

Test Mode	Data Rate /MCS	Channel No.	Freq. (MHz)	Ant 0 TPC Power (dBm)	Ant 1 TPC Power (dBm)	Total EIRP TPC Power (dBm)	Limit (dBm)	Result
Ant 0 + 1 (CDD Mode)								
11ac-VHT40	MCS0	54	5270	13.65	13.57	23.62	≤ 24.00	Pass
11ac-VHT40	MCS0	62	5310	13.33	13.23	23.29	≤ 24.00	Pass
11ac-VHT40	MCS0	102	5510	13.54	13.12	23.35	≤ 24.00	Pass
11ac-VHT40	MCS0	110	5550	13.65	13.60	23.64	≤ 24.00	Pass
11ac-VHT40	MCS0	134	5670	13.04	13.80	23.45	≤ 24.00	Pass
11ac-VHT40	MCS0	142	5710	13.09	13.07	23.09	≤ 24.00	Pass
11ac-VHT80	MCS0	58	5290	13.09	13.74	23.44	≤ 24.00	Pass
11ac-VHT80	MCS0	106	5530	13.06	13.52	23.31	≤ 24.00	Pass
11ac-VHT80	MCS0	138	5690	13.33	13.23	23.29	≤ 24.00	Pass

Note: Total EIRP TPC Power (dBm) = $10 * \log \{10^{((\text{Ant 0 TPC Power} + \text{Ant 0 Gain})/10)} + 10^{((\text{Ant 1 TPC Power} + \text{Ant 1 Gain})/10)}\}$.

7.6. Power Spectral Density Measurement

7.6.1. Test Limit

For an outdoor access point operating in the band 5.15-5.25 GHz, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band.

For the 5.25-5.35 GHz and 5.47-5.725 GHz bands, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band.

For the band 5.725-5.85 GHz, the maximum power spectral density shall not exceed 30 dBm in any 500-kHz band.

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

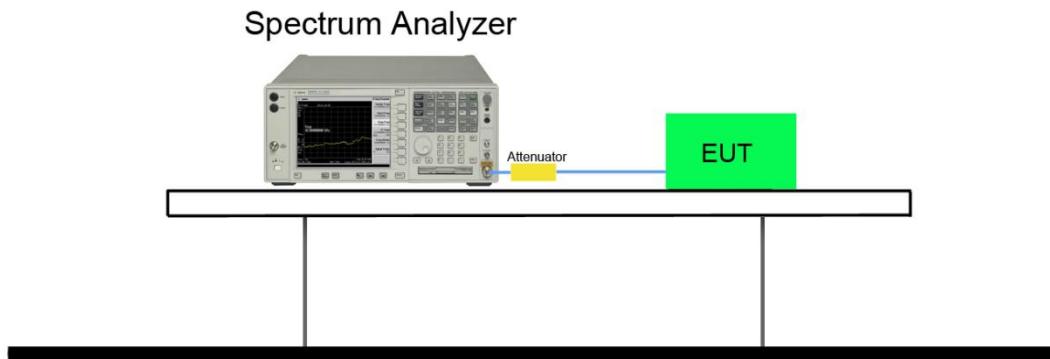
7.6.2. Test Procedure Used

KDB 789033 D02v02r01 - Section F

7.6.3. Test Setting

1. Analyzer was set to the center frequency of the UNII channel under investigation
2. Span was set to encompass the entire 26dB EBW of the signal.
3. RBW = 1MHz, if measurement bandwidth of Maximum PSD is specified in 500 kHz,
RBW = 100 kHz
4. VBW = 3MHz
5. Number of sweep points $\geq 2 \times (\text{span} / \text{RBW})$
6. Detector = power averaging (Average)
7. Sweep time = auto
8. Trigger = free run
9. Use the peak search function on the instrument to find the peak of the spectrum and record its value.
10. Add $10 \cdot \log(1/x)$, where x is the duty cycle, to the measured power in order to compute the average power during the actual transmission times (because the measurement represents an average over both the on and off times of the transmission). For example, add $10 \cdot \log(1/0.25) = 6$ dB if the duty cycle is 25 percent.
11. When the measurement bandwidth of Maximum PSD is specified in 500 kHz, add a constant factor $10 \cdot \log(500\text{kHz}/100\text{kHz}) = 6.99$ dB to the measured result.

7.6.4. Test Setup



7.6.5. Test Result

Product	AC220m Wi-Fi module OD US			Temperature	22°C					
Test Engineer	Kervin Ker			Relative Humidity	54%					
Test Site	SR2			Test Date	2017/12/15					
Antenna Type	WiFi Omni Antenna									
Test Item	Power Spectral Density (NII-Band 2A & NII-Band 2C)									

Test Mode	Data Rate/ MCS	Channel No.	Freq. (MHz)	PSD (dBm/ MHz)	Duty Cycle (%)	Final PSD (dBm/MHz)	Limit (dBm/ MHz)	Result
Ant 0								
11a	6Mbps	52	5260	9.39	96.27	9.56	≤ 10.00	Pass
11a	6Mbps	60	5300	9.37	96.27	9.54	≤ 10.00	Pass
11a	6Mbps	64	5320	9.27	96.27	9.44	≤ 10.00	Pass
11a	6Mbps	100	5500	9.48	96.27	9.65	≤ 10.00	Pass
11a	6Mbps	120	5600	9.34	96.27	9.51	≤ 10.00	Pass
11a	6Mbps	140	5700	7.62	96.27	7.79	≤ 10.00	Pass
11a	6Mbps	144	5720	9.23	96.27	9.40	≤ 10.00	Pass
11n-HT20	MCS0	52	5260	9.25	98.43	9.25	≤ 10.00	Pass
11n-HT20	MCS0	60	5300	9.47	98.43	9.47	≤ 10.00	Pass
11n-HT20	MCS0	64	5320	9.15	98.43	9.15	≤ 10.00	Pass
11n-HT20	MCS0	100	5500	8.65	98.43	8.65	≤ 10.00	Pass
11n-HT20	MCS0	120	5600	9.77	98.43	9.77	≤ 10.00	Pass
11n-HT20	MCS0	140	5700	8.34	98.43	8.34	≤ 10.00	Pass
11n-HT20	MCS0	144	5720	9.28	98.43	9.28	≤ 10.00	Pass
11n-HT40	MCS0	54	5270	8.52	96.81	8.66	≤ 10.00	Pass
11n-HT40	MCS0	62	5310	4.60	96.81	4.74	≤ 10.00	Pass
11n-HT40	MCS0	102	5510	4.13	96.81	4.27	≤ 10.00	Pass
11n-HT40	MCS0	118	5590	8.90	96.81	9.04	≤ 10.00	Pass
11n-HT40	MCS0	134	5670	4.80	96.81	4.94	≤ 10.00	Pass
11n-HT40	MCS0	142	5710	7.73	96.81	7.87	≤ 10.00	Pass

Test Mode	Data Rate/ MCS	Channel No.	Freq. (MHz)	PSD (dBm/ MHz)	Duty Cycle (%)	Final PSD (dBm/MHz)	Limit (dBm/ MHz)	Result
Ant 0								
11ac-VHT20	MCS0	52	5260	9.42	98.43	9.42	≤ 10.00	Pass
11ac-VHT20	MCS0	60	5300	9.42	98.43	9.42	≤ 10.00	Pass
11ac-VHT20	MCS0	64	5320	9.23	98.43	9.23	≤ 10.00	Pass
11ac-VHT20	MCS0	100	5500	8.76	98.43	8.76	≤ 10.00	Pass
11ac-VHT20	MCS0	120	5600	9.27	98.43	9.27	≤ 10.00	Pass
11ac-VHT20	MCS0	140	5700	7.56	98.43	7.56	≤ 10.00	Pass
11ac-VHT20	MCS0	144	5720	9.36	98.43	9.36	≤ 10.00	Pass
11ac-VHT40	MCS0	54	5270	8.39	97.01	8.52	≤ 10.00	Pass
11ac-VHT40	MCS0	62	5310	4.67	97.01	4.80	≤ 10.00	Pass
11ac-VHT40	MCS0	102	5510	4.33	97.01	4.46	≤ 10.00	Pass
11ac-VHT40	MCS0	118	5590	9.17	97.01	9.30	≤ 10.00	Pass
11ac-VHT40	MCS0	134	5670	5.11	97.01	5.24	≤ 10.00	Pass
11ac-VHT40	MCS0	142	5710	8.41	97.01	8.54	≤ 10.00	Pass
11ac-VHT80	MCS0	58	5290	0.42	93.17	0.73	≤ 10.00	Pass
11ac-VHT80	MCS0	106	5530	0.28	93.17	0.59	≤ 10.00	Pass
11ac-VHT80	MCS0	122	5610	5.24	93.17	5.55	≤ 10.00	Pass
11ac-VHT80	MCS0	138	5690	4.80	93.17	5.11	≤ 10.00	Pass

Note 1: When EUT duty cycle $\geq 98\%$, Final PSD (dBm/MHz) = PSD (dBm/MHz).

Note 2: When EUT duty cycle $< 98\%$, Final PSD (dBm/MHz) = PSD (dBm/MHz) + 10*log (1/Duty Cycle).

Test Mode	Data Rate/ MCS	Channel No.	Freq. (MHz)	PSD (dBm/ MHz)	Duty Cycle (%)	Final PSD (dBm/MHz)	Limit (dBm/ MHz)	Result
Ant 1								
11a	6Mbps	52	5260	9.27	96.27	9.44	≤ 10.00	Pass
11a	6Mbps	60	5300	9.54	96.27	9.71	≤ 10.00	Pass
11a	6Mbps	64	5320	9.60	96.27	9.77	≤ 10.00	Pass
11a	6Mbps	100	5500	9.66	96.27	9.83	≤ 10.00	Pass
11a	6Mbps	120	5600	9.42	96.27	9.59	≤ 10.00	Pass
11a	6Mbps	140	5700	7.93	96.27	8.10	≤ 10.00	Pass
11a	6Mbps	144	5720	9.66	96.27	9.83	≤ 10.00	Pass
11n-HT20	MCS0	52	5260	9.60	98.43	9.60	≤ 10.00	Pass
11n-HT20	MCS0	60	5300	9.46	98.43	9.46	≤ 10.00	Pass
11n-HT20	MCS0	64	5320	9.06	98.43	9.06	≤ 10.00	Pass
11n-HT20	MCS0	100	5500	9.55	98.43	9.55	≤ 10.00	Pass
11n-HT20	MCS0	120	5600	9.59	98.43	9.59	≤ 10.00	Pass
11n-HT20	MCS0	140	5700	7.71	98.43	7.71	≤ 10.00	Pass
11n-HT20	MCS0	144	5720	9.70	98.43	9.70	≤ 10.00	Pass
11n-HT40	MCS0	54	5270	8.43	96.81	8.57	≤ 10.00	Pass
11n-HT40	MCS0	62	5310	4.49	96.81	4.63	≤ 10.00	Pass
11n-HT40	MCS0	102	5510	4.27	96.81	4.41	≤ 10.00	Pass
11n-HT40	MCS0	118	5590	8.95	96.81	9.09	≤ 10.00	Pass
11n-HT40	MCS0	134	5670	6.18	96.81	6.32	≤ 10.00	Pass
11n-HT40	MCS0	142	5710	8.18	96.81	8.32	≤ 10.00	Pass
11ac-VHT20	MCS0	52	5260	9.57	98.43	9.57	≤ 10.00	Pass
11ac-VHT20	MCS0	60	5300	9.50	98.43	9.50	≤ 10.00	Pass
11ac-VHT20	MCS0	64	5320	9.04	98.43	9.04	≤ 10.00	Pass
11ac-VHT20	MCS0	100	5500	9.42	98.43	9.42	≤ 10.00	Pass
11ac-VHT20	MCS0	120	5600	9.62	98.43	9.62	≤ 10.00	Pass
11ac-VHT20	MCS0	140	5700	7.60	98.43	7.60	≤ 10.00	Pass
11ac-VHT20	MCS0	144	5720	9.60	98.43	9.60	≤ 10.00	Pass
11ac-VHT40	MCS0	62	5310	4.53	97.01	4.66	≤ 10.00	Pass
11ac-VHT40	MCS0	102	5510	4.71	97.01	4.84	≤ 10.00	Pass
11ac-VHT40	MCS0	118	5590	9.13	97.01	9.26	≤ 10.00	Pass
11ac-VHT40	MCS0	134	5670	6.07	97.01	6.20	≤ 10.00	Pass
11ac-VHT40	MCS0	142	5710	8.21	97.01	8.34	≤ 10.00	Pass

Test Mode	Data Rate/ MCS	Channel No.	Freq. (MHz)	PSD (dBm/ MHz)	Duty Cycle (%)	Final PSD (dBm/MHz)	Limit (dBm/ MHz)	Result
Ant 1								
11ac-VHT80	MCS0	58	5290	0.76	93.17	1.07	≤ 10.00	Pass
11ac-VHT80	MCS0	106	5530	-0.14	93.17	0.17	≤ 10.00	Pass
11ac-VHT80	MCS0	122	5610	4.94	93.17	5.25	≤ 10.00	Pass
11ac-VHT80	MCS0	138	5690	4.36	93.17	4.67	≤ 10.00	Pass

Note 1: When EUT duty cycle $\geq 98\%$, Final PSD (dBm/MHz) = PSD (dBm/MHz).

Note 2: When EUT duty cycle $< 98\%$, Final PSD (dBm/MHz) = PSD (dBm/MHz) + 10*log (1/Duty Cycle).

Test Mode	Data Rate/ MCS	Channel No.	Freq. (MHz)	Ant 0 PSD (dBm/ MHz)	Ant 1 PSD (dBm/ MHz)	Duty Cycle (%)	Total PSD (dBm/ MHz)	PSD Limit (dBm/ MHz)	Result
Ant 0 + 1 (CDD Mode)									
11a	6Mbps	52	5260	3.55	3.37	96.27	6.64	≤ 6.99	Pass
11a	6Mbps	60	5300	3.41	3.64	96.27	6.70	≤ 6.99	Pass
11a	6Mbps	64	5320	3.26	3.46	96.27	6.54	≤ 6.99	Pass
11a	6Mbps	100	5500	3.61	3.48	96.27	6.72	≤ 6.99	Pass
11a	6Mbps	120	5600	3.26	3.62	96.27	6.62	≤ 6.99	Pass
11a	6Mbps	140	5700	3.23	3.77	96.27	6.68	≤ 6.99	Pass
11a	6Mbps	144	5720	3.12	3.95	96.27	6.73	≤ 6.99	Pass
11n-HT20	MCS0	52	5260	3.18	3.48	98.43	6.34	≤ 6.99	Pass
11n-HT20	MCS0	60	5300	3.27	3.45	98.43	6.37	≤ 6.99	Pass
11n-HT20	MCS0	64	5320	3.12	3.31	98.43	6.23	≤ 6.99	Pass
11n-HT20	MCS0	100	5500	3.31	3.13	98.43	6.23	≤ 6.99	Pass
11n-HT20	MCS0	120	5600	3.18	3.46	98.43	6.33	≤ 6.99	Pass
11n-HT20	MCS0	140	5700	3.17	3.83	98.43	6.52	≤ 6.99	Pass
11n-HT20	MCS0	144	5720	3.09	3.89	98.43	6.52	≤ 6.99	Pass
11n-HT40	MCS0	54	5270	3.46	3.48	96.81	6.62	≤ 6.99	Pass
11n-HT40	MCS0	62	5310	3.06	3.26	96.81	6.31	≤ 6.99	Pass
11n-HT40	MCS0	102	5510	3.41	3.52	96.81	6.62	≤ 6.99	Pass
11n-HT40	MCS0	118	5590	3.54	3.51	96.81	6.68	≤ 6.99	Pass
11n-HT40	MCS0	134	5670	2.99	3.57	96.81	6.44	≤ 6.99	Pass
11n-HT40	MCS0	142	5710	3.02	3.74	96.81	6.55	≤ 6.99	Pass
11ac-VHT20	MCS0	52	5260	3.17	3.30	98.43	6.25	≤ 6.99	Pass
11ac-VHT20	MCS0	60	5300	3.68	3.43	98.43	6.57	≤ 6.99	Pass
11ac-VHT20	MCS0	64	5320	3.19	3.24	98.43	6.23	≤ 6.99	Pass
11ac-VHT20	MCS0	100	5500	3.72	3.29	98.43	6.52	≤ 6.99	Pass
11ac-VHT20	MCS0	120	5600	3.24	3.68	98.43	6.48	≤ 6.99	Pass
11ac-VHT20	MCS0	140	5700	3.18	3.77	98.43	6.50	≤ 6.99	Pass
11ac-VHT20	MCS0	144	5720	3.09	3.77	98.43	6.45	≤ 6.99	Pass

Test Mode	Data Rate/ MCS	Channel No.	Freq. (MHz)	Ant 0 PSD (dBm/ MHz)	Ant 1 PSD (dBm/ MHz)	Duty Cycle (%)	Total PSD (dBm/ MHz)	PSD Limit (dBm/ MHz)	Result
Ant 0 + 1 (CDD Mode)									
11ac-VHT40	MCS0	54	5270	3.53	3.63	97.01	6.72	≤ 6.99	Pass
11ac-VHT40	MCS0	62	5310	3.29	3.42	97.01	6.50	≤ 6.99	Pass
11ac-VHT40	MCS0	102	5510	3.40	3.10	97.01	6.39	≤ 6.99	Pass
11ac-VHT40	MCS0	118	5590	3.45	3.70	97.01	6.72	≤ 6.99	Pass
11ac-VHT40	MCS0	134	5670	2.89	3.63	97.01	6.42	≤ 6.99	Pass
11ac-VHT40	MCS0	142	5710	3.06	3.74	97.01	6.56	≤ 6.99	Pass
11ac-VHT80	MCS0	58	5290	-0.71	-0.50	93.17	2.71	≤ 6.99	Pass
11ac-VHT80	MCS0	106	5530	-1.88	-2.34	93.17	1.21	≤ 6.99	Pass
11ac-VHT80	MCS0	122	5610	1.77	2.18	93.17	5.30	≤ 6.99	Pass
11ac-VHT80	MCS0	138	5690	1.58	2.33	93.17	5.29	≤ 6.99	Pass

Note 1: When EUT duty cycle ≥ 98%, Total PSD = $10^{\log \{10^{(Ant\ 0\ PSD/10)} + 10^{(Ant\ 1\ PSD/10)}\}}$

Note 2: When EUT duty cycle < 98%, Total PSD = $10^{\log \{10^{(Ant\ 0\ PSD/10)} + 10^{(Ant\ 1\ PSD/10)}\}} + 10^{\log (1/\text{duty cycle})}$

Test Mode	Data Rate/ MCS	Channel No.	Freq. (MHz)	Ant 0 PSD (dBm/ MHz)	Ant 1 PSD (dBm/ MHz)	Duty Cycle (%)	Total PSD (dBm/ MHz)	PSD Limit (dBm/ MHz)	Result
Ant 0 + 1 (Beam-Forming Mode)									
11n-HT20	MCS0	52	5260	3.75	3.77	98.43	6.77	≤ 6.99	Pass
11n-HT20	MCS0	60	5300	3.57	3.61	98.43	6.60	≤ 6.99	Pass
11n-HT20	MCS0	64	5320	3.54	3.39	98.43	6.48	≤ 6.99	Pass
11n-HT20	MCS0	100	5500	4.05	3.57	98.43	6.82	≤ 6.99	Pass
11n-HT20	MCS0	116	5580	3.57	3.59	98.43	6.59	≤ 6.99	Pass
11n-HT20	MCS0	120	5600	3.11	3.74	98.43	6.45	≤ 6.99	Pass
11n-HT20	MCS0	144	5720	4.02	3.55	98.43	6.80	≤ 6.99	Pass
11n-HT40	MCS0	54	5270	3.37	3.20	96.81	6.44	≤ 6.99	Pass
11n-HT40	MCS0	62	5310	3.38	3.15	96.81	6.42	≤ 6.99	Pass
11n-HT40	MCS0	102	5510	3.82	3.66	96.81	6.89	≤ 6.99	Pass
11n-HT40	MCS0	118	5590	3.44	3.69	96.81	6.72	≤ 6.99	Pass
11n-HT40	MCS0	134	5670	2.40	3.30	96.81	6.02	≤ 6.99	Pass
11n-HT40	MCS0	142	5710	2.29	3.08	96.81	5.85	≤ 6.99	Pass
11ac-VHT20	MCS0	52	5260	3.52	3.58	98.43	6.56	≤ 6.99	Pass
11ac-VHT20	MCS0	60	5300	3.40	3.25	98.43	6.34	≤ 6.99	Pass
11ac-VHT20	MCS0	64	5320	3.46	3.29	98.43	6.39	≤ 6.99	Pass
11ac-VHT20	MCS0	100	5500	3.98	3.49	98.43	6.75	≤ 6.99	Pass
11ac-VHT20	MCS0	120	5600	3.75	3.44	98.43	6.61	≤ 6.99	Pass
11ac-VHT20	MCS0	140	5700	3.17	3.84	98.43	6.53	≤ 6.99	Pass
11ac-VHT20	MCS0	144	5720	3.02	3.93	98.43	6.51	≤ 6.99	Pass
11ac-VHT40	MCS0	54	5270	2.28	2.04	97.01	5.30	≤ 6.99	Pass
11ac-VHT40	MCS0	62	5310	2.47	1.94	97.01	5.36	≤ 6.99	Pass
11ac-VHT40	MCS0	102	5510	2.90	2.11	97.01	5.67	≤ 6.99	Pass
11ac-VHT40	MCS0	118	5590	2.55	2.37	97.01	5.60	≤ 6.99	Pass
11ac-VHT40	MCS0	134	5670	1.90	2.49	97.01	5.35	≤ 6.99	Pass
11ac-VHT40	MCS0	142	5710	1.91	2.44	97.01	5.33	≤ 6.99	Pass
11ac-VHT80	MCS0	58	5290	-0.86	-1.36	93.17	2.21	≤ 6.99	Pass
11ac-VHT80	MCS0	106	5530	-0.24	-0.75	93.17	2.83	≤ 6.99	Pass
11ac-VHT80	MCS0	122	5610	-1.24	-1.11	93.17	2.14	≤ 6.99	Pass
11ac-VHT80	MCS0	138	5690	-1.85	-1.33	93.17	1.74	≤ 6.99	Pass

Note 1: When EUT duty cycle ≥ 98%, Total PSD = $10^{(\text{Ant 0 PSD}/10)} + 10^{(\text{Ant 1 PSD}/10)}$

Note 2: When EUT duty cycle < 98%, Total PSD = $10^{(\text{Ant 0 PSD}/10)} + 10^{(\text{Ant 1 PSD}/10)}$ + $10 \log (1/\text{duty cycle})$

