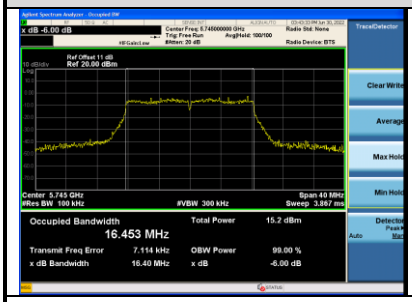
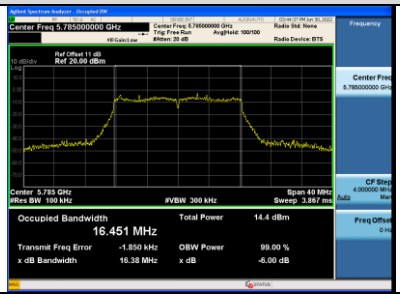
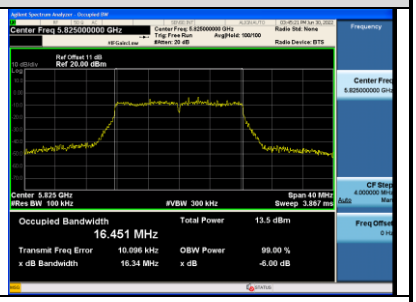
6dB bandwidth		
U-NII-3 Band: ANT2		
IEEE 802.11a		
		
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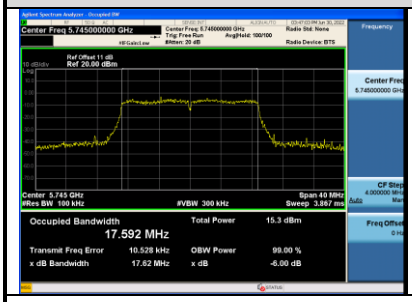	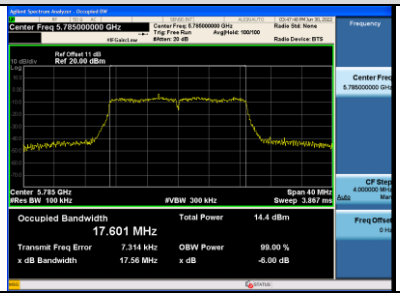	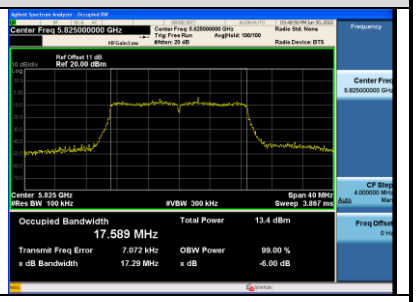
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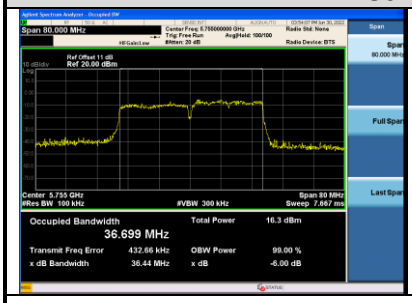	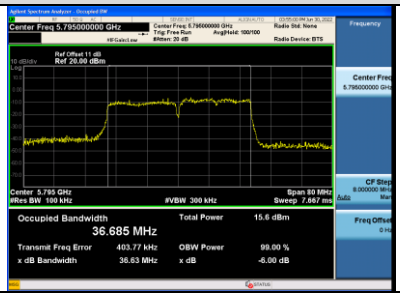	---
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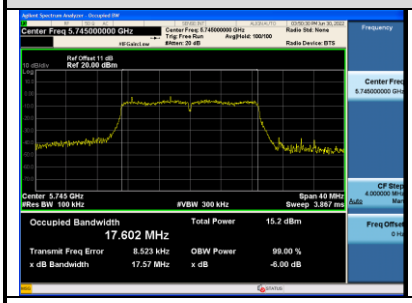
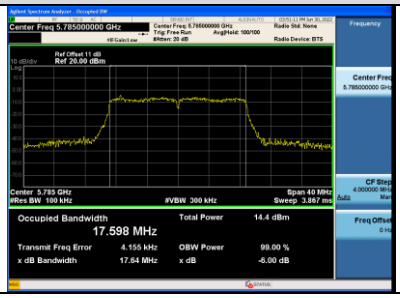
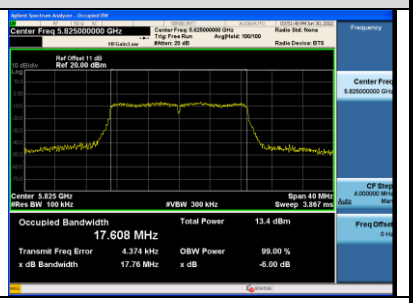
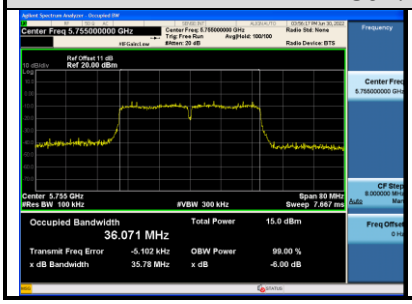
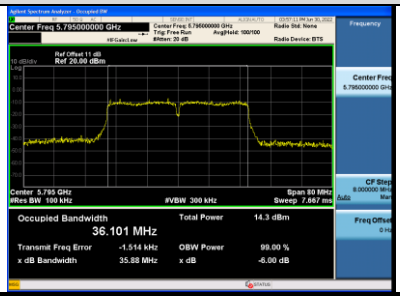
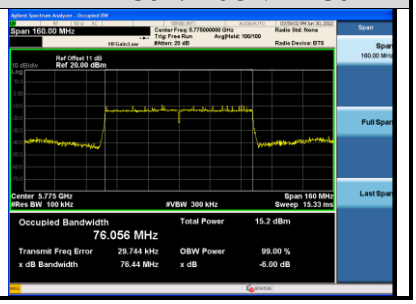
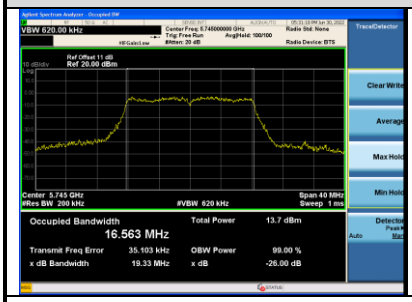
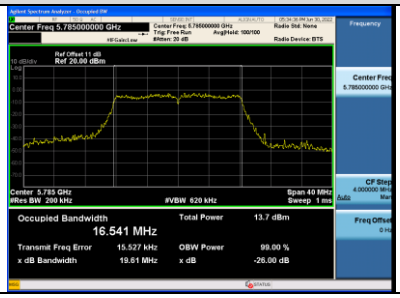
		
IEEE 802.11ac VHT40		IEEE 802.11ac VHT80
		

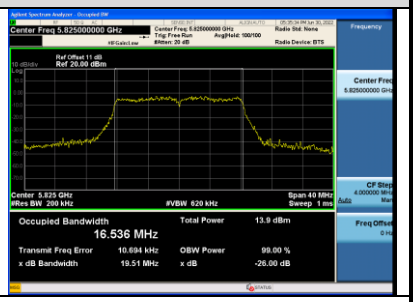
26dB bandwidth & 99% Occupied bandwidth

U-NII-3 Band: ANT1

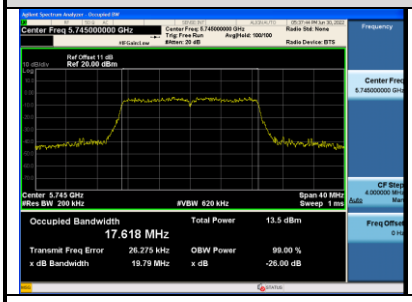
IEEE 802.11a

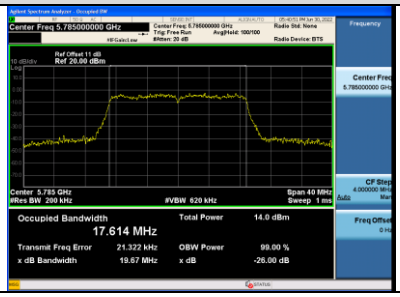


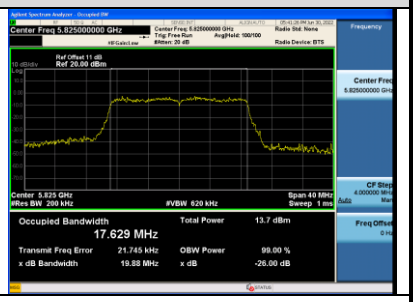




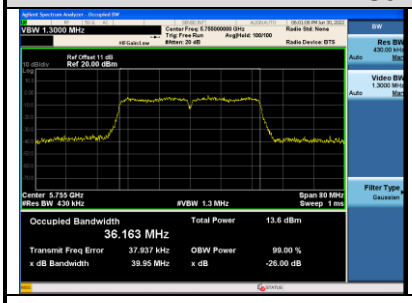
IEEE 802.11n HT20

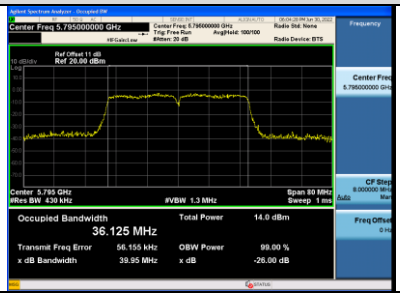




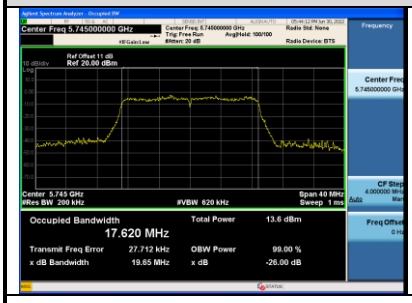


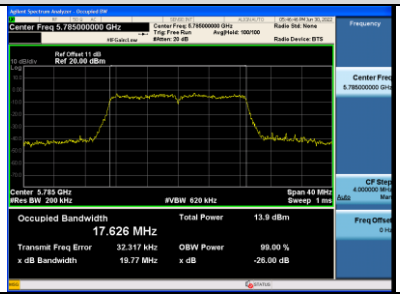
IEEE 802.11n HT40	---

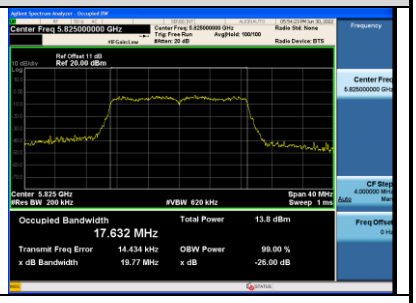




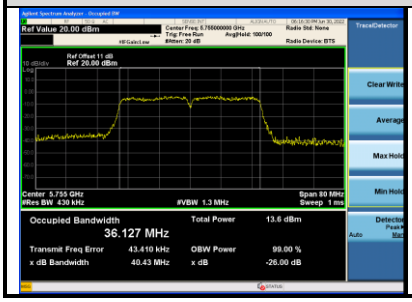
IEEE 802.11ac VHT20

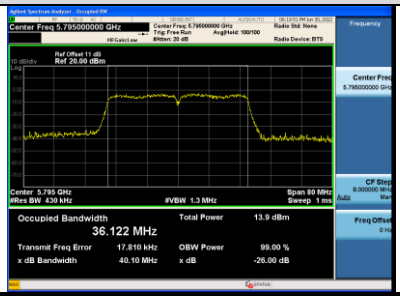


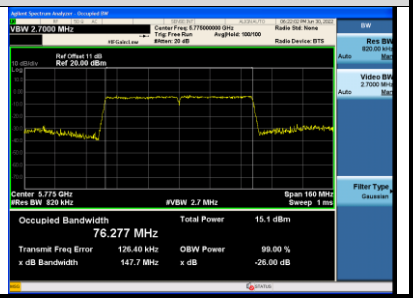




IEEE 802.11ac VHT40	IEEE 802.11ac VHT80



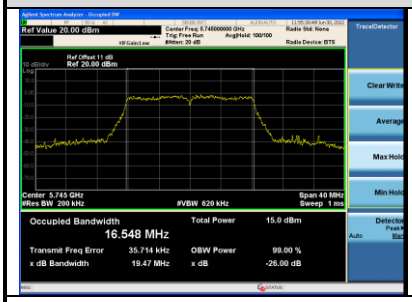


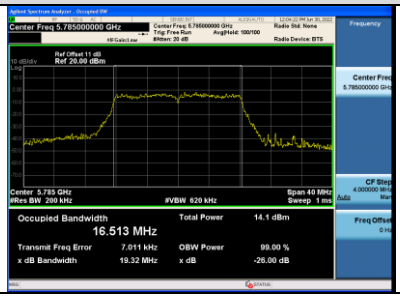


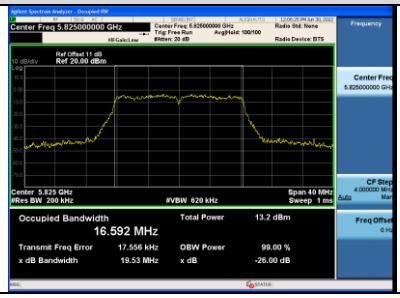
26dB bandwidth & 99% Occupied bandwidth

U-NII-3 Band: ANT2

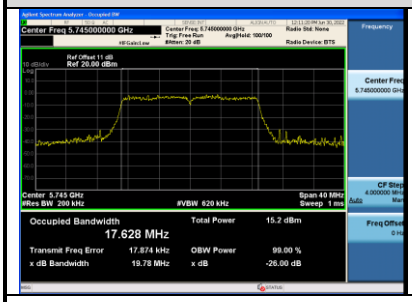
IEEE 802.11a

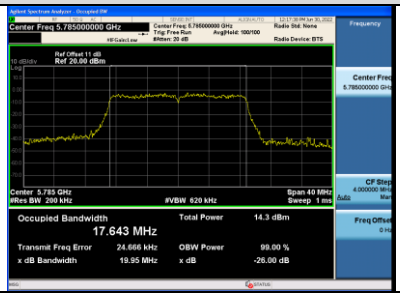


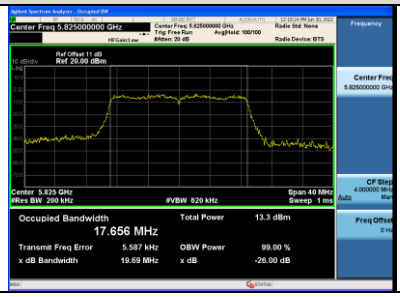




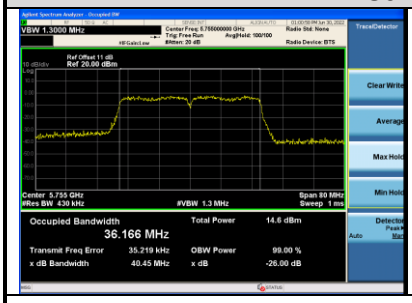
IEEE 802.11n HT20

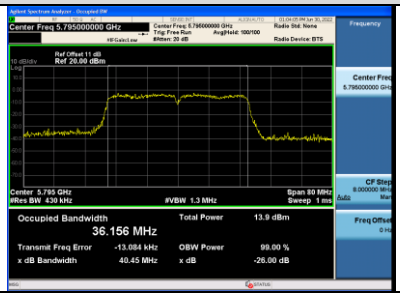




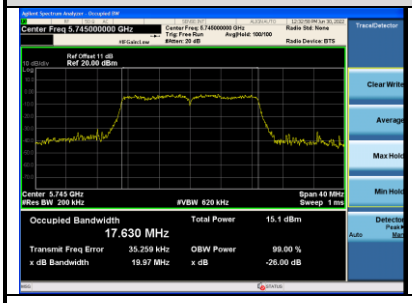


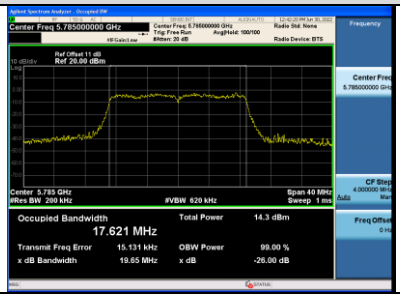
IEEE 802.11n HT40	---

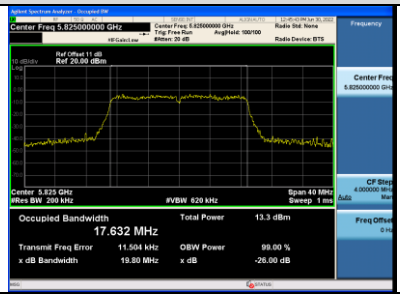




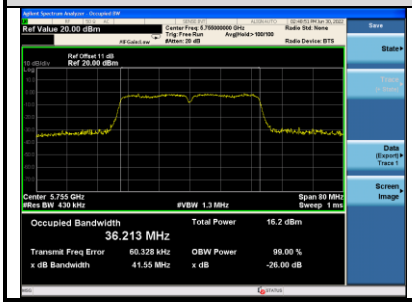
IEEE 802.11ac VHT20

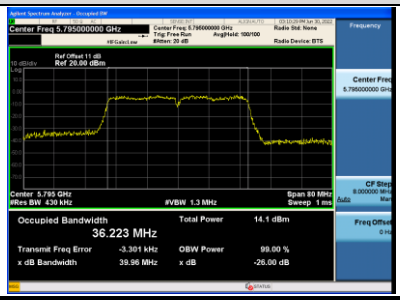


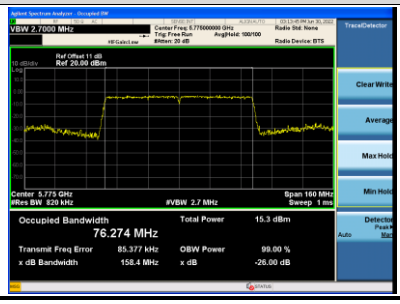




IEEE 802.11ac VHT40	IEEE 802.11ac VHT80







7. OUTPUT POWER TEST

7.1.Test Equipment

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	PXA Signal Analyzer	Agilent	N9030A	MY51380221	Apr.06,22	1 Year
2.	RF Cable	Mini-Circuits	CBL-1M-SMSM+	No.7	Oct.11,21	1 Year
3.	Power Meter	Anritsu	ML2487A	6K00003262	Jul.01,22	1.0 Year
4.	Power Sensor	Anritsu	MA2491A	032516	Jul.01,22	1.0 Year
5.	Attenuator	Agilent	8491B	MY39269201	Oct.09,21	1 Year

7.2.Limit

For the band 5.15–5.25 GHz.
For mobile and portable client devices in the 5.15–5.25 GHz band, the maximum conducted output power over the frequency band of operation shall not exceed 250 mW provided the max-imum antenna gain does not exceed 6 dBi.
For the 5.25–5.35 GHz and 5.47–5.725 GHz bands, the maximum conducted output power over the frequency bands of operation shall not exceed the lesser of 250 mW or 11 dBm + 10 log B, where B is the 26 dB emission bandwidth in megahertz.
For the band 5.725-5.85 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W.

7.3.Test Procedure

1. Connected the EUT's antenna port to measure device by 20dB attenuator.
2. Use the test method described in ANSI C63.10 clause 12.3 Method SA-1
   1) Set span to encompass the entire emission bandwidth (EBW) (or, alternatively, the entire 99% occupied bandwidth) of the signal.
   2) Set RBW = 1 MHz.
   3) Set VBW ≥ 3 MHz.
   4) Number of points in sweep ≥ 2 × span / RBW.
   5) Sweep time = auto.
   6) Detector = power averaging (rms), if available. Otherwise, use sample detector mode.
   7) If transmit duty cycle < 98%, use a video trigger with the trigger level set to enable triggering only on full power pulses. Transmitter must operate at maximum power control level for the entire duration of every sweep. If the EUT transmits continuously (i.e., with no off intervals) or at duty cycle ≥ 98%, and if each transmission is entirely at the maximum power control level, then the trigger shall be set to "free run."
   8) Trace average at least 100 traces in power averaging (rms) mode.
   9) Compute power by integrating the spectrum across the EBW (or, alternatively, the entire 99% occupied bandwidth) of the signal using the instrument's band power measurement function with band limits set equal to the EBW (or occupied bandwidth) band edges. If the instrument does not have a band power function, sum the spectrum levels (in power units) at 1 MHz intervals extending across the EBW (or, alternatively, the entire 99% occupied bandwidth) of the spectrum.

Note: The cable loss and attenuator loss were offset into measure device as an amplitude offset.

7.4.Test Results

EUT: Truck Infotainment Unit		
M/N: Service Entertainment Module 2.5		
Test date: 2022-06-30~07-05	Pressure: 102.1 ±1.0 kpa	Humidity: 53.2 ±3.0%
Tested by: Xinyao	Test site: RF site	Temperature: 22.3 ±0.6℃

U-NII-1 Band:

Test Mode	Frequency (MHz)	Power Setting		Output Power (dBm)			Limit (dBm)
		ANT1	ANT2	ANT1	ANT2	Total	
11a	5180	8	7	6.17	6.48	N/A	23.98
	5200	8	7	6.02	6.27	N/A	
	5240	8	7	6.09	6.19	N/A	
11n HT20 (SISO)	5180	8	7	6.19	6.40	N/A	23.98
	5200	8	7	6.05	6.16	N/A	
	5240	8	7	6.25	6.59	N/A	
11n HT20 (MIMO)	5180	6	6	4.12	5.16	7.68	23.27
	5200	6	6	3.67	4.52	7.13	
	5240	6	6	3.77	4.17	6.99	
11n HT40 (SISO)	5190	8	7	5.83	6.18	N/A	23.98
	5230	8	7	5.87	6.51	N/A	
11n HT40 (MIMO)	5190	6	6	3.72	4.52	7.15	23.27
	5230	6	6	3.61	4.03	6.84	
11ac VHT20 (SISO)	5180	8	7	6.25	6.58	N/A	23.98
	5200	8	7	6.26	6.16	N/A	
	5240	8	7	6.38	6.76	N/A	
11ac VHT20 (MIMO)	5180	6	6	4.29	5.38	7.88	23.27
	5200	6	6	3.83	4.72	7.31	
	5240	6	6	4.05	4.36	7.22	
11ac VHT40 (SISO)	5190	8	7	6.35	6.56	N/A	23.98
	5230	8	7	6.44	6.70	N/A	
11ac VHT40 (MIMO)	5190	6	6	4.03	5.12	7.62	23.27
	5230	6	6	3.83	4.36	7.11	
11ac VHT80 (SISO)	5210	8	7	6.31	6.57	N/A	23.98
11ac VHT80 (MIMO)	5210	6	6	4.12	4.87	7.52	23.27
Conclusion:Pass							

Notes: 1. Directional Gain= 10 log($10^{2.79/10}$+$10^{2.79/10}$/2)dBi=2.79dBi＜6dBi.

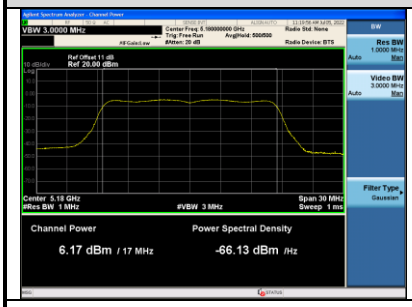
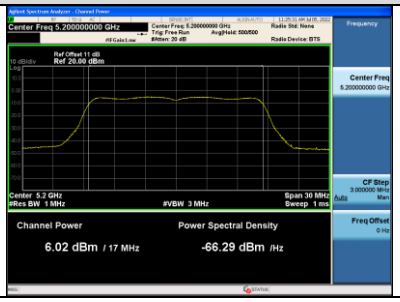
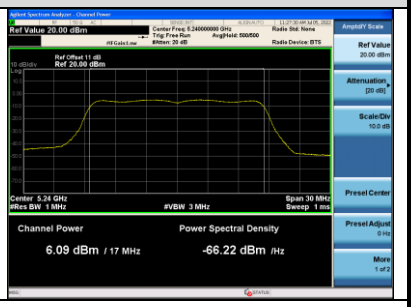
2. The transmit signals are completely uncorrelated.

U-NII-3 Band:

Test Mode	Frequency (MHz)	Power Setting		Output Power (dBm)			Limit (dBm)
		ANT1	ANT2	ANT1	ANT2	Total	
11a	5475	8	7	7.50	8.62	N/A	30
	5785	8	7	7.38	7.68	N/A	
	5825	8	7	7.41	6.83	N/A	
11n HT20 (SISO)	5475	8	7	7.26	8.88	N/A	30
	5785	8	7	7.69	8.07	N/A	
	5825	8	7	7.58	7.13	N/A	
11n HT20 (MIMO)	5475	6	6	5.51	7.89	9.87	29.29
	5785	6	6	5.57	7.06	9.39	
	5825	6	6	5.33	6.41	8.91	
11n HT40 (SISO)	5755	8	7	7.19	8.18	N/A	30
	5795	8	7	7.57	7.53	N/A	
11n HT40 (MIMO)	5755	6	6	5.33	7.16	9.35	29.29
	5795	6	6	5.15	6.22	8.73	
11ac VHT20 (SISO)	5475	8	7	7.53	8.90	N/A	30
	5785	8	7	7.86	8.16	N/A	
	5825	8	7	7.68	7.18	N/A	
11ac VHT20 (MIMO)	5475	6	6	5.63	8.07	10.03	30
	5785	6	6	5.77	7.20	9.55	
	5825	6	6	5.96	6.60	9.30	
11ac VHT40 (SISO)	5755	8	7	7.37	8.68	N/A	30
	5795	8	7	7.75	7.86	N/A	
11ac VHT40 (MIMO)	5755	6	6	5.45	7.32	9.50	29.29
	5795	6	6	5.63	6.38	9.03	
11ac VHT80 (SISO)	5775	8	7	8.13	8.30	N/A	30
11ac VHT80 (MIMO)	5775	6	6	6.01	7.29	9.71	29.29
Conclusion:Pass							

Notes: 1. Directional Gain= 10 log($10^{2.79/10}$+$10^{2.79/10}$/2)dBi=2.79dBi＜6dBi.

2. The transmit signals are completely uncorrelated.

U-NII-1 Band: ANT1		
SISO		
IEEE 802.11a		
		
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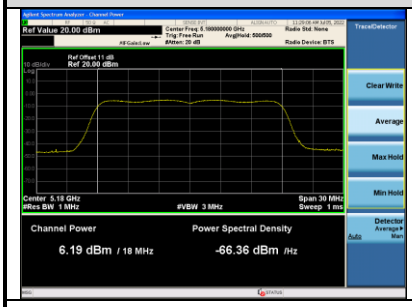	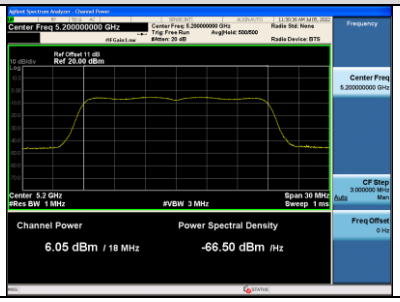	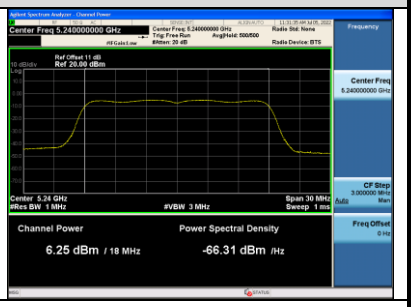
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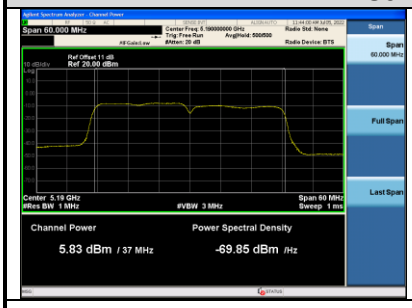	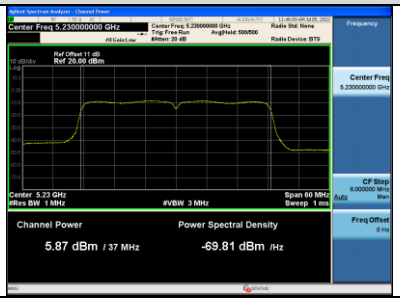	---
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	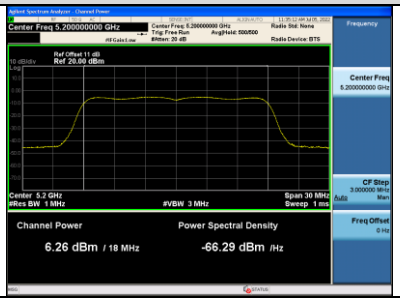	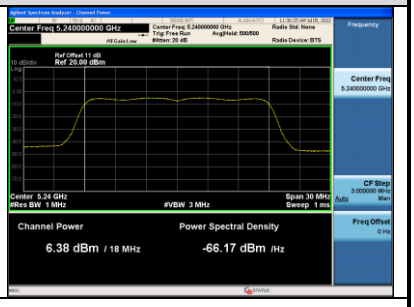
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	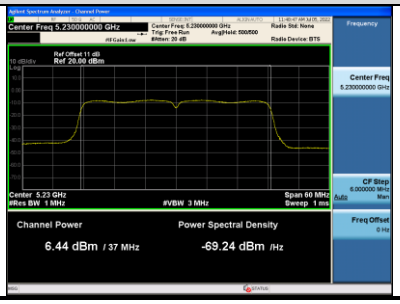	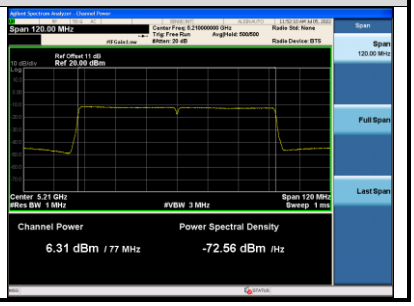

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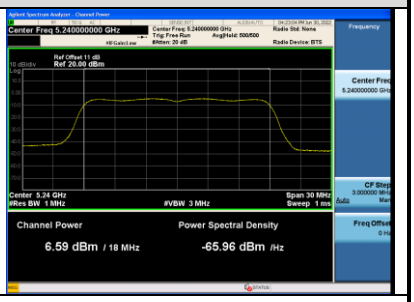
IEEE 802.11a		
		
IEEE 802.11n HT20		
		
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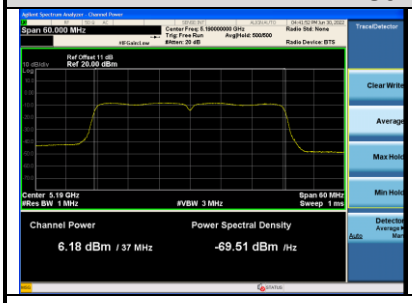		---
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		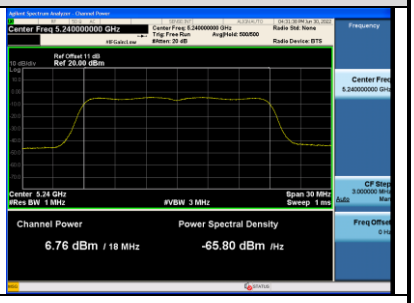
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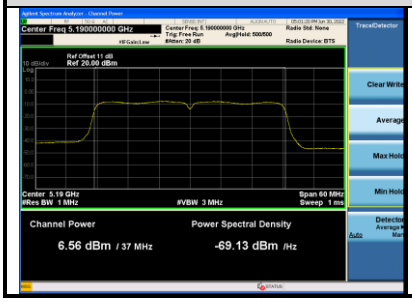	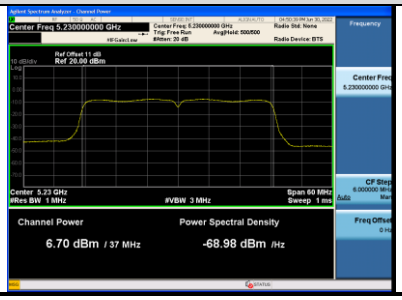	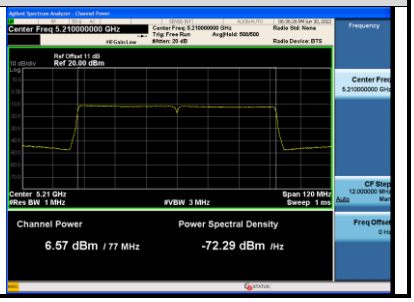

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MIMO	
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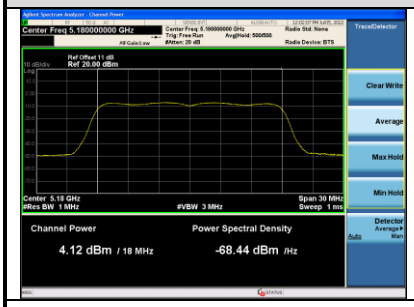	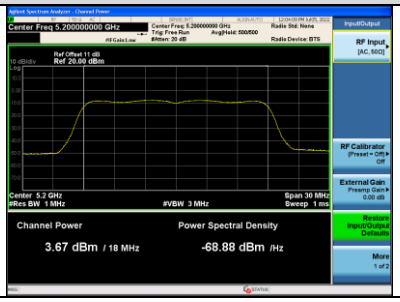 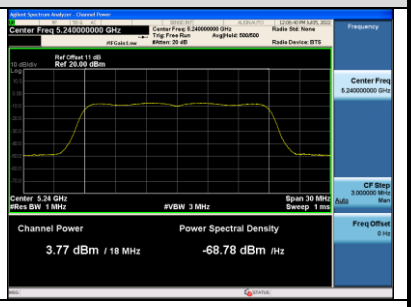
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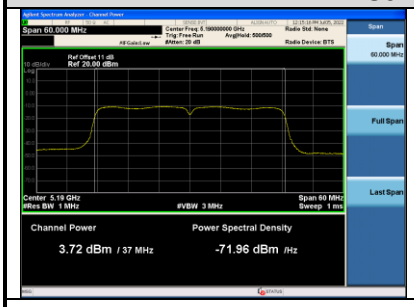	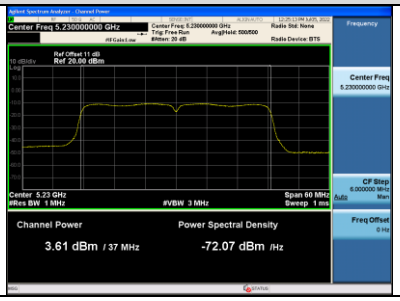 ---
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	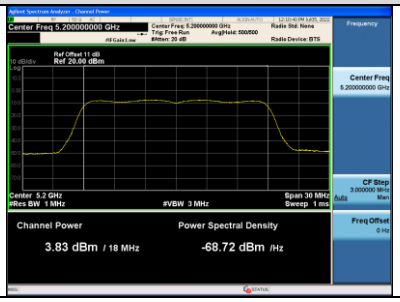 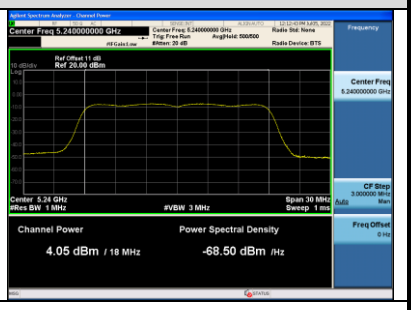
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	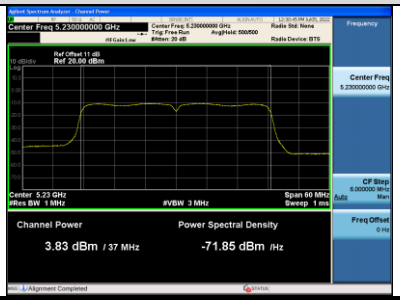 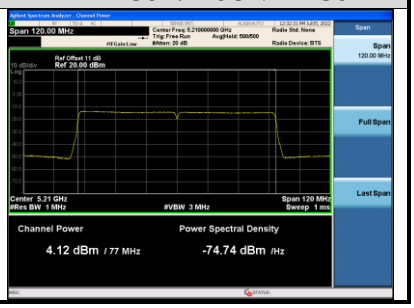

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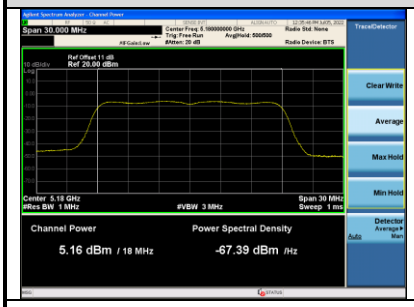	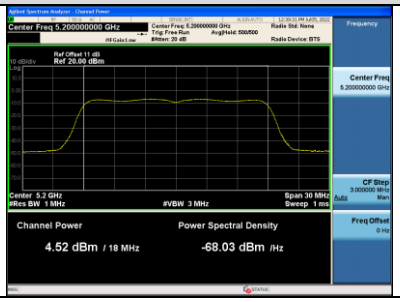	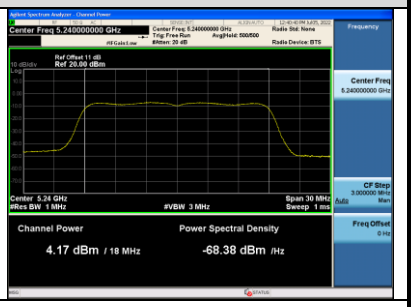
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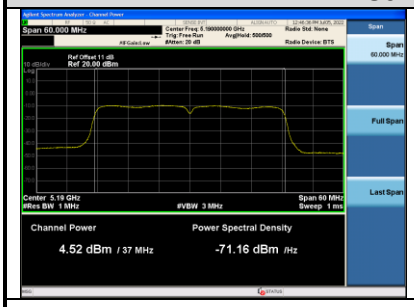	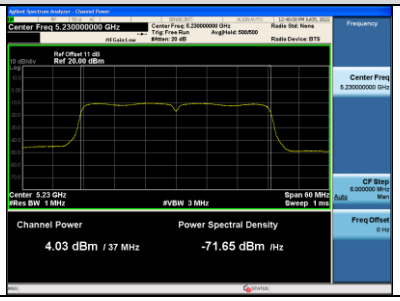	---
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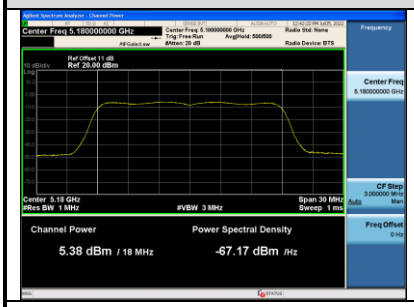	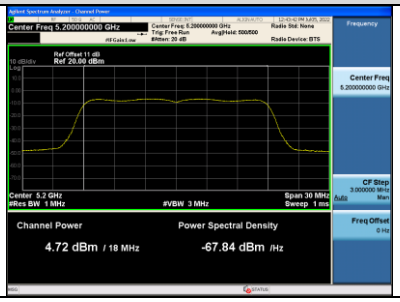	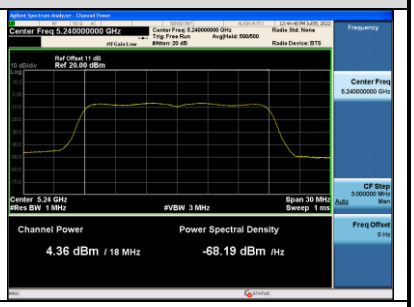
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	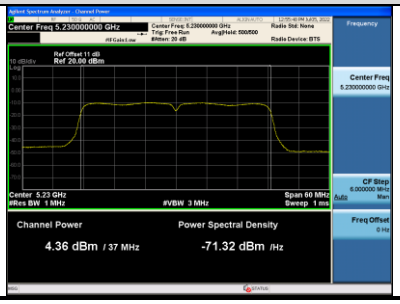	

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	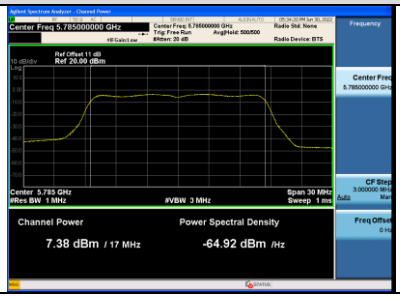	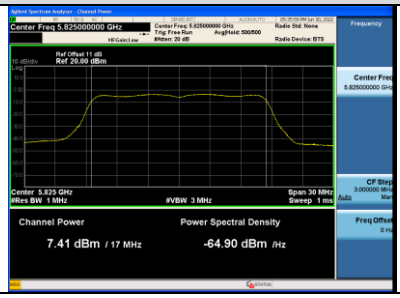
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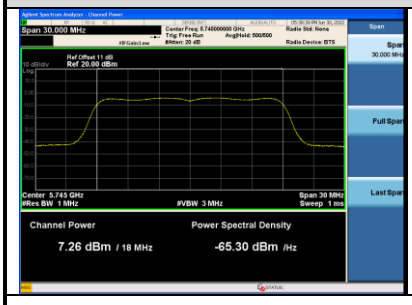	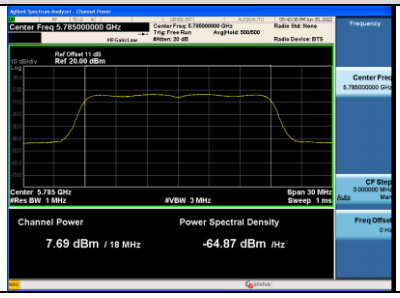	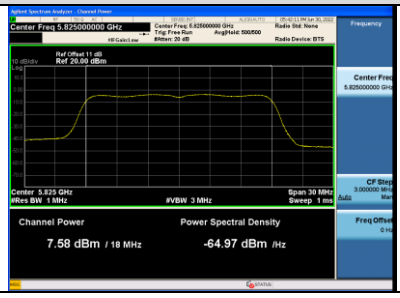
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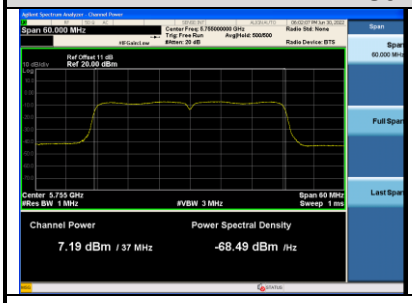	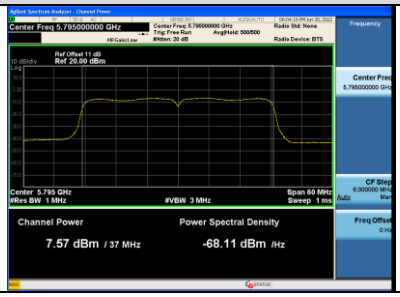	---
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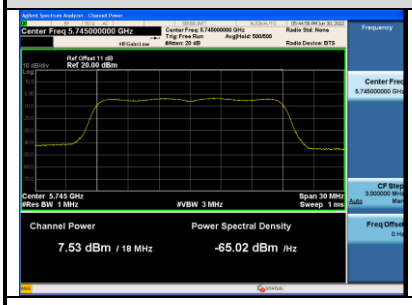	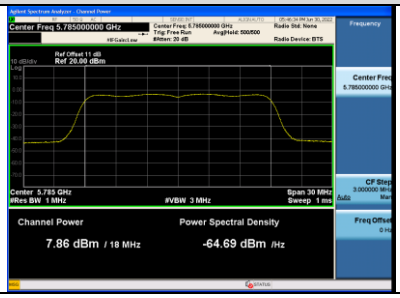	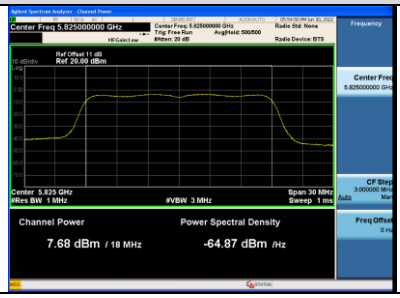
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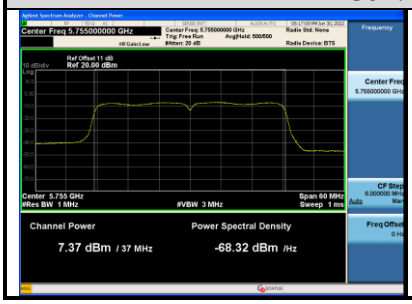	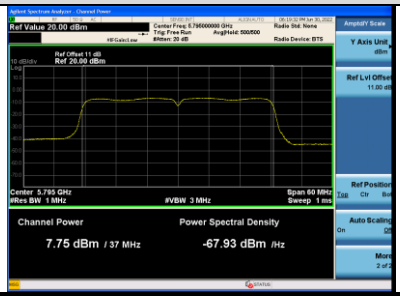	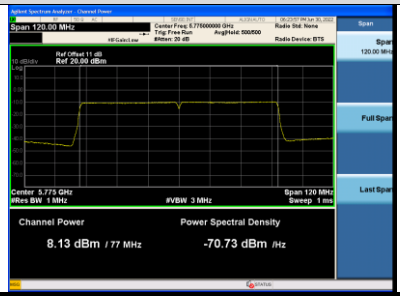

U-NII-3 Band: ANT2	
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 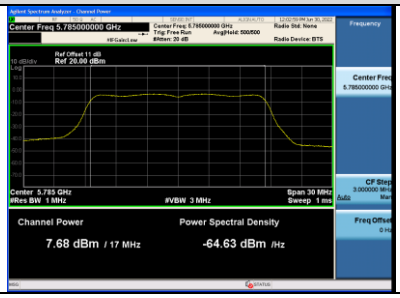 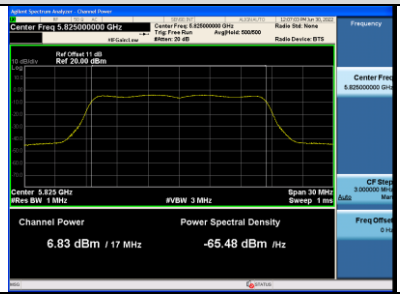	
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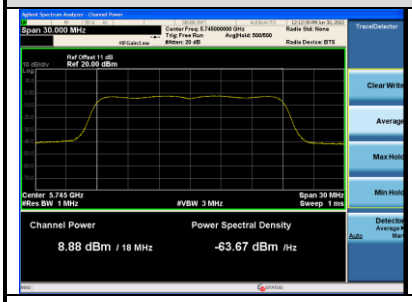 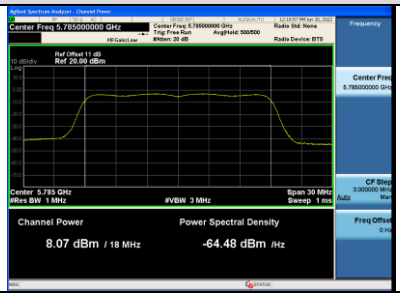 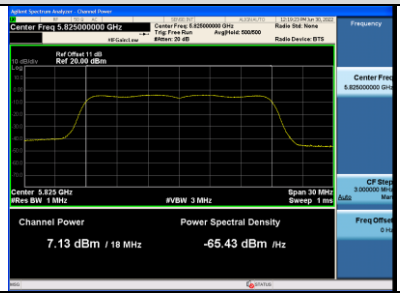	
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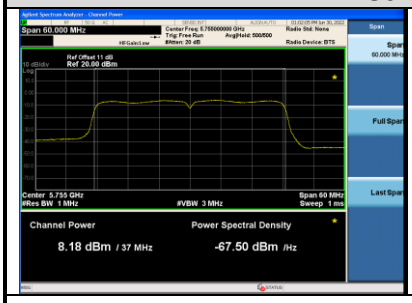 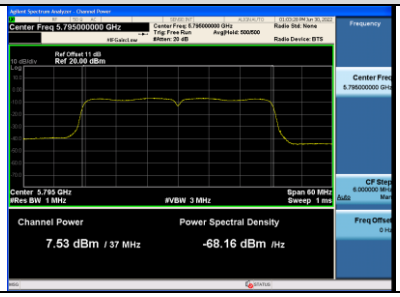	---
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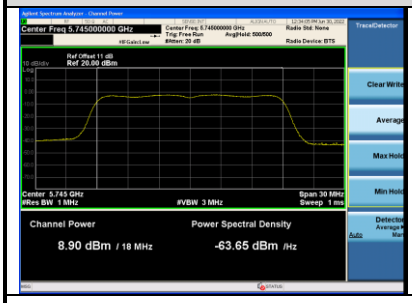
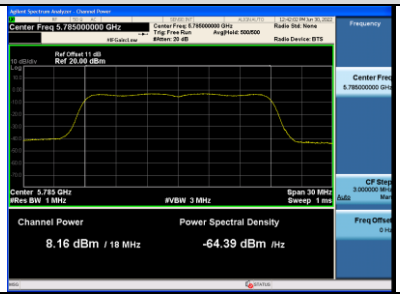
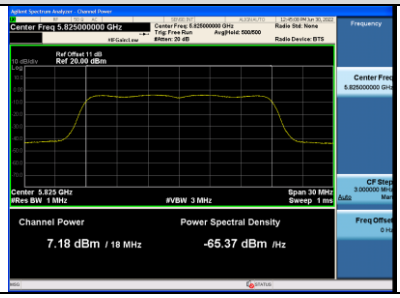
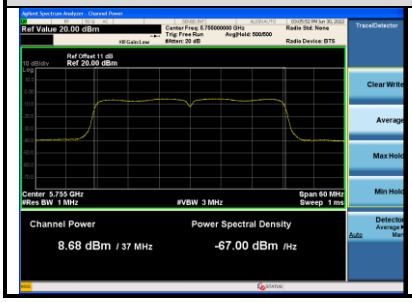
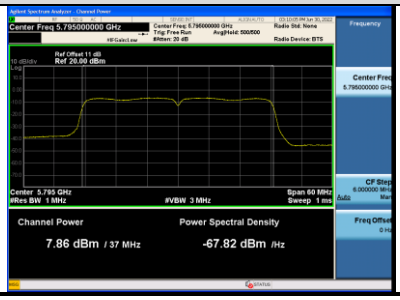
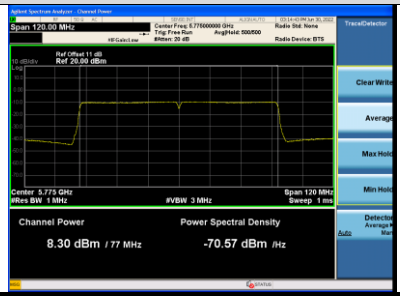
  	
IEEE 802.11ac VHT40	IEEE 802.11ac VHT80
 	

U-NII-3 Band: ANT1		
MIMO		
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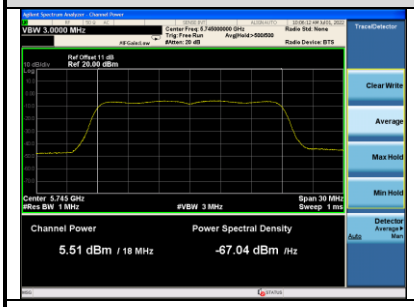	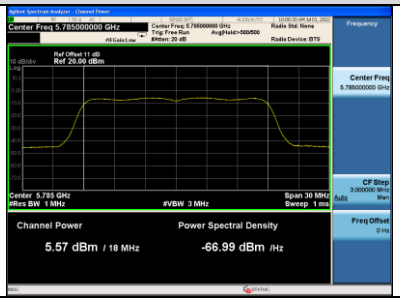	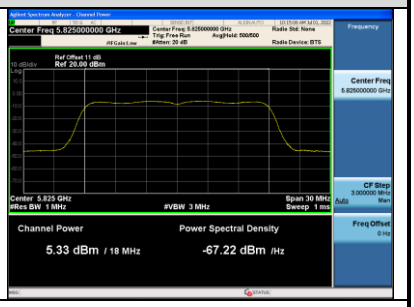
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	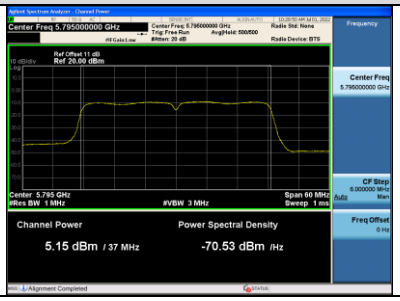	---
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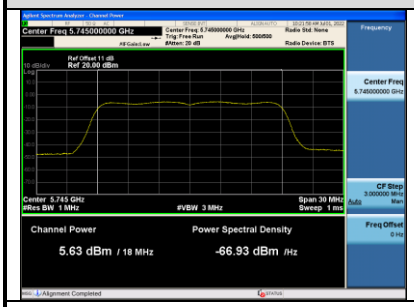	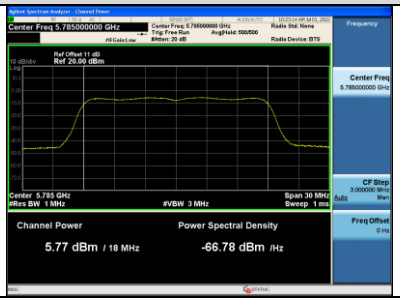	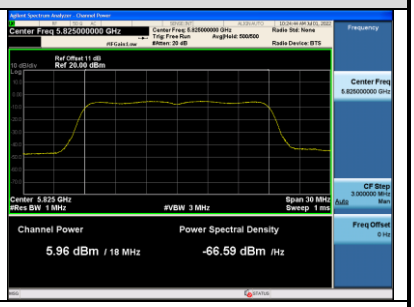
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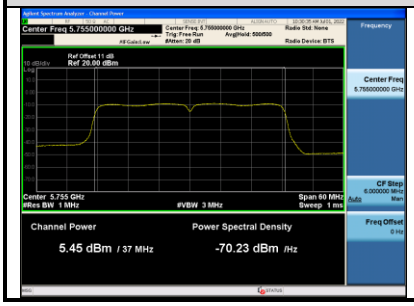	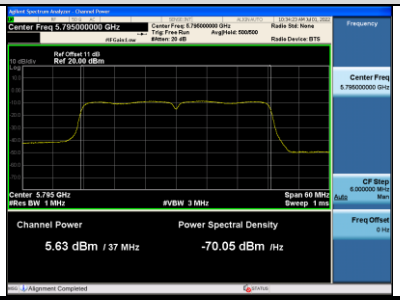	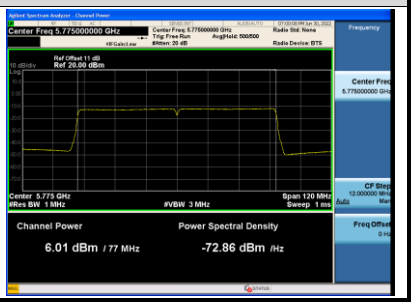

U-NII-3 Band: ANT2	
MIMO	
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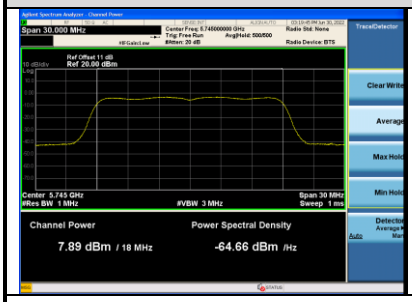  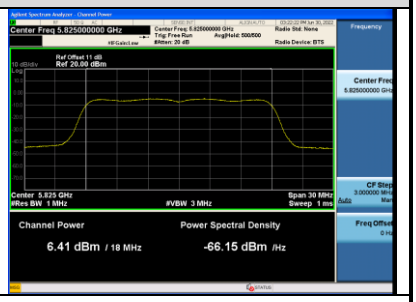	
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 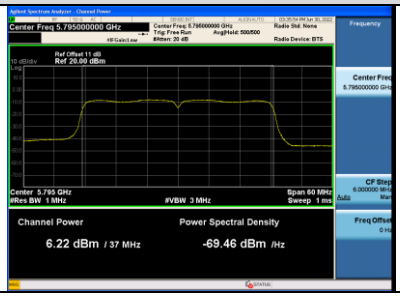	---
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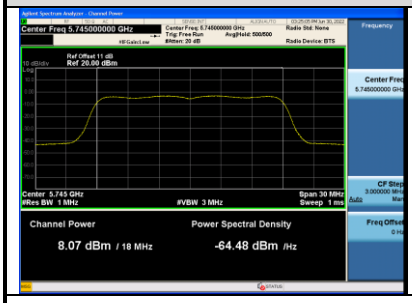
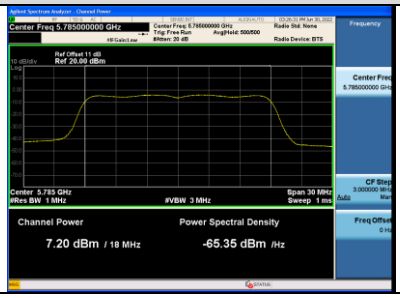
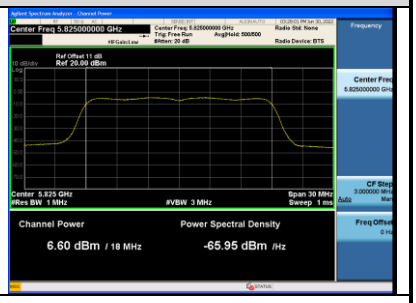
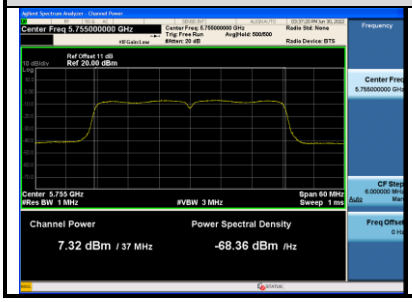
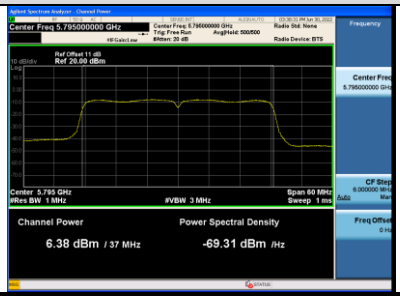
  	
IEEE 802.11ac VHT40	IEEE 802.11ac VHT80
 	

8. SPECTRAL DENSITY TEST

8.1.Test Equipment

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	PXA Signal Analyzer	Agilent	N9030A	MY51380221	Apr.06,22	1 Year
2.	RF Cable	Mini-Circuits	CBL-1M-SMSM+	No.7	Oct.11,21	1 Year
3.	Attenuator	Agilent	8491B	MY39269201	Oct.09,21	1 Year

8.2.Limit

Band 5150-5250 MHz:
The power spectral density shall not exceed 11 dBm in any 1.0 MHz band.
Band 5250-5350 MHz:
The power spectral density shall not exceed 11 dBm in any 1.0 MHz band.
Band 5470-5725 MHz:
The power spectral density shall not exceed 11 dBm in any 1.0 MHz band.
Band 5725-5850 MHz:
The power spectral density shall not exceed 30 dBm in any 500 KHz band.

8.3.Test Procedure

Use the test method described in ANSI C63.10 clause 12.5:
For the Band 5.15-5.35GHz; 5.47-5.725 GHz:
The transmitter output was connected to a spectrum analyzer. Power density was measured by spectrum analyzer with 1MHz RBW and 3MHz VBW; Detector: RMS mode.

For the band 5.725-5.85 GHz:
The transmitter output was connected to a spectrum analyzer. Power density was measured by spectrum analyzer with 1MHz RBW and 3MHz VBW,RMS Detector.
So use the test method described in KDB789033 clause E

1) Set the RBW=100kHz and VBW =300kHz
2) Number of points in sweep ≥ 2 Span / RBW.(This ensures that bin-to-bin spacing is ≤ RBW/2, so that narrowband signals are not lost between frequency bins.)
3) Sweep time = auto
4) Detector = RMS (i.e., power averaging), if available. Otherwise, use sample detector mode.
5) Use the “peak search” function of spectrum analyzer find the max value, then add 10log (500kHz/RBW) to the measured result.

Note: The cable loss and attenuator loss were offset into measure device as an amplitude offset.

8.4.Test Results

EUT: Truck Infotainment Unit		
M/N: Service Entertainment Module 2.5		
Test date: 2022-06-29~08-12	Pressure: 102.1 ±1.0 kpa	Humidity: 53.2 ±3.0%
Tested by: Xinyao	Test site: RF site	Temperature: 22.3 ±0.6℃

U-NII-1 Band:

Test Mode	Frequency (MHz)	Power Spectral Density(dBm/MHz)			Limit (dBm/MHz)
		ANT1	ANT2	Total	
11a	5180	-9.354	-4.403	N/A	11
	5200	-9.831	-5.175	N/A	
	5240	-10.410	-4.994	N/A	
11n HT20	5180	-5.606	-4.036	-1.740	10.76
	5200	-5.761	-4.234	-1.920	
	5240	-5.682	-4.367	-1.965	
11n HT40	5190	-8.126	-6.575	-4.271	10.76
	5230	-8.772	-7.878	-5.292	
11ac VHT20	5180	-5.220	-3.767	-1.423	10.76
	5200	-5.268	-3.891	-1.515	
	5240	-5.394	-4.237	-1.767	
11ac VHT40	5190	-8.668	-7.248	-4.890	10.76
	5230	-7.924	-7.560	-4.728	
11ac VHT80	5210	-11.819	-10.219	-7.935	10.76
Conclusion: Pass					

Notes: 1. Directional Gain= 10 log($10^{2.79/10}$+$10^{2.79/10}$/2)dBi=2.79dBi＜6dBi.

2. The transmit signals are completely uncorrelated.

U-NII-3 Band:

Test Mode	Frequency (MHz)	Power Spectral Density(dBm/500kHz)			Limit (dBm/MHz)
		ANT1	ANT2	Total	
11a	5745	-7.593	-4.597	N/A	30
	5785	-7.986	-5.597	N/A	
	5825	-6.730	-5.983	N/A	
11n HT20	5745	-7.310	-4.280	-2.526	30
	5785	-7.644	-5.089	-3.171	
	5825	-7.397	-6.214	-3.755	
11n HT40	5755	-10.660	-7.705	-5.926	30
	5795	-10.511	-8.423	-6.332	
11ac VHT20	5745	-7.136	-4.063	-2.323	30
	5785	-7.173	-4.667	-2.731	
	5825	-6.961	-5.886	-3.380	
11ac VHT40	5755	-10.243	-7.497	-5.646	30
	5795	-14.879	-8.081	-7.257	
11ac VHT80	5775	-13.525	-11.785	-9.558	30
Conclusion: Pass					

Notes: 1. Directional Gain= 10 log($10^{2.79/10}$+$10^{2.79/10}$/2)dBi=2.79dBi＜6dBi.

2. The transmit signals are completely uncorrelated.

3. The result = Reading + 10log(500kHz/1000kHz).