

## NEWS RELEASE



For more information, contact:

Debra Seifert  
Debra Seifert Communications LLC  
(503) 626-7539  
[debra@debraseifert.com](mailto:debra@debraseifert.com)

James E. De Broeck  
Aeroflex Incorporated  
(316) 522-4981  
[jim.debroeck@aeroflex.com](mailto:jim.debroeck@aeroflex.com)

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### **Aeroflex TM500 LTE Test Mobile Adds Support for Beamforming and 4 x 2 MIMO**

*LTE Release 8 Tx Mode 7 beamforming and 4 x 2 transmit diversity support now available for de facto industry standard test mobile*

**STEVENAGE, UK, and ORLANDO, Fla., USA—INTERNATIONAL CTIA WIRELESS —March 24, 2011—** Aeroflex Limited, a wholly owned subsidiary of Aeroflex Holding Corp. (NYSE:ARX), announced today that the TM500 LTE test mobile has increased the number of modes it supports to include user equipment (UE) beamforming and 4 x 2 MIMO, as specified in Release 8 of the Third Generation Partnership Project (3GPP) Long Term Evolution (LTE) standard.

The TM500 test mobile allows engineers developing LTE base stations (eNodeB) or physical layers (PHY) for eNodeB to perform beamforming and 4 x 2 MIMO (transmit diversity and spatial multiplexing) measurements either in the laboratory or over the air in a trial LTE network. Beamforming and transmit diversity techniques are used in LTE networks to improve cell coverage and spectrum efficiency. Dual-layer beamforming (Rel-9) can also boost cell average throughput by allowing multiple devices, under the appropriate operating conditions, to share the same base station resources.

The TM500 test mobile is the most widely used instrument worldwide for testing the performance of base stations, and this latest software upgrade reaffirms Aeroflex's commitment to tracking each new development in the 3GPP standards ahead of the

market requirement. It also represents an important milestone on the roadmap towards LTE-Advanced new transmission modes

Designated as Transmission (Tx) Mode 7 in LTE Release 8 (Rel-8), beamforming is very important to achieving the best performance from LTE. Although the technique is mainly applicable to Time Division Duplex (TDD) modulation, the TM500 can support beamforming in both TDD and Frequency Division Duplex (FDD) modulation schemes. MIMO is applicable to both TDD and FDD, and the TM500 supports the 4 x 2 MIMO feature when operating in either mode.

“This latest upgrade to the TM500 enables it to support all the special measurements and test features that are required to verify the beamforming and 4 x 2 MIMO performance of the eNodeB,” commented Stamatis Georgoulis, product manager at Aeroflex Test Solutions. “It also prepares the TM500 to upgrade for dual-layer Rel-9 beamforming and LTE-A features as soon as these are required.”

The TM500 test mobile with beamforming support features channel estimation based on UE-specific reference symbols (RS) or demodulation RS (DM-RS). In over-the-air tests or using a fading channel simulator, it provides data on beamforming gain by comparing cell-specific RS and DM-RS power. This allows the engineer to assess the efficiency of the weighting vectors selected by the eNodeB. Advanced eNodeB designs may utilize different weighting vectors across resource blocks (RB), and for verifying performance of these eNodeBs, the TM500 provides a per-RB channel estimation.

### **About LTE Beamforming**

Rel-8 LTE introduces seven new transmission modes, of which the basic ones are Tx diversity, spatial multiplexing and beamforming techniques. The network controls the configuration of the modes for each UE depending on the UE channel conditions, coverage and capacity requirements. Tx diversity and beamforming are aimed at increasing coverage, while spatial multiplexing is effective at boosting the data rates.

Beamforming techniques are employed in cellular communications to increase the received signal-to-noise ratio (SNR) at each UE, and to reduce inter-cell interference and hence improve both coverage and spectrum efficiency. This is

achieved due to the increase in antenna gain when signals from multiple antennas add constructively to create a narrow-beam high-amplitude signal at the receiver – so-called ‘array gain’. The technique is performed using a channel-dependent weighting vector that pre-codes the signal across the antenna array. LTE beamforming is receiving particular attention in China, following the success of the beamforming application in TD-SCDMA.

### **Price and availability**

For more information, contact your local Aeroflex sales office by visiting or calling Aeroflex Sales at (800) 835-2352 or [info-test@aeroflex.com](mailto:info-test@aeroflex.com).

### **About Aeroflex LTE Expertise**

Aeroflex LTE leadership started with the delivery of test systems in 2007 and now continues with a complete range of end-to-end test systems that cover R&D, performance, service and manufacturing test applications for LTE TDD and FDD network equipment and terminals.

The TM500 Test Mobile family is in use with almost every base station manufacturer across the world, and can be regarded as the de facto standard for eNodeB development and testing. EAST500 is the only network capacity test solution that incorporates the proven Aeroflex TM500 LTE air interface.

The Aeroflex 7100 LTE Digital Radio Test Set is a complete one-box test system providing all the tools required for the measurement and characterization of user equipment (UE) chip sets and mobile terminals to 3GPP LTE standards, including optional signal fading simulation.

The PXI 3000 Series, modular RF test system based on PXI technology is a proven solution to accelerate throughput in manufacturing and time to market in R&D while catering for current and future RF test needs. It is particularly suited to modern cellular and wireless data communications and critical testing in a high volume manufacturing environment.

Aeroflex has engineers working in centers around the world on its LTE and LTE-Advanced test systems, to support the current and next generation of networks and devices.

## **About Aeroflex**

Aeroflex Incorporated is a leading global provider of microelectronic components and test and measurement equipment used by companies in the space, avionics, defense, commercial wireless communications, medical and other markets.

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*All statements other than statements of historical fact included in this press release regarding Aeroflex's business strategy and plans and objectives of its management for future operations are forward-looking statements. When used in this press release, words such as "anticipate," "believe," "estimate," "expect," "intend" and similar expressions, as they relate to Aeroflex or its management, identify forward-looking statements. Such forward-looking statements are based on the current beliefs of Aeroflex's management, as well as assumptions made by and information currently available to its management. Actual results could differ materially from those contemplated by the forward-looking statements as a result of certain factors, including but not limited to, adverse developments in the global economy; the inability to make payments on our significant indebtedness, dependence on growth in customers' businesses; the inability to remain competitive in the markets Aeroflex serves; the inability to continue to develop, manufacture and market innovative, customized products and services that meet customer requirements for performance and reliability; any failure of suppliers to provide raw materials and/or properly functioning component parts; the termination of key contracts, including technology license agreements, or loss of key customers; the inability to protect intellectual property; the failure to comply with regulations such as International Traffic in Arms Regulations and any changes in regulations; exposure to auction rate securities and the impact this exposure has on liquidity; the failure to realize anticipated benefits from completed acquisitions, divestitures or restructurings, or the possibility that such acquisitions, divestitures or restructurings could adversely affect Aeroflex; the loss of key employees; exposure to foreign currency exchange rate risks; and terrorist acts or acts of war. Such statements reflect the current views of management with respect to the future and are subject to these and other risks, uncertainties and assumptions. Aeroflex does not undertake any obligation to update such forward-looking statements.*