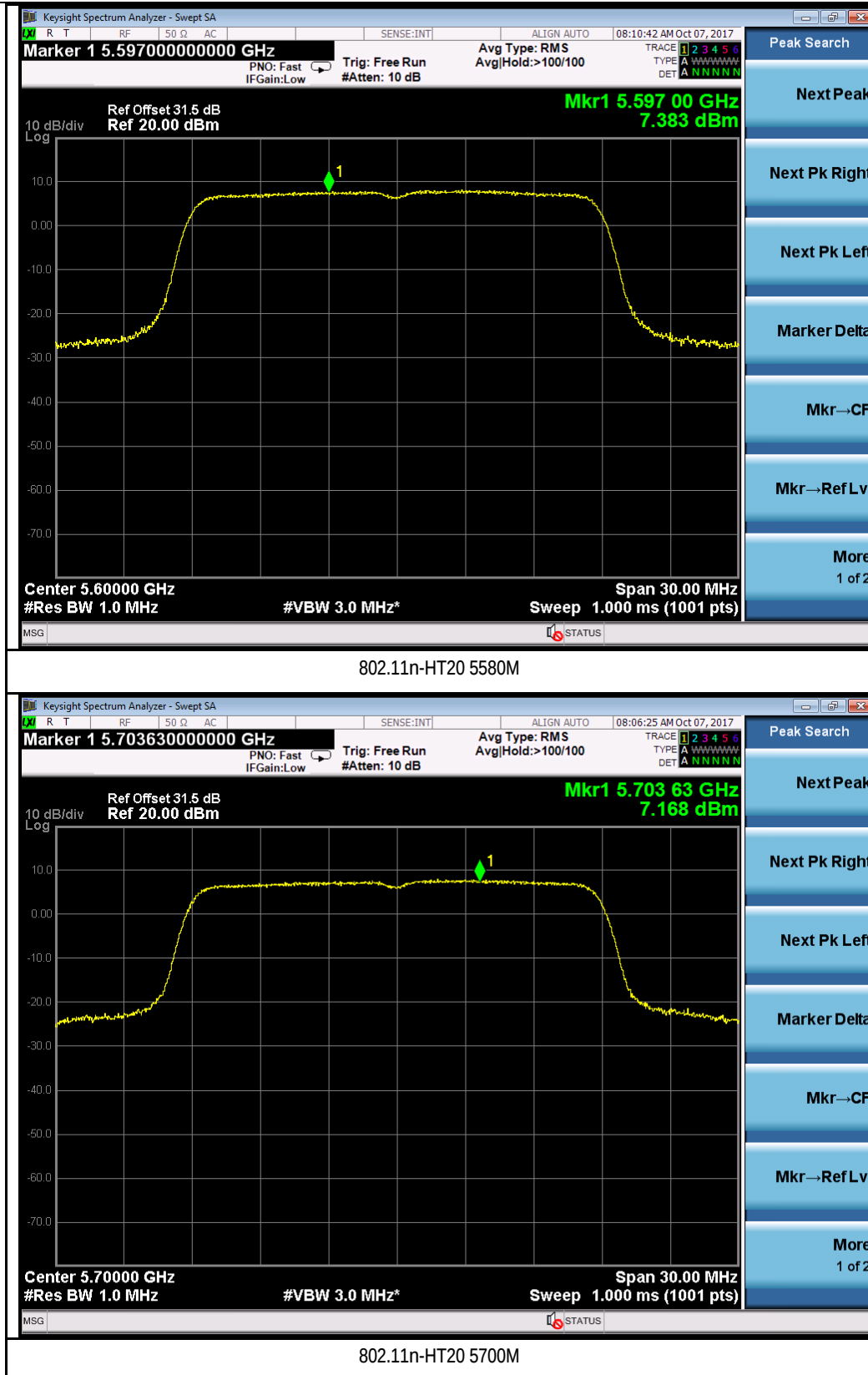


Test Plot for W56:

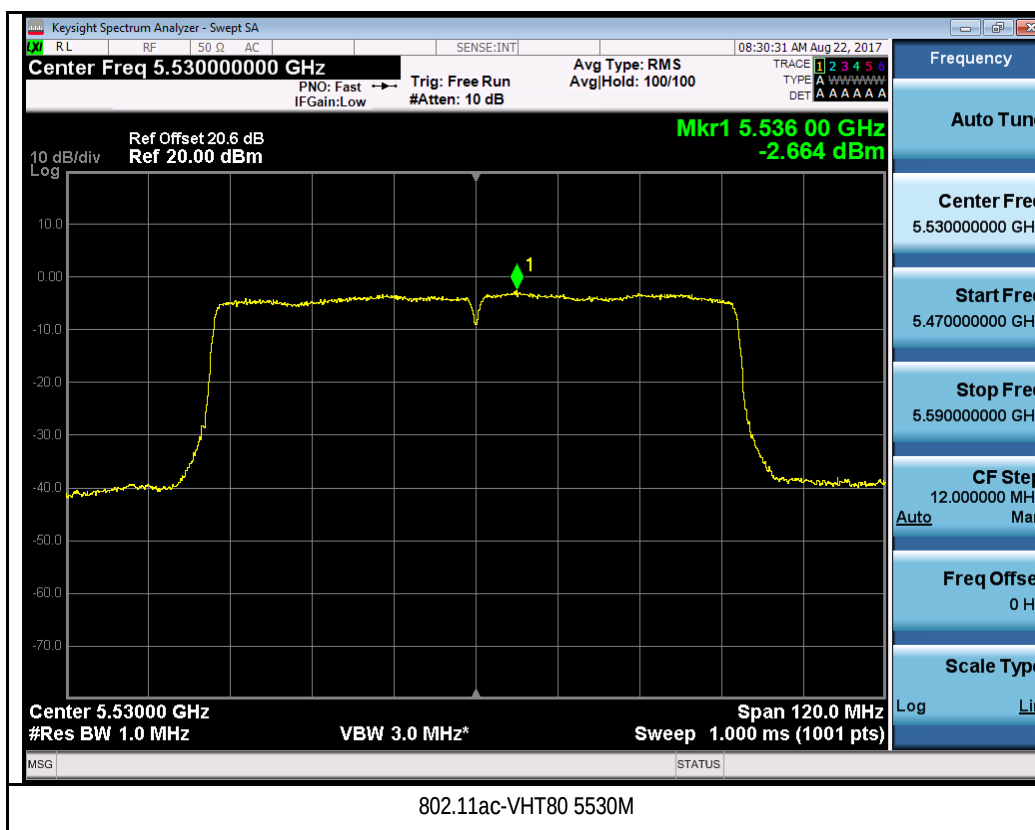
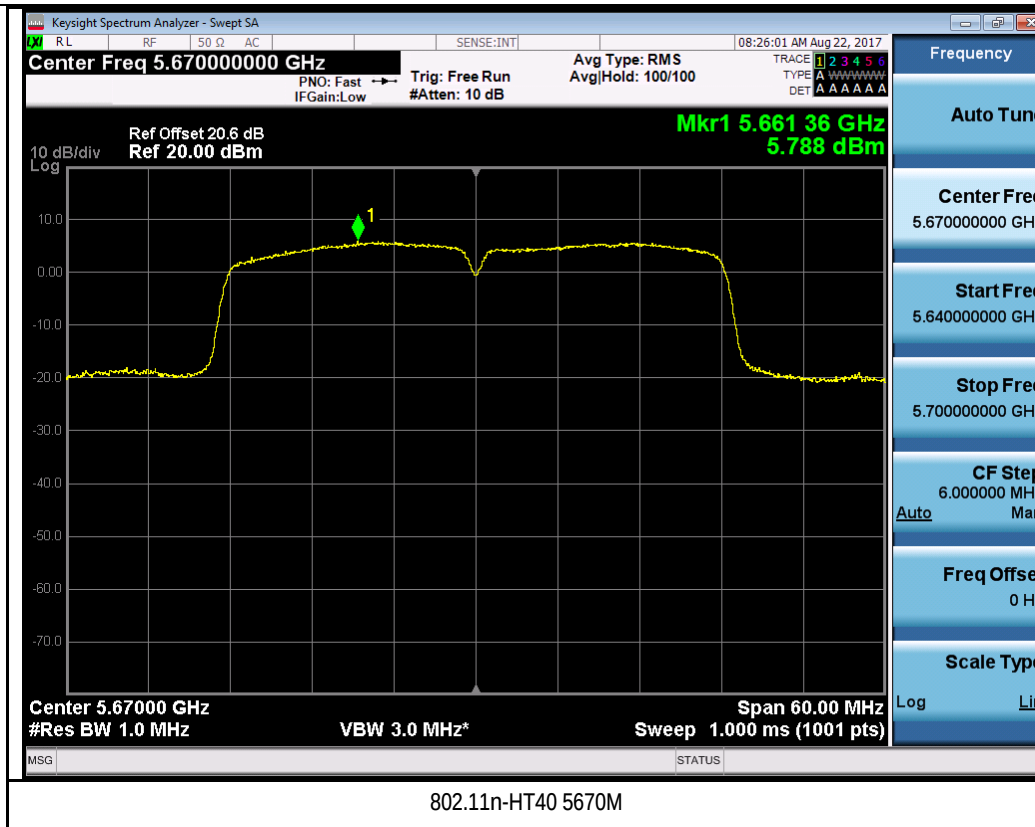
Chain 0:

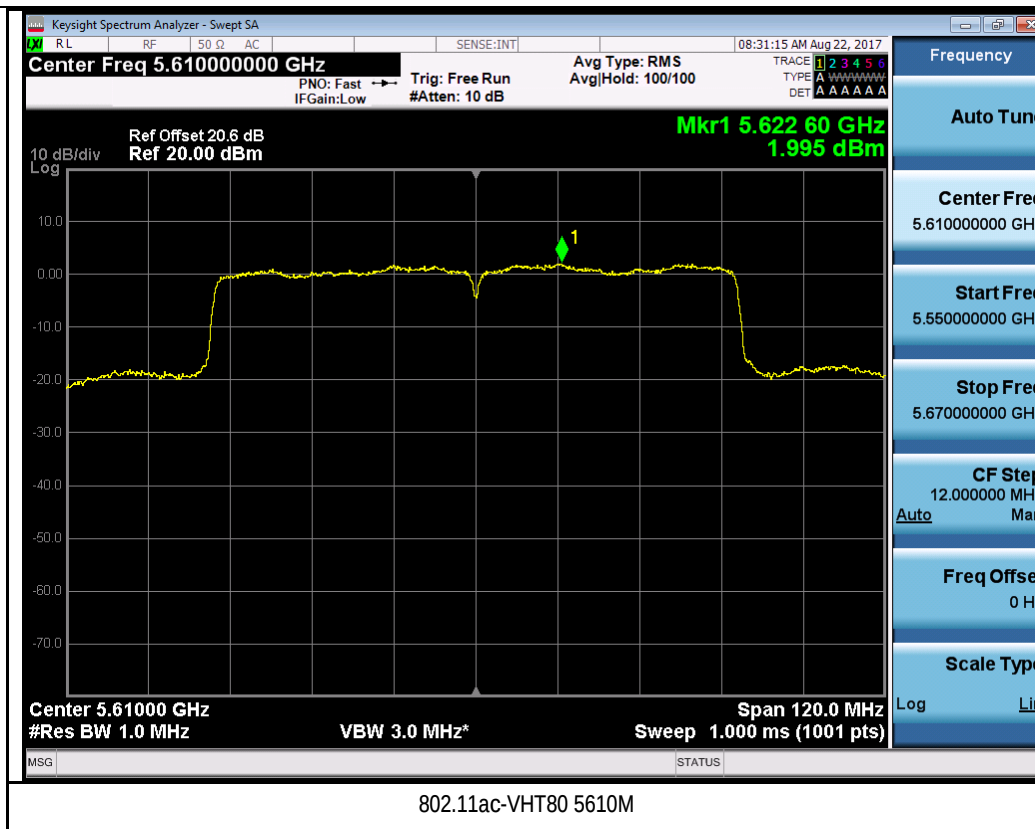












Chain 1:

