

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

Nokia Solutions and Network, OY
1455 W Shure Drive
Arlington Heights, IL 60004

May 9, 2017

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

Dear Mr. Sanders:

The Nokia Flexi Zone Multiband Outdoor Micro Base Station (MBO) is a small cell that consists of a common digital system module (host) and up to two LTE (Long Term Evolution) RF transceiver modules in various combinations. Additionally, an optional WiFi AP (Access Point) RF module. Each RF transceiver module supports 2 Tx/Rx branches.

The FW2IMBOM1 B66 RF Module (MBO B66) is a new LTE Transceiver supporting a carrier bandwidth of 5/10/15/20 MHz and a maximum RF power output capability of 5W at each of its 2 MIMO transmit port outputs. The MBO B66 transceiver module, the subject of this application, is always co-located with an MBO digital system (host) module, and

- is housed in a sealed enclosure;
- contains its own power supply DC-DC regulation on the module;
- is equipped with the antennas that are only permitted to be directly connected to the MBO B66 module and are specifically offered by Nokia for direct attachments;
- is limited to be installed and operate only on the common Nokia Flexi Zone MBO system module (host) unit where the model numbers reflect the actual RF Module configuration;
- has its own permanently affixed FCC ID and label under 2AD8UFW2IMBOM1;
- is verified to be compliant with FCC Part 15 Subpart B Class B Compliance for radiated emissions and AC power port conducted emissions when installed in the final system module/host maximum configuration;
- complies with the RF exposure requirements with the minimum safety distances provided in RF exposure exhibit for the MBO B66 module and in the user's manual for various system configurations, evaluated with the highest available antenna gain of Nokia authorized antennas;
- the MBO B66 and its end product is a non-consumer product, certified and housed in a sealed enclosure, and is only accessible and installed by trained/approved maintenance personnel. This product is not marketed or available to the general public.

Per KDB 996369 D01 Clause III, Nokia hereby requests a Limited Single Modular certification for the MBO B66 transceiver, under FCC ID: 2AD8UFW2IMBOM1, with the 5M00F9W, 10M00F9W, 15M00F9W and 20M00F9W Emissions designators in the broadband AWS spectrum: AWS-1 (A-F, 2110-2155MHz) and AWS-3 (G-J, 2155-2180MHz).

All the required supporting exhibits are attached. The measurement exhibits attached to this application demonstrate full compliance with FCC Part 27 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: **2AD8UFW2IMBOM1**

Rules Part Number: **Part 27**

Frequency Range: **Transmit 2110-2180 MHz (AWS Blocks A-B-C-D-E-F-G-H-I-J)**

Output Power: **0.079 to 5 Watts per output**

Frequency Tolerance: **± 0.05 ppm**

Emission Designators: **5M00F9W, 10M00F9W, 15M00F9W, 20M00F9W**

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 MBO B66 transceiver. 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 sections are assembled and presented in accordance with the *Table of Contents* attachment. Included is a formal letter requesting confidentiality for the following exhibits:

<u>Exhibit #</u>	<u>FCC Rule Section</u>	<u>Exhibit Title</u>
Exhibit 5	Section 2.1033(c) (6, 8, 9, 10, 13)	Operational Description
Exhibit 6	Section 2.1033(c) (10)	Block Diagram
Exhibit 7	Section 2.1033(c) (10)	Circuit Schematic Diagrams
Exhibit 8	Section 2.1033(c) (3)	User's Manual
Exhibit 9	Section 2.1033(c) (12)	Internal Photographs

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

Sincerely,



Terry Schwenk

R&D Engineer
Nokia Solutions and Networks
Phone: 847-809-6952
email: terry.schwenk@nokia.com

Primary Administrative Contact

Raymond J. Johnson
Technical Manager
Global Product Compliance Laboratory
Building 5B-111
600 Mountain Avenue
Murray Hill, NJ 07974
Phone: 908-582-5575
email: ray.johnson@nokia-bell-labs.com

Filing Engineer

Qin Yu
Global Product Compliance Laboratory
Building 5B-111
600 Mountain Avenue
Murray Hill, NJ 07974
Phone 614-718-3718
email: q.yu@nokia-bell-labs.com

Att. Table of Contents for the Nokia Flexi Zone Multiband Outdoor Base Station Band 66 RF Transceiver Product Certification Application.

TABLE OF CONTENTS

Cover Letter

Requests for Permanent and Short-Term Confidentiality with NDA (Non-Disclosure Agreement)

<u>Exhibit #</u>	<u>FCC Rule Number</u>	<u>Description</u>	<u>Notes</u>
Exhibit 1	Section 2.1033(a)	FCC Form 731	
Exhibit 2	Section 2.911 (d)	Qualifications	
Exhibit 3	Section 2.1033(c) (1,2,4,5,7)	Manufacturer, FCC Identifier, Emission Types, Frequency Range and Maximum Power Rating	
Exhibit 4	Section 2.1033(c) (11)	Drawing of the Identification Label	
Exhibit 5	Section 2.1033(c) (6, 8, 9, 10, 13)	Operational Description	Confidential
Exhibit 6	Section 2.1033(c) (10)	Block Diagram	Confidential
Exhibit 7	Section 2.1033(c) (10)	Circuit Schematic Diagrams	Confidential
Exhibit 8	Section 2.1033(c) (3)	User's Manual	Confidential
Exhibit 9	Section 2.1033(c) (12)	Internal Photographs	Confidential
Exhibit 10	Section 2.1033(c) (12)	External Photographs of the Equipment	
Exhibit 11		Setup Drawings or Photographs	
Exhibit 12	2.1033 (c)(14)	Test Report	
Exhibit 13	Section 1.1310	RF Exposure	

Test Report Exhibit 12

<u>SubExhibit #</u>	<u>FCC Rule Number</u>	<u>Description of Test Report Exhibits</u>
12.1	Section 2.1033(c) (14)	Listing of Required Measurements
12.2	Section 2.1046	Measurements Required: RF Power Output
12.3	Section 2.1047	Modulation Characteristics
12.4	Sections 2.1049 and 27.53(h)	Measurements Required: Occupied Bandwidth and Out-of-Band Emissions
12.5	Sections 2.1051 and 27.53(h)	Measurements Required: Spurious Emissions at Antenna Terminals
12.6	Sections 2.1053 and 27.53(h)	Measurements Required: Field Strength of Spurious Radiation
12.7	Sections 2.1055 and 27.54	Measurements Required: Frequency Stability
12.8	Section 2.947	List of Test Equipment Used
12.9	Section 2.948	Test Facilities