



**Federal Communications Commission  
Office of Engineering and Technology  
Equipment Authorization Division  
Application Processing Branch**

Global Product Compliance Laboratory  
MH 5A-115, Alcatel-Lucent  
600, Mountain Avenue  
Murray Hill, NJ 07974-0636

**7435 Oakland Mills Road  
Columbia, MD 21046**

May 19, 2013

Dear Examiner:

This request is for FCC Class II permissive change Certification of Alcatel-Lucent “ LTE AWS Transceiver Duplexer Unit 2X2”, henceforth ‘**LTE TRDU2X60-AWS**’, **FCC ID: AS5BBTRX-11**. The **LTE TRDU2X60-AWS** is used in Alcatel-Lucent 9712 cabinet systems using the 3GPP standards Long Term Evolution (LTE) technology, for use in Domestic Miscellaneous Wireless Communication Services (WCS). The LTE TRDU2X60-AWS was originally certified for operations in 10MHz and 20 MHz bandwidths. This class II filing is operation of LTE TRDU2X60-AWS in 15MHz bandwidths. The RRH will be operated henceforth in 10MHz, 15MHz and 20 MHz bandwidths.

In accordance with **Parts 2, 27** and **OET Rules 662911 D01 and D02** of the Commission’s Rules and Regulations, we are submitting herewith, statements and supporting data to show compliance with the requirements of the Commission for Product Certification of LTE TRDU2x60-AWS for 15MHz BW

This application for the **LTE TRDU2X60-AWS** under FCC ID: AS5BBTRX-11 is for operation in the domestic WCS band with a LTE signal. The data summarized below is in the form presently used by the Commission’s Radio Equipment List.

<b>Manufacturer</b>	<b>Alcatel-Lucent</b>
<b>Equipment Identification</b>	<b>AS5BBTRX-11</b>
<b>Rules Part Number</b>	<b>27.53 (h) and 27.50(d)(5) and OET Rules 662911 D01 and D02</b>
<b>Frequency Range</b>	<b>2110-2155 MHz (A, B, C, D, E and F Blocks)</b>
<b>Output Power</b>	<b>+3dBm (.002W) to +47.8dBm (60W) Varied by Software</b>
<b>Frequency Tolerance</b>	<b>+/- 0.05 ppm</b>
<b>Emission Designator</b>	<b>14M23F9W for 15MHz Bands</b>

The **LTE TRDU2X60-AWS**, under FCC ID: AS5BBTRX-11 is designed to be operated and marketed in Alcatel-Lucent 9712 cabinet systems. Each of the **TRDU2X60-AWS** contains two identical Transceiver paths and ports. Each transceiver ports outputs 60W maximum at the External antenna connector (EAC)

port. The **LTE TRDU2X60-AWS** will be typically operated in Multiple input and Multiple output (MIMO) mode using multiple antennas. Each Transceiver path is supported by its own RF filter. The **LTE TRDU2X60-AWS** was evaluated in a 9712 cabinet with six TRDUs with a total of 12 transceiver ports. During all antenna port conducted emissions, the transceiver ports were randomly selected for each of the tests. The TRDU will be marketed in indoor/outdoor cabinets. The integrated cabinet shall continue to be compliant with **FCC** emissions requirements.

The **LTE TRDU2X60-AWS** is designed to operate a large number of sub-carriers which are modulated with QPSK, 16QAM, and 64QAM formats. The **LTE TRDU2X60-AWS** was evaluated and data is provided for all three modulation formats.

- (a) QPSK
- (b) 16QAM
- (c) 64QAM

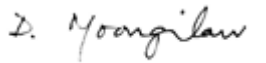
The actual power level delivered by the **LTE TRDU2X60-AWS** to transmit antenna is under the software control of the Switching and Control Center.

The **LTE TRDU2X60-AWS/AS5BBTRX-11** is produced by Manufacturer -1 for incorporation into Alcatel-Lucent products.

List of exhibits attached with this submission is indicated in the following page of this cover letter.

The attached exhibits contain the technical data, and the required statements and documents for Product Certification. The technical contact at Alcatel-Lucent will comply with any request for additional information should the need arise.

Sincerely,



Dheena Moongilan  
Distinguished Member of Technical Staff  
Global Product Compliance Laboratory  
Phone: (908) 582 5539  
Email: Dheena.Moongilan@alcatel-lucent.com

**List of Exhibits**

**COVER LETTER**

Cover Letter

Product Configuration – Explained in test reports

Letter for Confidential Treatment of Exhibits –Not applicable

**ATTESTATION STATEMENT**

Section 2.911 (d)

\*Qualifications and Certifications

Section 2.1033 (c) (1,2)

\*Manufacturers, FCC Identification

Section 2.1033 (c) (4-7)

Emissions, Frequency Range, Power Level

**\*USERS MANUAL**

Section 2.1033 (c) (3)

Users Manual

**\*PARTS LIST/TUNE-UP PROCEDURE**

Section 2.1033 (c) (9)

**\*OPERATIONAL DESCRIPTION**

Section 2.1033 (c) (13)

Description of Modulation System and Block diagrams

**\*SCHEMATICS**

Section 2.1033 (c) (10)

Schematic

**\*ID LABEL/LOCATION INFORMATION**

Section 2.1033 (c) (11) and

2.925 (a) (1)

**\*EXTERNAL PHOTOS**

Section 2.1033 (c) (12)

**INTERNAL PHOTOS**

Section 2.1033 (c) (12)

\*Internal Photos

**TEST REPORT**

Section 2.1033 (c) (8)

\*Measurement of DC Power

Section 2.1033 (c) (14)

Listing of Required Measurements

Section 2.1046

Measurement of Radio Frequency Power Output

Section 2.1047 and 27.50(d)(5)

Measurement of Modulation Characteristics

Section 2.1049,

Measurement of Occupied Bandwidth

Section 27.53(h) and

OET Rules 662911 D01 and D02

Measurement of Spurious Emissions at Antenna

27.53 (h) and OET Rules 662911  
D01 and D02

Field Strength of Spurious Radiation

Section 2.1053 and OET Rules  
662911 D01 and D02

\*Measurement of Frequency Stability

Section 2.1055

Frequency Spectrum to be Investigated

Section 2.1057

Test Instruments Used for Test – See Test Reports

**RF Exposure Information**

Section 24.51 (c)

Human Exposure – Not performed

\* Same as original filing no additional information submitted