



Timco Engineering Inc.
FCC Authorized Telecommunication
Certification Body
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Nokia Global Product Compliance Laboratory
600-700 Mountain Avenue, Room 5A-107
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April 19, 2023

Subject: Application for Original Equipment Certification under FCC ID: 2AD8UAWHQ01 for AWHQU AirScale Micro 4T4R n48 40W CBRS 20W.

Dear Examiner:

The Nokia **AWHQU AirScale Micro 4T4R n48 40W CBRS 20W** (hereinafter referred to as "AWHQU") is the subject of this application for Original Equipment Certification under FCC ID: 2AD8UAWHQ01. The AWHQU is an LTE-TDD (Long Term Evolution-Time Division Duplex) and 5G-NR transceiver which operates in Band 48 Citizens Broadband Radio Service (CBRS) spectrum (3550-3700 MHz).

The **AWHQU** supports 10 MHz and 20 MHz single LTE carriers, plus 10+10 MHz multiple carriers. The **AWHQU** also supports 5G-NR 10, 20, 30, 40, and 80 MHz single carriers and 40+40 MHz dual carrier with 4T/4R modes of operation. **LTE and 5G-NR Multi Carrier Operation up to 2 carriers, any combinations of approved bandwidths.** The **AWHQU** operates with a maximum total RF power output capacity of 20.0 W at its 4T/4R transmit ports.

The **AWHQU** is equipped with a directional antenna with a maximum total gain of 18.0 dBi for 4T/4R. Nokia Bell Labs, part of the Nokia family of companies, hereby requests this certification for LTE and 5G-NR operation.

The power will be listed as 10, 20, 30, 40, and 80 MHz on the Grant with the EIRPS as follows:

LTE

10 MHz – 47.3 W EIRP

20 MHz – 97.3 W EIRP

5G-NR

10 MHz – 36.9 W EIRP

20 MHz – 71.0 W EIRP

30 MHz – 114.3 W EIRP

40 MHz – 134.6 W EIRP

80 MHz – 343.6 W EIRP

The key data are summarized below.

FCC ID: 2AD8UAWHQ01
FCC Rules: Part 96
Frequency Range: E-UTRAN Band 48, 3550-3700 MHz
Conducted Output Power: Up to 43.0 dBm (20.0 W) Total
EIRP Power: Up to 55.4 dBm (343.6 W) Average Total
Frequency Tolerance: ± 0.05 ppm
LTE Emissions Designators 8M87F9W, 18M9F9W LTE with QPSK, 16QAM, 64QAM and 256QAM

NR Emissions Designators 8M55W7W, 18M2W7W, 27M9W7W, 37M8W7W, 77M8W7W

Carriers: Single 5G-NR Carriers: 10, 20, 30, 40, & 80 MHz
Single LTE Carriers: 10 and 20 MHz

Multiple 5G-NR Carriers: 40+40 MHz
Multiple LTE Carriers: 10+10 MHz

Enclosed in this application package are FCC 731 Form, letters of Request for Permanent Confidentiality, agent authorization letter, the required measurement data, and other required exhibits specific to this request for authorization of the subject product. The measurement exhibits attached to this application demonstrate full compliance with FCC Part 96 following the procedural requirements specified in FCC Part 2 Subpart J – Equipment Authorization Procedures. The supporting exhibits are assembled and presented in accordance with the *Table of Contents* attached below.

Should there be any questions or procedural issues please feel free to contact me by email and/or phone.

Sincerely,



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Cover Letter

Agent Authorization Letter

Required Exhibits:

Exhibit Number	<u>FCC Rule Number</u>	<u>Description</u>
1	Section 2.1033(a), 2.911(d)	FCC Form 731
2	Section 2.911(e)	Qualifications and Certifications
3	Section 2.1033(c)(1,5, 7-10)	Manufacturers, FCC Identifier, Emission, Range of RF Power & Frequency
4	Section 2.1033(c)(14), 2.925(a)(1)	Drawing of the Identification Label
5	Section 2.1033(c)(11,12)	Active Device - Tune-Up procedure (Confidential)
6	Section 2.1033(c)(13)	Block Diagram, Operational Description, Circuitry for determining frequency (Confidential)
7	Section 2.1033(c)(13)	Complete Circuit Diagrams (Confidential)
8	Section 2.1033(c)(6)	Installation Manual (Confidential)
8a	Section 2.1033(c)(6)	Manual - NDA (Non-Disclosure Agreement)
9	Section 2.1033(c)(15)	Internal Photographs of the Equipment (Confidential)
10	Section 2.1033(c)(15)	External Photographs of the Equipment
11	Section 2.1033(c)(16)	Description of Modulation System
12	Section 2.1033(c)(24)	Photographs of the Test Setups
13	Sections 2.1033(f), 1.1307 & 1.1310	RF Exposure Assessment (MPE Report)
14	Section 2.1033(c)(13)	Parts List (Confidential)
15	Section 2.1033(17), 2.911(e)	Test Report

16 WINN-Forum Test Report

Winn Forum Spectrum Allocation Server-Citizens Band Radio Service Device Conformity
Assessment Test Report