

## 10.4 Test Results

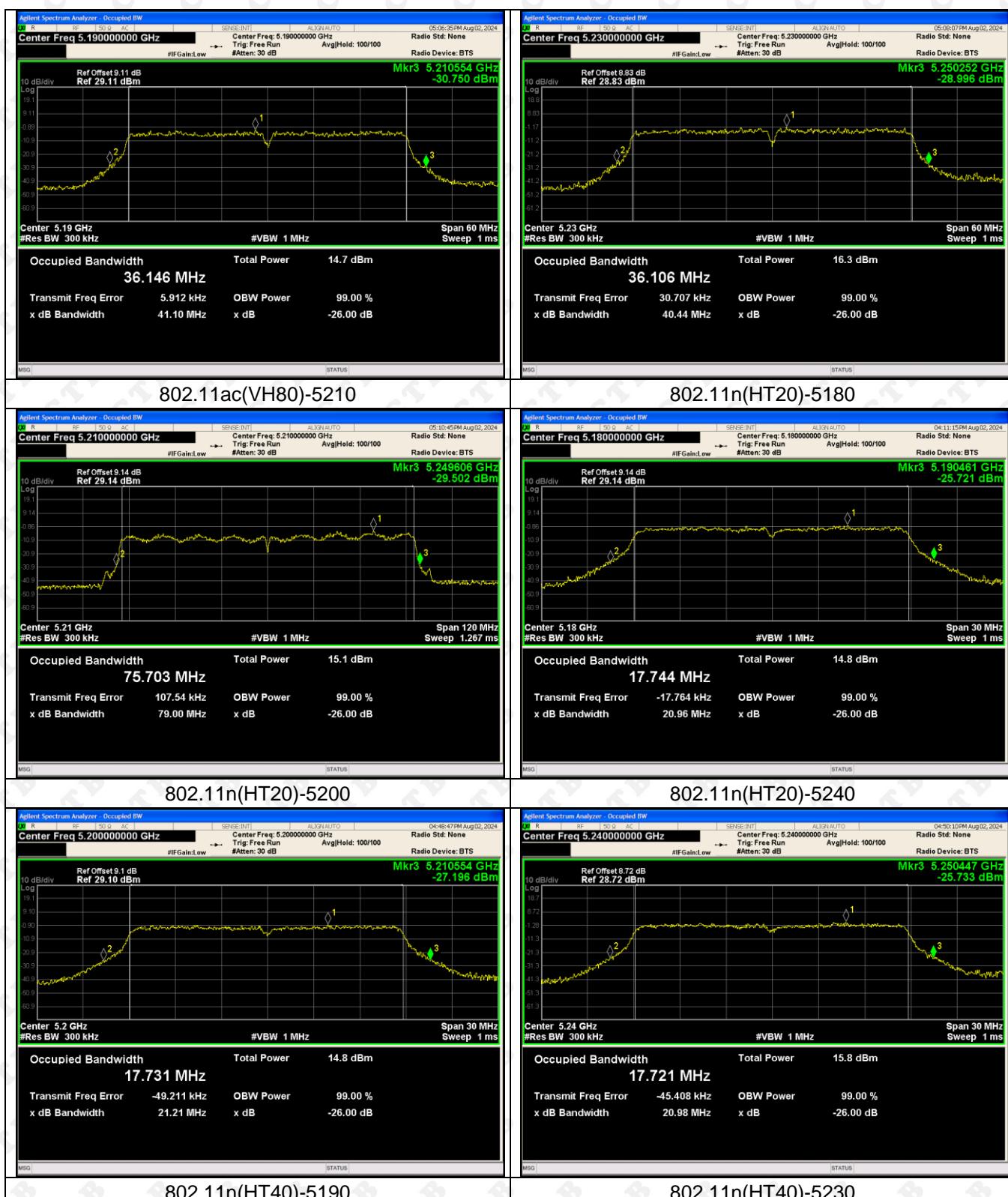
Test mode	Test Channel (MHz)	26dB Bandwidth (MHz)
802.11a	5180	20.785
	5200	20.909
	5240	20.672
802.11ac20	5180	21.408
	5200	21.594
	5240	21.648
802.11ac40	5190	41.096
	5230	40.443
802.11ac80	5210	78.996
802.11n(HT20)	5180	20.957
	5200	21.207
	5240	20.984
802.11n(HT40)	5190	41.166
	5230	41.109

Test mode	Test Channel (MHz)	6dB Bandwidth (MHz)
802.11a	5745	16.524
	5785	16.521
	5825	16.528
802.11ac20	5745	17.823
	5785	17.762
	5825	17.818
802.11ac40	5755	36.516
	5795	36.522
802.11ac80	5775	75.970
802.11n(HT20)	5745	17.779
	5785	17.752
	5825	17.776
802.11n(HT40)	5755	36.529
	5795	36.554

## Test Graph

5180-5240MHz

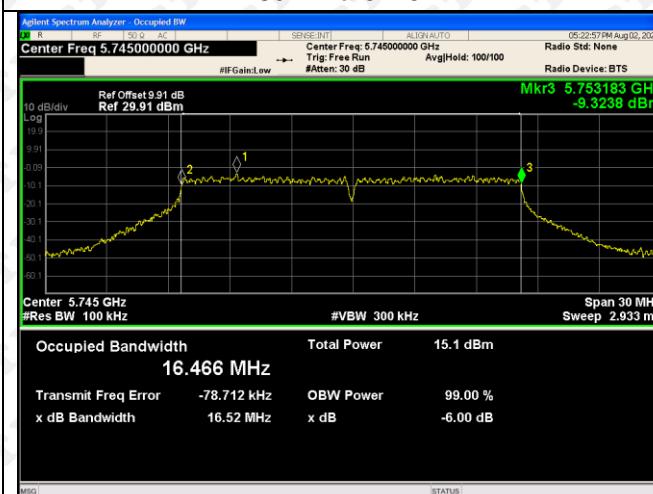




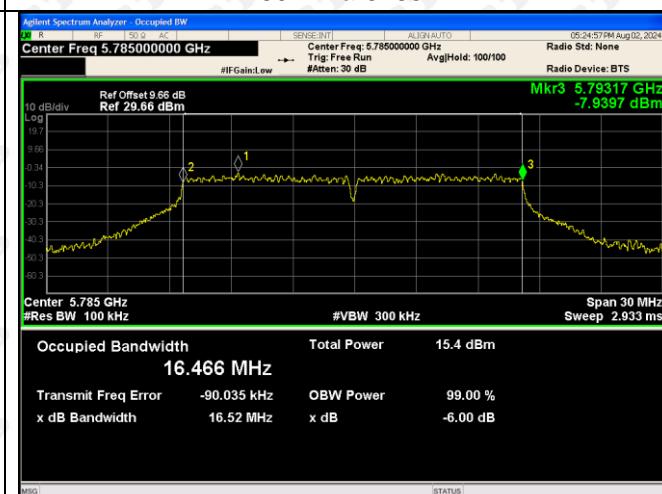


5745-5825MHz

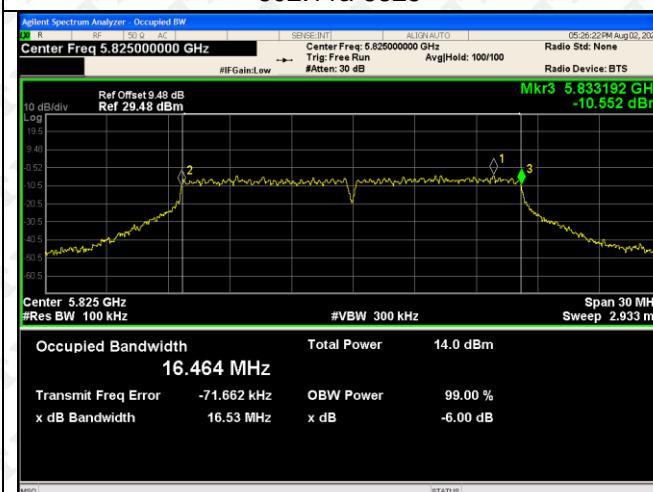
802.11a-5745



802.11a-5785



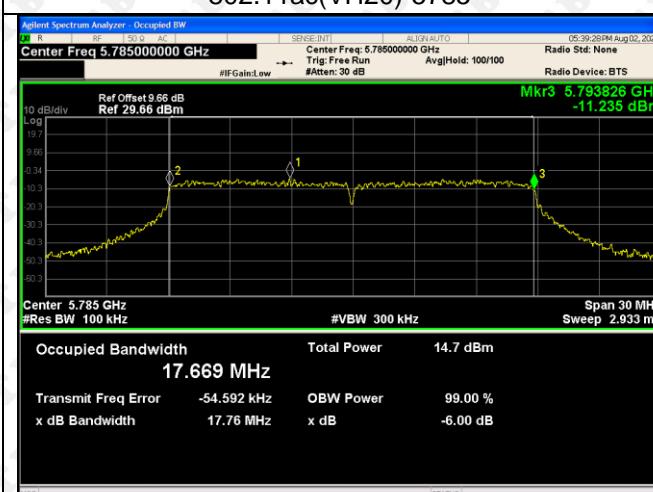
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802.11ac(VH20)-5745



802.11ac(VH20)-5785

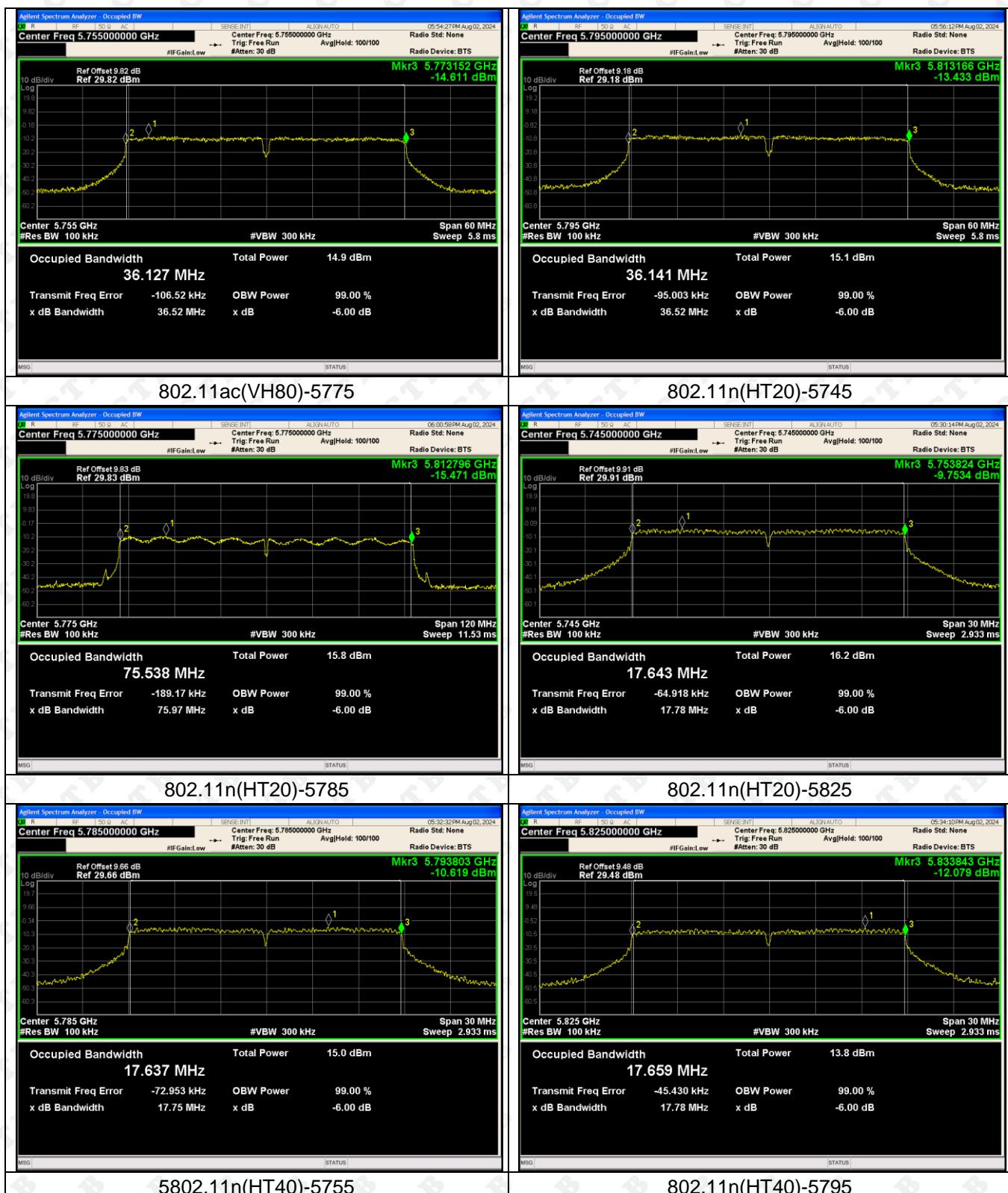


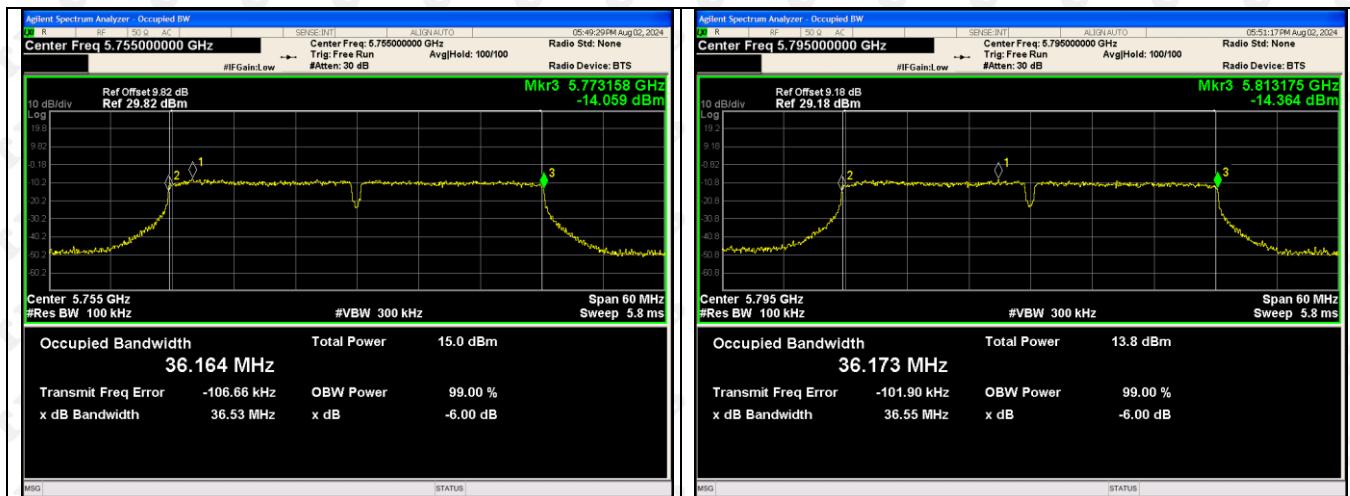
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802.11ac(VH40)-5755

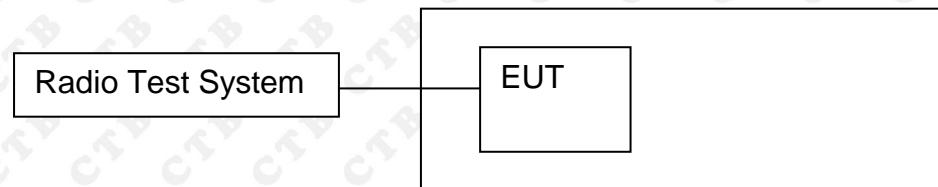
802.11ac(VH40)-5795





## 11. POWER SPECTRAL DENSITY

### 11.1 Block Diagram Of Test Setup



### 11.2 Limit

#### (1) For the band 5.15-5.25 GHz.

(iv) For mobile and portable 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. In addition, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

(2) 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 or 11 dBm + 10 log B, where B is the 26 dB emission bandwidth in megahertz. In addition, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

(3) For the band 5.725-5.85 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. In addition, the maximum power spectral density shall not exceed 30 dBm in any 500-kHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. However, fixed point-to-point U-NII devices operating in this band may employ transmitting antennas with directional gain greater than 6 dBi without any corresponding reduction in transmitter conducted power. Fixed, point-to-point operations exclude the use of point-to-multipoint systems, omnidirectional applications, and multiple collocated transmitters transmitting the same information. The operator of the U-NII device, or if the equipment is professionally installed, the installer, is responsible for ensuring that systems employing high gain directional antennas are used exclusively for fixed, point-to-point operations.

### 11.3 Test procedure

According to KDB789033 D02v02r01 sectionE, the following is the measurement procedure.

For devices operating in the bands 5.15–5.25 GHz, 5.25–5.35 GHz, and 5.47–5.725 GHz, the preceding 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 need to be used. The rules permit the use of 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:

- Set RBW  $\geq 1/T$ , where  $T$  is defined in II.B.I.a).
- Set VBW  $\geq 3$  RBW.

- c) If measurement bandwidth of Maximum PSD is specified in 500 kHz, add  $10 \log (500 \text{ kHz}/\text{RBW})$  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  $10 \log (1\text{MHz}/\text{RBW})$  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 the II.F.5.c) and II.F.5.d), since RBW=100 kHz is available on nearly all spectrum analyzers.

## 11.4 Test Result

Test mode	Test Channel (MHz)	PSD [dBm/MHz]	Limit [dBm/MHz]	Result
802.11a	5180	-2.992	11	Pass
	5200	-1.812	11	Pass
	5240	-1.404	11	Pass
802.11ac(VH20)	5180	-2.771	11	Pass
	5200	-1.872	11	Pass
	5240	-1.405	11	Pass
802.11ac(VH40)	5190	-5.820	11	Pass
	5230	-4.498	11	Pass
802.11ac(VH80)	5210	-7.204	11	Pass
802.11n(HT20)	5180	-2.554	11	Pass
	5200	-2.933	11	Pass
	5240	-1.718	11	Pass
802.11n(HT40)	5190	-6.179	11	Pass
	5230	-4.399	11	Pass

Test mode	Test Channel (MHz)	PSD [dBm/500kHz]	Limit [dBm/MHz]	Result
802.11a	5745	-5.052	30	Pass
	5785	-4.695	30	Pass
	5825	-6.021	30	Pass
802.11ac(VH20)	5745	-4.752	30	Pass
	5785	-5.851	30	Pass
	5825	-6.273	30	Pass
802.11ac(VH40)	5755	-8.938	30	Pass
	5795	-8.794	30	Pass
802.11ac(VH80)	5775	-9.517	30	Pass
802.11n(HT20)	5745	-4.427	30	Pass
	5785	-5.686	30	Pass
	5825	-6.537	30	Pass
802.11n(HT40)	5755	-8.657	30	Pass
	5795	-9.735	30	Pass

5180-5240MHz

802.11a-5180



802.11a-5200



802.11a-5240



802.11ac(VH20)-5180



802.11ac(VH20)-5200

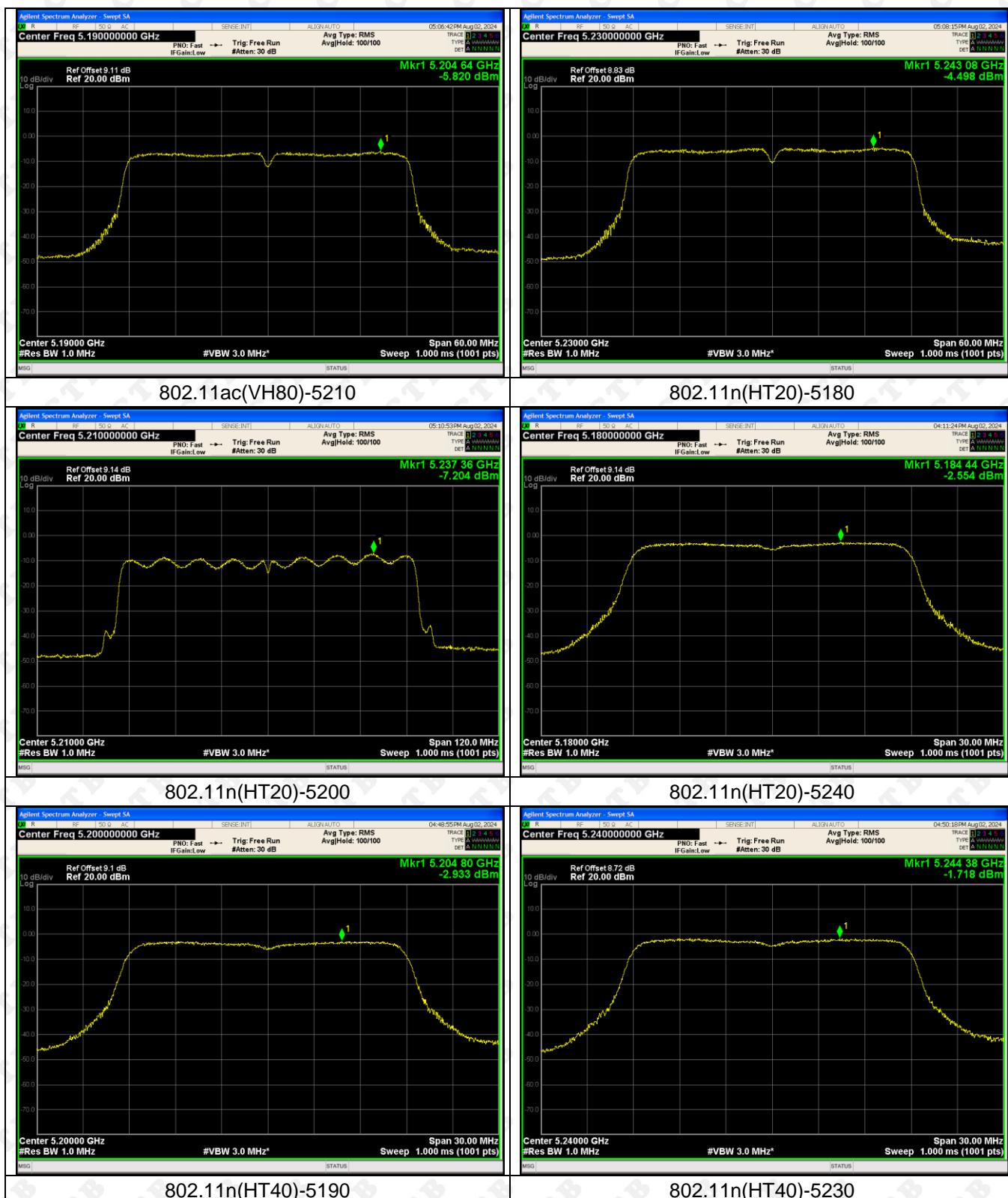


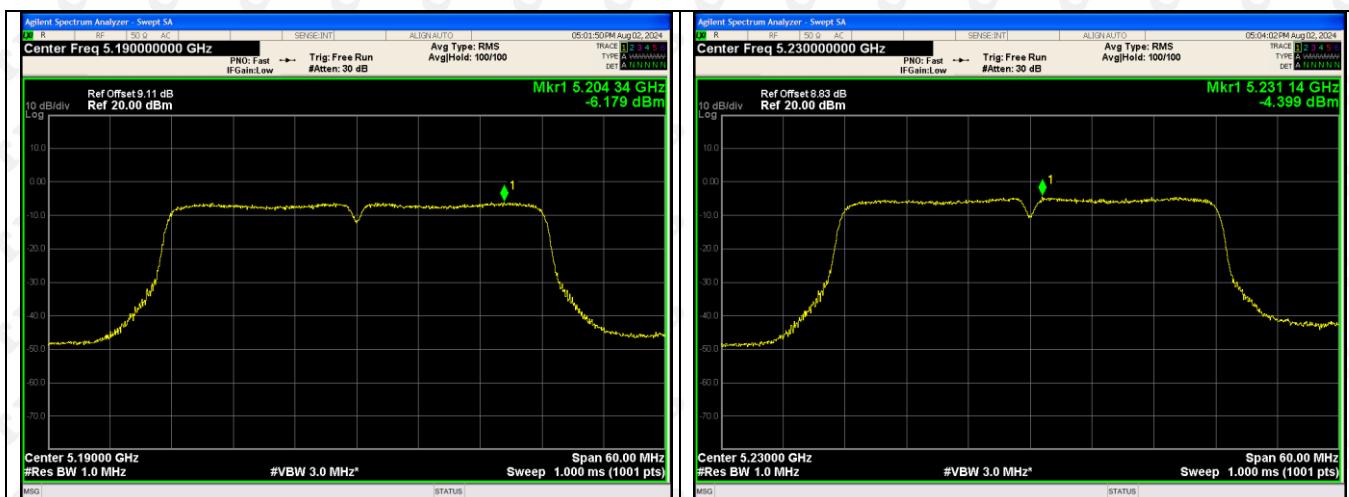
802.11ac(VH20)-5240



802.11ac(VH40)-5190

802.11ac(VH40)-5230





5745-5825MHz

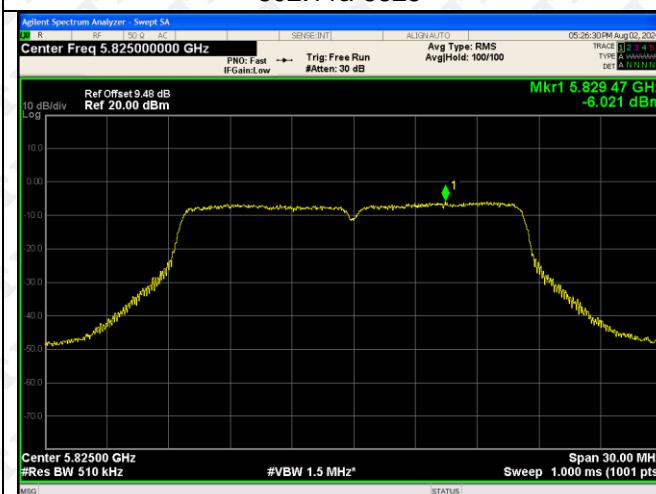
802.11a-5745



802.11a-5785



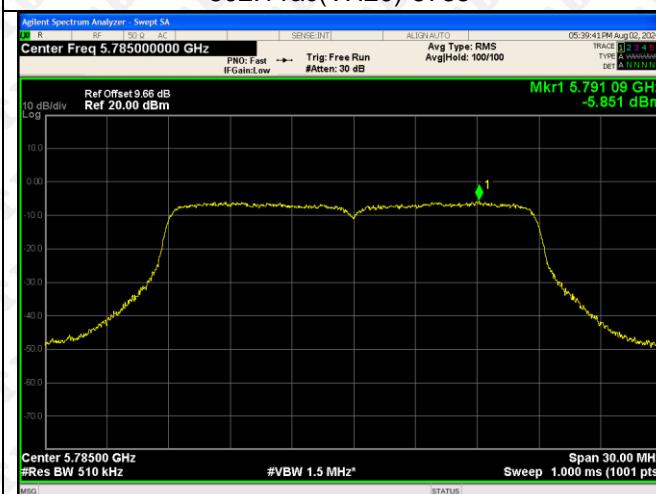
802.11a-5825



802.11ac(VH20)-5745



802.11ac(VH20)-5785

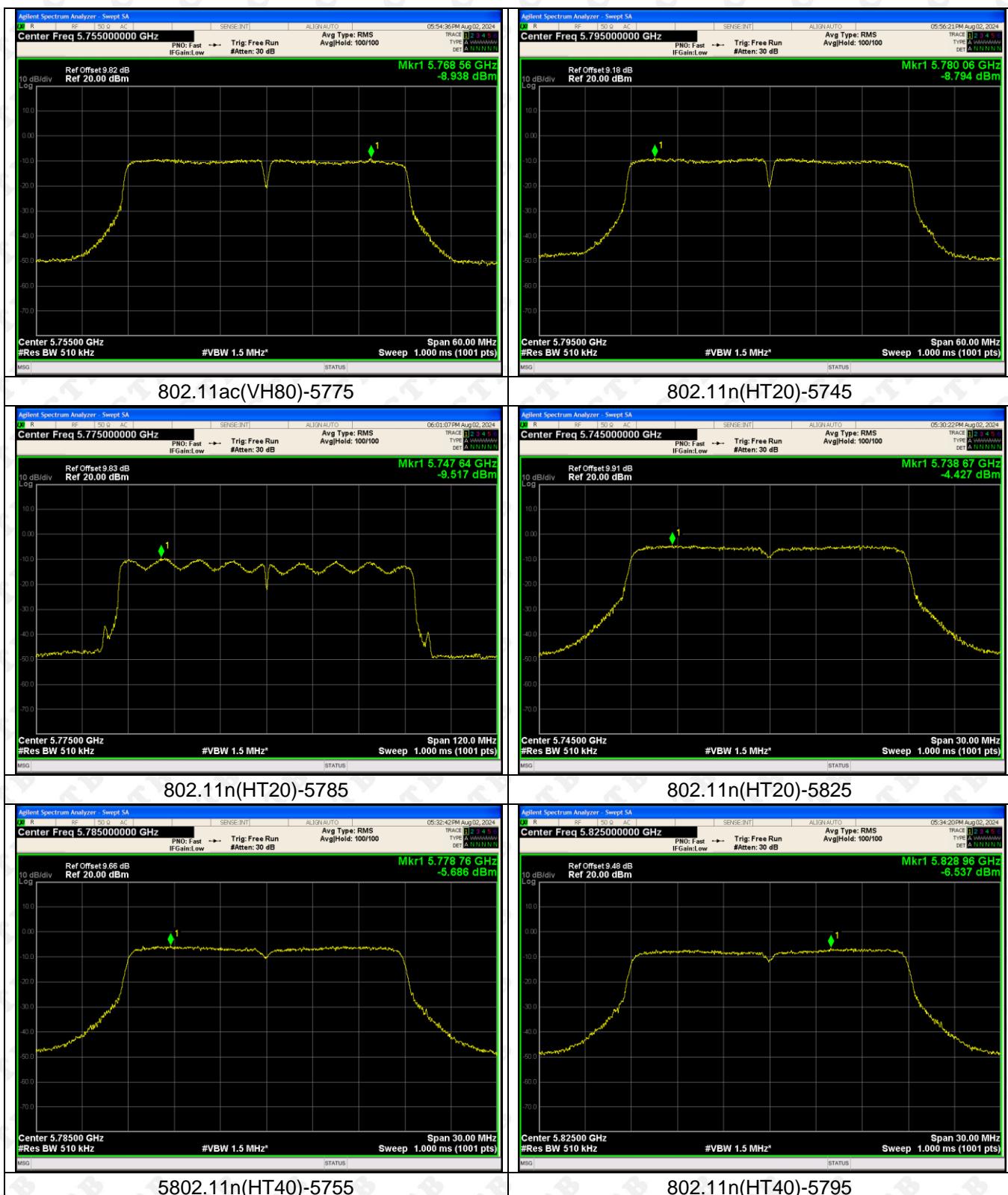


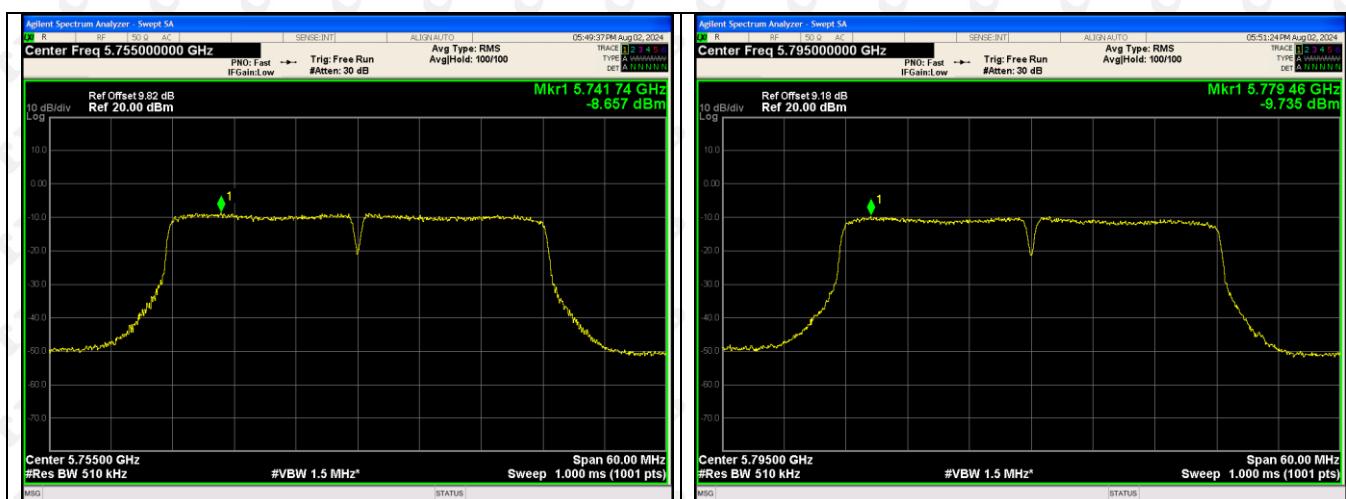
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802.11ac(VH40)-5755

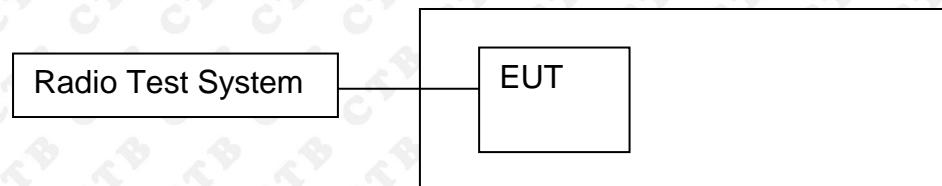
802.11ac(VH40)-5795





## 12. FREQUENCY STABILITY

### 12.1 Block Diagram Of Test Setup



### 12.2 Limit

Manufacturers of U-NII devices are responsible for ensuring frequency stability such that an emission is maintained within the band of operation under all conditions of normal operation as specified in the user's manual.

### 12.3 Test procedure

1. The EUT was placed inside temperature chamber and powered and powered by nominal DC voltage.
2. Set EUT as normal operation.
3. Turn the EUT on and couple its output to spectrum.
4. Turn the EUT off and set the chamber to the highest temperature specified.
5. Allow sufficient time (approximately 30 min) for the temperature of the chamber to stabilize, turn the EUT and measure the operating frequency.
6. Repeat step with the temperature chamber set to the lowest temperature.

### 12.4 Test Result

Pass

### 13. OPERATION IN THE ABSENCE OF INFORMATION TO THE TRANSMIT

#### 13.1 Requirement

##### 15.407(c) requirement:

The device shall automatically discontinue transmission in case of either absence of information to transmit or operational failure. These provisions are not intended to preclude the transmission of control or signaling information or the use of repetitive codes used by certain digital technologies to complete frame or burst intervals. Applicants shall include in their application for equipment authorization a description of how this requirement is met.

#### 13.2 Test Results

Operation in the absence of information to the transmit:

While the EUT is not transmitting any information, the EUT can automatically discontinue transmission and become standby mode for power saving. The EUT can detect the controlling signal of WLAN message transmitting from remote device and verify whether it shall reconnect. (manufacturer declare )

#### 14. ANTENNA REQUIREMENT

##### 15.203 requirement:

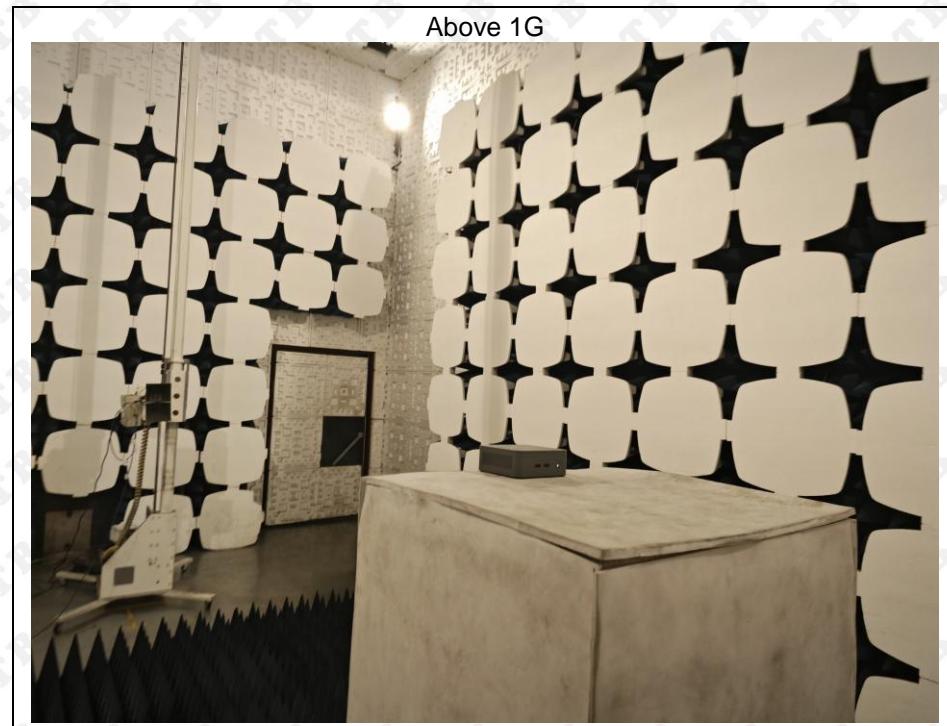
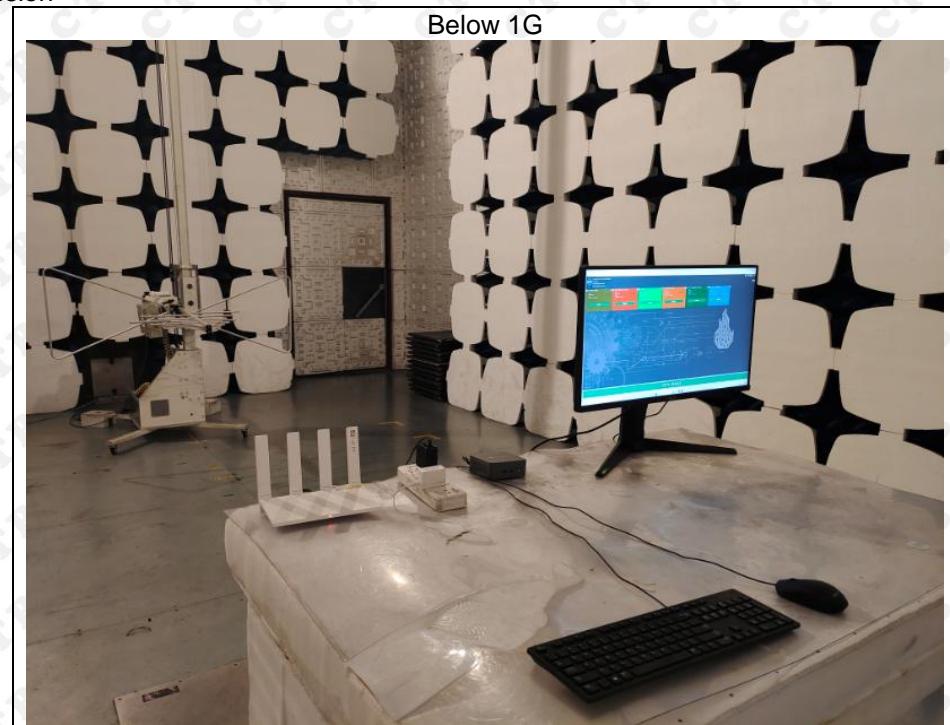
An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator, the manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.

##### **EUT Antenna:**

The antenna is FPC antenna and no consideration of replacement. The best case gain of the antenna 5.2GWIFI is 3.99dBi, 5.8GWIFI is 4.12dBi.

**15. EUT TEST SETUP PHOTOGRAPHS**

Radiated Emission



## Conducted Emission



\*\*\*\*\* END OF REPORT \*\*\*\*\*