6.4. POWER SPECTRAL DENSITY

LIMITS

FCC Part15, Subpart E/ RSS-247		
Test Item	Limit	Frequency Range (MHz)
Power Spectral Density	For FCC: Other than Mobile and portable:17dBm/MHz Mobile and portable:11dBm/MHz	5150-5250
	For RSS:10dBm/MHz	
	11dBm/MHz	5250-5350
	11dBm/MHz	For FCC:5470-5725 For IC:5470-5600 5650-5725
	30dBm/500kHz	5725-5850

Note: 1. 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 6dBi. Directional gain = G_{ANT} + 10 log(N_{ANT}) dBi, where NANT is the number of outputs, G_{ANT} is the Antenna gain.

TEST PROCEDURE

Connect the UUT to the spectrum analyser and use the following settings:

For U-NII-1, U-NII-2A and U-NII-2C band:

Center Frequency	The center frequency of the channel under test
Detector	RMS
RBW	1MHz
VBW	≥3 × RBW
Span	Encompass the entire emissions bandwidth (EBW) of the signal
Trace	Max hold
Sweep time	Auto

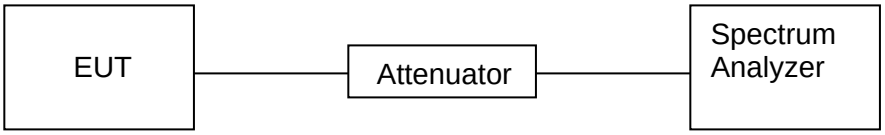
For U-NII-3:

Center Frequency	The center frequency of the channel under test
Detector	RMS
RBW	500KHz

VBW	≥3 × RBW
Span	Encompass the entire emissions bandwidth (EBW) of the signal
Trace	Max hold
Sweep time	Auto

Note:
1. For UNII-3, according to KDB publication 789033 D02 General UNII Test Procedures New Rules v01, section II.F.5., it is acceptable to set RBW at 1MHz and VBW at 3MHz if the spectrum analyzer does not have 500kHz RBW.
2. The value measured with RBW=1MHz is to be added with 10log(500kHz/1MHz) which is - 3dB. For example, if the measured value is +10dBm using RBW=1MHz (that is +10dBm/MHz), then the converted value will be +7dBm/500kHz.
Allow trace to fully stabilize and use the peak marker function to determine the maximum amplitude level within the RBW.
Add 10 log (1/x), where x is the duty cycle, to the measured power in order to compute the average power during the actual transmission times

TEST SETUP



RESULTS

6.4.1. 1TX MODE

Mode	Channel	Antenna	PSD (dBm)	Limit (dBm)
a	5260	C	5.02	5.5
	5300	C	4.82	5.5
	5320	C	4.78	5.5
	5500	C	5.17	5.5
	5580	C	4.74	5.5
	5700	C	4.20	5.5
	5720	C	4.71	5.5
n20	5260	C	5.01	5.5
	5300	C	4.92	5.5
	5320	C	4.95	5.5
	5500	C	5.08	5.5
	5580	C	4.68	5.5
	5700	C	3.06	5.5
	5720	C	4.67	5.5
ac20	5260	C	5.04	5.5
	5300	C	5.04	5.5
	5320	C	5.17	5.5
	5500	C	5.21	5.5
	5580	C	4.96	5.5
	5700	C	2.93	5.5
	5720	C	4.62	5.5
n40	5270	C	3.95	5.5
	5310	C	4.36	5.5
	5510	C	0.548	5.5
	5550	C	3.41	5.5
	5670	C	3.50	5.5
	5710	C	3.64	5.5
ac40	5270	C	3.98	5.5
	5310	C	4.23	5.5
	5510	C	0.283	5.5
	5550	C	3.50	5.5

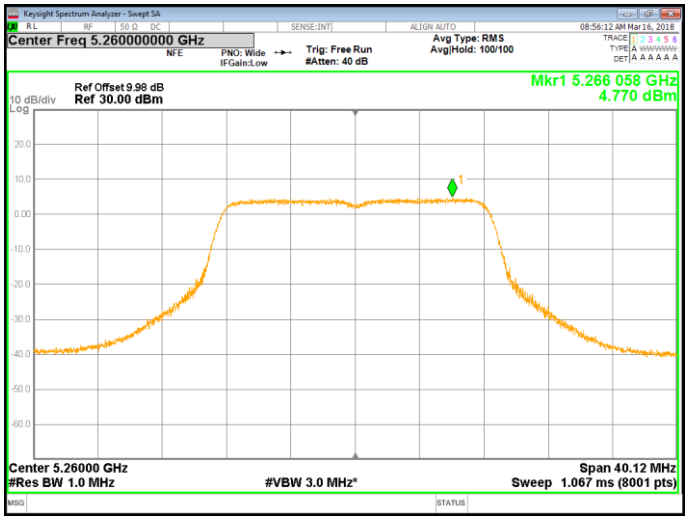
	5670	C	3.52	5.5
	5710	C	3.54	5.5
ac80	5290	C	-3.34	5.5
	5530	C	-7.91	5.5
	5610	C	-0.85	5.5
	5690	C	-0.89	5.5
Note: PSD= TEST PLOT Value + 10 log (1/x), where x is the duty cycle.				

Note: All the antenna ports had been tested, but only the worst data recorded in the report.

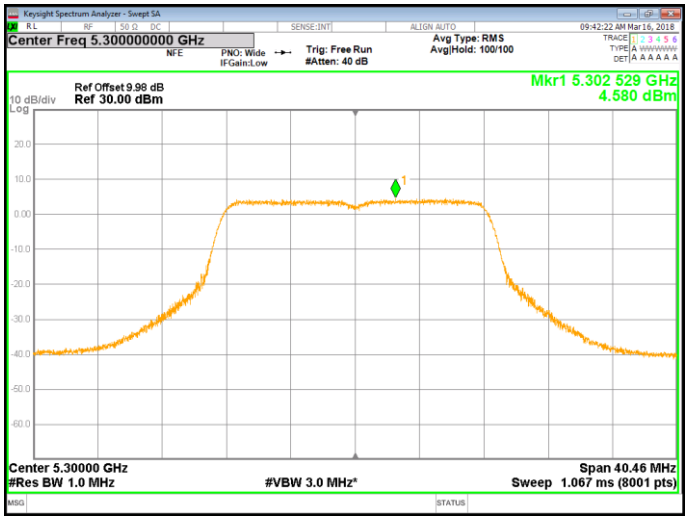
TEST PLOT FOR ANTENNA C

802.11a Mode

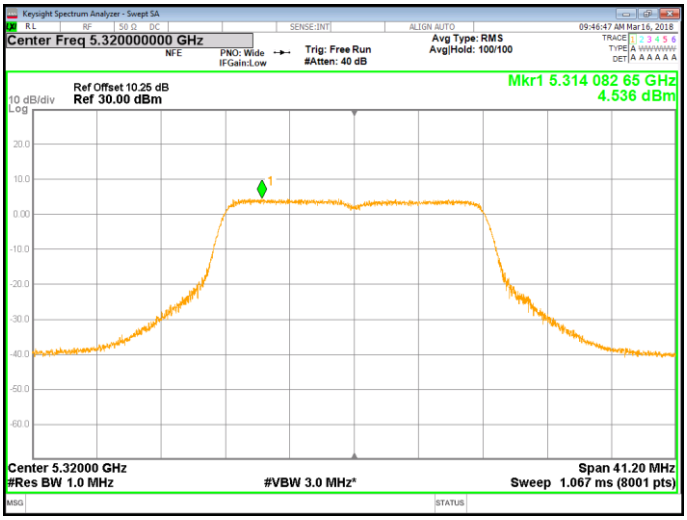
5260MHz



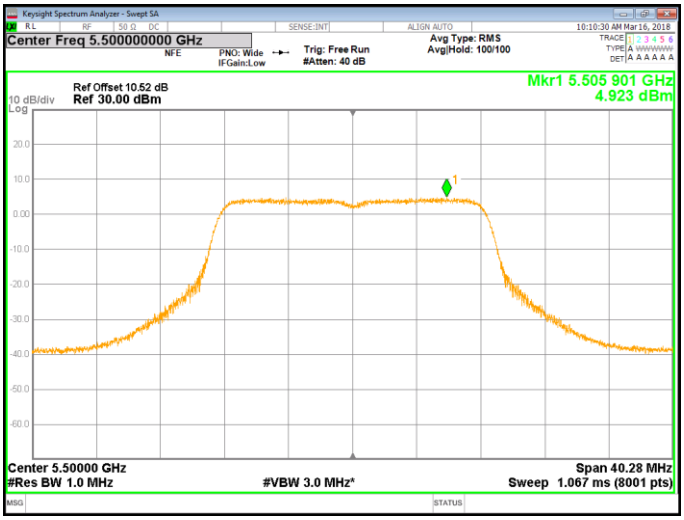
5300MHz



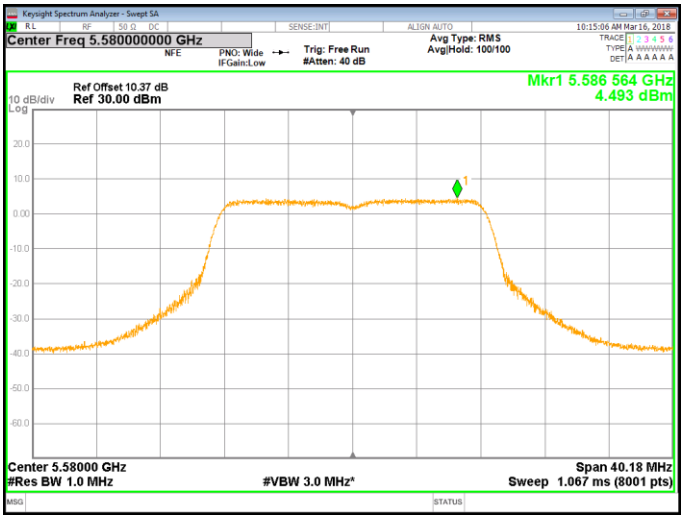
5320MHz



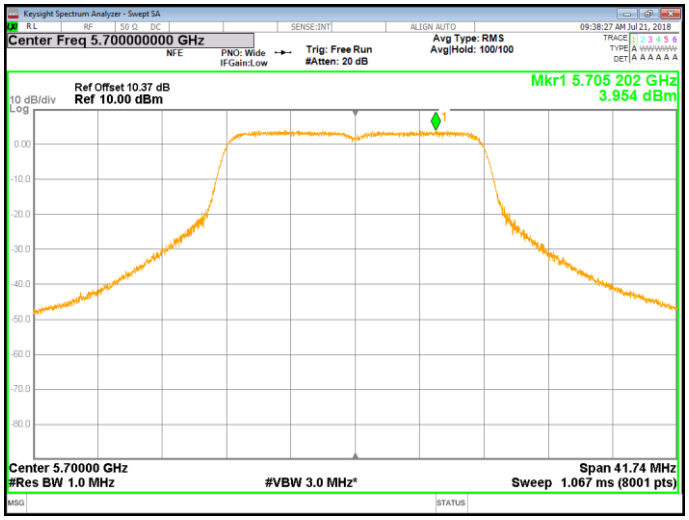
5500MHz



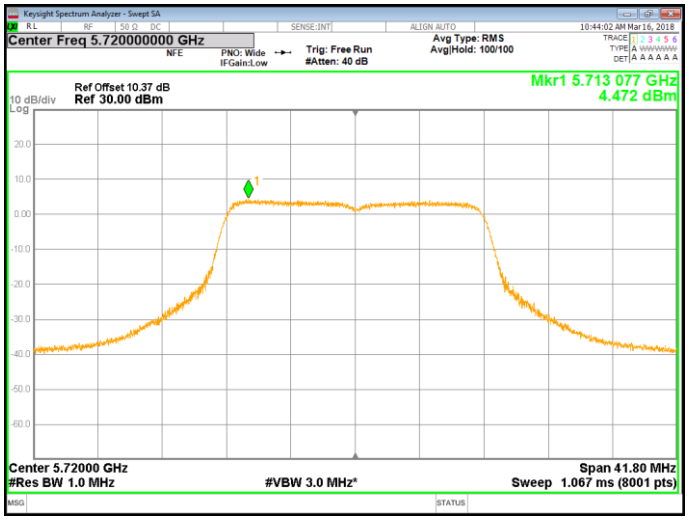
5580MHz



5700MHz

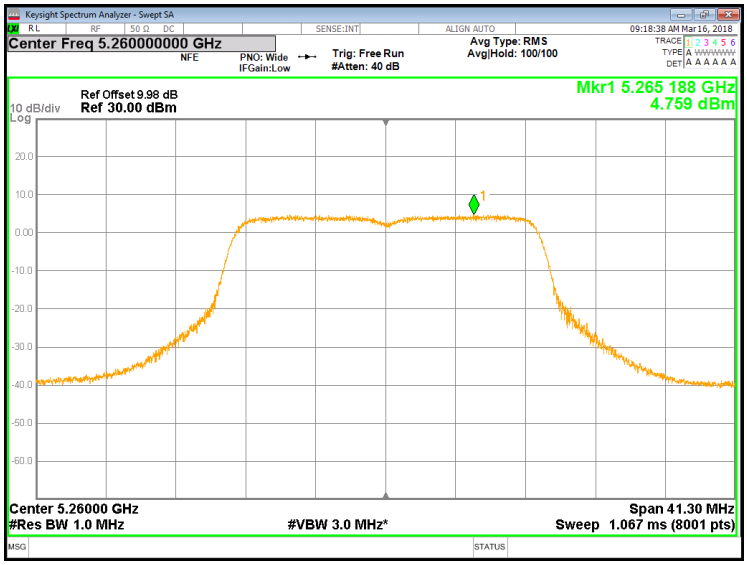


5720MHz

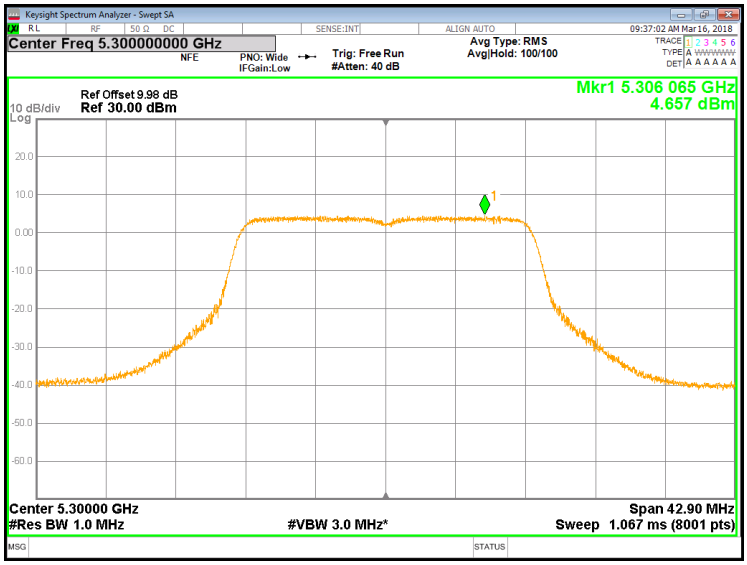


802.11 n20 Mode

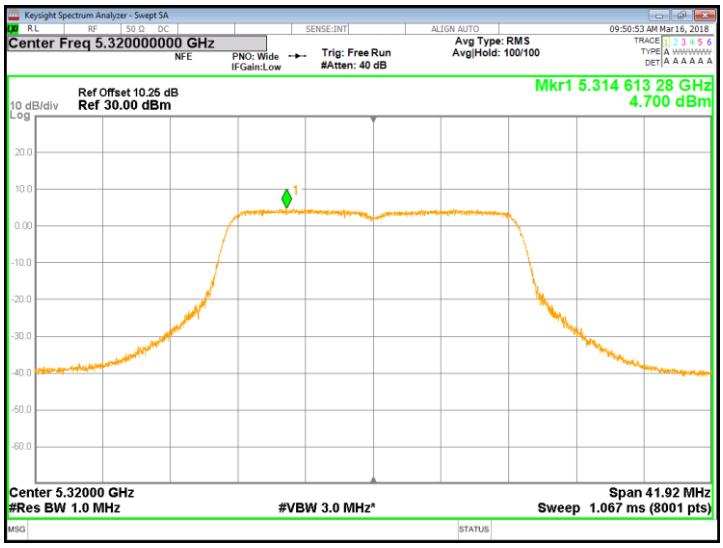
5260MHz



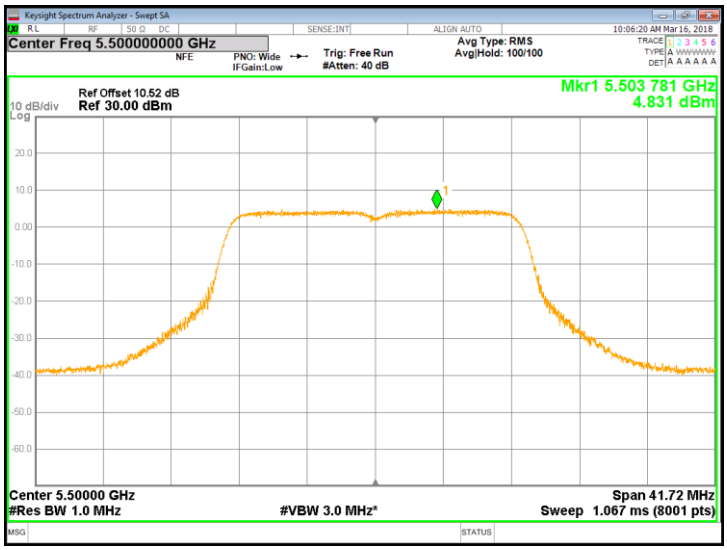
5300MHz



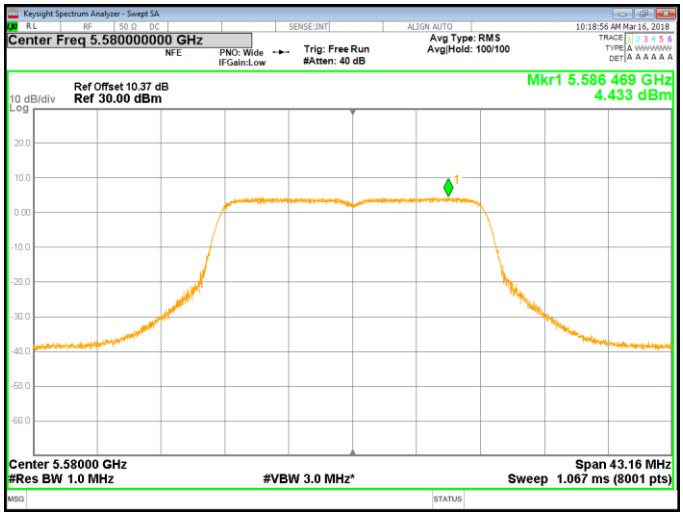
5320MHz



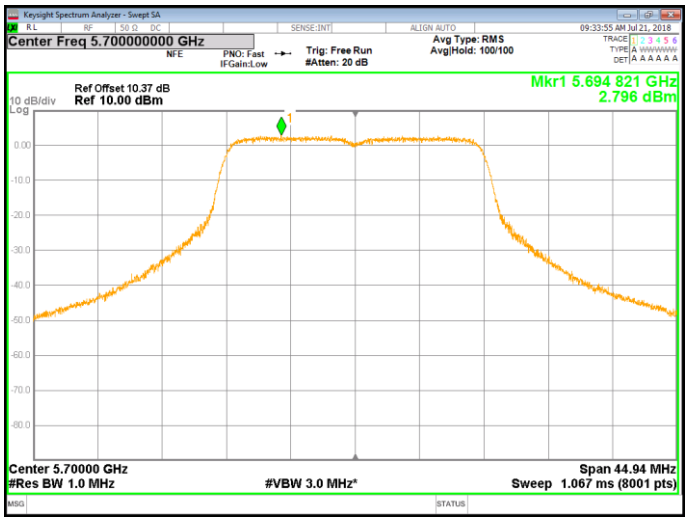
5500MHz



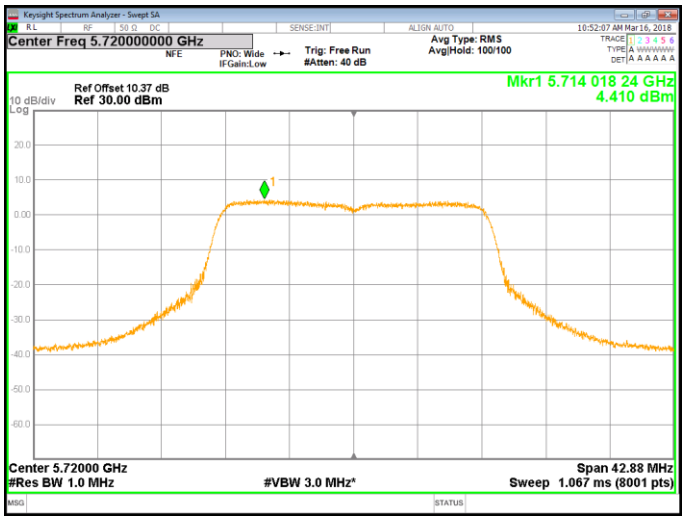
5580MHz



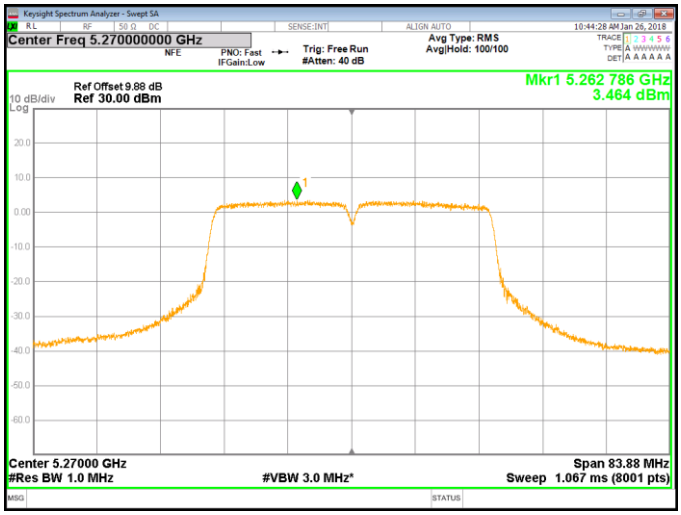
5700MHz



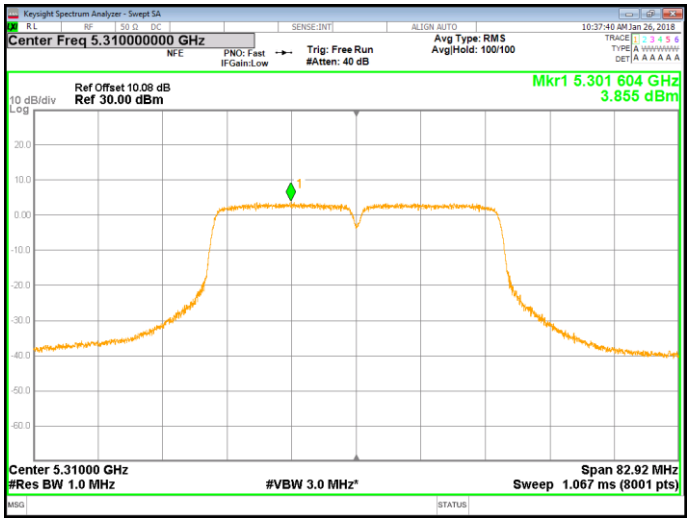
5720MHz



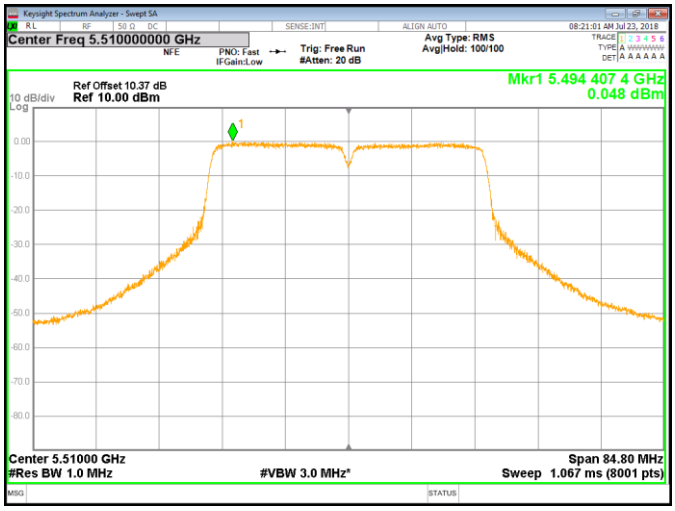
802.11n40 Mode
5270MHz



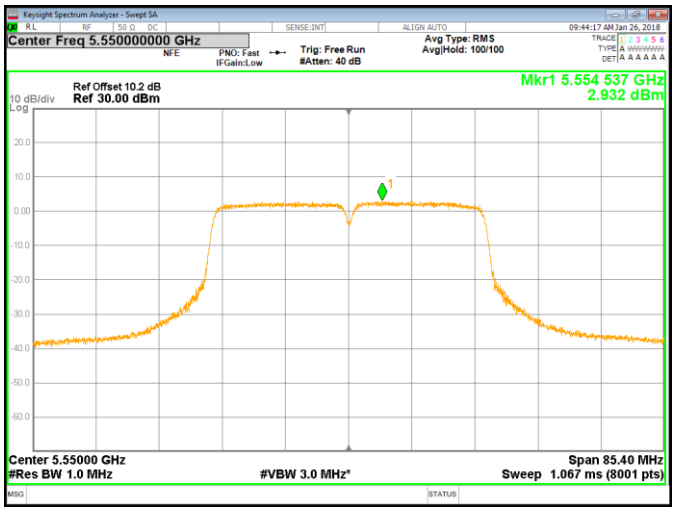
5310MHz



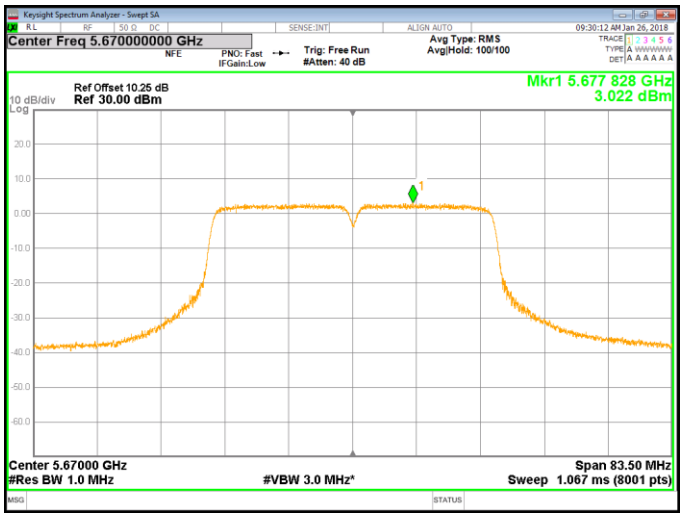
5510MHz



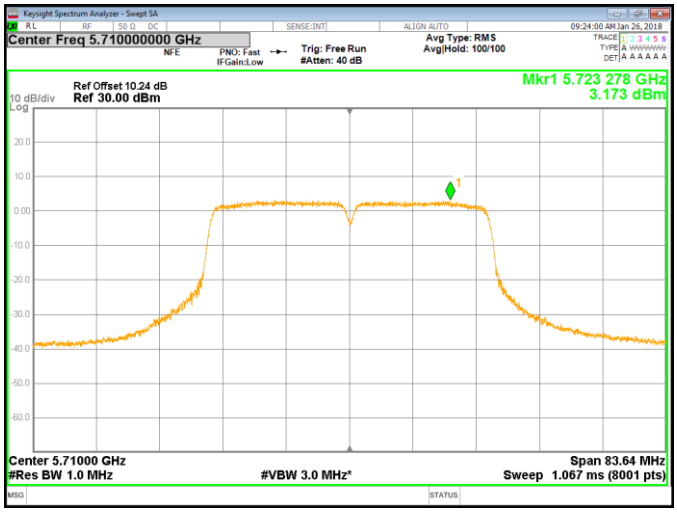
5550MHz



5670MHz

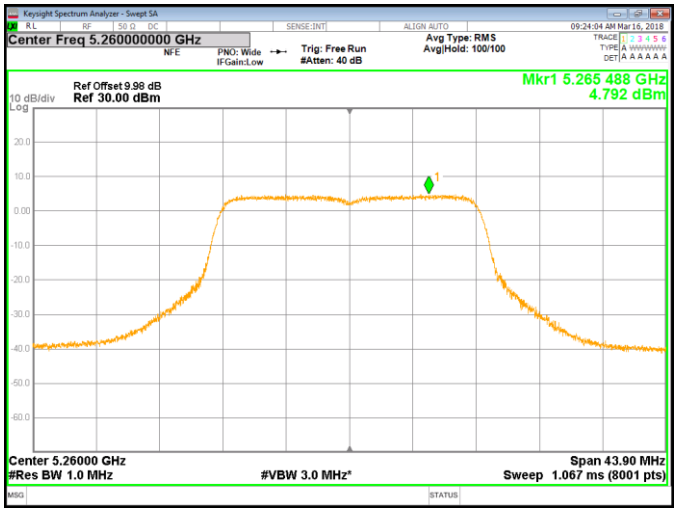


5710MHz

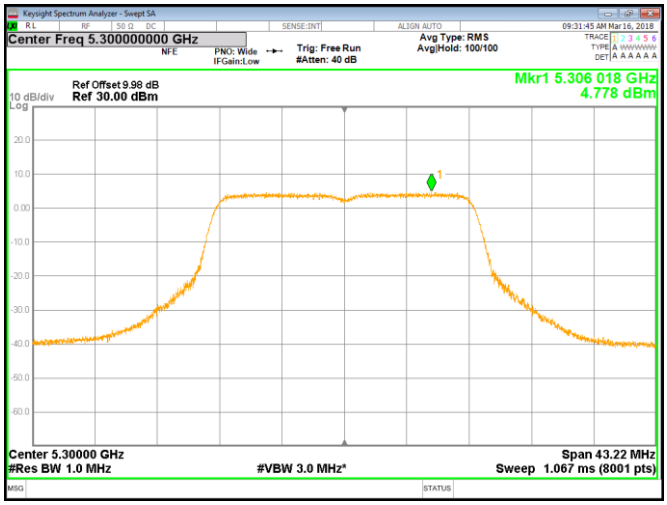


802.11 ac20 Mode

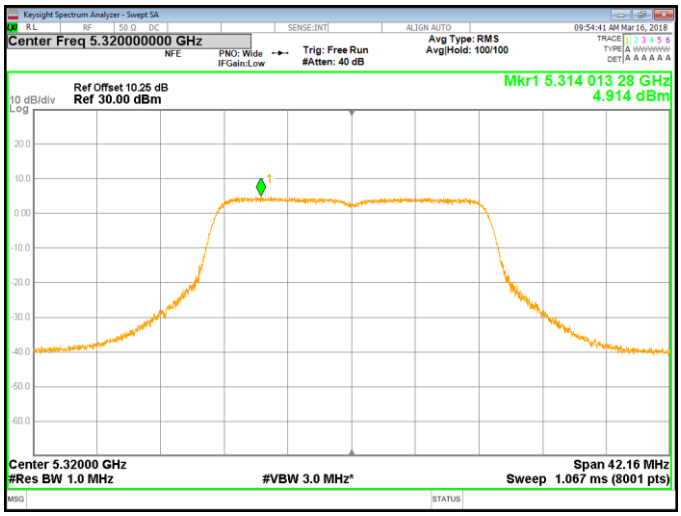
5260MHz



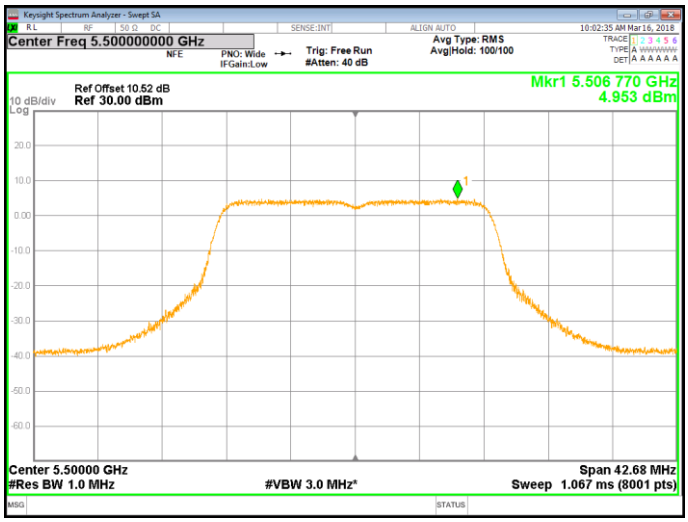
5300MHz



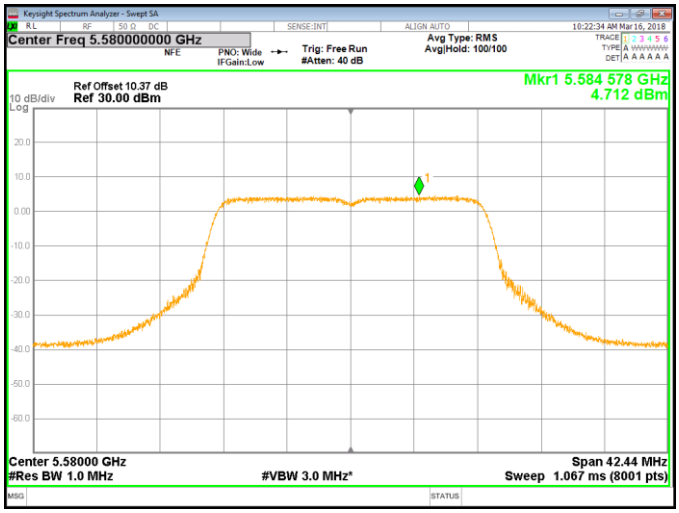
5320MHz



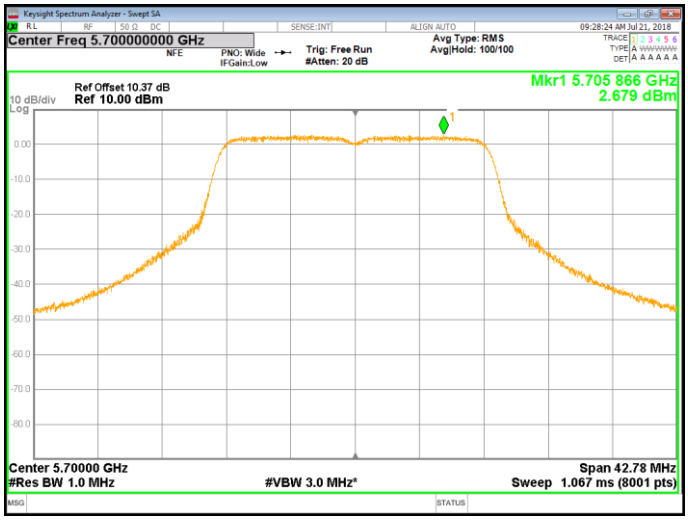
5500MHz



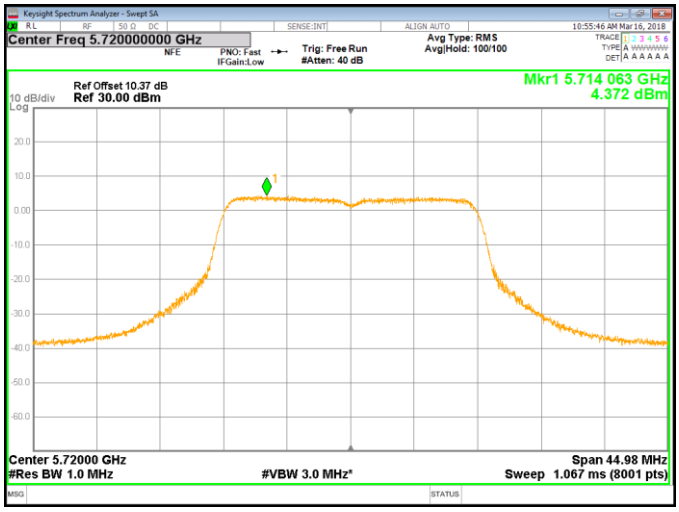
5580MHz



5700MHz

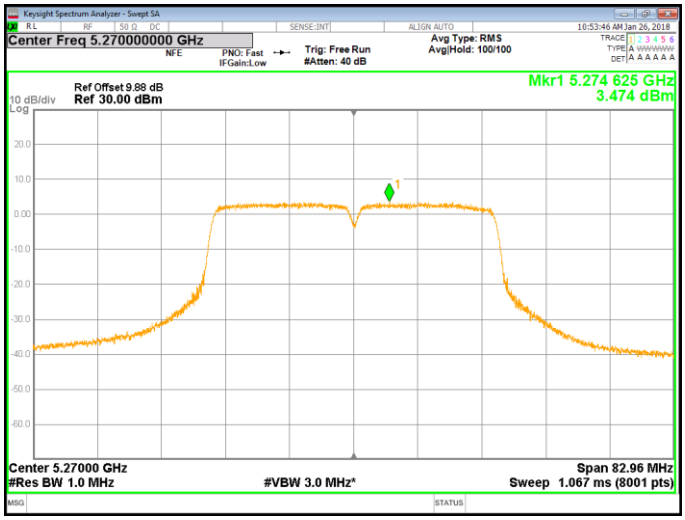


5720MHz

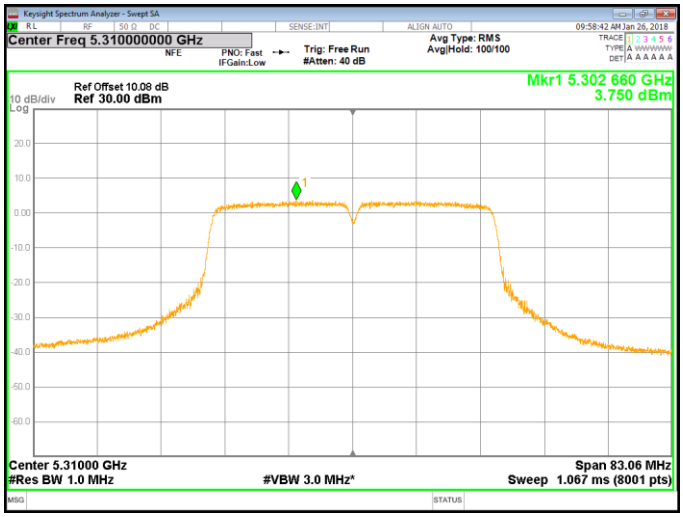


802.11ac40 Mode

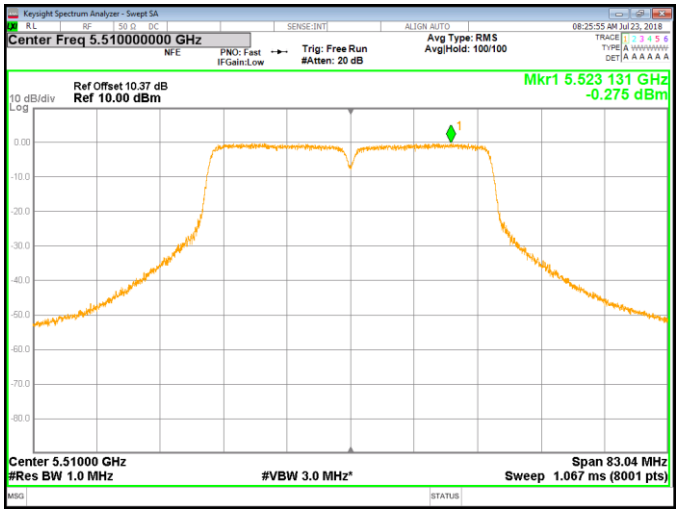
5270MHz



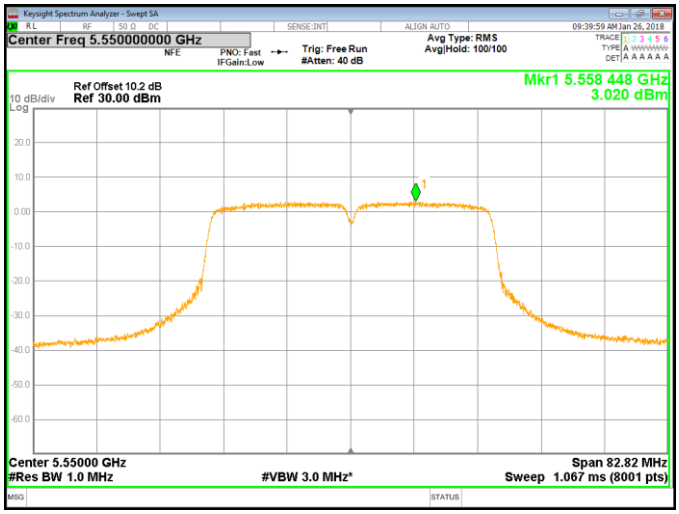
5310MHz



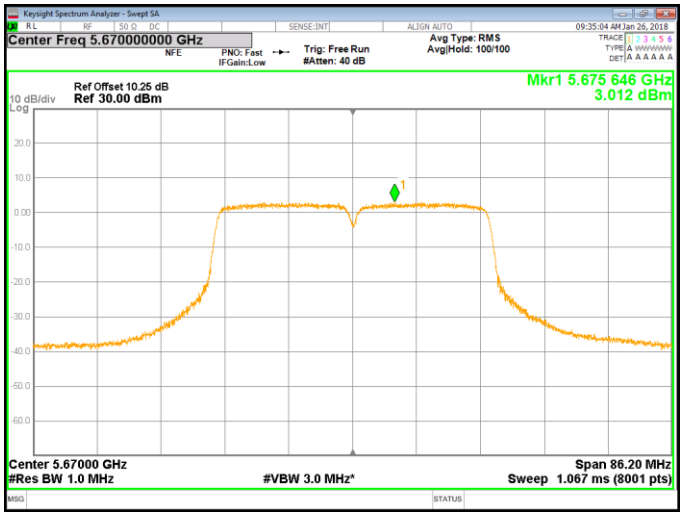
5510MHz



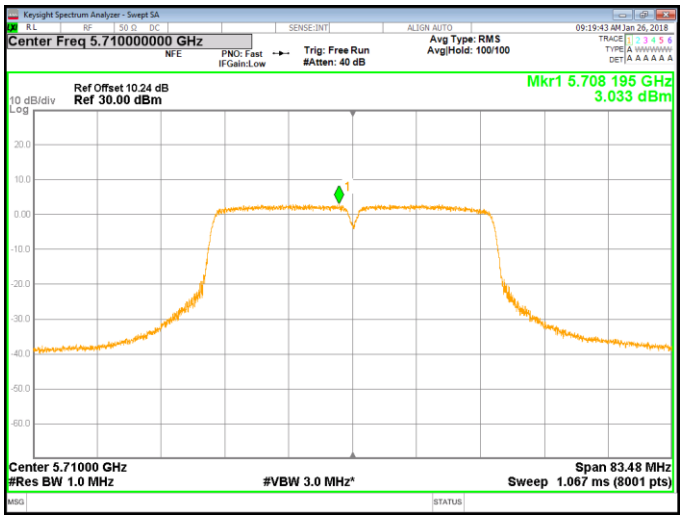
5550MHz



5670MHz

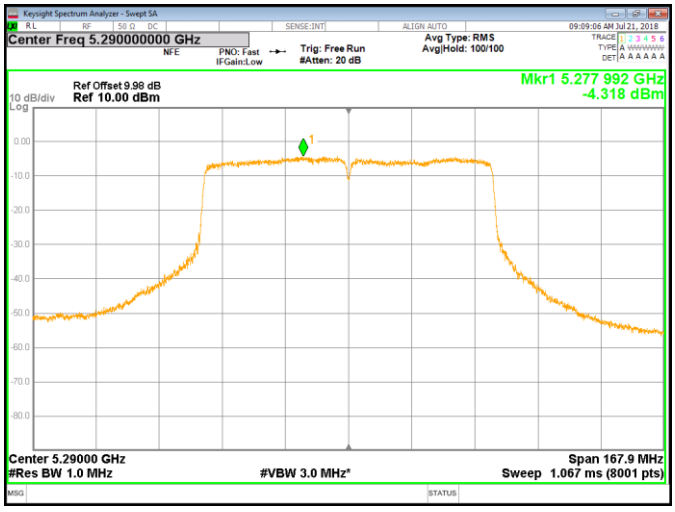


5710MHz

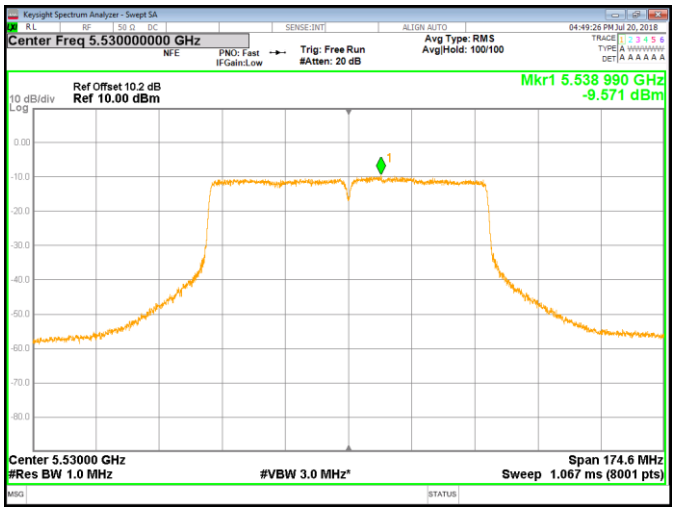


802.11ac80 Mode

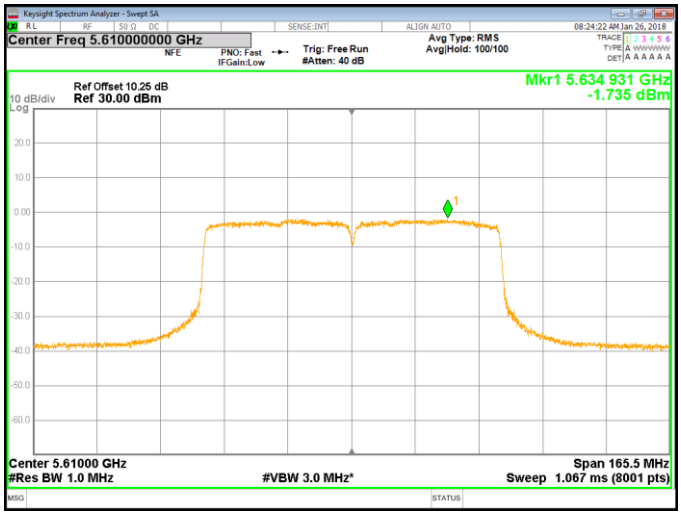
5290MHz



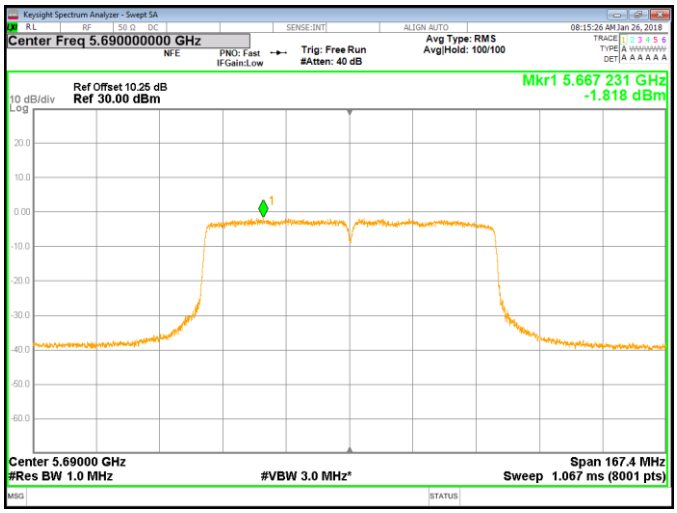
5530MHz



5610MHz



5690MHz



6.4.2. 2TX MODE

Mode	Channel	Antenna	PSD(dBm)		Limit(dBm)
			Single	Total	
a	5260	B	-0.731	2.26	2.5
		C	-0.768		2.5
	5300	B	-0.969	2.18	2.5
		C	-0.704		2.5
	5320	B	-0.563	2.43	2.5
		C	-0.608		2.5
	5500	B	-1.757	1.57	2.5
		C	-1.15		2.5
	5580	B	-1.073	1.82	2.5
		C	-1.319		2.5
	5700	B	-0.151	2.42	2.5
		C	-1.075		2.5
	5720	B	-0.266	2.38	2.5
		C	-1.03		2.5
n20	5260	B	-1.112	1.85	2.5
		C	-1.214		2.5
	5300	B	-1.255	1.87	2.5
		C	-1.017		2.5
	5320	B	-1.009	2.01	2.5
		C	-0.988		2.5
	5500	B	-1.575	1.81	2.5
		C	-0.857		2.5
	5580	B	-0.742	2.25	2.5
		C	-0.784		2.5
	5700	B	-0.549	2.08	2.5
		C	-1.339		2.5
	5720	B	-0.573	2.04	2.5
		C	-1.422		2.5
		C	5.293		21.5
ac20	5260	B	-1.018	1.98	2.5
		C	-1.047		2.5
	5300	B	-1.384	1.73	2.5
		C	-1.176		2.5

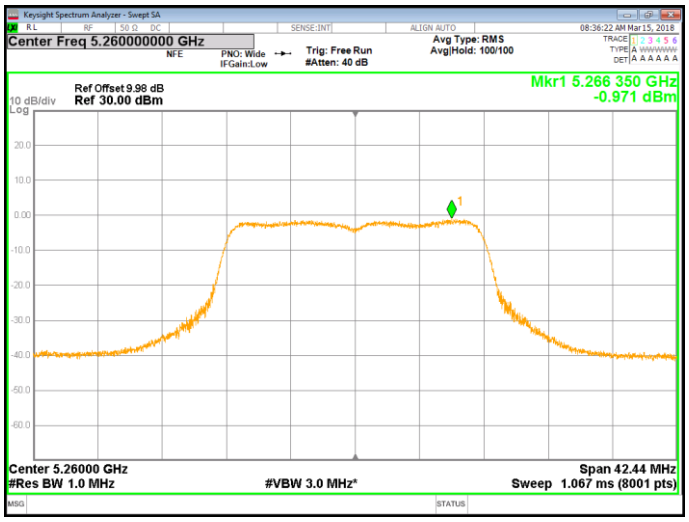
	5320	B	-1.228	1.91	2.5
		C	-0.971		2.5
	5500	B	-1.438	1.95	2.5
		C	-0.717		2.5
	5580	B	-0.714	2.24	2.5
		C	-0.825		2.5
	5700	B	-0.478	2.31	2.5
		C	-0.92		2.5
	5720	B	-0.465	2.27	2.5
		C	-1.028		2.5
n40	5270	B	-1.425	1.62	2.5
		C	-1.355		2.5
	5310	B	-1.64	1.57	2.5
		C	-1.241		2.5
	5510	B	-3.3	0.39	2.5
		C	-2.03		2.5
	5550	B	-2.809	0.55	2.5
		C	-2.13		2.5
	5670	B	-1.079	1.73	2.5
		C	-1.486		2.5
	5710	B	-0.71	1.92	2.5
		C	-1.517		2.5
ac40	5270	B	-1.67	1.44	2.5
		C	-1.479		2.5
	5310	B	-1.51	1.78	2.5
		C	-0.972		2.5
	5510	B	-3.35	0.24	2.5
		C	-2.26		2.5
	5550	B	-2.629	0.83	2.5
		C	-1.779		2.5
	5670	B	-1.402	1.77	2.5
		C	-1.094		2.5
	5710	B	-0.726	1.95	2.5
		C	-1.409		2.5

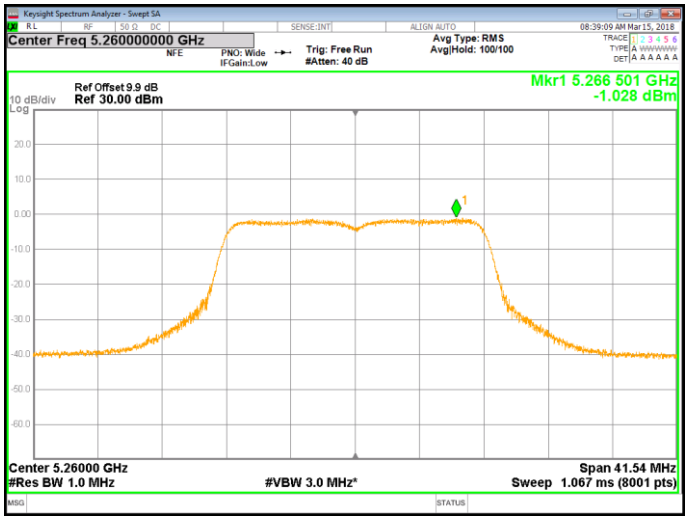
ac80	5290	B	-5.286	-1.81	2.5
		C	-4.39		2.5
	5530	B	-11.009	-6.57	2.5
		C	-11.293		2.5
	5610	B	-5.10	-1.84	2.5
		C	-4.607		2.5
	5690	B	-4.545	-1.7	2.5
		C	-4.885		2.5
Note: PSD= TEST PLOT Value + 10 log (1/x), where x is the duty cycle.					

Note: All the antenna ports had been tested, but only the worst data recorded in the report.

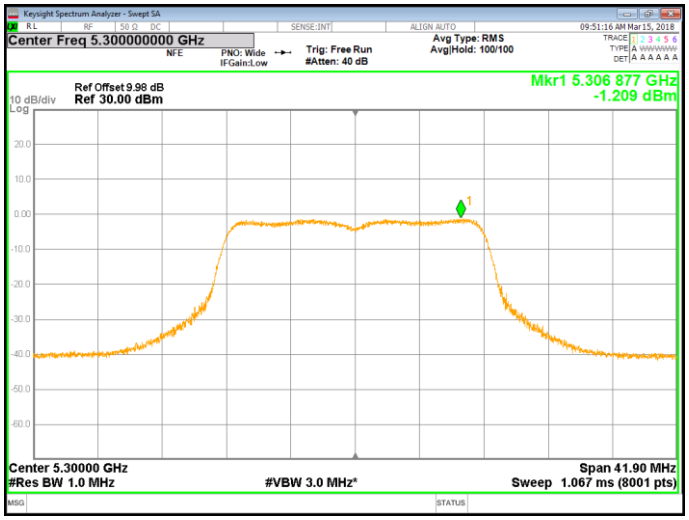
TEST PLOT FOR ANTENNA B AND C

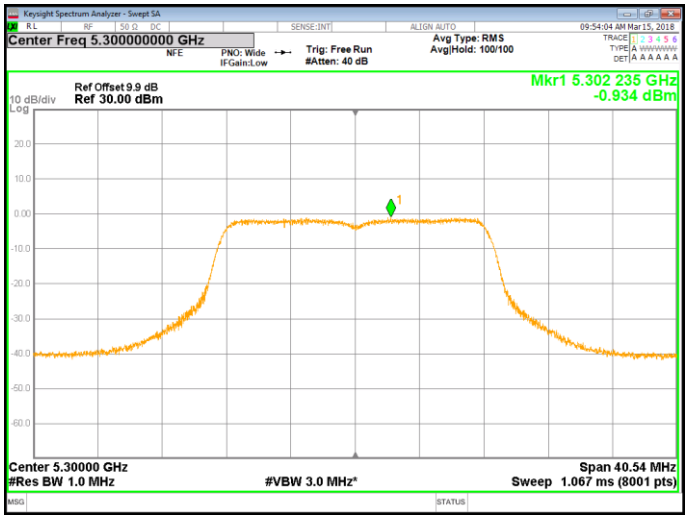
802.11a Mode
5260MHz





5300MHz





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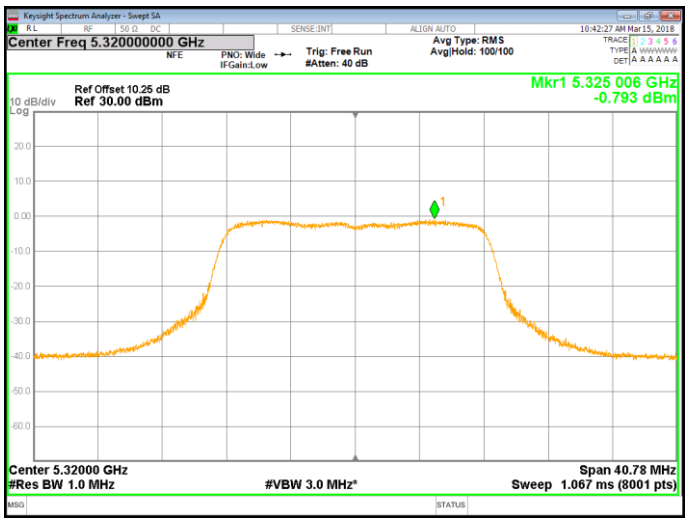

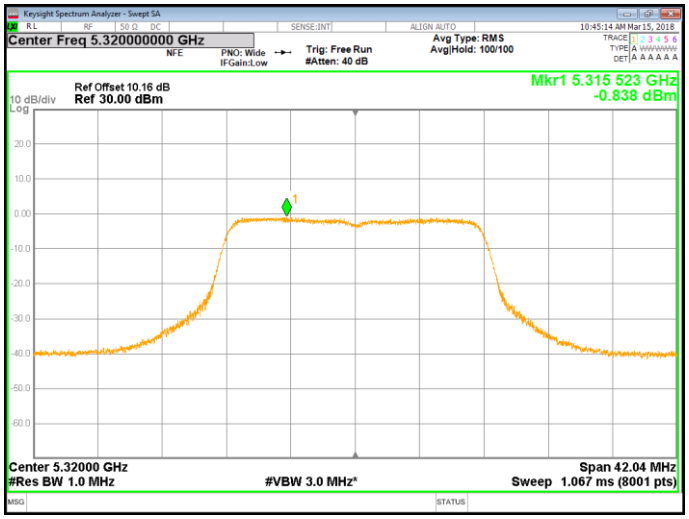

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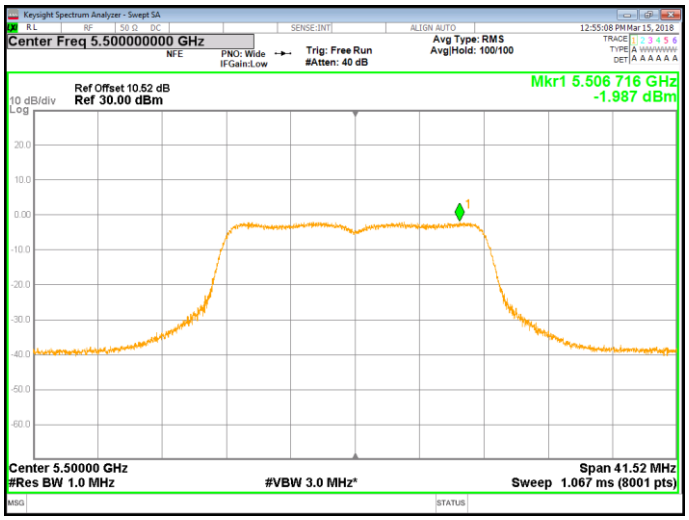

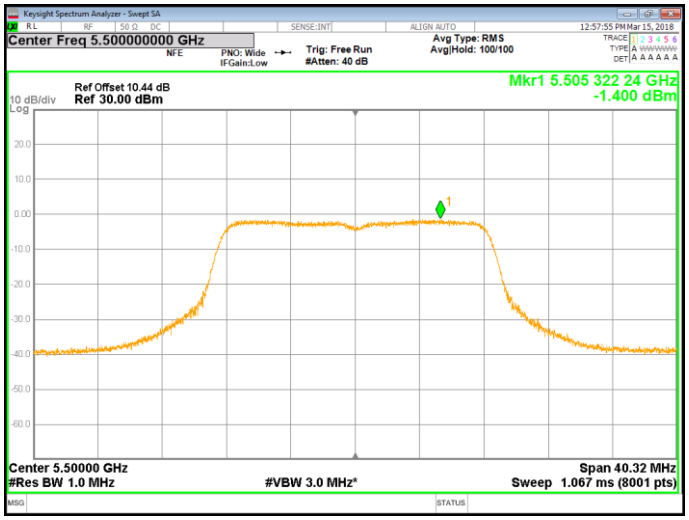

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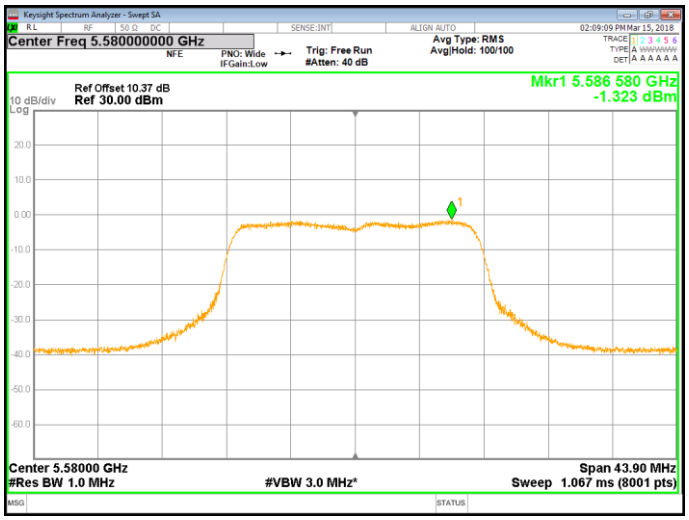

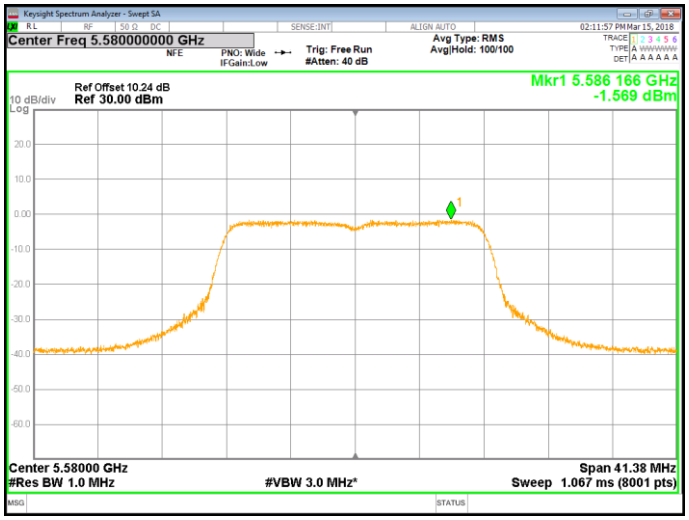

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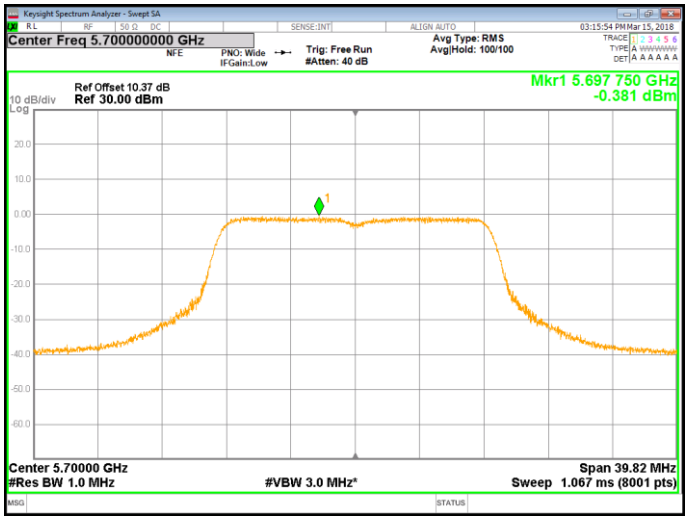

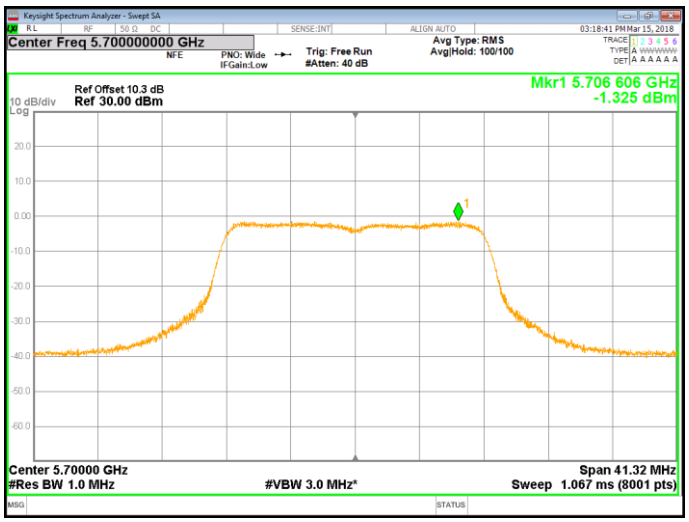

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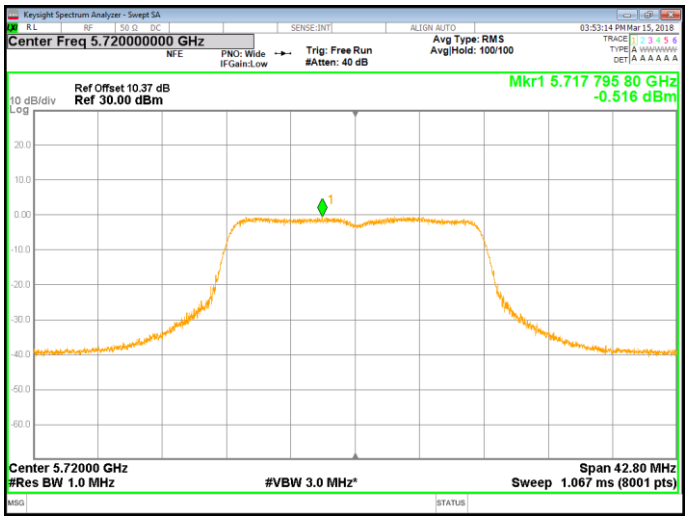

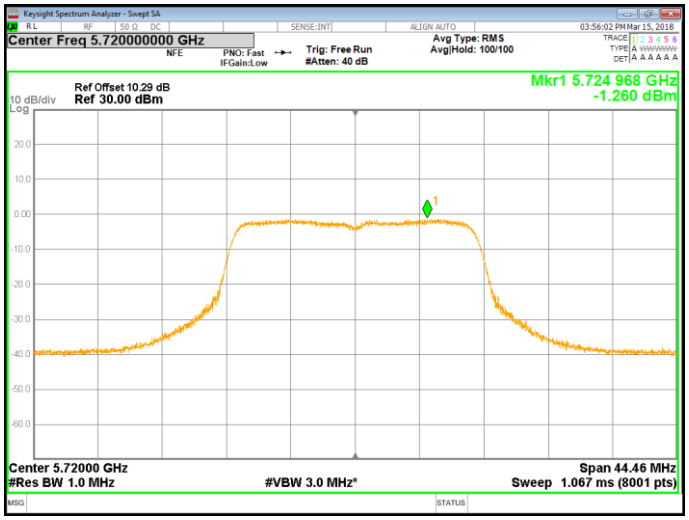

802.11 n20 Mode

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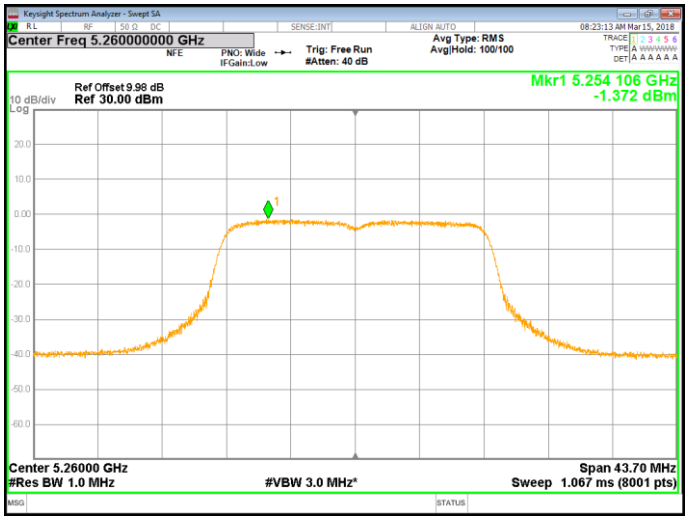

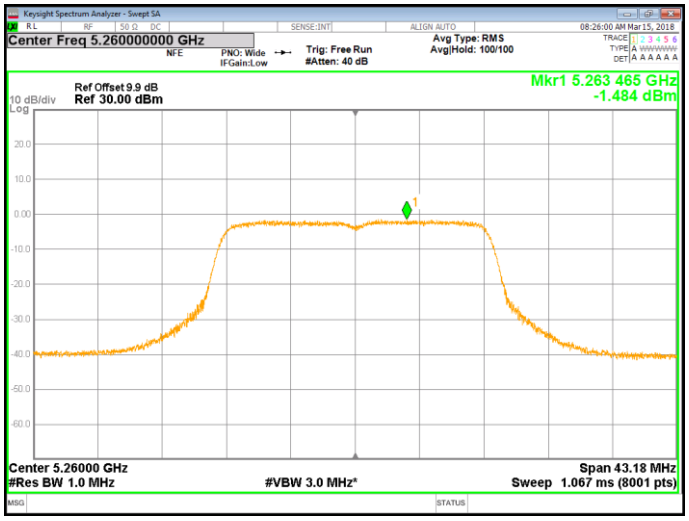

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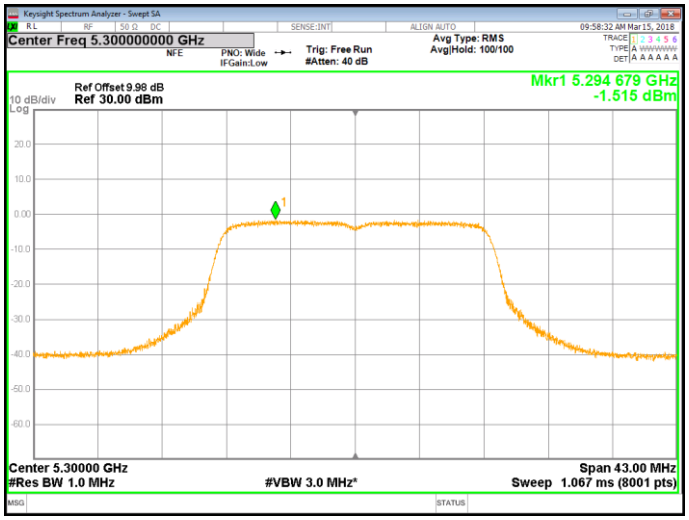

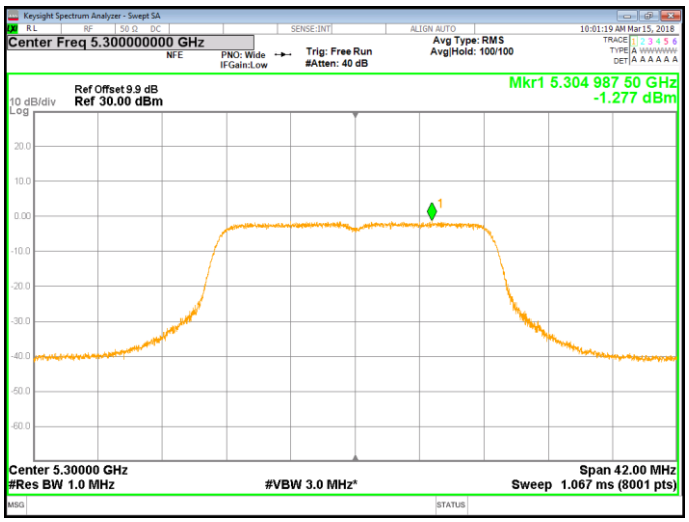

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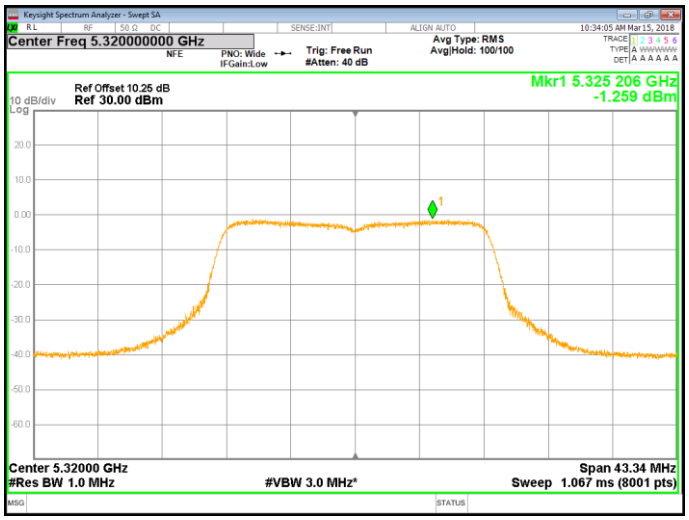

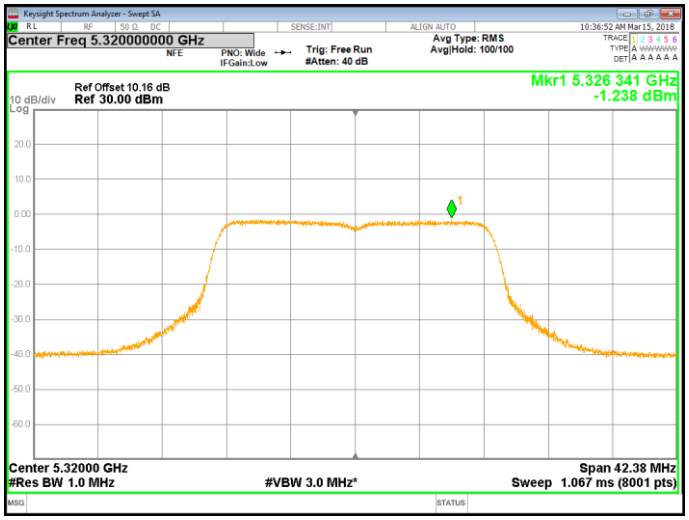

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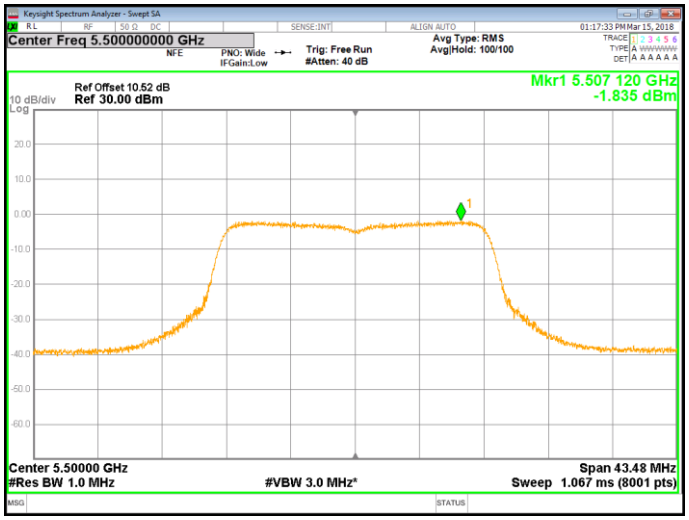

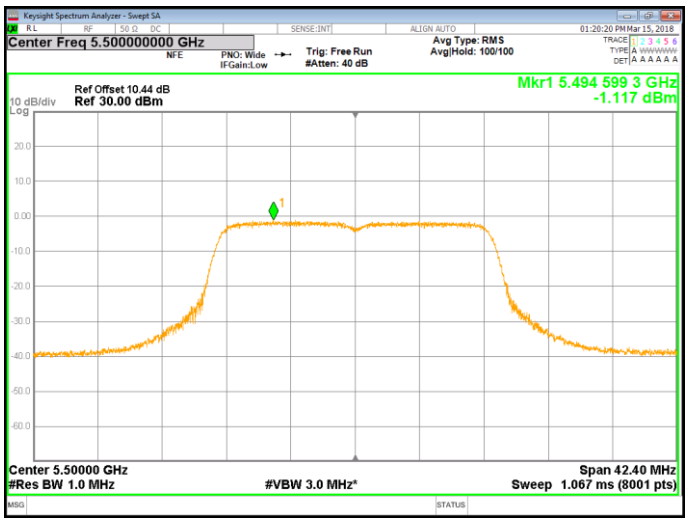

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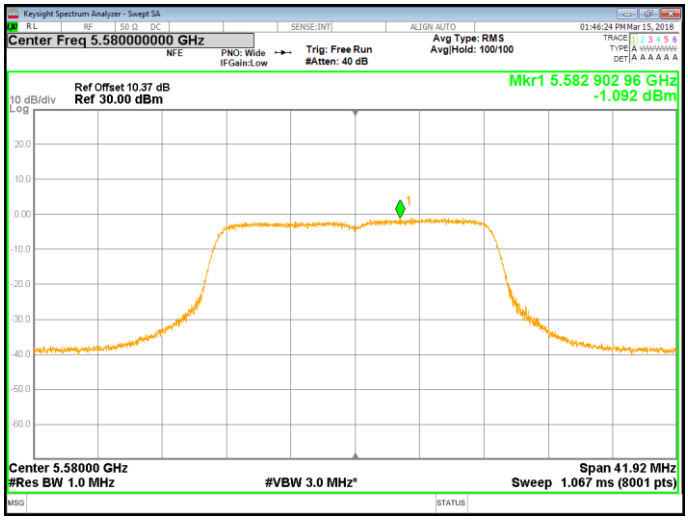

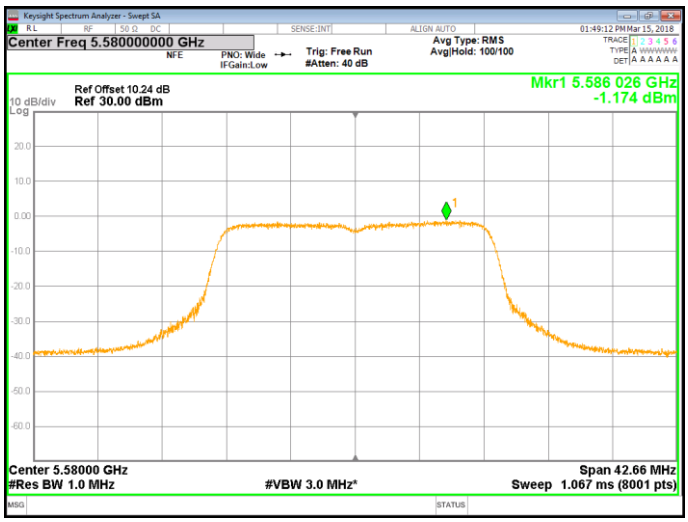

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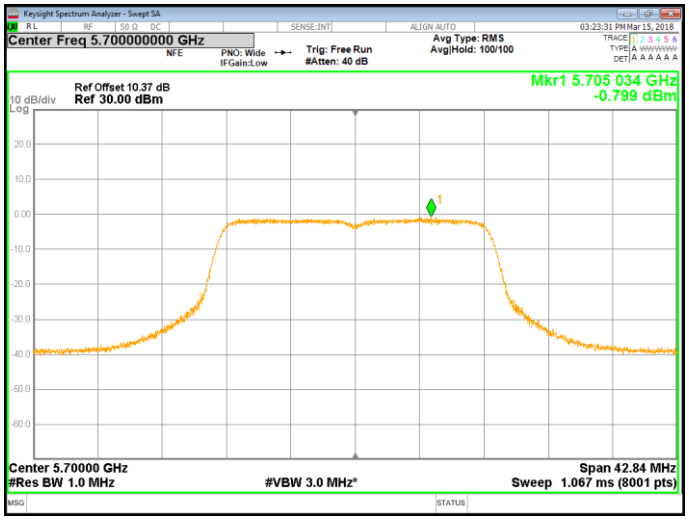

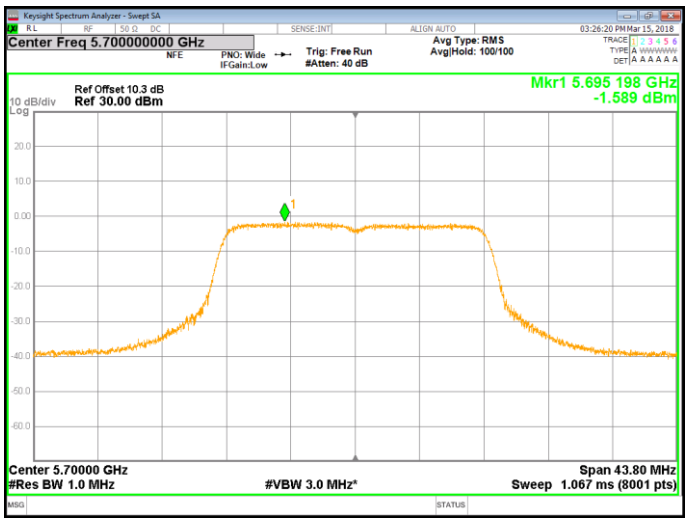

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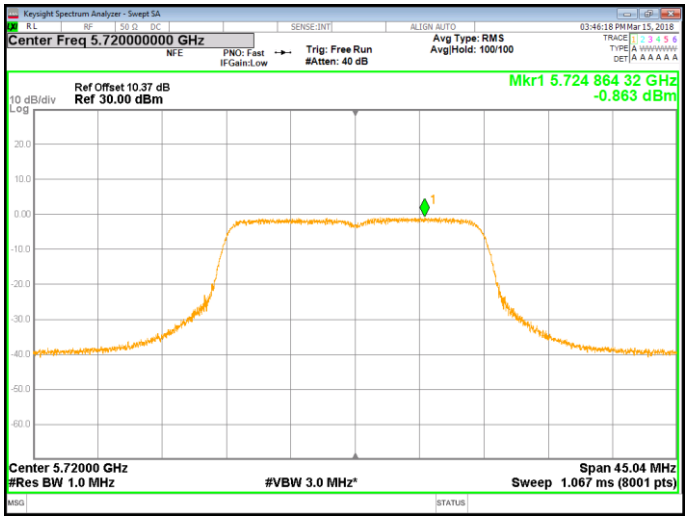

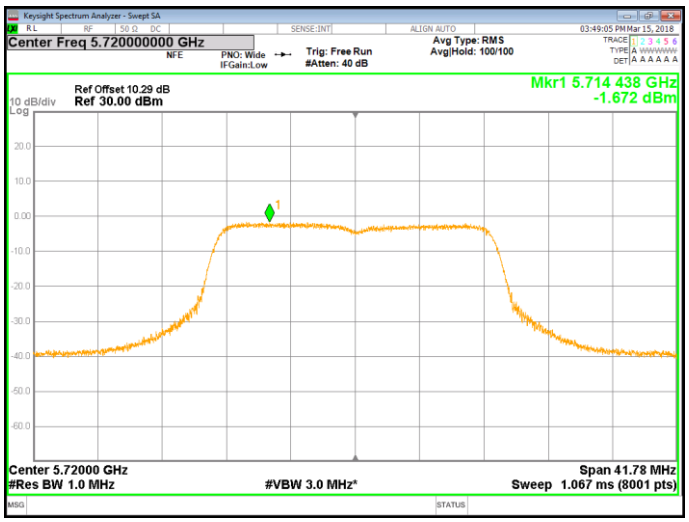

802.11n40 Mode

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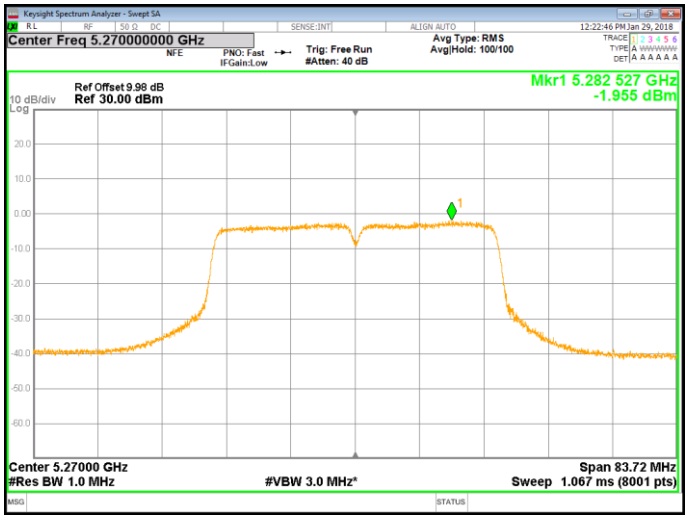

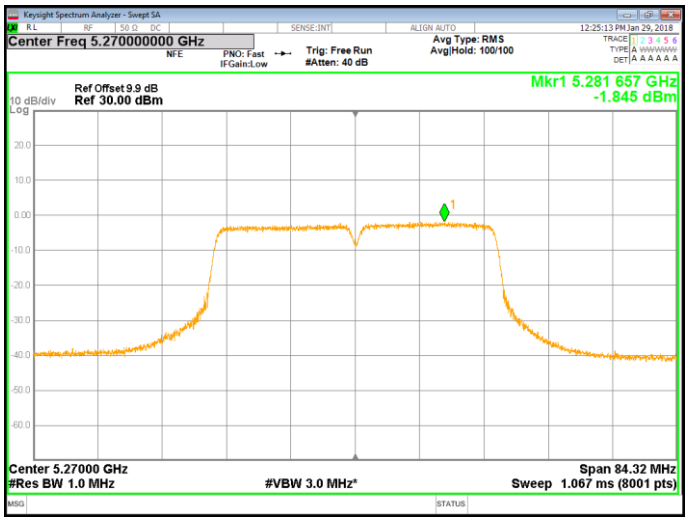

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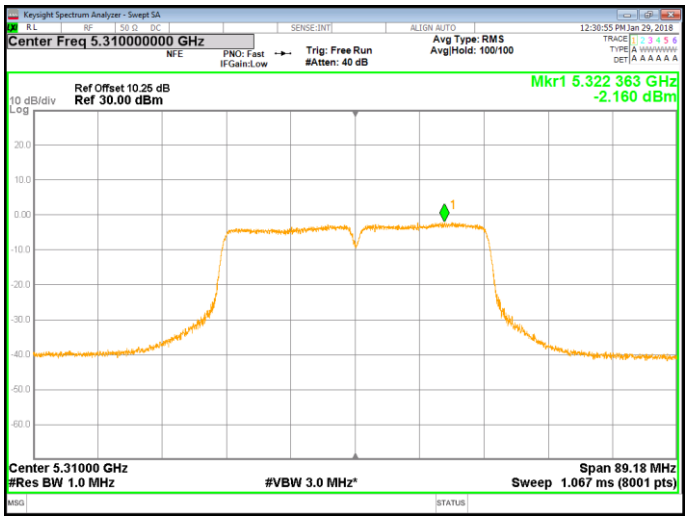

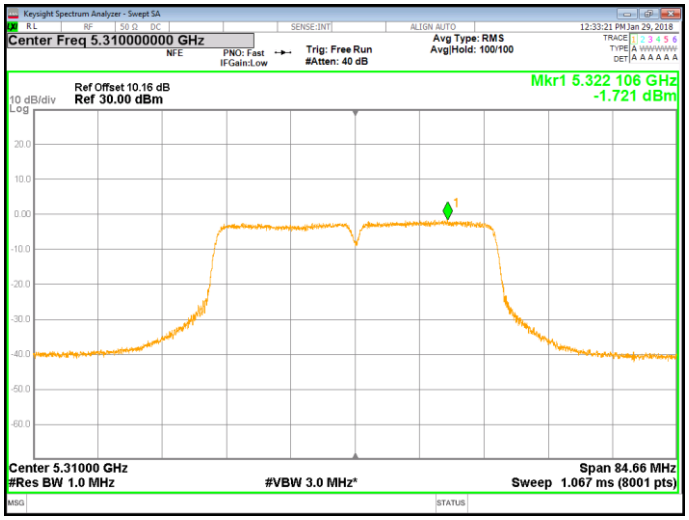

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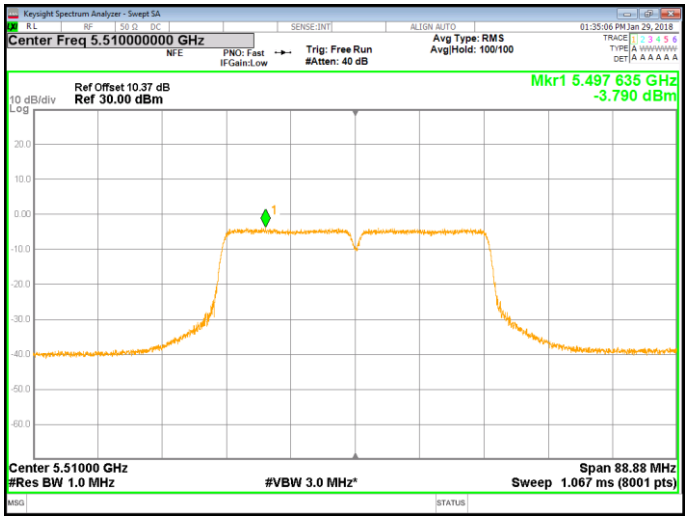

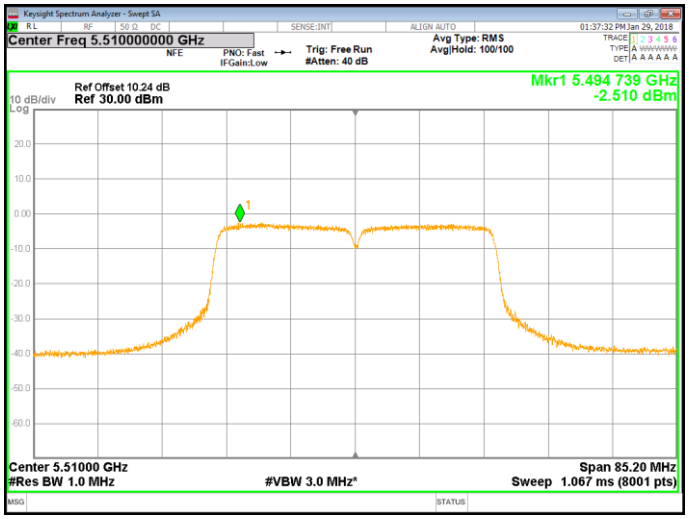

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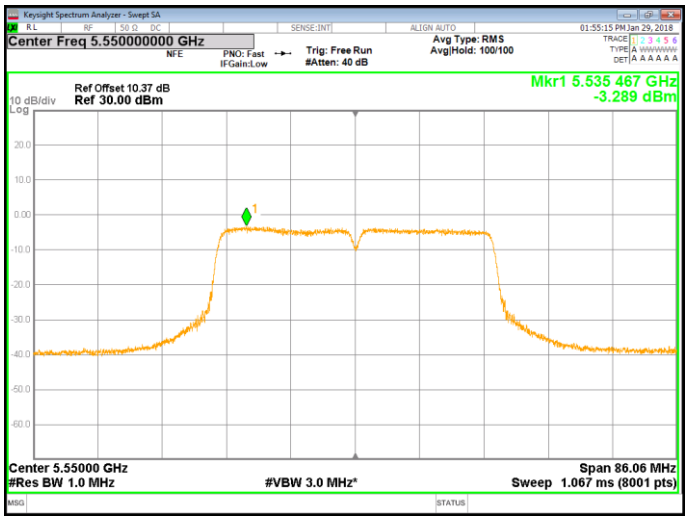

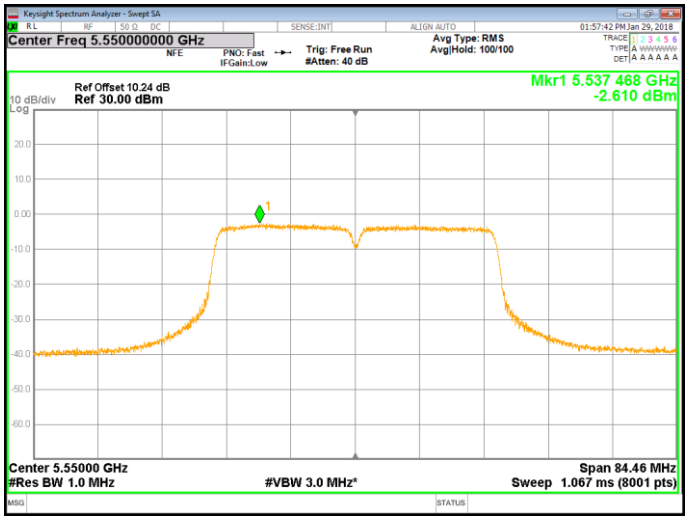

5670MHz