

PAG ITEM UN5GHZ - U-NII devices authorized in- U-NII-4 band 5.850-5.895 GHz

Updated 6/12/2023 with updated file descriptions after report was revised from v3 to v4. All page references remain unchanged.

PAG checklist item	Exhibit Category	Additional details
EIRP	Test Report	For straddle channels crossing UNII-3/UNII-4 bands the lab reported conducted output power and PSD. Measurements are reported in both the sections for UNII band 3 (conducted power/PSD) and UNII band 4 (eirp power and PSD). For channels either partially or fully contained in the UNII-4 band the radiated power was calculated by adding the effective directional antenna gain to the conducted power. Power measurements for UNII bands 4, which include measurements for different RU allocations for OFDM-A modes, are on pages 343 through 390 of the report (starting on page 29 in R14720550-E2 v4 5.2-5.9GHz WLAN REPORT Part9). The results tables include the conducted power / PSD, the antenna gain and the corrected EIRP value. The grant conditions will confirm that the listed powers are conducted for UNII 1, 2A, 2C and 3 and EIRP for UNII-4. We will use the grant note EP for those line entries.
1. Antennas	Internal photos, Operational description, test report	1.1 Information for all the antennas, i.e., type, gain and relative positions within host, must be included in the filing See test setup exhibit page 18 A3LSMX716B_SAR App A Setup Photos .
	Test Report	1.2 Show how the (aggregate, if applicable) antenna gain was computed/measured, including 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. Antenna gain information is based on Samsung's measurements for antenna installed in the device. Gain information can be found in the Test report exhibit 4. A3LSMX716B_WLAN Antenna specification_0531 The Part 15 test report uses the appropriate values from the antenna exhibit. MIMO antenna gain calculations are provided on page 228 in section 9.3 of the report (page 16 of R14720550-E2 v4 5.2-5.9GHz WLAN REPORT Part7).
	Internal Photos	1.3 Indoor devices shall have an integrated antenna Antenna is integral to device.
2. Labelling	Not applicable – client device	Label showing “Indoor Use Only” for Subordinate and APs. Not applicable, this is a client device.
3. Band Edge Measurements	Test Report	3.1 Band Edge measurements made below 5725 MHz are to be made with a Peak detector. Refer to e.g. page 519 of (page 91 of R14720550-E2 v4 5.2-5.9GHz WLAN REPORT Part10) showing peak measurements complying with the mask / out of band limits and there is only a peak limit being used (peak limits slopes down to -27dBm/MHz) 3.2 Band Edge measurements above 5895 MHz are to be made with an RMS detector. 3.3 Band Edge measurements above 5895 MHz should also include Peak plots to show compliance with 15.35(b) where the peak emissions must be limited to no more than 20 dB above the average limit. Refer to e.g. page 569 (page 141 of R14720550-E2 v4 5.2-5.9GHz WLAN REPORT Part10) showing both peak and average measurements.
4. Declaration Requirements	Attestation Letter	The application should contain a declaration letter which satisfies the declaration requirements from Section 3. of KDB 291074 D02. Refer to attestation A3LSMX716B_UNII-4 Attestation letter for the grantee attestations as required by KDB 291704.
5. Indoor Device Limitations	Not applicable – client device	
6. Modular Certifications (when applicable)	Not applicable – not a modular device	
7. Security	Software description	Provide specific exhibit with device security description is required (complying with 47 CFR § 15.407(i)). Refer to exhibit NII 6CD Software Security Description .
8. Spurious Emissions	Test report	Show that measurements are made at the prescribed antenna heights, per KDB Publication 291074 D02, including measurements along all three axes, as per ANSI C63.10. Refer to page 13 of report (page 13 of R14720550-E2 v4 5.2-5.9GHz WLAN REPORT Part1) for confirmation that X/Y/Z orientations were tested. Page 391 (page 48 of R14720550-E2 v45.2-5.9GHz WLAN REPORT Part9) confirms scan height of antenna was 1 – 4m
9. Hearing Aid Compatibility	-	HAC not applicable / not assessed.

U-NII devices authorized in U-NII bands 5.925-7.125 GHz (Wi-Fi 6E), PAG ITEM UN6GHZ, Equipment Code 6CD	
This is a dual client device requesting approval under equipment code 6CD for indoor operations. Updated 6/12/2023 with updated file descriptions after report was revised from v3 to v4. All page references remain unchanged. Added details on mask measurement bandwidth.	
Attestation Letter	Refer to attestation letter A3LSMX716B_WiFi 6E Attestation letter for the grantee attestations.
Label	This is a client-only device, Indoor Use Only warning is not required
Internal Photos and/or External Photos Test report	Antenna Gain information The antenna is shown on page 5 of the test set up photograph exhibit R14720550-S2_App A_PD Setup Photos . Antenna gain information is based on Samsung's measurements for antenna installed in the device. Gain information can be found in the Test report exhibit 4. A3LSMX716B_WLAN Antenna specification_0531 The Part 15 test report uses the appropriate values from the antenna exhibit.
Test Report	Test report exhibit R14720550-E3 v4 6GHz REPORT_Part1 through Part 11 <ul style="list-style-type: none"> PSD meets 15.407(b)(6) – Section 9.2 starting on page 22 of the report (page 22 of R14720550-E3 v4 6GHz REPORT_Part1); Mask based on Full RU for 802.11ax / OFDMA. Partial RU also tested. Top of mask adjusted to top of signal refer to section 9.5 starting on page 270 (page 30 of R14720550-E3 v4 6GHz REPORT_Part6). RBW used for mask was \geq required measurement bandwidth ($> 1\%$ of 26dB bandwidth). For 20- and 40-MHz bandwidths the RBW used was 1MHz which is greater than the bandwidths used for the 26dB bandwidth measurements. For 80- and 160-MHz the measurement bandwidths were 1.5 MHz (as shown on page 283 - page 7 of R14720550-E3 v4 6GHz REPORT_Part7) and 3 MHz (as shown on page 285 - page 9 of R14720550-E3 v4 6GHz REPORT_Part7) Width of mask based on 26dB bandwidth; 99% bandwidth contained within the allocated band for indoor operations. See section 9.4 starting on page 210 (page 4 of R14720550-E3 v4 6GHz REPORT_Part5). 99% bandwidth is less than the nominal channel bandwidths and the nominal channel bandwidths per the channel plan are contained within the respective bands for indoor use and standard-power use. Spurious emissions: <ul style="list-style-type: none"> Correct antenna height range used per ANSI C63.10 - page 331 (page 25 of R14720550-E3 v4 6GHz REPORT_Part8), Tested in X/Y/Z orientations consistent with intended installation / use - page 12 of the test report (first paragraph) MIMO devices – the antenna gain calculations to determine aggregate gain are on page 21 (page 21 of R14720550-E3 v4 6GHz REPORT_Part1). The report uses the highest gain for each antenna across all bands. The report includes the formula used.
Test Report	CBP - test report exhibit R14720550-C1 CONTENTION PROTOCOL REPORT <ul style="list-style-type: none"> Performed on one channel in each sub-band of operation for both narrowest and widest bandwidths – tested 20- and 160-MHz channel bandwidths in each band (U-NII 5 page 16 and 25; U-NII 6 page 39 and 48, U-NII 7 page 62 and 71; U-NII 8 page 85 and 94) 10 MHz wide AWGN signal is used e.g. page 17 (also repeated on multiple pages for each operating channel tested) <ul style="list-style-type: none"> 160MHz channel tested with three different AWGN signals at lower, upper and center of channel – see data tables and incumbent plots on pages 25, 48, 71 and 94. Detection threshold adjusted to consider lowest gain antenna <ul style="list-style-type: none"> MIMO device – detection threshold is evaluated based on lowest gain antenna value for all chains. Refer to tables for detection threshold on pages 22, 36, 45, 59, 68, 82, 91 and 105 which include lowest antenna gain for that band and calculate the maximum allowed incumbent detection level at the antenna port. Report includes calculation showing the Required Detection Level = Injected AWGN Power (dBm) – Antenna Gain (dBi) + Path Loss (dB) on page 15 Lowest detection level is reported for each test – see tables on pages 24, 38, 47, 61, 70, 84, 93 and 107 showing minimum detection level, point at which some detection occurs and point at which no detection occurs. Test is performed by starting at a level much lower than required detection level and then increased – report states procedure of KDB 987594 was followed in section 8.1, page 15. Plots showing device stopped transmitting – examples for U-NII Band 5 on page 21 for 20MHz bandwidth, pages 33 – 35 for the 160 MHz channel. Additional plots for other channels in relevant sections of the report. Channel puncturing / bandwidth reduction: Not supported
Attestation Letter	Client Device Refer to attestation letter A3LSMX716B_WiFi 6E Attestation letter for the grantee attestations including: <ul style="list-style-type: none"> confirming that the device will not connect directly to other clients and does not have its own direct internet connection. device can only operate under the control of a low-power indoor access point and subordinate in all bands DCD Dual Client only operating at standard power levels when connected to an outdoor AP (with additional information in attestation A3LSMX716B_WiFi6e_Power adjustment letter)
External Photos and Operational Description	Indoor AP / Subordinate AP Not applicable – client device.
	Modular device Not applicable – not a modular approval.
RF Exposure exhibit	RF Exposure Classification is portable, consistent with intended use. Simultaneous transmissions with other co-located transmitters is addressed in the RF exposure reports, total exposure ratio remains < 1.0 .
Software Description	NII 6CD Software Security Description contains the 15.407(i) security information.