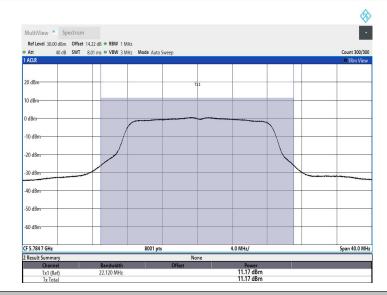


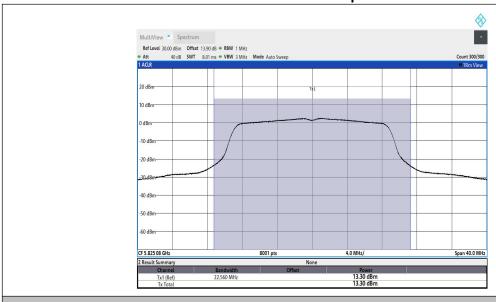
11N20MIMO_Ant2_5785



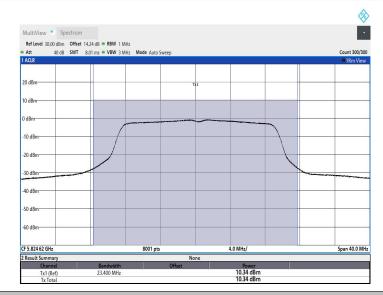
11N20MIMO_Ant1_5825







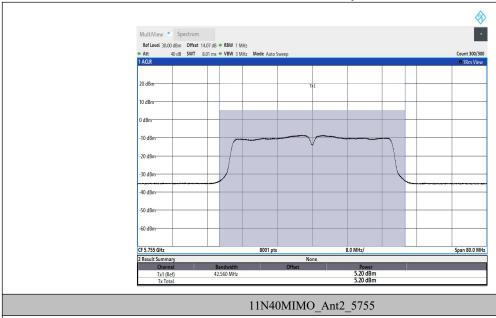
11N20MIMO_Ant2_5825

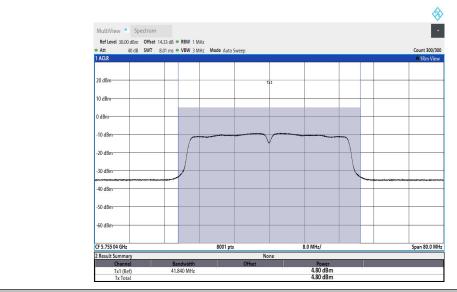


11N40MIMO_Ant1_5755







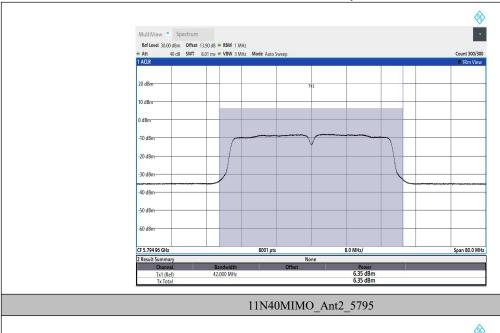


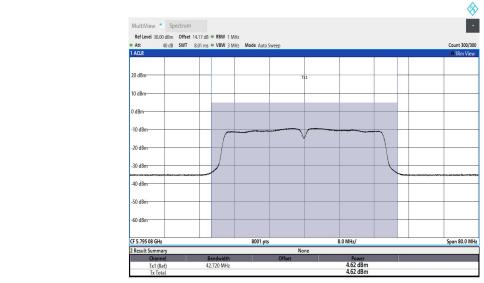
11N40MIMO_Ant1_5795

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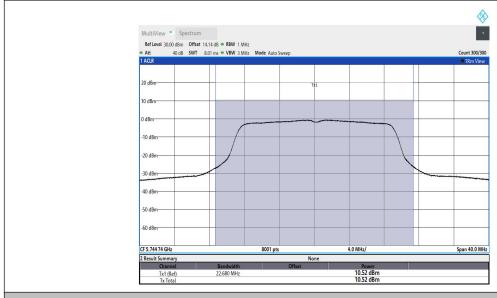


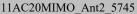


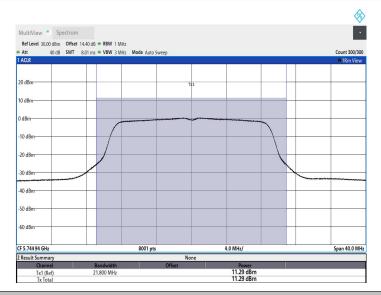
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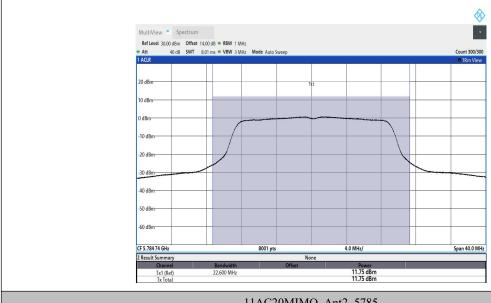




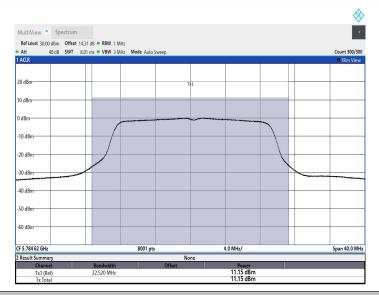
11AC20MIMO_Ant1_5785







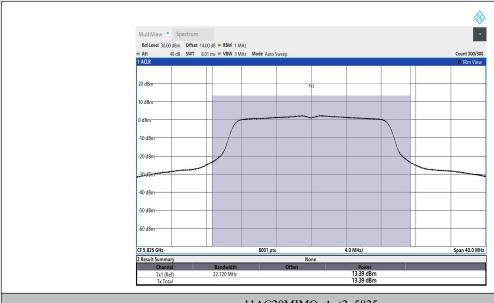
11AC20MIMO_Ant2_5785



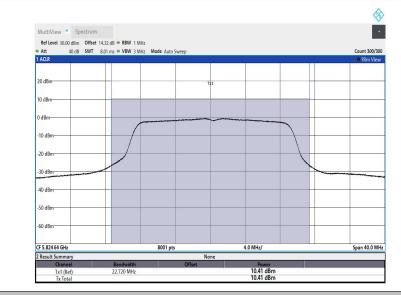
11AC20MIMO_Ant1_5825







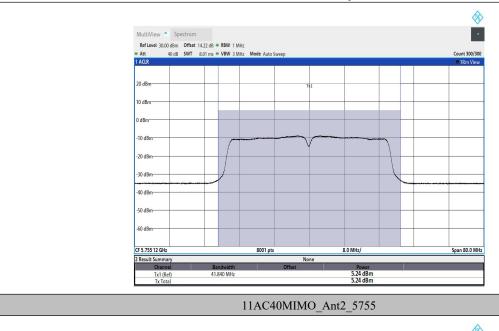
11AC20MIMO_Ant2_5825

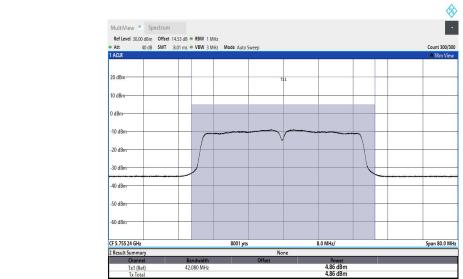


11AC40MIMO_Ant1_5755





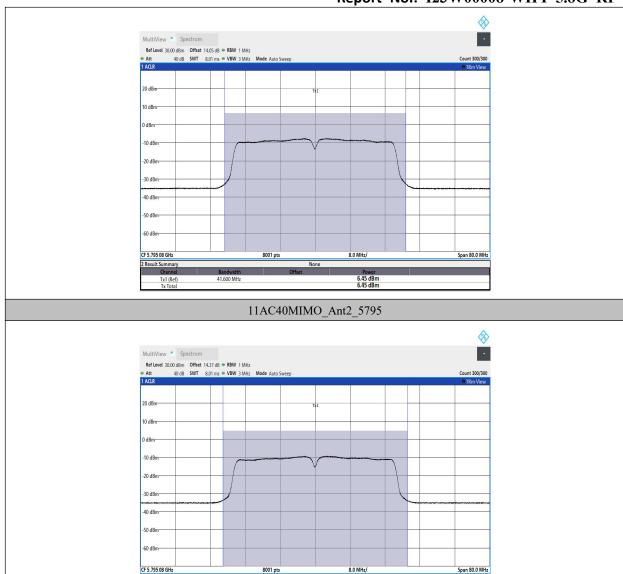




11AC40MIMO_Ant1_5795

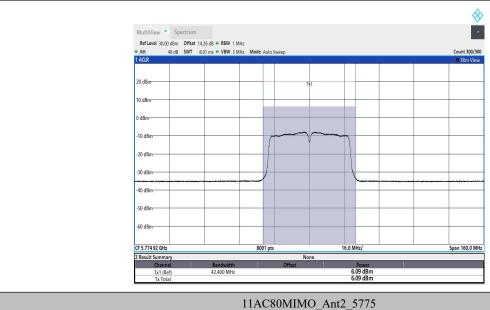


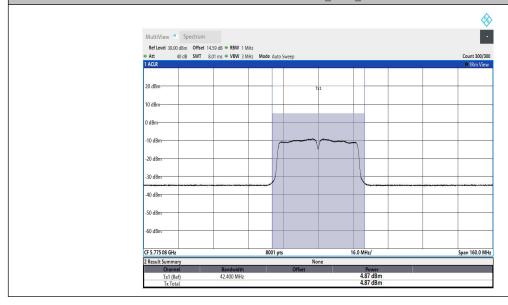
















6.5 Maximum power spectral density

Specifications: FCC CRF Part 15.407(a)		
DUT Serial Number:	S1	
Test conditions:	Ambient Temperature:20°C Relative Humidity:40% Air pressure: 90kPa	
Test Results:	Pass	

Measurement Limit and Method

Standard	Limit	
FCC 47 CFR Part 15.407(a)	< 30 dBm/500 kHz	

Measurement Uncertainty:

Measurement Uncertainty	±0.48 dB
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The measurement method is made according to KDB 789033 F

- 1. Create an average power spectrum for the EUT operating mode being tested by following the instructions in II.E.2. for measuring maximum conducted output power using a spectrum analyzer or EMI receiver: select the appropriate test method (SA-1, SA-2, SA-3, or alternatives to each) and apply it up to, but not including, the step labeled, "Compute power...." (This procedure is required even if the maximum conducted output power measurement was performed using a power meter, method PM.)
- 2. Use the peak search function on the instrument to find the peak of the spectrum and record its value.
- 3. Make the following adjustments to the peak value of the spectrum, if applicable:
- a) If Method SA-2 or SA-2 Alternative was used, add $10 \log (1/x)$, where x is the duty cycle, to the peak of the spectrum.
- b) If Method SA-3 Alternative was used and the linear mode was used in step II.E.2.g)(viii), add 1 dB to the final result to compensate for the difference between linear averaging and power averaging.
- 4. The result is the Maximum PSD over 1 MHz reference bandwidth.
- 5. For devices operating in the bands 5.15-5.25 GHz, 5.25-5.35 GHz, and 5.47-5.725 GHz, the above procedures make use of 1 MHz RBW to satisfy directly the 1 MHz reference bandwidth specified in Section 15.407(a)(5). For devices operating in the band 5.725-5.85 GHz, the rules specify a measurement bandwidth of 500 kHz. Many spectrum analyzers do not have 500 kHz RBW, thus a narrower RBW may

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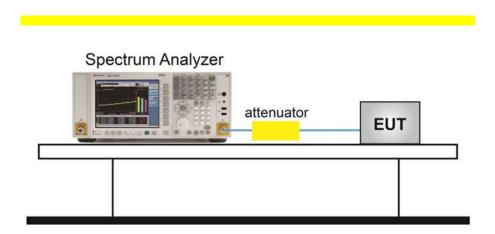


need to be used. The rules permit the use of a RBWs less than 1 MHz, or 500 kHz, "provided that the measured power is integrated over the full reference bandwidth" to show the total power over the specified measurement bandwidth (i.e., 1 MHz, or 500 kHz). If measurements are performed using a reduced resolution bandwidth (< 1 MHz, or < 500 kHz) and integrated over 1 MHz, or 500 kHz bandwidth, the following adjustments to the procedures apply:

- a) Set RBW $\geq 1/T$, where T is defined in II.B.l.a).
- b) Set VBW \geq 3 RBW.
- c) If measurement bandwidth of Maximum PSD is specified in 500 kHz, add 10 log (500 kHz/RBW) to the measured result, whereas RBW (<500 kHz) is the reduced resolution bandwidth of the spectrum analyzer set during measurement.
- d) If measurement bandwidth of Maximum PSD is specified in 1 MHz, add 10 log (1MHz/RBW) to the measured result, whereas RBW (< 1 MHz) is the reduced resolution bandwidth of spectrum analyzer set during measurement.
- e) Care must be taken to ensure that the measurements are performed during a period of continuous transmission or are corrected upward for duty cycle.

Note: As a practical matter, it is recommended to use reduced RBW of 100 kHz for steps 5.c) and 5.d) above, since RBW=100 KHZ is available on nearly all spectrum analyzers.

Test setup







Test Result SISO

TestMode	Antenna	Frequency[MHz]	Result [dBm/MHz]	Limit[dBm/500KHz]	Verdict
11A	Ant1	5745	-2.85	≤30.00	PASS
	Ant2	5745	-2.1	≤30.00	PASS
	Ant1	5785	-1.08	≤30.00	PASS
	Ant2	5785	-2.06	≤30.00	PASS
	Ant1	5825	0.22	≤30.00	PASS
	Ant2	5825	-2.66	≤30.00	PASS
	Ant1	5745	-3.18	≤30.00	PASS
	Ant2	5745	-2.48	≤30.00	PASS
1111200100	Ant1	5785	-2.11	≤30.00	PASS
11N20SISO	Ant2	5785	-2.37	≤30.00	PASS
	Ant1	5825	-0.28	≤30.00	PASS
	Ant2	5825	-3.27	≤30.00	PASS
	Ant1	5755	-11.79	≤30.00	PASS
1131400100	Ant2	5755	-11.49	≤30.00	PASS
11N40SISO	Ant1	5795	-10.53	≤30.00	PASS
	Ant2	5795	-11.97	≤30.00	PASS
	Ant1	5745	-3.31	≤30.00	PASS
	Ant2	5745	-2.37	≤30.00	PASS
11AC20SISO	Ant1	5785	-2.15	≤30.00	PASS
	Ant2	5785	-2.39	≤30.00	PASS
	Ant1	5825	-0.35	≤30.00	PASS
	Ant2	5825	-2.99	≤30.00	PASS
	Ant1	5755	-9.06	≤30.00	PASS
11AC40SISO	Ant2	5755	-11.74	≤30.00	PASS
	Ant1	5795	-10.63	≤30.00	PASS
	Ant2	5795	-11.96	≤30.00	PASS
114 0000100	Ant1	5775	-11.2	≤30.00	PASS
11AC80SISO	Ant2	5775	-11.86	≤30.00	PASS





MIMO

TestMode	Antenna	Frequency[MHz]	Result [dBm/MHz]	Limit[dBm/MHz]	Verdict
11A-CDD	Ant1	5745	-2.97	≤30.00	PASS
	Ant2	5745	-1.97	≤30.00	PASS
	total	5745	0.57	≤29.92	PASS
	Ant1	5785	-1.26	≤30.00	PASS
	Ant2	5785	-2.24	≤30.00	PASS
	total	5785	1.29	≤29.92	PASS
	Ant1	5825	0.55	≤30.00	PASS
	Ant2	5825	-2.69	≤30.00	PASS
	total	5825	2.24	≤29.92	PASS
	Ant1	5745	-2.24	≤30.00	PASS
	Ant2	5745	-2.12	≤30.00	PASS
	total	5745	0.83	≤30.00	PASS
	Ant1	5785	-1.55	≤30.00	PASS
11N20MIMO	Ant2	5785	-1.91	≤30.00	PASS
	total	5785	1.28	≤30.00	PASS
	Ant1	5825	0.17	≤30.00	PASS
	Ant2	5825	-3.35	≤30.00	PASS
	total	5825	1.77	≤30.00	PASS
	Ant1	5755	-11.33	≤30.00	PASS
	Ant2	5755	-12.08	≤30.00	PASS
11N40MIMO	total	5755	-8.68	≤30.00	PASS
11N40MIMO	Ant1	5795	-10.74	≤30.00	PASS
	Ant2	5795	-12.23	≤30.00	PASS
	total	5795	-8.41	≤30.00	PASS
	Ant1	5745	-3.11	≤30.00	PASS
	Ant2	5745	-2.46	≤30.00	PASS
	total	5745	0.24	≤30.00	PASS
	Ant1	5785	-1.92	≤30.00	PASS
11AC20MIMO	Ant2	5785	-2.52	≤30.00	PASS
	total	5785	0.80	≤30.00	PASS
	Ant1	5825	-0.29	≤30.00	PASS
	Ant2	5825	-3.35	≤30.00	PASS
	total	5825	1.45	≤30.00	PASS
	Ant1	5755	-11.47	≤30.00	PASS
	Ant2	5755	-11.88	≤30.00	PASS
11AC40MIMO	total	5755	-8.66	≤30.00	PASS
	Ant1	5795	-10.34	≤30.00	PASS
	Ant2	5795	-11.87	≤30.00	PASS

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	total	5795	-8.03	≤30.00	PASS
11AC80MIMO	Antl	5775	-10.56	≤30.00	PASS
	Ant2	5775	-12.07	≤30.00	PASS
	total	5775	-8.24	≤30.00	PASS

Note: 1.The Result and Limit Unit is dBm/500 kHz in the band 5.725–5.85 GHz.

2. The Duty Cycle Factor and RBW Factor is compensated in the graph.





Test Graphs

