802.11n HT20-5320MHz

802.11n HT20-5500MHz

802.11n HT20-5580MHz

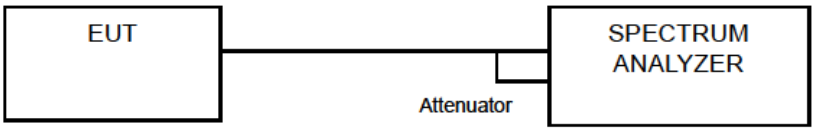
802.11n HT20-5700MHz

3.6 Peak Power Spectral Density Measurement

3.6.1 Limits of Peak Power Spectral Density Measurement

Operation Band	EUT Category		Limit
U-NII-1		Outdoor Access Point	17dBm/ MHz
		Fixed point-to-point Access Point	
		Indoor Access Point	
	√	Client device	11dBm/ MHz
U-NII-2A	√		11dBm/ MHz
U-NII-2C	√		11dBm/ MHz
U-NII-3	√		30dBm/ 500kHz

3.6.2 Test Setup



3.6.3 Test Instruments

MET Asset #	Equipment	Manufacturer	Model	Last Cal Date	Cal Due Date
1S2003	EMI Test Receiver	Keysight	N9030B	11/01/2022	11/01/2023

3.6.4 Test Procedure

For U-NII-1, U-NII-2A, U-NII-2C band:

Using method SA-1

1. Set span to encompass the entire emission bandwidth (EBW) of the signal.
2. Set RBW = 1 MHz, Set VBW ≥ 3 MHz, Detector = RMS
3. Sweep time = auto, trigger set to “free run”.
4. Trace average at least 100 traces in power averaging mode.
5. Record the max value

For U-NII-3:

1. Set span to encompass the entire emission bandwidth (EBW) of the signal.
2. Set RBW = 300 kHz, Set VBW ≥ 1 MHz, Detector = RMS
3. Use the peak marker function to determine the maximum power level in any 300 kHz band segment within the fundamental EBW.
4. Scale the observed power level to an equivalent value in 500 kHz by adjusting (reducing) the measured power by a bandwidth correction factor (BWCF) where BWCF = 10log(500 kHz/300kHz)
5. Sweep time = auto, trigger set to “free run”.
6. Trace average at least 100 traces in power averaging mode.
7. Record the max value

3.6.5 Deviation from Test Standard

No deviation.

3.6.6 EUT Operating Condition

Same as Item 4.3.6.

3.6.7 Test Results

PSD measurement result for UNII-2 Band

Type	Test mode	Freq (MHz)	CH	Conducted PSD (dBm/MHz)	Limit (dBm/MHz)	Result
Output Power	802.11a	5260	Low	-4.235	11	Pass
		5280	Mid	-4.200	11	Pass
		5320	High	-4.746	11	Pass
		5500	Low	-4.429	11	Pass
		5580	Mid	-4.549	11	Pass
		5700	High	-4.423	11	Pass
	802.11n-HT20	5260	Low	-4.292	11	Pass
		5280	Mid	-4.947	11	Pass
		5320	High	-4.779	11	Pass
		5500	Low	-4.753	11	Pass
		5580	Mid	-4.653	11	Pass
		5700	High	-4.428	11	Pass

Test Plot for:

UNII-2 Band

802.11a-5260MHz

802.11a-5280MHz

802.11a-5320MHz

802.11a-5500MHz

802.11a-5580MHz

802.11a-5700MHz

802.11n HT20-5260MHz

802.11n HT20-5280MHz

802.11n HT20-5320MHz

802.11n HT20-5500MHz

802.11n HT20-5580MHz

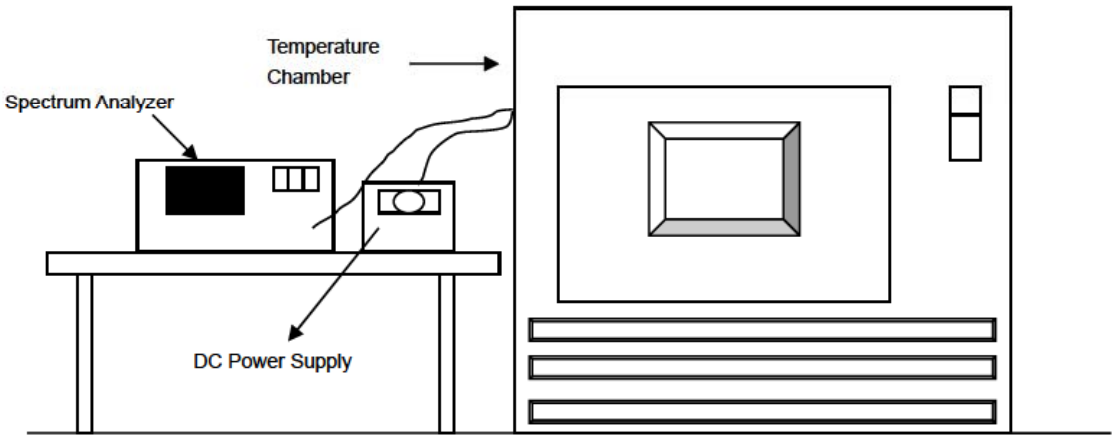
802.11n HT20-5700MHz

3.7 Frequency Stability Measurement

3.7.1 Limits of Frequency Stability Measurement

The frequency of the carrier signal shall be maintained within band of operation.

3.7.2 Test Setup



3.7.3 Test Instruments

MET Asset #	Equipment	Manufacturer	Model	Last Cal Date	Cal Due Date
1S2003	EMI Test Receiver	Keysight	N9030B	11/01/2022	11/01/2023
1S2776	Temperature Chambers	Lunaire	BTC	Note 1	Note 1
Note 1: Verified by calibrated instrumentation at the time of testing					

3.7.4 Test Procedure

a. The EUT was placed inside the environmental test chamber and powered by nominal DC voltage.
b. Turn the EUT on and couple its output to a spectrum analyzer.
c. Turn the EUT off and set the chamber to the highest temperature specified.
d. Allow sufficient time (approximately 30 min) for the temperature of the chamber to stabilize, turn the EUT on and measure the operating frequency after 2, 5, and 10 Minutes.
e. Repeat step (d) with the temperature chamber set to the next desired temperature until measurements down to the lowest specified temperature have been completed..
f. The test chamber was allowed to stabilize at +20 degree C for a minimum of 30 Minutes. The supply voltage was then adjusted on the EUT from 85% to 115% and the frequency record.

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3.7.5 Deviation from Test Standard

No deviation.

3.7.6 EUT Operating Condition

Set the EUT transmit at un-modulation mode to test frequency stability.

3.7.7 Test Results

Frequency Stability Versus Temp.									
Operating Frequency: 5260 MHz									
TEMP. (℃)	Power Supply (Vdc)	0 Minute		2 Minute		5 Minute		10 Minute	
		Measured Frequency (MHz)	Pass/Fail	Measured Frequency (MHz)	Pass/Fail	Measured Frequency (MHz)	Pass/Fail	Measured Frequency (MHz)	Pass/Fail
50	3.0	5259.995	Pass	5260.084	Pass	5260.004	Pass	5260.011	Pass
40	3.0	5260.072	Pass	5260.017	Pass	5260.023	Pass	5260.024	Pass
30	3.0	5260.013	Pass	5260.024	Pass	5260.014	Pass	5260.013	Pass
20	3.0	5260.016	Pass	5260.024	Pass	5260.016	Pass	5260.031	Pass
10	3.0	5259.998	Pass	5259.994	Pass	5260.02	Pass	5260.03	Pass
0	3.0	5260.025	Pass	5260.026	Pass	5259.993	Pass	5261.006	Pass
-10	3.0	5259.996	Pass	5260.004	Pass	5259.996	Pass	5260.018	Pass
-20	3.0	5259.927	Pass	5260.013	Pass	5260.025	Pass	5260.031	Pass
-30	3.0	5260.026	Pass	5260.01	Pass	5260.013	Pass	5260.014	Pass

Frequency Stability Versus Voltage									
Operating Frequency: 5260 MHz									
TEMP. (℃)	Power Supply (Vdc)	0 Minute		2 Minute		5 Minute		10 Minute	
		Measured Frequency (MHz)	Pass/Fail	Measured Frequency (MHz)	Pass/Fail	Measured Frequency (MHz)	Pass/Fail	Measured Frequency (MHz)	Pass/Fail
20	3.45	5260.032	Pass	5260.002	Pass	5260.031	Pass	5260.024	Pass
	3.0	5260.008	Pass	5259.938	Pass	5260.045	Pass	5260.024	Pass
	2.55	5260.142	Pass	5260.034	Pass	5259.911	Pass	5260.003	Pass

4 Pictures of Test Arrangements

Please refer to the attached file (Test Setup Photo).

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