



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

Alcatel-Lucent USA Inc.
Building 28-114H
600 Mountain Avenue
Murray Hill, NJ 07974

February 29, 2016

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

Dear Mr. Sanders

The Alcatel-Lucent AWS LTE Remote Radio Head 4x45 Band 66 Transceiver System (B66a RRH 4x45) is the subject of this request for a new FCC Product Certification under FCC ID: AS5BBTRX-28. The B66a RRH 4x45 is a 70 MHz bandwidth LTE Transceiver with a total power output capability of 180 Watts for all ports. It can operate either as a 2x90W or 4x45W MIMO transmitter. Alcatel-Lucent USA Inc., part of the Nokia family of companies, hereby requests this certification for multiple emissions designators and multicarrier operation. The emissions designators supports operation under the 3GPP2 Long Term Evolution (LTE) standard. This is a new design and all of the required supporting exhibits are attached.

This application is for the 2x90W MIMO operation of the B66a RRH 4x45 using the 5M00F9W, 10M0F9W, 15M0F9W and 20M0F9W emissions designators in the Broadband AWS spectrum for AWS Blocks A through F (2110-2155 MHz). Certification for Blocks G-J and 4xMIMO will be addressed in a later FCC Class II change. The measurement exhibits attached to this application demonstrate full compliance with FCC Part 27 Subpart L AWS 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-28
Rules Part Number:	Part 27 Subpart L – AWS
Frequency Range:	Transmit 2110-2155 MHz (AWS Blocks A-B-C-D-E & F)
Output Power:	180 Watts Total Output for all Ports either 2x90W or 4x45W configuration
Frequency Tolerance:	± 0.05 ppm
Emission Designators:	5M00F9W, 10M0F9W, 15M0F9W, 20M0F9W
Grant Notes:	04, MO, 180W total for 4 ports or 180W total for 2 ports.

Multicarrier MIMO Operation

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 B66a RRH 4x45. The technical or non-technical contact at Alcatel-Lucent 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. 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) (8,9)	Active Circuit Devices Drive Levels, Tune-Up procedure
Exhibit 6	Section 2.1033(c) (10, 13)	Block Diagram, Operational Description, Circuitry for determining frequency)
Exhibit 7	Section 2.1033(c) (10)	Complete Circuit Diagrams)
Exhibit 8	Section 2.1033(c) (12,3)	Instruction Book (Installation Manual or Users Manual)
Exhibit 9	Section 2.1033(c) (12)	Internal Photographs of the Equipment

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

Sincerely,

Raymond J. Johnson
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Alcatel-Lucent USA Inc. - Proprietary
Use pursuant to Company Instructions.

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Att. Table of Contents for the **AWS LTE RRH 4x45 Band 66 Outdoor Transceiver System** Product Certification Report

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Cover Letter

Request for Confidentiality

<u>Exhibit #</u>	<u>FCC Rule Number</u>	<u>Description</u>	
Exhibit 1	Section 2.1033(a)	FCC Form 731	
Exhibit 2	Section 2.911 (d)	Qualifications and Certifications	
Exhibit 3	Section 2.1033(c)(1,2 & 4-7)	Manufacturers, FCC Identifier, Emission, Range of RF Power & Frequency	
Exhibit 4	Section 2.1033(c)(11)	Drawing of the Identification Label	
Exhibit 5	Section 2.1033(c)(8,9)	Active Circuit Devices Drive Levels, Tune-Up procedure	(Confidential)
Exhibit 6	Section 2.1033(c)(10, 13)	Block Diagram, Operational Description, Circuitry for determining frequency	(Confidential)
Exhibit 7	Section 2.1033(c)(10)	Complete Circuit Diagrams	(Confidential)
Exhibit 8	Section 2.1033(c)(12,3)	Instruction Book (Installation Manual or Users Manual)	(Confidential)
Exhibit 9	Section 2.1033(c)(12)	Internal Photographs of the Equipment	(Confidential)
Exhibit 10	Section 2.1033(c) (12)	External Photographs of the Equipment	
Exhibit 11	Section 2.1033(c) (10, 13)	Description of Modulation System,	

Test Report Exhibit 12

<u>Exhibit #</u>	<u>FCC Rule Number</u>	<u>Description of Test Report Exhibits</u>
Exhibit 12.1	Section 2.1033(c)(14)	Listing of Required Measurements
Exhibit 12.2	Section 2.1046	Measurement of Radio Frequency Power Output
Exhibit 12.3	Section 2.1047	Measurement of Modulation Characteristics
Exhibit 12.4	Section 2.1049	Measurement of Occupied Bandwidth
Exhibit 12.5	Section 2.1051	Measurement of Spurious Emissions at Antenna
Exhibit 12.6	Section 2.1053	Field Strength of Spurious Radiation
Exhibit 12.7	Section 2.1055	Measurement of Frequency Stability
Exhibit 12.8		Photographs of the Test Setups