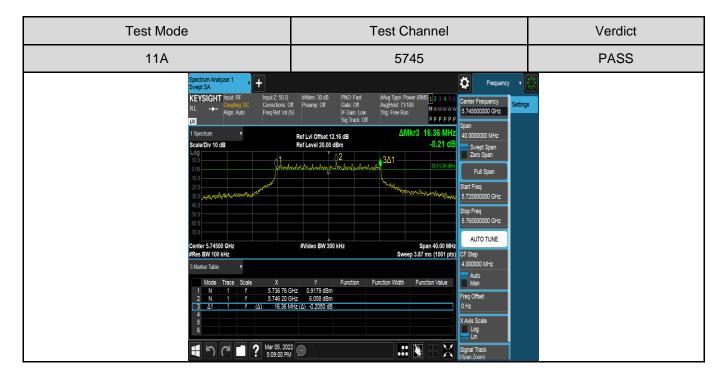
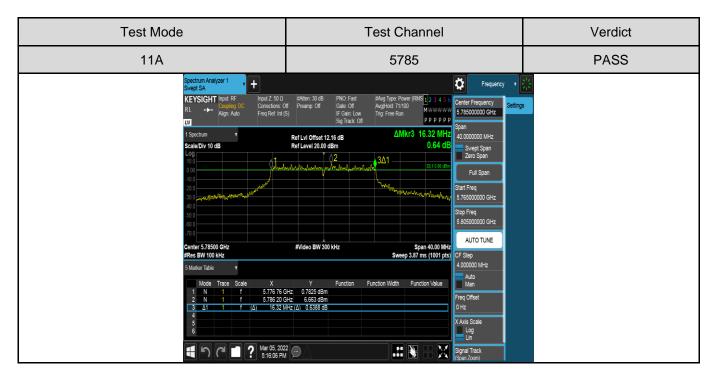




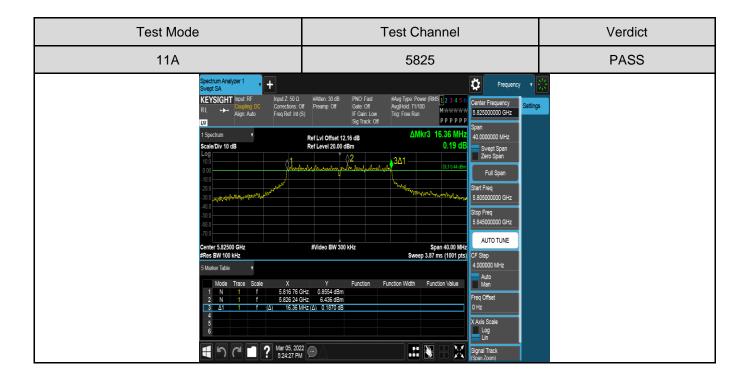


For 6 dB Emission Bandwidth Part:



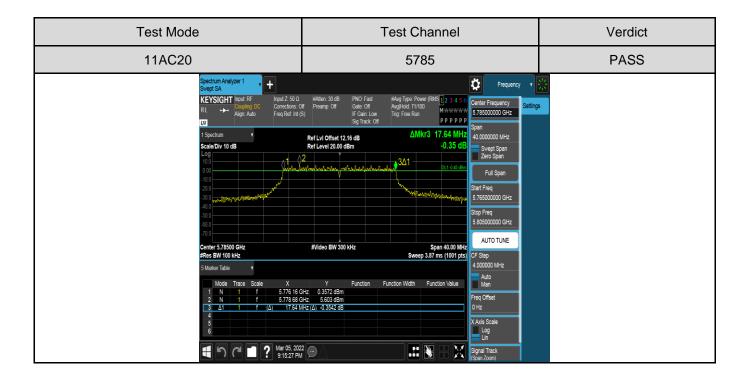






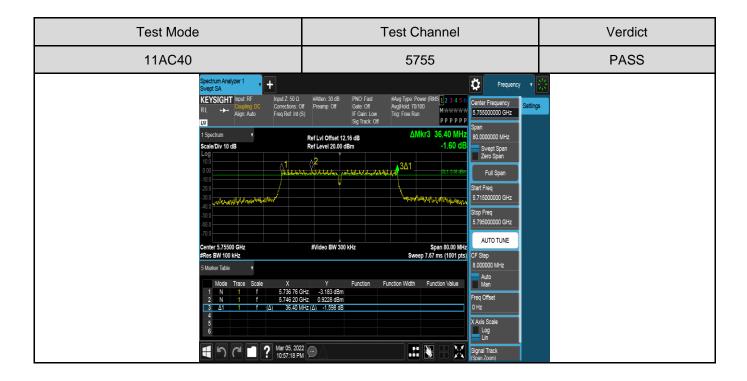






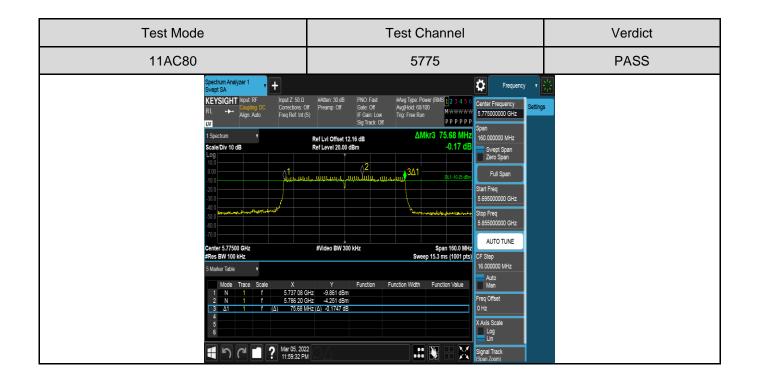














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6.3. MAXIMUM CONDUCTED AVERAGE OUTPUT POWER

LIMITS

CFR 47 FCC Part15, Subpart E					
Test Item	Test Item Limit				
Conducted Output Power	☐ Outdoor Access Point: 1 W (30 dBm) ☐ Indoor Access Point: 1 W (30 dBm) ☐ Fixed Point-To-Point Access Points: 1 W (30 dBm) ☐ Client Devices: 250 mW (24 dBm)	5150 ~ 5250			
	Shall not exceed the lesser of 250 mW (24dBm) or 11 dBm + 10 log B, where B is the 26 dB emission bandwidth in megahertz.	5250 ~ 5350 5470 ~ 5725			
	Shall not exceed 1 Watt (30 dBm).	5725 ~ 5850			

Remark:

The above limits are based upon the maximum antenna gain does not exceed 6 dBi.

If transmitting antennas of directional gain greater than 6 dBi are used, the maximum conducted output power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.



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TEST PROCEDURE

Refer to KDB 789033 D02 General U-NII Test Procedures New Rules v02r01 section II.E.

Method SA-1 (trace averaging with the EUT transmitting at full power throughout each sweep):

- (i) Set span to encompass the entire emission bandwidth (EBW) (or, alternatively, the entire 99% occupied bandwidth) of the signal.
- (ii) Set RBW = 1 MHz.
- (iii) Set VBW ≥ 3 MHz.
- (iv) Number of points in sweep $\geq 2 \times \text{span} / \text{RBW}$. (This ensures that bin-to-bin spacing is $\leq \text{RBW}/2$, so that narrowband signals are not lost between frequency bins.)
- (v) Sweep time = auto.
- (vi) Detector = power averaging (rms), if available. Otherwise, use sample detector mode.
- (vii) 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."
- (viii) Trace average at least 100 traces in power averaging (rms) mode.
- (ix) 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.

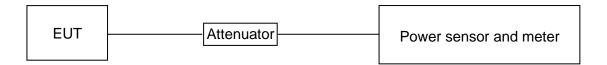
Method PM (Measurement using an RF average power meter):

- (i) Measurements may be performed using a wideband RF power meter with a thermocouple detector or equivalent if all of the following conditions are satisfied:
- a. The EUT is configured to transmit continuously or to transmit with a constant duty cycle.
- b. At all times when the EUT is transmitting, it must be transmitting at its maximum power control level.
- c. The integration period of the power meter exceeds the repetition period of the transmitted signal by at least a factor of five.
- (ii) If the transmitter does not transmit continuously, measure the duty cycle, x, of the transmitter output signal as described in II.B.
- (iii) Measure the average power of the transmitter. This measurement is an average over both the on and off periods of the transmitter.
- (iv) Adjust the measurement in dBm by adding 10 log (1/x) where x is the duty cycle (e.g., 10 log (1/0.25) if the duty cycle is 25 %).

Straddle channel power was measured using spectrum analyzer.



TEST SETUP



TEST ENVIRONMENT

Environment Parameter	Selected Values During Tests	
Relative Humidity	65%	
Atmospheric Pressure:	101kPa	
Temperature	21.5°C	
Test Voltage	DC 3.3V	
Test Date	05/05/2022	

TEST RESULT TABLE

Mode Frequency (MHz)		Average Conducted Output Power (dBm)	FCC Conducted Power Limit (dBm)
	5180	14.51	24
	5200	16.71	24
	5220	16.93	24
	5240	16.96	24
	5260	17.73	24
	5280	17.89	24
	5300	18.21	24
	5320	15.62	24
802.11a	5500	14.16	24
002.11a	5520	17.72	24
	5600	17.80	24
	5680	17.94	24
	5700	14.25	24
	5720_UNII-2C	16.40	24
	5720_UNII-3	9.76	30
	5745	17.15	30
	5785	17.65	30
	5825	17.38	30



Mode	Frequency (MHz)	Average Conducted Output Power (dBm)	FCC Conducted Power Limit (dBm)
	5180	14.49	24
	5200	15.82	24
	5220	16.04	24
	5240	16.11	24
	5260	16.95	24
	5280	17.06	24
	5300	17.35	24
	5320	15.56	24
802.11	5500	13.36	24
ac VHT20	5520	16.92	24
	5600	17.01	24
	5680	17.07	24
	5700	13.44	24
	5720_UNII-2C	15.60	24
	5720_UNII-3	9.10	30
	5745	16.38	30
	5785	16.80	30
	5825	16.42	30



Mode	Frequency (MHz)	Average Conducted Output Power (dBm)	FCC Conducted Power Limit (dBm)
	5190	10.55	24
	5230	14.44	24
	5270	15.83	24
	5310	11.88	24
	5510	11.42	24
000.44	5550	15.38	24
802.11 ac VHT40	5590	15.52	24
	5630	15.38	24
	5670	11.98	24
	5710_UNII-2C	15.07	24
	5710_UNII-3	3.40	30
	5755	15.01	30
	5795	15.06	30

Mode	Frequency (MHz)	Average Conducted Output Power (dBm)	FCC Conducted Power Limit (dBm)
	5210	11.18	24
	5290	12.60	24
222 44	5530	12.13	24
802.11 ac VHT80	5610	12.54	24
	5690_UNII-2C	12.28	24
	5690_UNII-3	-2.79	30
	5775	12.14	30

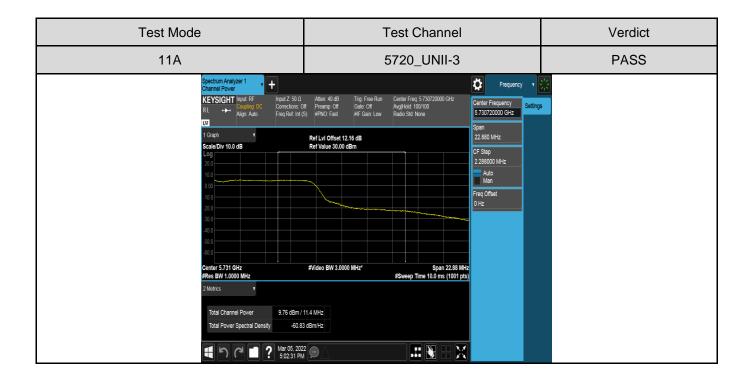
Note: The test results have already included the duty cycle correction factor. About correction Factor please refer to section 6.2.



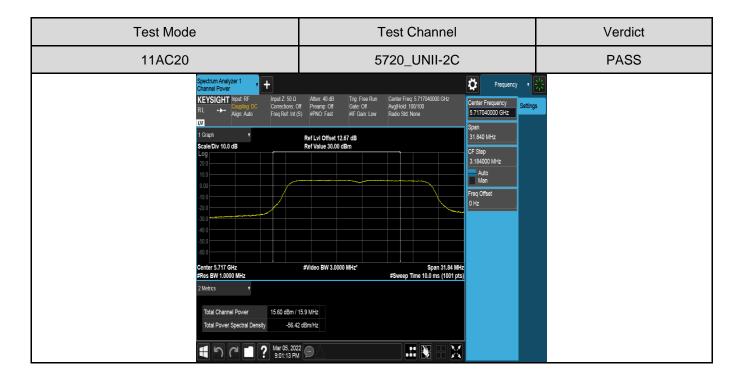
TEST GRAPHS

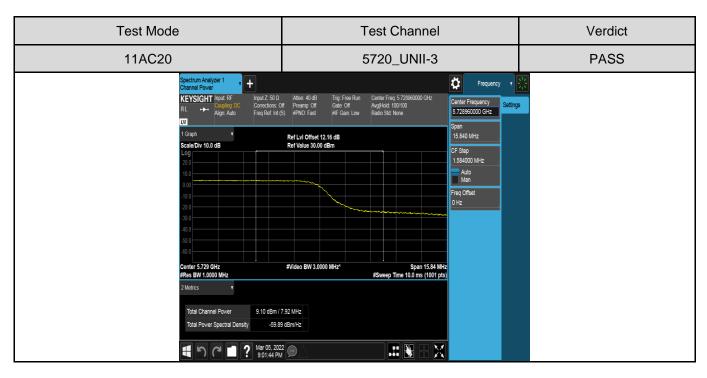
For Straddle channel:



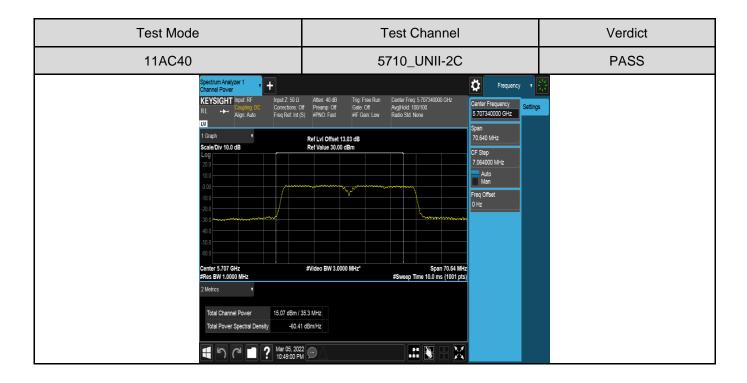


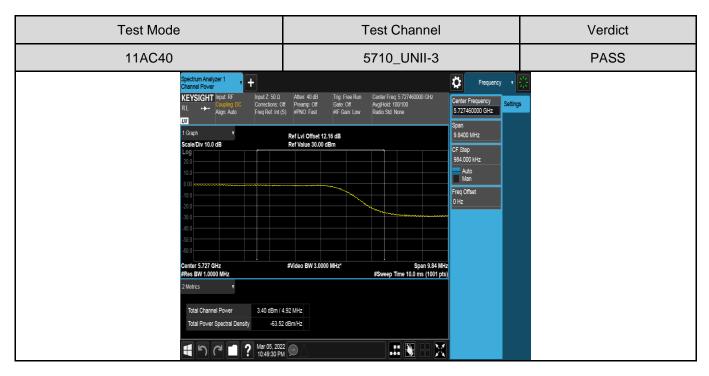




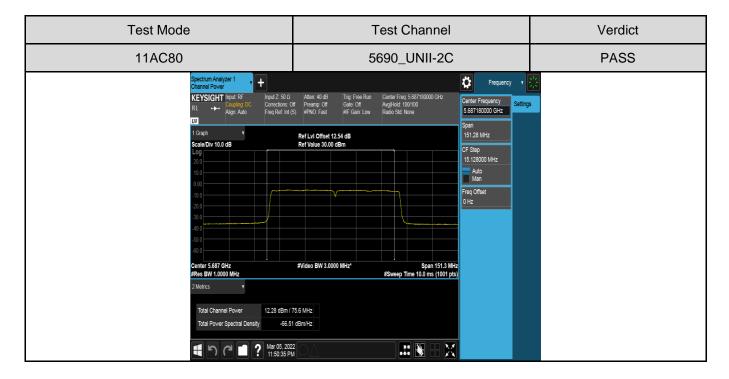


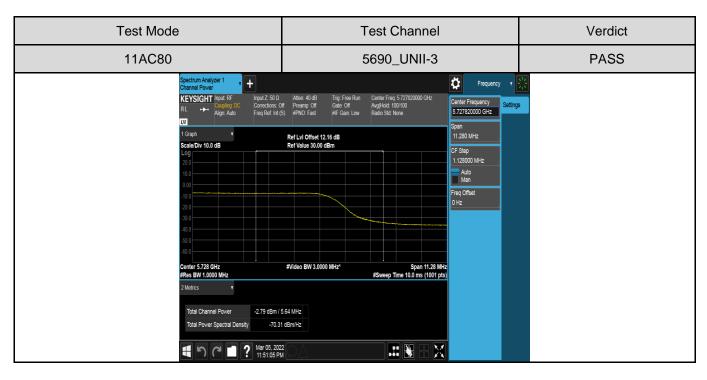














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6.4. POWER SPECTRAL DENSITY

LIMITS

CFR 47 FCC Part15, Subpart E					
Test Item	Frequency Range (MHz)				
Power Spectral Density	 ☐ Outdoor Access Point: 17 dBm/MHz ☐ Indoor Access Point: 17 dBm/MHz ☐ Fixed Point-To-Point Access Points: 17 dBm/MHz ☐ Client Devices: 11 dBm/MHz 	5150 ~ 5250			
	11 dBm/MHz	5250 ~ 5350 5470 ~ 5725			
	30 dBm/500kHz	5725 ~ 5850			

Remark:

The above limits are based upon the maximum antenna gain does not exceed 6 dBi. If transmitting antennas of directional gain greater than 6 dBi are used, maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

TEST PROCEDURE

Refer to KDB 789033 D02 General U-NII Test Procedures New Rules v02r01 section II.F.



Connect the EUT to the spectrum analyser and use the following settings:

For U-NII-1, U-NII-2A and U-NII-2C band:

Center Frequency The center frequency of the channel under test		
Detector	RMS	
RBW	1 MHz	
VBW	≥3 × RBW	
Span	Encompass the entire emissions bandwidth (EBW) of the signal	
Trace	Max hold	
Sweep time	Auto	

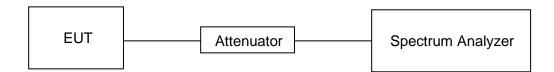
For U-NII-3:

Center Frequency	The center frequency of the channel under test
Detector	RMS
RBW	500 kHz
VBW	≥3 × RBW
Span	Encompass the entire emissions bandwidth (EBW) of the signal
Trace	Max hold
Sweep time	Auto

Allow trace to fully stabilize and Use the peak search function on the instrument to find the peak of the spectrum and record its value.

Add 10 log (1/x), where x is the duty cycle, to the peak of the spectrum, the result is the Maximum PSD over 1 MHz / 500 kHz reference bandwidth.

TEST SETUP



TEST ENVIRONMENT

Environment Parameter	Selected Values During Tests	
Relative Humidity	65%	
Atmospheric Pressure:	101kPa	
Temperature	21.5°C	
Test Voltage	DC 3.3V	
Test Date	05/05/2022	



RESULTS

Test Mode	Channel	PSD	Limit	Verdict
	5180	3.308	11	PASS
	5200	5.301	11	PASS
	5220	5.679	11	PASS
	5240	5.494	11	PASS
	5260	6.453	11	PASS
	5280	6.591	11	PASS
	5300	6.870	11	PASS
	5320	4.173	11	PASS
802.11a	5500	2.944	11	PASS
002.11a	5520	6.360	11	PASS
	5600	6.330	11	PASS
	5680	6.470	11	PASS
	5700	2.838	11	PASS
	5720_UNII-2C	6.035	11	PASS
	5720_UNII-3	3.921	30	PASS
	5745	3.960	30	PASS
	5785	4.385	30	PASS
	5825	4.686	30	PASS

Test Mode	Channel	PSD	Limit	Verdict
	5180	2.721	11	PASS
	5200	3.899	11	PASS
	5220	4.306	11	PASS
	5240	4.237	11	PASS
	5260	5.131	11	PASS
	5280	5.275	11	PASS
	5300	5.606	11	PASS
	5320	3.718	11	PASS
802.11ac VHT20	5500	1.753	11	PASS
602.11ac VH120	5520	5.168	11	PASS
	5600	5.199	11	PASS
	5680	5.327	11	PASS
	5700	1.602	11	PASS
	5720_UNII-2C	4.863	11	PASS
	5720_UNII-3	2.995	30	PASS
	5745	2.746	30	PASS
	5785	3.450	30	PASS
	5825	3.458	30	PASS



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Test Mode	Channel	PSD	Limit	Verdict
802.11ac VHT40	5190	-4.097	11	PASS
	5230	-0.025	11	PASS
	5270	1.363	11	PASS
	5310	-2.663	11	PASS
	5510	-2.966	11	PASS
	5550	0.945	11	PASS
	5590	0.937	11	PASS
	5630	1.696	11	PASS
	5670	-2.577	11	PASS
	5710_UNII-2C	0.836	11	PASS
	5710_UNII-3	-1.605	30	PASS
	5755	-0.992	30	PASS
	5795	0.220	30	PASS

Test Mode	Channel	PSD	Limit	Verdict
802.11ac VHT80	5210	-6.521	11	PASS
	5290	-5.255	11	PASS
	5530	-5.814	11	PASS
	5610	-5.486	11	PASS
	5690_UNII-2C	-5.456	11	PASS
	5690_UNII-3	-7.650	30	PASS
	5775	-6.728	30	PASS

Remark : 1. The Result and Limit Unit is dBm/500 kHz in the band $5.725 \sim 5.85$ GHz.

- 2. The Duty Cycle Factor and RBW Factor is compensated in the graph.
- 3. All the modes had been teste, but only the worst data was recorded in the report.



TEST GRAPHS

