

**TEST REPORT**

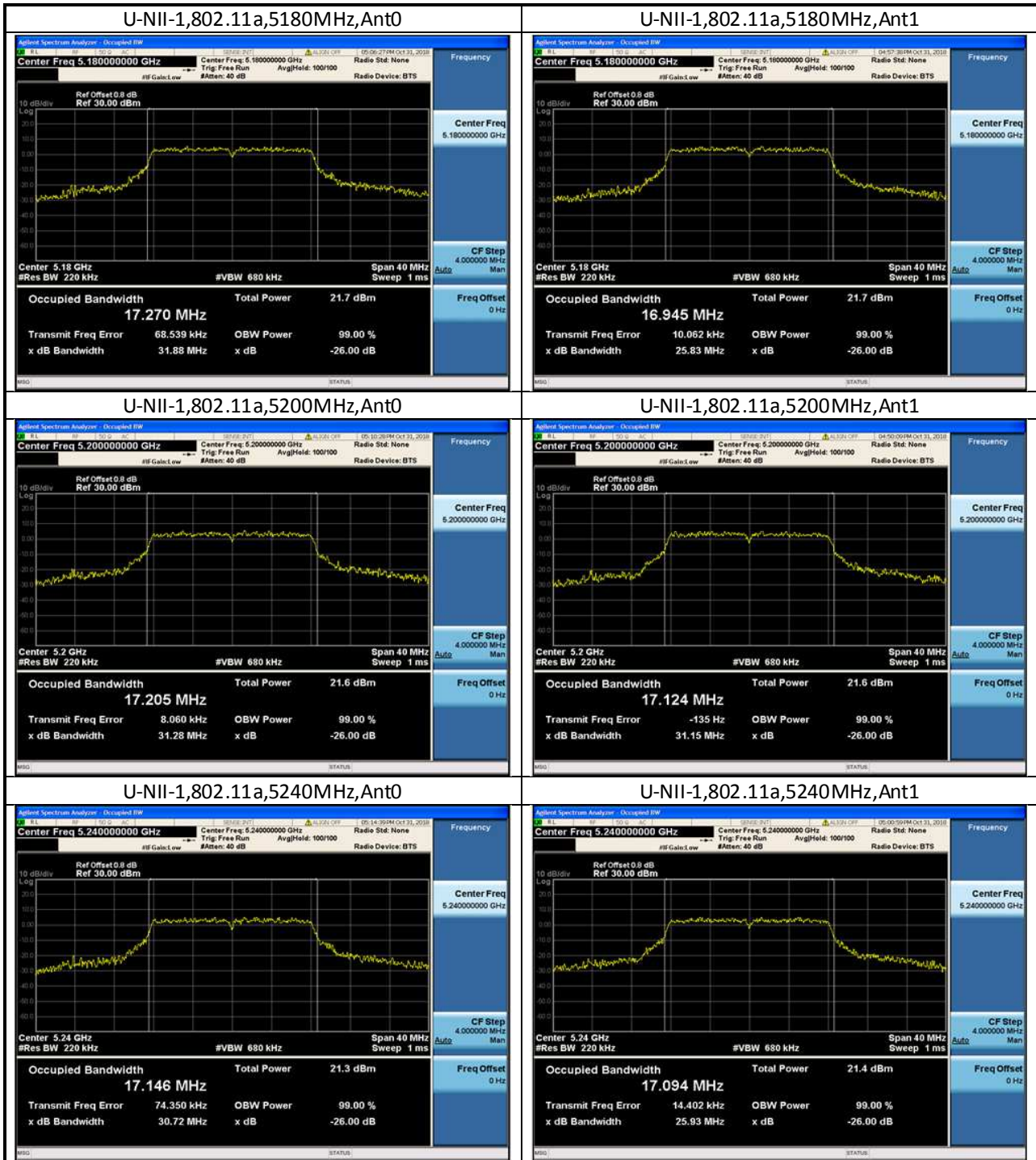
**Appendix A: Test results of U-NII Band 1**

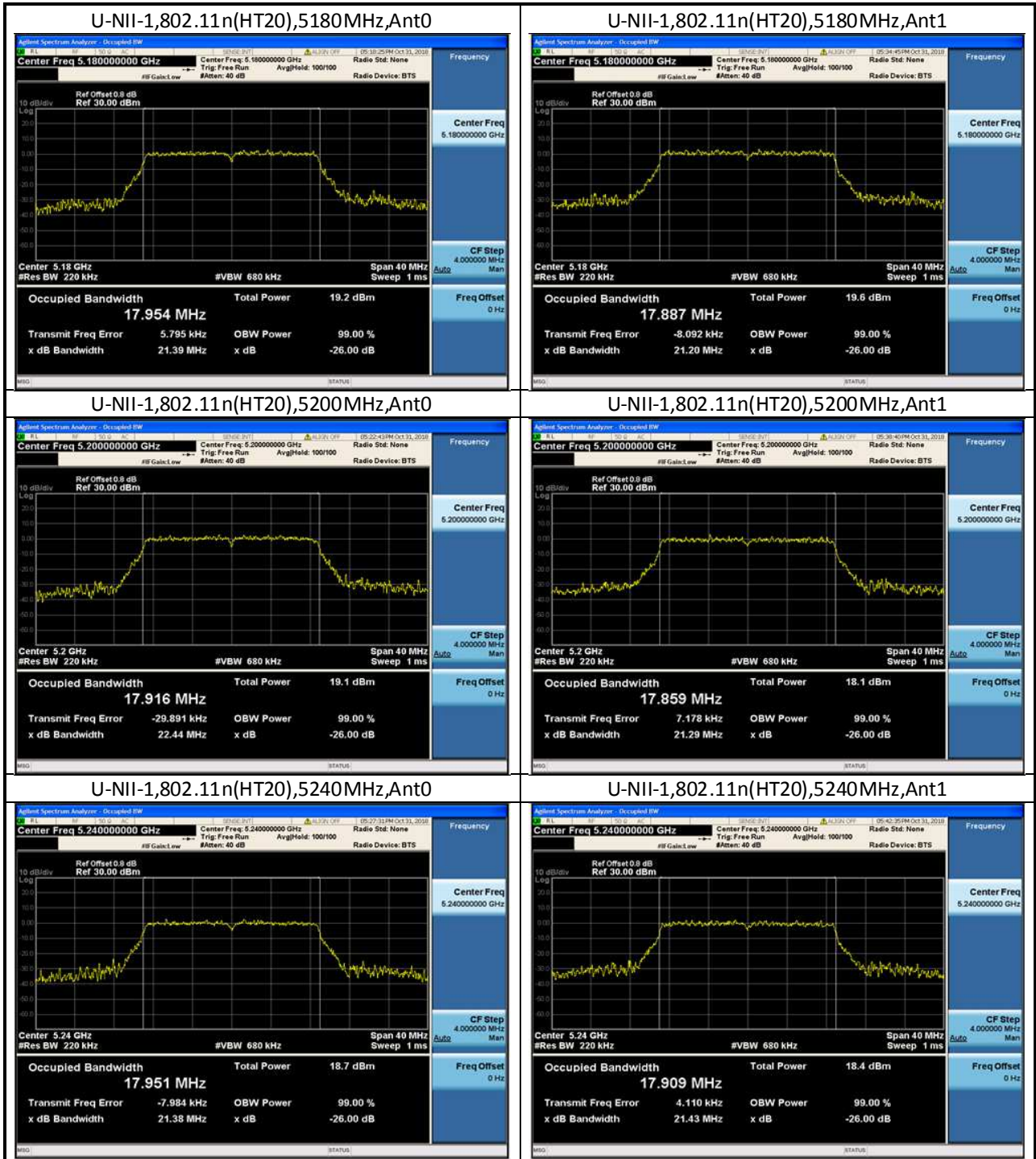
**1 Occupied 26 dB Bandwidth**

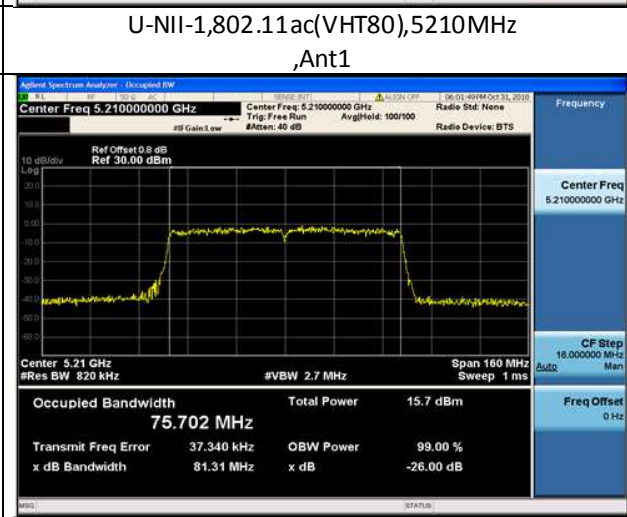
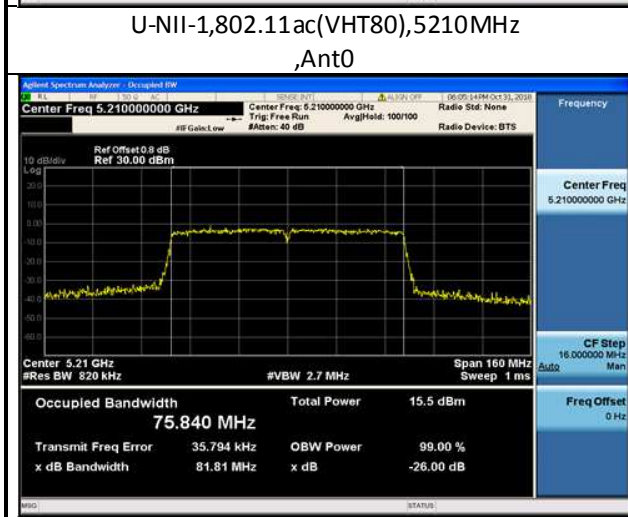
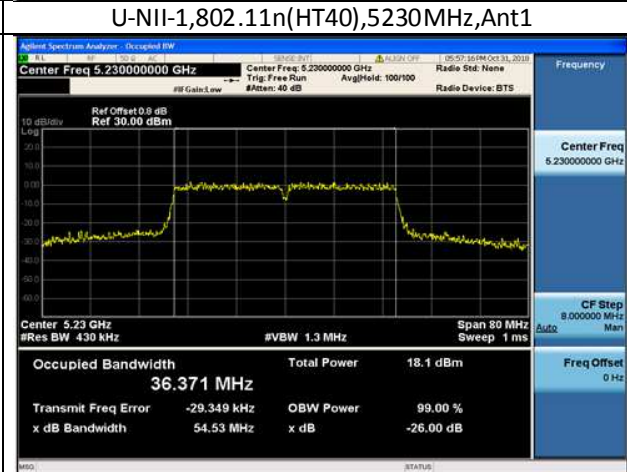
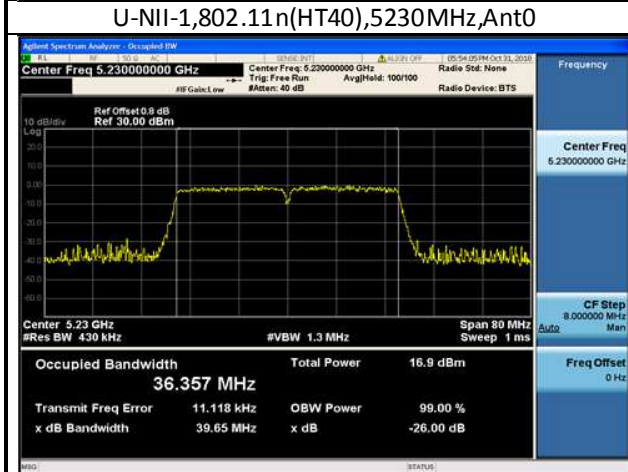
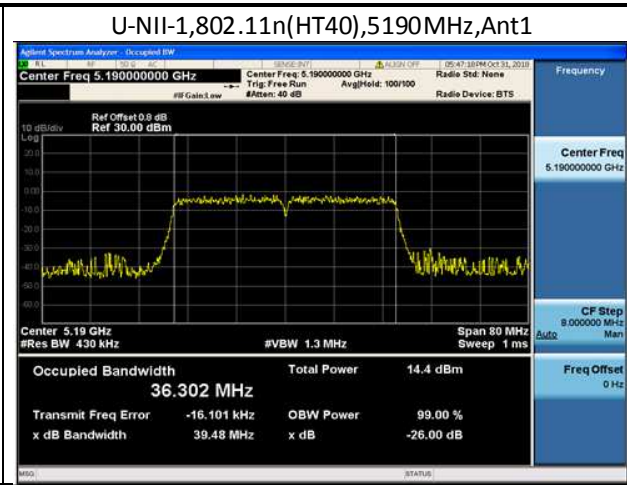
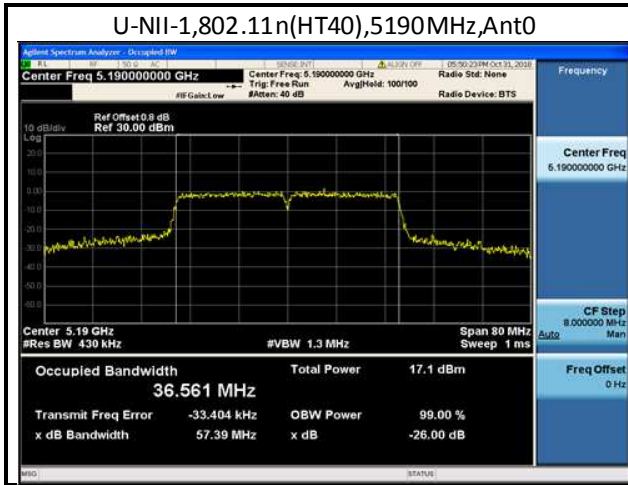
**1.1 Test Data**

U-NII-1 Occupied 26 dB Bandwidth				
Mode	Test Frequency (MHz)	Ant	Occupied Bandwidth (MHz)	Result
802.11a	5180	Ant0	31.88	Pass
802.11a	5180	Ant1	25.83	Pass
802.11a	5200	Ant0	31.28	Pass
802.11a	5200	Ant1	31.15	Pass
802.11a	5240	Ant0	30.72	Pass
802.11a	5240	Ant1	25.93	Pass
802.11n (HT20)	5180	Ant0	21.39	Pass
802.11n (HT20)	5180	Ant1	21.20	Pass
802.11n (HT20)	5200	Ant0	22.44	Pass
802.11n (HT20)	5200	Ant1	21.29	Pass
802.11n (HT20)	5240	Ant0	21.38	Pass
802.11n (HT20)	5240	Ant1	21.43	Pass
802.11n (HT40)	5190	Ant0	57.39	Pass
802.11n (HT40)	5190	Ant1	39.48	Pass
802.11n (HT40)	5230	Ant0	39.66	Pass
802.11n (HT40)	5230	Ant1	54.53	Pass
802.11ac (VHT80)	5210	Ant0	81.81	Pass
802.11ac (VHT80)	5210	Ant1	81.31	Pass

### 1.2 Test Plots







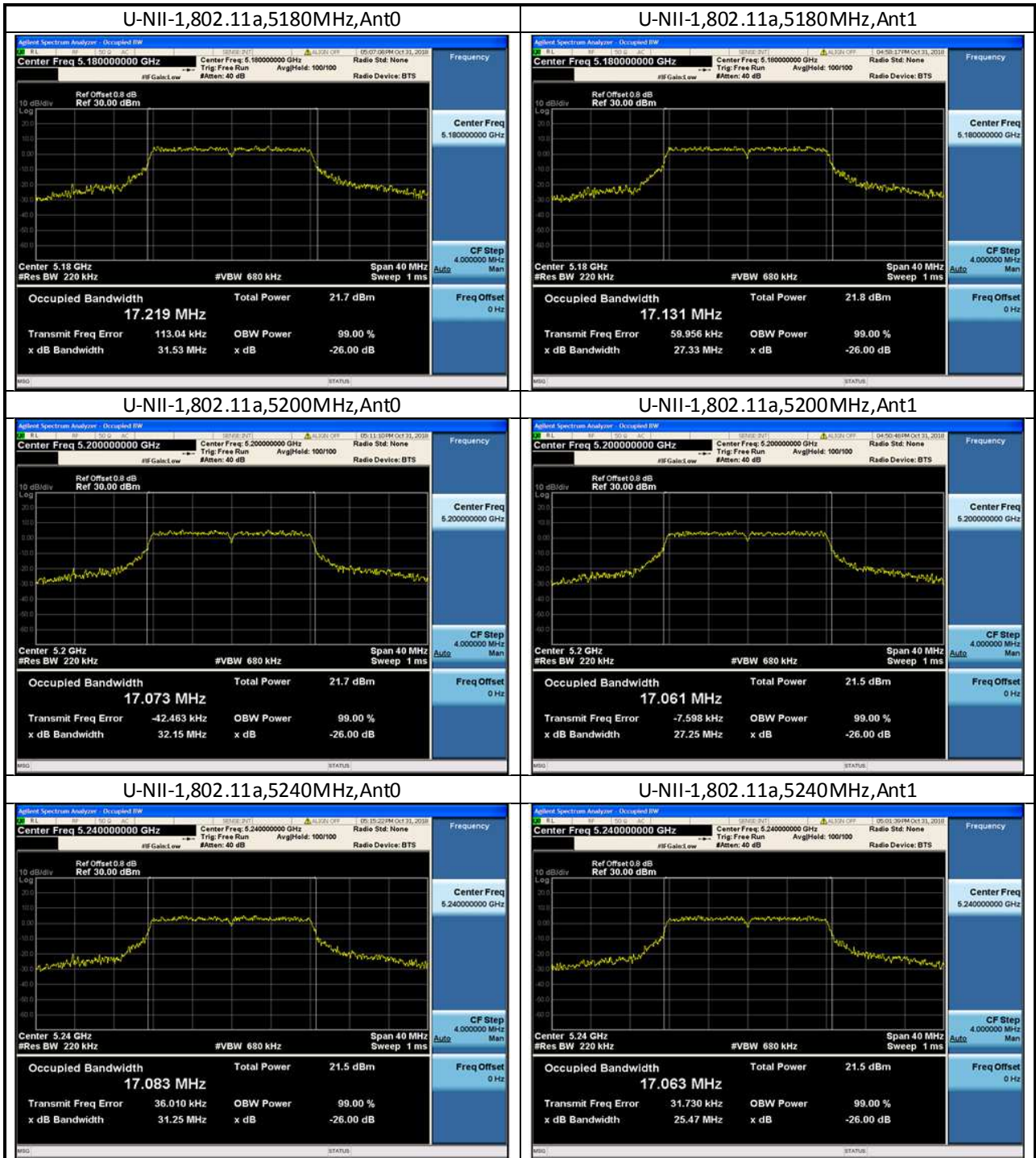


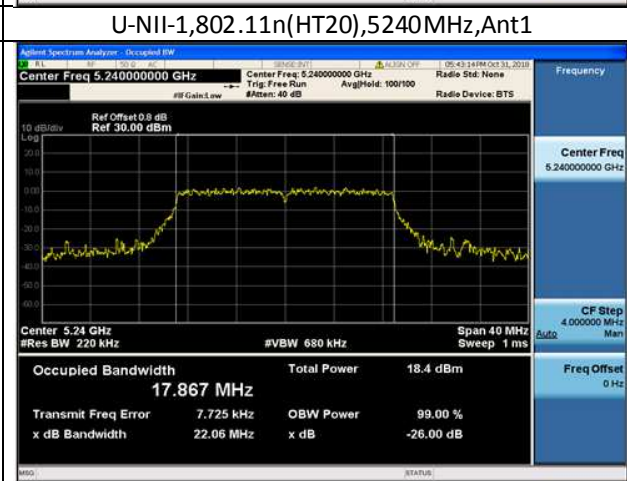
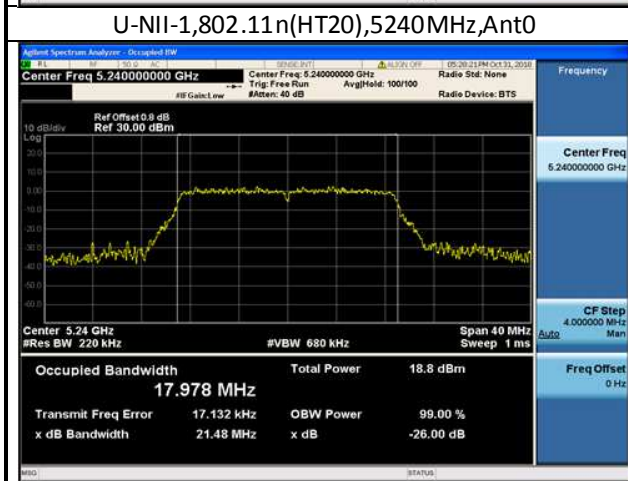
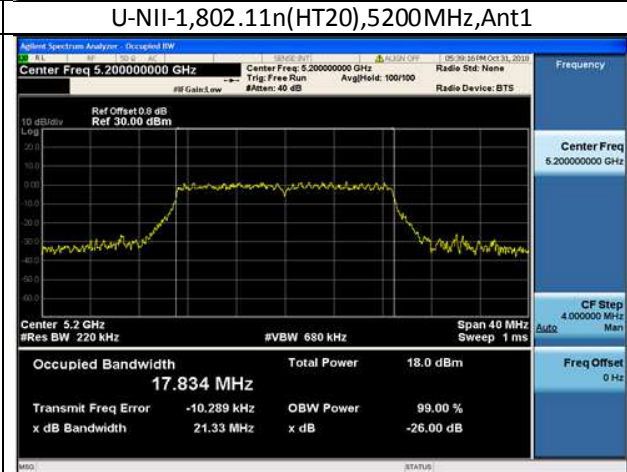
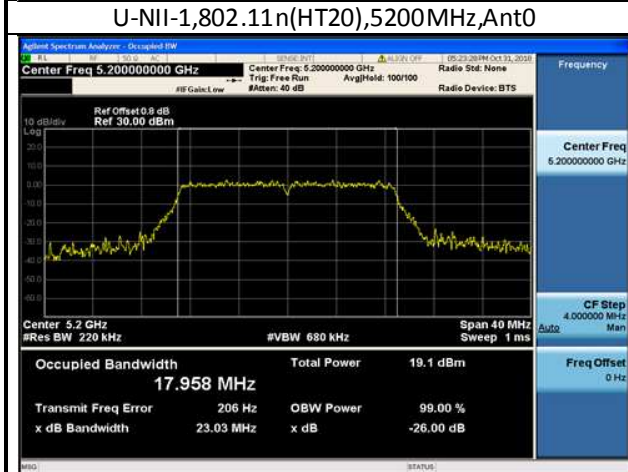
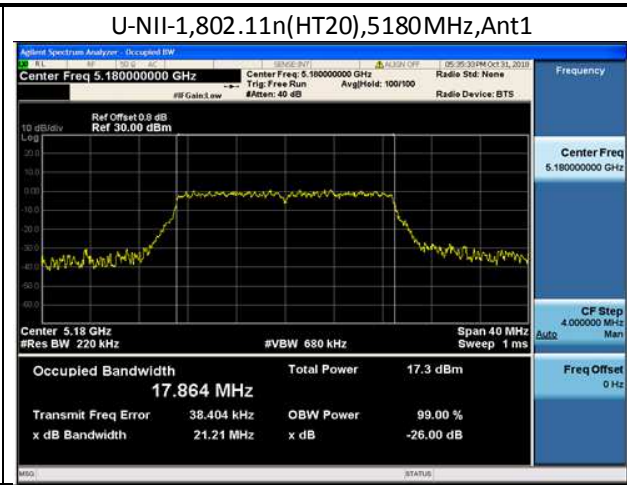
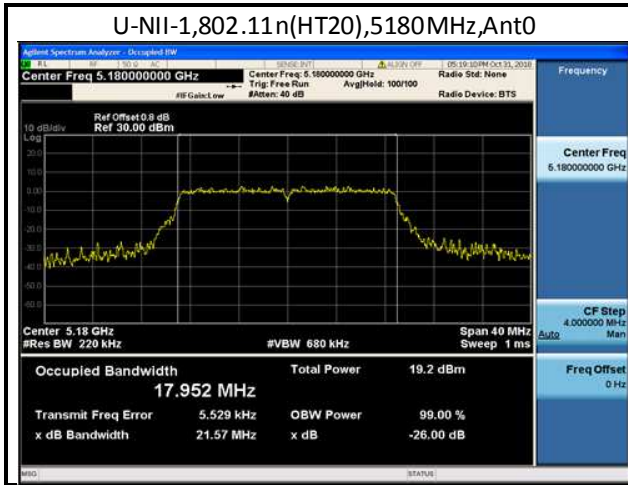
## 2 99% Occupied Bandwidth

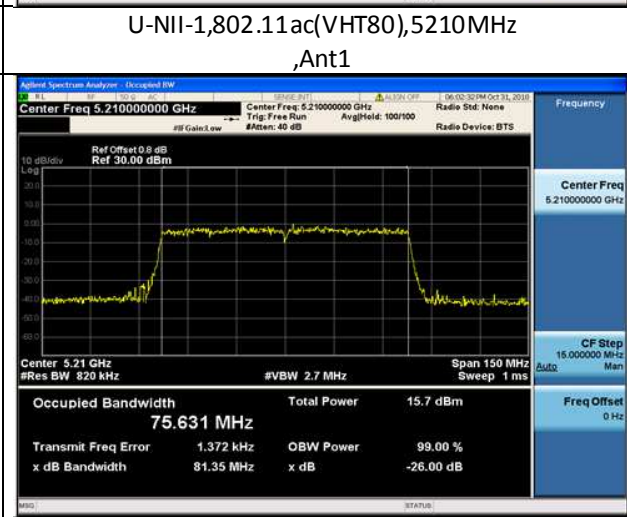
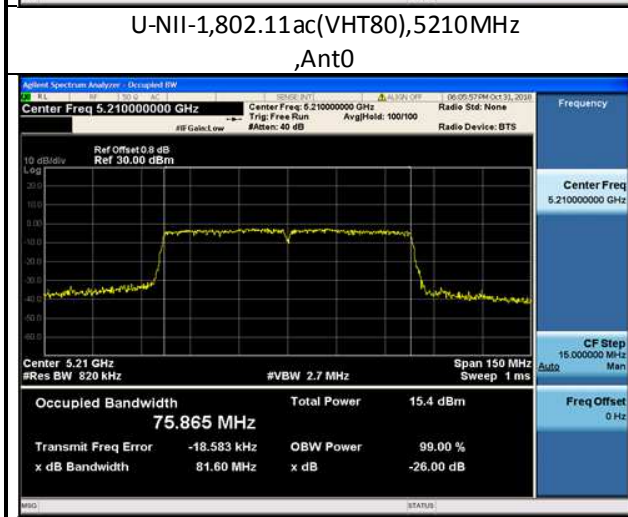
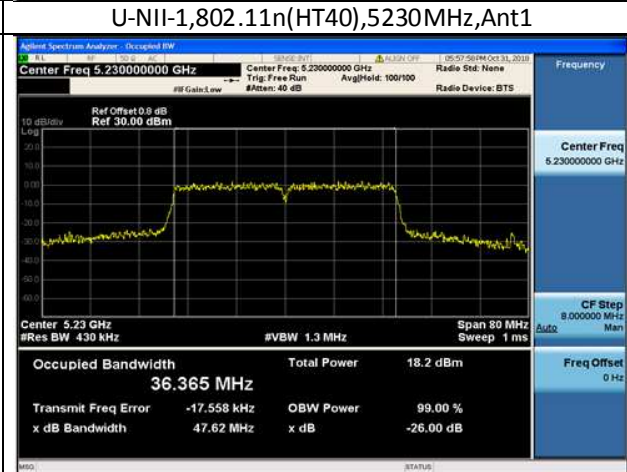
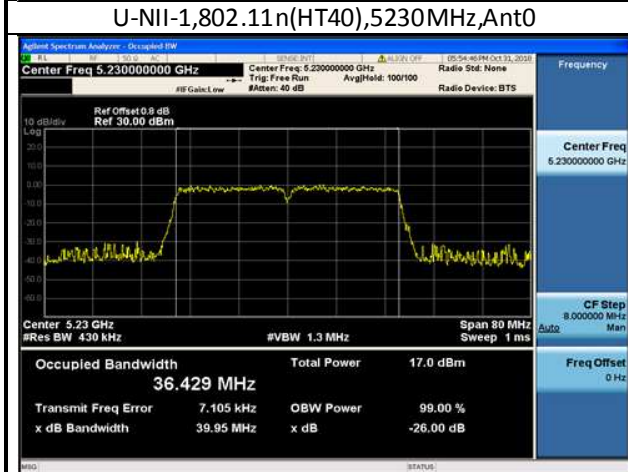
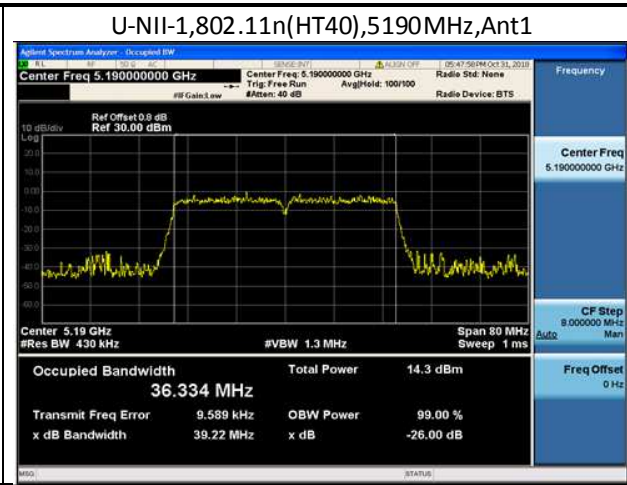
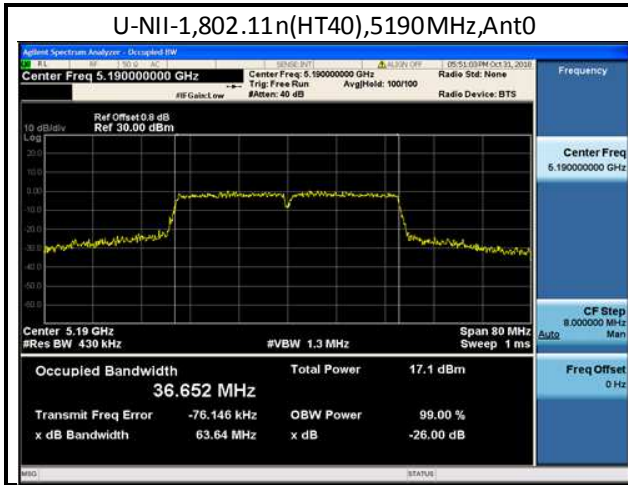
### 2.1 Test Data

U-NII-1 99% Occupied Bandwidth				
Mode	Test Frequency (MHz)	Ant	99% Occupied Bandwidth (MHz)	Result
802.11a	5180	Ant0	17.219	Pass
802.11a	5180	Ant1	17.131	Pass
802.11a	5200	Ant0	17.073	Pass
802.11a	5200	Ant1	17.061	Pass
802.11a	5240	Ant0	17.083	Pass
802.11a	5240	Ant1	17.063	Pass
802.11n (HT20)	5180	Ant0	17.952	Pass
802.11n (HT20)	5180	Ant1	17.864	Pass
802.11n (HT20)	5200	Ant0	17.958	Pass
802.11n (HT20)	5200	Ant1	17.834	Pass
802.11n (HT20)	5240	Ant0	17.978	Pass
802.11n (HT20)	5240	Ant1	17.867	Pass
802.11n (HT40)	5190	Ant0	36.652	Pass
802.11n (HT40)	5190	Ant1	36.334	Pass
802.11n (HT40)	5230	Ant0	36.429	Pass
802.11n (HT40)	5230	Ant1	36.365	Pass
802.11ac (VHT80)	5210	Ant0	75.865	Pass
802.11ac (VHT80)	5210	Ant1	75.631	Pass

### 2.2 Test Plots







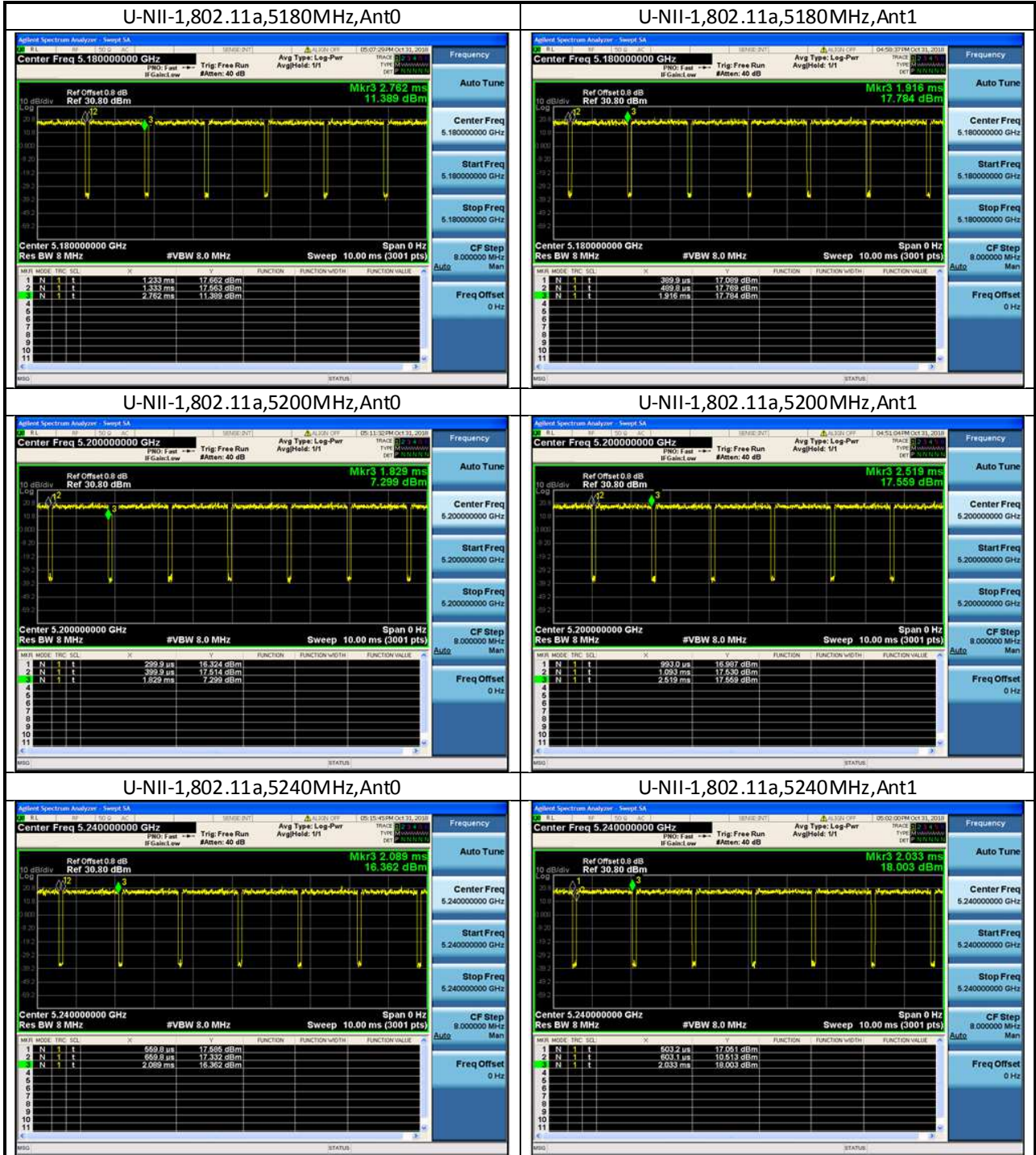


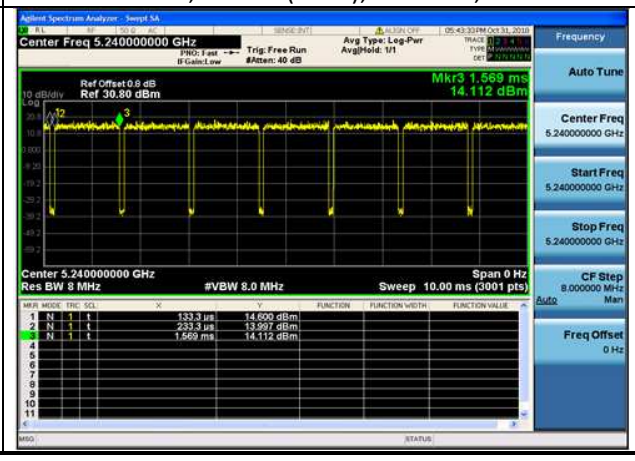
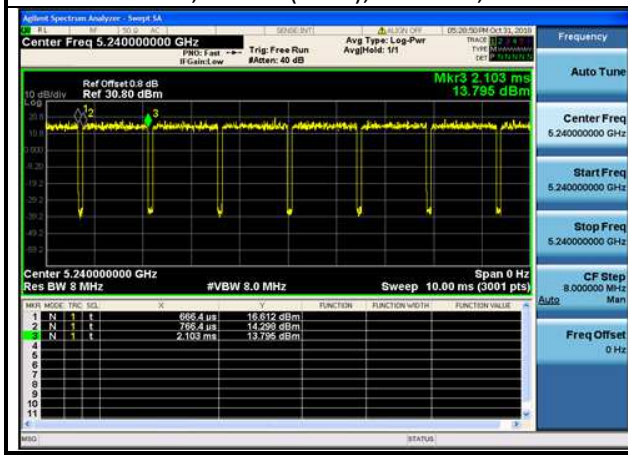
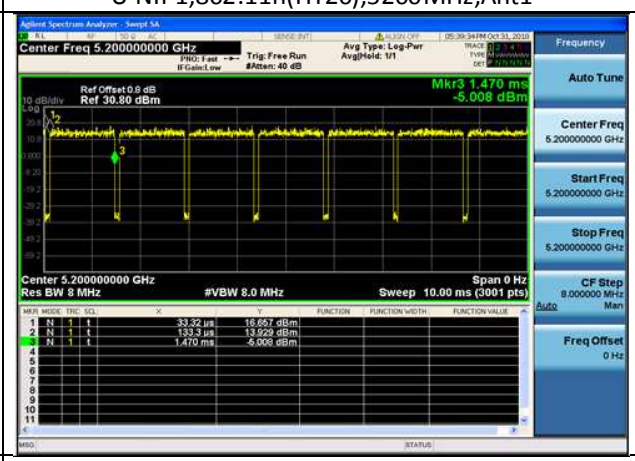
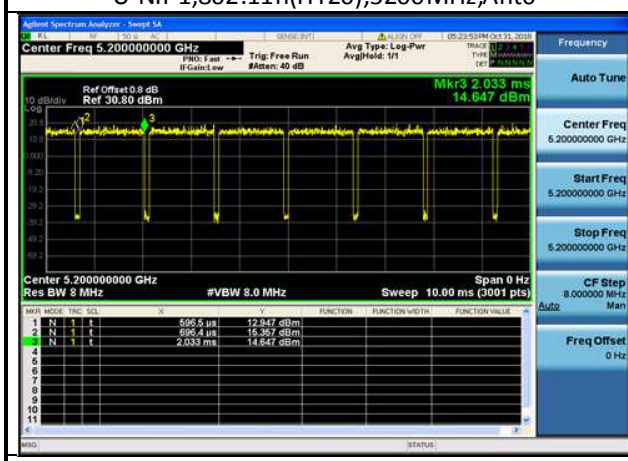
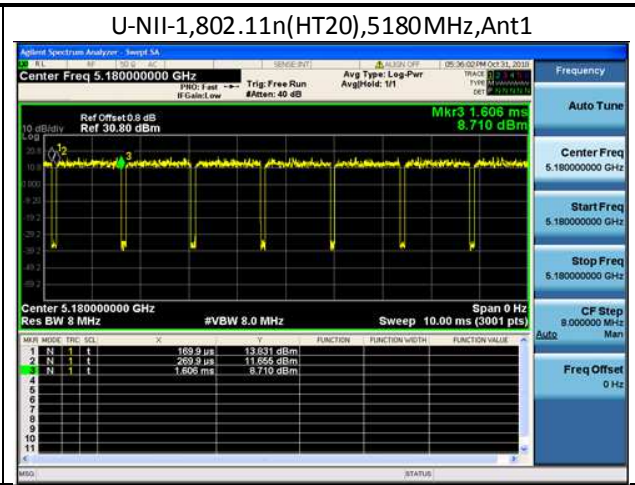
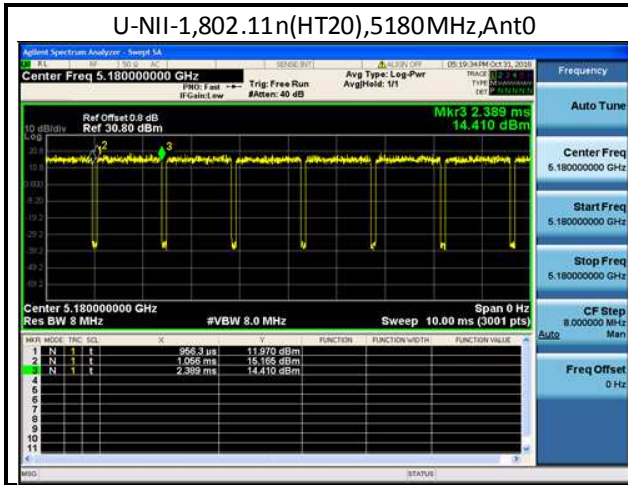
### 3 Duty Cycle

#### 3.1 Test Data

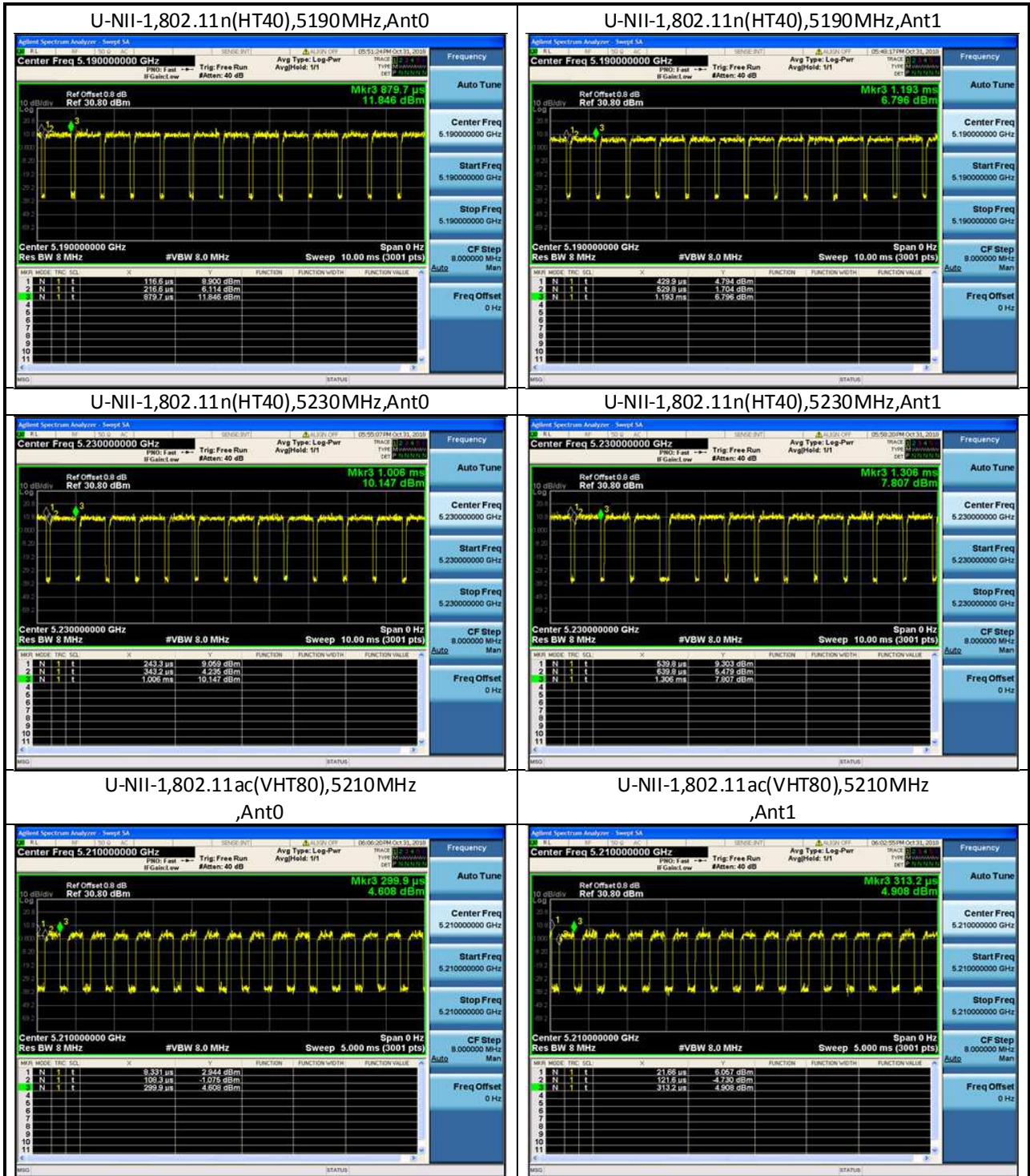
U-NII-1 Duty Cycle				
Mode	Test Frequency (MHz)	Ant	Duty Cycle (%)	Duty Cycle Factor (dB)
802.11a	5180	Ant0	93.46	0.29
802.11a	5180	Ant1	93.45	0.29
802.11a	5200	Ant0	93.46	0.29
802.11a	5200	Ant1	93.45	0.29
802.11a	5240	Ant0	93.46	0.29
802.11a	5240	Ant1	93.46	0.29
802.11n (HT20)	5180	Ant0	93.02	0.31
802.11n (HT20)	5180	Ant1	93.04	0.31
802.11n (HT20)	5200	Ant0	93.04	0.31
802.11n (HT20)	5200	Ant1	93.04	0.31
802.11n (HT20)	5240	Ant0	93.04	0.31
802.11n (HT20)	5240	Ant1	93.04	0.31
802.11n (HT40)	5190	Ant0	86.90	0.61
802.11n (HT40)	5190	Ant1	86.90	0.61
802.11n (HT40)	5230	Ant0	86.90	0.61
802.11n (HT40)	5230	Ant1	86.96	0.61
802.11ac (VHT80)	5210	Ant0	65.71	1.82
802.11ac (VHT80)	5210	Ant1	65.71	1.82

3.2 Test Plots











## 4 AVGSA Output Power

### 1.1 Test Data

U-NII-1 AVGSA Output Power							
Mode	Test Frequency (MHz)	Ant	Duty Cycle Factor (dB)	Max Power (dBm)	Limit (dBm)	EIRP (dBm)	Result
802.11a	5180	Ant0	0.29	15.61	24	19.51	Pass
802.11a	5180	Ant1	0.29	15.67	24	19.57	Pass
802.11a	5200	Ant0	0.29	15.58	24	19.48	Pass
802.11a	5200	Ant1	0.29	15.44	24	19.34	Pass
802.11a	5240	Ant0	0.29	15.26	24	19.16	Pass
802.11a	5240	Ant1	0.29	15.34	24	19.24	Pass
802.11n (HT20)	5180	Ant0	0.31	13.23	24	17.13	Pass
802.11n (HT20)	5180	Ant1	0.31	10.42	24	14.32	Pass
802.11n (HT20)	5200	Ant0	0.31	12.94	24	16.84	Pass
802.11n (HT20)	5200	Ant1	0.31	12.02	24	15.92	Pass
802.11n (HT20)	5240	Ant0	0.31	12.53	24	16.43	Pass
802.11n (HT20)	5240	Ant1	0.31	12.44	24	16.34	Pass
802.11n (HT40)	5190	Ant0	0.61	11.01	24	14.91	Pass
802.11n (HT40)	5190	Ant1	0.61	7.75	24	11.65	Pass
802.11n (HT40)	5230	Ant0	0.61	10.63	24	14.53	Pass
802.11n (HT40)	5230	Ant1	0.61	11.43	24	15.33	Pass
802.11ac (VHT80)	5210	Ant0	1.82	8.62	24	12.52	Pass
802.11ac (VHT80)	5210	Ant1	1.82	8.53	24	12.43	Pass

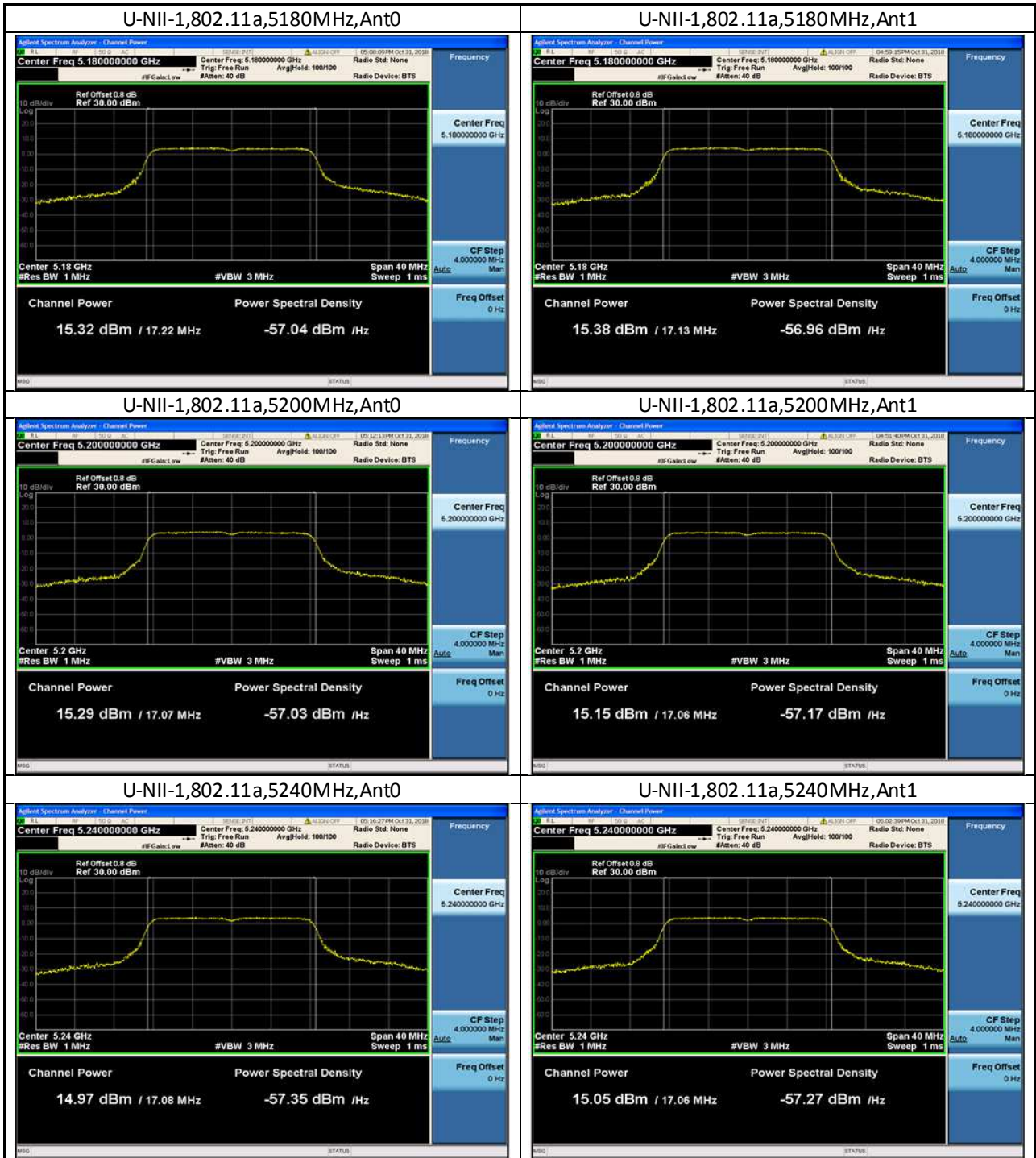
Mode	Frequency (MHz)	Reading + Duty cycle factor (dBm)		Max Power (dBm)	Limit (dBm)
		Ant 0	Ant 1		
802.11 a	5180	15.61	15.67	<b>15.67</b>	24.00
	5200	15.58	15.44	15.58	24.00
	5240	15.26	15.34	15.34	24.00

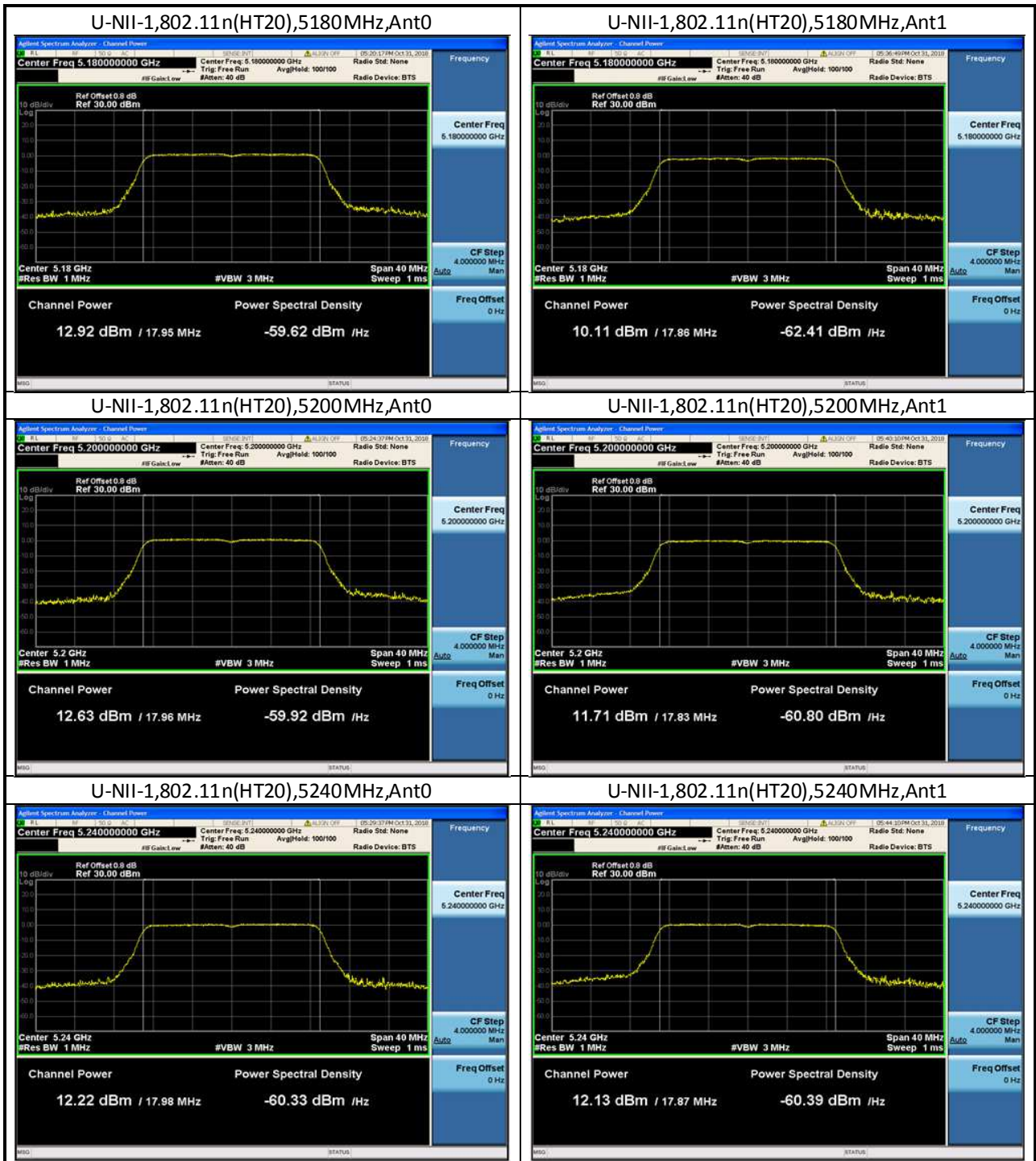
Mode	Frequency (MHz)	Reading + Duty cycle factor (dBm)		Total Power (dBm)	Limit (dBm)
		Ant 0	Ant 1		
802.11n20	5180	13.23	10.42	15.06	24.00
	5200	12.94	12.02	15.51	24.00
	5240	12.53	12.44	15.50	24.00
802.11n40	5190	11.01	7.75	12.69	24.00
	5230	10.63	11.43	14.06	24.00
802.11ac80	5210	8.62	8.53	11.59	24.00

Note: Total power =  $10 * \lg(10^{\text{Ant 0} / 10} + 10^{\text{Ant 1} / 10})$ .

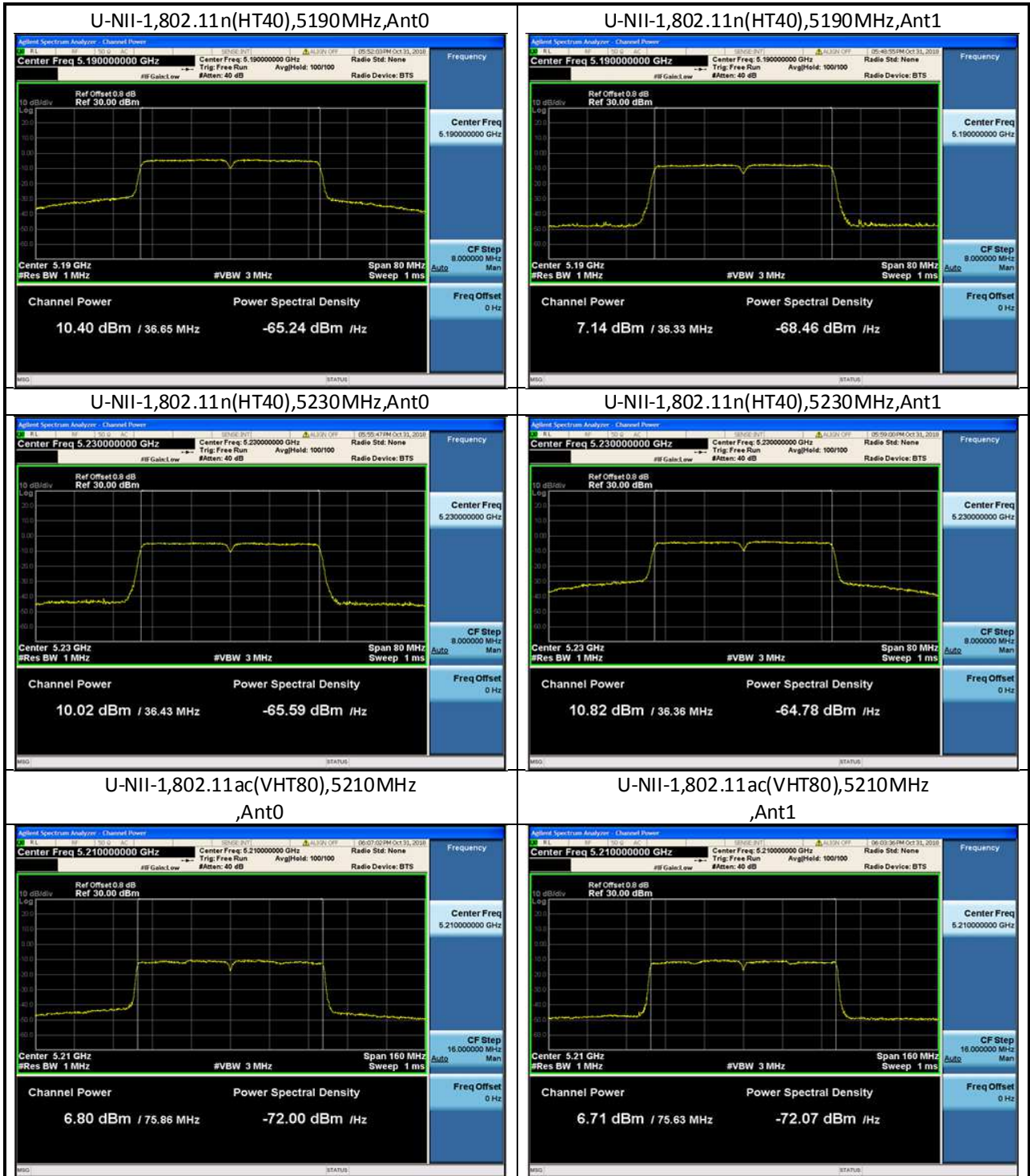
**Conclusion:** The maximum EIRP = 15.67dBm+3.9dBi = 19.57dBm = **90.57mW** which is lower than the limit of 200mW listed in RSS-247.

**4.1 Test Plots**









## 5 AVGSA Power Spectral Density

### 5.1 Test Data

U-NII-1 AVGSA Power Spectral Density							
Mode	Test Frequency (MHz)	Ant	Duty Cycle Factor (dB)	PSD (dBm)	RBW (kHz)	Limit (dBm)	Result
802.11a	5180	Ant0	0.29	4.639	1000	11	Pass
802.11a	5180	Ant1	0.29	4.806	1000	11	Pass
802.11a	5200	Ant0	0.29	4.512	1000	11	Pass
802.11a	5200	Ant1	0.29	5.340	1000	11	Pass
802.11a	5240	Ant0	0.29	4.472	1000	11	Pass
802.11a	5240	Ant1	0.29	4.412	1000	11	Pass
802.11n (HT20)	5180	Ant0	0.31	2.016	1000	11	Pass
802.11n (HT20)	5180	Ant1	0.31	0.964	1000	11	Pass
802.11n (HT20)	5200	Ant0	0.31	1.753	1000	11	Pass
802.11n (HT20)	5200	Ant1	0.31	0.882	1000	11	Pass
802.11n (HT20)	5240	Ant0	0.31	1.313	1000	11	Pass
802.11n (HT20)	5240	Ant1	0.31	1.198	1000	11	Pass
802.11n (HT40)	5190	Ant0	0.61	-3.371	1000	11	Pass
802.11n (HT40)	5190	Ant1	0.61	-6.398	1000	11	Pass
802.11n (HT40)	5230	Ant0	0.61	-3.433	1000	11	Pass
802.11n (HT40)	5230	Ant1	0.61	-2.739	1000	11	Pass
802.11ac (VHT80)	5210	Ant0	1.82	-8.472	1000	11	Pass
802.11ac (VHT80)	5210	Ant1	1.82	-8.627	1000	11	Pass

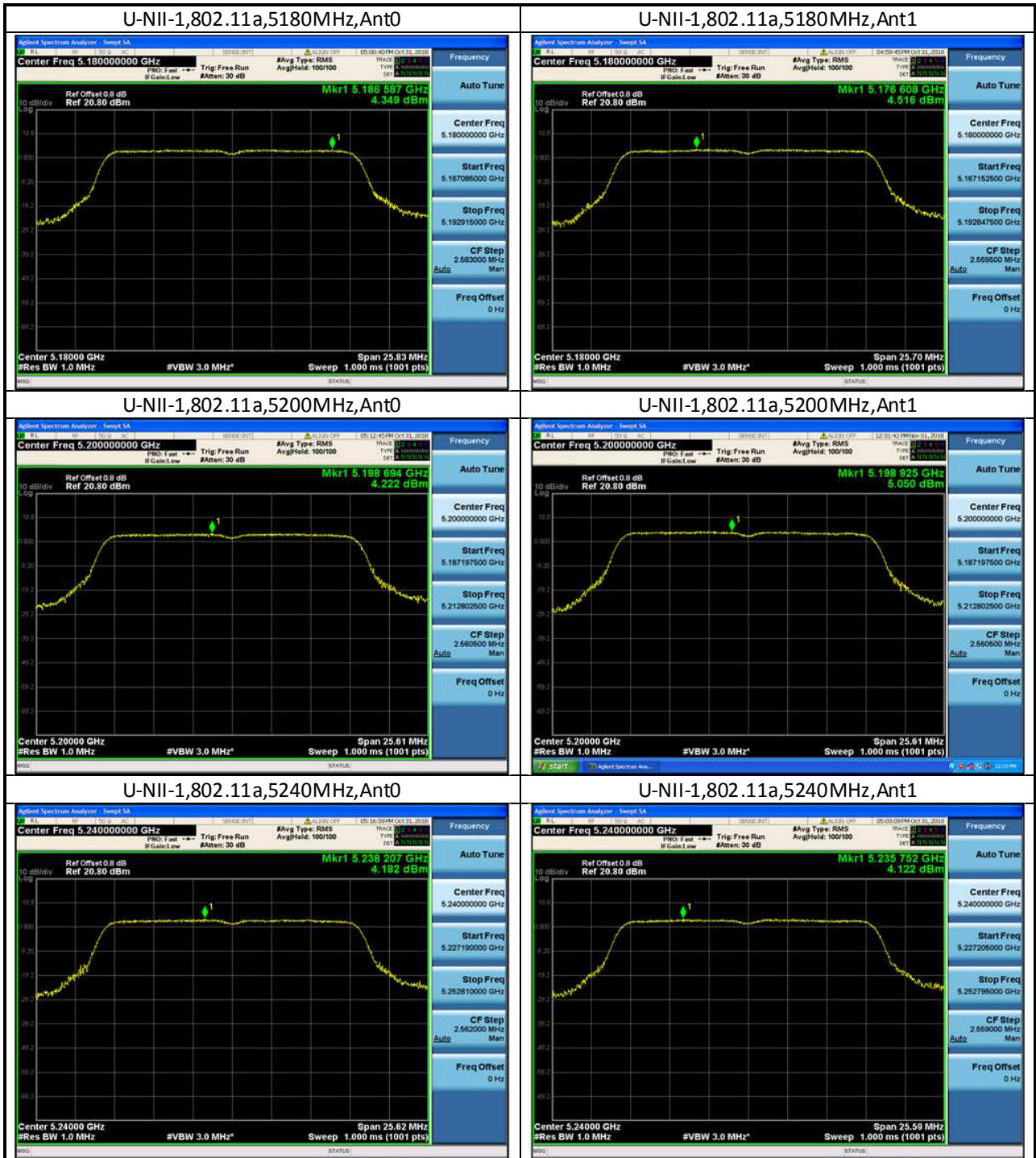
Mode	Frequency (MHz)	Reading + Duty cycle factor (dBm)		Max PSD (dBm)	Limit (dBm)
		Ant 0	Ant 1		
802.11 a	5180	4.639	4.806	4.806	11.00
	5200	4.512	5.340	<b>5.340</b>	11.00
	5240	4.472	4.412	4.472	11.00

Mode	Frequency (MHz)	Reading + Duty cycle factor (dBm)		Total PSD (dBm)	Limit (dBm)
		Ant 0	Ant 1		
802.11n20	5180	2.016	0.964	4.532	11.00
	5200	1.753	0.882	4.350	11.00
	5240	1.313	1.198	4.266	11.00
802.11n40	5190	-3.371	-6.398	-1.616	11.00
	5230	-3.433	-2.739	-0.062	11.00
802.11ac80	5210	-8.472	-8.627	-5.539	11.00

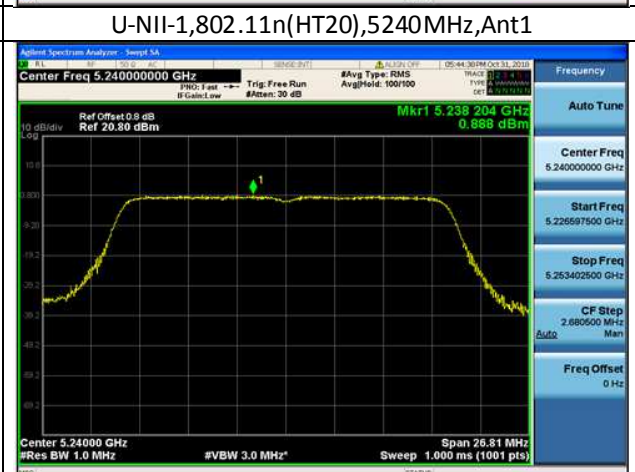
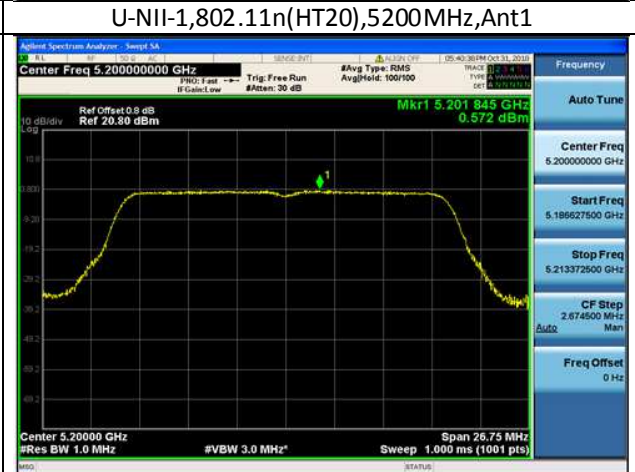
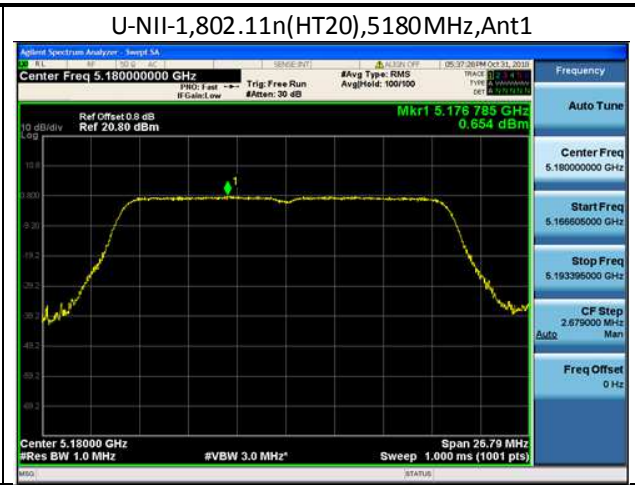
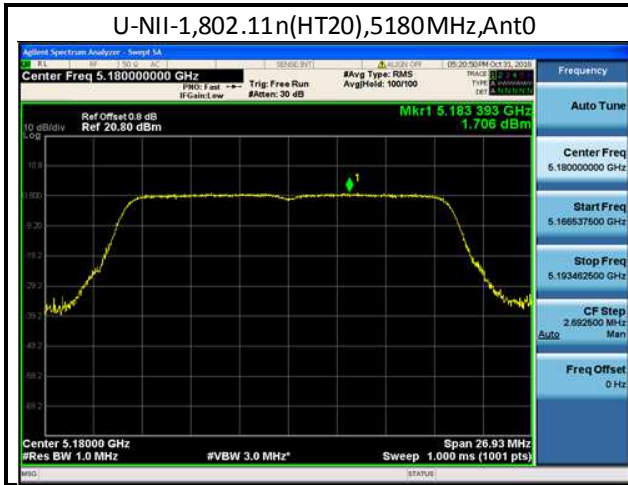
Note: Total PSD =  $10 * \lg(10^{\text{Ant 0} / 10} + 10^{\text{Ant 1} / 10})$ .

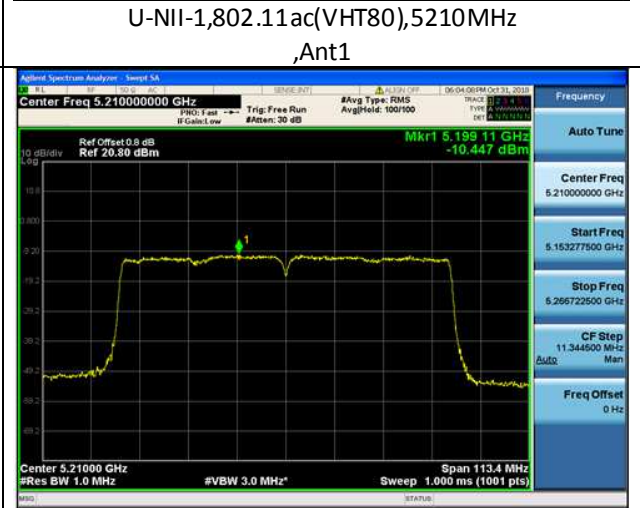
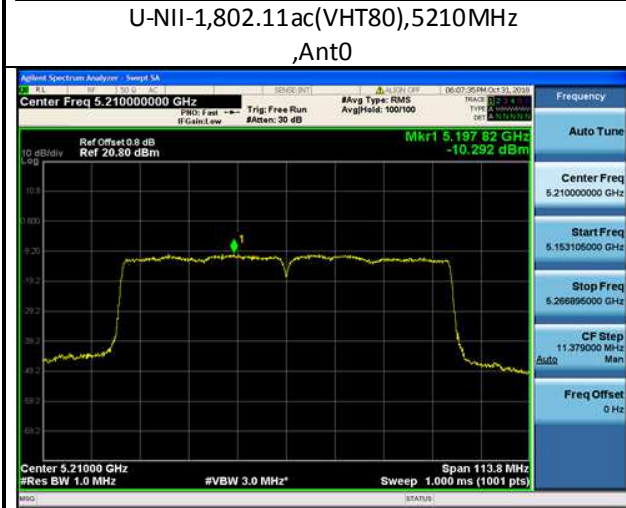
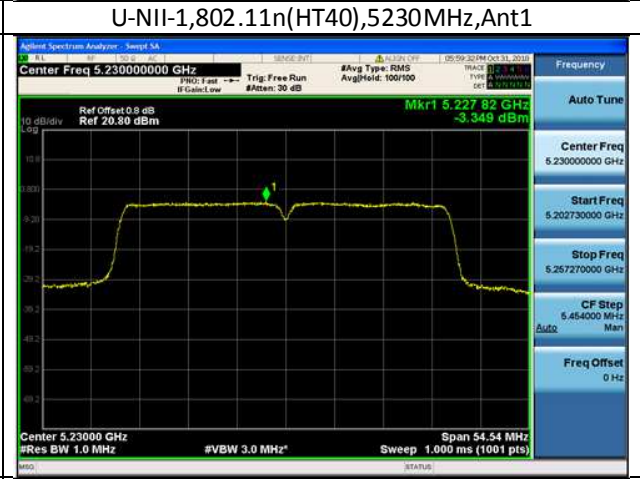
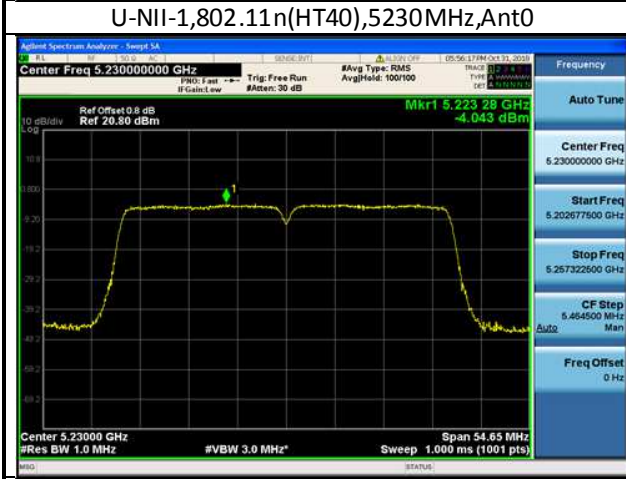
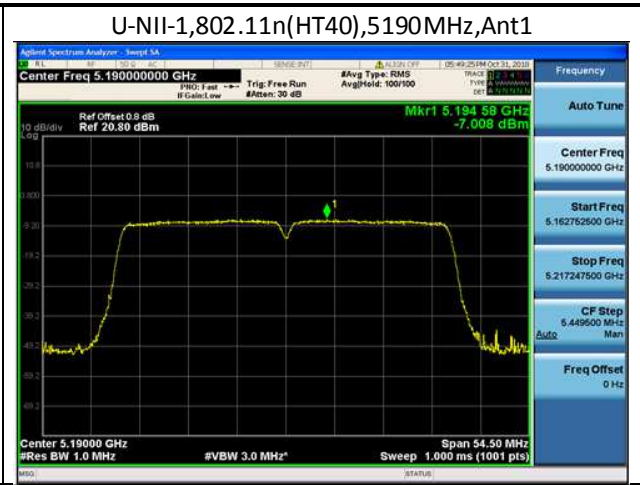
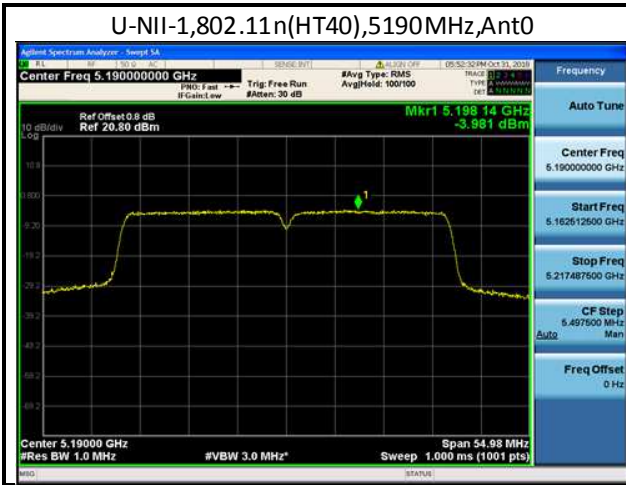
**Conclusion:** The maximum EIRP PSD = 5.340dBm+3.9dBi = **9.240dBm** which is lower than the limit of 10dBm in any 1 megahertz band listed in RSS-247.

5.2 Test Plots









\*\*\*\*\* END \*\*\*\*\*