APPENDIX A – TEST DATA OF CONDUCTED EMISSION

Output Power Result

In order to find the worst case condition, Pre-tests are needed at the presence of different data rate. Data rate below means worst-case rate of each test item.

Worst-case data rates are shown as following table.

Test Mode	Data Rate
802.11a	6Mbps
802.11n HT20	MCS0(6.5 Mbps)
802.11n HT40	MCS0(13.5 Mbps)

Duty Cycle Result

Mode	Duty Cycle (%)	Correction Factor(dB)
802.11a	87.42	0.582
802.11n HT20	86.72	0.619
802.11n HT40	76.34	1.172

Correction factor = 10* log (1/duty cycle)

Output Power

Band	Test Mode	Frequency (MHz)	Average Power (dBm)	Limit(dBm)
U-NII-1	802.11a	5180	14.59	24.0
	802.11a	5200	14.62	24.0
	802.11a	5240	14.66	24.0
	802.11n HT20	5180	14.67	24.0
	802.11n HT20	5200	14.77	24.0
	802.11n HT20	5240	14.73	24.0
	802.11n HT40	5190	14.53	24.0
	802.11n HT40	5230	14.57	24.0
U-NII-2A	802.11a	5260	14.62	24.0
	802.11a	5300	14.58	24.0
	802.11a	5320	14.64	24.0
	802.11n HT20	5260	14.75	24.0
	802.11n HT20	5300	14.79	24.0
	802.11n HT20	5320	14.69	24.0
	802.11n HT40	5270	14.44	24.0
	802.11n HT40	5310	14.47	24.0
U-NII-2C	802.11a	5500	14.72	24.0
	802.11a	5580	14.68	24.0
	802.11a	5700	14.65	24.0
	802.11n HT20	5500	14.73	24.0
	802.11n HT20	5580	14.77	24.0
	802.11n HT20	5700	14.74	24.0
	802.11n HT40	5510	14.41	24.0
	802.11n HT40	5670	14.44	24.0
U-NII-3	802.11a	5745	14.63	30.0
	802.11a	5785	14.58	30.0
	802.11a	5825	14.62	30.0
	802.11n HT20	5745	14.73	30.0
	802.11n HT20	5785	14.80	30.0
	802.11n HT20	5825	14.81	30.0
	802.11n HT40	5755	14.48	30.0
	802.11n HT40	5795	14.43	30.0

We chose the Worst-modes are shown as following table:

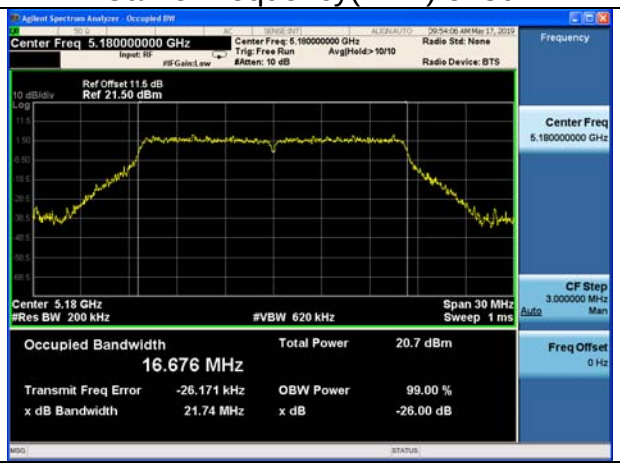
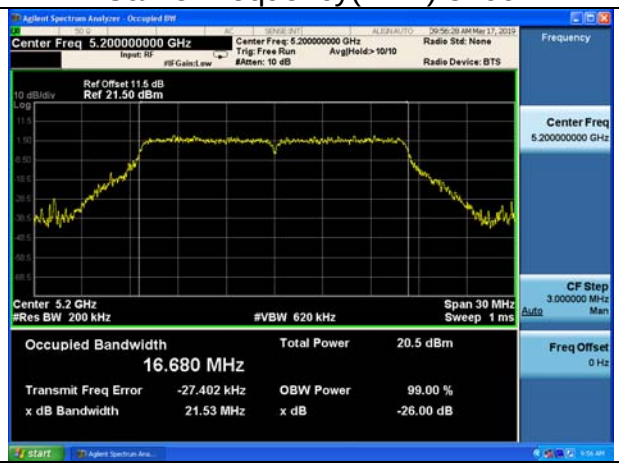
Test Mode	Note
802.11a	---
802.11n HT20	---
802.11n HT40	---

Occupied Bandwidth

Offset 11.5dB = Attenuator 10dB+ Temporary antenna connector loss 0.2dB+ Cable loss 1.3dB

Test Mode: 802.11a

Carrier frequency (MHz)	99% Bandwidth(MHz)	Minimum 26dB Bandwidth(MHz)	Conclusion
5180	16.676	21.74	pass
5200	16.680	21.53	pass
5240	16.660	21.00	pass
5260	16.666	21.59	pass
5300	16.680	21.39	pass
5320	16.678	21.49	pass
5500	16.680	21.23	pass
5580	16.708	21.36	pass
5700	16.700	21.63	pass
5745	16.657	21.35	pass
5785	16.691	21.56	pass
5825	16.703	21.51	pass

802.11a Carrier frequency(MHz):5180	802.11a Carrier frequency(MHz):5200
	

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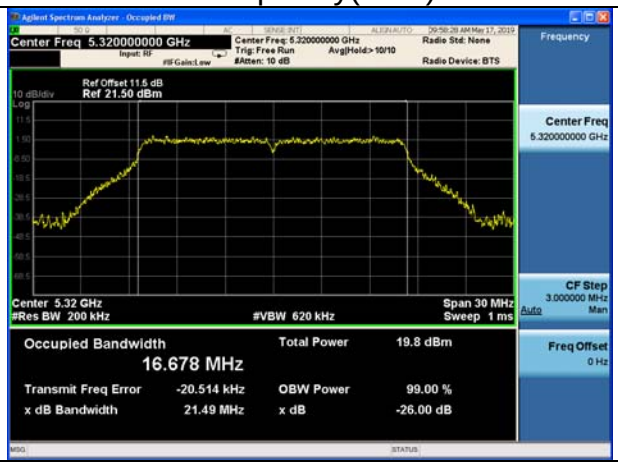
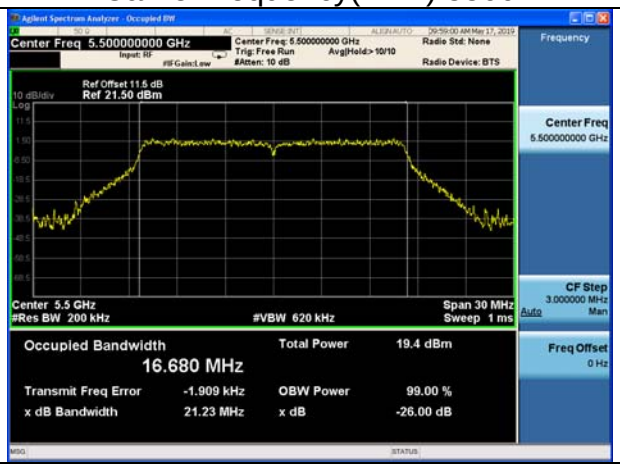
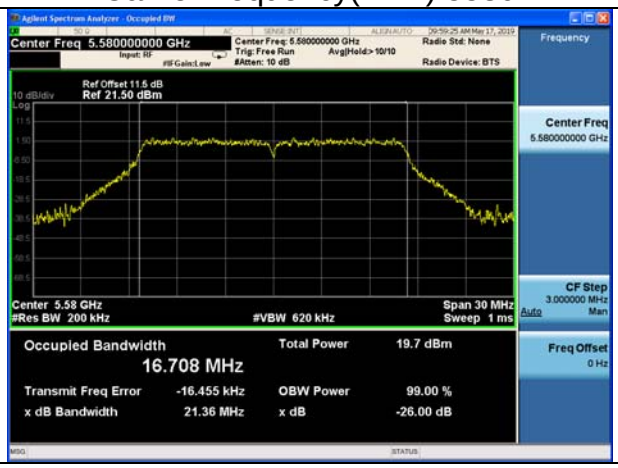
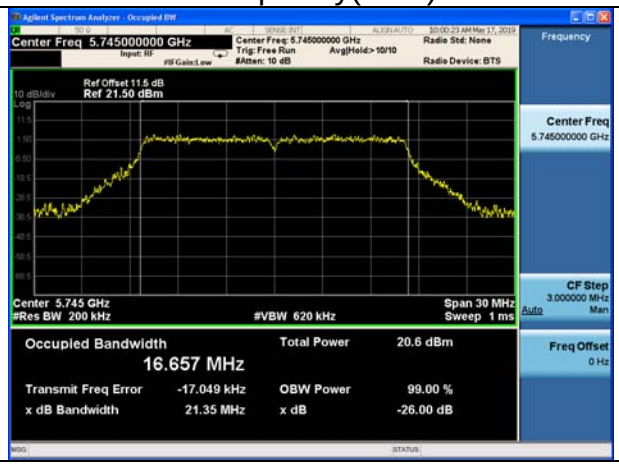
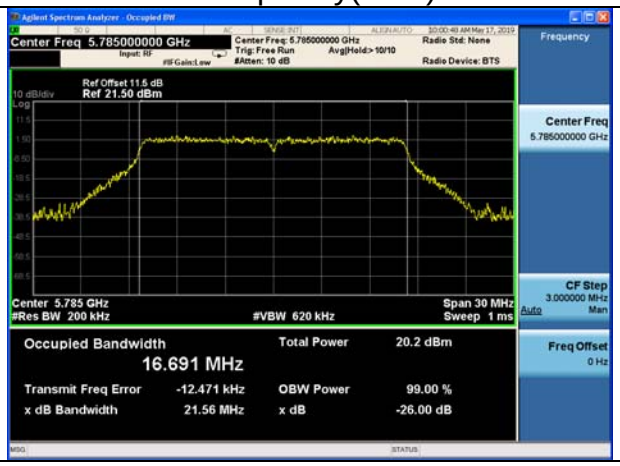
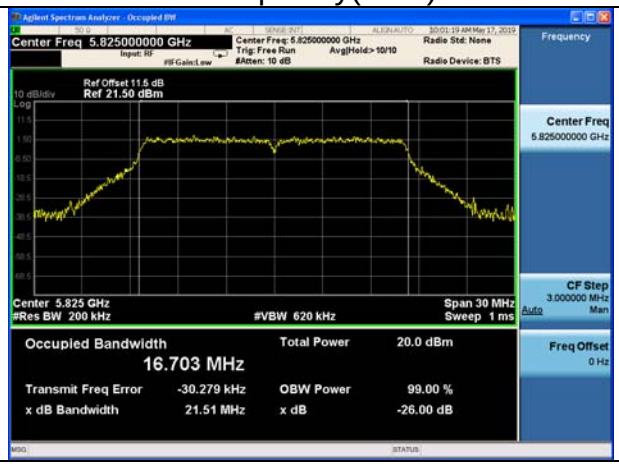
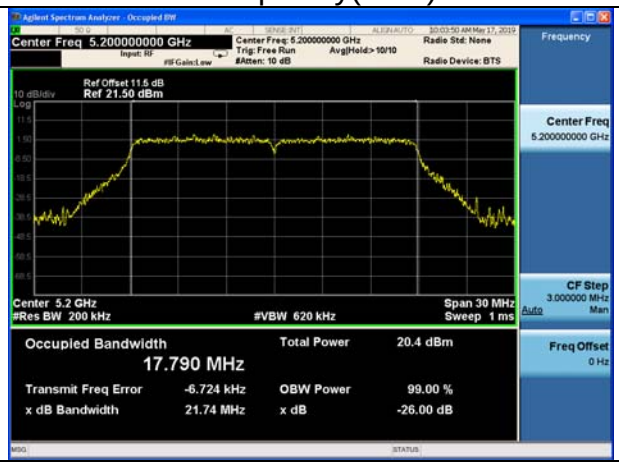
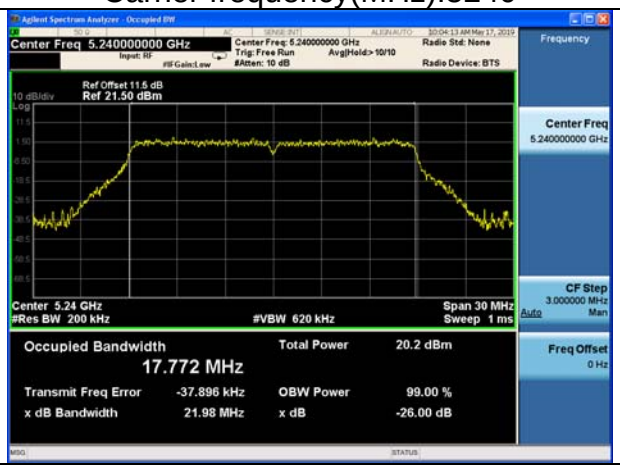
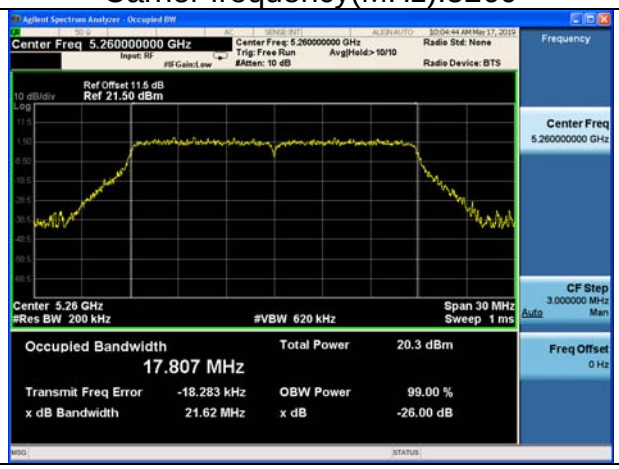
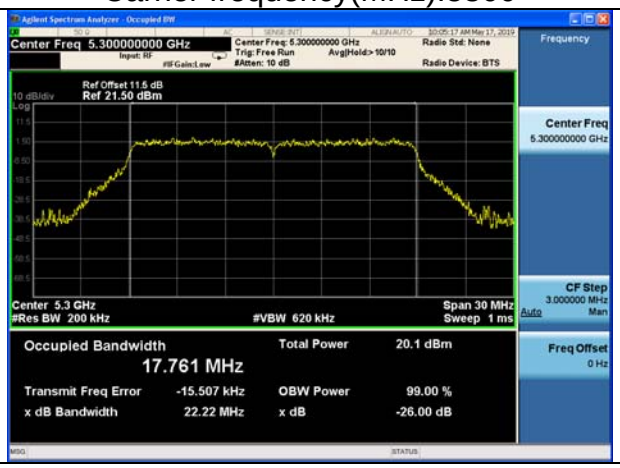
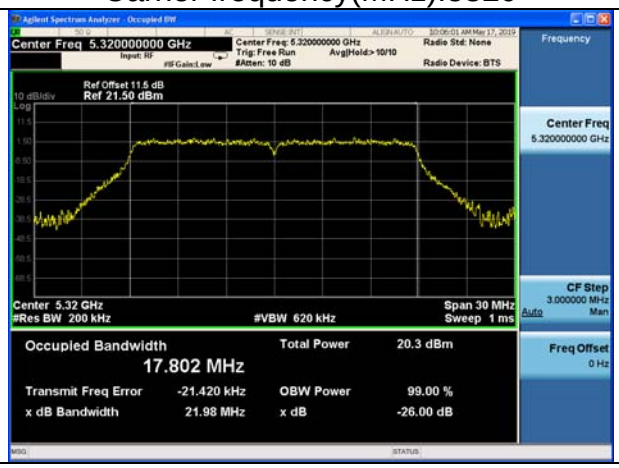
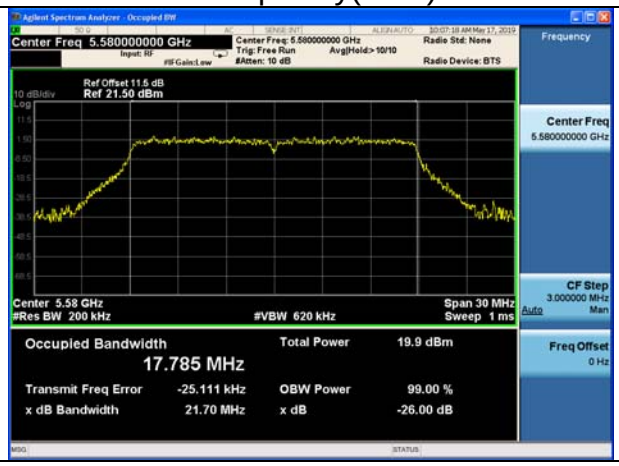
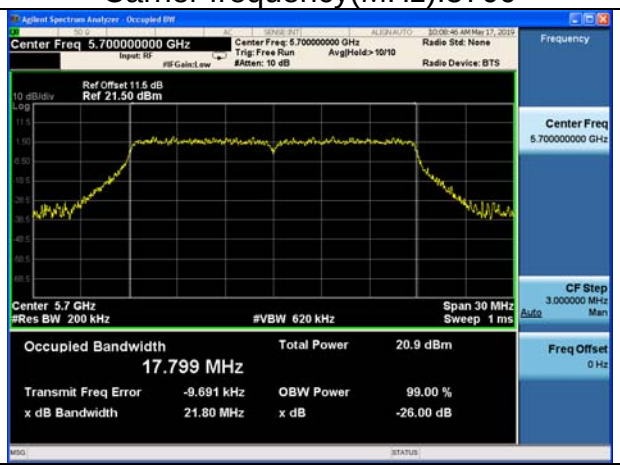
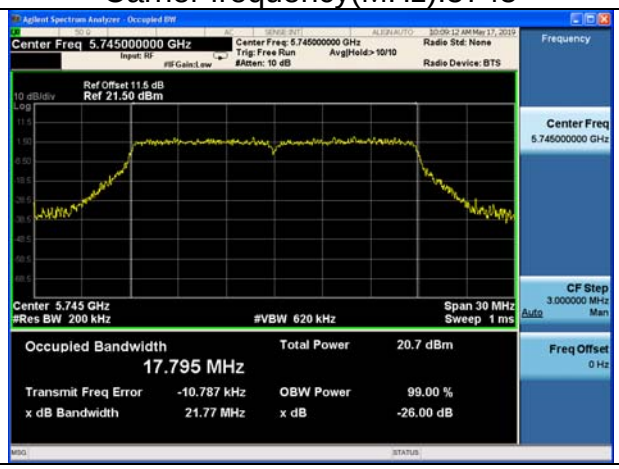
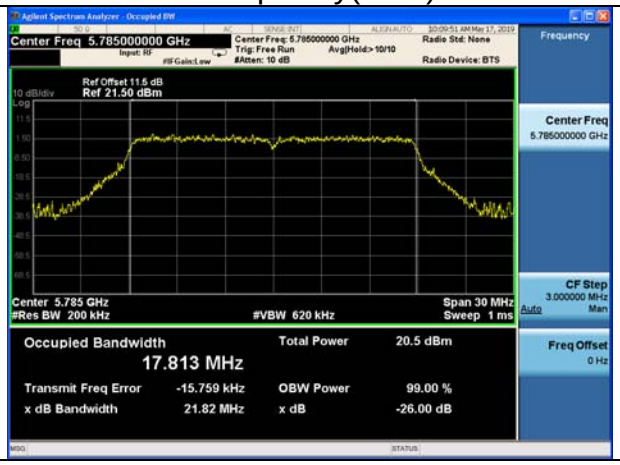
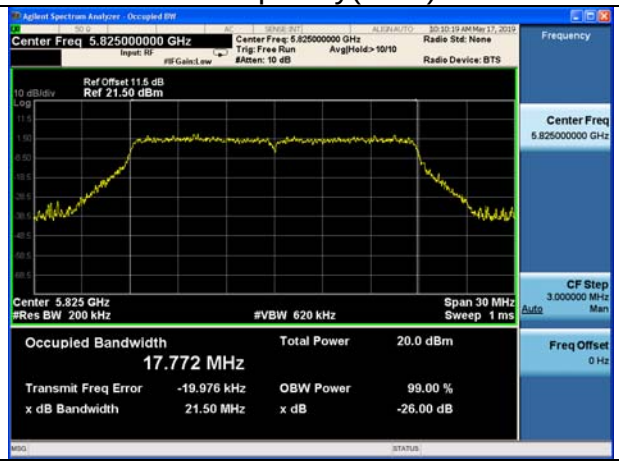
802.11a Carrier frequency(MHz):5300	802.11a Carrier frequency(MHz):5320
	
802.11a Carrier frequency(MHz):5500	802.11a Carrier frequency(MHz):5580
	

802.11a Carrier frequency(MHz):5700	802.11a Carrier frequency(MHz):5745
	
802.11a Carrier frequency(MHz):5785	802.11a Carrier frequency(MHz):5825
	

Test Mode: 802.11n HT20

Carrier frequency (MHz)	99% Bandwidth(MHz)	Minimum 26dB Bandwidth(MHz)	Conclusion
5180	17.788	21.68	pass
5200	17.790	21.74	pass
5240	17.772	21.98	pass
5260	17.807	21.62	pass
5300	17.761	22.22	pass
5320	17.802	21.98	pass
5500	16.673	21.29	pass
5580	17.785	21.70	pass
5700	17.799	21.80	pass
5745	17.795	21.77	pass
5785	17.813	21.82	pass
5825	17.772	21.50	pass

802.11n HT20 Carrier frequency(MHz):5180	802.11n HT20 Carrier frequency(MHz):5200
	
802.11n HT20 Carrier frequency(MHz):5240	802.11n HT20 Carrier frequency(MHz):5260
	
802.11n HT20 Carrier frequency(MHz):5300	802.11n HT20 Carrier frequency(MHz):5320
	

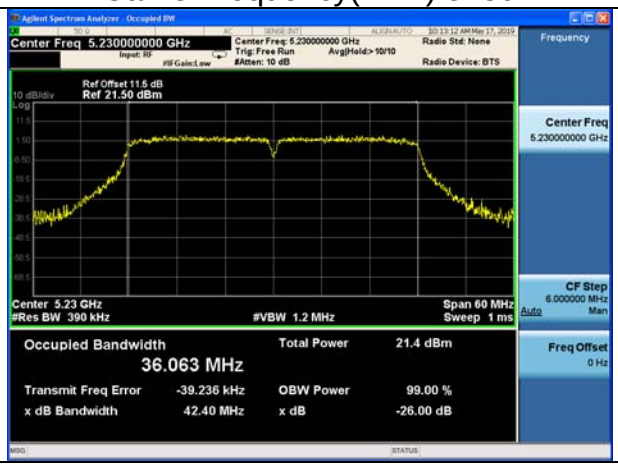
802.11n HT20 Carrier frequency(MHz):5500	802.11n HT20 Carrier frequency(MHz):5580
	
802.11n HT20 Carrier frequency(MHz):5700	802.11n HT20 Carrier frequency(MHz):5745
	
802.11n HT20 Carrier frequency(MHz):5785	802.11n HT20 Carrier frequency(MHz):5825
	

Test Mode: 802.11n HT40

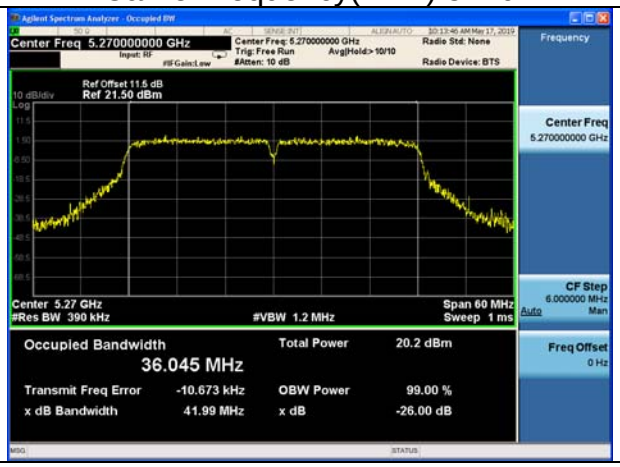
Carrier frequency (MHz)	99% Bandwidth(MHz)	Minimum 26dB Bandwidth(MHz)	Conclusion
5190	36.092	41.50	pass
5230	36.063	42.40	pass
5270	36.045	41.99	pass
5310	36.067	42.25	pass
5510	36.035	42.76	pass
5670	36.020	42.06	pass
5755	36.011	41.92	pass
5795	35.979	42.97	pass

802.11n HT40
Carrier frequency(MHz):5190

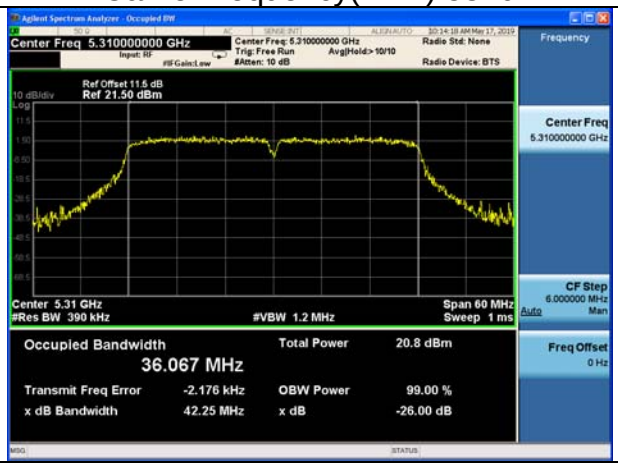
802.11n HT40
Carrier frequency(MHz):5230

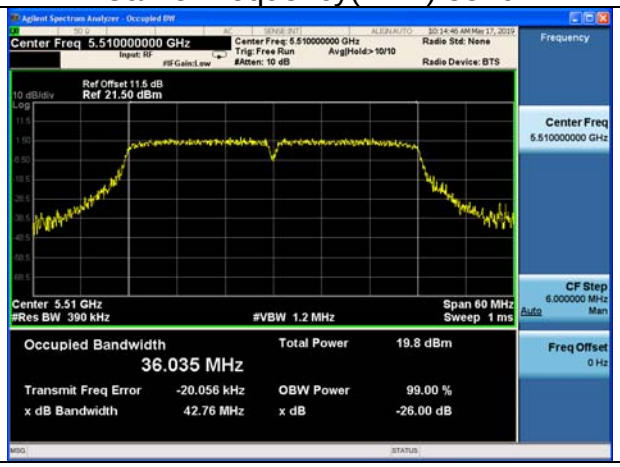
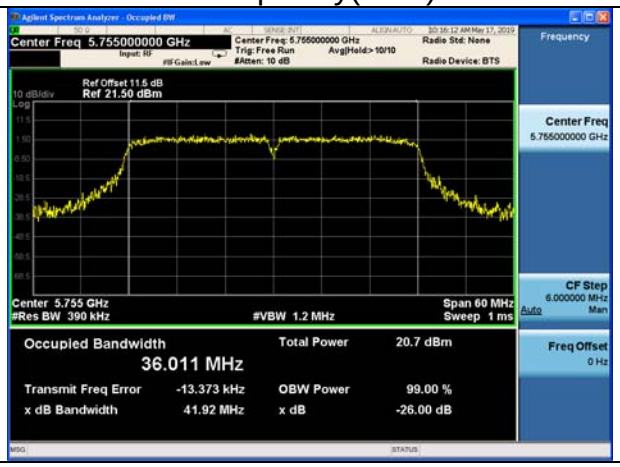
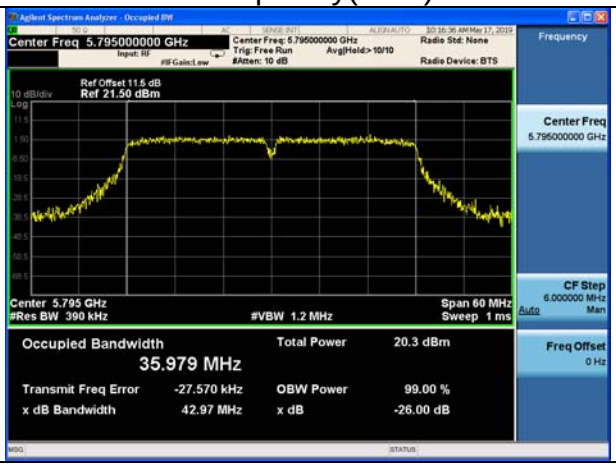


802.11n HT40
Carrier frequency(MHz):5270



802.11n HT40
Carrier frequency(MHz):5310



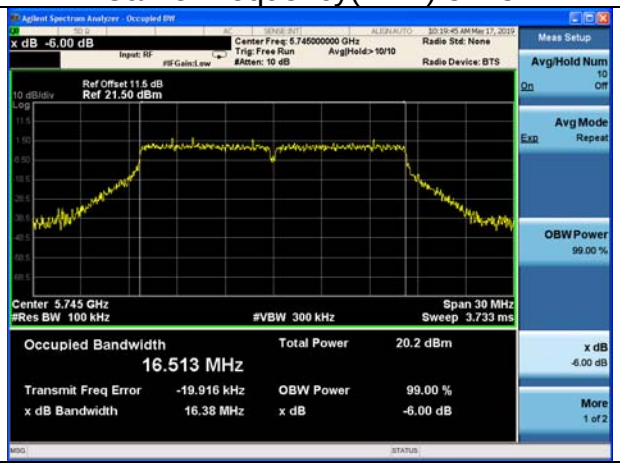
802.11n HT40 Carrier frequency(MHz):5510	802.11n HT40 Carrier frequency(MHz):5670
	
802.11n HT40 Carrier frequency(MHz):5755	802.11n HT40 Carrier frequency(MHz):5795
	

6dB Bandwidth

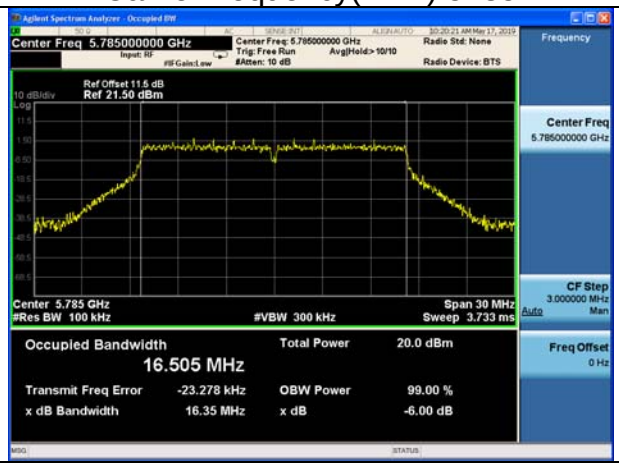
Test Mode:

Test Mode	Carrier frequency (MHz)	6dB Bandwidth(MHz)	Minimum Limit (MHz)	Conclusion
802.11a	5745	16.513	0.5	pass
802.11a	5785	16.505	0.5	pass
802.11a	5825	16.508	0.5	pass
802.11n HT20	5745	17.687	0.5	pass
802.11n HT20	5785	17.677	0.5	pass
802.11n HT20	5825	17.670	0.5	pass
802.11n HT40	5755	35.888	0.5	pass
802.11n HT40	5795	35.907	0.5	pass

802.11a
Carrier frequency(MHz):5745

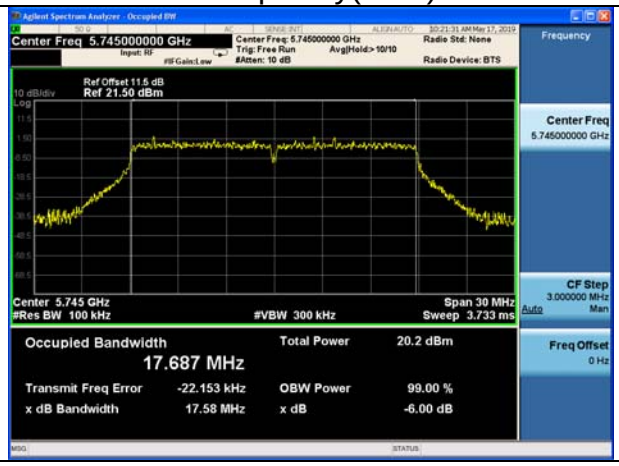


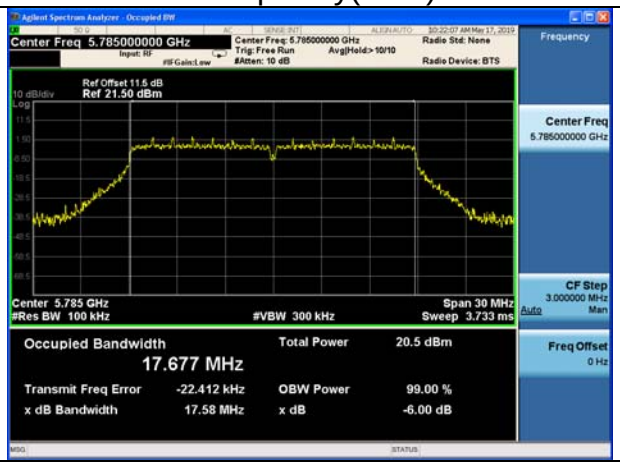
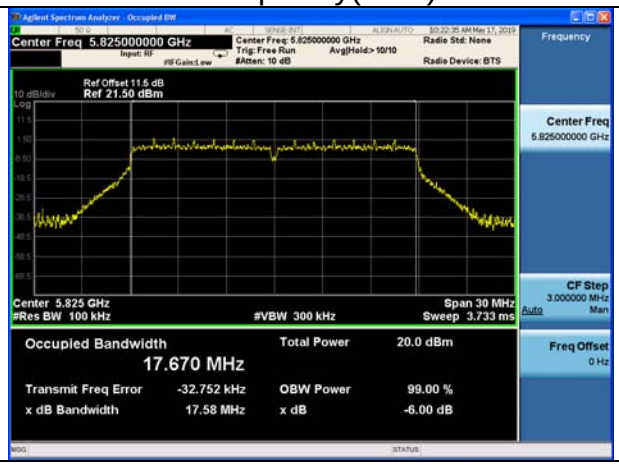
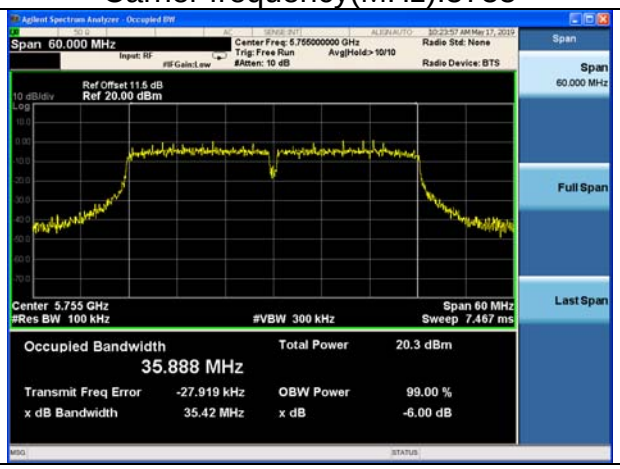
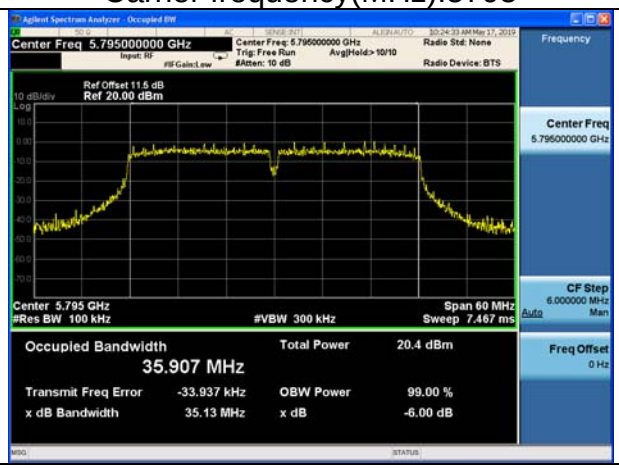
802.11a
Carrier frequency(MHz):5785



802.11a
Carrier frequency(MHz):5825

802.11n HT20
Carrier frequency(MHz):5745



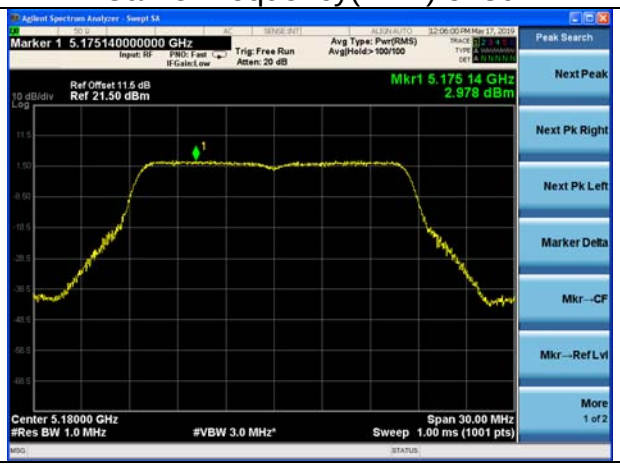
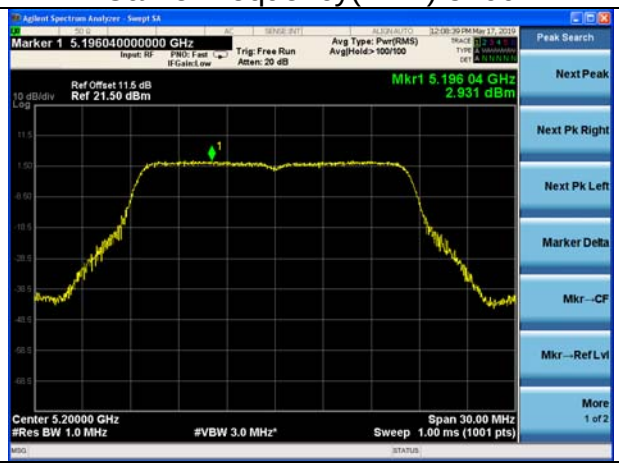
802.11n HT20 Carrier frequency(MHz):5785	802.11n HT20 Carrier frequency(MHz):5825
	
802.11n HT40 Carrier frequency(MHz):5755	802.11n HT40 Carrier frequency(MHz):5795
	

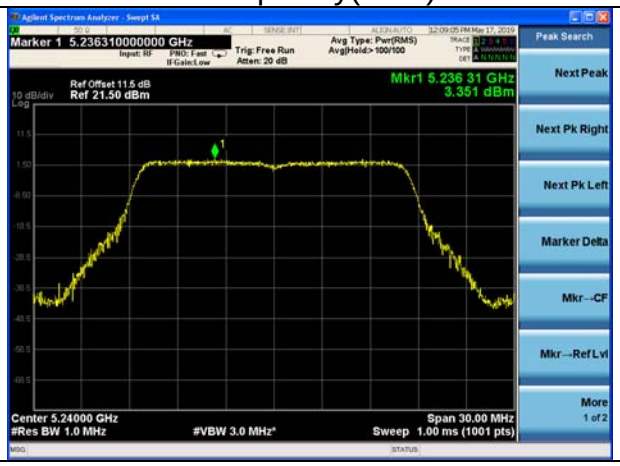
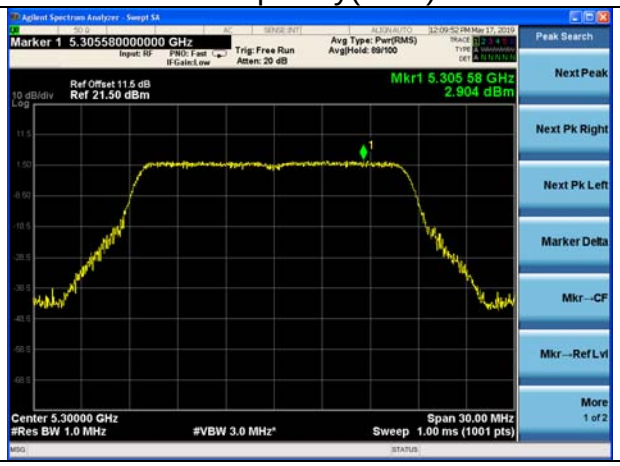
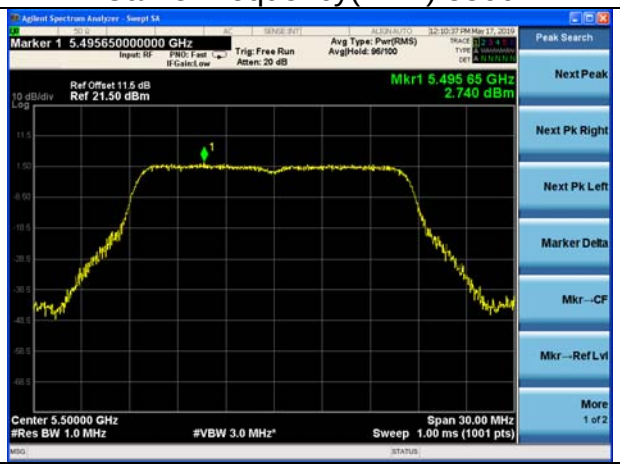
Transmitter Power Spectral Density

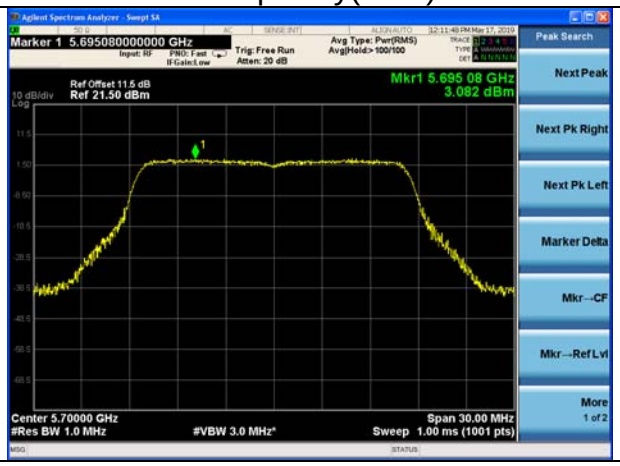
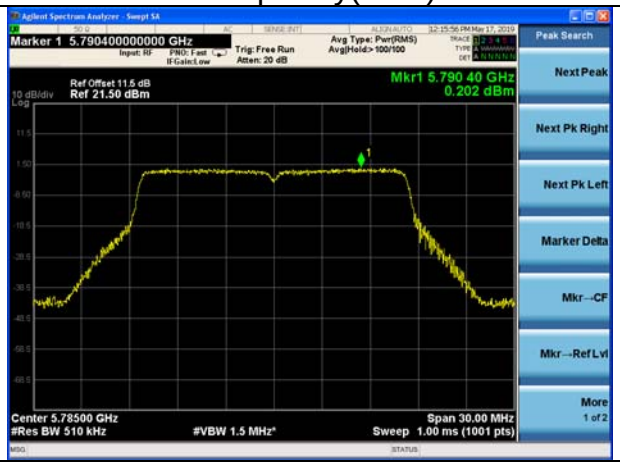
Offset 11.5dB = Attenuator 10dB+ Temporary antenna connector loss 0.2dB+ Cable loss 1.3dB

Test Mode: 802.11a

Carrier frequency (MHz)	Duty Cycle Correction Factor(dB)	Power Spectral Density (dBm/MHz)	Limit	Conclusion
5180	0.582	2.978	11.0 dBm/MHz	pass
5200	0.582	2.931	11.0 dBm/MHz	pass
5240	0.582	3.351	11.0 dBm/MHz	pass
5260	0.582	2.582	11.0 dBm/MHz	pass
5300	0.582	2.904	11.0 dBm/MHz	pass
5320	0.582	2.475	11.0 dBm/MHz	pass
5500	0.582	2.740	11.0 dBm/MHz	pass
5580	0.582	2.445	11.0 dBm/MHz	pass
5700	0.582	3.082	11.0 dBm/MHz	pass
5745	0.582	0.195	30.0 dBm/500kHz	pass
5785	0.582	0.202	30.0 dBm/500kHz	pass
5825	0.582	-0.253	30.0 dBm/500kHz	pass

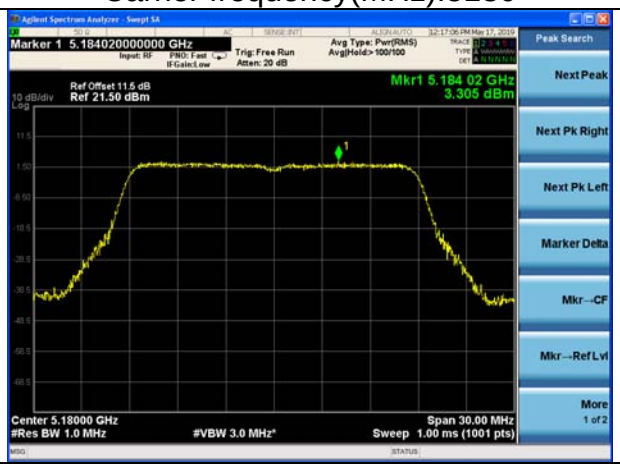
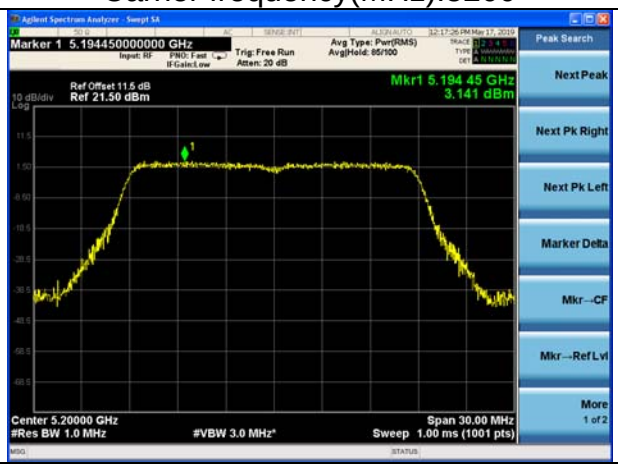
802.11a Carrier frequency(MHz):5180	802.11a Carrier frequency(MHz):5200
	

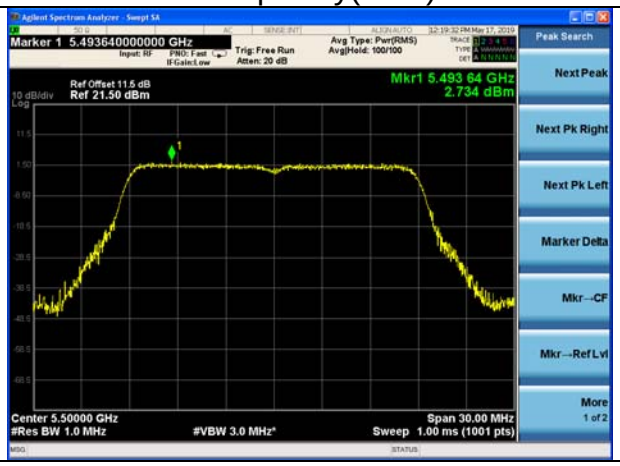
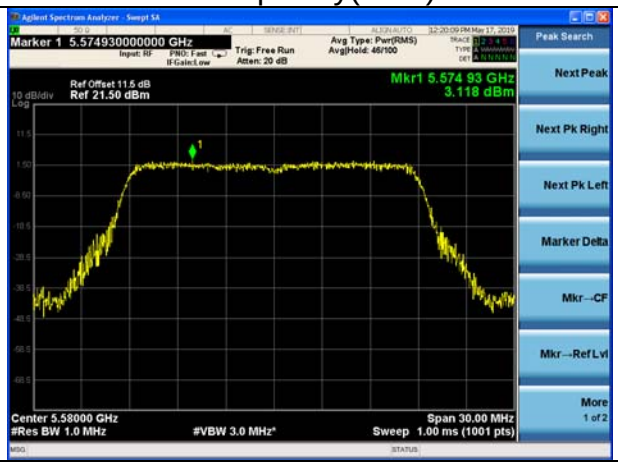
802.11a Carrier frequency(MHz):5240	802.11a Carrier frequency(MHz):5260
	
802.11a Carrier frequency(MHz):5300	802.11a Carrier frequency(MHz):5320
	
802.11a Carrier frequency(MHz):5500	802.11a Carrier frequency(MHz):5580
	

802.11a Carrier frequency(MHz):5700	802.11a Carrier frequency(MHz):5745
	
802.11a Carrier frequency(MHz):5785	802.11a Carrier frequency(MHz):5825
	

Test Mode: 802.11n HT20

Carrier frequency (MHz)	Duty Cycle Correction Factor(dB)	Power Spectral Density (dBm/MHz)	Limit	Conclusion
5180	0.619	3.305	11.0 dBm/MHz	pass
5200	0.619	3.141	11.0 dBm/MHz	pass
5240	0.619	3.001	11.0 dBm/MHz	pass
5260	0.619	3.210	11.0 dBm/MHz	pass
5300	0.619	2.374	11.0 dBm/MHz	pass
5320	0.619	2.563	11.0 dBm/MHz	pass
5500	0.619	2.734	11.0 dBm/MHz	pass
5580	0.619	3.118	11.0 dBm/MHz	pass
5700	0.619	3.016	11.0 dBm/MHz	pass
5745	0.619	0.753	30.0 dBm/500kHz	pass
5785	0.619	0.270	30.0 dBm/500kHz	pass
5825	0.619	-0.514	30.0 dBm/500kHz	pass

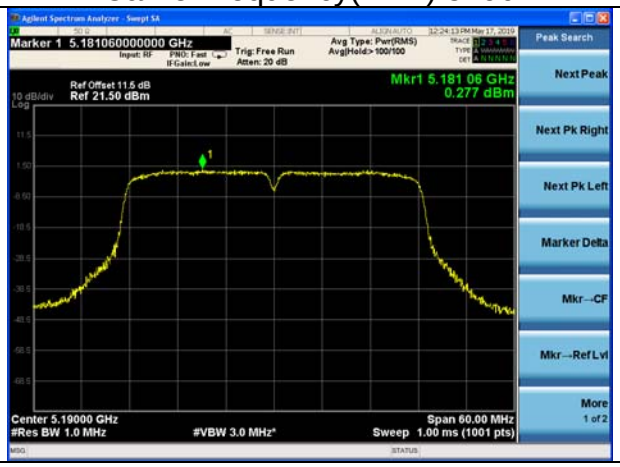
802.11n HT20 Carrier frequency(MHz):5180	802.11n HT20 Carrier frequency(MHz):5200
	
802.11n HT20 Carrier frequency(MHz):5240	802.11n HT20 Carrier frequency(MHz):5260
	
802.11n HT20 Carrier frequency(MHz):5300	802.11n HT20 Carrier frequency(MHz):5320
	

802.11n HT20 Carrier frequency(MHz):5500	802.11n HT20 Carrier frequency(MHz):5580
	
802.11n HT20 Carrier frequency(MHz):5700	802.11n HT20 Carrier frequency(MHz):5745
	
802.11n HT20 Carrier frequency(MHz):5785	802.11n HT20 Carrier frequency(MHz):5825
	

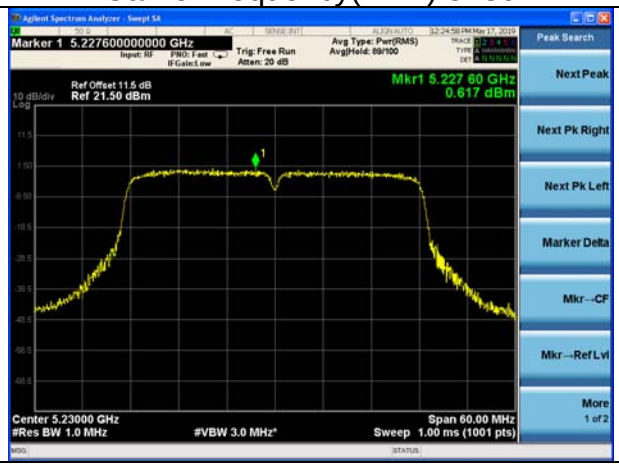
Test Mode: 802.11n HT40

Carrier frequency (MHz)	Duty Cycle Correction Factor(dB)	Power Spectral Density (dBm/MHz)	Limit	Conclusion
5190	1.172	0.277	11.0 dBm/MHz	pass
5230	1.172	0.617	11.0 dBm/MHz	pass
5270	1.172	-0.012	11.0 dBm/MHz	pass
5310	1.172	1.040	11.0 dBm/MHz	pass
5510	1.172	0.093	11.0 dBm/MHz	pass
5670	1.172	0.792	11.0 dBm/MHz	pass
5755	1.172	-2.435	30.0 dBm/500kHz	pass
5795	1.172	-2.974	30.0 dBm/500kHz	pass

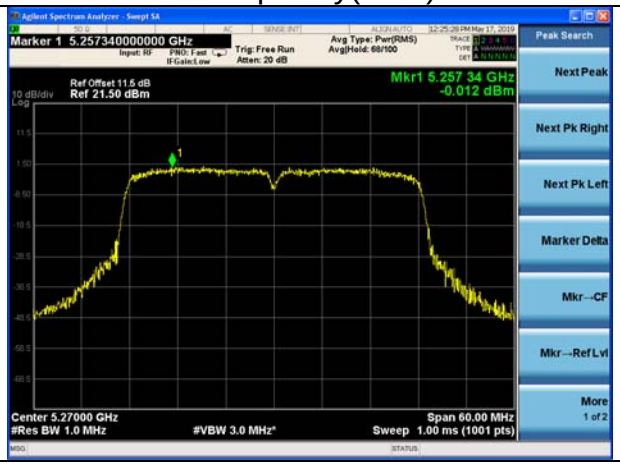
802.11n HT40
Carrier frequency(MHz):5190



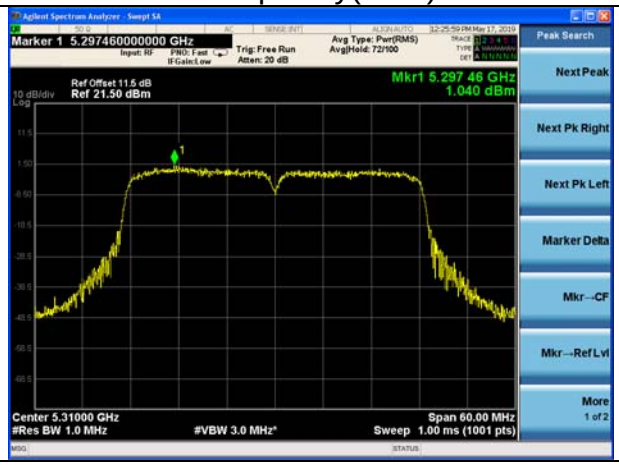
802.11n HT40
Carrier frequency(MHz):5230

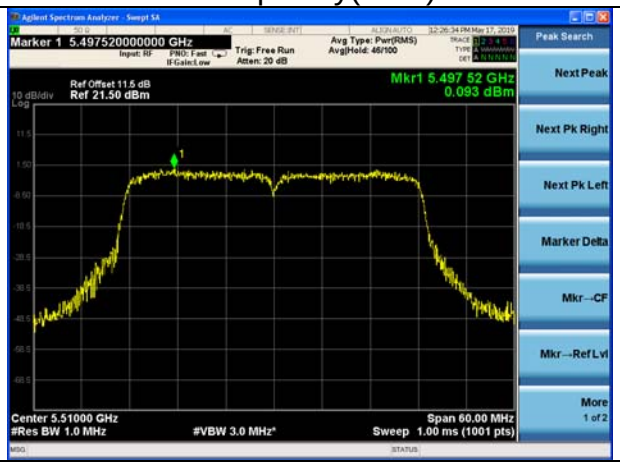
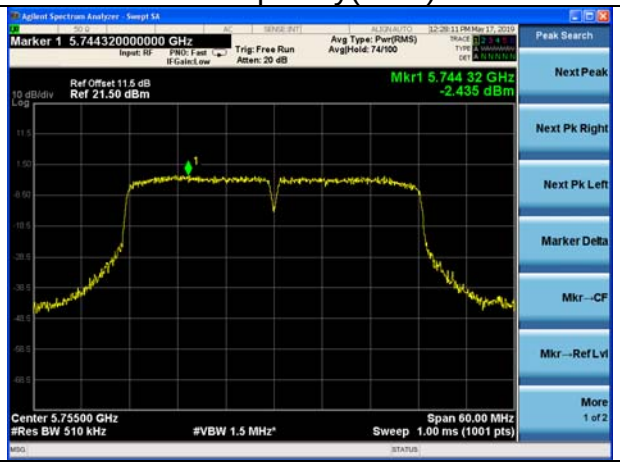


802.11n HT40
Carrier frequency(MHz):5270



802.11n HT40
Carrier frequency(MHz):5310

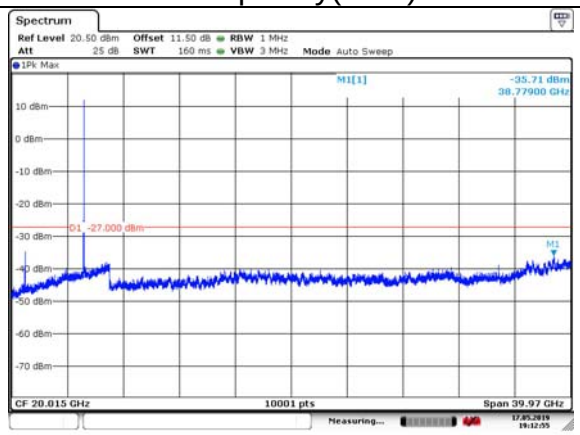
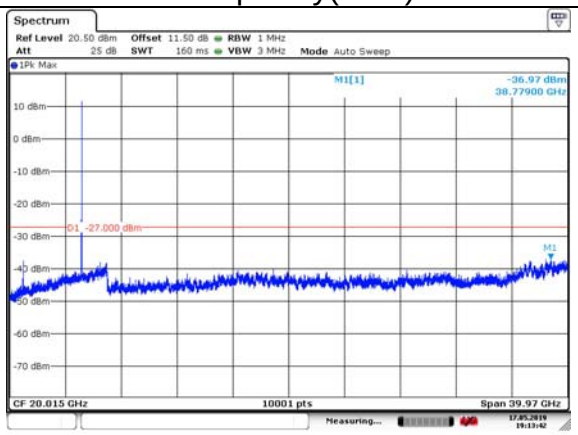
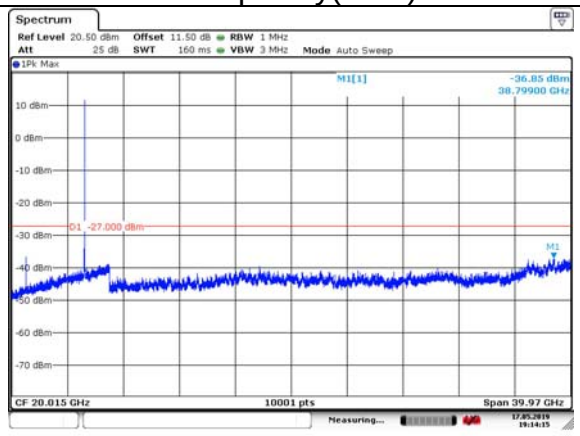
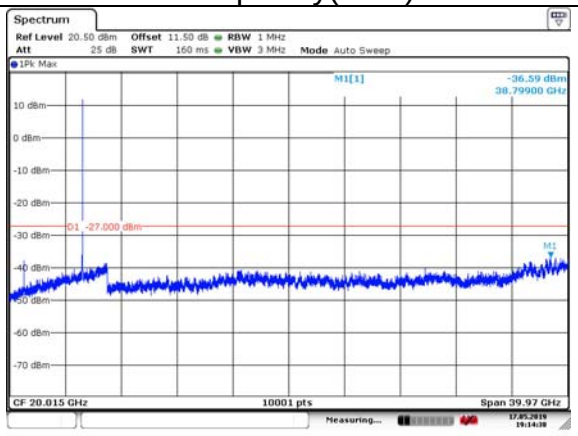
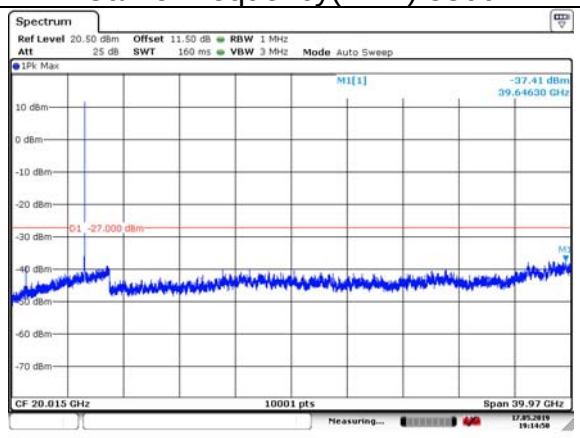
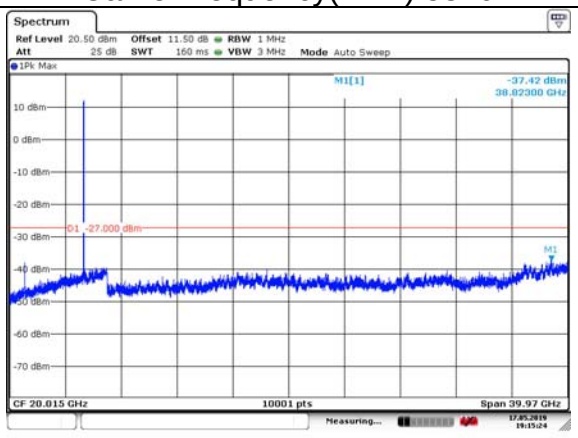


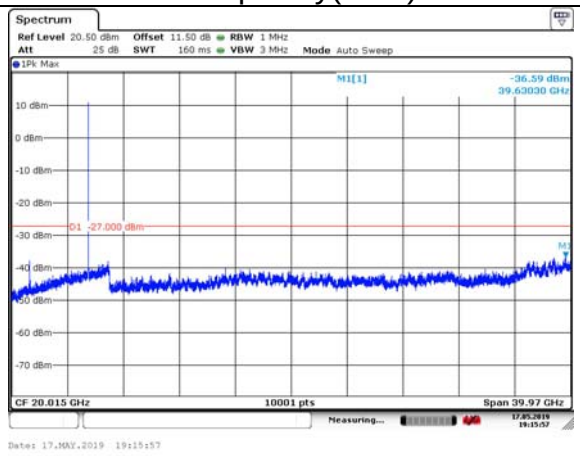
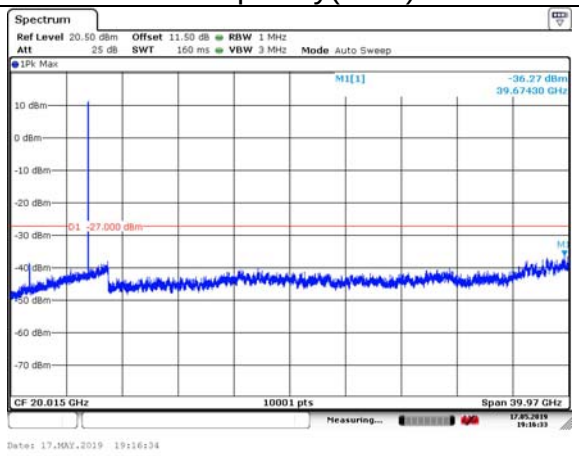
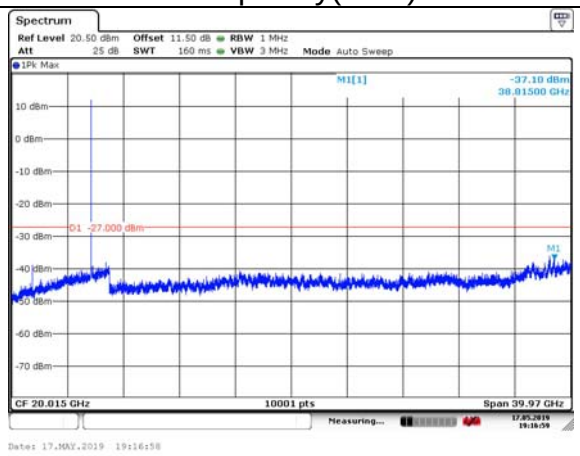
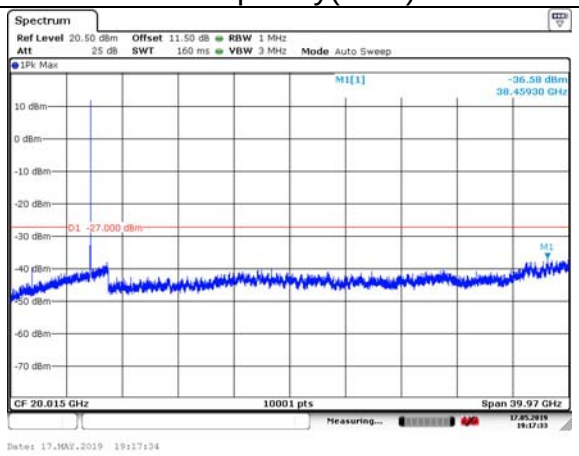
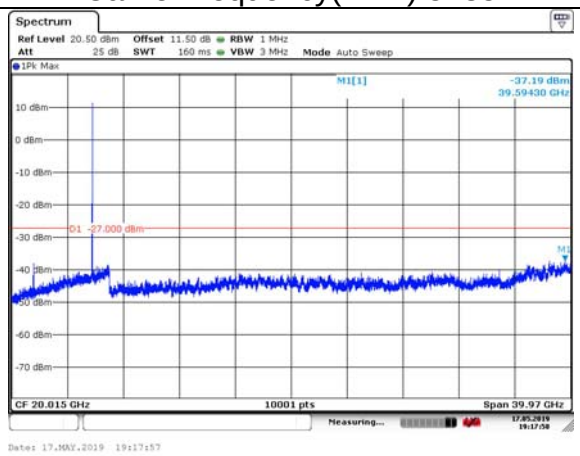
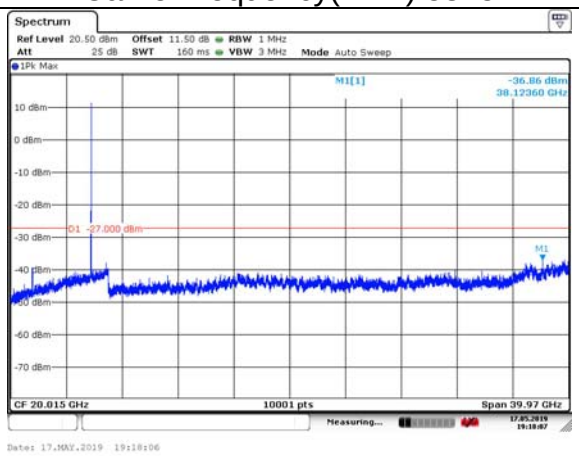
802.11n HT40 Carrier frequency(MHz):5510	802.11n HT40 Carrier frequency(MHz):5670
	
802.11n HT40 Carrier frequency(MHz):5755	802.11n HT40 Carrier frequency(MHz):5795
	

Unwanted Conducted Emission Measurement

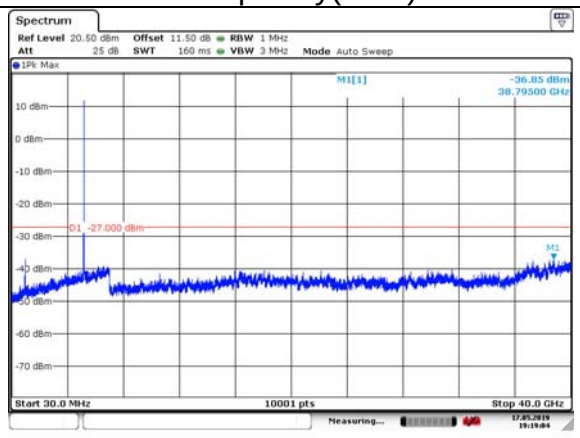
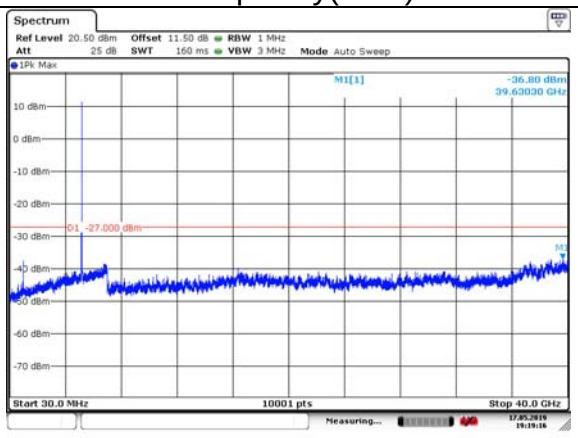
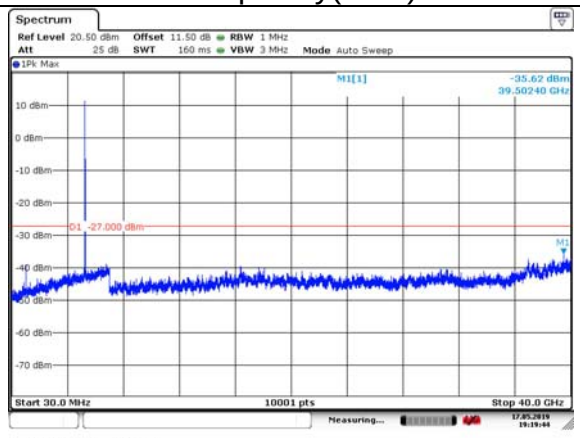
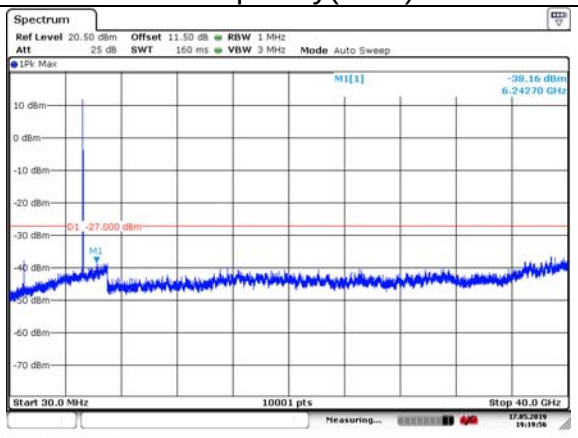
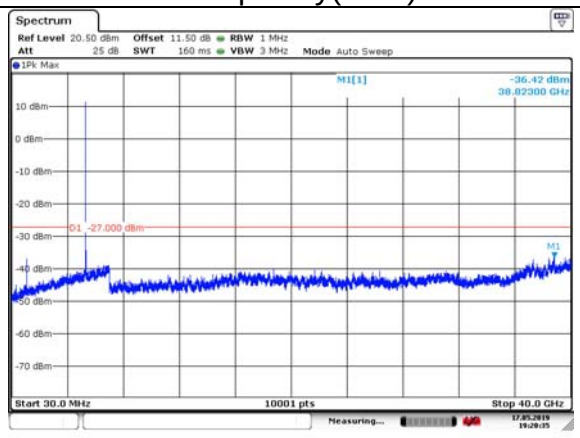
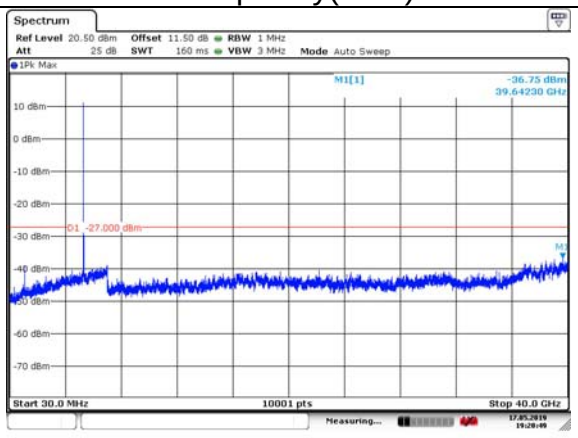
Offset 11.5dB = Attenuator 10dB+ Temporary antenna connector loss 0.2dB+ Cable loss 1.3dB

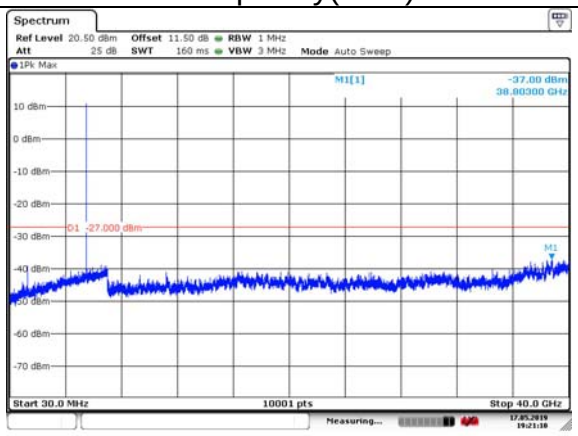
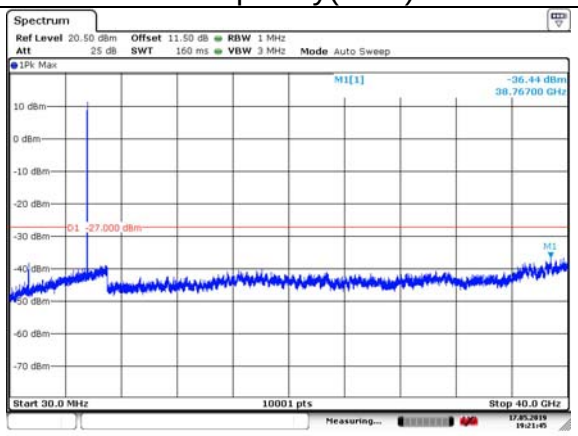
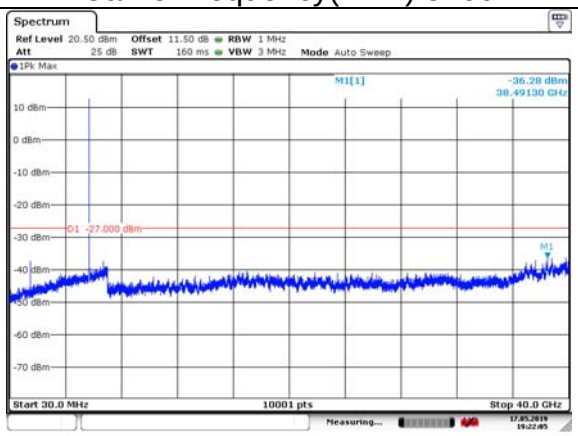
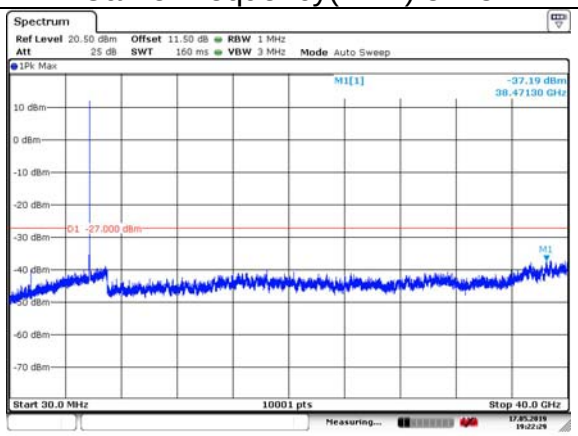
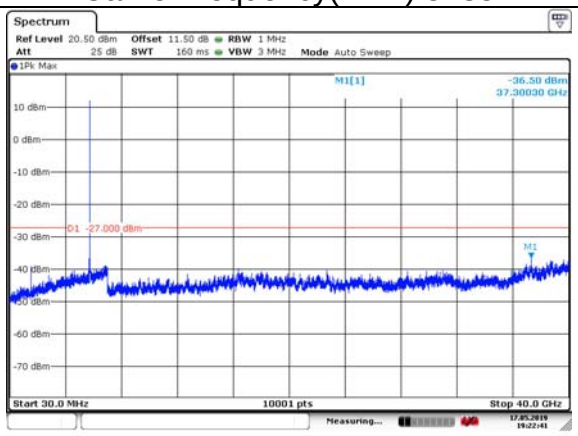
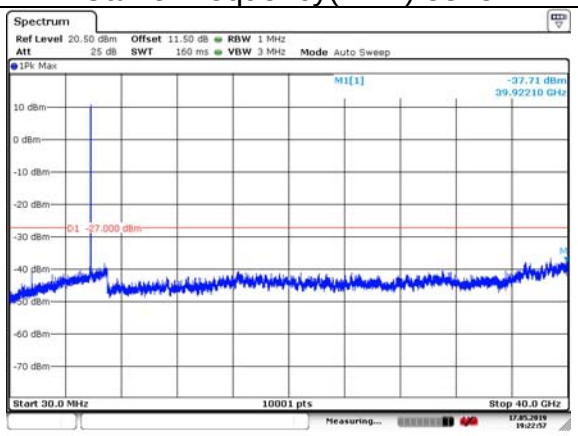
Test Mode: 802.11a

802.11a Carrier frequency(MHz):5180	802.11a Carrier frequency(MHz):5200
	
802.11a Carrier frequency(MHz):5240	802.11a Carrier frequency(MHz):5260
	
802.11a Carrier frequency(MHz):5300	802.11a Carrier frequency(MHz):5320
	

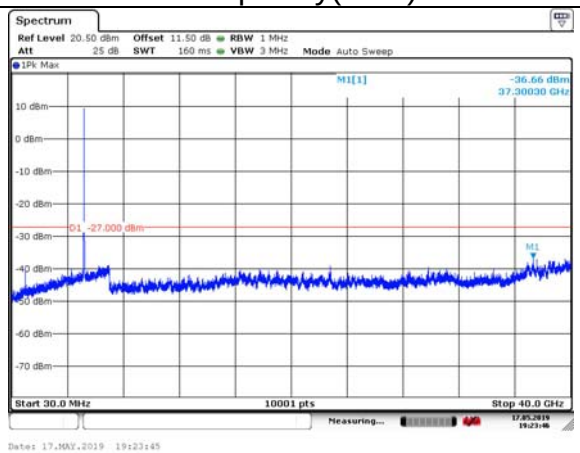
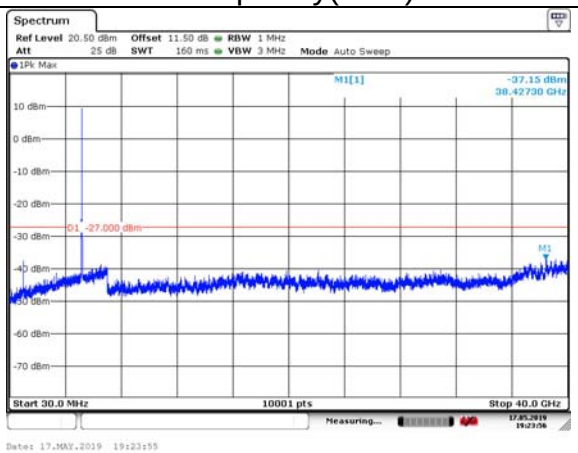
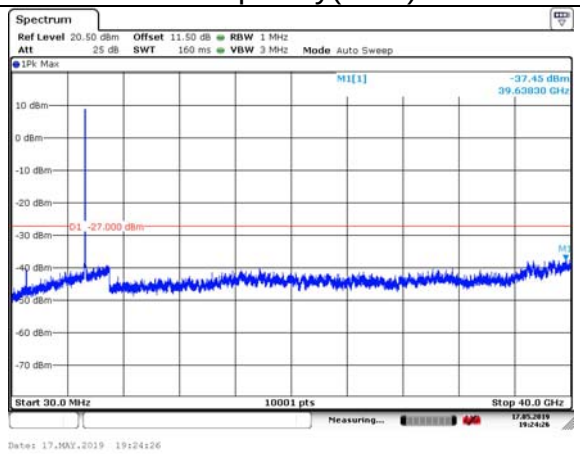
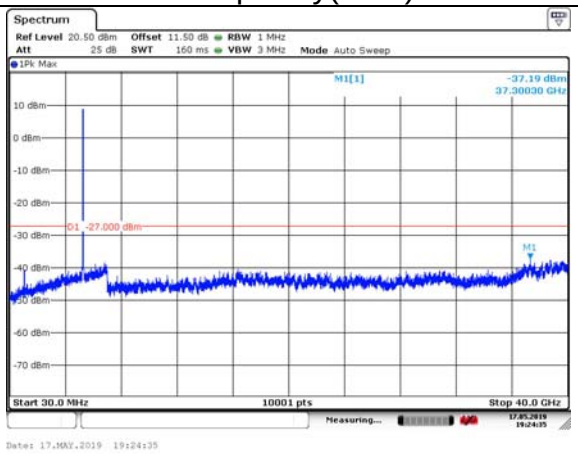
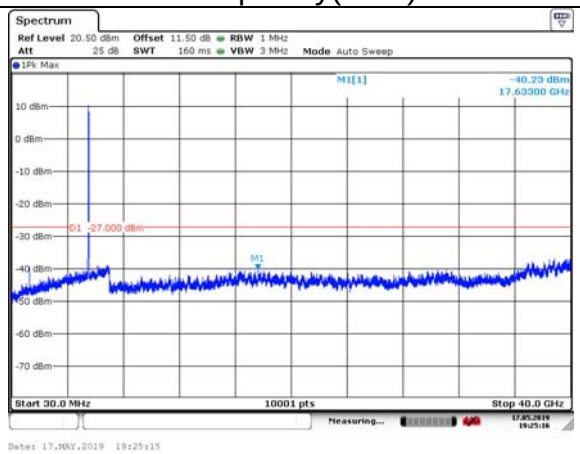
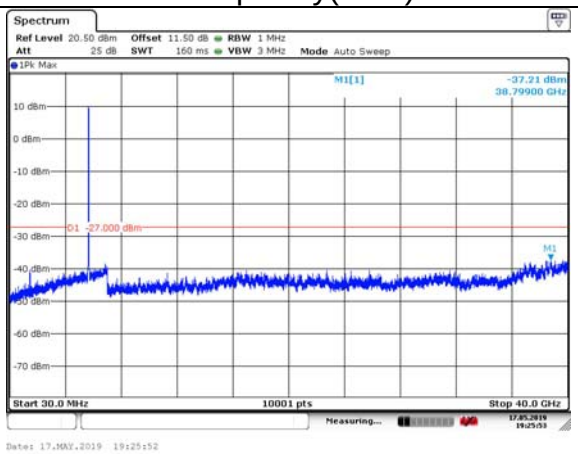
802.11a Carrier frequency(MHz):5500	802.11a Carrier frequency(MHz):5580
	
802.11a Carrier frequency(MHz):5700	802.11a Carrier frequency(MHz):5745
	
802.11a Carrier frequency(MHz):5785	802.11a Carrier frequency(MHz):5825
	

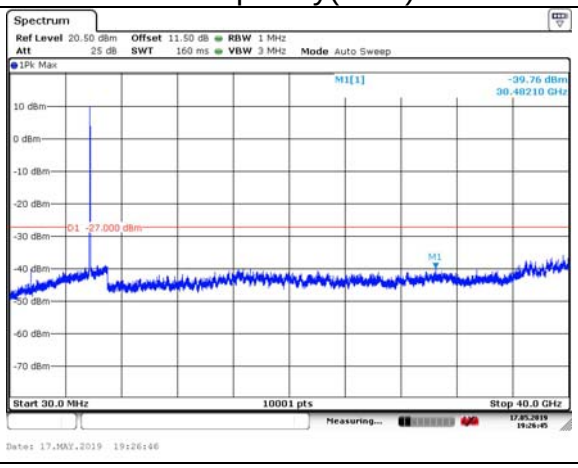
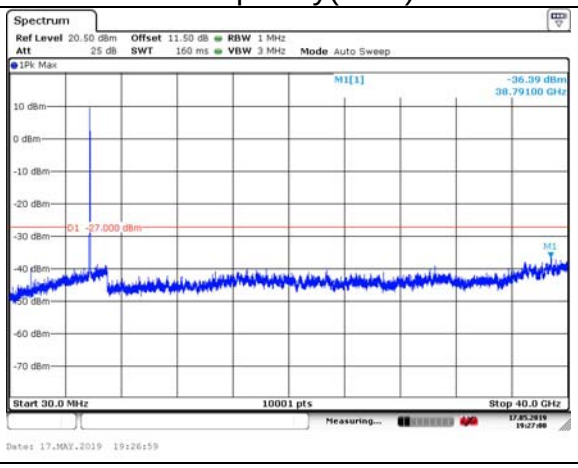
Test Mode: 802.11n HT20

802.11n HT20 Carrier frequency(MHz):5180	802.11n HT20 Carrier frequency(MHz):5200
	
802.11n HT20 Carrier frequency(MHz):5240	802.11n HT20 Carrier frequency(MHz):5260
	
802.11n HT20 Carrier frequency(MHz):5300	802.11n HT20 Carrier frequency(MHz):5320
	

802.11n HT20 Carrier frequency(MHz):5500	802.11n HT20 Carrier frequency(MHz):5580
	
802.11n HT20 Carrier frequency(MHz):5700	802.11n HT20 Carrier frequency(MHz):5745
	
802.11n HT20 Carrier frequency(MHz):5785	802.11n HT20 Carrier frequency(MHz):5825
	

Test Mode: 802.11n HT40

802.11n HT40 Carrier frequency(MHz):5190	802.11n HT40 Carrier frequency(MHz):5230
	
802.11n HT40 Carrier frequency(MHz):5270	802.11n HT40 Carrier frequency(MHz):5310
	
802.11n HT40 Carrier frequency(MHz):5510	802.11n HT40 Carrier frequency(MHz):5670
	

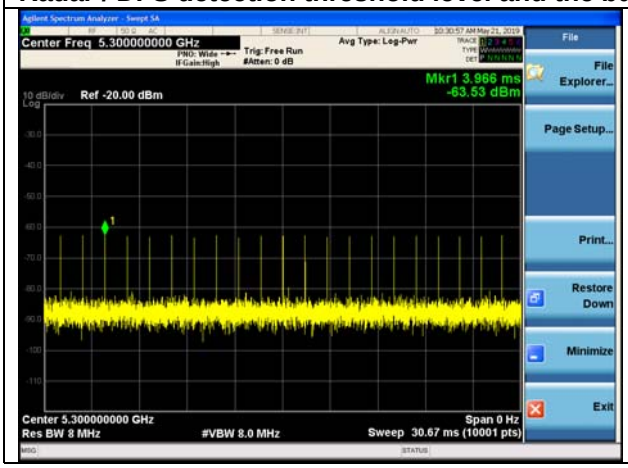
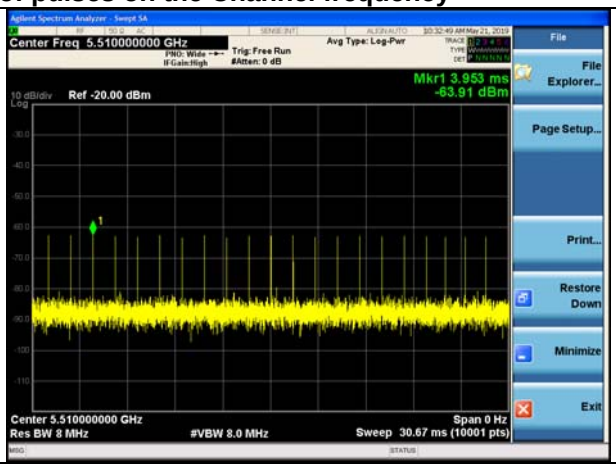
802.11n HT40 Carrier frequency(MHz):5755	802.11n HT40 Carrier frequency(MHz):5795
	

Frequency Stability

Band	Mode	Data Rate	Frequency (MHz)	Frequency Stability(ppm)	Voltage(V)	Temperature(°C)
U-NII-1	11a	6Mbps	5180	1.45	NV	-10
	11a	6Mbps	5180	2.22	NV	0
	11a	6Mbps	5180	-2.15	NV	+10
	11a	6Mbps	5180	-2.53	HV	+20
	11a	6Mbps	5180	0.41	LV	+20
	11a	6Mbps	5180	1.93	NV	+20
	11a	6Mbps	5180	0.38	NV	+30
	11a	6Mbps	5180	-0.08	NV	+40
	11a	6Mbps	5180	-0.76	NV	+50
U-NII-2A	11a	6Mbps	5320	0.50	NV	-10
	11a	6Mbps	5320	-1.74	NV	0
	11a	6Mbps	5320	-1.66	NV	+10
	11a	6Mbps	5320	-0.97	HV	+20
	11a	6Mbps	5320	-0.39	LV	+20
	11a	6Mbps	5320	-0.76	NV	+20
	11a	6Mbps	5320	-0.73	NV	+30
	11a	6Mbps	5320	2.46	NV	+40
	11a	6Mbps	5320	-0.73	NV	+50
U-NII-2C	11a	6Mbps	5500	1.95	NV	-10
	11a	6Mbps	5500	-2.64	NV	0
	11a	6Mbps	5500	0.31	NV	+10
	11a	6Mbps	5500	1.67	HV	+20
	11a	6Mbps	5500	-1.00	LV	+20
	11a	6Mbps	5500	-0.79	NV	+20
	11a	6Mbps	5500	2.14	NV	+30
	11a	6Mbps	5500	1.95	NV	+40
	11a	6Mbps	5500	2.76	NV	+50
U-NII-3	11a	6Mbps	5825	-0.24	NV	-10
	11a	6Mbps	5825	-1.59	NV	0
	11a	6Mbps	5825	-2.66	NV	+10
	11a	6Mbps	5825	2.04	HV	+20
	11a	6Mbps	5825	1.65	LV	+20
	11a	6Mbps	5825	1.93	NV	+20
	11a	6Mbps	5825	-1.44	NV	+30
	11a	6Mbps	5825	2.87	NV	+40
	11a	6Mbps	5825	-2.02	NV	+50

Dynamic Frequency Selection

Radar Waveform Calibration Result

<20MHz / 5300 MHz> Radar Type 0	<40MHz / 5510 MHz> Radar Type 0
Radar / DFS detection threshold level and the burst of pulses on the Channel frequency	
	

Channel Move Time, Channel Closing Transmission Time and Non-Occupancy Period for Client Beacon Test

BW / Channel	Test Item	Test Result	Limit	Pass/Fail
20MHz / 5300MHz	Channel Move Time	0.6065 s	＜ 10s	Pass
	Channel Closing Transmission Time	200ms + 0.4 ms	＜ 260ms	Pass
	Non-Occupancy Period	⩾ 30	⩾ 30 min	Pass
40MHz / 5510MHz	Channel Move Time	0.9835 s	＜ 10s	Pass
	Channel Closing Transmission Time	200ms + 0.4 ms	＜ 260ms	Pass
	Non-Occupancy Period	⩾ 30	⩾ 30 min	Pass

Note: The Channel Closing Transmission Time is comprised of 200 milliseconds starting at the beginning of the Channel Move Time plus any additional intermittent control signals required to facilitate a Channel move (an aggregate of 60 milliseconds) during the remainder of the 10 seconds period. The aggregate duration of control signals will not count quiet periods in between transmissions.

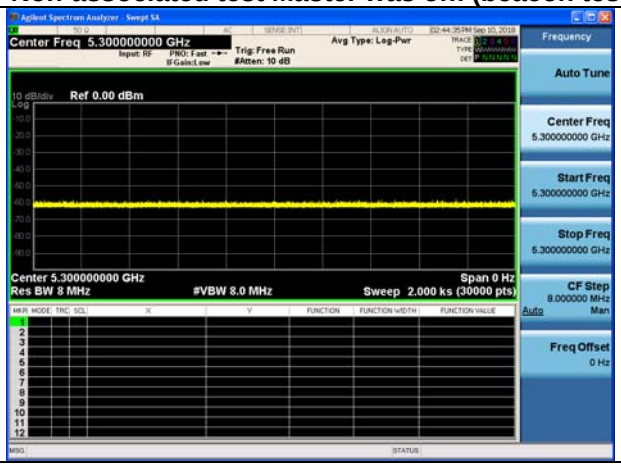
Channel Move Time, Channel Closing Transmission Time and Non-Occupancy Period for Client Beacon Test Plots

<20MHz / 5300 MHz>

Channel Move Time & Channel Closing Transmission Time

Non-Occupancy Period

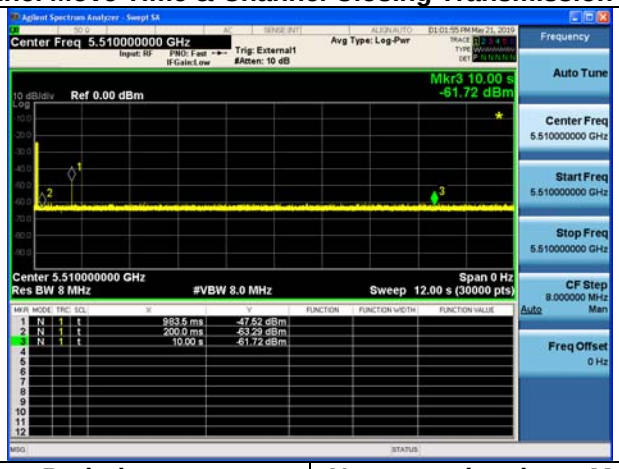
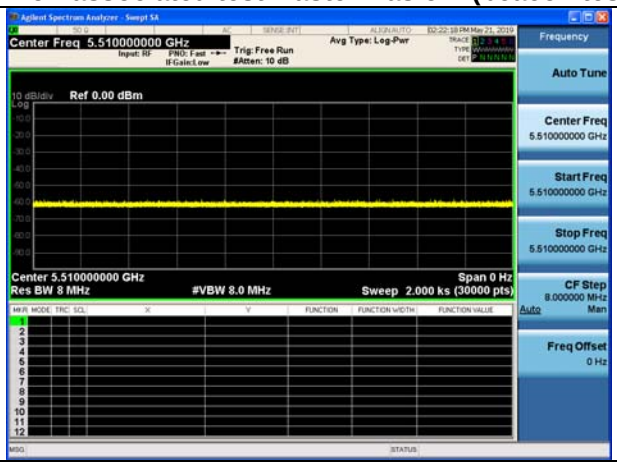
Non-associated test Master was off. (beacon test)



Note:

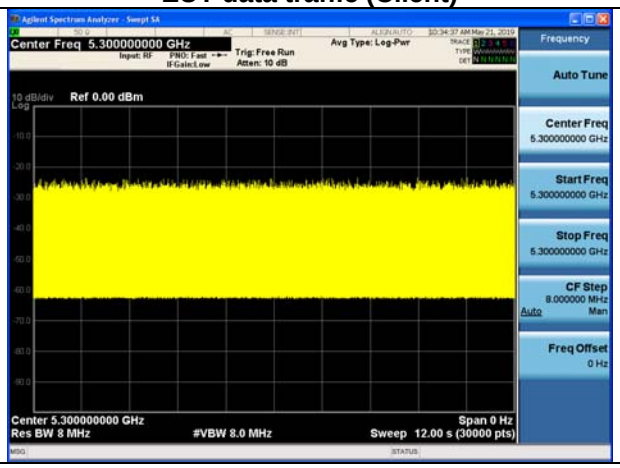
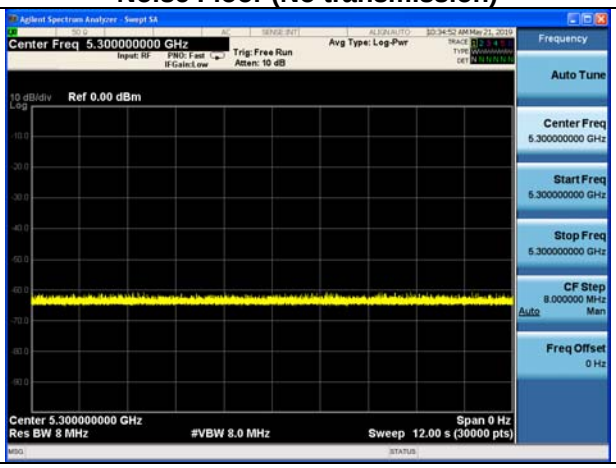
Dwell (0.4 ms)= Sweep Time (12000 ms) / Sweep Point Bins (30000)

Channel Closing Transmission Time (200 + 0.4 ms) = 200 + Number (1) X Dwell (0.4 ms) < 260ms

<40MHz / 5510 MHz>	
Channel Move Time & Channel Closing Transmission Time	
	
Non-Occupancy Period	**Non-associated test Master was off. (beacon test)**
	

Note:
Dwell (0.4 ms)= Sweep Time (12000 ms) / Sweep Point Bins (30000)
Channel Closing Transmission Time (200 + 0.4 ms) = 200 + Number (1) X Dwell (0.4 ms) < 260ms

Data Traffic and Noise Floor Plots

<20MHz / 5300 MHz> EUT data traffic (Client)	<20MHz / 5300 MHz> Noise Floor (No transmission)
	
<40MHz / 5510 MHz> EUT data traffic (Client)	**<40MHz / 5510 MHz> Noise Floor (No transmission)**