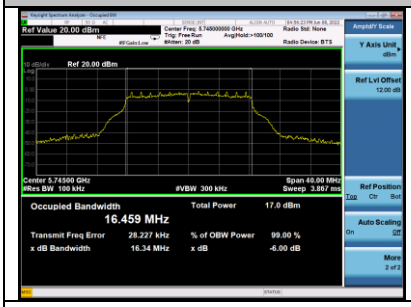
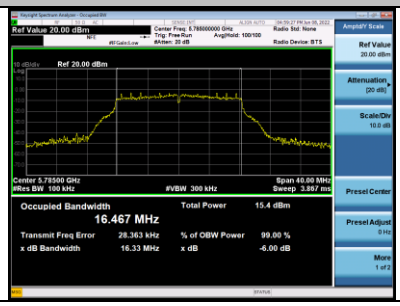
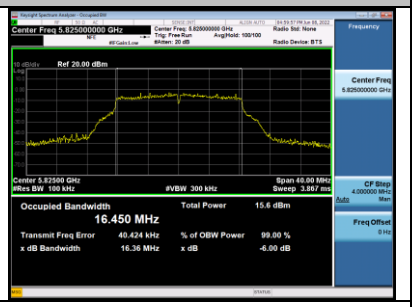
6dB bandwidth		
U-NII-3 Band		
IEEE 802.11a		
		
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		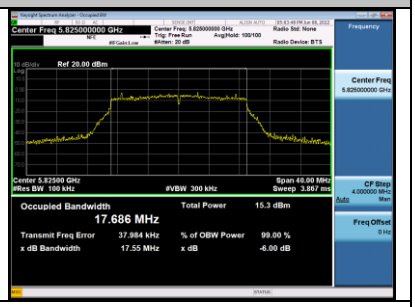
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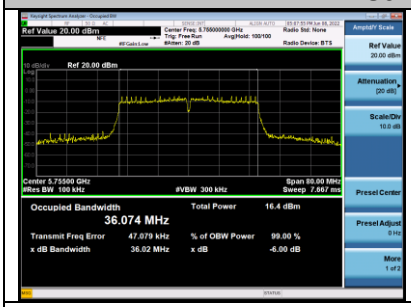	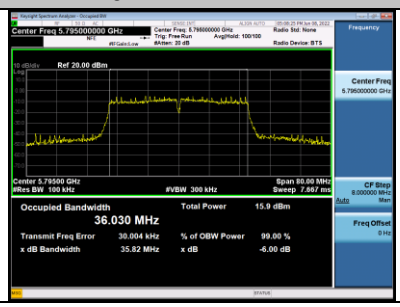	---
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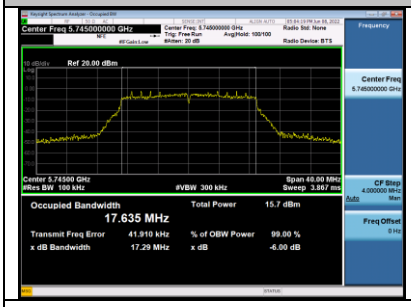
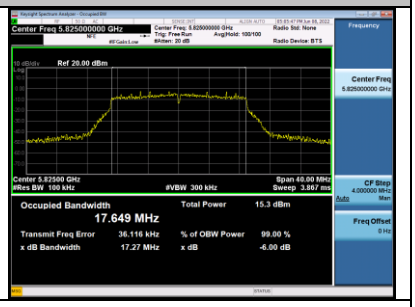
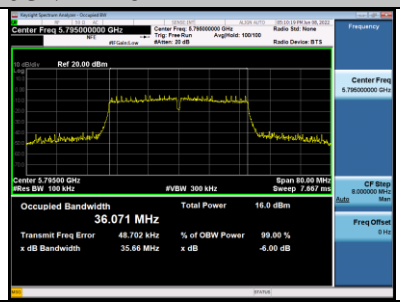
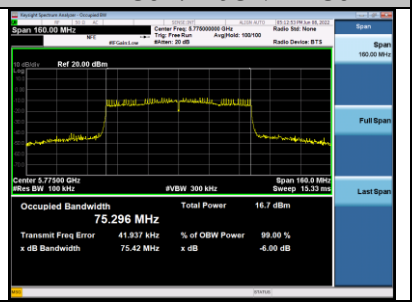
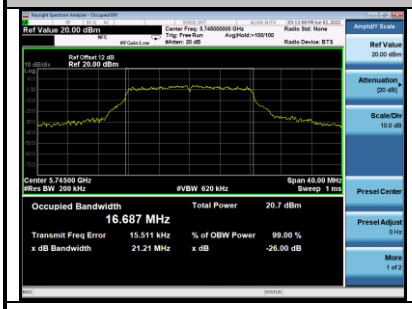
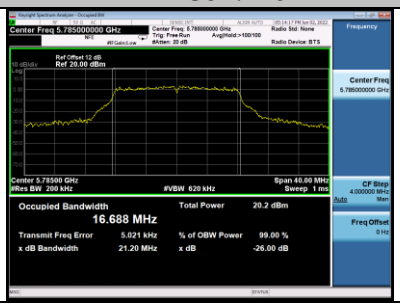
		
IEEE 802.11ac VHT40		IEEE 802.11ac VHT80
		

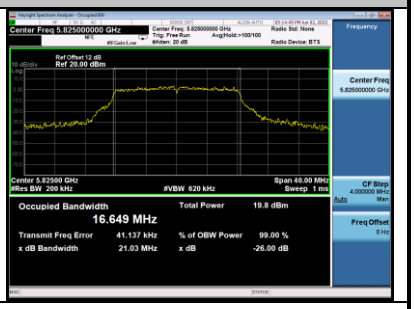
26dB bandwidth & 99% Occupied bandwidth

U-NII-3 Band

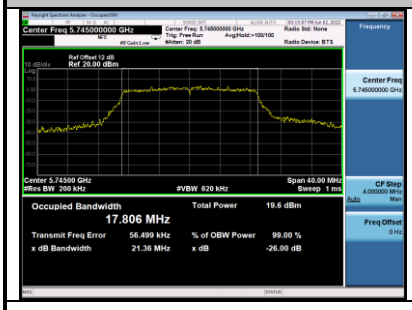
IEEE 802.11a

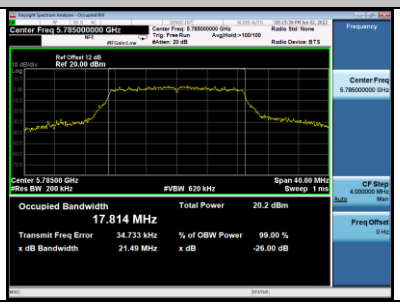




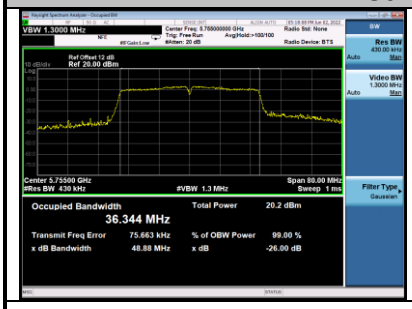


IEEE 802.11n HT20

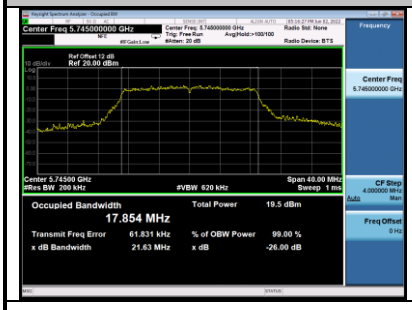


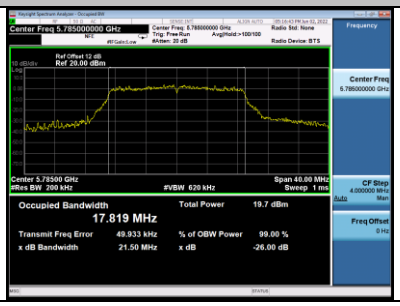


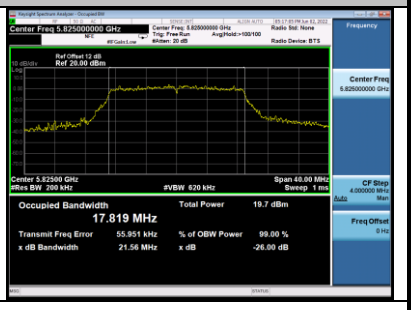
IEEE 802.11n HT40



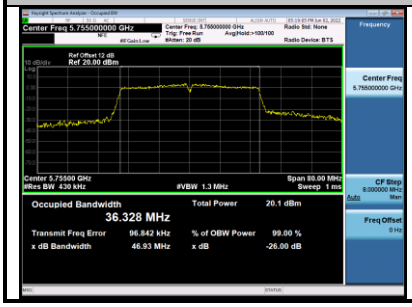
IEEE 802.11ac VHT20

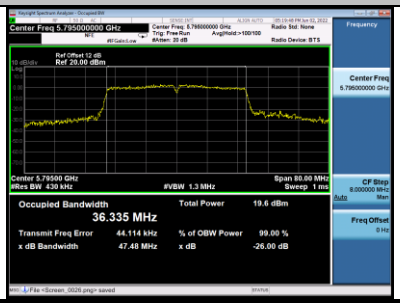






IEEE 802.11ac VHT40





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.07,22	1 Year
2.	Power meter	HP	436A	2016A07891	Apr.06,22	1 Year
3.	Power sensor	Agilent	8482B	MY41090514	Apr.06,22	1 Year
4.	Attenuator	Agilent	8491B	MY39269201	Oct.09,21	1 Year
5.	RF Cable	HUBER+SUHNER	SUCOFLEX -106	505238/6	Apr.06,22	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.
   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 = 1 MHz.
   4) Set VBW ≥ 3 MHz.
   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: Digital Signage Media Appliance		
M/N: IAD-16005E		
Test date: 2022-06-01~22	Pressure: 102.1 ±1.0 kpa	Humidity: 53.2 ±3.0%
Tested by: Lynn	Test site: RF site	Temperature:22.3 ±0.6 ℃

Test Mode	Frequency (MHz)	Maximum Conducted output power (dBm)	Limit (dBm)
11a	5180	12.79	23.98
	5200	12.21	
	5240	12.25	
11n HT20	5180	12.37	23.98
	5200	11.74	
	5240	11.78	
11n HT40	5190	10.29	23.98
	5230	11.48	
11ac VHT20	5180	12.25	23.98
	5200	11.68	
	5240	11.99	
11ac VHT40	5190	10.23	23.98
	5230	11.52	
11ac VHT80	5210	9.94	23.98
Conclusion: PASS			

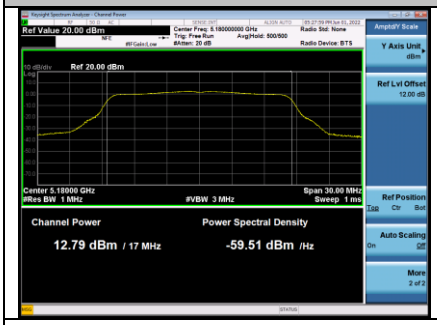
U-NII-3 Band:

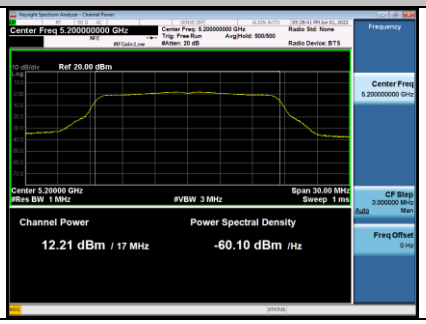
EUT: Digital Signage Media Appliance		
M/N: IAD-16005E		
Test date: 2022-06-01~22	Pressure: 102.1 ±1.0 kpa	Humidity: 53.2 ±3.0%
Tested by: Lynn	Test site: RF site	Temperature:22.3 ±0.6 ℃

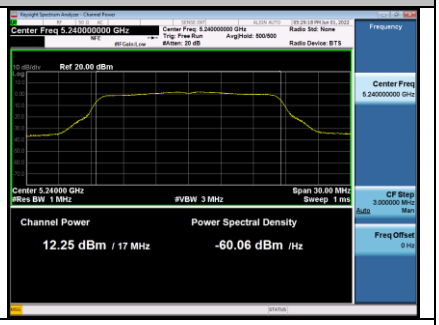
Test Mode	Frequency (MHz)	Maximum Conducted output power (dBm)	Limit (dBm)
11a	5745	9.02	30
	5785	8.53	
	5825	8.48	
11n HT20	5745	8.69	30
	5785	8.32	
	5825	8.38	
11n HT40	5755	9.10	30
	5795	8.83	
11ac VHT20	5745	8.59	30
	5785	8.36	
	5825	8.34	
11ac VHT40	5755	9.14	30
	5795	8.85	
11ac VHT80	5775	8.11	30
Conclusion: PASS			

U-NII-1 Band

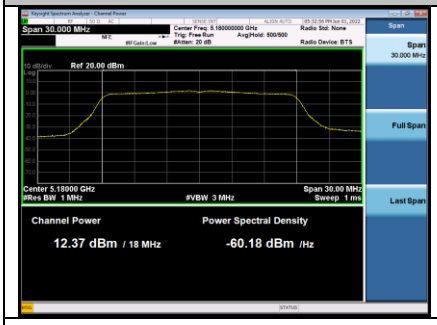
IEEE 802.11a

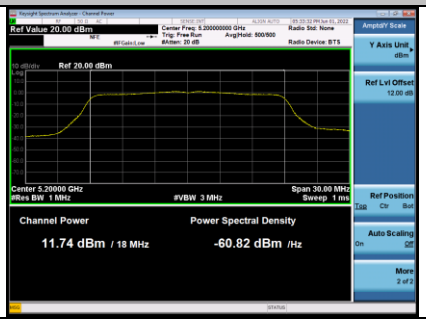


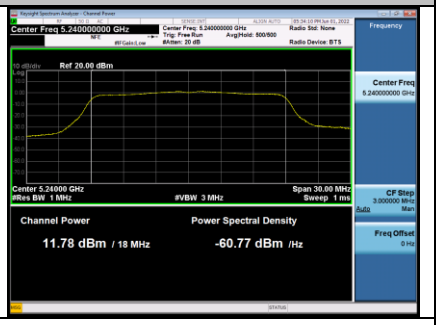




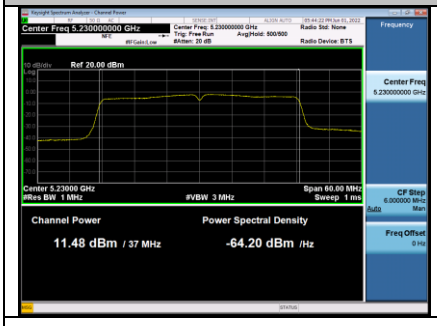
IEEE 802.11n HT20



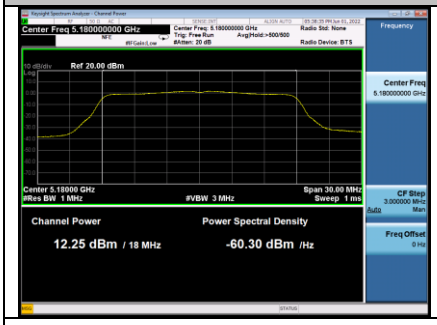


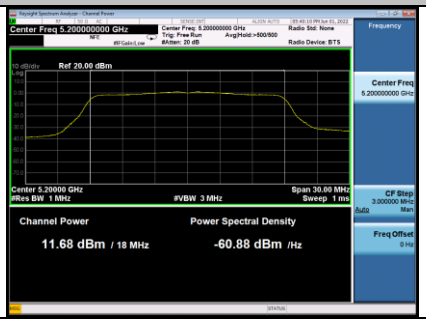


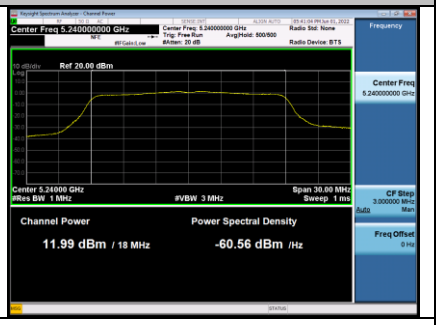
IEEE 802.11n HT40



IEEE 802.11ac VHT20





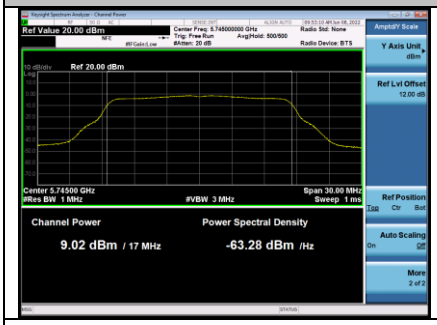


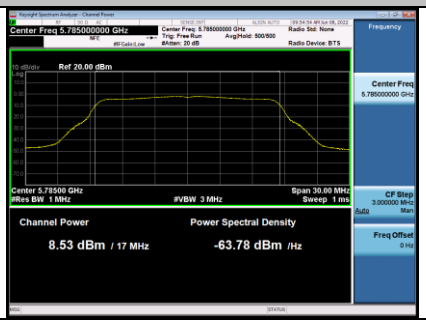
IEEE 802.11ac VHT40

IEEE 802.11ac VHT80

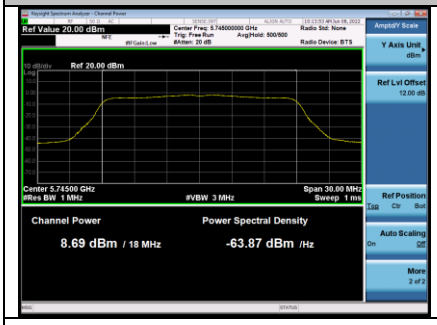
U-NII-3 Band

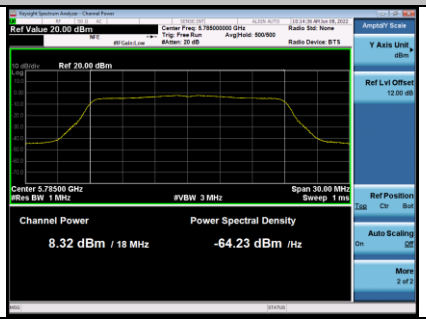
IEEE 802.11a

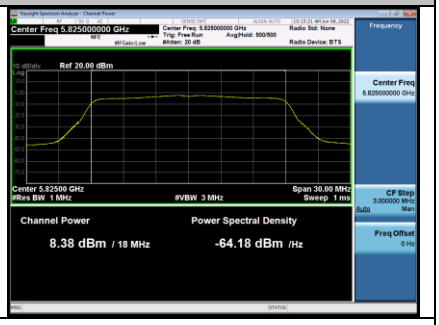




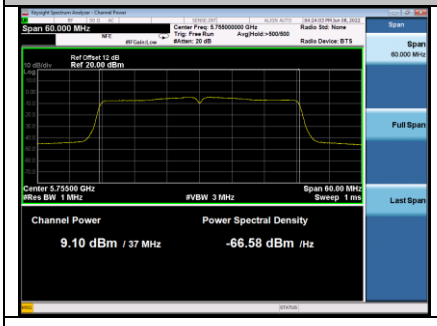
IEEE 802.11n HT20

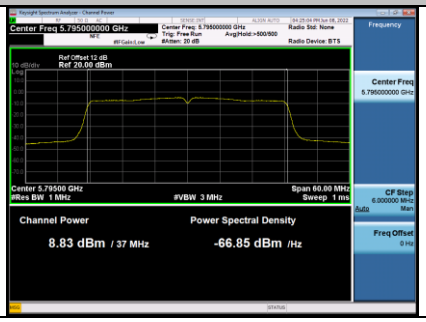




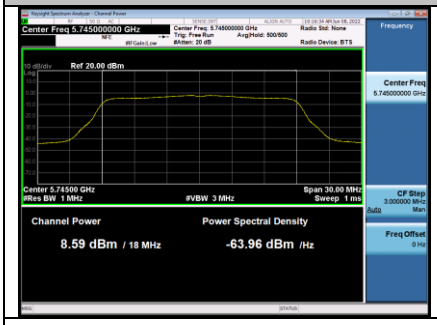


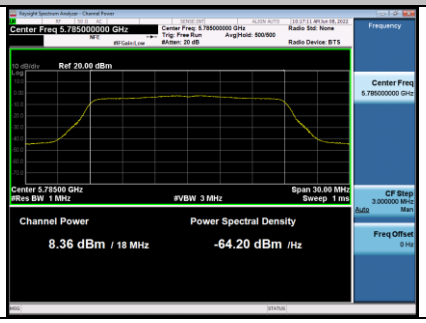
IEEE 802.11n HT40



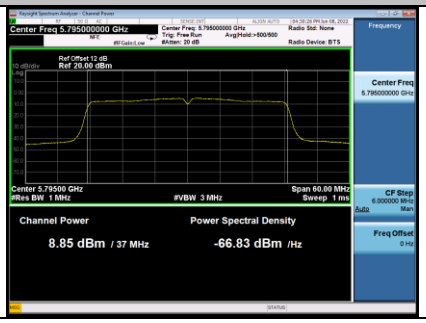


IEEE 802.11ac VHT20





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.07,22	1 Year
2.	Attenuator	Agilent	8491B	MY39269201	Oct.09,21	1 Year
3.	RF Cable	HUBER+SUHNER	SUCOFLEX-106	505238/6	Apr.06,22	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 5725-5850 MHz:
The power spectral density shall not exceed 30 dBm in any 500 KHz 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 5.725-5.85 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 ≥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: Digital Signage Media Appliance		
M/N: IAD-16005E		
Test date: 2022-06-08	Pressure: 102.1 ±1.0 kpa	Humidity: 53.2 ±3.0%
Tested by: Lynn	Test site: RF site	Temperature:22.3 ±0.6 ℃

Test Mode	Frequency (MHz)	Power density (dBm/MHz)	Limit (dBm/MHz)
11a	5180	2.943	11
	5200	3.125	
	5240	2.497	
11n HT20	5180	2.539	11
	5200	2.779	
	5240	1.997	
11n HT40	5190	-0.555	11
	5230	-0.986	
11ac VHT20	5180	2.661	11
	5200	2.524	
	5240	2.208	
11ac VHT40	5190	-0.490	11
	5230	-0.857	
11ac VHT80	5210	-4.199	11
Conclusion: PASS			

U-NII-3 Band:

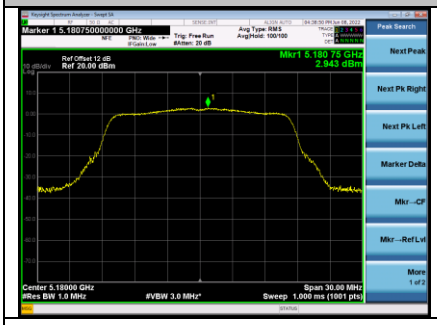
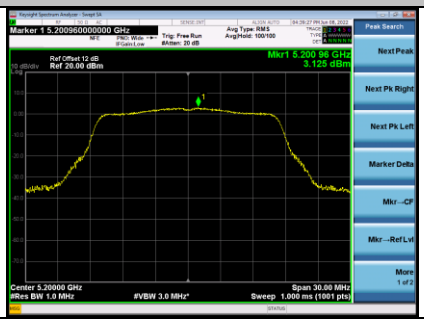
EUT: Digital Signage Media Appliance		
M/N: IAD-16005E		
Test date: 2022-06-08	Pressure: 102.1 ±1.0 kpa	Humidity: 53.2 ±3.0%
Tested by: Lynn	Test site: RF site	Temperature:22.3 ±0.6 ℃

Test Mode	Frequency (MHz)	Power density (dBm/500KHz)	Limit (dBm/500KHz)
11a	5745	-1.798	30
	5785	-2.591	
	5825	-2.096	
11n HT20	5745	-2.660	30
	5785	-3.265	
	5825	-3.155	
11n HT40	5755	-6.130	30
	5795	-6.386	
11ac VHT20	5745	-3.097	30
	5785	-3.200	
	5825	-3.192	
11ac VHT40	5755	-5.680	30
	5795	-6.448	
11ac VHT80	5775	-9.637	30
Conclusion: PASS			

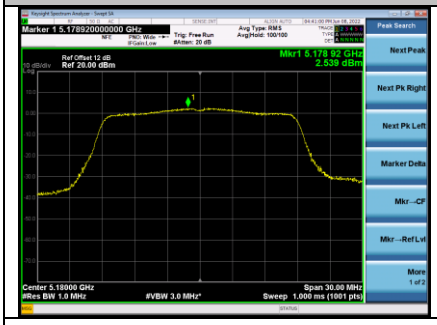
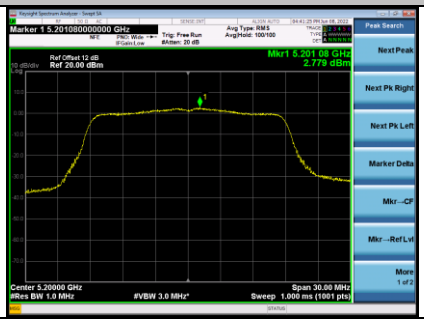
1. The total result = Reading + 10 log(500kHz/100kHz)

U-NII-1 Band

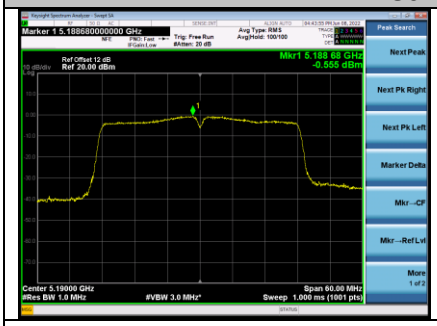
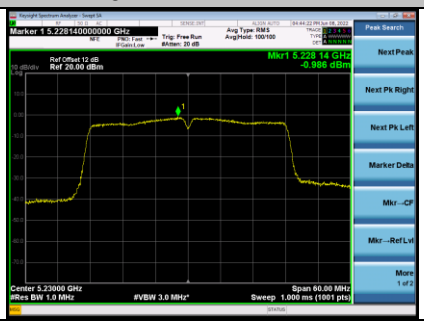
IEEE 802.11a

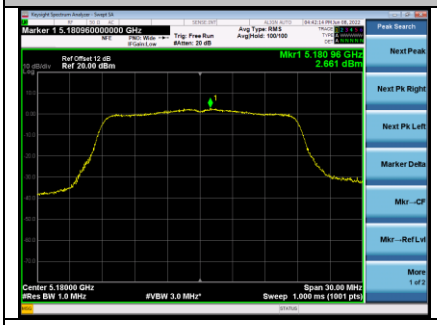

IEEE 802.11n HT20

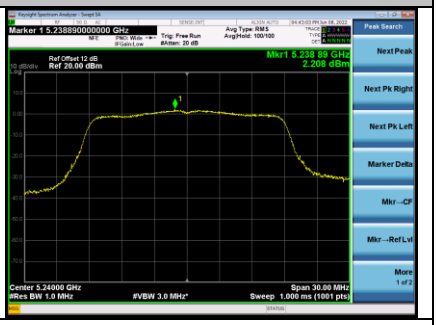




IEEE 802.11n HT40

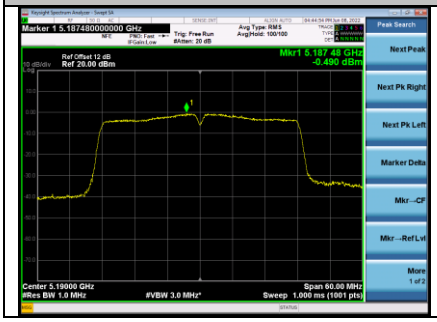



IEEE 802.11ac VHT20





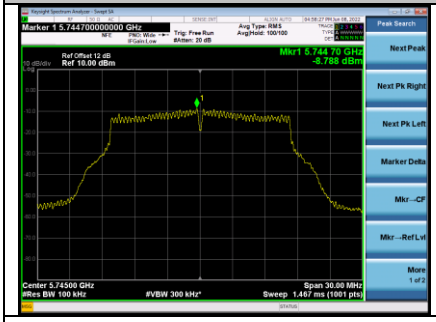
IEEE 802.11ac VHT40



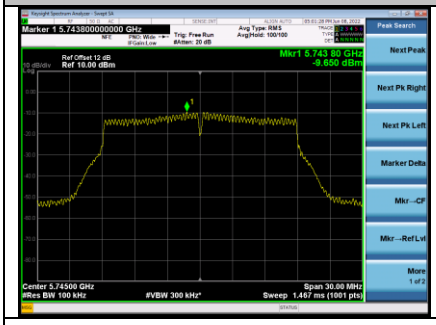

IEEE 802.11ac VHT80

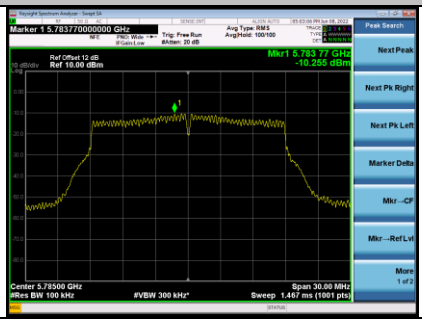
U-NII-3 Band

IEEE 802.11a

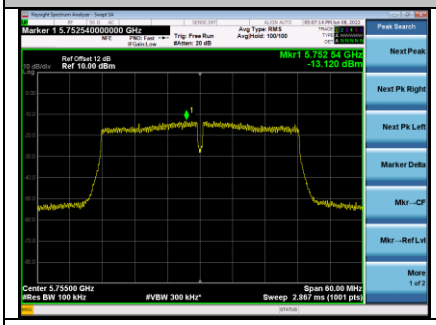


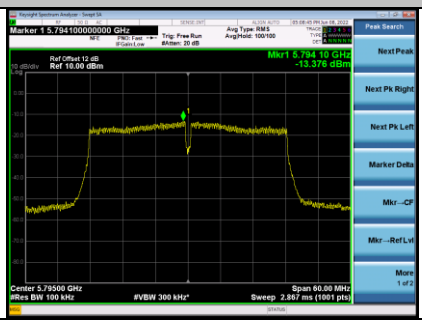
IEEE 802.11n HT20



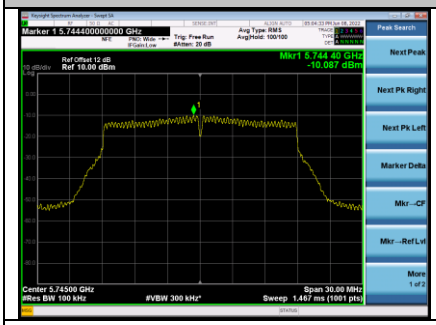


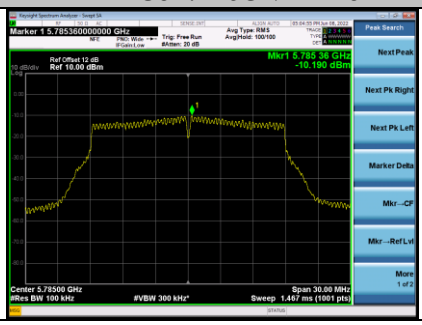
IEEE 802.11n HT40



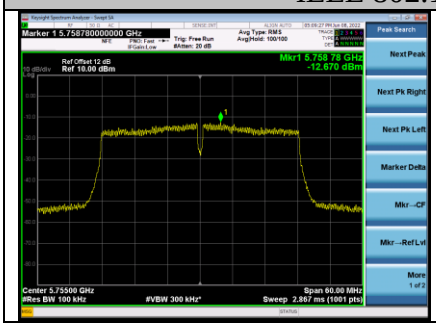


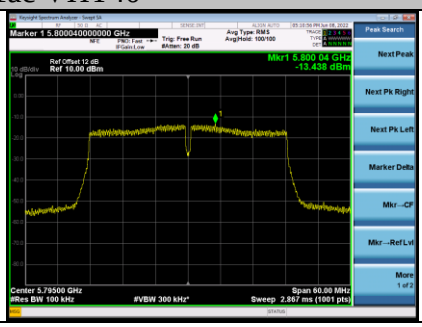
IEEE 802.11ac VHT20





IEEE 802.11ac VHT40





IEEE 802.11ac VHT80

9. FREQUENCY STABILITY MEASUREMENT

9.1.Test Equipment

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
4.	PXA Signal Analyzer	Agilent	N9030A	MY51380221	Apr.07,22	1 Year
5.	Attenuator	Agilent	8491B	MY39269201	Oct.09,21	1 Year
6.	RF Cable	HUBER+SUHNER	SUCOFLEX-106	505238/6	Apr.06,22	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 is 0℃~50℃.

9.4.Test Result

EUT: Digital Signage Media Appliance		
M/N: IAD-16005E		
Test date: 2022-06-09	Pressure: 102.1 ±1.0 kpa	Humidity: 53.2 ±3.0%
Tested by: Lynn	Test site: RF site	Temperature:22.3 ±0.6 ℃

Frequency Stability vs.Voltage:

Test Voltage	Temperature	CH	Max. Reading (MHz)	Target Frequency (MHz)	Result (ppm)
AC 102V	25℃	CH36	5180.0335	5180	6.4672
		CH38	5190.0345	5190	6.6474
		CH40	5200.0335	5200	6.4423
		CH42	5210.0330	5210	6.3340
		CH46	5230.0330	5230	6.3098
		CH48	5240.0340	5240	6.4885
		CH149	5745.0370	5745	6.4404
		CH151	5755.0370	5755	6.4292
		CH155	5775.0370	5775	6.4069
		CH157	5785.0360	5785	6.2230
		CH159	5795.0370	5795	6.3848
		CH165	5825.0370	5825	6.3519
AC 120V	25℃	CH36	5180.0340	5180	6.5637
		CH38	5190.0350	5190	6.7437
		CH40	5200.0340	5200	6.5385
		CH42	5210.0335	5210	6.4299
		CH46	5230.0335	5230	6.4054
		CH48	5240.0345	5240	6.5840
		CH149	5745.0375	5745	6.5274
		CH151	5755.0375	5755	6.5161
		CH155	5775.0375	5775	6.4935
		CH157	5785.0365	5785	6.3094
		CH159	5795.0375	5795	6.4711
		CH165	5825.0375	5825	6.4378

AC 138V	25℃	CH36	5180.0345	5180	6.6602
		CH38	5190.0355	5190	6.8401
		CH40	5200.0345	5200	6.6346
		CH42	5210.0340	5210	6.5259
		CH46	5230.0340	5230	6.5010
		CH48	5240.0350	5240	6.6794
		CH149	5745.0380	5745	6.6144
		CH151	5755.0380	5755	6.6030
		CH155	5775.0380	5775	6.5801
		CH157	5785.0370	5785	6.3959
		CH159	5795.0380	5795	6.5574
		CH165	5825.0380	5825	6.5236

Frequency Stability vs.Temperature:

Test Voltage	Temperature	CH	Max. Reading （MHz）	Target Frequency (MHz)	Result (ppm)
AC 120V	0℃	CH36	5180.0310	5180	5.9846
		CH38	5190.0320	5190	6.1657
		CH40	5200.0310	5200	5.9615
		CH42	5210.0305	5210	5.8541
		CH46	5230.0305	5230	5.8317
		CH48	5240.0315	5240	6.0115
		CH149	5745.0345	5745	6.0052
		CH151	5755.0345	5755	5.9948
		CH155	5775.0345	5775	5.9740
		CH157	5785.0335	5785	5.7908
		CH159	5795.0345	5795	5.9534
		CH165	5825.0345	5825	5.9227
AC 120V	10℃	CH36	5180.0320	5180	6.1776
		CH38	5190.0330	5190	6.3584
		CH40	5200.0320	5200	6.1538
		CH42	5210.0315	5210	6.0461
		CH46	5230.0315	5230	6.0229
		CH48	5240.0325	5240	6.2023
		CH149	5745.0355	5745	6.1793
		CH151	5755.0355	5755	6.1685
		CH155	5775.0355	5775	6.1472
		CH157	5785.0345	5785	5.9637
		CH159	5795.0355	5795	6.1260
		CH165	5825.0355	5825	6.0944

AC 120V	20℃	CH36	5180.0330	5180	6.3707
		CH38	5190.0340	5190	6.5511
		CH40	5200.0330	5200	6.3462
		CH42	5210.0325	5210	6.2380
		CH46	5230.0325	5230	6.2141
		CH48	5240.0335	5240	6.3931
		CH149	5745.0365	5745	6.3534
		CH151	5755.0365	5755	6.3423
		CH155	5775.0365	5775	6.3203
		CH157	5785.0355	5785	6.1366
		CH159	5795.0365	5795	6.2985
		CH165	5825.0365	5825	6.2661
AC 120V	30℃	CH36	5180.0345	5180	6.6602
		CH38	5190.0355	5190	6.8401
		CH40	5200.0345	5200	6.6346
		CH42	5210.0330	5210	6.3340
		CH46	5230.0320	5230	6.1185
		CH48	5240.0330	5240	6.2977
		CH149	5745.0355	5745	6.1793
		CH151	5755.0385	5755	6.6898
		CH155	5775.0385	5775	6.6667
		CH157	5785.0370	5785	6.3959
		CH159	5795.0370	5795	6.3848
		CH165	5825.0355	5825	6.0944
AC 120V	40℃	CH36	5180.0350	5180	6.7568
		CH38	5190.0360	5190	6.9364
		CH40	5200.0350	5200	6.7308
		CH42	5210.0345	5210	6.6219
		CH46	5230.0345	5230	6.5966
		CH48	5240.0355	5240	6.7748
		CH149	5745.0385	5745	6.7015
		CH151	5755.0385	5755	6.6898
		CH155	5775.0385	5775	6.6667
		CH157	5785.0375	5785	6.4823
		CH159	5795.0385	5795	6.6437
		CH165	5825.0385	5825	6.6094

AC 120V	50℃	CH36	5180.0360	5180	6.9498
		CH38	5190.0370	5190	7.1291
		CH40	5200.0360	5200	6.9231
		CH42	5210.0355	5210	6.8138
		CH46	5230.0355	5230	6.7878
		CH48	5240.0365	5240	6.9656
		CH149	5745.0395	5745	6.8755
		CH151	5755.0395	5755	6.8636
		CH155	5775.0395	5775	6.8398
		CH157	5785.0385	5785	6.6551
		CH159	5795.0395	5795	6.8162
		CH165	5825.0395	5825	6.7811

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 External rod 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: 4.44dBi; U-NII-3 Band: 4.54dBi .

11. DEVIATION TO TEST SPECIFICATIONS

[NONE]

THE END