

**EXHIBIT 3: FCC REQUIRED INFORMATION (PART 2.1033)**

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

**Section 2.911 (d) Qualification Of Engineers**

**Section 2.911 (d): Technical test data shall be signed by the person who performs or supervises the tests. The person signing the test data shall attest to the accuracy of such data. The Commission may require such person to submit a statement showing that he is qualified to make or supervise the required measurements.**

Michael P. Farina is a Member of Technical Staff at Alcatel-Lucent, Whippany, NJ, formerly AT&T Bell Laboratories, with 47 years of Professional Experience in Research and Development. He holds a BS in Physics from Upsala College and an MSEE from New Jersey Institute of Technology. During the past 15 years, his expertise was focused on RF Engineering and Regulatory Agency EMC compliance and certification, covering Analog, TDM, CDMA and UMTS technologies. He has submitted numerous Applications for Certification filings to the FCC covering many product variations and evolutions in each of the four technologies. Currently, he is the Lead Engineer for filing UMTS Wireless Base Station products with the FCC.

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

**Section 2.911 (e)(g) Certification of Technical Test Data**

**Section 2.911 (e) The signatures of the applicant and the person certifying the test data shall be made personally by those persons on the original application; copies of such document may be conformed. Signatures and certifications need not be made under oath.**

**Section 2.911 (g) Signed, as used in this section, means an original handwritten signature; however, the Office of Engineering and Technology may allow signature by any symbol executed or adopted by the applicant with the intent that such symbol be a signature, including symbols formed by computer-generated electronic impulses.**

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

Michael P. Farina  
Member of Technical Staff  
FCC/EMC Compliance Test Group  
Whippany, New Jersey

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

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

**Manufacturer:****RF Remote Radio Head (RRH):**

**Alcatel Lucent Thailand**  
Ocean Tower 2, 40th Floor, 75/112-115 Sukhumvit 19 Rd.  
North, Klongtoey, Wattana, 10110 Bangkok, Thailand

**Celestica Thailand Limited**

49/18 Leam Chabang Inds. Est., Tungsohkhla, Sriracha  
Chonburi, Thailand. 20230

**Digital Base Band Unit (BBU):**

**Celestica**

6200 E Broad St  
Columbus, OH 43213-1569 U S

**Applicant:**

**Alcatel-Lucent**

800 Towers Crescent Drive, Suite 400  
Vienna, VA 22182  
Attention: Michael D. Garson, Corporate Counsel

**Section 2.1033(c)(2):** FCC Identifier **AS5ONEBTS-17**

**Section 2.1033(c)(4):**  
Type or types of emission: **4M10F9W**

**Section 2.1033(c)(5):** Frequency range **Transmit: 869–890 MHz**

**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.

Alcatel-Lucent’s wireless UMTS Distributed Base Station Transceiver System (850 MHz), is the subject of this application for authorization by the Federal Communications Commission under the new FCC ID: AS5ONEBTS-17. 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 Pre-Distortion (EDPD) and Closed Loop Gain Control (CLGC) are features that are enabled for each carrier. The carrier power level and frequency are remotely controlled by software. 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 channel 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 (FTR850), 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.

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The maximum rated output power at the antenna terminal is 40 Watts (+46 dBm), 3-second average, per 5 MHz carrier emission bandwidth. Power adjustment is software controlled, using baseband digital scaling to set and adjust voltage variable attenuators in the transceiver. A full discussion of the power control and adjustment is contained in the documents requested to be held confidential.

**Section 2.1033(c)(7):**

Maximum power rating as defined in the applicable part (s) of the rules.

The maximum power rating of Alcatel-Lucent's wireless UMTS Distributed Base Station Transceiver System (850 MHz), at the base station transmit antenna terminal, is 40 Watts (+46 dBm), 3-second average, employing the Aggregate Overload Control (AOC) algorithm.

**Section 2.1033 (c)(8):**

The dc voltages applied to and the dc currents into the several elements of the final radio frequency amplifying device for normal operation over the power range.

The dc voltage applied to Alcatel-Lucent's wireless UMTS Distributed Base Station Transceiver System (850 MHz) is nominally +24 Vdc. The final radio frequency amplifying device is the power amplifier (PA) incorporated into the RF Remote Radio Head (RRH) module. The maximum rated power at the antenna terminal is 46.0 dBm, which corresponds to the maximum rated power at the PA output terminal of 47.9 dBm. At this power level, the PA nominal voltage and current rating is +31.0 Vdc  $\pm$  0.5 Vdc at 6.7 Adc. The worst case maximum current, in event of a 1-dB overdrive condition, could have an excursion up to 8.87 Adc.

**Section 2.1033 (c)(9):**

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

Alcatel-Lucent's wireless UMTS Distributed Base Station Transceiver System (850 MHz), subject of this request for certification under FCC ID: AS5ONEBTS-17, can not 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.

**Section 2.1033 (c)(10)**

A description of all circuitry and devices for determining and stabilizing frequency.

Alcatel-Lucent's wireless UMTS Distributed Base Station Transceiver System (850 MHz), incorporating the Future Technology Radio (FTR 850), with a 5 MHz carrier emission bandwidth, is designed to operate in the cellular frequency spectrum 869-890 MHz. The frequency is determined by the up-conversion of digital baseband signals to IF frequencies. Frequency stability of the carrier frequency is achieved with an accuracy better than the rated  $\pm$  0.05 ppm by the 15 MHz reference frequency generated by a stable Crystal Oscillator Module (OMA) plus proprietary phase locked loop (PLL) circuitry.

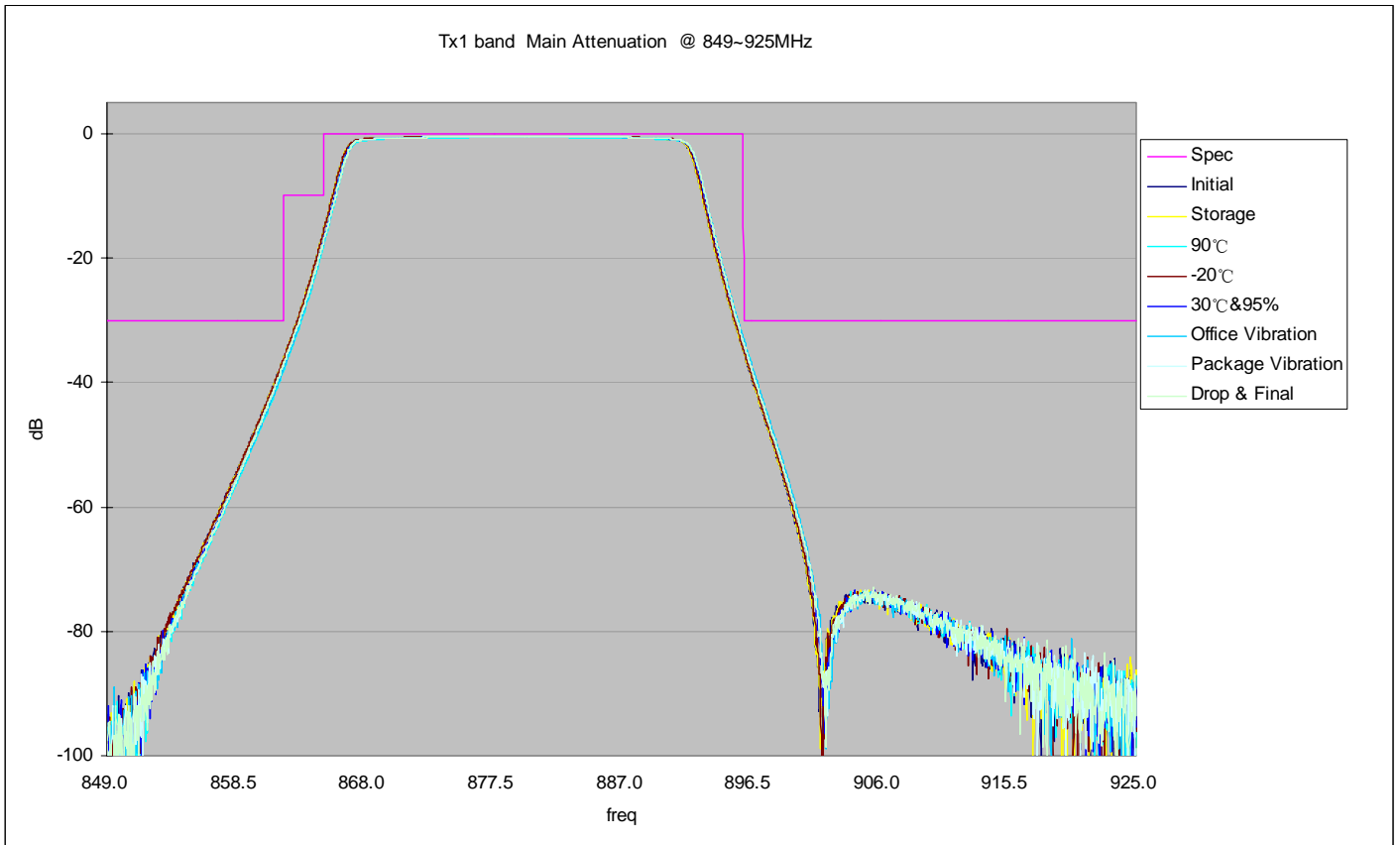
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**Section 2.1033 (c)(10): Description of circuitry and devices for suppression of spurious radiation.**

Spurious emissions radiated from Alcatel-Lucent’s wireless UMTS Distributed Base Station Transceiver System (850 MHz), are suppressed by implementing sound Electromagnetic Compatibility (EMC) design practices extending from the circuit board level to the system level: 1) grounded RF shielding on coaxial cables, 2) grounded RF shielding “cans” mounted on the circuit packs, 3) effective grounding throughout, and 4) effective transmit and receive bandpass filters for the cellular frequency band 869-890 MHz. The Tx filter, incorporated in the UMTS Distributed Base Station, RF Remote Radio Head (RRH), is a 21 MHz wideband, low loss, Duplex (Dpx) design covering the full 869-890 MHz spectrum, i.e., the Cellular A”+A+B Bands.

Characteristic Plot of the 21 MHz wideband, low loss, Duplex (Dpx) filter showing the transmit passband characteristics is:

**21 MHz Dpx Tx Passband Characteristics**



**EXHIBIT 3: FCC REQUIRED INFORMATION (PART 2.1033) - continued****Section 2.1033 (c)(10): Description of Circuitry and Devices for Limiting Modulation, and for Limiting Power.**

The Alcatel-Lucent UMTS 850 MHz Future Technology Radio (FTR 850) is a 5 MHz carrier emission bandwidth UMTS (W-CDMA) base station transceiver, designed to operate in the Cellular Frequency Band 869-890 MHz. The FTR850 transceiver is incorporated into the UMTS Distributed Base Station System (850 MHz), which is the subject of this application for certification. Modulation limiting is described in the documents that must be held confidential.

Power control of the RF output from the FTR850 transceiver is accomplished by software which controls a microprocessor that sends digital baseband signals to a voltage variable attenuator, which is used for output power adjustment. The transmitter can be disabled through firmware which sets the RF attenuator to maximum loss and thus disables the final RF amplifier stage. A complete description is provided in the exhibits that are required to be held as confidential.

**Section 2.1033 (c)(13): Description of the modulation system.**

The Alcatel-Lucent UMTS 850 MHz Future Technology Radio (FTR 850) is a 5 MHz carrier emission bandwidth UMTS (W-CDMA) base station transceiver designed to operate in the Cellular Frequency Band 869-890 MHz. The FTR850 transceiver is incorporated into the UMTS Distributed Base Station System (850 MHz), which is the subject of this application for certification. The modulation system is described in the documents that must be held confidential.

This FTR850 base station transceiver is designed for QPSK modulation, with an emission designator 4M10F9W. The modulation process is fully described in the documents that must be held confidential. The FTR850 transceiver can operate either with up to 64 Voice + 4 Control active channels or with up to 30 Voice + 8 HSDPA + 6 Control active channels. Note: HSDPA = High Speed Downlink Packet Access.