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Timco Engineering Inc.
FCC Authorized
Telecommunication Certification Body (TCB)
849 N.W. State Road 45
P.O. Box 370
Newberry, Florida 32669

April 24, 2018

Subject: Application for Original Equipment Certification under FCC ID: 2AD8UAZRBRH1 for Nokia Low Power AirScale Micro LAA RRH, Operating in the Band 46 UNII-1 and UNII-3 Bands

Dear Examiner:

The Nokia Solutions and Networks is introducing a new low power Remote Radio Head (RRH), AirScale Micro RRH (hereinafter referred to as “AZRB”), for operation under the regulations of FCC Title 47 Part 15 Subpart E, Unlicensed National Information Infrastructure (UNII) Devices, in the Band 46 unlicensed spectrum of 5.18-5.24 GHz (UNII-1) and 5.745-5.825 MHz (UNII-3). The AZRB supports LTE (Long Term Evolution) License Assisted Access (LAA) technology and operates in UNII-1 and UNII-3 frequency spectrums as a Point-to-Multipoint Master Device. AZRB supports one to three 20MHz carriers with (aggregated) bandwidth of 20/40/60MHz and a maximum RF power of 0.5W at each of its two MIMO transmit ports.

If LTE-Unlicensed (LTE-U) and/or UNII-2 frequency spectrum is supported by the AZRB in the future, a FCC Class II permissive change will be sought.

Per FCC 2.1041 (a), the technical requirements specified in FCC Part 15 Subpart E Section 15.407 were evaluated. The guidelines and guidance provided in the KDB 789033 D02 v02r01 (Guidelines for Compliance Testing of Unlicensed National Information Infrastructure (U-NII) Devices, Part 15, Subpart E), KDB 662911 D01 v02r01 (Emissions Testing of Transmitters with Multiple Outputs in the Same Band), KDB 353028 D01 v01 (Basic Equipment Authorization Guidance for Antennas Used with Part 15 Intentional Radiators), KDB 594280 D01 v02r01 (Guidance on Software or Network Configuration of Non-SDR Devices to Ensure Compliance) and KDB 594280 D02 v01r03 (Software Security Requirements for U-NII Devices) were followed for the application and evaluation for compliance. The ANSI C63.10-2013 was followed for measurement methods and procedures.

Enclosed in this application package are FCC 731 Form, a letter of Request for Confidentiality, 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 15.407 following the procedural requirements specified in FCC Part 2 Subpart J – Equipment Authorization Procedures.

The key data are summarized below.

FCC ID:	2AD8UAZRBRH1
FCC Rules:	Part 15 Subpart E Section 15.407 – UNII Devices
Frequency Range:	E-UTRAN Band 46, 5.18-5.24GHz (UNII-1) & 5.745-5.825 GHz (UNII-3)
Output Power:	Up to 1W

Operation Mode: Master Device, Point to Multipoint
Carriers: 1~3 20MHz Carriers with (Aggregated) Bandwidth 20/40/60MHz

KDB 388624 D02 v16r03 has removed the requirement to submit PAG (Pre-Approval Guidance) for LTE-U and LAA devices. The detailed descriptions about the AZRB product including the antennas to be authorized per 1.1033(b)(4), 15.203 and KDB 353028 D01 requirements and guidelines, and its operation including the security procedures per 2.1033(b)(13), 15.202, 15.407(i)(1) and KDB 594280 D02 requirements are provided in Exhibit 5.

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. The contacts at Nokia will comply with any request for additional information should the need arise.

Sincerely,



Terry Schwenk

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Cover Letter

Confidentiality Request Letter with NDA (Non-Disclosure Agreement)

Required Exhibits:

EXHIBIT	FCC RULES	CONTENTS
Exhibit 1	Section 2.1033(a)	TCB Application Form 731
Exhibit 2	Sections 2.911 (d)(1, 2) & 2.911 (e)	Certifications and Qualification
Exhibit 3	Section 2.1033 (b)(1, 2)	Manufacturer, Applicant and Identifier
Exhibit 4	Section 2.1033 (b)(3)	Installation and Operating Instructions → Confidential
Exhibit 5	Sections 2.1033 (b)(4)(13), 15.202, 15.203, 15.407(i)(1) & KDB 594280 D02	Description of Operation, Antennas and Security → Confidential
Exhibit 6	Section 2.1033 (b)(5)	Block Diagrams → Confidential
Exhibit 7	Section 2.1033 (b)(5)	Schematic Diagram and Parts List → Confidential
Exhibit 8	Section 2.1033 (b)(7)	Internal Photograph of the Equipment → Confidential
Exhibit 9	Section 2.1033 (b)(7)	External Photograph of the Equipment
Exhibit 10	Section 2.1033 (b)(7)	Equipment Identification Label
Exhibit 11	Section 2.1033 (b)(14)	Setup Drawings or Photographs
Exhibit 12	Sections 2.1033 (b)(6), 2.911 (e) & 15.407	Test Report
Exhibit 13	Sections 1.1307 & 1.1310	RF Exposure Assessment