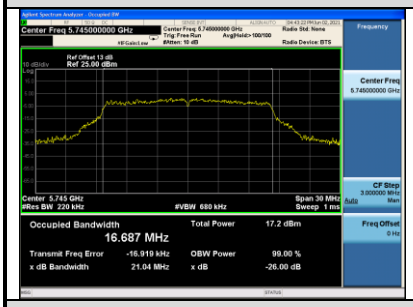
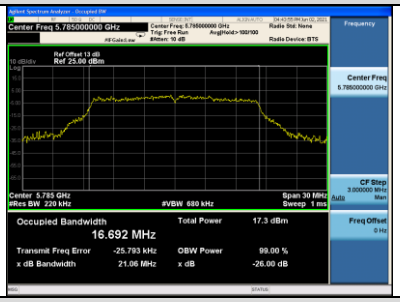
U-NII-3 Band:		
26dB bandwidth		
IEEE 802.11a		
		
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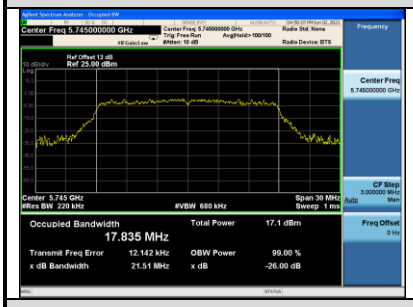	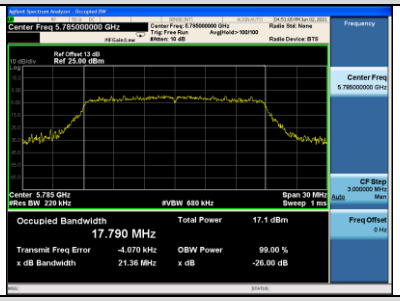	
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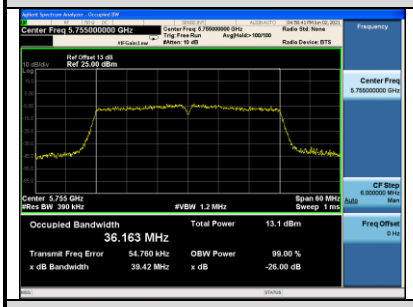	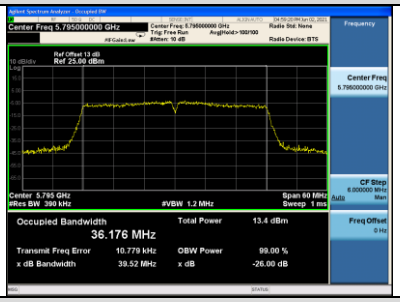	---
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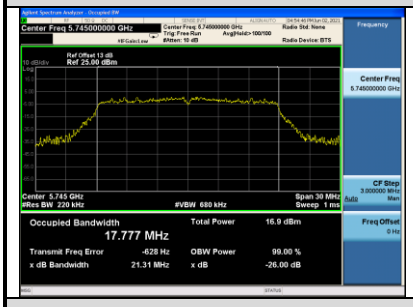	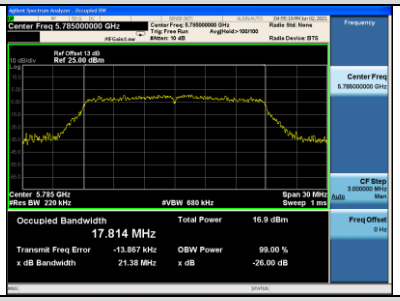	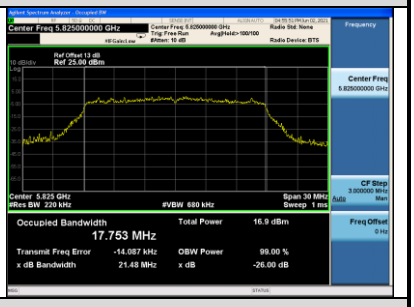
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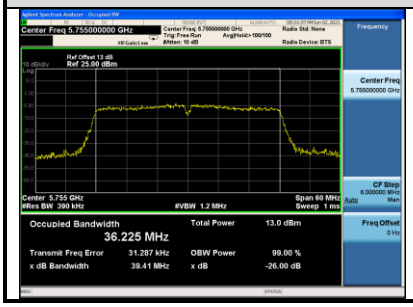
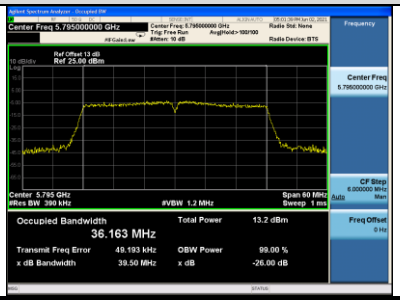
		

7. OUTPUT POWER TEST

7.1. Test Equipment

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	PXA Signal Analyzer	Agilent	N9030A	MY51380221	Apr.07,21	1Year
2.	Power meter	Anritsu	ML2487A	6K00002472	Apr.07,21	1Year
3.	Power Sensor	Anritsu	MA2491A	033005	Apr.06,21	1Year
4.	Attenuator	Agilent	8491B	MY39269201	Oct.12,20	1 Year
5.	RF Cable	Hubersuhner	SUCOFLEX-106	505238/6	Apr.07,21	1 Year

7.2. Limit

For the band 5.15–5.25GHz.

For mobile and portable client devices in the 5.15–5.25GHz band, the maximum conducted output power over the frequency band of operation shall not exceed 250mW provided the max-imum antenna gain does not exceed 6dBi.

For the 5.25–5.35 GHz and 5.47–5.725GHz bands, the maximum conducted output power over the frequency bands of operation shall not exceed the lesser of 250mW or 11dBm + 10 log B, where B is the 26 dB emission bandwidth in megahertz.

For the band 5.725-5.85GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1W.

7.3. Test Procedure

1. Connected the EUT's antenna port to measure device by 20dB attenuator.
   1) Measure the duty cycle, x, of the transmitter output signal as described in II.B.
   2) Set span to encompass the EBW (or, alternatively, the entire 99% occupied bandwidth) of the signal.
   3) Set RBW = 1MHz.
   4) Set VBW ≥ 3MHz.
   5) 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.)
   6) Sweep time = auto.
   7) Detector = power averaging (rms), if available. Otherwise, use sample detector mode.
   8) Do not use sweep triggering. Allow the sweep to "free run."
   9) Trace average at least 100 traces in power averaging (rms) mode; however, the number of traces to be averaged shall be increased above 100 as needed to ensure that the average accurately represents the true average over the on and off periods of the transmitter.
   10) 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 signal.
   11) Add 10 log (1/x), where x is the duty cycle, to the measured power in order to compute the average power during the actual transmission times

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

7.4.Test Results

U-NII-1 Band:

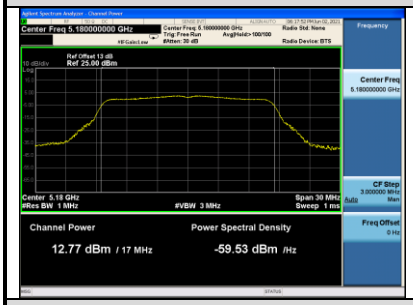
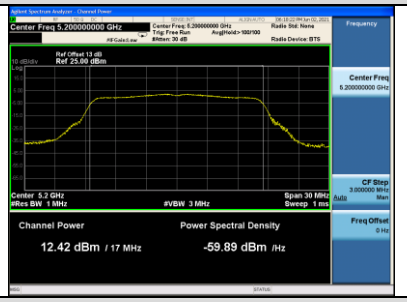
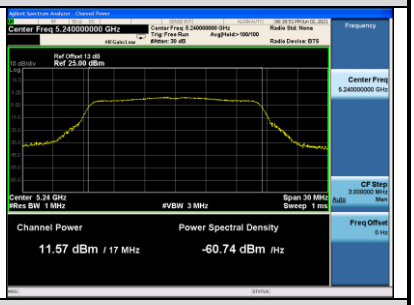
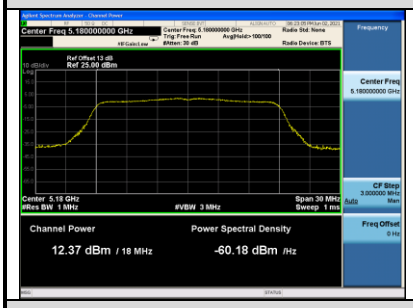
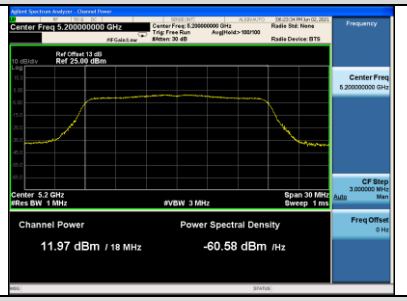
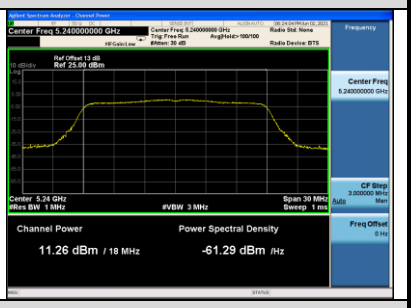
EUT: Projector		
M/N: MP250		
Test date: 2021-06-02	Pressure: 103.5±1.0 kpa	Humidity: 51.4±3.0%
Tested by: Thomax	Test site: RF site	Temperature:22.5±0.6 ℃

Test Mode	Frequency (MHz)	Maximum Conducted output power (dBm)	Limit (dBm)
11a	5180	12.77	23.98
	5200	12.42	
	5240	11.57	
11n HT20	5180	12.37	23.98
	5200	11.97	
	5240	11.26	
11n HT40	5190	8.30	23.98
	5230	7.36	
11ac VHT20	5180	12.33	23.98
	5200	11.49	
	5240	11.03	
11ac VHT40	5190	8.28	23.98
	5230	7.37	
11ac VHT80	5210	7.55	23.98
Conclusion: PASS			

U-NII-3 Band:

EUT: Projector		
M/N: MP250		
Test date: 2021-06-02	Pressure: 103.5±1.0 kpa	Humidity: 51.4±3.0%
Tested by: Thomax	Test site: RF site	Temperature:22.5±0.6 ℃

Test Mode	Frequency (MHz)	Maximum Conducted output power (dBm)	Limit (dBm)
11a	5745	10.85	30
	5785	11.00	
	5825	10.93	
11n HT20	5745	10.59	30
	5785	10.67	
	5825	10.49	
11n HT40	5755	6.68	30
	5795	6.75	
11ac VHT20	5745	10.42	30
	5785	10.59	
	5825	10.59	
11ac VHT40	5755	6.44	30
	5795	6.88	
11ac VHT80	5775	6.08	30
Conclusion: PASS			

U-NII-1 Band:		
IEEE 802.11a		
		
IEEE 802.11n HT20		
		
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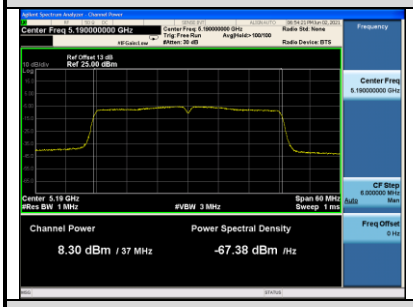		---
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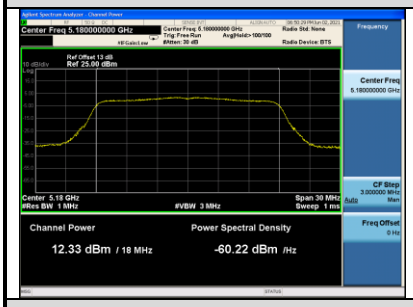	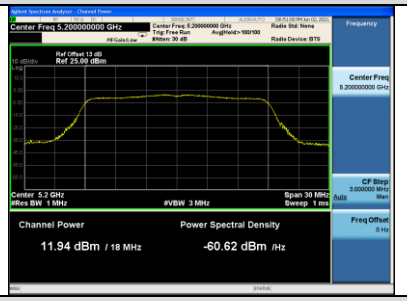	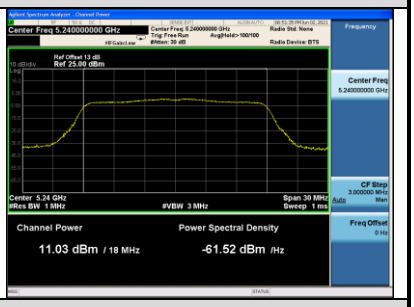
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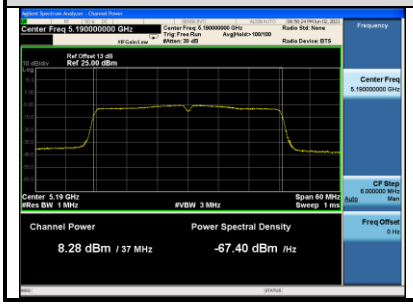
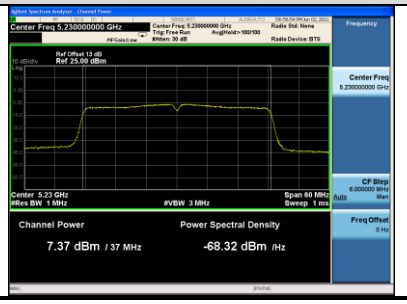
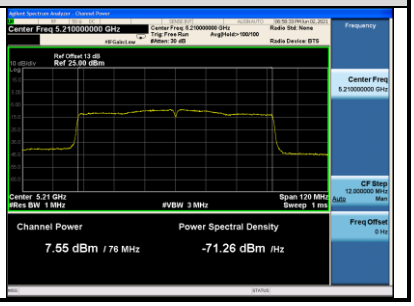
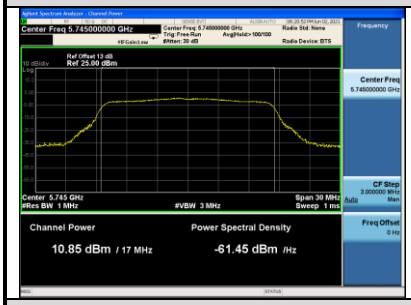
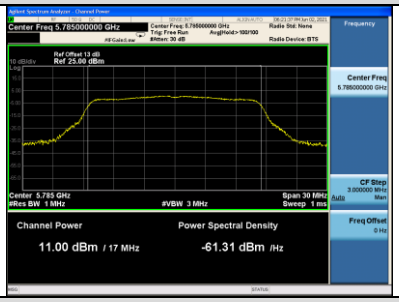
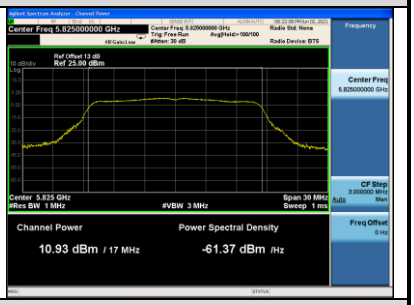
		

U-NII-3 Band:		
IEEE 802.11a		
		
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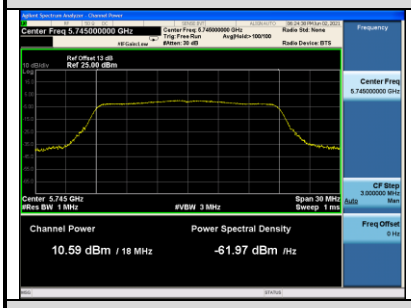	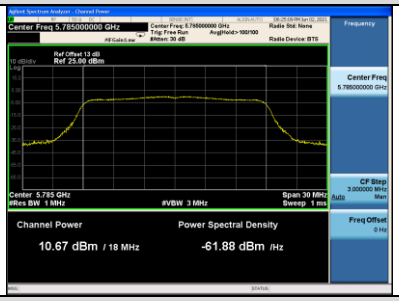	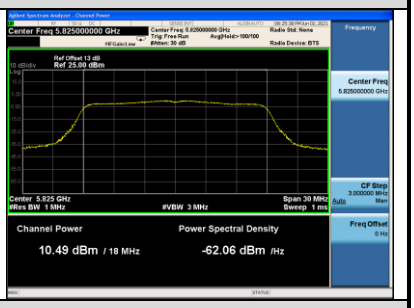
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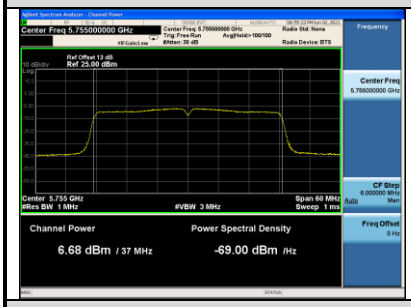	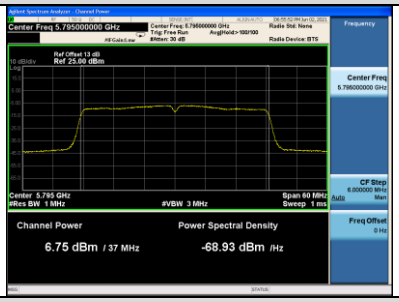	---
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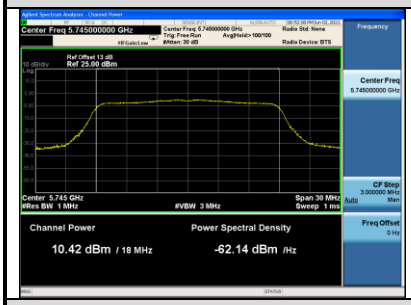		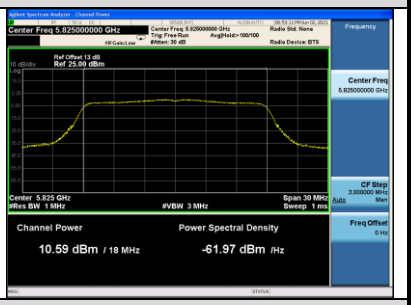
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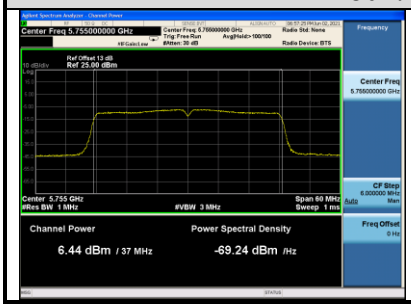
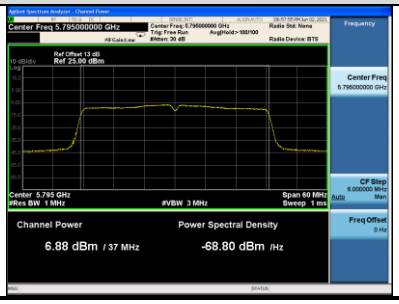
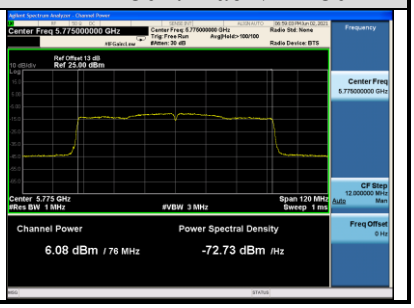
		

8. SPECTRAL DENSITY TEST

8.1. Test Equipment

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	PXA Signal Analyzer	Agilent	N9030A	MY51380221	Apr.07,21	1 Year
2.	Attenuator	Agilent	8491B	MY39269201	Oct.12,20	1 Year
3.	RF Cable	HUBER+SUHNER	SUCOFLEX-106	505238/6	Apr.07,21	1 Year

8.2. Limit

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

8.3. Test Procedure

For the Band 5.15-5.25GHz:
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 5.725-5.85GHz:
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 ≥3 RBW
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

U-NII-1 Band:

EUT: Projector		
M/N: MP250		
Test date: 2021-06-03	Pressure: 103.4±1.0 kpa	Humidity: 51.4±3.0%
Tested by: Thomax	Test site: RF site	Temperature:22.5±0.6℃

Test Mode	Frequency (MHz)	Power Spectral Density (dBm/MHz)	Limit (dBm/MHz)
11a	5180	2.682	11
	5200	2.324	
	5240	1.597	
11n HT20	5180	1.563	11
	5200	1.404	
	5240	0.723	
11n HT40	5190	-5.259	11
	5230	-5.961	
11ac VHT20	5180	2.030	11
	5200	1.428	
	5240	0.818	
11ac VHT40	5190	-5.266	11
	5230	-5.785	
11ac VHT80	5210	-8.850	11
Conclusion: PASS			

U-NII-3 Band:

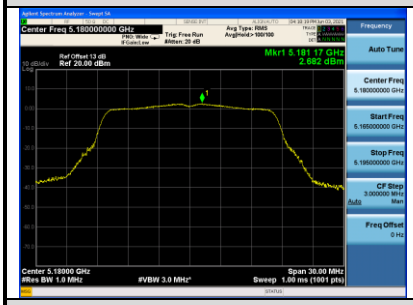
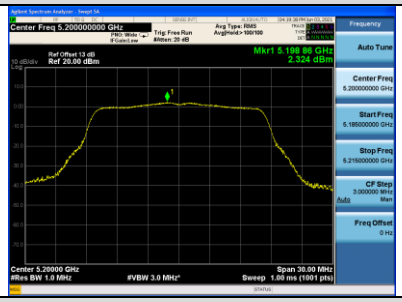
EUT: Projector		
M/N: MP250		
Test date: 2021-06-03	Pressure: 103.4±1.0 kpa	Humidity: 51.4±3.0%
Tested by: Thomax	Test site: RF site	Temperature:22.5±0.6 ℃

Test Mode	Frequency (MHz)	Power Spectral Density (dBm/500KHz)	Limit (dBm/500KHz)
11a	5745	-2.318	30
	5785	-2.556	
	5825	-2.525	
11n HT20	5745	-2.863	30
	5785	-3.169	
	5825	-3.221	
11n HT40	5755	-9.962	30
	5795	-10.126	
11ac VHT20	5745	-3.146	30
	5785	-3.041	
	5825	-3.424	
11ac VHT40	5755	-10.106	30
	5795	-10.281	
11ac VHT80	5775	-13.514	30
Conclusion:PASS			

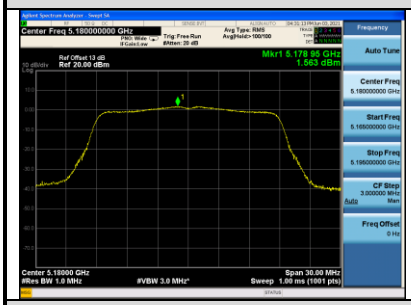
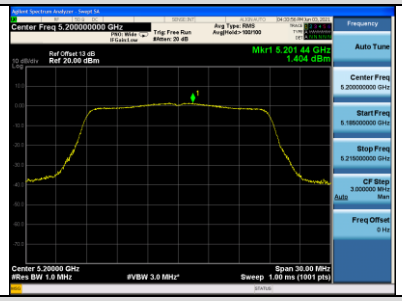
Note: The total result = Reading + 10 log(500kHz/100kHz)

U-NII-1 Band:

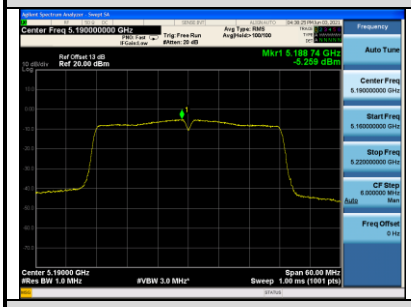
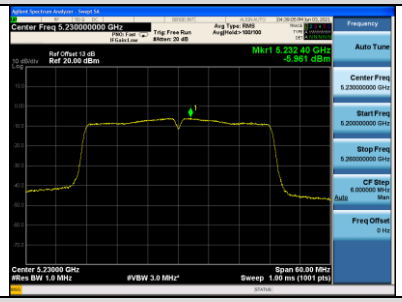
IEEE 802.11a

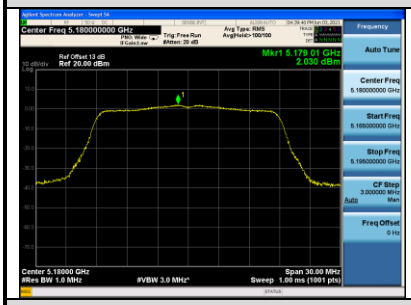
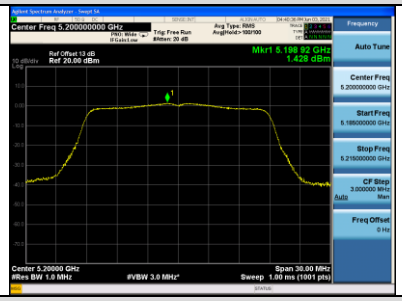
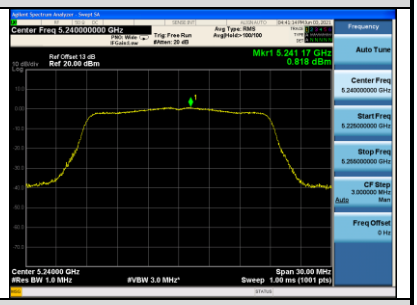

IEEE 802.11n HT20

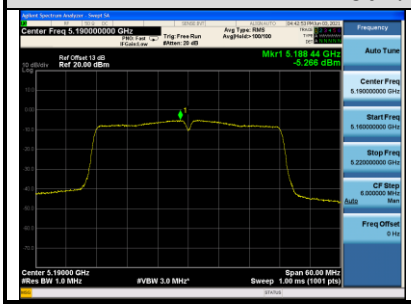
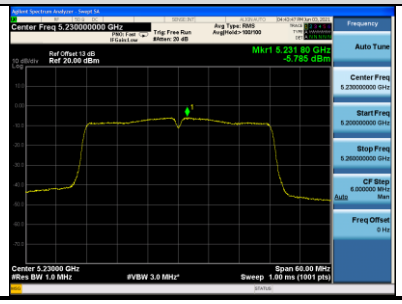

IEEE 802.11n HT40

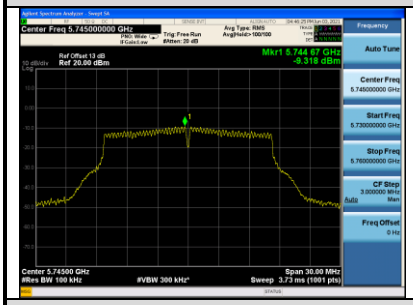
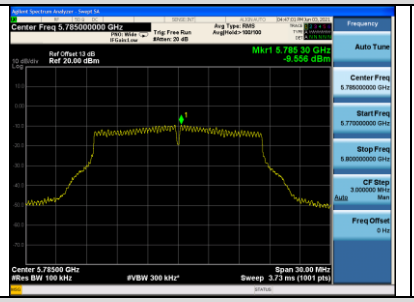
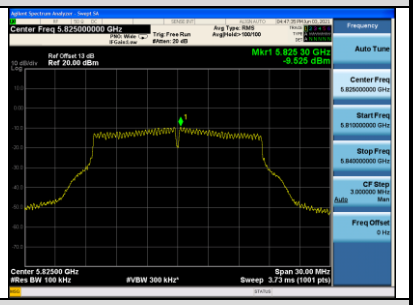
IEEE 802.11ac VHT20

IEEE 802.11ac VHT40

IEEE 802.11ac VHT80

U-NII-3 Band:		
IEEE 802.11a		
		
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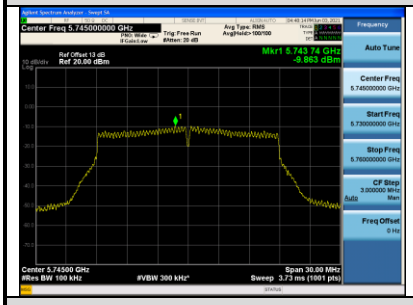	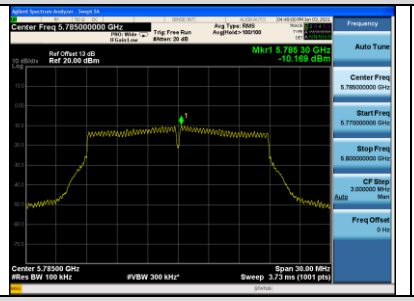	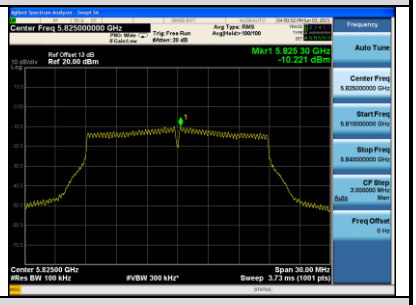
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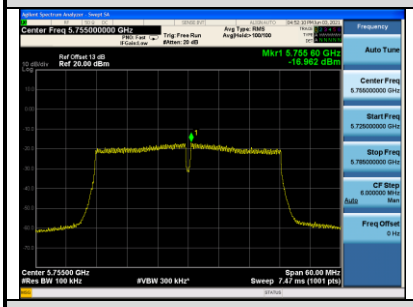	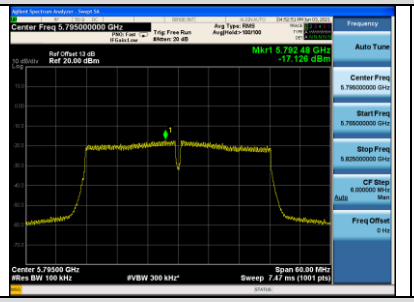	---
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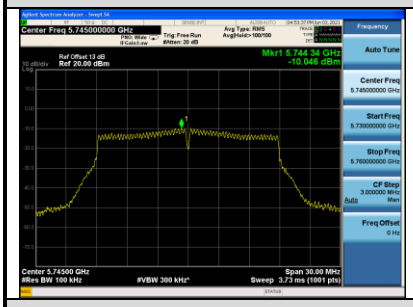	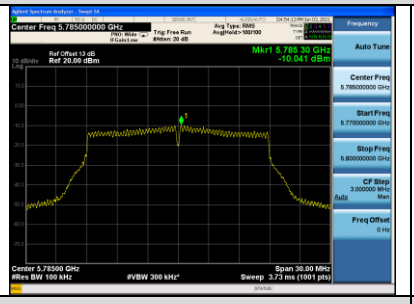	
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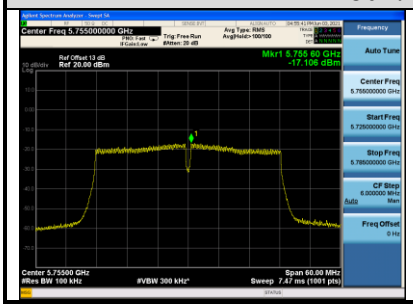	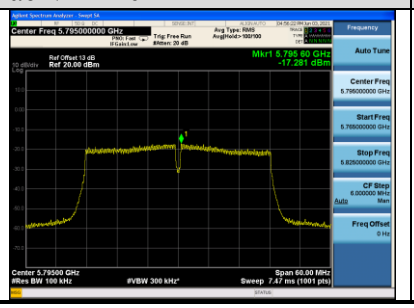	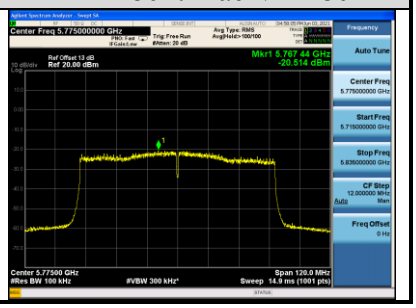

9. FREQUENCY STABILITY MEASUREMENT

9.1.Test Equipment

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	PXA Signal Analyzer	Agilent	N9030A	MY51380221	Apr.07,21	1 Year
2.	Attenuator	Agilent	8491B	MY39269201	Oct.12,20	1 Year
3.	RF Cable	HUBER+SUHNER	SUCOFLEX-106	505238/6	Apr.07,21	1 Year

9.2.Limit

Manufacturers of U-NII devices are responsible for ensuring frequency stability such that an emission is maintained within the band of operation under all conditions of normal operation as specified in the user's manual.

9.3.Test Procedure

1. The transmitter output (antenna port) was connected to the spectrum analyzer.
   EUT have transmitted absence of modulation signal and fixed channelise. Set the spectrum analyzer span to view the entire absence of modulation emissions bandwidth. Set RBW = 10 kHz, VBW = 10 kHz with peak detector and maxhold settings. fc is declaring of channel frequency. Then the frequency error formula is $(fc-f)/f \times 10^{-6}$ppm. The test extreme voltage is to change the primary supply voltage from 85 to 115 percent of the nominal value.
2. Extreme temperature rule is -30°C~40°C.

9.4.Test Result

EUT: Projector		
M/N: MP250		
Test date: 2021-06-03	Pressure: 103.4±1.0 kpa	Humidity: 51.4±3.0%
Tested by: THOMAX	Test site: RF site	Temperature:22.5±0.6 ℃

U-NII-1 Band:
Frequency Stability vs.Voltage:

Test Voltage	Temperature	CH	Max. Reading (MHz)	Target Frequency (MHz)	Result (ppm)
AC 102V	20℃	CH36	5179.9760	5180	-0.4633
		CH38	5189.9760	5190	-0.4624
		CH40	5199.9755	5200	-0.4712
		CH42	5209.9755	5210	-0.4702
		CH46	5229.9755	5230	-0.4685
		CH48	5239.9755	5240	-0.4676
AC 120V	20℃	CH36	5179.9765	5180	-0.4537
		CH38	5189.9755	5190	-0.4721
		CH40	5199.9750	5200	-0.4808
		CH42	5209.9755	5210	-0.4702
		CH46	5229.9750	5230	-0.4780
		CH48	5239.9760	5240	-0.4580
AC 138V	20℃	CH36	5179.9750	5180	-0.4826
		CH38	5189.9765	5190	-0.4528
		CH40	5199.9750	5200	-0.4808
		CH42	5209.9745	5210	-0.4894
		CH46	5229.9750	5230	-0.4780
		CH48	5239.9765	5240	-0.4485

Frequency Stability vs.Temperature:

Test Voltage	Temperature	CH	Max. Reading (MHz)	Target Frequency (MHz)	Result (ppm)
AC 120V	0℃	CH36	5179.9770	5180	-0.4440
		CH38	5189.9765	5190	-0.4528
		CH40	5199.9765	5200	-0.4519
		CH42	5209.9750	5210	-0.4798
		CH46	5229.9765	5230	-0.4493
		CH48	5239.9750	5240	-0.4771
AC 120V	10℃	CH36	5179.9765	5180	-0.4537
		CH38	5189.9775	5190	-0.4335
		CH40	5199.9750	5200	-0.4808
		CH42	5209.9765	5210	-0.4511
		CH46	5229.9750	5230	-0.4780
		CH48	5239.9770	5240	-0.4389
AC 120V	20℃	CH36	5179.9765	5180	-0.4537
		CH38	5189.9750	5190	-0.4817
		CH40	5199.9765	5200	-0.4519
		CH42	5209.9750	5210	-0.4798
		CH46	5229.9775	5230	-0.4302
		CH48	5239.9765	5240	-0.4485
AC 120V	30℃	CH36	5179.9765	5180	-0.4537
		CH38	5189.9765	5190	-0.4528
		CH40	5199.9775	5200	-0.4327
		CH42	5209.9750	5210	-0.4798
		CH46	5229.9760	5230	-0.4589
		CH48	5239.9760	5240	-0.4580
AC 120V	40℃	CH36	5179.9775	5180	-0.4344
		CH38	5189.9770	5190	-0.4432
		CH40	5199.9775	5200	-0.4327
		CH42	5209.9750	5210	-0.4798
		CH46	5229.9765	5230	-0.4493
		CH48	5239.9770	5240	-0.4389
AC 120V	50℃	CH36	5179.9750	5180	-0.4826
		CH38	5189.9750	5190	-0.4817
		CH40	5199.9750	5200	-0.4808
		CH42	5209.9775	5210	-0.4319
		CH46	5229.9770	5230	-0.4398
		CH48	5239.9765	5240	-0.4485

U-NII-3 Band:
Frequency Stability vs.Voltage:

Test Voltage	Temperature	CH	Max. Reading (MHz)	Target Frequency (MHz)	Result (ppm)
AC 102V	20℃	CH149	5744.9725	5745	-0.4787
		CH151	5754.9730	5755	-0.4692
		CH155	5774.9725	5775	-0.4762
		CH157	5784.9725	5785	-0.4754
		CH159	5794.9725	5795	-0.4745
		CH165	5824.9725	5825	-0.4721
AC 120V	20℃	CH149	5744.9745	5745	-0.4439
		CH151	5754.9735	5755	-0.4605
		CH155	5774.9715	5775	-0.4935
		CH157	5784.9735	5785	-0.4581
		CH159	5794.9720	5795	-0.4832
		CH165	5824.9730	5825	-0.4635
AC 138V	20℃	CH149	5744.9740	5745	-0.4526
		CH151	5754.9740	5755	-0.4518
		CH155	5774.9720	5775	-0.4848
		CH157	5784.9730	5785	-0.4667
		CH159	5794.9735	5795	-0.4573
		CH165	5824.9740	5825	-0.4464

Frequency Stability vs.Temperature:

Test Voltage	Temperature	CH	Max. Reading (MHz)	Target Frequency (MHz)	Result (ppm)
AC 120V	0℃	CH149	5744.9735	5745	-0.4613
		CH151	5754.9745	5755	-0.4431
		CH155	5774.9740	5775	-0.4502
		CH157	5784.9730	5785	-0.4667
		CH159	5794.9745	5795	-0.4400
		CH165	5824.9735	5825	-0.4549
AC 120V	10℃	CH149	5744.9745	5745	-0.4439
		CH151	5754.9740	5755	-0.4518
		CH155	5774.9745	5775	-0.4416
		CH157	5784.9735	5785	-0.4581
		CH159	5794.9735	5795	-0.4573
		CH165	5824.9740	5825	-0.4464
AC 120V	20℃	CH149	5744.9735	5745	-0.4613
		CH151	5754.9735	5755	-0.4605
		CH155	5774.9735	5775	-0.4589
		CH157	5784.9740	5785	-0.4494
		CH159	5794.9745	5795	-0.4400
		CH165	5824.9735	5825	-0.4549
AC 120V	30℃	CH149	5744.9745	5745	-0.4439
		CH151	5754.9730	5755	-0.4692
		CH155	5774.9735	5775	-0.4589
		CH157	5784.9735	5785	-0.4581
		CH159	5794.9740	5795	-0.4487
		CH165	5824.9725	5825	-0.4721
AC 120V	40℃	CH149	5744.9735	5745	-0.4613
		CH151	5754.9735	5755	-0.4605
		CH155	5774.9745	5775	-0.4416
		CH157	5784.9715	5785	-0.4927
		CH159	5794.9715	5795	-0.4918
		CH165	5824.9750	5825	-0.4292
AC 120V	50℃	CH149	5744.9720	5745	-0.4874
		CH151	5754.9735	5755	-0.4605
		CH155	5774.9720	5775	-0.4848
		CH157	5784.9745	5785	-0.4408
		CH159	5794.9730	5795	-0.4659
		CH165	5824.9745	5825	-0.4378

10. ANTENNA REQUIREMENT

10.1. Standard Applicable

For intentional device, according to FCC 47 CFR Section 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. And according to FCC 47 CFR Section 15.407 (a), if transmitting antennas of directional gain greater than 6dBi are used, the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6dBi.

10.2. Antenna Connected Construction

The antennas used for this product are PCB antenna that no antenna other than that furnished by the responsible party shall be used with the device, the maximum peak gain of the transmit antenna is **U-NII-1 Band:** 1.81dBi; **U-NII-3 Band:** 1.8dBi.

11. DEVIATION TO TEST SPECIFICATIONS

[NONE]

THE END