



Subject: **Application for Certification under FCC ID:  
AS5ONEBTS-17, Covering the UMTS/W-CDMA  
Distributed Base Station System Operating in the  
Cellular Radiotelephone Service, 869-890 MHz.**

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**October 25, 2007**

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

**Dear Mr. Sanders:**

Alcatel-Lucent's Universal Mobile Telecommunications System (UMTS) Distributed Base Station System (850 MHz) is designed to operate in the North America Region (NAR) Cellular Frequency Spectrum 869-890 MHz, with bandwidth of 21 MHz over the A", A and B Bands. The Distributed Base Station (DBS) can be configured for both single carrier (1S1C) operation at 40 Watts (+46 dBm) and for two carrier (1S2C) operation at 20 Watts (+43 dBm) per carrier with a total composite power of 40 Watts. The RF power rating is based the 3-second average, employing the Aggregate Overload Control (AOC) algorithm. Enhanced Digital Predistortion (EDPD) and Closed Loop Gain Control (CLGC) are features that are enabled for each carrier. The single UMTS carrier has a 5 MHz bandwidth, with an emission designator at 4M10F9W, based on measurement of the Necessary Bandwidth. UMTS modulation capability demonstrated includes 1) up to 68 active channels, consisting of 64 voice + 4 control, 2) up to 44 active channels, which include 8 High Speed Downlink Packet Access (HSDPA) channels, and 3) a single active channel *Synchronization Channel* (SCH).

The Distributed Base Station (DBS) system, subject of this certification, is comprised of two separate modules interconnected by fiber optic cable: 1) the digital Base Band Unit (BBU), and 2) the Remote Radio Head (RRH). They have the flexibility of being installed either in close proximity to or remotely located from each other. The BBU has the capability of controlling up to 3 remotely located RRH units, via fiber optic cable, and incorporates the digital channels cards, reference oscillator module, T1/E1 and alarm interface, and the RF-to-Optical and Optical-to-RF conversion circuitry. The 850 MHz RRH incorporates the Future Technology Radio (FTR), power amplifier (PA) and passive filter with single transmit (Tx) and diversity receive functionality (Rx0, Rx1). This system complies both with the Federal Communication Commission (FCC) Rules and Regulations (47 CFR Part 22), and with the European Telecommunications Standards Institute (ETSI) 3<sup>rd</sup> Generation Partnership Project (3GPP) Technical Specifications TS 25.104 and TS 25.141.

UMTS functionality was developed in accordance to the guidelines of the ETSI TS 25.141 V7.4.0 (2006-06) standard: "Universal Mobile Telecommunications System (UMTS); Base Station Conformance Testing (FDD) (3GPP TS 25.141 version 7.4.0 Release 7)". The measurement exhibits attached to this application demonstrate full compliance with both FCC Part 22 Subpart H – Cellular Radiotelephone Service and with ETSI TS 25.141, 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 Acceptable for Licensing.

Manufacturer	Alcatel-Lucent
Equipment Identification	AS5ONEBTS-17
Rules Part Number	Part 22, Subpart H – Cellular Radiotelephone Service
Frequency Ranges	Transmit 869–890 MHz
Output Power	40 Watts (+46 dBm) 3-second average at the Tx antenna terminal
Frequency Tolerance	± 0.05 ppm
Emission Designator	4M10F9W

Attached are the FCC Form 731 (Application for Equipment Authorization – Radio Frequency Devices) and the required measurement data and exhibits specific to this request for initial equipment authorization of the Alcatel-Lucent UMTS, 850 MHz, Distributed Base Station. The technical contact at Alcatel-Lucent will comply with any request for additional information should the need arise. The attached exhibits are assembled and presented in the sequence recommended by Timco Engineering, in accordance with the *Table of Contents* attachment.

Confidentiality is requested for the following exhibits:

- Exhibit 6: Operational Description (Theory of Operation, Functional Description)
- Exhibit 8: Schematic Diagrams
- Exhibit 10: UMTS Operation, Administration and Maintenance (OA&M) Documents.

Sincerely,

Rudolf J. Pillmeier  
Technical Manager  
FCC/EMC Compliance Test Group  
Whippany, NJ

Att.

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Exhibit 5: Test Set Up Photographs

**Exhibit 6: Operational Description (Theory of Operation, Functional Description) -  
ALCATEL-LUCENT CONFIDENTIAL**

Exhibit 7: Block Diagrams - System

**Exhibit 8: Schematic Diagrams - ALCATEL-LUCENT CONFIDENTIAL**

Exhibit 9: Test Report

**Exhibit 10: UMTS – Operation, Administration and Maintenance Documents –  
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