

802.11n HT20 Channel: 165





802.11n HT40 Channel: 159



Test Requirement:	FCC Part15 E Section 15.407			
Test Method:	KDB 789033 D02 General UNII Test Procedures New Rules v02			
Limit:	11dBm/MHz(Band I), 30 dBm(Band IV)			
Test setup:	Spectrum Analyzer E.U.T Non-Conducted Table Ground Reference Plane			
Test procedure:	<ol> <li>Create an average power spectrum for the EUT operating mode being tested by following the instructions in section 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".</li> <li>Use the peak search function on the instrument to find the peak of the spectrum.</li> <li>Make the following adjustments to the peak value of the spectrum, if applicable:         <ul> <li>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.</li> <li>b) If Method SA-3 Alternative was used and the linear mode was used in step E)2)g)(viii), add 1 dB to the final result to compensate for the difference between linear averaging and power averaging.</li> </ul> </li> </ol>			
Test Instruments:	Refer to section 5.10 for details			
Test mode:	Refer to section 5.3 for details			
Test results:	Pass			

## 10 Dower Spectral Density

### 10.1 Test Result and Data

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Modulation Type	Channel	Frequency (MHz)	Maximum Power Density of 500 kHz Bandwidth (dBm)		
			ANT R	ANT L	
802.11a	149	5745	-33.14	-29.95	
	157	5785	-33.42	-30.23	
	165	5825	-32.23	-29.21	
802.11n,HT20	149	5745	-32.46	-29.34	
	157	5785	-32.72	-29.71	
	165	5825	-31.95	-28.94	
802.11n,HT40	151	5755	-36.27	-32.25	
	159	5795	-36.72	-33.72	

Note: Following pages of plots is 300kHz. Result of above table is data adding  $10 \log \left(\frac{500k}{300k}\right) \approx 2.22$  for transforming to 500kHz.

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 \* RBW 300 kHz
 Marker 1 [T1]

 \* VBW 1 MHz
 -35...

 \* SWT 30 a
 5.7403200
 -35.36 dBm 5.740320000 GH± Ref -10 dBm Att 0 dB -10 1 PK -1 man 1.00 -110 Span 30 MHz Center 5.745 GHz 3 MHz/

802.11a

# Test plots (RBW:300kHz,VBW:1MHz,Sweeptime:30s) as followed: Antenna R

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Antenna L

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11. Band Edges Measurement							
Test Requirement:	FCC Part15 E Se	ection 15.40	7 and 15.205				
Test Method:	ANSI C63.10:2013						
Test site:	Measurement Distance: 3m						
Receiver setup:							
	Frequency	Detector	RBW	VBW	Remark		
	30MHz-1GHz	Quasi-pea	k 100KHz	300KHz	Quasi-peak Value		
		Peak	1MHz	3MHz	Peak Value		
	Above 1GHz	AV	1MHz	3MHz	Average Value		
Limit:							
	Frequency		Limit (dBuV/m @3m)		Remark		
	30MHz-88	MHz	40.0	)	Quasi-peak Value		
	88MHz-216	6MHz	43.5		Quasi-peak Value		
	216MHz-960MHz		46.0		Quasi-peak Value		
	960MHz-1GHz		54.0		Quasi-peak Value		
	Above 1GHz		54.0		Average Value		
			74.0		Peak Value		
	<ul> <li>Undesirable emission limits:</li> <li>(1) For transmitters operating in the 5.15-5.25 GHz band: all emissions outside of the 5.15-5.35 GHz band shall not exceed an EIRP of -27 dBm/MHz.</li> <li>(2) For transmitters operating in the 5.25-5.35 GHz band: all emissions outside of the 5.15-5.35 GHz band shall not exceed an EIRP of -27 dBm/MHz. Devices operating in the 5.25-5.35 GHz band must meet all applicable technical requirements for operation in the 5.15-5.25 GHz band.</li> <li>(3) For transmitters operating in the 5.47-5.725 GHz band: all emissions outside of the 5.47-5.725 GHz band shall not exceed an EIRP of -27 dBm/MHz.</li> <li>(4) For transmitters operating in the 5.725-5.85 GHz band:</li> </ul>						

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	or more above or below the band edge increasing linearly to 10				
	dBm/MHz at 25 MHz above or below the band edge, and from 25				
	MHz above or below the band edge increasing linearly to a level of				
	15.6 dBm/MHz at 5 MHz above or below the band edge, and from 5				
	MHz above or below the band edge increasing linearly to a level of				
	27 dBm/MHz at the band edge.				
Test Procedure:	a. The EUT was placed on the top of a rotating table 1.5 m above the				
	ground at a 3 meter camber. The table was rotated 360 degrees to				
	determine the position of the highest radiation.				
	b. The EUT was set 3 meters away from the interference-receiving				
	antenna, which was mounted on the top of a variable-height antenna				
	tower.				
	c. The antenna height is varied from one meter to four meters above the				
	ground to determine the maximum value of the field strength. Both				
	horizontal and vertical polarizations of the antenna are set to make the				
	measurement.				
	d. For each suspected emission, the EUT was arranged to its worst case				
	and then the antenna was tuned to heights from 1 meter to 4 meters				
	and the rotable table was turned from 0 degrees to 360 degrees to				
	find the maximum reading.				
	e. The test-receiver system was set to Peak Detect Function and				
	Specified Bandwidth with Maximum Hold Mode.				
	f. If the emission level of the EUT in peak mode was 10dB lower than				
	the limit specified, then testing could be stopped and the peak values				
	of the EUT would be reported. Otherwise the emissions that did not				
	have 10dB margin would be re-tested one by one using peak,				
	quasi-peak or average method as specified and then reported in a				
	data sheet.				
Test setup:	Above 1GHz				



### Remark:

According to KDB 789033 D02V02 section G) 1) (d), for For measurements above 1000 MHz @ 3m distance, the limit of field strength is computed as follows:

E[dBuV/m] = EIRP[dBm] + 95.2;

For example, if EIRP = -27dBm

E[dBuV/m] = -27 + 95.2 = 68.2dBuV/m.

### 11.1 Test Result and Data

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Modulation Type	Channel	Frequency (MHz)	Maximum value in frequency (MHz)		Maximum value (dBm)	
			ANT R	ANT L	ANT R	ANT L
IEEE 802.11a	149	5745	5646.6	5642.2	-77.26	-77.08
	165	5825	5928.6	5928.6	-78.21	-78.11
IEEE 802.11n,HT20	149	5745	5642.31	5643	-76.47	-77.49
	165	5825	5926	5926	-76.82	-77.73
IEEE 802.11n,HT40	151	5755	5643.4	5647.11	-77.33	-76.87
	159	5795	5965.6	5936	-77.67	-77.57