

FCC ID: AS5BBTRX-28

**Exhibit 3 ATTESTATION STATEMENTS (FCC REQUIRED INFORMATION)**

The following information is presented in the content and format requested by the FCC:

**Section 2.1033 (c)(1):**

The full name and mailing address of the manufacturer of the device and the applicant for certification.

Manufacturer: **Alcatel-Lucent USA, Inc.**  
**600-700 Mountain Avenue, P.O. Box 636**  
**Murray Hill, N.J. 07974-0636**  
**Attention: Raymond J. Johnson**

Applicant: **Alcatel-Lucent USA, Inc.**  
**600-700 Mountain Avenue, P.O. Box 636**  
**Murray Hill, N.J. 07974-0636**  
**Attention: Raymond J. Johnson**  
**Phone: 908-582-5575**  
**email: [ray.johnson@nokia-bell-labs.com](mailto:ray.johnson@nokia-bell-labs.com)**

Alcatel-Lucent USA Inc., part of the Nokia family of companies, is the manufacturer of this product.

**Section 2.1033(c)(2): FCC Identifier: AS5BBTRX-28**

**Section 2.1033(c)(4): Type or types of emission: 5M00F9W, 10M0F9W, 15M0F9W and 20M0F9W**

The **AWS LTE B66a RRH 4x45W**, a RRH (Remote Radio Head), is a 70 MHz bandwidth LTE transceiver with a power output capability of 90 W per antenna port, when operated at 2x90W MIMO 2T4R, and 45 W when operated at 4x45W MIMO 4T4R; the total composite power for each configuration is 180 W (52.55 dBm). Operation is in either single carrier, dual carrier or three carrier modes with carrier bandwidths of 5 MHz, 10 MHz, 15 MHz and 20 MHz using modulations QPSK, 16QAM and 64QAM. The corresponding emission designators are 5M00F9W, 10M0F9W, 15M0F9W and 20M0F9W, respectively, with supported operation under the 3GPP Long Term Evolution (LTE) communication standard ETSI TS 36.104. Dual carrier and three carrier modes can be either contiguous or non-contiguous, with carrier separation over the entire B66a spectrum: AWS-1 2110 – 2155 MHz + AWS-3 2155 – 2180 MHz, with any combination of carrier bandwidths.

**Exhibit 3 FCC REQUIRED INFORMATION *continued***

**Section 2.1033(c)(5): Frequency range, Transmit: 2110 – 2180 MHz AWS Blocks A-B-C-D-E-F-G-H-I-J**

	<b>Tx</b>	<b>Rx</b>	<b>AWS Blocks</b>
AWS-1	2110 – 2155 MHz	1710 – 1755 MHz	A-B-C-D-E-F
AWS-3	2155 – 2180 MHz	1755 – 1780 MHz	G-H-I-J

**Section 2.1033(c)(6): Range of operating power values or specific operating power levels, and description of any means provided for variation of operating power.**

The Alcatel-Lucent’s **AWS LTE B66a RRH 4x45 Outdoor Transceiver System, FCC ID: AS5BBTRX-28**, is capable of producing multiple bandwidth LTE RF carriers at an overall total power of 180W for all four ports. The per port mean power level varies depending upon whether the product is operated in 2xMIMO or 4xMIMO mode of operation and upon the mix of emissions designators for multicarrier operation. The nominal transmit output power for each Tx path is translation settable over a range of 16 dB. The transmit power per port will range from:

- (1) From 1.13 W up to 45 W maximum (+46.53 dBm) at each of its four antenna transmit terminals.
- or
- (2) From 2.26 W up to 90W maximum (+49.54 dBm) at each of two of its antenna transmit terminals.

The carrier output power level of the **AWS LTE RRH 4x45 Band 66 Outdoor Transceiver System** is adjustable digitally over a 16 dB range. The transmit filters provides RF feedback to the transceivers in the form of CLGC (Closed Loop Gain Control) and Alcatel-Lucent’s proprietary Enhanced Digital Pre-Distortion (EDPD) technology to provide constant output power over temperature. The features are controlled by software.

**Section 2.1033(c)(7): Maximum power rating as defined in the applicable part (s) of the rules.**

The maximum continuous RF output power available at the sum of the antenna transmit terminals is 180 W (52.55 dBm). The product can produce a maximum of 90W (+49.52 dBm) at its Tx1 and Tx2 antenna transmit terminals,

Or

The product can produce a maximum of 45W (+46.52 dBm) at each of its four antenna transmit terminals.

Individual carriers shall not exceed the following values:

- 90W maximum for individual 10 MHz, 15 MHz and 20 MHz carriers.
- 40W maximum for individual 5 MHz carriers.

Carriers can be mixed in any combination up to the individual Carrier limit or Port limit

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**Section 2.1033(c)(8):** The dc voltages applied to and dc currents into the several elements of the final radio frequency amplifying device for normal operation over the power range.

<b>Amplification Stage</b>	<b>Voltage</b>	<b>Current</b>
Final Stage	+32Vdc	5 Adc Nominal per 45W PA

**Section 2.1033(c)(9):** Tune-up procedure over the power range, or at specific operating power levels.

The Alcatel-Lucent **AWS LTE B66a RRH 4x45W** cannot be “tuned-up” by the user. There are no user tune-up features. All tuning is performed by the manufacturer during, and as part of, the manufacturing process. The 46.53 dBm RF power output per antenna terminal for 4T4R, and 49.54 dBm for 2T4R, has an accuracy of  $\pm 1.0$  dB over the entire frequency band, which is set at the factory

**FCC ID: AS5BBTRX-28****Section 2.1033 (c)(10): A description of all circuitry and devices for determining and stabilizing frequency.**

The Alcatel-Lucent **B66a RRH 4x45**, **FCC ID: AS5BBTRX-28**, is a 70 MHz instantaneous bandwidth digital transceiver designed to operate in the Broadband AWS frequency spectrum. The FPGA to A/D transceiver in this application for initial Product Certification utilizes 5, 10, 15 and 20 MHz carrier emission bandwidth LTE signals which are upconverted to the AWS Band. The frequency stability of the LTE carrier frequency is maintained with an accuracy better than the rated  $\pm 0.05$  ppm by reference frequency locking the phase-locked-loop (PLL) circuitry to a stable internal reference oscillator. External reference timing is provided by locking to an external frequency disciplined reference signals.

The **B66a RRH 4x45** can use either a GPS or other system provided frequency discipline synchronization for reference. As a hardware variant, the **B66a RRH 4x45** can be configured with a GPS connector which can be used to connect an optional external GPS antenna.

**Section 2.1033 (c)(10): A description of all circuitry and devices provided for suppression of spurious radiation.**

The **AWS LTE B66a RRH 4x45W**, subject of this application, was designed in adherence to the proper Electromagnetic Compatibility (EMC) guidelines extending from the combination of Nokia proprietary Enhanced Digital Pre-Distortion (EDPD) firmware-SW algorithm and Filter module used to suppress spurious emissions.

**Per the requirement of Section 2.911(d) Certification of Technical Test Data, I hereby certify that the technical test data are the results of tests either performed or supervised by me, and the information cited in this exhibit is correct.**



**Michael P. Farina**  
**Member of Technical Staff**  
**Global Product Compliance Laboratory**  
**Nokia**