

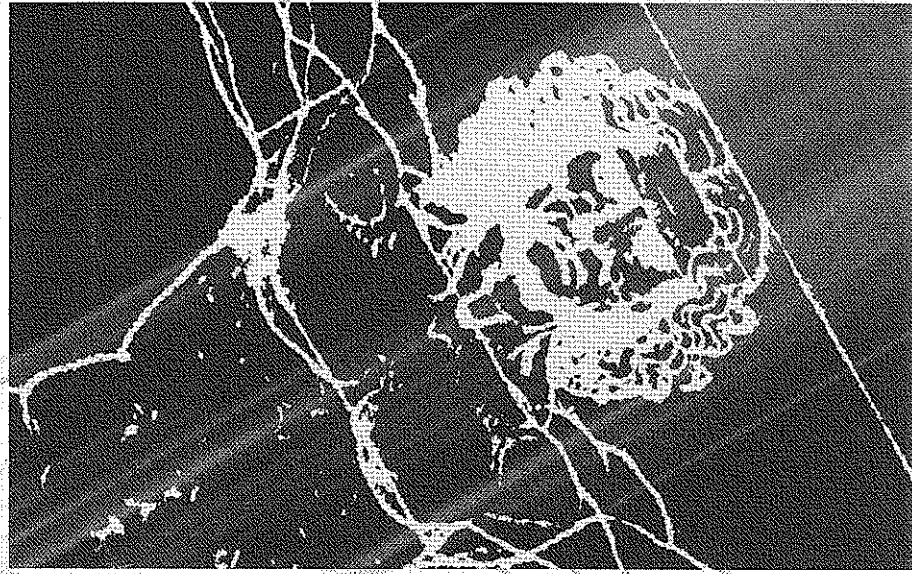
METROLOGY FOR
WORLD CLASS
MANUFACTURING
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*Incorporating the NPL
Awards for Measurement*

EMTA
National Training Organisation for
Engineering Manufacture



OFFICIAL REVIEW 2001

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Quality Today

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CBI
National
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The Worshipful
Company of
Scientific
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MTA

BMTA



IFEN



MATERIALS

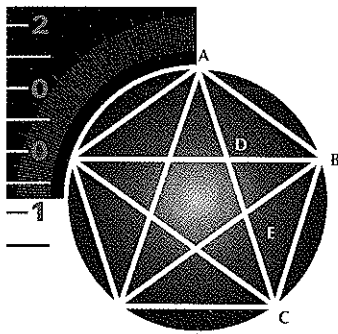
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METROLOGY FOR
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CATEGORY 3

Measurement for Manufacturing Excellence

The world's first on-line calibration service was launched on February 26th 2001 by the National Physical Laboratory. Claimed to be revolutionary, it uses the internet to give industry direct access to the capabilities of the NPL. Speaking at BAE systems HQ in London, Lord Sainsbury, minister for Trade and Industry said that he was impressed with the rapid development of this first Internet service and mentioned that the NPL team had already received recognition through the award, last summer, from the North American National Conference of Standards Laboratories.

The technology offers significant cost savings and enhanced technical and operational competitiveness to UK industry. Instruments can be calibrated directly against National Measurement Standards without the need to transport instruments to the National Physical Laboratory. Ultimately businesses will be able to make all calibrations in situ using their own engineers, faster and more accurately than ever before. Instruments will be calibrated at the highest possible accuracy, on demand, and without the inconvenience and cost of the instrument having to be moved. It will almost eliminate downtime for calibrations and reduce cost, while maintaining quality. In the future it may also be possible to carry out on-line process control with Internet calibrations assuring the quality of products.

This new service provides high frequency electrical calibrations that are needed in sectors such as telecommunications, computing, remote sensing and the defence

industry providing levels of accuracy previously only attainable at the National Physical Laboratory. Other advanced technology industries including electronics and medical imaging will also benefit from this innovation.

How has it benefited BAE SYSTEMS?

Two Eurofighter Typhoon aircraft being developed at BAE SYSTEMS will be an immediate beneficiary of the new service. This aircraft is under development by a consortium of 4 nations including the UK and is the most advanced 'swing role combat aircraft' ever built.

A key use of Internet calibration for BAE SYSTEMS is the ability to allow engineers to carry out measurements as accurately in the field as in the laboratory. This may in the future allow an aircraft to be measured and repaired on location, thereby avoiding the high costs involved in returning it to the factory.

New high performance composite materials, that require the most accurate measurement techniques for characterisation, are being developed for the Eurofighter Typhoon. The ability to calibrate measurement equipment directly against National Measurement Standards at NPL across the Internet will enhance the research and development and design capabilities at BAE SYSTEMS and significantly reduce the cost of making such high accuracy measurements. Stewart Wylie, Electromagnetic Specialist, said: "Involvement in the project has led to BAE SYSTEMS making history as the first external organisation to gain

direct access into NPL, through the successful demonstration of the prototype internet system."

Professor Dave Gardner, Director of Engineering, BAE SYSTEMS, comments: "The ability to calibrate measurement equipment at BAE SYSTEMS through the use of the Internet, directly against NPL's primary National Measurement Standards, will greatly enhance our research, development and design capabilities. Enabling our engineers to carry out measurements as accurately in the field as in the laboratory, will not only generate cost benefits and a competitive advantage for ourselves, but will have a positive knock-on effect for our customers."

Potential

Lord Sainsbury said, "Although the internet calibration service is for high frequency electrical quantities measured in the defence, telecommunications and other leading edge sectors, I understand that services in other measurement areas will be available soon. I am already aware that a capability for electrical quantities of voltage and resistance is being evaluated, this time in partnership between NPL and Fluke. The potential for uptake of internet calibration services in the electrical field alone promises to be significant since there are over 100 accredited UK calibration laboratories in this area issuing over 100,000 calibration certificates each year." The first fully operational internet calibration service is applied to the calibration of RF impedance standards and automatic network analysers.

Winner

David Gosling, Lee Nesbitt, Neil Plummer, Hubert Cott, Sammy Smith & Stewart Wylie (leader)
BAE SYSTEMS

and

Drs. Richard Dudley and Nick Ridler
National Physical Laboratory

Title: World's First Operational Internet Calibration Service - the National Physical Laboratory's internet Primary Impedance Measurement Software/System (iPIMMS)