TEST REPORT

Appendix A: Test results of U-NII Band 2a

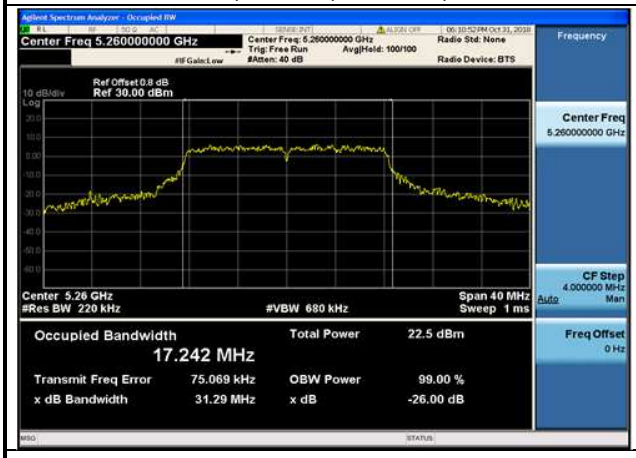
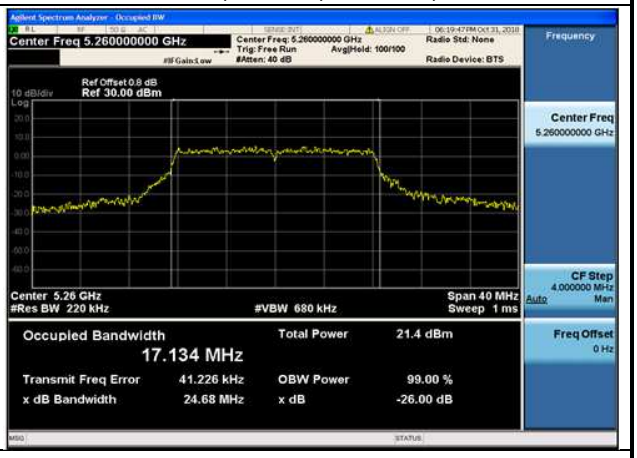
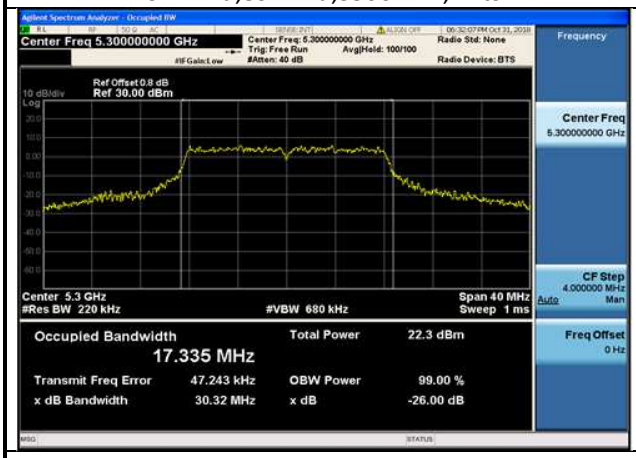
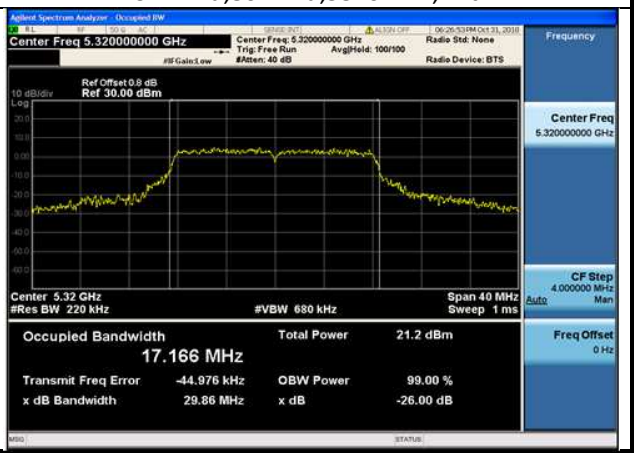
1 Occupied 26 dB Bandwidth

1.1 Test Data

U-NII-2a Occupied 26 dB Bandwidth				
Mode	Test Frequency (MHz)	Ant	Occupied Bandwidth (MHz)	Result
802.11a	5260	Ant0	31.29	Pass
802.11a	5260	Ant1	24.68	Pass
802.11a	5300	Ant0	30.32	Pass
802.11a	5300	Ant1	30.95	Pass
802.11a	5320	Ant0	32.80	Pass
802.11a	5320	Ant1	29.86	Pass
802.11n (HT20)	5260	Ant0	21.32	Pass
802.11n (HT20)	5260	Ant1	24.32	Pass
802.11n (HT20)	5300	Ant0	21.70	Pass
802.11n (HT20)	5300	Ant1	21.39	Pass
802.11n (HT20)	5320	Ant0	21.67	Pass
802.11n (HT20)	5320	Ant1	21.37	Pass
802.11n (HT40)	5270	Ant0	40.00	Pass
802.11n (HT40)	5270	Ant1	39.17	Pass
802.11n (HT40)	5310	Ant0	39.56	Pass
802.11n (HT40)	5310	Ant1	39.52	Pass
802.11ac (VHT80)	5290	Ant0	81.91	Pass
802.11ac (VHT80)	5290	Ant1	81.32	Pass

TEST REPORT

1.2 Test Plots

U-NII-2a,802.11a,5260MHz,Ant0	U-NII-2a,802.11a,5260MHz,Ant1
	
U-NII-2a,802.11a,5300MHz,Ant0	U-NII-2a,802.11a,5300MHz,Ant1
	
U-NII-2a,802.11a,5320MHz,Ant0	U-NII-2a,802.11a,5320MHz,Ant1
	

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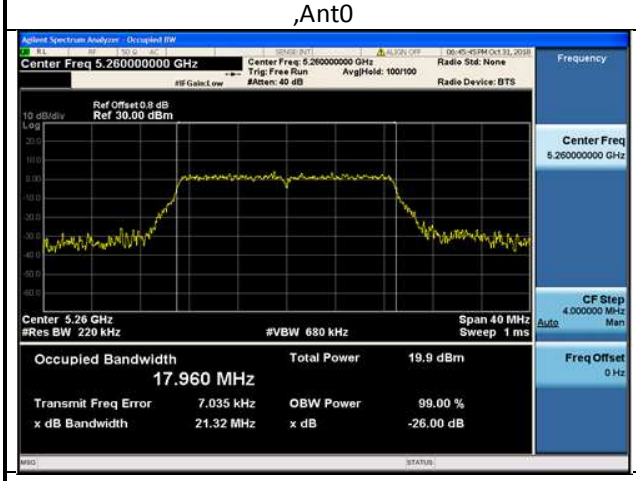
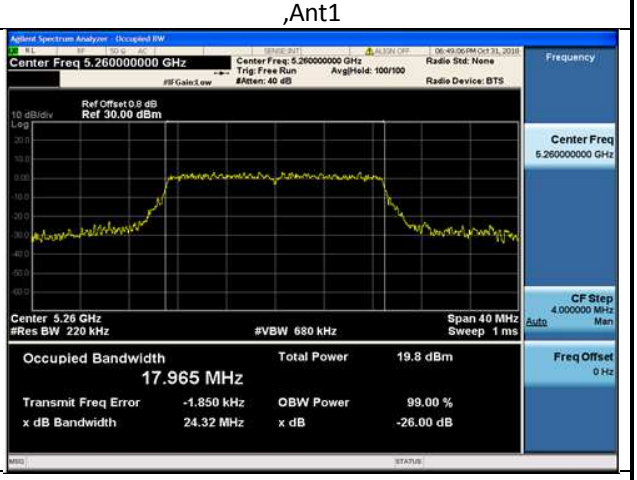
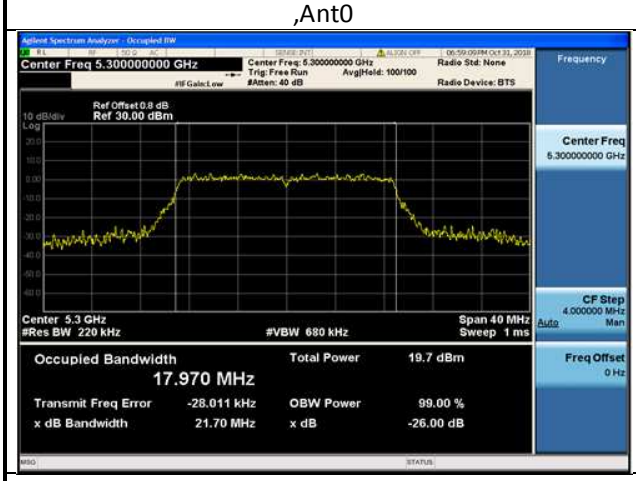
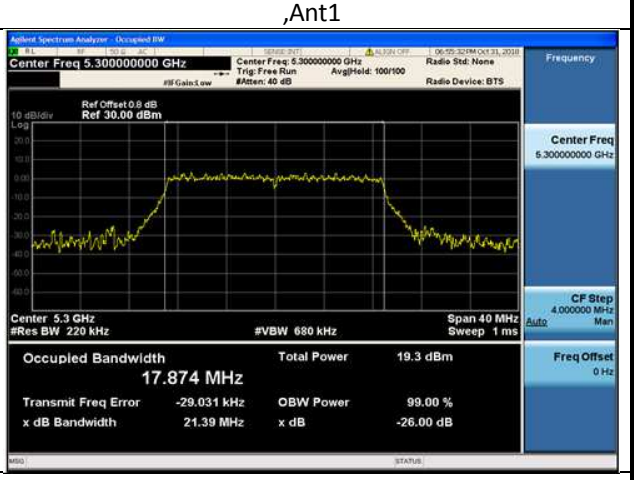
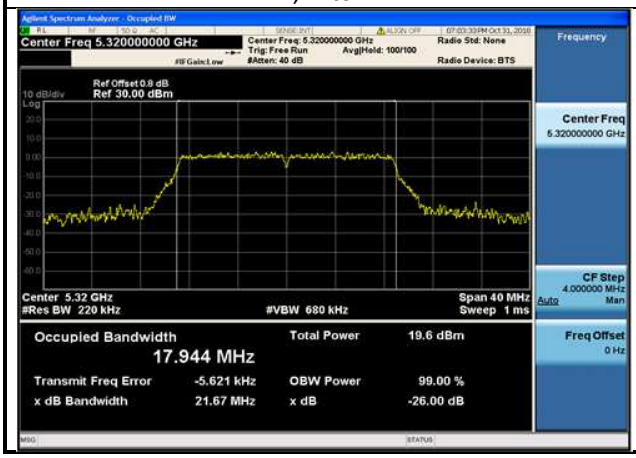
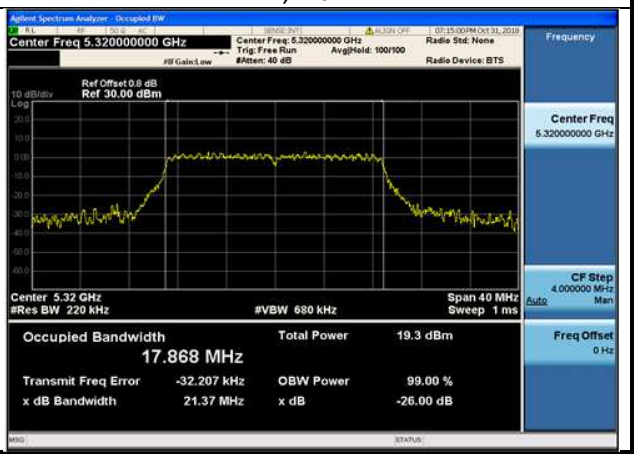
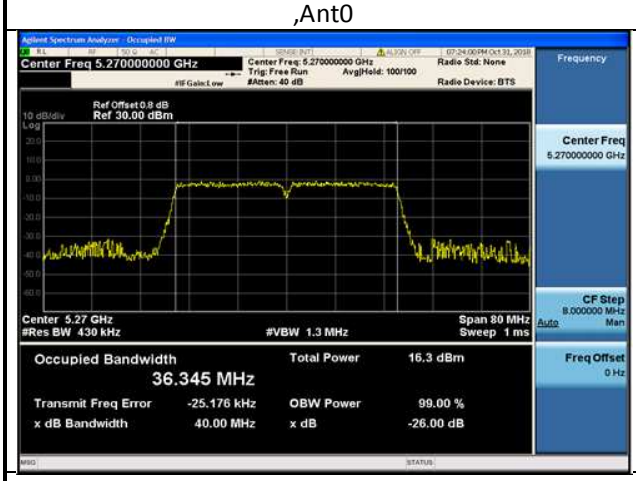
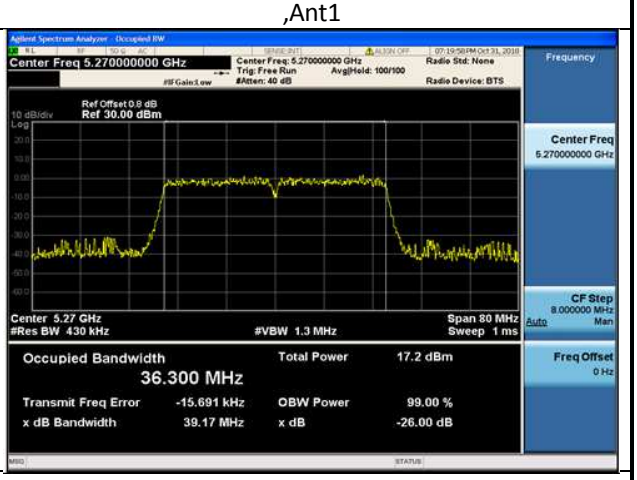
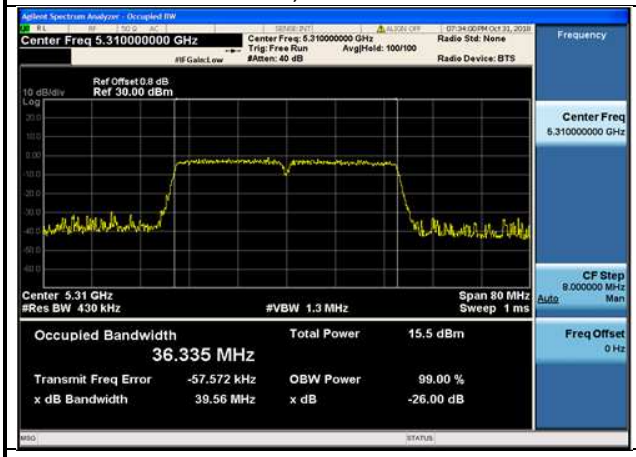
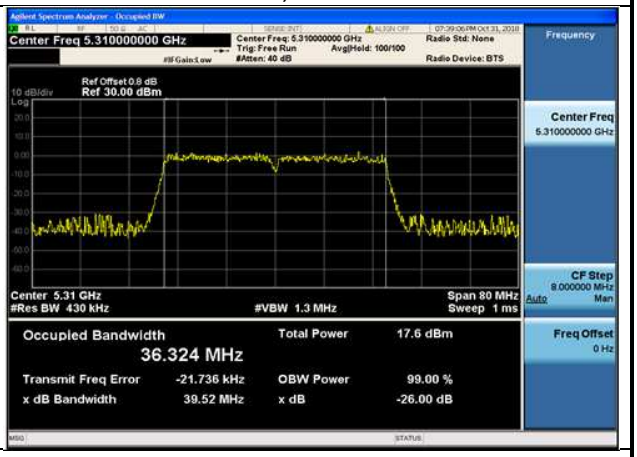
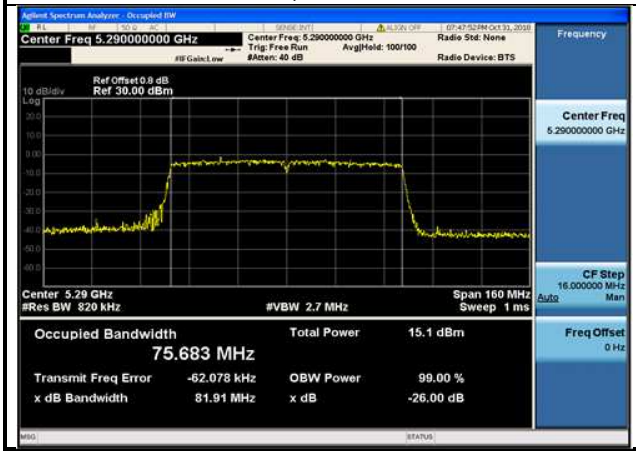
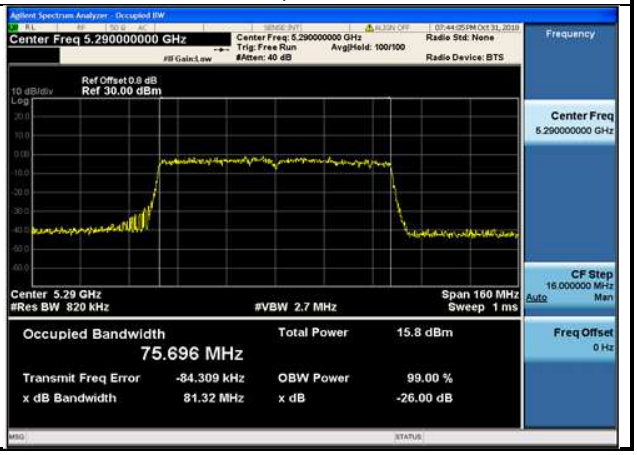
U-NII-2a,802.11n(HT20),5260MHz ,Ant0	U-NII-2a,802.11n(HT20),5260MHz ,Ant1
	
U-NII-2a,802.11n(HT20),5300MHz ,Ant0	U-NII-2a,802.11n(HT20),5300MHz ,Ant1
	
U-NII-2a,802.11n(HT20),5320MHz ,Ant0	U-NII-2a,802.11n(HT20),5320MHz ,Ant1
	

TEST REPORT

U-NII-2a,802.11n(HT40),5270MHz ,Ant0	U-NII-2a,802.11n(HT40),5270MHz ,Ant1
	
U-NII-2a,802.11n(HT40),5310MHz ,Ant0	U-NII-2a,802.11n(HT40),5310MHz ,Ant1
	
U-NII-2a,802.11ac(VHT80),5290MHz ,Ant0	U-NII-2a,802.11ac(VHT80),5290MHz ,Ant1
	

2 99% Occupied Bandwidth

2.1 Test Data

U-NII-2a 99% Occupied Bandwidth				
Mode	Test Frequency (MHz)	Ant	99% Occupied Bandwidth (MHz)	Result
802.11a	5260	Ant0	17.293	Pass
802.11a	5260	Ant1	17.103	Pass
802.11a	5300	Ant0	17.402	Pass
802.11a	5300	Ant1	17.165	Pass
802.11a	5320	Ant0	17.583	Pass
802.11a	5320	Ant1	17.174	Pass
802.11n (HT20)	5260	Ant0	17.919	Pass
802.11n (HT20)	5260	Ant1	17.946	Pass
802.11n (HT20)	5300	Ant0	17.952	Pass
802.11n (HT20)	5300	Ant1	17.877	Pass
802.11n (HT20)	5320	Ant0	17.952	Pass
802.11n (HT20)	5320	Ant1	17.840	Pass
802.11n (HT40)	5270	Ant0	36.350	Pass
802.11n (HT40)	5270	Ant1	36.274	Pass
802.11n (HT40)	5310	Ant0	36.362	Pass
802.11n (HT40)	5310	Ant1	36.283	Pass
802.11ac (VHT80)	5290	Ant0	75.660	Pass
802.11ac (VHT80)	5290	Ant1	75.655	Pass

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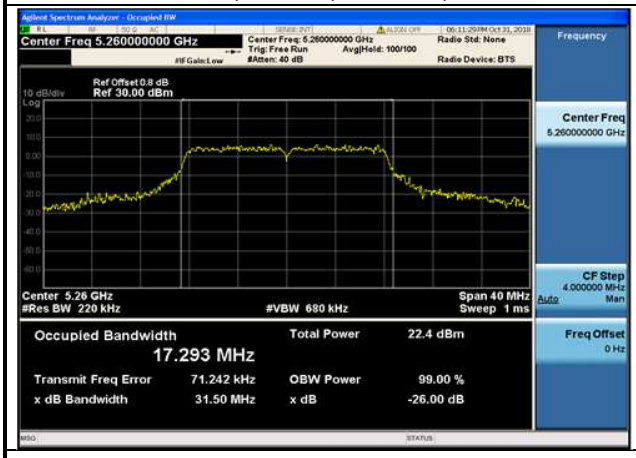
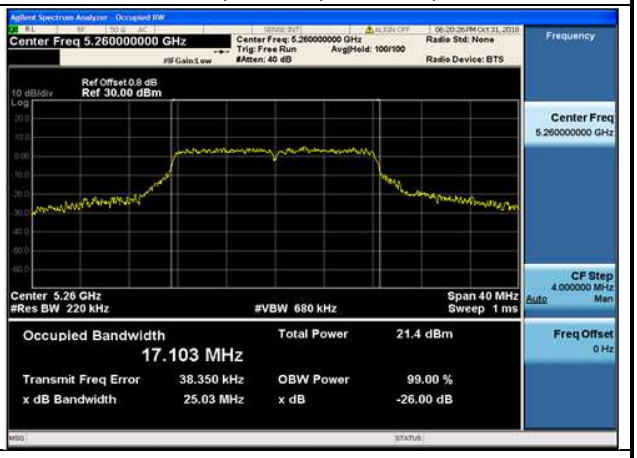
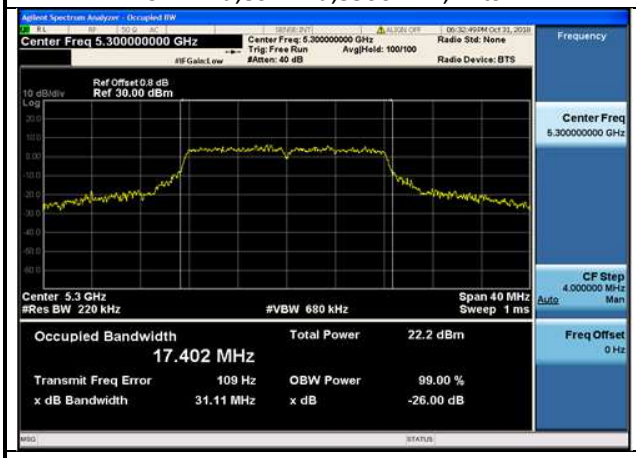
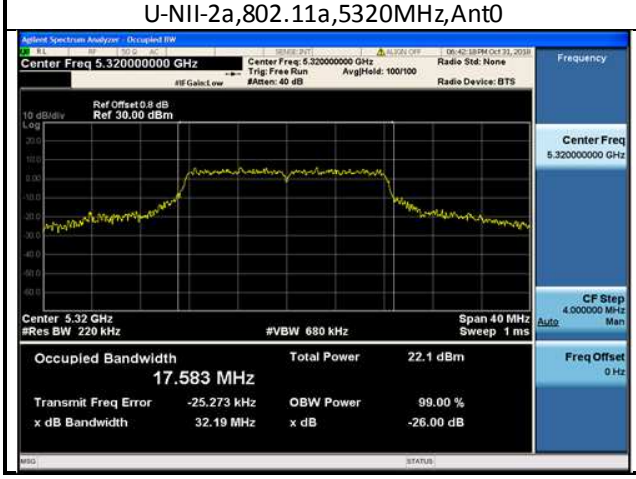
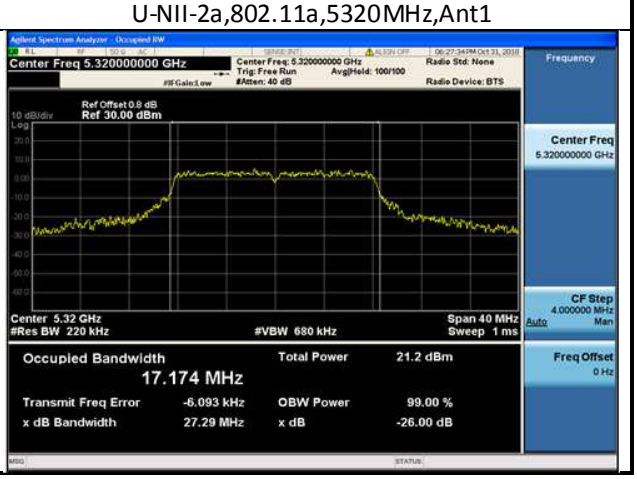
2.2 Test Plots

U-NII-2a,802.11a,5260MHz,Ant0	U-NII-2a,802.11a,5260MHz,Ant1
	
U-NII-2a,802.11a,5300MHz,Ant0	U-NII-2a,802.11a,5300MHz,Ant1
	
U-NII-2a,802.11a,5320MHz,Ant0	U-NII-2a,802.11a,5320MHz,Ant1
	

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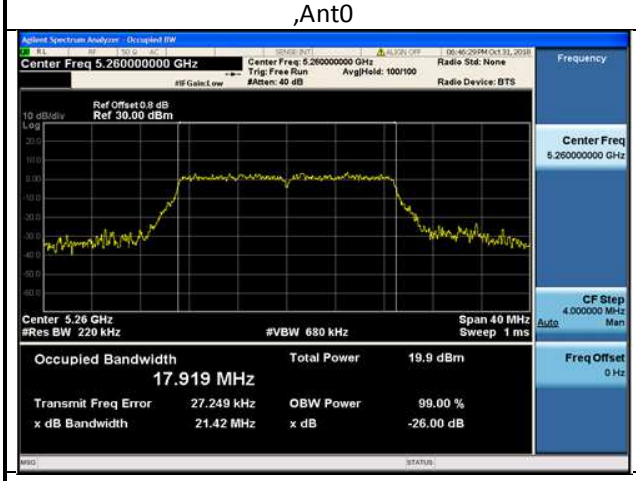
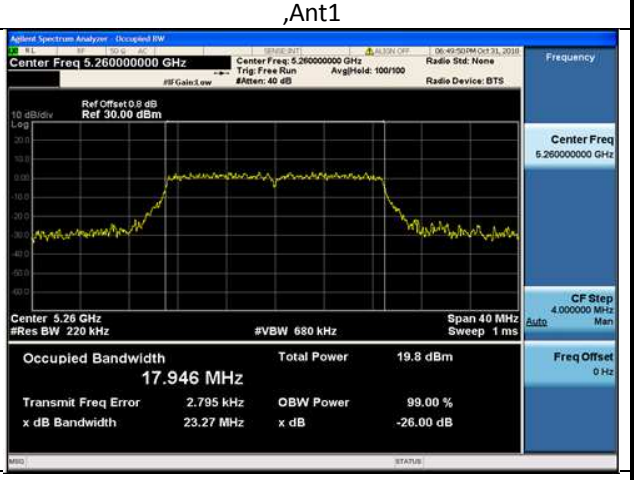
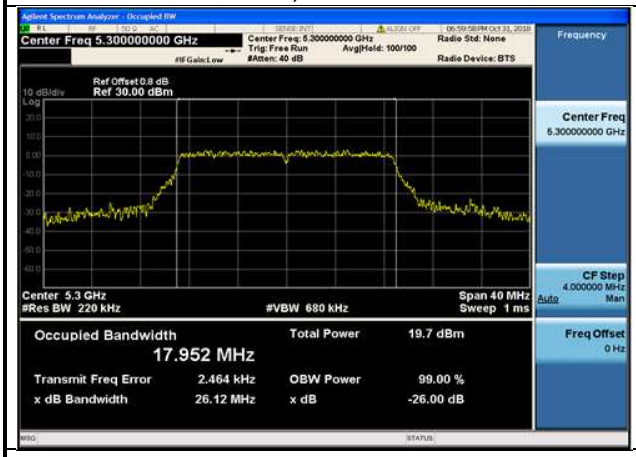
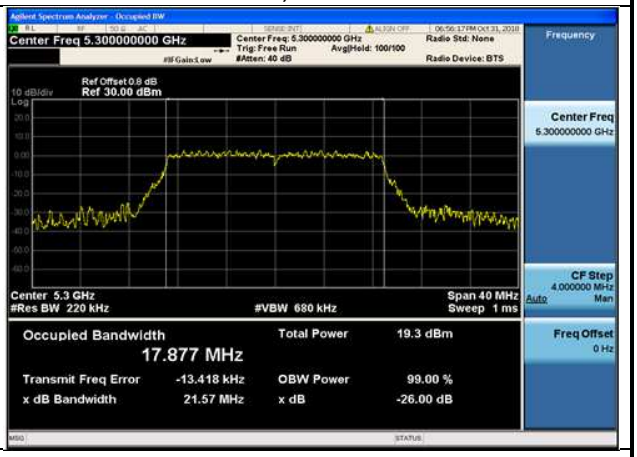
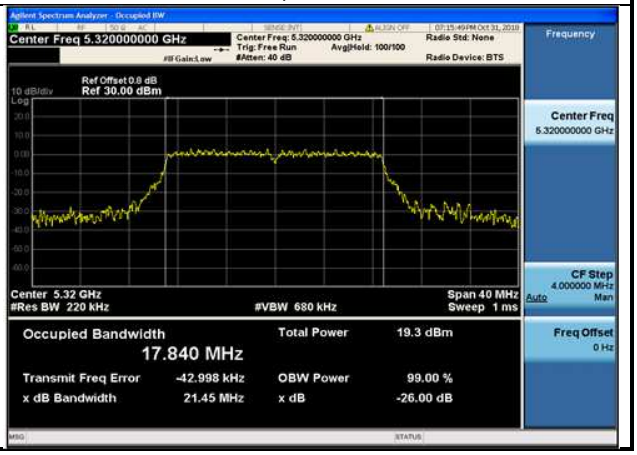
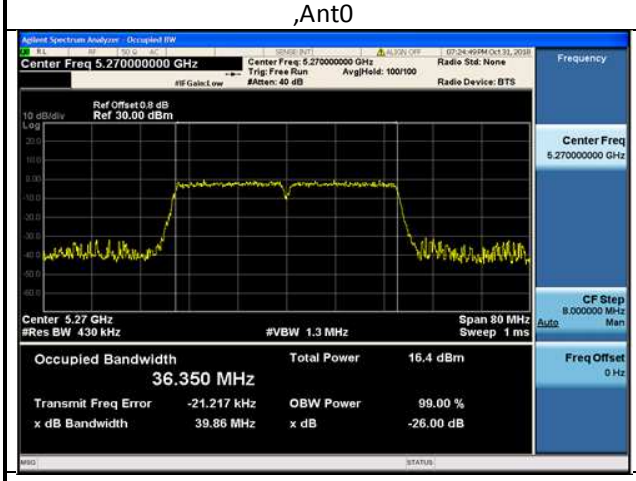
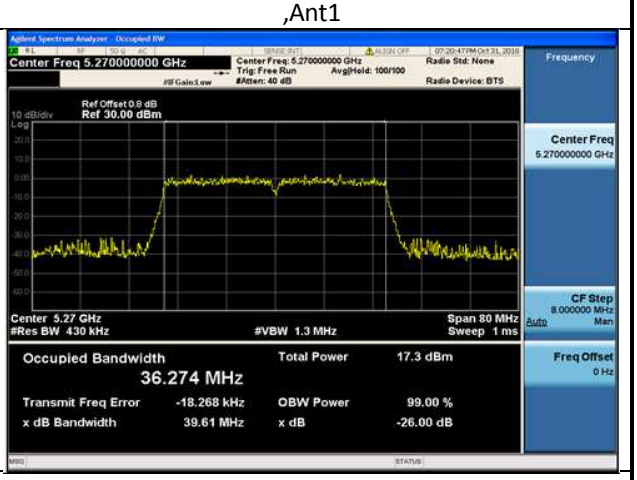
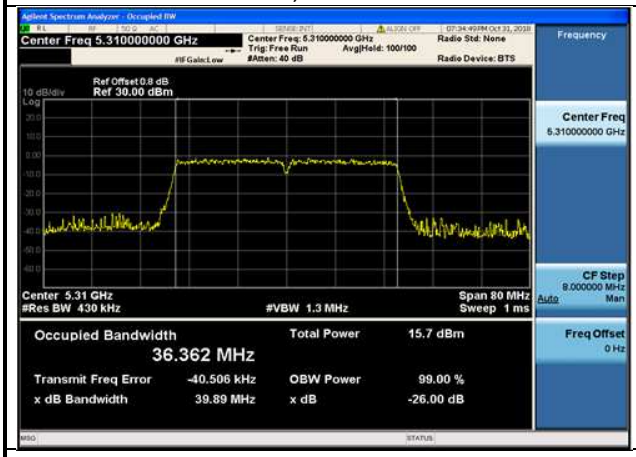
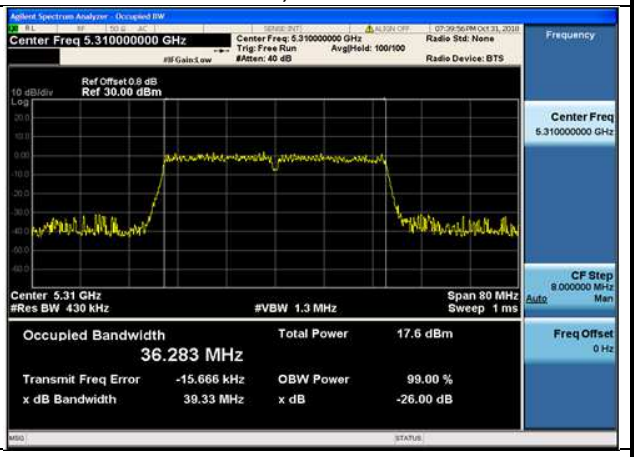
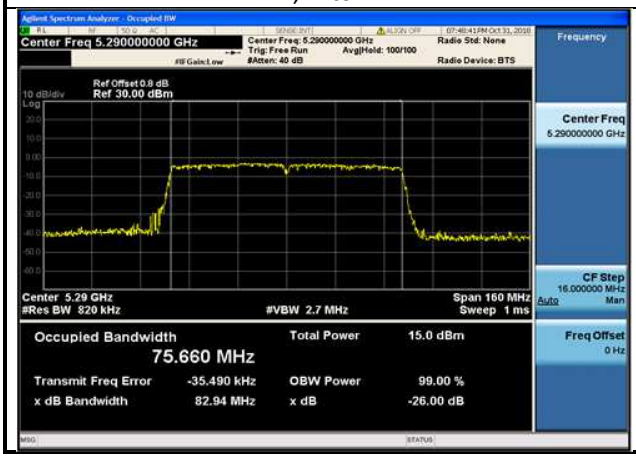
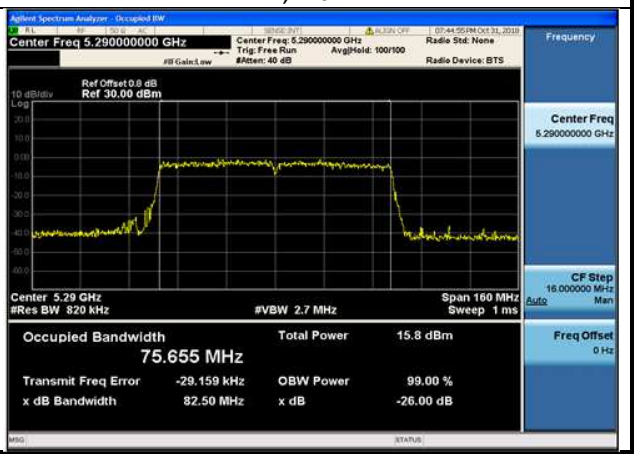
U-NII-2a,802.11n(HT20),5260MHz ,Ant0	U-NII-2a,802.11n(HT20),5260MHz ,Ant1
	
U-NII-2a,802.11n(HT20),5300MHz ,Ant0	U-NII-2a,802.11n(HT20),5300MHz ,Ant1
	
U-NII-2a,802.11n(HT20),5320MHz ,Ant0	U-NII-2a,802.11n(HT20),5320MHz ,Ant1
	

TEST REPORT

U-NII-2a,802.11n(HT40),5270MHz ,Ant0	U-NII-2a,802.11n(HT40),5270MHz ,Ant1
	
U-NII-2a,802.11n(HT40),5310MHz ,Ant0	U-NII-2a,802.11n(HT40),5310MHz ,Ant1
	
U-NII-2a,802.11ac(VHT80),5290MHz ,Ant0	U-NII-2a,802.11ac(VHT80),5290MHz ,Ant1
	

TEST REPORT

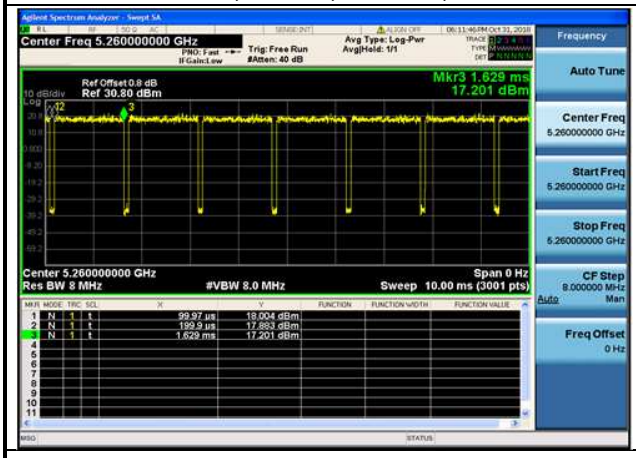
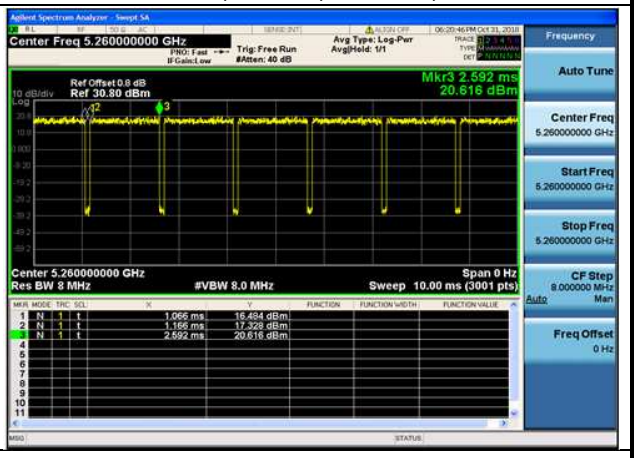
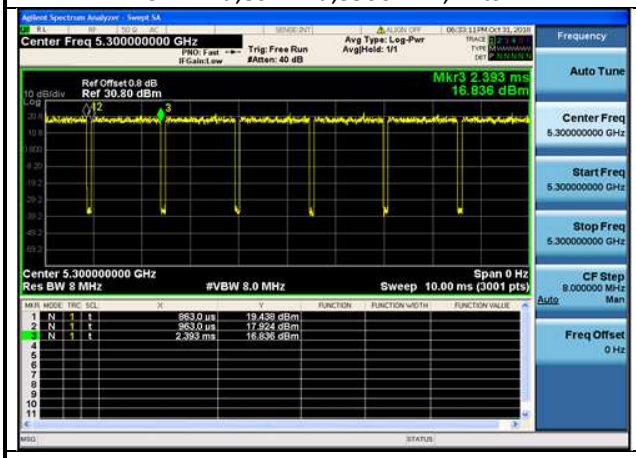
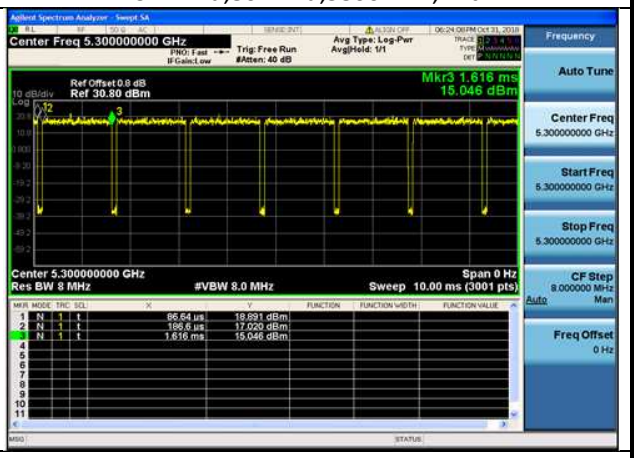
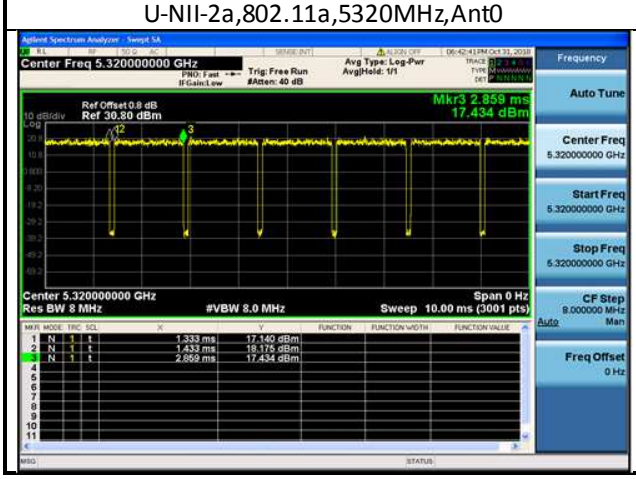
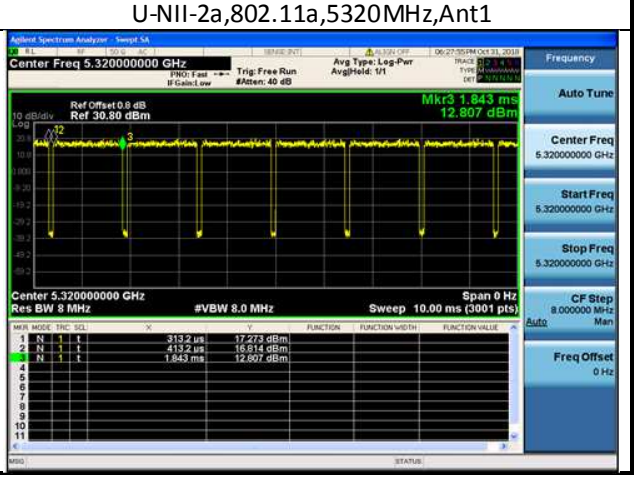
3 Duty Cycle

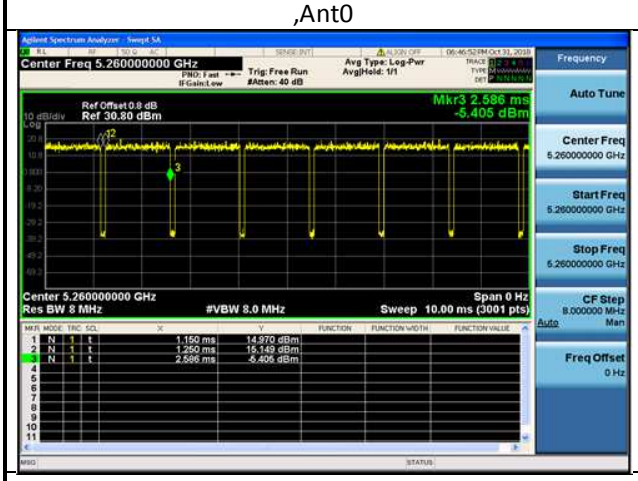
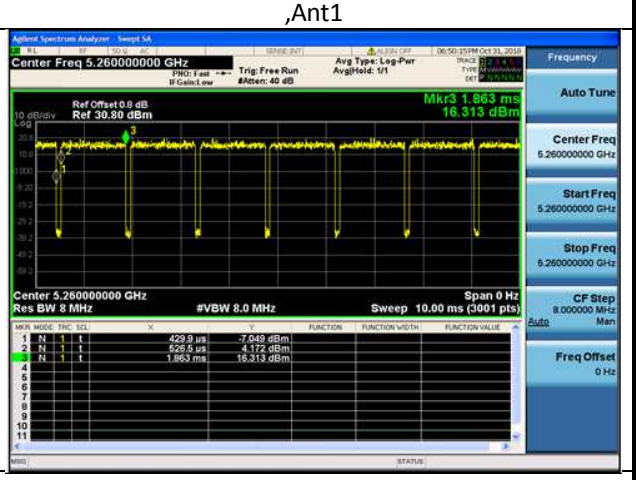
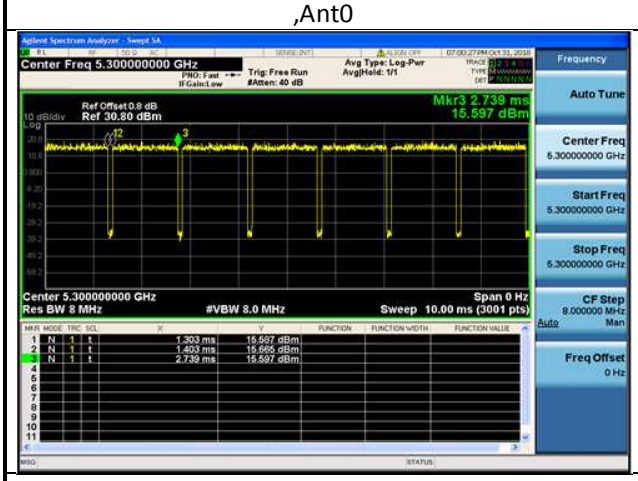
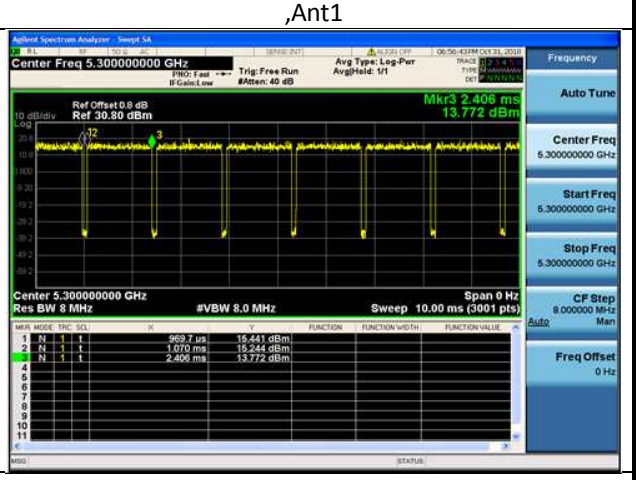
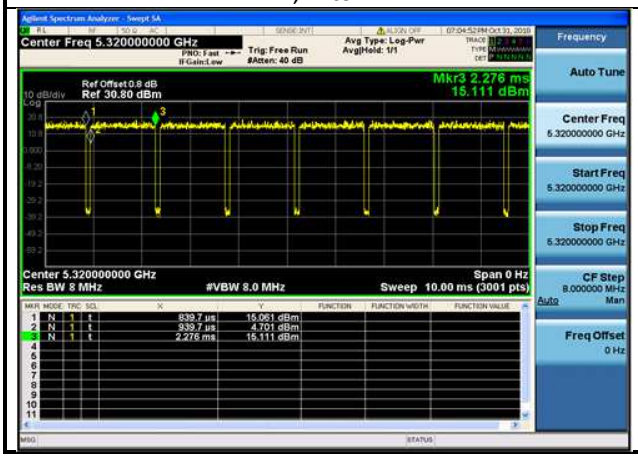
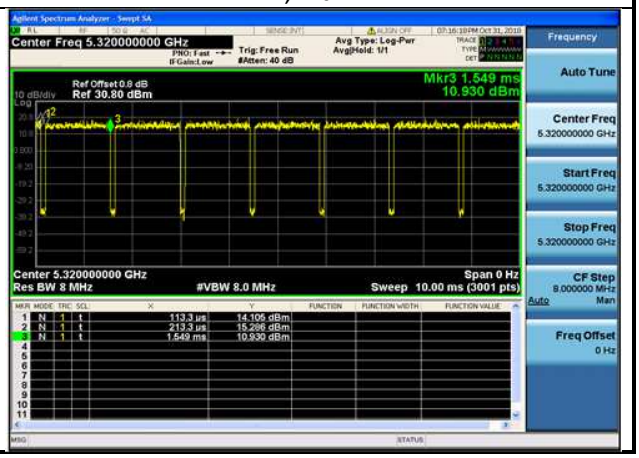
3.1 Test Data

U-NII-2a Duty Cycle				
Mode	Test Frequency (MHz)	Ant	Duty Cycle (%)	Duty Cycle Factor (dB)
802.11a	5260	Ant0	93.46	0.29
802.11a	5260	Ant1	93.45	0.29
802.11a	5300	Ant0	93.46	0.29
802.11a	5300	Ant1	93.46	0.29
802.11a	5320	Ant0	93.45	0.29
802.11a	5320	Ant1	93.46	0.29
802.11n (HT20)	5260	Ant0	93.04	0.31
802.11n (HT20)	5260	Ant1	93.26	0.30
802.11n (HT20)	5300	Ant0	93.04	0.31
802.11n (HT20)	5300	Ant1	93.04	0.31
802.11n (HT20)	5320	Ant0	93.04	0.31
802.11n (HT20)	5320	Ant1	93.04	0.31
802.11n (HT40)	5270	Ant0	86.90	0.61
802.11n (HT40)	5270	Ant1	86.96	0.61
802.11n (HT40)	5310	Ant0	86.90	0.61
802.11n (HT40)	5310	Ant1	86.90	0.61
802.11ac (VHT80)	5290	Ant0	65.71	1.82
802.11ac (VHT80)	5290	Ant1	65.71	1.82

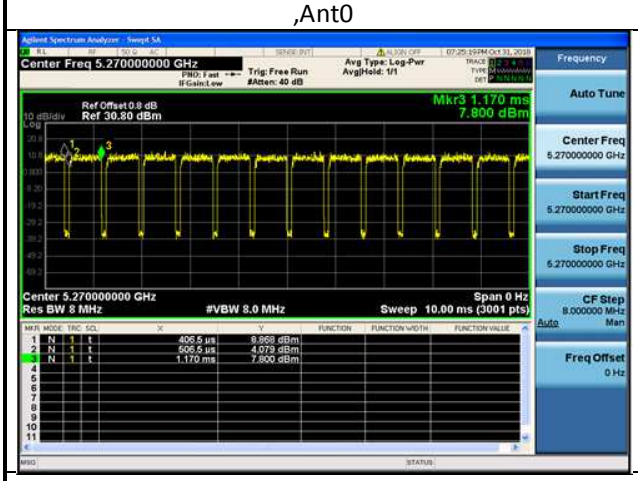
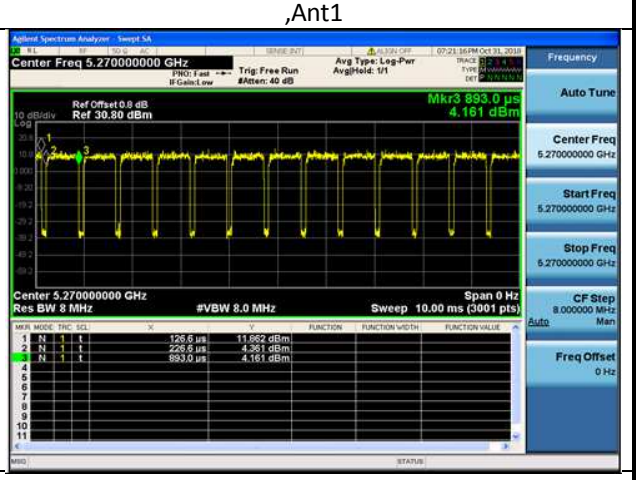
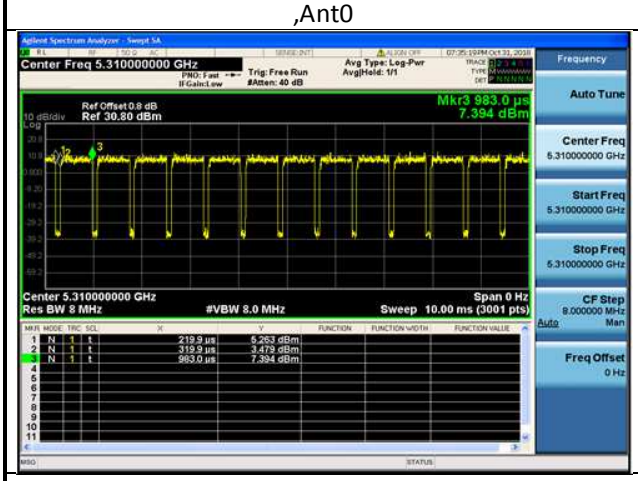
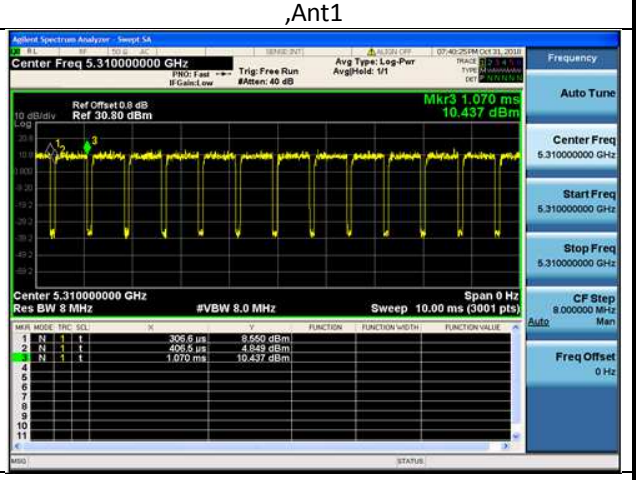
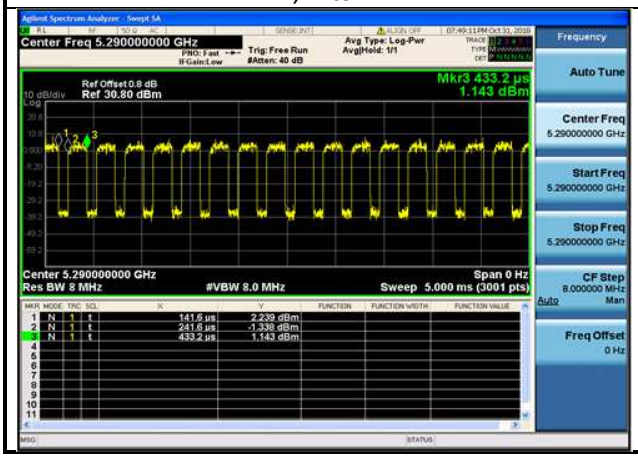
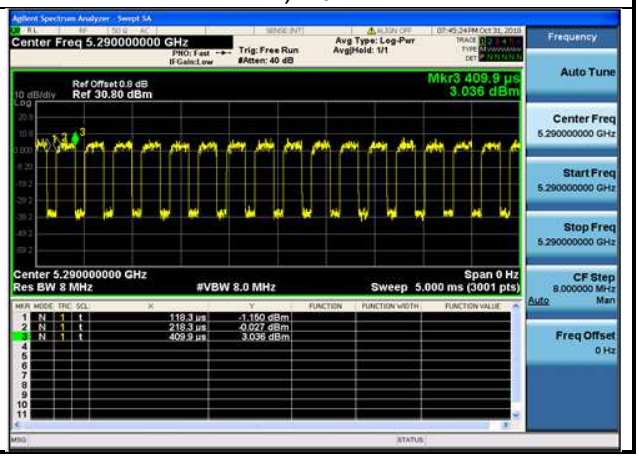
TEST REPORT

3.2 Test Plots

U-NII-2a,802.11a,5260MHz,Ant0	U-NII-2a,802.11a,5260MHz,Ant1
	
U-NII-2a,802.11a,5300MHz,Ant0	U-NII-2a,802.11a,5300MHz,Ant1
	
U-NII-2a,802.11a,5320MHz,Ant0	U-NII-2a,802.11a,5320MHz,Ant1
	

U-NII-2a,802.11n(HT20),5260MHz ,Ant0	U-NII-2a,802.11n(HT20),5260MHz ,Ant1
	
U-NII-2a,802.11n(HT20),5300MHz ,Ant0	U-NII-2a,802.11n(HT20),5300MHz ,Ant1
	
U-NII-2a,802.11n(HT20),5320MHz ,Ant0	U-NII-2a,802.11n(HT20),5320MHz ,Ant1
	

TEST REPORT

U-NII-2a,802.11n(HT40),5270MHz ,Ant0	U-NII-2a,802.11n(HT40),5270MHz ,Ant1
	
U-NII-2a,802.11n(HT40),5310MHz ,Ant0	U-NII-2a,802.11n(HT40),5310MHz ,Ant1
	
U-NII-2a,802.11ac(VHT80),5290MHz ,Ant0	U-NII-2a,802.11ac(VHT80),5290MHz ,Ant1
	

4 AVGSA Output Power

4.1 Test Data

U-NII-2a AVGSA Output Power							
Mode	Test Frequency (MHz)	Ant	Duty Cycle Factor (dB)	Max Power (dBm)	Limit (dBm)	EIRP (dBm)	Result
802.11a	5260	Ant0	0.29	16.40	24	20.30	Pass
802.11a	5260	Ant1	0.29	15.33	24	19.23	Pass
802.11a	5300	Ant0	0.29	16.11	24	20.01	Pass
802.11a	5300	Ant1	0.29	15.16	24	19.06	Pass
802.11a	5320	Ant0	0.29	16.01	24	19.91	Pass
802.11a	5320	Ant1	0.29	15.08	24	18.98	Pass
802.11n (HT20)	5260	Ant0	0.31	13.66	24	17.56	Pass
802.11n (HT20)	5260	Ant1	0.30	13.77	24	17.67	Pass
802.11n (HT20)	5300	Ant0	0.31	13.54	24	17.44	Pass
802.11n (HT20)	5300	Ant1	0.31	13.28	24	17.18	Pass
802.11n (HT20)	5320	Ant0	0.31	13.29	24	17.19	Pass
802.11n (HT20)	5320	Ant1	0.31	13.29	24	17.19	Pass
802.11n (HT40)	5270	Ant0	0.61	10.17	24	14.07	Pass
802.11n (HT40)	5270	Ant1	0.61	10.59	24	14.49	Pass
802.11n (HT40)	5310	Ant0	0.61	9.42	24	13.32	Pass
802.11n (HT40)	5310	Ant1	0.61	10.94	24	14.84	Pass
802.11ac (VHT80)	5290	Ant0	1.82	8.16	24	12.06	Pass
802.11ac (VHT80)	5290	Ant1	1.82	8.64	24	12.54	Pass

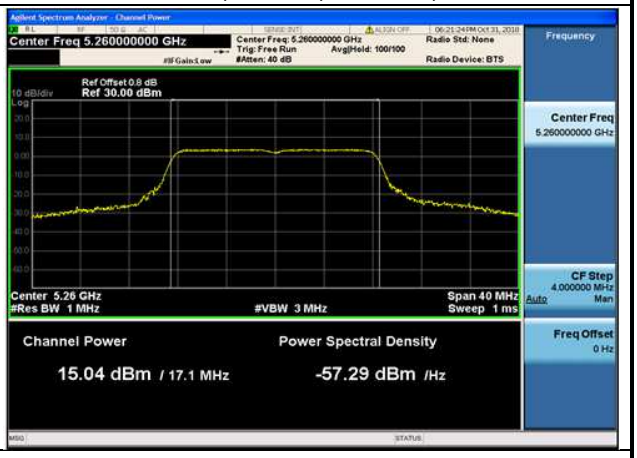
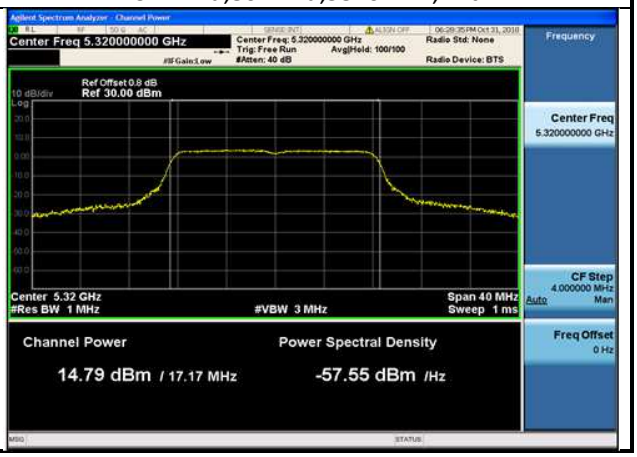
TEST REPORT

Mode	Frequency (MHz)	Reading + Duty cycle factor (dBm)		Max Power (dBm)	Limit (dBm)
		Ant 0	Ant 1		
802.11 a	5260	16.40	15.33	16.40	24.00
	5300	16.11	15.16	16.11	24.00
	5320	16.01	15.08	16.01	24.00

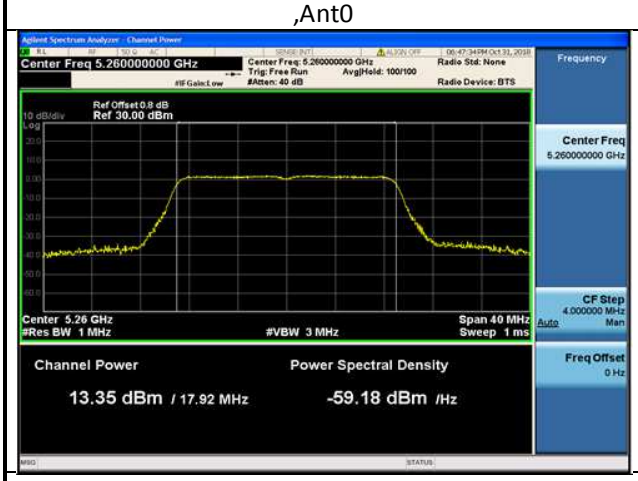
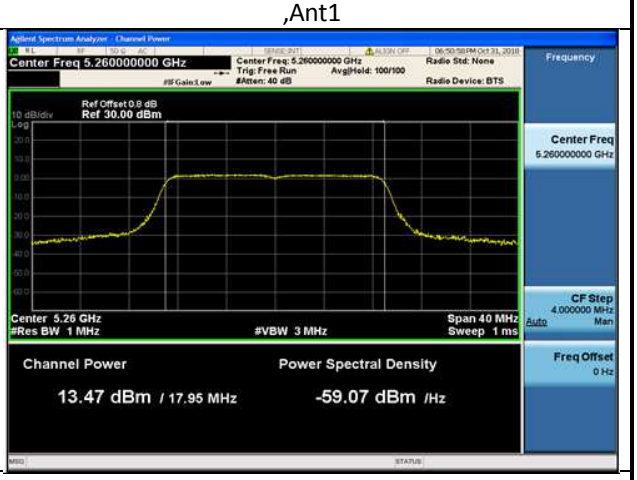
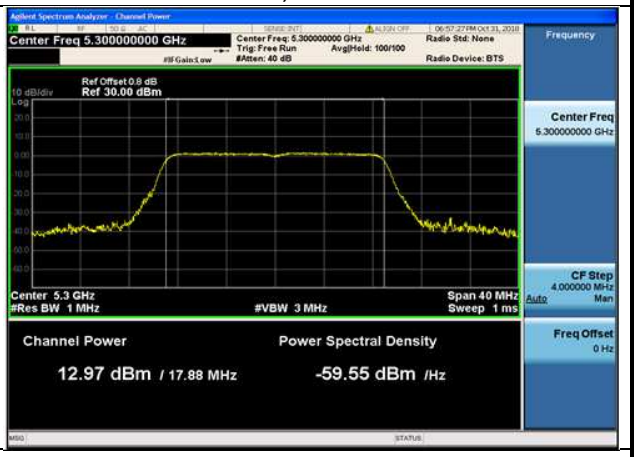
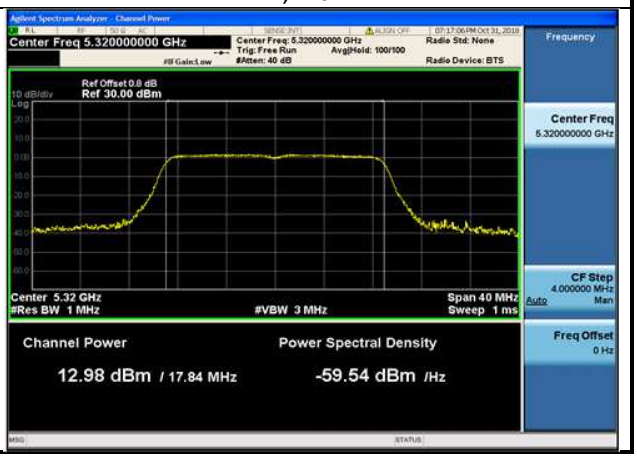
Mode	Frequency (MHz)	Reading + Duty cycle factor (dBm)		Total Power (dBm)	Limit (dBm)
		Ant 0	Ant 1		
802.11n20	5260	13.66	13.77	**16.73**	24.00
	5300	13.54	13.28	16.42	24.00
	5320	13.29	13.29	16.30	24.00
802.11n40	5270	10.17	10.59	13.40	24.00
	5310	9.42	10.94	13.26	24.00
802.11ac80	5290	8.16	8.64	11.42	24.00
Note: Total power = $10 * \lg(10^{Ant\,0\,/\,10} + 10^{Ant\,1\,/\,10})$.					

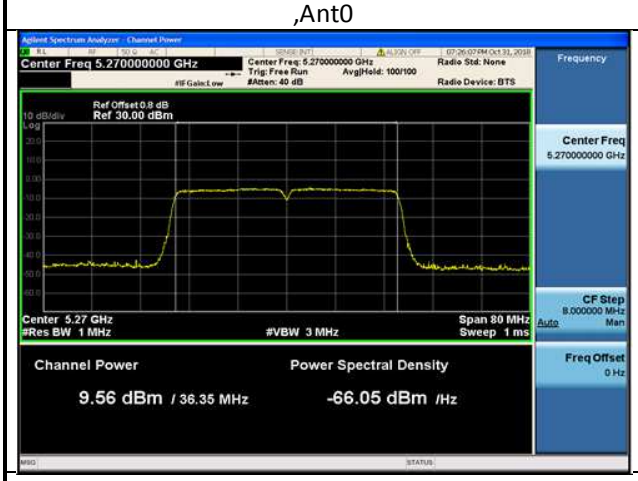
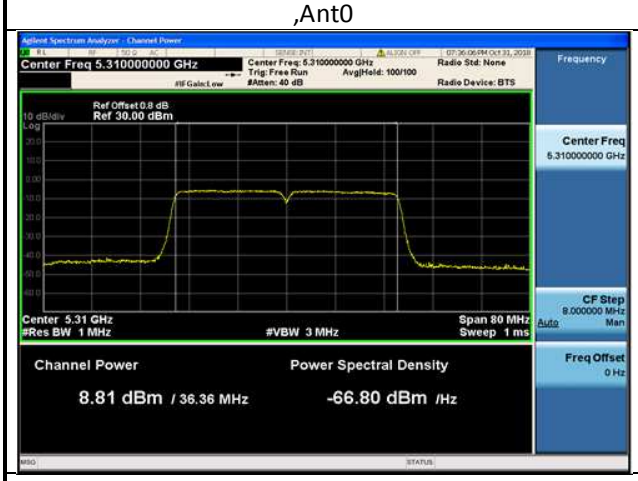
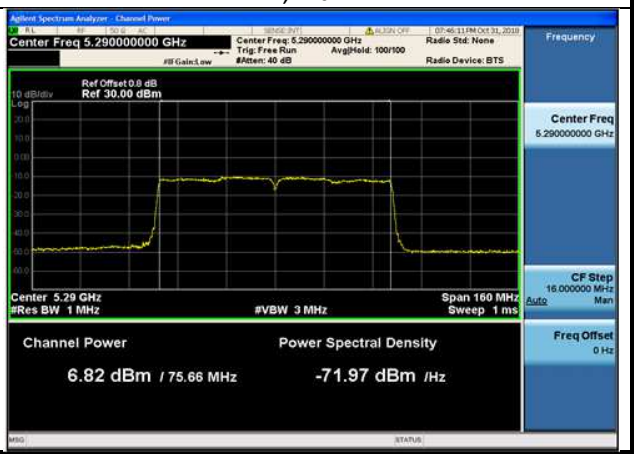
Conclusion: The maximum EIRP = 16.73dBm+3.9dBi = 20.63dBm = **0.116**W which is lower than the limit of 1W listed in RSS-247.

4.2 Test Plots

U-NII-2a,802.11a,5260MHz,Ant0	U-NII-2a,802.11a,5260MHz,Ant1
	
U-NII-2a,802.11a,5300MHz,Ant0	U-NII-2a,802.11a,5300MHz,Ant1
	
U-NII-2a,802.11a,5320MHz,Ant0	U-NII-2a,802.11a,5320MHz,Ant1
	

TEST REPORT

U-NII-2a,802.11n(HT20),5260MHz ,Ant0	U-NII-2a,802.11n(HT20),5260MHz ,Ant1
	
U-NII-2a,802.11n(HT20),5300MHz ,Ant0	U-NII-2a,802.11n(HT20),5300MHz ,Ant1
	
U-NII-2a,802.11n(HT20),5320MHz ,Ant0	U-NII-2a,802.11n(HT20),5320MHz ,Ant1
	

U-NII-2a,802.11n(HT40),5270MHz ,Ant0	U-NII-2a,802.11n(HT40),5270MHz ,Ant1
	
U-NII-2a,802.11n(HT40),5310MHz ,Ant0	U-NII-2a,802.11n(HT40),5310MHz ,Ant1
	
U-NII-2a,802.11ac(VHT80),5290MHz ,Ant0	U-NII-2a,802.11ac(VHT80),5290MHz ,Ant1
	

5 AVGSA Power Spectral Density

5.1 Test Data

U-NII-2a AVGSA Power Spectral Density							
Mode	Test Frequency (MHz)	Ant	Duty Cycle Factor (dB)	PSD (dBm)	RBW (kHz)	Limit (dBm)	Result
802.11a	5260	Ant0	0.29	5.376	1000	11	Pass
802.11a	5260	Ant1	0.29	4.332	1000	11	Pass
802.11a	5300	Ant0	0.29	5.049	1000	11	Pass
802.11a	5300	Ant1	0.29	4.191	1000	11	Pass
802.11a	5320	Ant0	0.29	5.008	1000	11	Pass
802.11a	5320	Ant1	0.29	4.022	1000	11	Pass
802.11n (HT20)	5260	Ant0	0.31	2.303	1000	11	Pass
802.11n (HT20)	5260	Ant1	0.30	2.467	1000	11	Pass
802.11n (HT20)	5300	Ant0	0.31	2.492	1000	11	Pass
802.11n (HT20)	5300	Ant1	0.31	1.995	1000	11	Pass
802.11n (HT20)	5320	Ant0	0.31	2.008	1000	11	Pass
802.11n (HT20)	5320	Ant1	0.31	1.778	1000	11	Pass
802.11n (HT40)	5270	Ant0	0.61	-5.489	1000	11	Pass
802.11n (HT40)	5270	Ant1	0.61	-3.510	1000	11	Pass
802.11n (HT40)	5310	Ant0	0.61	-4.839	1000	11	Pass
802.11n (HT40)	5310	Ant1	0.61	-3.219	1000	11	Pass
802.11ac (VHT80)	5290	Ant0	1.82	-8.684	1000	11	Pass
802.11ac (VHT80)	5290	Ant1	1.82	-8.433	1000	11	Pass

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Mode	Frequency (MHz)	Reading + Duty cycle factor (dBm)		Max PSD (dBm)	Limit (dBm)
		Ant 0	Ant 1		
802.11 a	5260	5.376	4.332	5.376	11.00
	5300	5.049	4.191	5.049	11.00
	5320	5.008	4.022	5.008	11.00

Mode	Frequency (MHz)	Reading + Duty cycle factor (dBm)		Total PSD (dBm)	Limit (dBm)
		Ant 0	Ant 1		
802.11n20	5260	2.303	2.467	**5.396**	11.00
	5300	2.492	1.995	5.261	11.00
	5320	2.008	1.778	4.905	11.00
802.11n40	5270	-5.489	-3.510	-1.377	11.00
	5310	-4.839	-3.219	-0.944	11.00
802.11ac80	5290	-8.684	-8.433	-5.546	11.00
Note: Total PSD = $10 * lg(10^{Ant\ 0 / 10} + 10^{Ant\ 1 / 10})$.					

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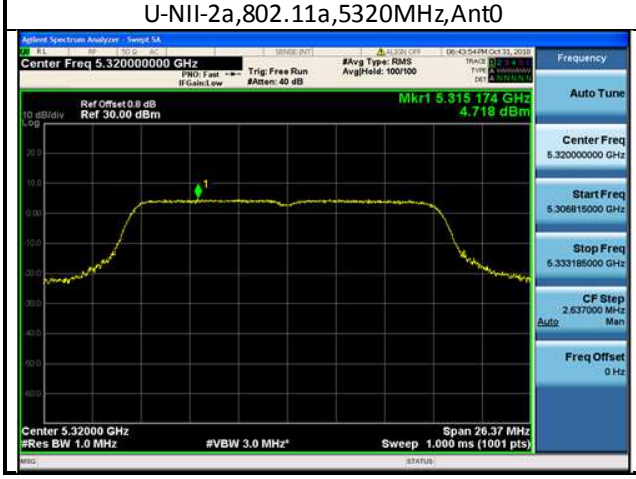
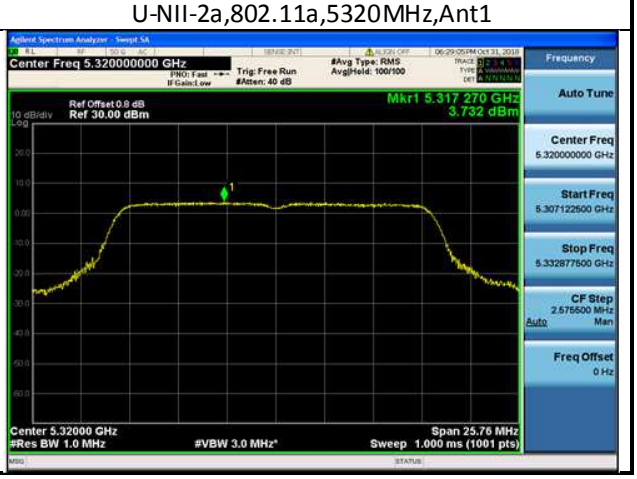
5.2 Test Plots

U-NII-2a,802.11a,5260MHz,Ant0	U-NII-2a,802.11a,5260MHz,Ant1
	
U-NII-2a,802.11a,5300MHz,Ant0	U-NII-2a,802.11a,5300MHz,Ant1
	
U-NII-2a,802.11a,5320MHz,Ant0	U-NII-2a,802.11a,5320MHz,Ant1
	

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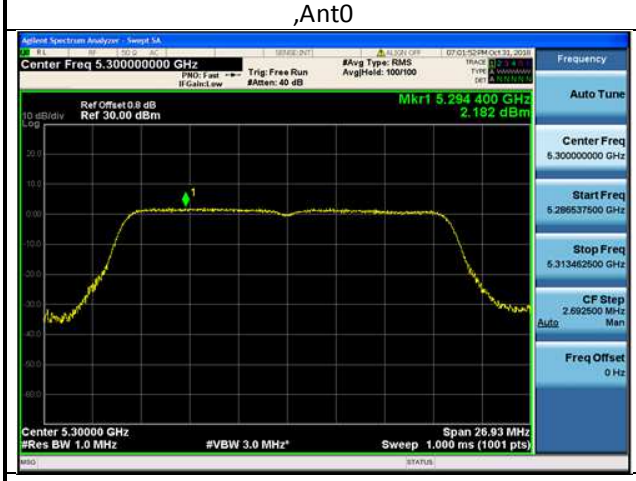
U-NII-2a,802.11n(HT20),5260MHz ,Ant0	U-NII-2a,802.11n(HT20),5260MHz ,Ant1
	
U-NII-2a,802.11n(HT20),5300MHz ,Ant0	U-NII-2a,802.11n(HT20),5300MHz ,Ant1
	
U-NII-2a,802.11n(HT20),5320MHz ,Ant0	U-NII-2a,802.11n(HT20),5320MHz ,Ant1
	

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U-NII-2a,802.11n(HT40),5270MHz, Ant0	U-NII-2a,802.11n(HT40),5270MHz, Ant1
	
U-NII-2a,802.11n(HT40),5310MHz, Ant0	U-NII-2a,802.11n(HT40),5310MHz, Ant1
	
U-NII-2a,802.11ac(VHT80),5290MHz, Ant0	U-NII-2a,802.11ac(VHT80),5290MHz, Ant1
	

********** END **********