Timco Engineering Inc.
FCC Authorized Telecommunications
Certification Body (TCB)

Nokia, Global Product Compliance Laboratory
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May 8, 2020

Bruno Clavier- General Manager
Timco Engineering Inc.
849 N.W. State Road 45
P.O. Box 370
Newberry, Florida 32669

Dear Mr. Clavier
The Nokia **AirScale 28 GHz Radio Units (AEUD + AEUE)** are the subject of this request for a FCC Class II Permissive Change (C2PC) to its Product Certification under **FCC ID: 2AD8UAEUDAEUE01.** The Radio Base Unit **AEUD** and its Extension Module **AEUE** are an 800 MHz bandwidth LTE / New Radio Transceiver with a total power output capability of 48 dBm EIRP per polarization for a total combined power of 51 dBm EIRP. It was certified to operate with one to four carriers each configured with the **98M0G7W** emissions designator. These carriers were transmitted using 2x2 MIMO transmitter in the **Part 30 Upper Microwave Flexible Use Service** spectrum utilizing **5G New Radio (NR)** technology.

Nokia Bell Labs, part of the Nokia family of companies, hereby requests certification for Multicarrier operation with up to eight carriers utilizing this **5G New Radio** OFDM based air interface. The hardware design is unchanged and all of the required supporting exhibits are attached.

The **AEUD + AEUE AirScale** 28 GHz Radio Units implements four dual 8x8 active element phased array transmit modules. This provides 2x2 MIMO operation with up to 8 carriers using 98M0G7W emissions designators in the **Upper Microwave Flexible Use Service** spectrum (27.5 – 28.35 GHz) as allowed under **47CFR Part 30**.

The measurement exhibits attached to this application demonstrate full compliance with FCC Part 30 following the procedural requirements specified in FCC Part 2 Subpart J – Equipment Authorization Procedures.

The data, summarized below, is in the form presently used by the Commission's Radio Equipment List.

Equipment Identification:	**2AD8UAEUDAEUE01**
Rules Part Number:	**Part 30**
Emissions Designators:	**98M0G7W, 398MG7W and 798MG7W (5G-NR) (LTE-TDD Based)**
Frequency Range:	**Transmit/ Receive: 27.5-28.35 GHz**
Output Power:	**48 dBm EIRP per polarization, 51 dBm EIRP Total Output for 2 polarizations operating in a 2x2 MIMO configuration** **Five through Eight Carrier Operation**
Frequency Tolerance:	**± 0.05 ppm**

Attached are the FCC Form 731 (Application for Equipment Authorization – Radio Frequency Devices), the required measurement data and exhibits specific to this request for authorization of the **AirScale 28 GHz Radio Unit (AEUD + AEUE)**. This request also authorizes TIMCO Engineering Inc. to resubmit the **KDB PAG** request, tracking number – 267367, for processing of this filing. The technical or non-technical contact at Nokia Bell Labs will comply with any request for additional information should the need arise. The attached exhibits with the applicable FCC Rule section are assembled and presented in accordance with the *Table of Contents* attachment.

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

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Att. Table of Contents for the AEUD and AEUE **AirScale 28 GHz Radio Unit** Product Certification Report

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Cover Letter
Request for Confidentiality

Exhibit

Number	FCC Rule Number	Description
1	Section 2.1033(a)	FCC Form 731
2	Section 2.911(d)	Qualifications and Certifications
3	Section 2.1033(c)(1,2, 4-7)	Manufacturers, FCC Identifier, Emission, Range of RF Power & Frequency
4	Section 2.1033(c)(11)	Drawing of the Identification Label
12	Section 2.1033(c)(21)	Photographs of the Test Setups

Test Report

Section

Number	FCC Rule Number	Description of Test Report Exhibits
4	Section 2.1033(c)(14)	Listing of Required Measurements
4.1	Section 2.1046	Measurement of Radio Frequency Power Output
4.2	Section 2.1047	Measurement of Modulation Characteristics
4.3	Section 2.1049	Measurement of Occupied Bandwidth and Edge of Band Emissions
4.4	Section 2.1051	Measurement of Spurious Emissions at Antenna
4.5	Section 2.1053	Field Strength of Spurious Radiation
4.6	Section 2.1055	Measurement of Frequency Stability
4.7	Section 2.1041(b)	List of Test Equipment
4.8	Section 2.1033(c)(21)	Photographs of the Test Setups
4.9		Facilities and Accreditation
5.0		Appendix A Calibration Certificates