













7.4. Output Power Measurement

7.4.1. Test Limit

For FCC Power Measurement Limit

For 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 (23.98dBm) or 11dBm +10 log (26dB BW).

For the band 5.725-5.85 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W (30dBm).

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

For IC Power Measurement Limit

For the band 5.15-5.25 GHz, the maximum e.i.r.p. shall not exceed 200 mW (23.01dBm) or $10 + 10 \log_{10} B$, dBm, whichever power is less. B is the 99% emission bandwidth in MHz.

For the 5.25-5.35 GHz and 5.47-5.725 GHz bands, the maximum conducted output power shall not exceed 250 mW (23.98dBm) or $11 + 10 \log_{10} B$, dBm, whichever power is less. The maximum e.i.r.p. shall not exceed 1.0 W (30dBm) or $17 + 10 \log_{10} B$, dBm, whichever power is less. B is the 99% emission bandwidth in MHz.

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

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

7.4.2. Test Procedure Used

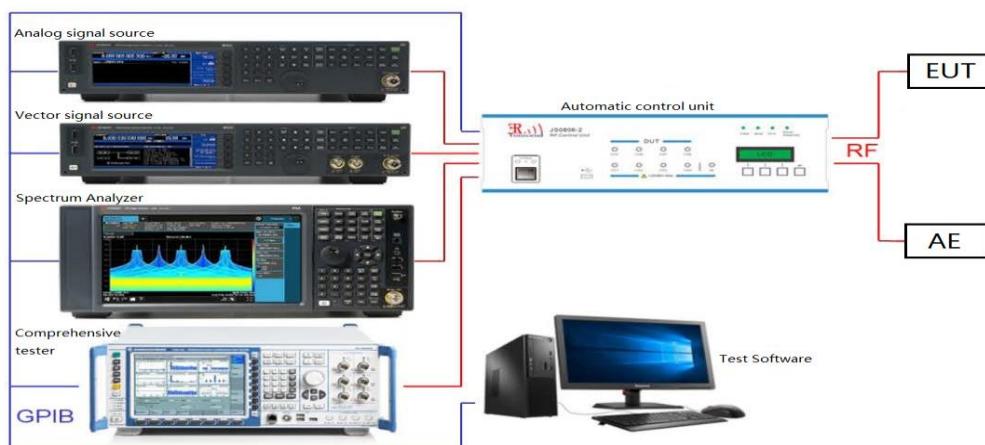
KDB 789033 D02v02r01 - Section E) 3) b) Method PM-G

ANSI C63.10-2013 – Section 12.3.3.2 Method PM-G

7.4.3. Test Setting

Average power measurements were performed only when the EUT was transmitting at its maximum power control level using a broadband power meter with a pulse sensor. The power meter implemented triggering and gating capabilities which were set up such that power measurements were recorded only during the ON time of the transmitter. The trace was averaged over 100 traces to obtain the final measured average power.

7.4.4. Test Setup



7.4.5. Test Rate Assessment

Power output test was verified over all data rates of each mode shown as below, and then choose the maximum power output (yellow marker) for final test of each channel.

N _{Tx}	802.11a	MCS Index for 802.11n	Data Rate (Mbps)			
			20MHz Bandwidth		40MHz Bandwidth	
			800ns GI	400ns GI	800ns GI	400ns GI
1	6	0	6.5	7.2	13.5	15.0
1	9	1	13.0	14.4	27.0	30.0
1	12	2	19.5	21.7	40.5	45.0
1	18	3	26.0	28.9	54.0	60.0
1	24	4	39.0	43.3	81.0	90.0
1	36	5	52.0	57.8	108.0	120.0
1	48	6	58.5	65.0	121.5	135.0
1	54	7	65.0	72.2	135.0	150.0

N _{Tx}	MCS Index for 802.11ac	Data Rate (Mbps)					
		20MHz Bandwidth		40MHz Bandwidth		80MHz Bandwidth	
		800ns GI	400ns GI	800ns GI	400ns GI	800ns GI	400ns GI
1	0	6.5	7.2	13.5	15.0	58.5	65.0
1	1	13.0	14.4	27.0	30.0	117.0	130.0
1	2	19.5	21.7	40.5	45.0	175.5	195.0
1	3	26.0	28.9	54.0	60.0	234.0	260.0
1	4	39.0	43.3	81.0	90.0	351.0	390.0
1	5	52.0	57.8	108.0	120.0	468.0	520.0
1	6	58.5	65.0	121.5	135.0	526.5	585.0
1	7	65.0	72.2	135.0	150.0	585.0	650.0
1	8	78.0	86.7	162.0	180.0	702.0	780.0
1	9	--	--	180.0	200.0	780.0	866.7

Note: Power output test was verified over all data rates of each mode shown as above, and then choose the maximum power output (yellow marker) for final test of each channel.

7.4.6. Test Result

Test Mode	Antenna	Channel	Power [dBm]	Limit [dBm]	Verdict
11A	Ant1	5180	13.82	≤23.98	PASS
		5200	13.76	≤23.98	PASS
		5240	13.08	≤23.98	PASS
		5260	13.95	≤23.98	PASS
		5280	14.07	≤23.98	PASS
		5320	14.28	≤23.98	PASS
		5500	11.36	≤23.98	PASS
		5580	10.52	≤23.98	PASS
		5700	10.04	≤23.98	PASS
		5745	10.34	≤30.00	PASS
		5785	10.53	≤30.00	PASS
		5825	11.37	≤30.00	PASS
11N20SISO	Ant1	5180	13.96	≤23.98	PASS
		5200	13.79	≤23.98	PASS
		5240	13.73	≤23.98	PASS
		5260	14.98	≤23.98	PASS
		5280	14.32	≤23.98	PASS
		5320	14.88	≤23.98	PASS
		5500	11.48	≤23.98	PASS
		5580	10.14	≤23.98	PASS
		5700	9.76	≤23.98	PASS
		5745	10.69	≤30.00	PASS
		5785	10.38	≤30.00	PASS
		5825	11.13	≤30.00	PASS
11N40SISO	Ant1	5190	14.41	≤23.98	PASS
		5230	14.47	≤23.98	PASS
		5270	14.73	≤23.98	PASS
		5310	14.93	≤23.98	PASS
		5510	11.55	≤23.98	PASS
		5550	10.33	≤23.98	PASS
		5670	10.38	≤23.98	PASS
		5755	10.89	≤30.00	PASS
		5795	11.57	≤30.00	PASS

11AC20SISO	Ant1	5180	13.52	≤ 23.98	PASS
		5200	13.36	≤ 23.98	PASS
		5240	13.44	≤ 23.98	PASS
		5260	13.89	≤ 23.98	PASS
		5280	13.89	≤ 23.98	PASS
		5320	14.16	≤ 23.98	PASS
		5500	11.33	≤ 23.98	PASS
		5580	9.58	≤ 23.98	PASS
		5700	8.57	≤ 23.98	PASS
		5745	9.73	≤ 30.00	PASS
		5785	9.63	≤ 30.00	PASS
		5825	10.39	≤ 30.00	PASS
11AC40SISO	Ant1	5190	13.58	≤ 23.98	PASS
		5230	13.79	≤ 23.98	PASS
		5270	14.29	≤ 23.98	PASS
		5310	14.21	≤ 23.98	PASS
		5510	10.66	≤ 23.98	PASS
		5550	9.86	≤ 23.98	PASS
		5670	9.44	≤ 23.98	PASS
		5755	10.51	≤ 30.00	PASS
		5795	10.83	≤ 30.00	PASS
11AC80SISO	Ant1	5210	13.89	≤ 23.98	PASS
		5290	14.36	≤ 23.98	PASS
		5530	10.59	≤ 23.98	PASS
		5610	9.55	≤ 23.98	PASS
		5775	6.68	≤ 30.00	PASS

Note: The Duty Cycle Factor is compensated in the graph.

Test Graphs

