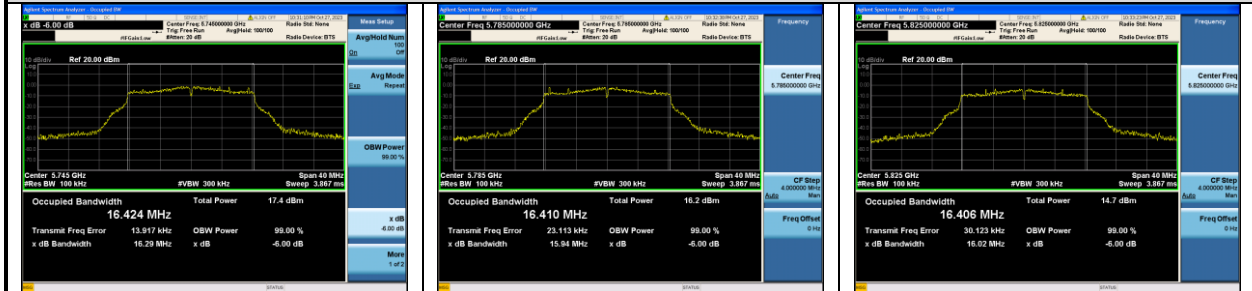


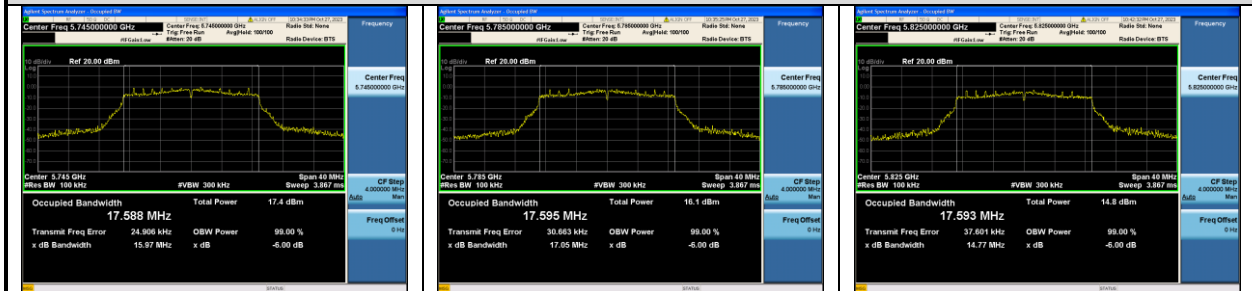
6dB bandwidth

U-NII-3 Band

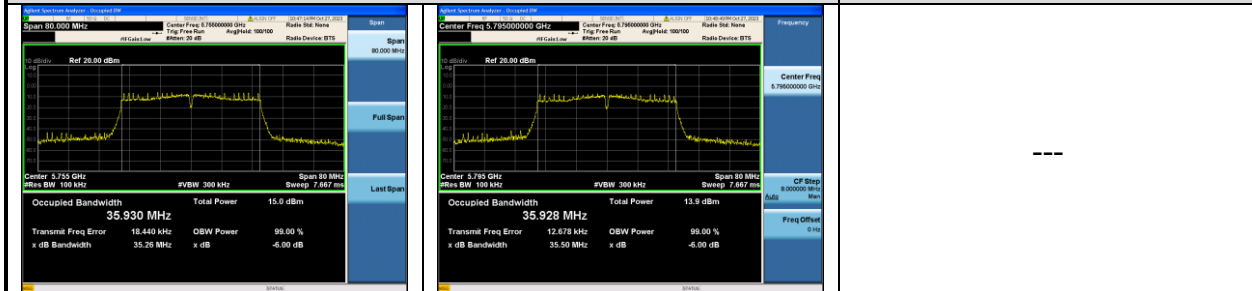
IEEE 802.11a



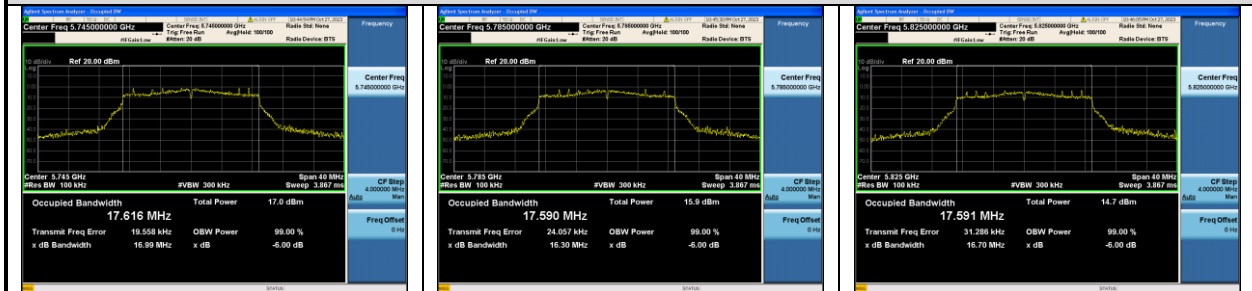
IEEE 802.11n HT20



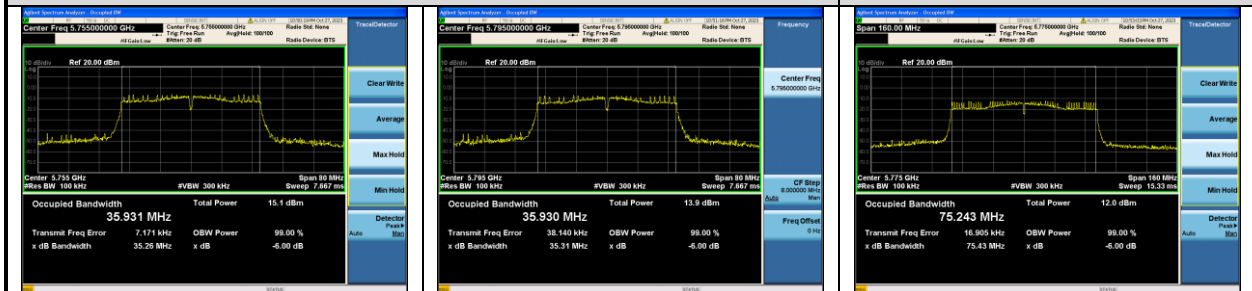
IEEE 802.11n HT40



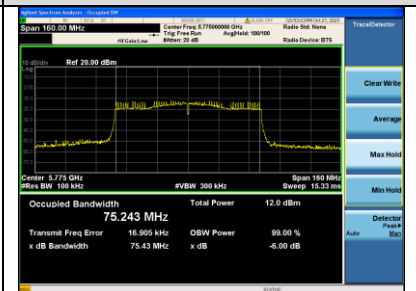
IEEE 802.11ac VHT20



IEEE 802.11ac VHT40



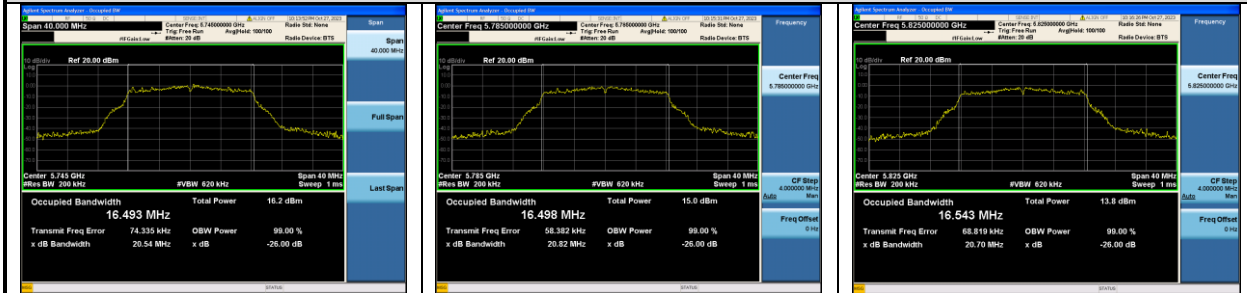
IEEE 802.11ac VHT80



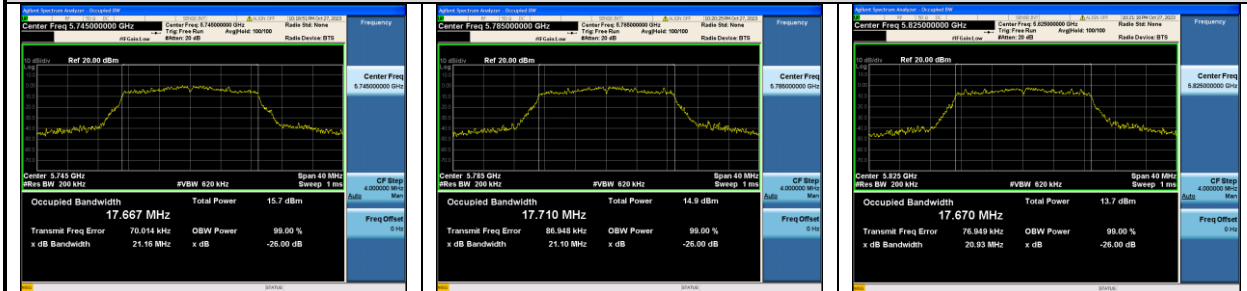
26dB bandwidth & 99% Occupied bandwidth

U-NII-3 Band

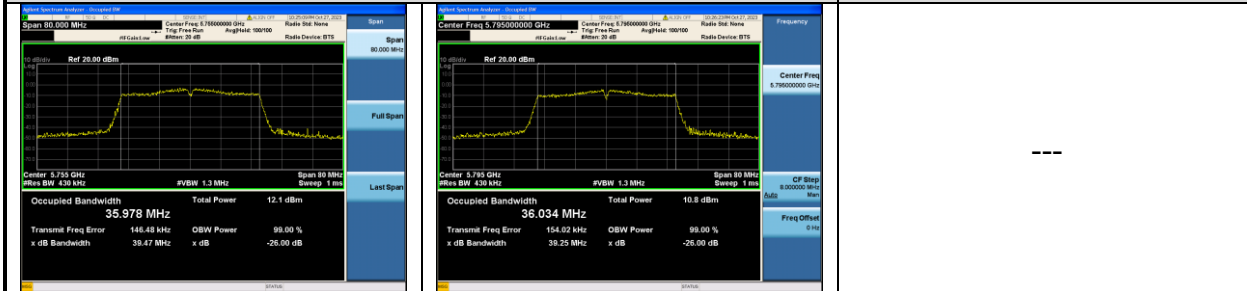
IEEE 802.11a



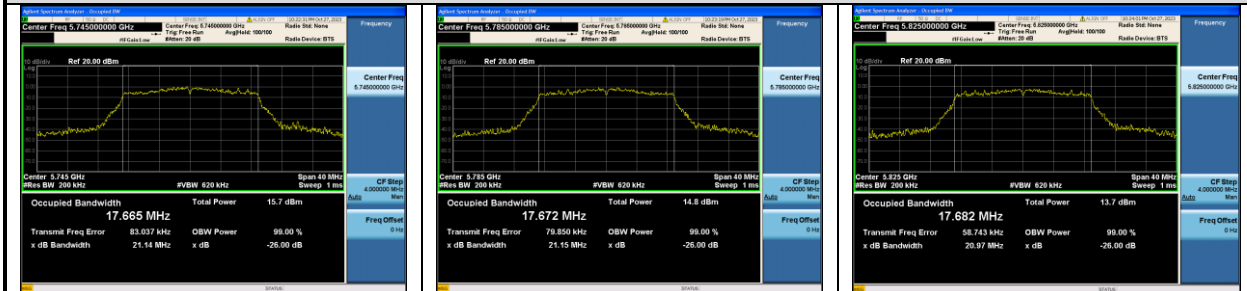
IEEE 802.11n HT20



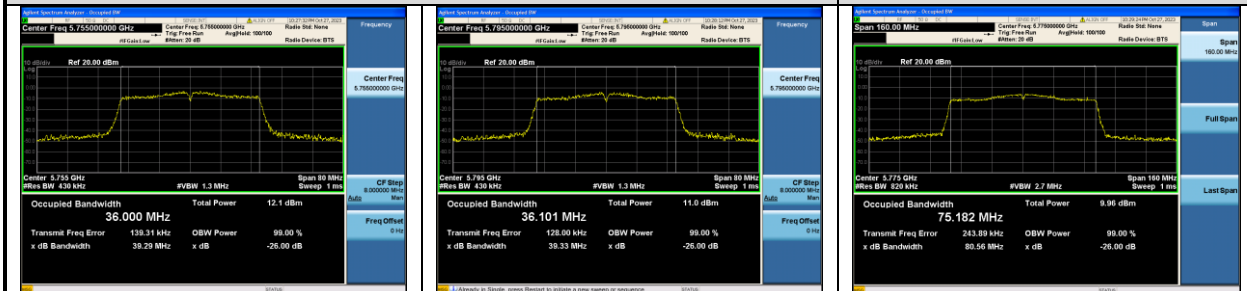
IEEE 802.11n HT40



IEEE 802.11ac VHT20



IEEE 802.11ac VHT40



IEEE 802.11ac VHT80

7. OUTPUT POWER TEST

7.1. Test Equipments

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	PXA Signal Analyzer	Agilent	N9030A	MY51380221	Apr.01,23	1 Year
2.	Power meter	Anritsu	ML2487A	6K00003262	Jun.26,23	1 Year
3.	Power sensor	Anritsu	MA2491A	0332516	Jun.26,23	1 Year
4.	Attenuator(10dB)	Agilent	8491B	MY39269201	Apr.02,23	1 Year
5.	RF Cable	HUBER+SUHNER	SUCOFLEX-106	505238/6	Apr.02,23	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 maximum 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 10dB 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 $\geq$ 3 MHz.
 - 4) Number of points in sweep $\geq 2 \times \text{span} / \text{RBW}$.
 - 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 $\geq$ 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

U-NII-1 Band:

EUT: Electronic paper display		
M/N: EP-C131		
Test date: 2023-11-04	Pressure: 102.5±1.0 kpa	Humidity: 53.6±3.0%
Tested by: Jason	Test site: RF site	Temperature: 22.4±0.6°C

Test Mode	Frequency (MHz)	Power Setting	Duty factor (dB)	Output Power (dBm)	Limit (dBm)
11a	5180	Default	0	11.58	23.98
	5200			11.76	
	5240			12.21	
11n HT20	5180	Default	0	11.24	23.98
	5200			11.33	
	5240			11.79	
11n HT40	5190	Default	0.18	10.68	23.98
	5230			11.17	
11ac VHT20	5180	Default	0	11.08	23.98
	5200			11.36	
	5240			11.69	
11ac VHT40	5190	Default	0.18	10.71	23.98
	5230			11.17	
11ac VHT80	5210	Default	0.41	9.85	23.98
Conclusion: Pass					

U-NII-2A Band:

EUT: Electronic paper display		
M/N: EP-C131		
Test date: 2023-11-04	Pressure: 102.5±1.0 kpa	Humidity: 53.6±3.0%
Tested by: Jason	Test site: RF site	Temperature: 22.4±0.6℃

Test Mode	Frequency (MHz)	Power Setting	Duty factor (dB)	Output Power (dBm)	Limit (dBm)
11a	5260	Default	0	12.33	23.98
	5300			12.50	
	5320			12.45	
11n HT20	5260	Default	0	11.95	23.98
	5300			12.09	
	5320			11.99	
11n HT40	5270	Default	0.18	10.64	23.98
	5310			10.70	
11ac VHT20	5260	Default	0	11.84	23.98
	5300			12.00	
	5320			11.99	
11ac VHT40	5270	Default	0.18	10.73	23.98
	5310			10.73	
11ac VHT80	5290	Default	0.41	9.98	23.98
Conclusion:Pass					

U-NII-2C Band:

EUT: Electronic paper display		
M/N: EP-C131		
Test date: 2023-11-04	Pressure: 102.5±1.0 kpa	Humidity: 53.6±3.0%
Tested by: Jason	Test site: RF site	Temperature: 22.4±0.6℃

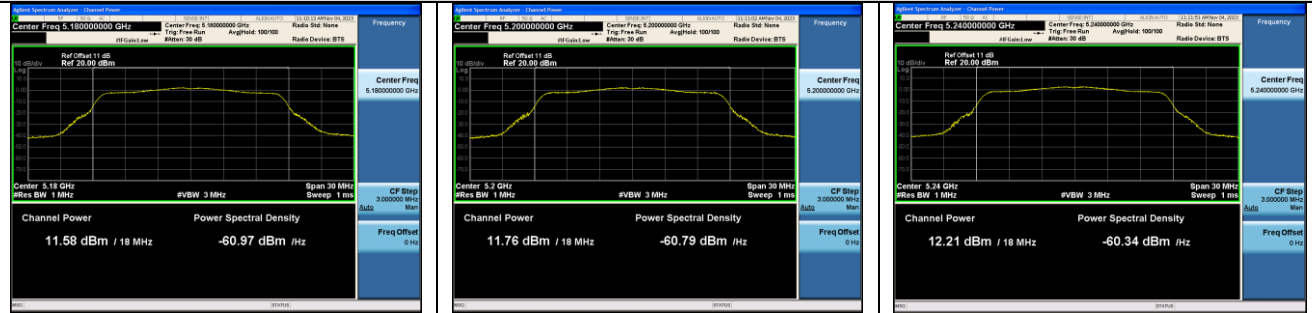
Test Mode	Frequency (MHz)	Power Setting	Duty factor (dB)	Output Power (dBm)	Limit (dBm)
11a	5500	Default	0	11.86	23.98
	5580			10.70	
	5700			7.25	
11n HT20	5500	Default	0	11.30	23.98
	5580			10.27	
	5700			7.42	
11n HT40	5510	Default	0.18	10.36	23.98
	5550			10.02	
	5670			6.93	
11ac VHT20	5500	Default	0	11.30	23.98
	5580			10.27	
	5700			7.42	
11ac VHT40	5510	Default	0.18	10.36	23.98
	5550			9.83	
	5670			6.95	
11ac VHT80	5530	Default	0.41	9.56	23.98
Conclusion:Pass					

U-NII-3 Band:

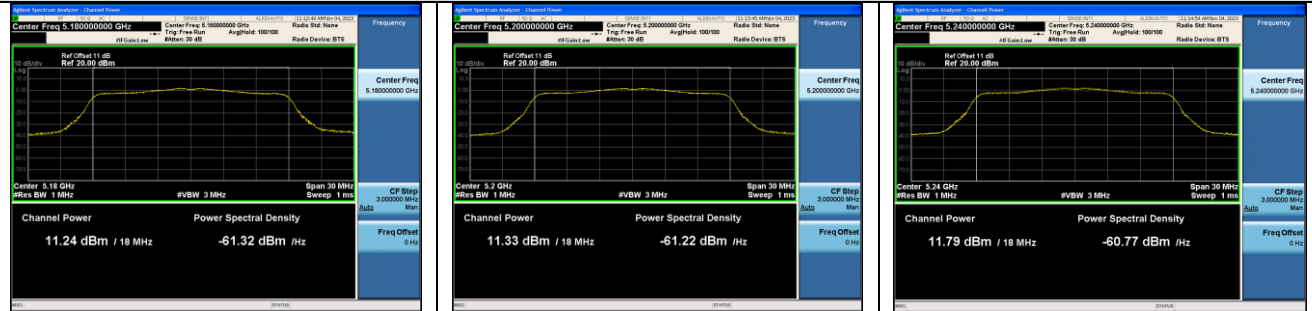
EUT: Electronic paper display		
M/N: EP-C131		
Test date: 2023-11-04	Pressure: 102.5±1.0 kpa	Humidity: 53.6±3.0%
Tested by: Jason	Test site: RF site	Temperature: 22.4±0.6°C

Test Mode	Frequency (MHz)	Power Setting	Duty factor (dB)	Output Power (dBm)	Limit (dBm)
11a	5475	Default	0	8.58	30
	5485			8.90	
	5825			8.34	
11n HT20	5475	Default	0	8.26	30
	5485			7.98	
	5825			8.39	
11n HT40	5755	Default	0.18	7.25	30
	5795			7.37	
11ac VHT20	5475	Default	0	8.28	30
	5485			8.03	
	5825			8.42	
11ac VHT40	5755	Default	0.18	7.24	30
	5795			7.54	
11ac VHT80	5775	Default	0.41	6.55	30
Conclusion:Pass					

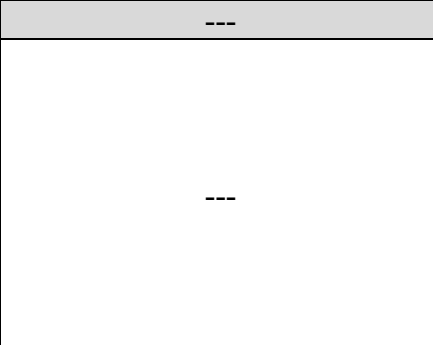
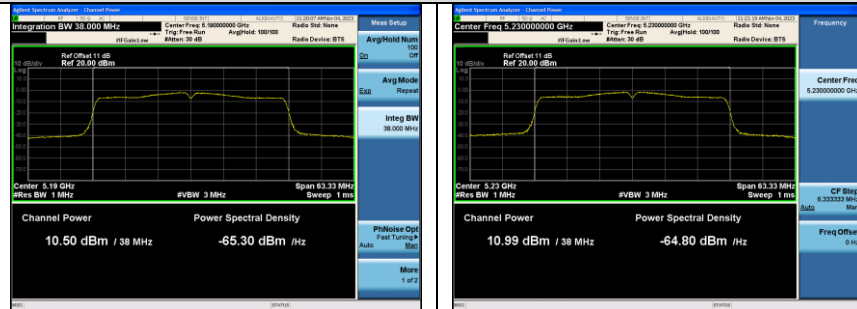
U-NII-1 Band IEEE 802.11a



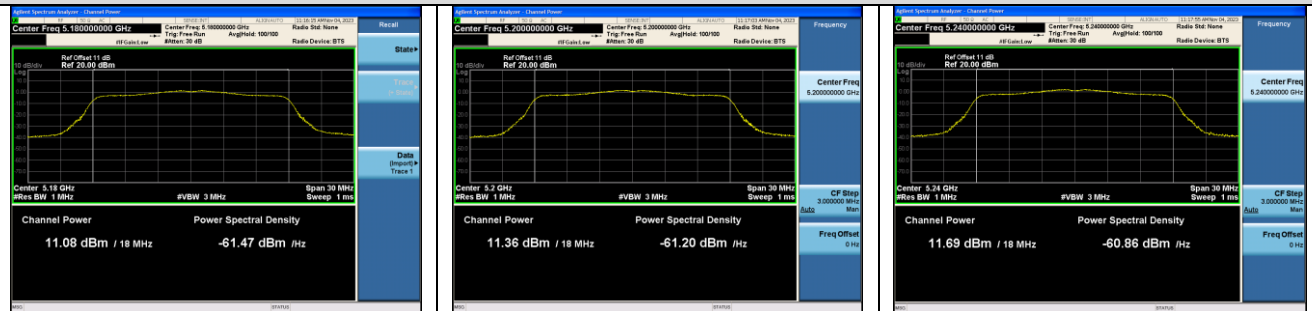
IEEE 802.11n HT20



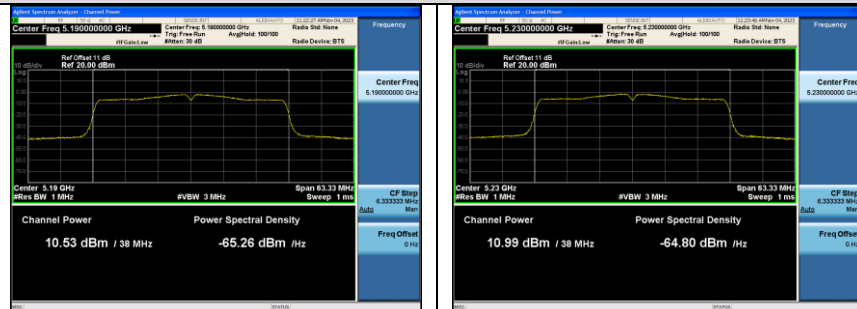
IEEE 802.11n HT40



IEEE 802.11ac VHT20



IEEE 802.11ac VHT40

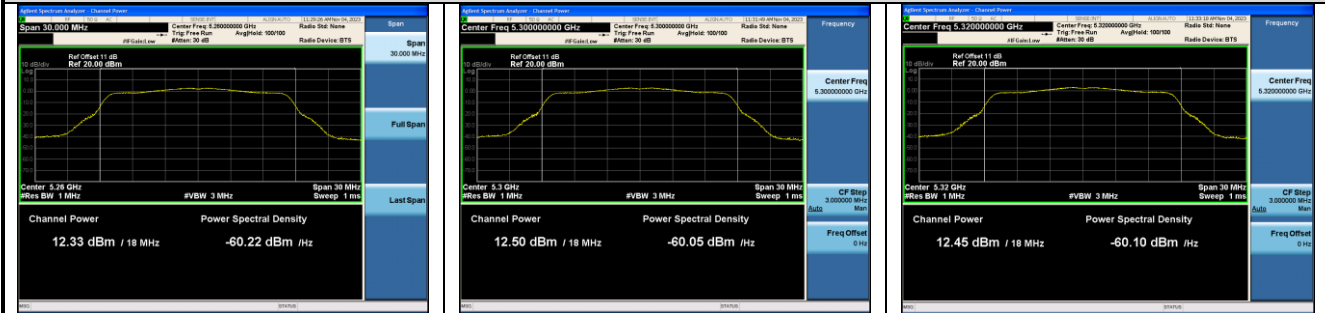


IEEE 802.11ac VHT80

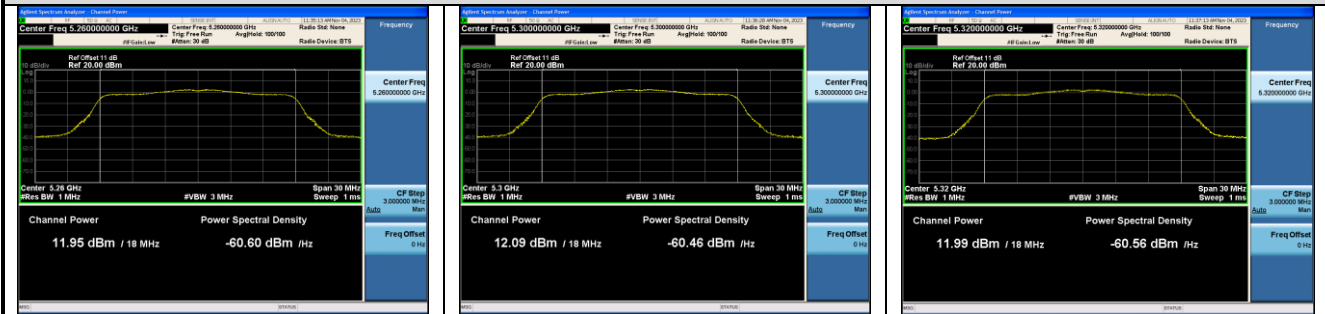


U-NII-2A Band

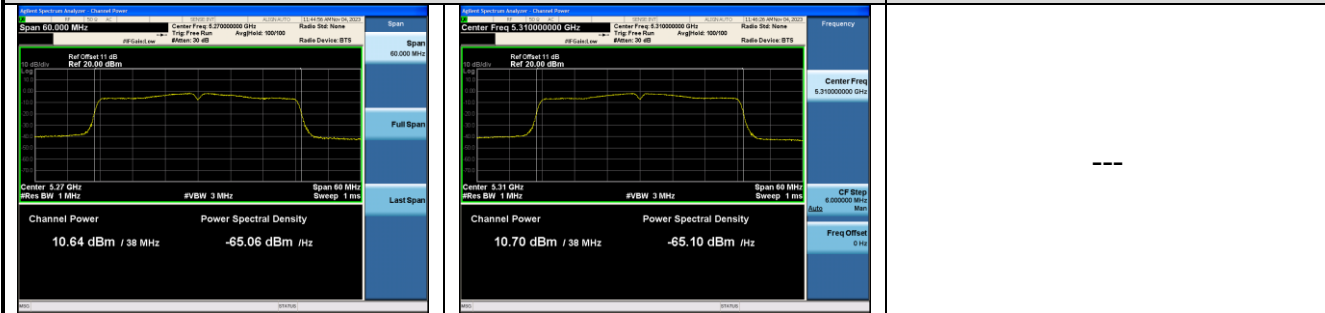
IEEE 802.11a



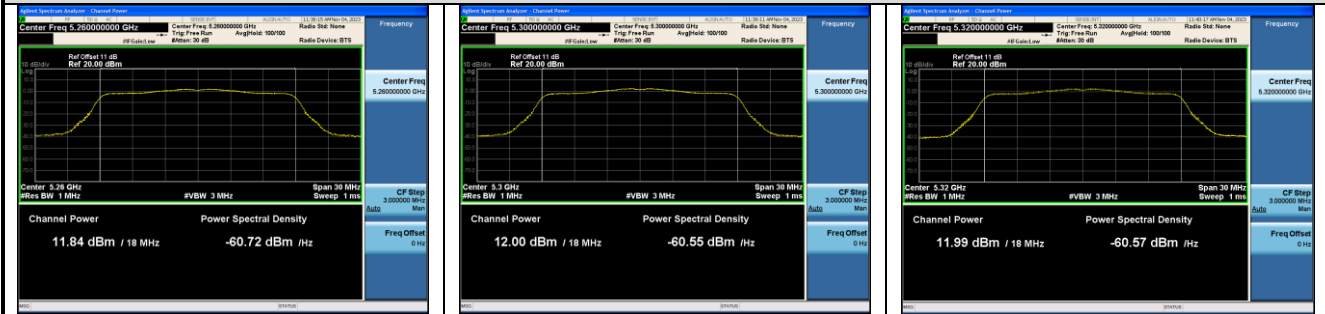
IEEE 802.11n HT20



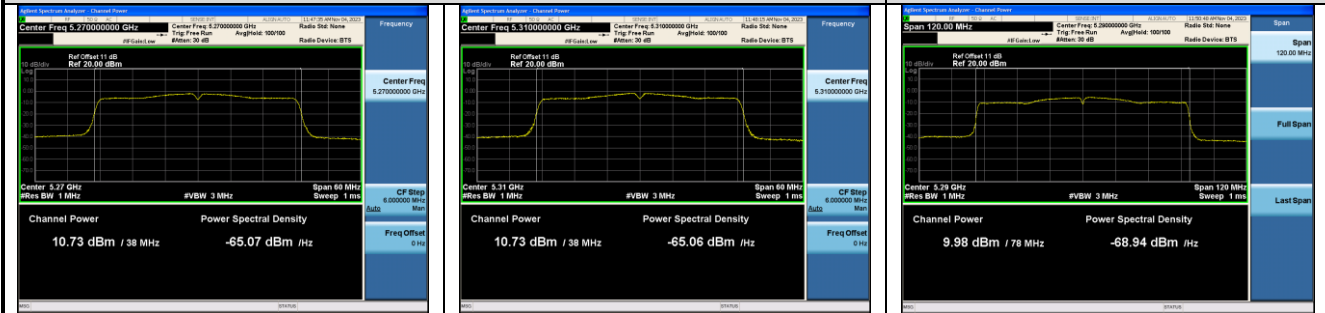
IEEE 802.11n HT40



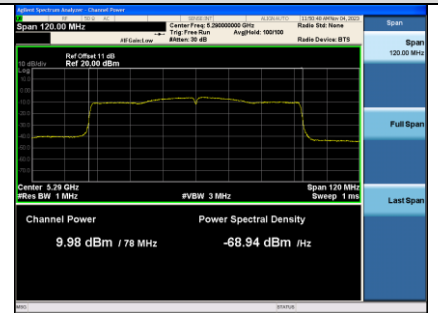
IEEE 802.11ac VHT20



IEEE 802.11ac VHT40

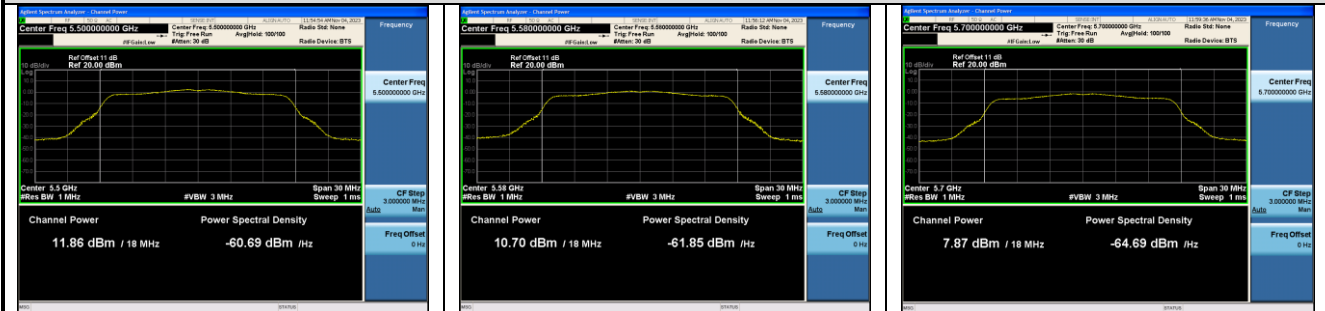


IEEE 802.11ac VHT80

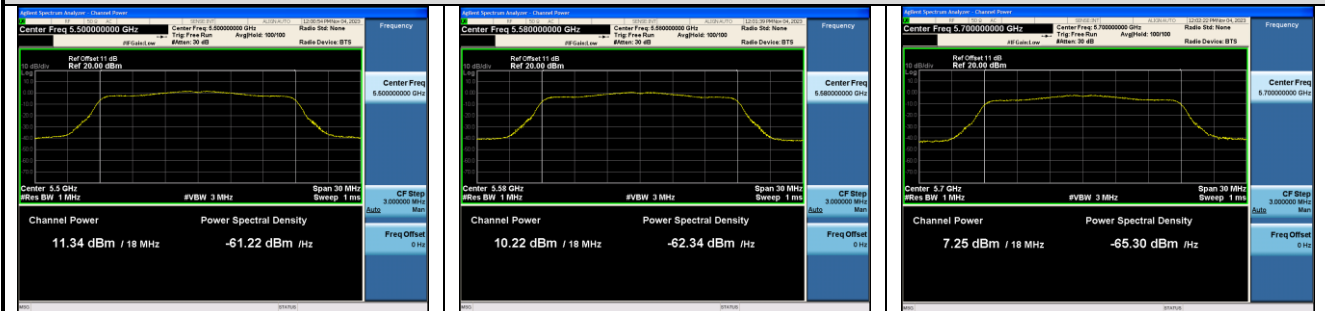


U-NII-2C Band

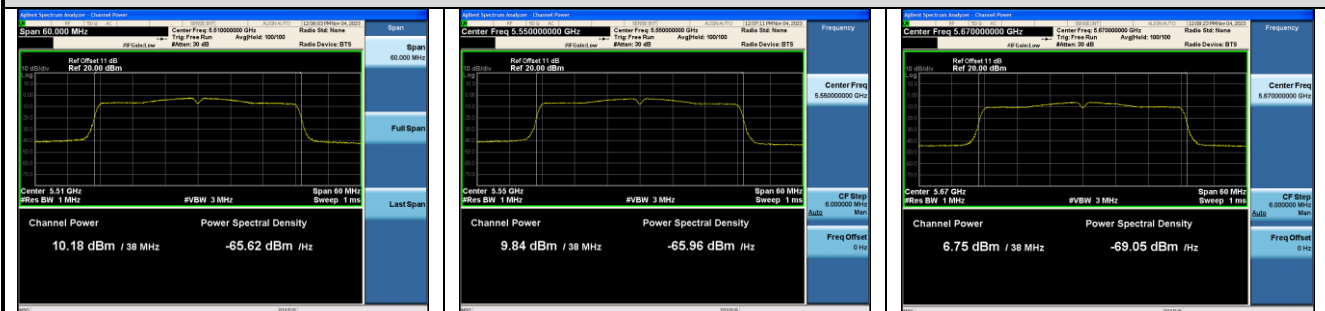
IEEE 802.11a



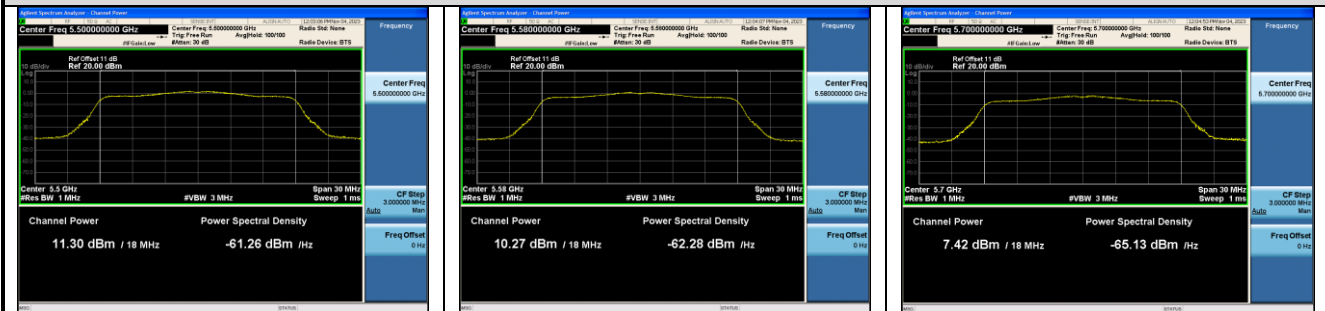
IEEE 802.11n HT20



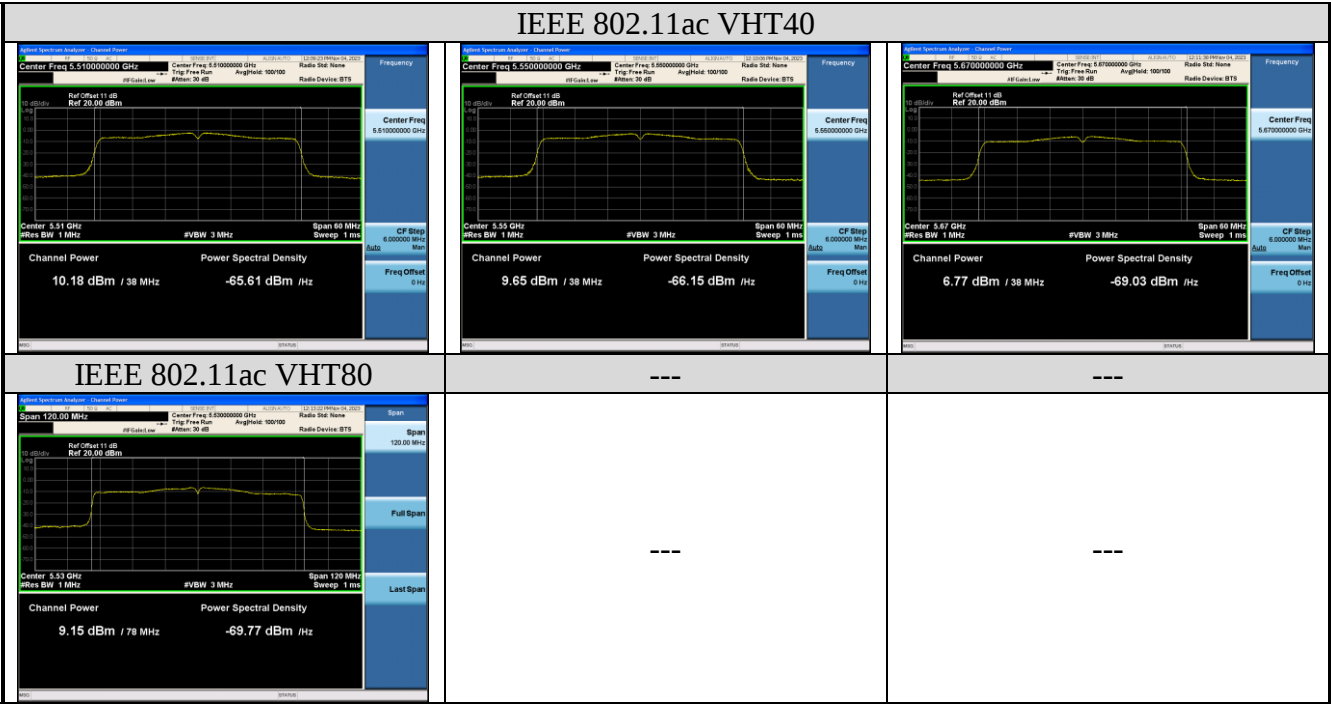
IEEE 802.11n HT40



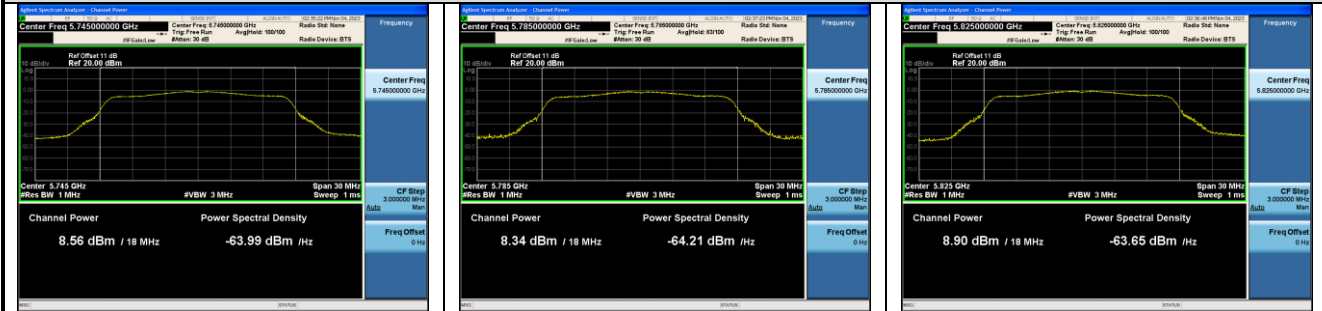
IEEE 802.11ac VHT20



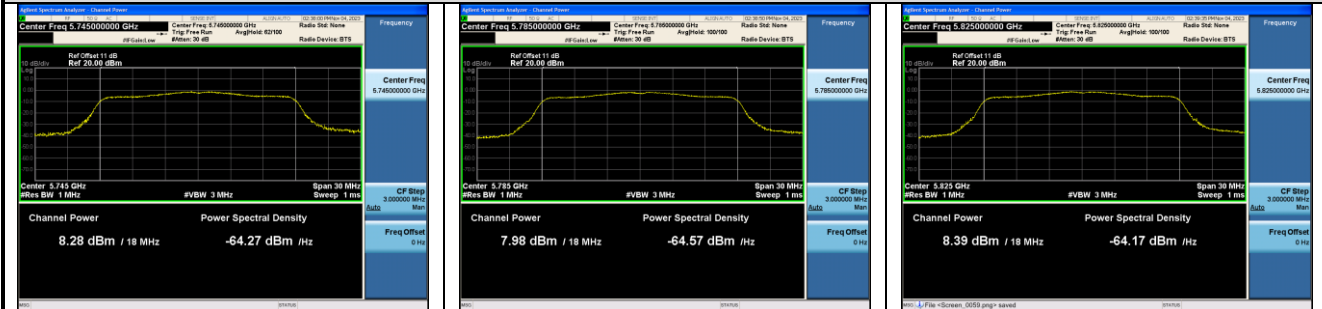
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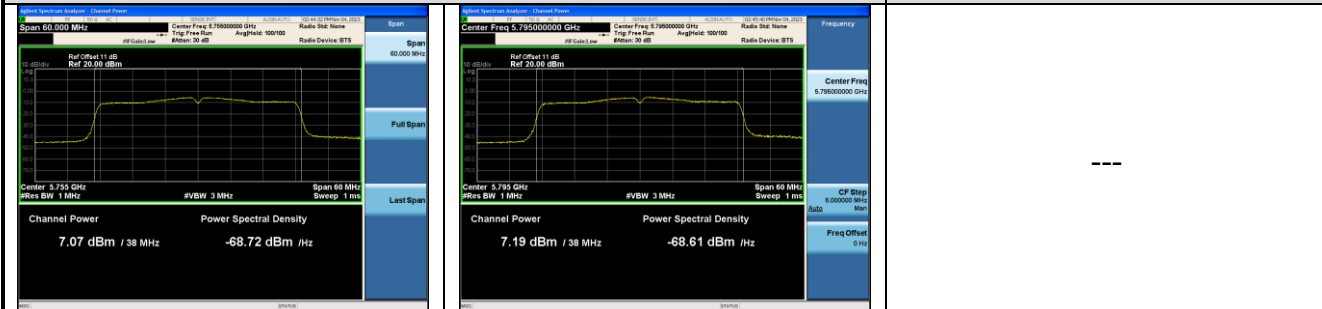
U-NII-3 Band IEEE 802.11a



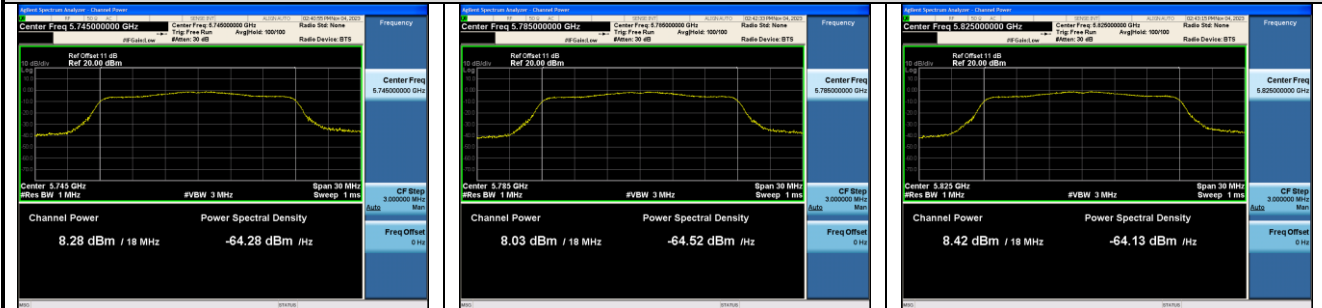
IEEE 802.11n HT20



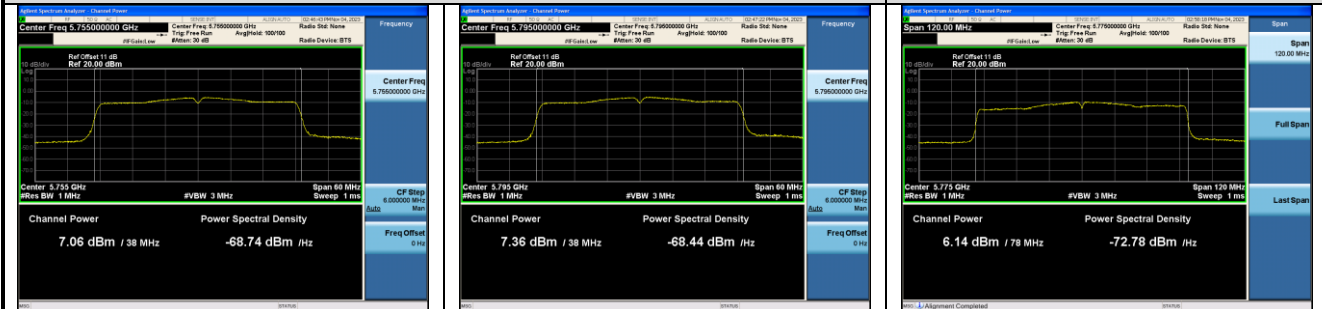
IEEE 802.11n HT40



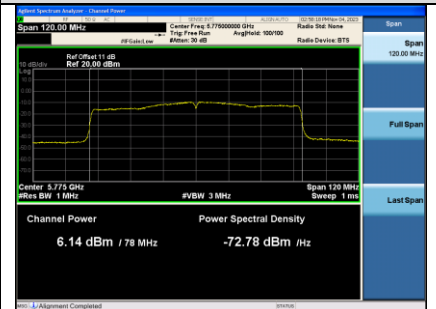
IEEE 802.11ac VHT20



IEEE 802.11ac VHT40



IEEE 802.11ac VHT80



8. SPECTRAL DENSITY TEST

8.1. Test Equipments

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	PXA Signal Analyzer	Agilent	N9030A	MY51380221	Apr.01,23	1 Year
2.	Attenuator(10dB)	Agilent	8491B	MY39269201	Apr.02,23	1 Year
3.	RF Cable	HUBER+SUHNER	SUCOFLEX-106	505238/6	Apr.02,23	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.

So use the test method described in KDB789033 clause E

- 1) Set the RBW=100kHz and VBW =300kHz
- 2) Number of points in sweep $\geq 2 \text{ Span} / \text{RBW}$. (This ensures that bin-to-bin spacing is $\leq \text{RBW}/2$, 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 $10\log(500\text{kHz}/\text{RBW})$ 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: Electronic paper display		
M/N: EP-C131		
Test date: 2023-11-07	Pressure: 102.5±1.0 kpa	Humidity: 53.6±3.0%
Tested by: Jason	Test site: RF site	Temperature: 22.4±0.6°C

Test Mode	Frequency (MHz)	Power Spectral Density (dBm/MHz)	Limit (dBm/MHz)
11a	5180	1.924	11
	5200	3.149	
	5240	3.012	
11n HT20	5180	2.599	11
	5200	2.655	
	5240	2.431	
11n HT40	5190	-1.018	11
	5230	-1.005	
11ac VHT20	5180	2.645	11
	5200	2.645	
	5240	2.408	
11ac VHT40	5190	-1.111	11
	5230	-1.224	
11ac VHT80	5210	-5.544	11
Conclusion: Pass			

U-NII-2A Band:

EUT: Electronic paper display		
M/N: EP-C131		
Test date: 2023-11-07	Pressure: 102.5±1.0 kpa	Humidity: 53.6±3.0%
Tested by: Jason	Test site: RF site	Temperature: 22.4±0.6℃

Test Mode	Frequency (MHz)	Power Spectral Density (dBm/MHz)	Limit (dBm/MHz)
11a	5260	3.106	11
	5300	3.011	
	5320	3.223	
11n HT20	5260	2.374	11
	5300	2.323	
	5320	2.484	
11n HT40	5270	-1.829	11
	5310	-2.030	
11ac VHT20	5260	2.358	11
	5300	2.329	
	5320	2.149	
11ac VHT40	5270	-1.884	11
	5310	-1.642	
11ac VHT80	5290	-5.418	11
Conclusion:Pass			

U-NII-2C Band:

EUT: Electronic paper display		
M/N: EP-C131		
Test date: 2023-11-07~13	Pressure: 103.1±1.0 kpa	Humidity: 51.5±3.0%
Tested by: Jason	Test site: RF site	Temperature: 22.5±0.6 °C

Test Mode	Frequency (MHz)	Power Spectral Density (dBm/MHz)	Limit (dBm/MHz)
11a	5500	2.094	11
	5580	-0.298	
	5700	0.126	
11n HT20	5500	1.295	11
	5580	-1.049	
	5700	-0.534	
11n HT40	5510	-2.886	11
	5550	-4.585	
	5670	-4.153	
11ac VHT20	5500	1.333	11
	5580	-1.268	
	5700	-0.077	
11ac VHT40	5510	-2.582	11
	5550	-4.677	
	5670	-4.227	
11ac VHT80	5530	-6.795	11
Conclusion: Pass			

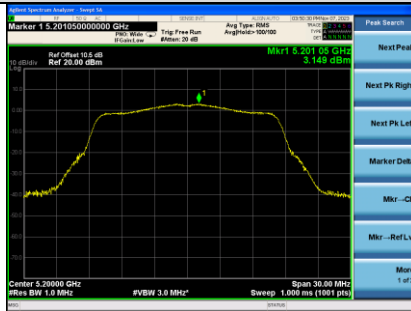
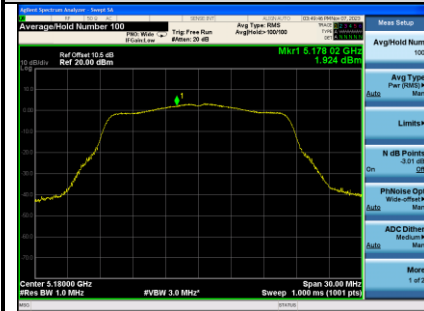
U-NII-3 Band:

EUT: Electronic paper display		
M/N: EP-C131		
Test date: 2023-11-13	Pressure: 103.1±1.0 kpa	Humidity: 51.5±3.0%
Tested by: Jason	Test site: RF site	Temperature: 22.5±0.6 °C

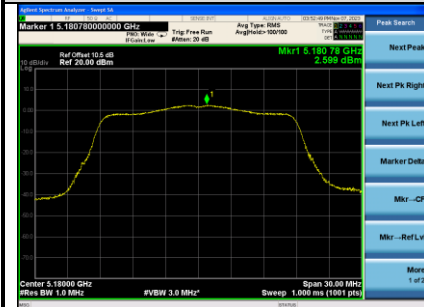
Test Mode	Frequency (MHz)	Power Spectral Density (dBm/500KHz)	Limit (dBm/500KHz)
11a	5745	-2.54	30
	5785	-2.80	
	5825	-2.54	
11n HT20	5745	-2.91	30
	5785	-3.78	
	5825	-3.30	
11n HT40	5755	-7.54	30
	5795	-7.53	
11ac VHT20	5745	-2.97	30
	5785	-3.02	
	5825	-3.39	
11ac VHT40	5755	-7.70	30
	5795	-7.70	
11ac VHT80	5775	-11.36	30
Conclusion: Pass			

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

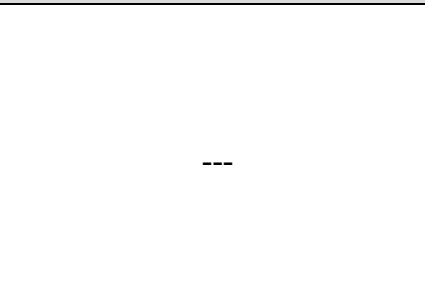
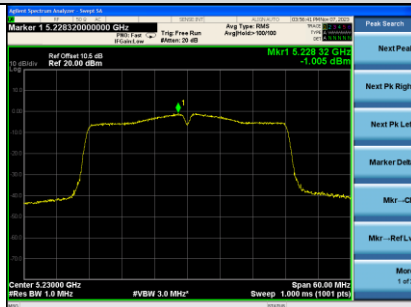
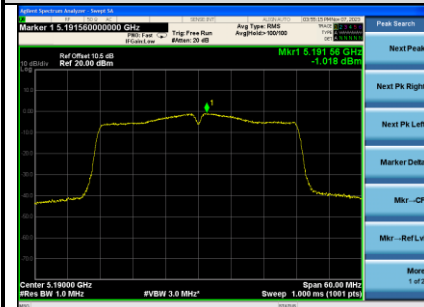
U-NII-1 Band IEEE 802.11a



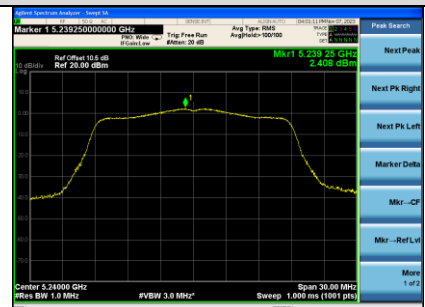
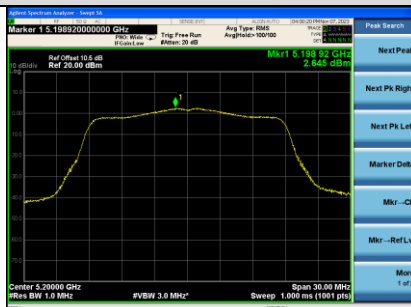
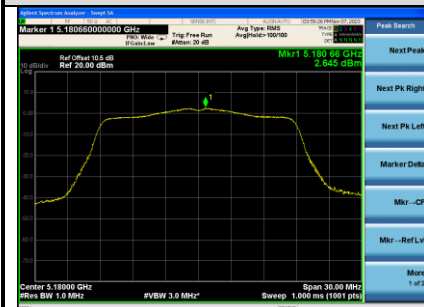
IEEE 802.11n HT20



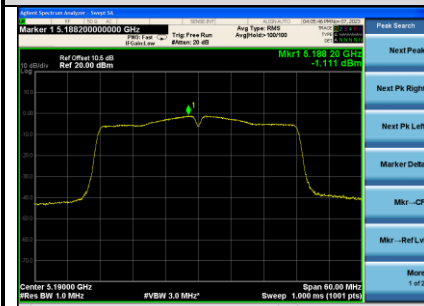
IEEE 802.11n HT40



IEEE 802.11ac VHT20



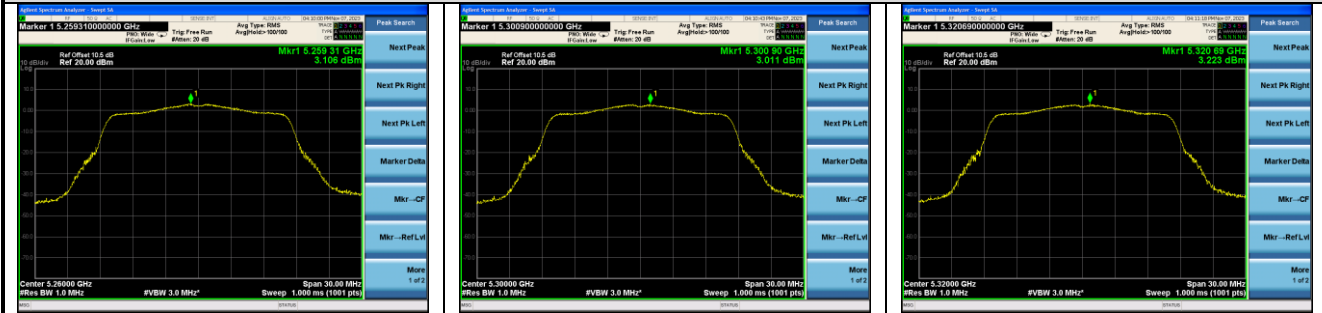
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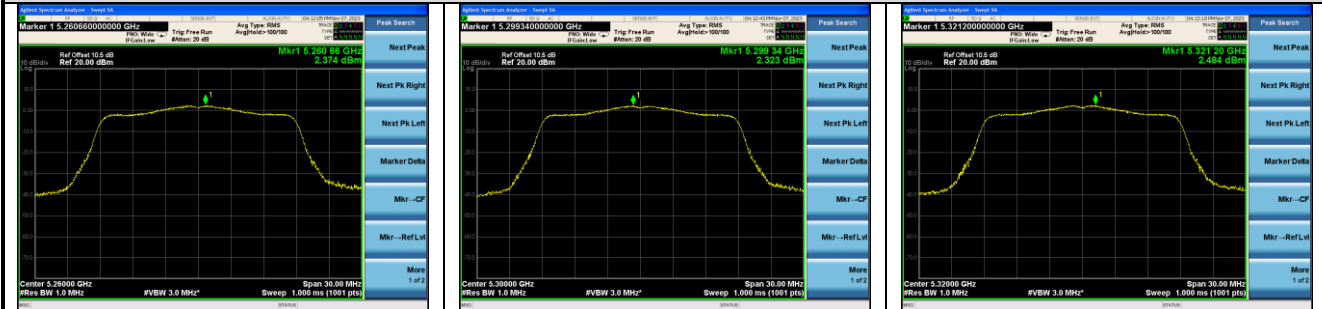
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U-NII-2A Band

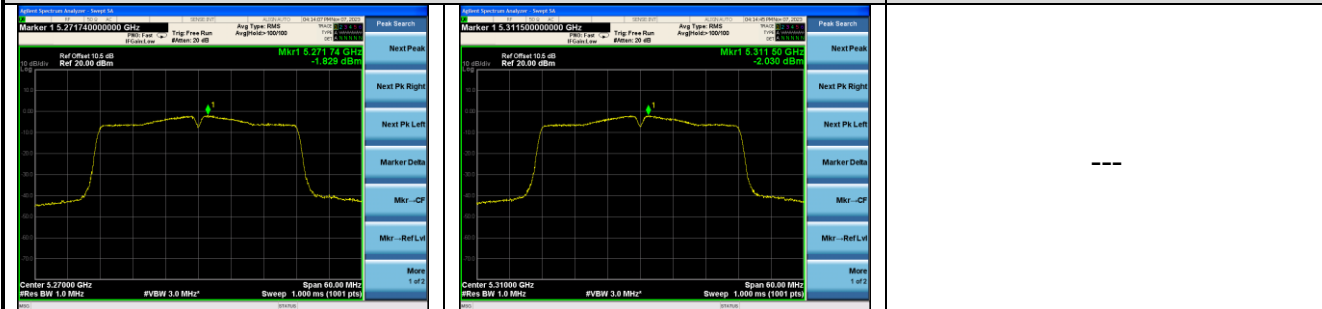
IEEE 802.11a



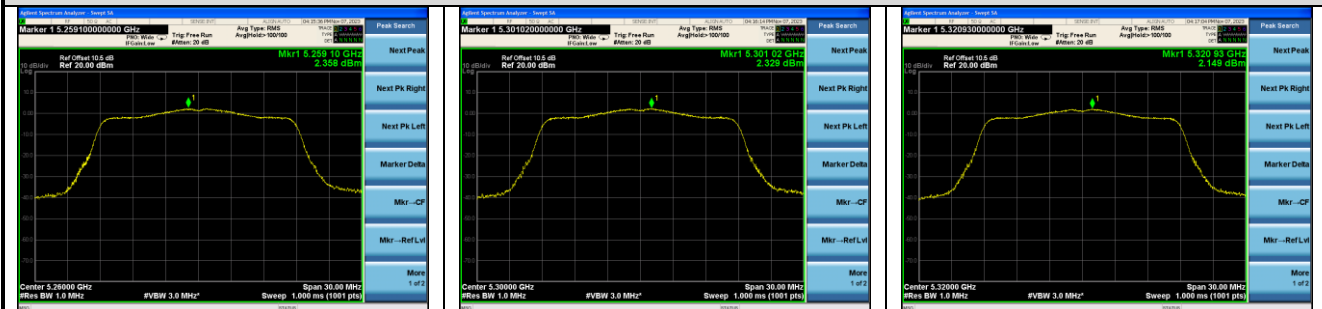
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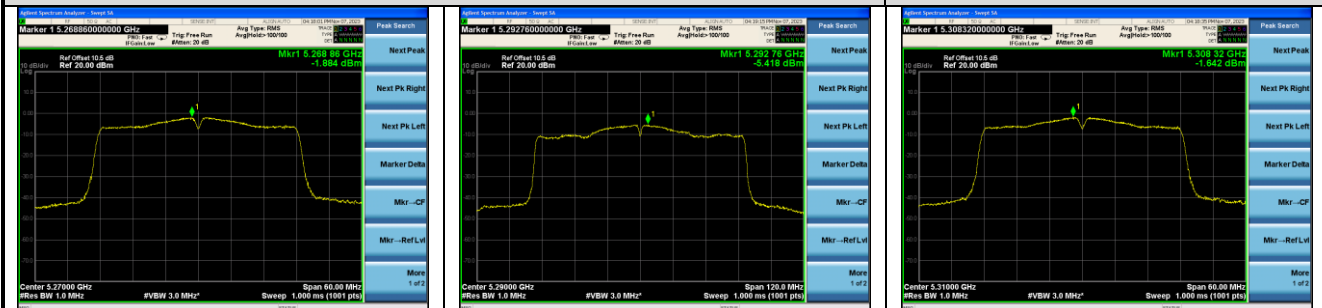
IEEE 802.11n HT40



IEEE 802.11ac VHT20



IEEE 802.11ac VHT40



IEEE 802.11ac VHT80

