



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

Nokia
Building 5A-107
600 Mountain Avenue
Murray Hill, NJ 07974

September 10, 2018

Sid Sanders - President
Timco Engineering Inc.
849 N.W. State Road 45
P.O. Box 370
Newberry, Florida 32669

Dear Mr. Sanders:

The Nokia **B13 RRH 4X30** is the subject of this request for an FCC Class II Permissive Change Authorization under FCC ID: AS5BBTRX-23, for operation in the domestic 700 Upper band C (Tx: 746 - 756 MHz and Rx 777 - 787 MHz), i.e. E-UTRAN band 13, with Long Term Evolution (LTE) technology. Nokia, hereby requests this Class II change to add 5 MHz Bandwidth operation and 10 MHz Bandwidth with Guardband NB-IoT capability to the Grant.

The **B13 RRH 4x30** has four antenna ports. The RRH 4x30 supports 2x60W MIMO with 2 transmit and 2 receive streams or 4x30W MIMO with 4 transmit and 4 receive streams. The maximum output power of the 2x60 or 4x30 configurations is 120 watts or 50.8dBm per unit. The RRH 4X30 was powered by a DC power supply with -48VDC. The **B13 RRH 4X30** consists of a Control Unit board (CU), Power Amplifier board (PA), Power Module and RF Filter.

B13 RRH 4X30 operation for 5 MHz Bandwidth capability and 10 MHz Bandwidth with Guardband NB-IoT NB-IoT is in the **E-UTRAN band 13, with Long Term Evolution (LTE)** spectrum for Block C. The measurement exhibits attached to this application demonstrate full compliance with FCC Part 27, Subpart C 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: | AS5BBTRX-23 |
| Rules Part Number: | Part 27 |
| Frequency Range: | Transmit: 746 – 756 MHz; Receive: 777 – 787 MHz |
| Output Power: | 120 Watts Maximum per Antenna Port |
| Tolerance: | ± 0.05 ppm |
| Emission Designator: | 4M90F9W, 9M51F9W |

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 **B13 RRH 4X30**. The technical or non-technical contact at Nokia 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,



Steve Gordon

Member of Technical Staff

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Reviewed by:



Raymond J. Johnson

Technical Manager

FCC Compliance Test Group

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Att. Table of Contents for the **B13 RRH 4X30** Product Certification Report

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| <u>Exhibit #</u> | <u>FCC Rule Number</u> | <u>Description</u> |
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| Exhibit 2 | Section 2.911 (d) | Qualifications and Certifications |
| Exhibit 3 | | Setup Photographs |
| Exhibit 4 | | Test Report |