

UN6GHZ PRE-APPROVAL GUIDANCE CHECKLIST

1. Antennas

1.1 Information for all the antennas, i.e., type, gain and relative positions within host, must be included in the filing.

Please refer to page 15 of “SI07E_2402TW0106-U7 (FCC Part 15.407 (SKI.WB902.1_WiFi 6G))_V1.0_1” for antenna information.

Please refer to document “SI07E_2402TW0106-UI (Internal Photograph)” for the antenna positions.

1.2 Show how the (aggregate, if applicable) antenna gain was computed/measured (as in TCB Workshop Presentation Aggregate Antenna Gain Review, April 2021). Provide equation(s) used to calculate Directional Gain and provide example calculation showing how the DG was calculated with the antenna gain of individual antennas. Provide details (references or attached documents) on how the individual antenna gains were derived, i.e., declared by the host manufacturer, based on data sheet, or measured. Since the CBP needs to detect a small signal, the worst case scenario to consider is when the receiver has the lowest antenna gain.

N/A, the product supports SISO mode for 6G Wi-Fi technology.

1.3 For conducted test in MIMO cases, show that the testing was done for that path that has the lowest antenna gain.

N/A, the product supports SISO mode for 6G Wi-Fi technology.

2. Contention Based Protocol (CBP)

2.1 CBP testing shall be performed on one channel in each sub-band of operation for both narrowest and widest bandwidths.

Please refer to page 69 of “SI07E_2402TW0106-U7 (FCC Part 15.407 (SKI.WB902.1_WiFi 6G))_V1.0_3” for the test channel and bandwidth information as follows. The narrowest and widest bandwidths were test for each UNII band.

Test Channel	Bandwidth (MHz)	Freq. (MHz)	AWGN Freq. (MHz)	AWGN Power (dBm)	Ant. Gain (dBi)	Adjust Power (dBm)	Detection Limit (dBm)	Detected Number	Detection Probability (%)	Limit (%)	Test Result
Operation Band: U-NII 5											
33	20	6115	6115	-62	0.36	-62.36	≤ -62.0	10	100	90	Pass
47	160	6185	6110	-62	0.36	-62.36	≤ -62.0	10	100	90	Pass
47	160	6185	6185	-62	0.36	-62.36	≤ -62.0	10	100	90	Pass
47	160	6185	6260	-62	0.36	-62.36	≤ -62.0	10	100	90	Pass
Operation Band: U-NII 6											
101	20	6455	6455	-62	0.0	-62	≤ -62.0	10	100	90	Pass
111	160	6505	6430	-62	0.0	-62	≤ -62.0	10	100	90	Pass
111	160	6505	6505	-62	0.0	-62	≤ -62.0	10	100	90	Pass
111	160	6505	6580	-62	0.0	-62	≤ -62.0	10	100	90	Pass
Operation Band: U-NII 7											
181	20	6855	6855	-62	0.1	-62.1	≤ -62.0	10	100	90	Pass
143	160	6665	6590	-62	0.1	-62.1	≤ -62.0	10	100	90	Pass
143	160	6665	6665	-62	0.1	-62.1	≤ -62.0	10	100	90	Pass
143	160	6665	6740	-62	0.1	-62.1	≤ -62.0	10	100	90	Pass
Operation Band: U-NII 8											
213	20	7015	7015	-62	0.02	-62.02	≤ -62.0	10	100	90	Pass
207	160	6985	6910	-62	0.02	-62.02	≤ -62.0	10	100	90	Pass
207	160	6985	6985	-62	0.02	-62.02	≤ -62.0	10	100	90	Pass
207	160	6985	7060	-62	0.02	-62.02	≤ -62.0	10	100	90	Pass

Note 1: Adjust Power (dBm) = AWGN Power (dBm) – Antenna Gain (dBi).

Note 2: Conducted measurements are used.

2.2 Use three separate 10 MHz AWGN signals when testing a 160 MHz channel. The simulated incumbent signal must be a 10 MHz wide AWGN signal

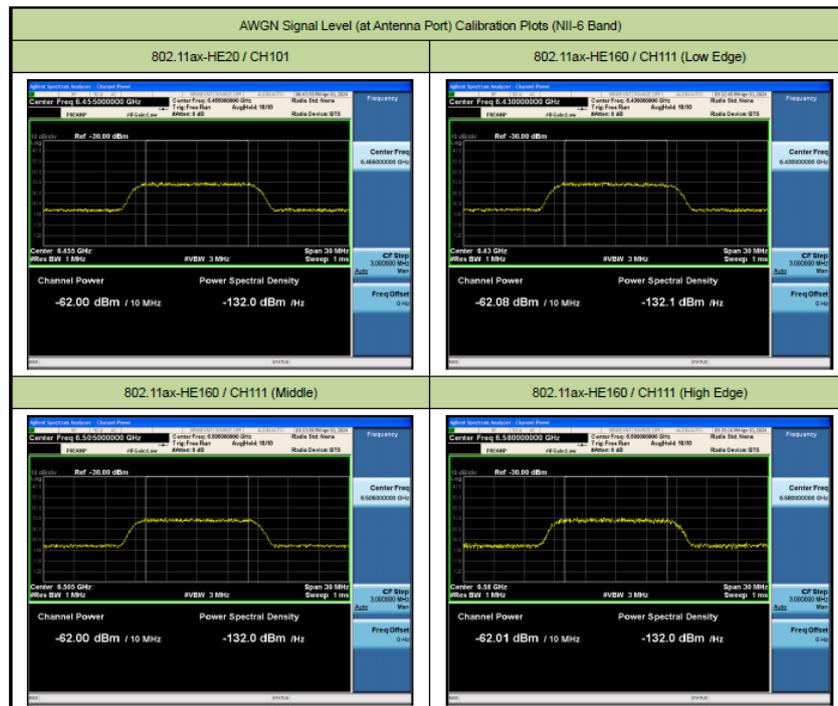
Please refer to page 69 of “SI07E_2402TW0106-U7 (FCC Part 15.407 (SKI.WB902.1_WiFi 6G))_V1.0_3” for the test summary information.

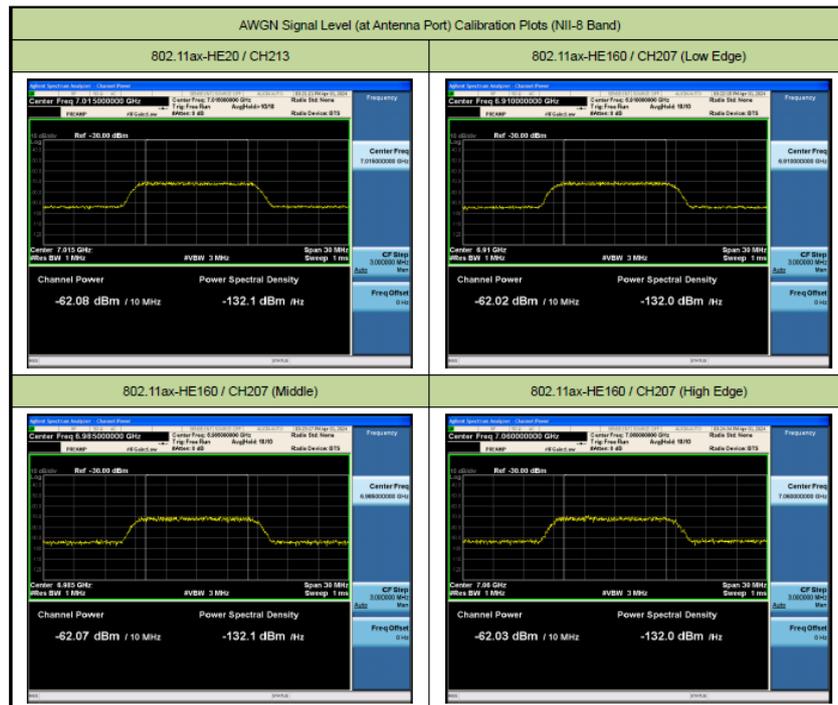
Test Channel	Bandwidth (MHz)	Freq. (MHz)	AWGN Freq. (MHz)	AWGN Power (dBm)	Ant. Gain (dBi)	Adjust Power (dBm)	Detection Limit (dBm)	Detected Number	Detection Probability (%)	Limit (%)	Test Result
Operation Band: U-NII 5											
33	20	6115	6115	-62	0.36	-62.36	≤ -62.0	10	100	90	Pass
47	160	6185	6110	-62	0.36	-62.36	≤ -62.0	10	100	90	Pass
47	160	6185	6185	-62	0.36	-62.36	≤ -62.0	10	100	90	Pass
47	160	6185	6260	-62	0.36	-62.36	≤ -62.0	10	100	90	Pass
Operation Band: U-NII 6											
101	20	6455	6455	-62	0.0	-62	≤ -62.0	10	100	90	Pass
111	160	6505	6430	-62	0.0	-62	≤ -62.0	10	100	90	Pass
111	160	6505	6505	-62	0.0	-62	≤ -62.0	10	100	90	Pass
111	160	6505	6580	-62	0.0	-62	≤ -62.0	10	100	90	Pass
Operation Band: U-NII 7											
181	20	6855	6855	-62	0.1	-62.1	≤ -62.0	10	100	90	Pass
143	160	6665	6590	-62	0.1	-62.1	≤ -62.0	10	100	90	Pass
143	160	6665	6665	-62	0.1	-62.1	≤ -62.0	10	100	90	Pass
143	160	6665	6740	-62	0.1	-62.1	≤ -62.0	10	100	90	Pass
Operation Band: U-NII 8											
213	20	7015	7015	-62	0.02	-62.02	≤ -62.0	10	100	90	Pass
207	160	6985	6910	-62	0.02	-62.02	≤ -62.0	10	100	90	Pass
207	160	6985	6985	-62	0.02	-62.02	≤ -62.0	10	100	90	Pass
207	160	6985	7060	-62	0.02	-62.02	≤ -62.0	10	100	90	Pass

Note 1: Adjust Power (dBm) = AWGN Power (dBm) – Antenna Gain (dBi).

Note 2: Conducted measurements are used.

Please refer to page 72~75 of “SI07E_2402TW0106-U7 (FCC Part 15.407 (SKI.WB902.1_WiFi 6G))_V1.0_3” for the AWGN signal plots.





2.3 Report lowest AWGN signal detectable by EUT

Please refer to page 70~71 of “SI07E_2402TW0106-U7 (FCC Part 15.407 (SKI.WB902.1_WiFi 6G))_V1.0_3” for lowest AWGN signal detectable by EUT.

Bandwidth (MHz)	Freq. (MHz)	AWGN Freq. (MHz)	Adjust Power (dBm)	EUT Tx Status
Operation Band: U-NII 5				
20	6115	6115	-80	ON
			-62	Minimal
			-63	OFF
160	6185	6110	-80	ON
			-62	Minimal
			-63	OFF
160	6185	6185	-80	ON
			-62	Minimal
			-63	OFF
160	6185	6260	-80	ON
			-62	Minimal
			-63	OFF
Operation Band: U-NII 6				
20	6455	6455	-80	ON
			-62	Minimal
			-63	OFF
160	6505	6430	-80	ON
			-62	Minimal
			-63	OFF
160	6505	6505	-80	ON
			-62	Minimal
			-63	OFF
160	6505	6580	-80	ON
			-62	Minimal
			-63	OFF

Bandwidth (MHz)	Freq. (MHz)	AWGN Freq. (MHz)	Adjust Power (dBm)	EUT Status
Operation Band: U-NII 7				
20	6855	6855	-80	ON
			-62	Minimal
			-63	OFF
160	6665	6590	-80	ON
			-62	Minimal
			-63	OFF
160	6665	6665	-80	ON
			-62	Minimal
			-63	OFF
160	6665	6740	-80	ON
			-62	Minimal
			-63	OFF
Operation Band: U-NII 8				
20	7015	7015	-80	ON
			-62	Minimal
			-63	OFF
160	6985	6910	-80	ON
			-62	Minimal
			-63	OFF
160	6985	6985	-80	ON
			-62	Minimal
			-63	OFF
160	6985	7060	-80	ON
			-62	Minimal
			-63	OFF
<p>Note:</p> <p>OFF: AWGN level at which no transmission is detected, consistently for a minimum period of 10 seconds</p> <p>Minimal: AWGN level at which the system begins to trigger the transmission switch-off, albeit not being kept off consistently</p> <p>ON: AWGN level at which no impact on the transmission is detected, consistently for a minimum period of 10 seconds</p>				

2.4 Verify that the testing was performed with the AWGN signal set to lowest level (for example, -100 dBm) and increased until the EUT detects and stops transmitting.

The test was performed with a lowest AWGN signal level and increased until the EUT detects and stop transmission.

Please refer to page 70~71 of “SI07E_2402TW0106-U7 (FCC Part 15.407 (SKI.WB902.1_WiFi 6G))_V1.0_3” for the information.

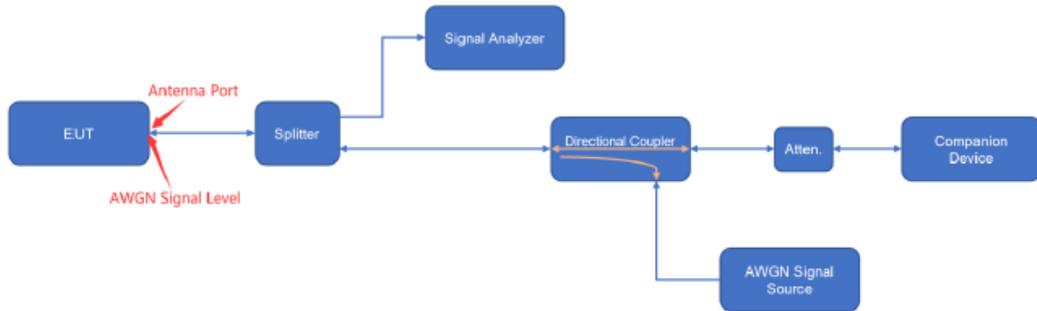
Bandwidth (MHz)	Freq. (MHz)	AWGN Freq. (MHz)	Adjust Power (dBm)	EUT Tx Status
Operation Band: U-NII 5				
20	6115	6115	-80	ON
			-62	Minimal
			-63	OFF
160	6185	6110	-80	ON
			-62	Minimal
			-63	OFF
160	6185	6185	-80	ON
			-62	Minimal
			-63	OFF
160	6185	6260	-80	ON
			-62	Minimal
			-63	OFF
Operation Band: U-NII 6				
20	6455	6455	-80	ON
			-62	Minimal
			-63	OFF
160	6505	6430	-80	ON
			-62	Minimal
			-63	OFF
160	6505	6505	-80	ON
			-62	Minimal
			-63	OFF
160	6505	6580	-80	ON
			-62	Minimal
			-63	OFF

Bandwidth (MHz)	Freq. (MHz)	AWGN Freq. (MHz)	Adjust Power (dBm)	EUT Status
Operation Band: U-NII 7				
20	6855	6855	-80	ON
			-62	Minimal
			-63	OFF
160	6665	6590	-80	ON
			-62	Minimal
			-63	OFF
160	6665	6665	-80	ON
			-62	Minimal
			-63	OFF
160	6665	6740	-80	ON
			-62	Minimal
			-63	OFF
Operation Band: U-NII 8				
20	7015	7015	-80	ON
			-62	Minimal
			-63	OFF
160	6985	6910	-80	ON
			-62	Minimal
			-63	OFF
160	6985	6985	-80	ON
			-62	Minimal
			-63	OFF
160	6985	7060	-80	ON
			-62	Minimal
			-63	OFF
<p>Note:</p> <p>OFF: AWGN level at which no transmission is detected, consistently for a minimum period of 10 seconds</p> <p>Minimal: AWGN level at which the system begins to trigger the transmission switch-off, albeit not being kept off consistently</p> <p>ON: AWGN level at which no impact on the transmission is detected, consistently for a minimum period of 10 seconds</p>				

2.5 If conducted measurements are used, the detection threshold needs to be corrected to refer to a 0 dBi gain antenna and include all the applicable losses (cables, etc.). For instance, the report should show (at least): Detection Level = Injected AWGN Power (dBm) – Antenna Gain (dBi) + Path Loss (dB)

Conducted test is performed for this device.

Please refer to page 68 of “SI07E_2402TW0106-U7 (FCC Part 15.407 (SKI.WB902.1_WiFi 6G))_V1.0_3” for the test setup diagram as below.



Please refer to page 69 of “SI07E_2402TW0106-U7 (FCC Part 15.407 (SKI.WB902.1_WiFi 6G))_V1.0_3” for the test result summary.

The uncorrelated has a minimum antenna gain as the following screenshot to perform CBP test

Adjust Power (dBm) = AWGN Power (dBm) – Antenna Gain (dBi).

Adjust Power (dBm) ≤ Detection Limit (-62dBm)

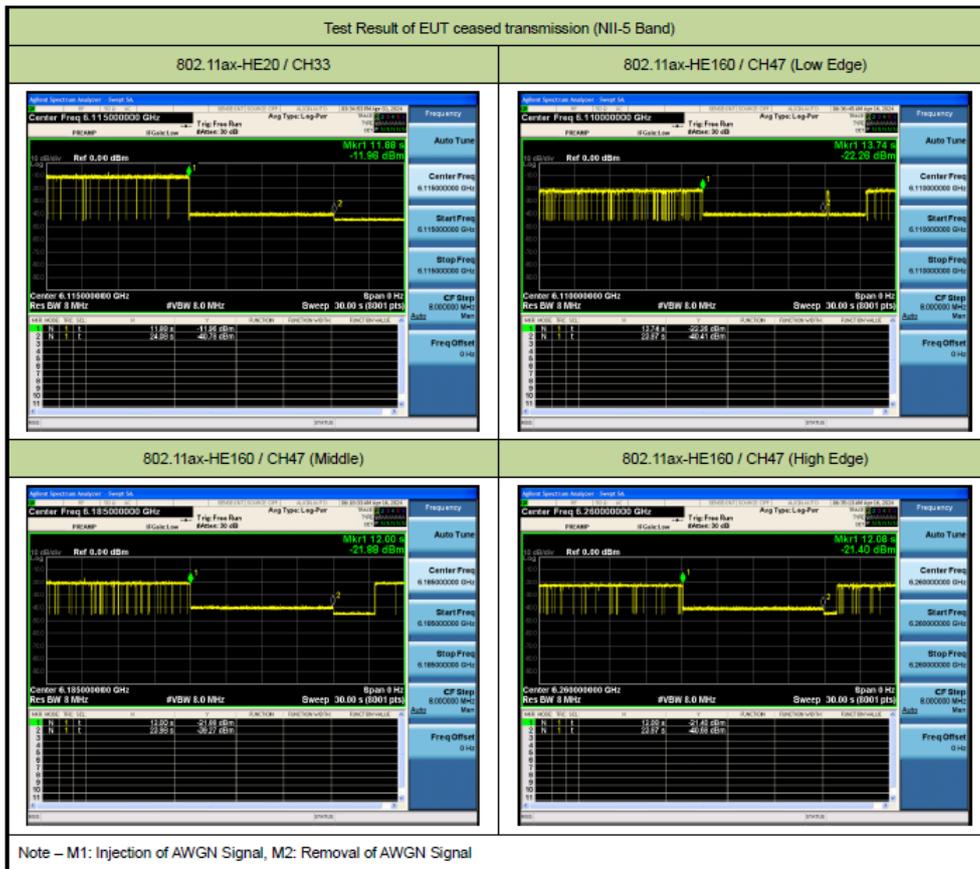
All Detection Power in the report comply with the -62dBm threshold.

Test Channel	Bandwidth (MHz)	Freq. (MHz)	AWGN Freq. (MHz)	AWGN Power (dBm)	Ant. Gain (dBi)	Adjust Power (dBm)	Detection Limit (dBm)	Detected Number	Detection Probability (%)	Limit (%)	Test Result
Operation Band: U-NII 5											
33	20	6115	6115	-62	0.36	-62.36	≤ -62.0	10	100	90	Pass
47	160	6185	6110	-62	0.36	-62.36	≤ -62.0	10	100	90	Pass
47	160	6185	6185	-62	0.36	-62.36	≤ -62.0	10	100	90	Pass
47	160	6185	6260	-62	0.36	-62.36	≤ -62.0	10	100	90	Pass
Operation Band: U-NII 6											
101	20	6455	6455	-62	0.0	-62	≤ -62.0	10	100	90	Pass
111	160	6505	6430	-62	0.0	-62	≤ -62.0	10	100	90	Pass
111	160	6505	6505	-62	0.0	-62	≤ -62.0	10	100	90	Pass
111	160	6505	6580	-62	0.0	-62	≤ -62.0	10	100	90	Pass
Operation Band: U-NII 7											
181	20	6855	6855	-62	0.1	-62.1	≤ -62.0	10	100	90	Pass
143	160	6665	6590	-62	0.1	-62.1	≤ -62.0	10	100	90	Pass
143	160	6665	6665	-62	0.1	-62.1	≤ -62.0	10	100	90	Pass
143	160	6665	6740	-62	0.1	-62.1	≤ -62.0	10	100	90	Pass
Operation Band: U-NII 8											
213	20	7015	7015	-62	0.02	-62.02	≤ -62.0	10	100	90	Pass
207	160	6985	6910	-62	0.02	-62.02	≤ -62.0	10	100	90	Pass
207	160	6985	6985	-62	0.02	-62.02	≤ -62.0	10	100	90	Pass
207	160	6985	7060	-62	0.02	-62.02	≤ -62.0	10	100	90	Pass

Note 1: Adjust Power (dBm) = AWGN Power (dBm) – Antenna Gain (dBi).

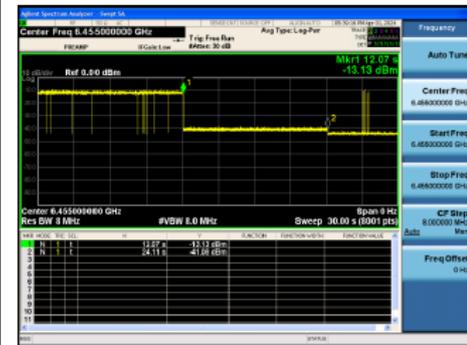
Note 2: Conducted measurements are used.

2.6 Include plots showing EUT has stopped transmitting after detection of AWGN signal.
 The plots of UNII-5/-6/-7/-8 On page 76~79 of “SI07E_2402TW0106-U7 (FCC Part 15.407 (SKI.WB902.1_WiFi 6G))_V1.0_3”

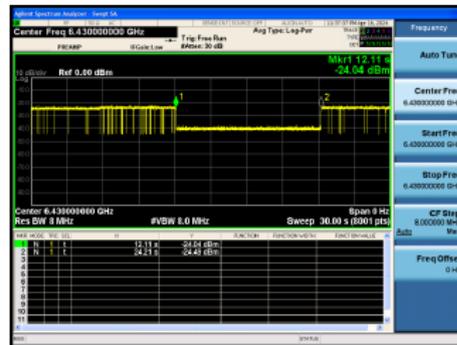


Test Result of EUT ceased transmission (NII-6 Band)

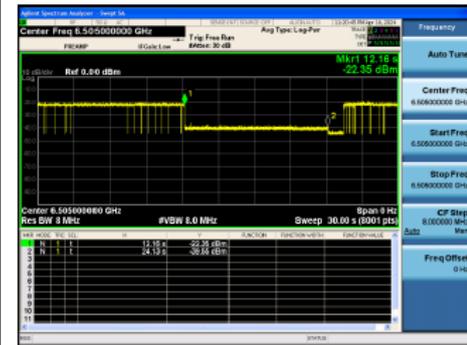
802.11ax-HE20 / CH101



802.11ax-HE160 / CH111 (Low Edge)



802.11ax-HE160 / CH111 (Middle)



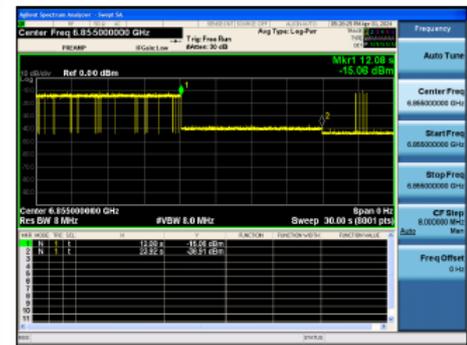
802.11ax-HE160 / CH111 (High Edge)



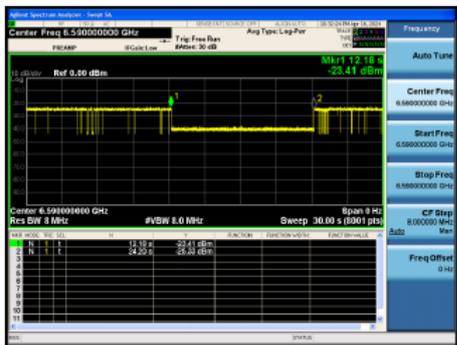
Note – M1: Injection of AWGN Signal, M2: Removal of AWGN Signal

Test Result of EUT ceased transmission (NII-7 Band)

802.11ax-HE20 / CH181



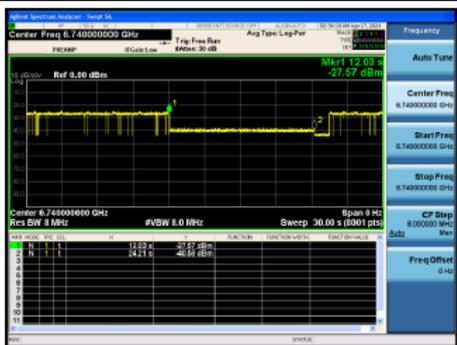
802.11ax-HE160 / CH143 (Low Edge)



802.11ax-HE160 / CH143 (Middle)



802.11ax-HE160 / CH143 (High Edge)



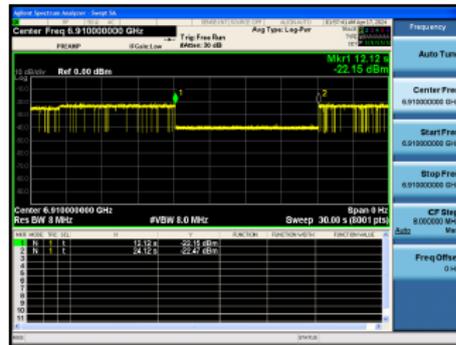
Note – M1: Injection of AWGN Signal, M2: Removal of AWGN Signal

Test Result of EUT ceased transmission (NII-8 Band)

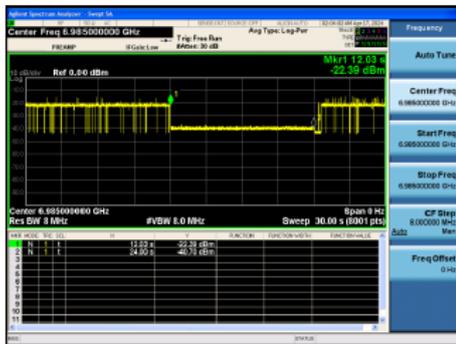
802.11ax-HE20 / CH213



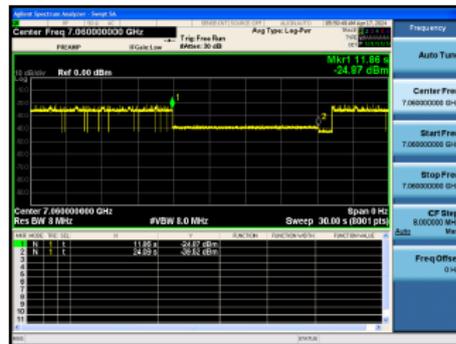
802.11ax-HE160 / CH207 (Low Edge)



802.11ax-HE160 / CH207 (Middle)



802.11ax-HE160 / CH207 (High Edge)



Note - M1: Injection of AWGN Signal, M2: Removal of AWGN Signal

2.7 Describe whether channel puncturing and/or bandwidth reduction mechanisms supported. The report needs to include a plot as an example for at least one of the AWGN signals used.

Not Support.

2.8 If radiated testing is used, show that spot-checks were done to identify which side of the EUT has the lowest sensitivity to the incumbent signal detection, and that side was indeed chosen for the test.

Conducted test is performed for this device.

3. Client Device Limitations

3.1 Client device (per definition in 47 CFR § 15.202) is limited to indoor locations, does not connect directly to the internet nor to other clients.

Please refer to the statement 2 in the file of 'SI07E_FCC Attestation Letter for 6XD'.

3.2 Requires attestation (as a Form 731 exhibit) stating that the device can only operate under the control of a low-power indoor access point and subordinate.

Please refer to the statement 3 in the file of 'SI07E_FCC Attestation Letter for 6XD'.

3.3 No vehicular use, except large aircrafts above 10000 ft.

Not applicable for 6XD device.

3.4 Transmit Power Control (TPC) required for client devices connected to Standard Power Access Points, excluding Fixed Client devices.

It's not applicable for this device since it's only an indoor client device (6XD).

3.5 Show/justify enclosure is not weatherized for Subordinate and AP.

It's not applicable for this device since it's only an indoor client device (6XD).

4. Emission Mask

4.1 Power spectral density suppression complies with 47 CFR § 15.407(b)(6).

Please refer to section 6.4.5 (Page 39 ~ 51) of "SI07E_2402TW0106-U7 (FCC Part 15.407 (SKI.WB902.1_WiFi 6G))_V1.0_1&_2" for the test result of power spectral density suppression.

4.2 If EUT supports OFDMA discuss testing of partial Resource Unit (RU) configurations. In any case the shape of the mask shall be based on full RU.

This device supports one configuration only in 802.11ax full RU mode.

This information is also noted on page 11 (section 2.4) of "SI07E_2402TW0106-U7 (FCC Part 15.407 (SKI.WB902.1_WiFi 6G))_V1.0_1"

4.3 OOB limits only apply outside of the 5.925-7.125 GHz band. All in-band emissions need to meet the channel mask. In case a higher RBW for the in-Band Emissions Mask is used (i.e., a more conservative case) that should be noted.

Please refer to section 6.5.5 (Page 54 ~ 63) of "SI07E_2402TW0106-U7 (FCC Part 15.407

(SKI.WB902.1_WiFi 6G))_V1.0_2 &_3” for the test result of channel mask.

5. Filing

99% of the occupied bandwidth must be contained within all the U-NII sub bands authorized for that equipment class.

Please refer to section 6.2.5 (Page 21 ~ 33) of “SI07E_2402TW0106-U7 (FCC Part 15.407 (SKI.WB902.1_WiFi 6G))_V1.0_1” for the 99% OBW test result. The result satisfies this requirement.

6. Hearing Aid Compatibility (HAC)

Not Applicable.

7. Labelling

7.1 Label showing indoor only for Subordinate and APs.

This device is a client device (6XD).

7.2 E-labelling may be acceptable if proper justification is provided

Not Applicable.

8. Modular Certifications (when applicable)

Not Applicable.

9. RF Exposure

9.1 Demonstrate applicable classification (portable/mobile/fixed) in reference to worst-case scenario use cases

Please refer report “SI07E_2402TW0106-U10 (FCC RF Exposure Report)_V1.0” for RF Exposure information. Section 2.3 of the report states that this device is a mobile device.

9.2 Address $f > 6$ GHz RF exposure via most recent applicable KDB or TCB Workshop procedures.

Section 2.4 of “SI07E_2402TW0106-U10 (FCC RF Exposure Report)_V1.0” showed that the most recent KDB (KDB 447498 D04) was used.

9.3 Address all applicable simultaneous transmission conditions using the compliance condition $TER \leq 1$.

Please refer to section 3.3 of “SI07E_2402TW0106-U10 (FCC RF Exposure Report)_V1.0” for this information.

This device supports Bluetooth, 2.4GHz WLAN, 5GHz WLAN and UN6GHz RLAN.

The Bluetooth, 2.4GHz WLAN, 5GHz WLAN and 6GHz RLAN cannot transmit simultaneously.

10. Security

Provide specific exhibit with device security description is required (complying with 47 CFR § 15.407(i))

Please refer to the document “SI07E_FCC Software Security Requirements for UNII devices Rev

2.1” for security information.

11. Spurious Emissions

Show that measurements are made at the prescribed antenna heights, per KDB Publication 987594 D01, including measurements along all three axes, as per ANSI C63.10.

Spurious Emissions test items refer to section 6.8 (Page 83 ~ 170) and 6.9(Page 174 ~ 205) of “SI07E_2402TW0106-U7 (FCC Part 15.407 (SKI.WB902.1_WiFi 6G))_V1.0_3&_4”.

According to ANSI C63.10 - Section 6.3.1: “Where EUTs are designed to be installed in one of two orientations (such as wireless access points that can be located horizontally on a table or mounted vertically to the wall), these devices shall be tested in both orientations”.

This device is designed to be located horizontally on a table, so only this orientation was tested.

Please refer to “SI07E_2402TW0106-UT (Test Setup Photograph)” for detailed information.

12. Standard Power Access Points and Fixed Client

Provide Geolocation General Description document and Geolocation Justification Report.

Additionally, if applicable provide Geolocation Accuracy After a Power Cycle description.

It’s not applicable for this device since it’s only an indoor client device (6XD).

13. AFC DUT Test Harness Report

A separate test report showing EUT meets the AFC testing requirements including the Tool Report that is provided from the AFC DUT test harness and the applicable DUT spectrum inquiry request/response logs as appendices.

It’s not applicable for this device since it’s only an indoor client device (6XD).

14. Operating Modes

List all modes of operation, such as:

1. Is channel puncturing supported?

Not Support.

2. If indoor AP is a composite of LPI and St. power, does it support dividing a single channel between LPI client and Standard client? And if so, is power boosting supported?

It’s not applicable for this device since it’s only an indoor client device (6XD).

3. Partial RU configurations supported?

Not Support.