Lucent Technologies
Bell Labs Innovations

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

Lucent Technologies Inc.
67 Whippany Road
Whippany, NJ 07981

July 10, 2002

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

Dear Mr. Sanders

In accordance with Parts 2 and 22 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 the Lucent Technologies Corp. Linear Amplifier Module, Model m/ Multi Carrier Amplifier, henceforth **mLAM**, **FCC ID: AS5ONEBTS-03**. This **mLAM** is used in Lucent Technologies Corp **FLEXENT ®** Land Station Cellular system using Code Division Multiple Access (CDMA) technology, for use in Domestic Cellular Communication Services.

This application for the **mLAM** under **FCC ID: AS5ONEBTS-03,** is for operation in the extended Cellular 850 bands with a CDMA signal.

The **mLAM** is a nominally 40 Watt Class A CW amplifier designed to provide 20 watts of average long term power per carrier at the antenna connection port. The **mLAM** is configurable in a single, dual or three amplifier "Multi Carrier Amplifier" (**MCA)** with external passive signal combiners and splitters. The **mLAM/MCA** typically provides 20 watts per carrier in each of the **MCA** configurations (single, dual or three amplifier) with total RF Power of 20, 40 or 60 watts for each of the respective configurations. Under the dynamics conditions of CDMA service a maximum of 25 watts per carrier (75 watts/3 carriers) will be available at the antenna port and this value is used for this filing.

The data summarized below is in the form presently used by the Commission's Radio Equipment List.

Manufacturer	**Lucent Technologies, Inc.**
Equipment Identification	**AS5ONEBTS-03**
Rules Part Number	**22 (H)**
Frequency Range	**869–894 MHz Extended Cellular Band**
Output Power	**0.040 to 25.0 Watts/carrier - 75 Watts Total: Varied By Software**
Frequency Tolerance	**+/- 0.75 ppm**
Emission Designator	**1M25F9W**

The unit is called the Cellular 850 Linear Amplifier Module, model m. It is designed to the limitations specified in Part 22 subpart E. Whenever possible, the test procedures defined in CFR 47 Parts 2 and 22(H) were followed. Because of the "state of the art" nature of this equipment, some of the

characteristics cannot be tested using the requirements in CFR 47. For those characteristics ETSI/ANSI-IS97 were used to define the tests and evaluation criteria used in this application. The **mLAM** rating at the amplifier output has a listed power output of 0.040 to 40.0 watts. Losses internal to the cabinet and the Multi Carrier Amplifier hardware will limit the long-term average output power to 20.0 watts/ carrier when measured at the (J4) antenna connector. Under the dynamics conditions of CDMA service a maximum of 25 watts per carrier will be available at the antenna port and this is the value used for this filing. The total power is limited by the latter value is the level for this application. The actual power levels delivered by the **mLAM** are under the software control of the Mobile Switching Center of the local Cellular system. The software control only allows for adjustment in power up to the 20.0 watt maximum with the 25 watt value achieved during overload conditions. This filing to operate the **mLAM/ AS5ONEBTS-03** is based upon signals supplied to the **mLAM** by a Lucent Technologies Inc. **CDMA Baseband Radio 850** (**CBR-850** henceforth **CBR**), **FCC ID: AS5CMP-28**, granted 19 April 1999 for the extended Cellular 850 band.

This application for **AS5ONEBTS-03**, is for all of the extended Cellular 850 band. Since the application encompasses the single, dual and three carrier configurations it presents the required test data for each of those **mLAM/ MCA** operational configurations.

The **mLAM/ AS5ONEBTS-03** data presented in this filing represents a design produced by Andrew Corporation for Lucent Technologies Inc. solely for incorporation into Lucent Technologies Inc. products. The **CBR/ AS5CMP-28** is a Lucent Technologies Inc. designed and manufactured products.

Enclosed in this electronically transmitted online package is a copy of FCC Form 731 (Application for Equipment Authorization - Radio Frequency Devices) and the required exhibits. These exhibits contain the technical data, and the required statements and documents for Product Certification. The technical contact at Lucent Technologies, Bell Laboratories, will comply with any request for additional information should the need arise.

Sincerely,

R.J.Pillmeier
Technical Manager
Wireless FCC Compliance Group
Phone: 973-386-3837
email: rpillmeier@lucent.com

Att
FCC Form 731 w/ Attachments

Primary Contact
Theresa I. Deaver
Phone: (732) 332-6072
email: tid@lucent.com

TABLE OF CONTENTS

EXHIBITS TO BE KEPT CONFIDENTIAL

Exhibit 1: QUALIFICATION OF ENGINEERS

March 27, 2002

SECTION 2.911 (d) QUALIFICATION OF ENGINEERS

Walter Steven Majkowski is a Member of Technical Staff at Lucent Technologies Bell Laboratories. He holds a BSEE from New Jersey Institute of Technology and was trained in the FCC testing procedures. Mr Majkowski is the Lead engineer for the filing of CDMA Wireless Base station products at Lucent Technologies. Mr. Majkowski is a NARTE certified EMC engineer, Certificate number EMC-001859-NE, and has at least twenty two years of EMC design and testing experience.

Daniel Donohue is a Member of Technical Staff at Lucent Technologies Bell Laboratories. He holds a BSEE from *Fairleigh Dickinson University* and is being trained in the FCC testing and filing process. Mr Donohue has been involved in the RF design and test of Wireless Base station products at Lucent and has at least 12 years of RF design and testing experience.

R.J.Pillmeier
Technical Manager
Wireless FCC Compliance Group

Exhibit 1 *continued*

SECTION 2.911 (d) CERTIFICATION OF TECHNICAL TEST DATA

I hereby certify that the technical test data are the results of tests performed or supervised by me.

Walter Steven Majkowski NCE
Member Technical Staff
Whippany Compliance Laboratory

Exhibit 2: Manufactures, FCC Identifier

SECTION 2.1033(c)(1)

Name of applicant indicating whether the applicant is the manufacturer of the equipment, a vendor other than the manufacturer (include the name of the manufacturer), a licensee or a prospective licensee.

RESPONSE:
APPLICANT: **Lucent Technologies**
Room:4C-638
101 Crawfords Corner Rd.
Holmdel, NJ 07733-3030
Attention: Theresa I. Deaver

Lucent Technologies, Inc. will be the manufacturer of this product. The mLAM is specifically designed and produced solely for Lucent Technologies, Inc. The **mLAM/AS5ONEBTS-03** will only be marketed under the Lucent Technologies Inc. trademark.

SECTION 2.1033(c)(2)

Identification of equipment for which Product Certification is sought.

RESPONSE:
Cellular 850 Land Station Linear Amplifier Module, Model m / Multi Carrier Amplifier is to be operated under Part 22 (H) of the FCC Rules in the **FLEXENT CDMA ONEBTS 3.0 Modular Cell.**

Exhibit 3: Emission, Frequency Range, Power Range and Maximum Power

SECTION 2.1033(c)
Applications for equipment other than that operating under parts 15 and 18 of the rules shall be accompanied by a technical report containing the following information:

SECTION 2.1033(c) (4)
Type or types of emission.

RESPONSE:
The **AS5ONEBTS-03** is capable of amplifying transmissions involving the following types of emissions:
1M25F9W

SECTION 2.1033(c) (5)
Frequency Range.

RESPONSE: **869–894 MHz: The extended Cellular 850 bands, A & B**

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.

RESPONSE:
The **AS5ONEBTS-03** amplifier is capable of operating from 0.04 to 40.0 Watts CW at the amplifier output. The output power that is delivered to the J4 antenna output connector of the cabinet in which the **AS5ONEBTS-03** is mounted is reduced from this maximum value by filter insertion loss, RF transmission losses and margin for long term reliability. The power is also under continuous software control. When installed in a cabinet with applicable filters, passive splitters and combiners the maximum long term average rated power at the J4 antenna output connector is 25 Watts +2 /-4 dB per carrier. The total power at the antenna port for a three carrier Multi Carrier Amplifier configuration is 75 Watts +2 /-4 dB maximum. The use of post transmit filter combiners can presently allow up to six carriers at a give J4 antenna connection.

SECTION 2.1033(c) (7)
Maximum power rating as defined in the applicable part of the rules.

RESPONSE:
The maximum average power output of the **AS5ONEBTS-03** at the J4 antenna output connector is 25.0 Watts per carrier with 75 watts total for a three carrier Multi Carrier Amplifier configuration.

Exhibit 4: Active Circuit Devices Drive Levels and Circuit description

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. Confidential status has been requested for this information.

SECTION 2.1033(c) (10)

A schematic diagram and a description of all circuitry and devices provided for ~~determining and stabilizing frequency, for suppression of spurious radiation, for limiting modulation, and~~ for limiting power. (Strikethrough topics above are discussed in Exhibits 8 and 9)

Please see: Exhibit 4a in the Confidential section.

Exhibit 5: Complete Circuit Diagrams

SECTION 2.1033(c) (10) Complete Circuit Diagrams

Complete circuit diagrams.
Please see: Exhibit 5 in the Confidential section.

RESPONSE: Attached in the confidential section are schematic diagrams for the **mLAM/ AS5ONEBTS-02.** Confidential status has been requested for this information.

Exhibit 6: Instruction Book

SECTION 2.1033(c) (3) Instruction Book

A copy of the installation and operating instructions to be furnished the user. A draft copy of the instructions may be submitted if the actual document is not available. The actual document shall be furnished to the FCC when it becomes available.

Please see: Exhibit 6 in the Confidential section.

Exhibit 7: Tune up Proceedures

SECTION 2.1033(c) (9) Tune-up procedure

Tune-up procedure over the power range, or at specific operating power levels.

Please see: Exhibit 7 in the Confidential section.

Confidential status has been requested for this information.

Exhibit 8: Circuitry for Determining Frequency

SECTION 2.1033(c) (10) Circuitry for determining frequency

A schematic diagram and a description of all circuitry and devices provided for determining and stabilizing frequency, for suppression of spurious radiation, for limiting modulation, and for limiting power.

Please see: Exhibit 8 in the Confidential section.

Exhibit 9: Circuitry for the Suppression of Spurious

SECTION 2.1033(c) (10) Circuitry for the Suppression of Spurious

A schematic diagram and a description of all circuitry and devices provided for determining and stabilizing frequency, for suppression of spurious radiation, for limiting modulation, and for limiting power.

Please see: Exhibit 9 in the Confidential section.

Exhibit 10: Description of Modulation System

SECTION 2.1033(c) (13) Description of Modulation System

For equipment employing digital modulation techniques, a detailed description of the modulation system to be use, including response characteristics of any filters provided, and a description of the modulating wavetrain, shall be submitted for the maximum rated conditions under which the equipment will be operated.