



7.3. 6dB Bandwidth Measurement

7.3.1. Test Limit

The minimum 6dB bandwidth shall be at least 500 kHz.

7.3.2. Test Procedure used

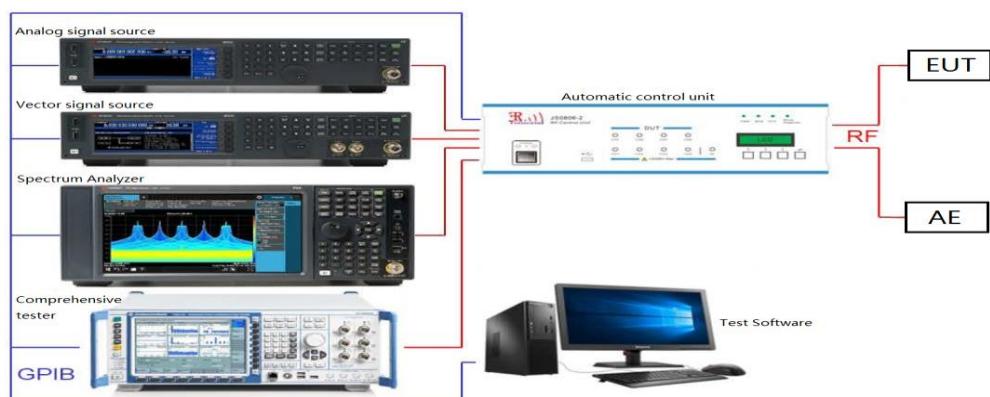
KDB 789033 D02v02r01 – Section C.2

ANSI C63.10-2013 – Section C

7.3.3. Test Setting

1. Set center frequency to the nominal EUT channel center frequency.
2. RBW = 100 kHz.
3. VBW $\geq 3 \times$ RBW.
4. Detector = Peak.
5. Trace mode = max hold.
6. Sweep = auto couple.
7. Allow the trace to stabilize.
8. Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.

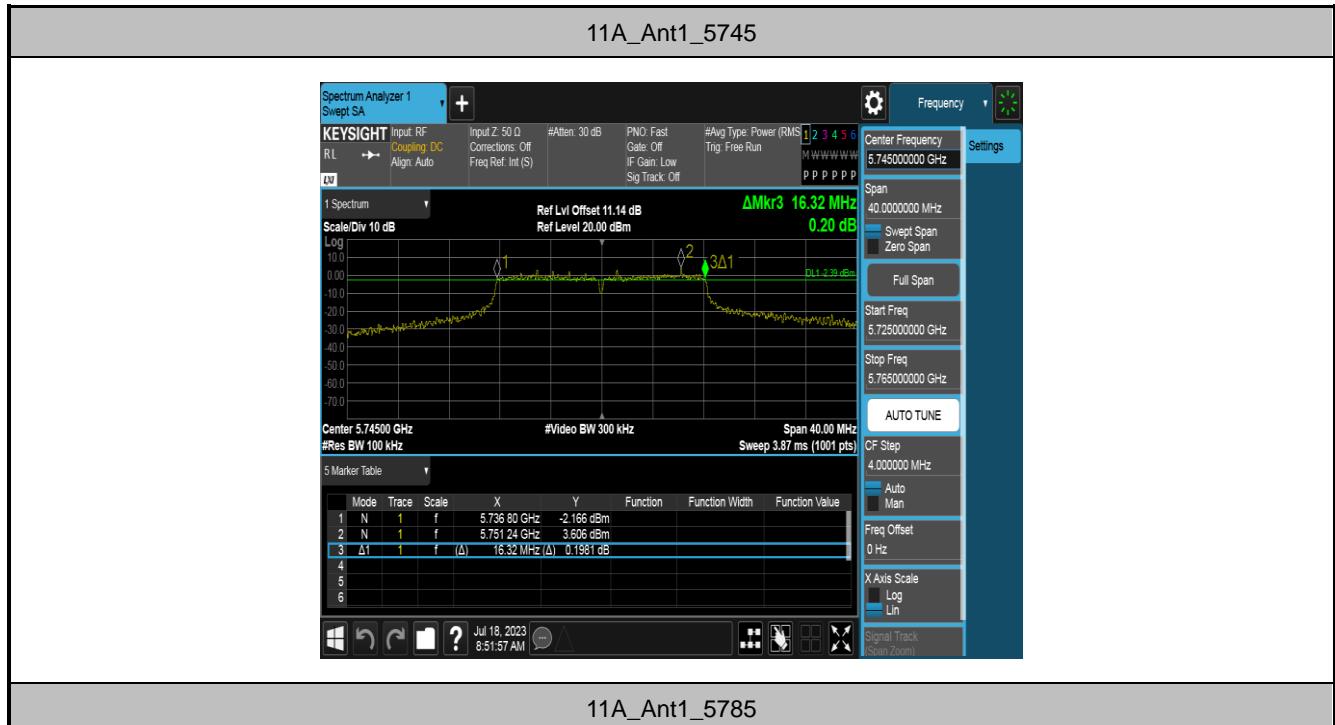
7.3.4. Test Setup



7.3.5. Test Result

Test Mode	Antenna	Channel	6db EBW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
11A	Ant1	5745	16.320	5736.800	5753.120	0.5	PASS
		5785	16.320	5776.800	5793.120	0.5	PASS
		5825	16.320	5816.840	5833.160	0.5	PASS
11N20SISO	Ant1	5745	17.280	5736.440	5753.720	0.5	PASS
		5785	16.680	5776.840	5793.520	0.5	PASS
		5825	17.320	5816.200	5833.520	0.5	PASS
11N40SISO	Ant1	5755	35.440	5737.400	5772.840	0.5	PASS
		5795	35.120	5777.400	5812.520	0.5	PASS
11AC20SISO	Ant1	5745	16.680	5736.800	5753.480	0.5	PASS
		5785	16.920	5776.800	5793.720	0.5	PASS
		5825	17.120	5816.600	5833.720	0.5	PASS
11AC40SISO	Ant1	5755	35.200	5737.400	5772.600	0.5	PASS
		5795	35.120	5777.400	5812.520	0.5	PASS
11AC80SISO	Ant1	5775	75.200	5737.400	5812.600	0.5	PASS

Test Graphs





11A_Ant1_5825



11N20SISO_Ant1_5745













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 $11\text{dBm} + 10 \log (26\text{dB BW})$.

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 $10 + 10 \log_{10} B, \text{dBm}$, 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 $11 + 10 \log_{10} B, \text{dBm}$, whichever power is less. The maximum e.i.r.p. shall not exceed 1.0 W (30dBm) or $17 + 10 \log_{10} B, \text{dBm}$, 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

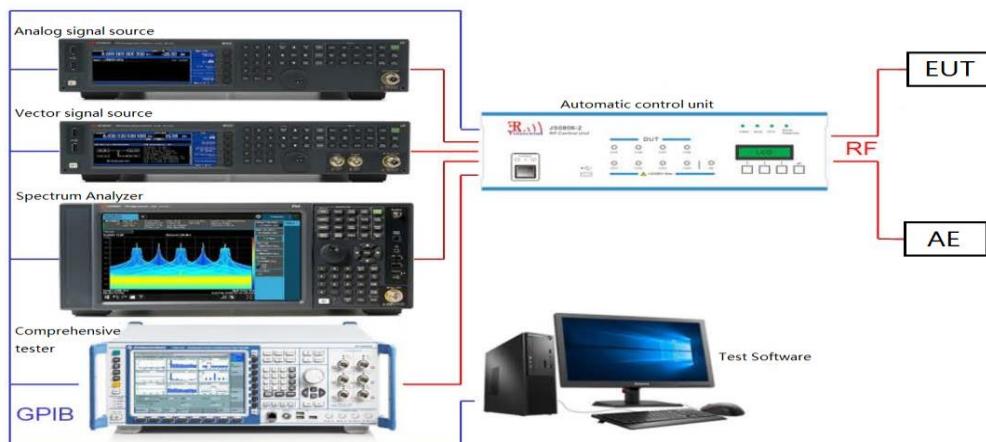
KDB 789033 D02v02r01 - Section E) 3) b) Method PM-G

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	13.02	≤23.98	PASS
		5200	13.17	≤23.98	PASS
		5240	12.41	≤23.98	PASS
		5260	12.68	≤23.98	PASS
		5280	11.70	≤23.98	PASS
		5320	12.29	≤23.98	PASS
		5500	11.82	≤23.98	PASS
		5580	12.69	≤23.98	PASS
		5700	14.41	≤23.98	PASS
		5745	15.35	≤30.00	PASS
		5785	16.94	≤30.00	PASS
		5825	17.44	≤30.00	PASS
11N20SISO	Ant1	5180	12.92	≤23.98	PASS
		5200	13.15	≤23.98	PASS
		5240	12.61	≤23.98	PASS
		5260	12.48	≤23.98	PASS
		5280	11.43	≤23.98	PASS
		5320	12.17	≤23.98	PASS
		5500	8.80	≤23.98	PASS
		5580	13.59	≤23.98	PASS
		5700	15.31	≤23.98	PASS
		5745	16.37	≤30.00	PASS
		5785	17.60	≤30.00	PASS
		5825	17.54	≤30.00	PASS
11N40SISO	Ant1	5190	13.89	≤23.98	PASS
		5230	14.16	≤23.98	PASS
		5270	13.36	≤23.98	PASS
		5310	13.00	≤23.98	PASS
		5510	8.82	≤23.98	PASS
		5550	9.41	≤23.98	PASS
		5670	15.22	≤23.98	PASS
		5755	16.95	≤30.00	PASS
		5795	18.71	≤30.00	PASS

11AC20SISO	Ant1	5180	13.08	≤ 23.98	PASS
		5200	13.28	≤ 23.98	PASS
		5240	12.62	≤ 23.98	PASS
		5260	12.56	≤ 23.98	PASS
		5280	11.75	≤ 23.98	PASS
		5320	12.53	≤ 23.98	PASS
		5500	12.60	≤ 23.98	PASS
		5580	12.80	≤ 23.98	PASS
		5700	14.43	≤ 23.98	PASS
		5745	15.40	≤ 30.00	PASS
		5785	16.83	≤ 30.00	PASS
		5825	17.41	≤ 30.00	PASS
11AC40SISO	Ant1	5190	13.97	≤ 23.98	PASS
		5230	13.70	≤ 23.98	PASS
		5270	12.91	≤ 23.98	PASS
		5310	12.86	≤ 23.98	PASS
		5510	12.35	≤ 23.98	PASS
		5550	12.52	≤ 23.98	PASS
		5670	14.25	≤ 23.98	PASS
		5755	16.44	≤ 30.00	PASS
		5795	17.52	≤ 30.00	PASS
11AC80SISO	Ant1	5210	13.64	≤ 23.98	PASS
		5290	13.12	≤ 23.98	PASS
		5530	12.86	≤ 23.98	PASS
		5610	13.80	≤ 23.98	PASS
		5775	13.72	≤ 30.00	PASS

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

Test Graphs







