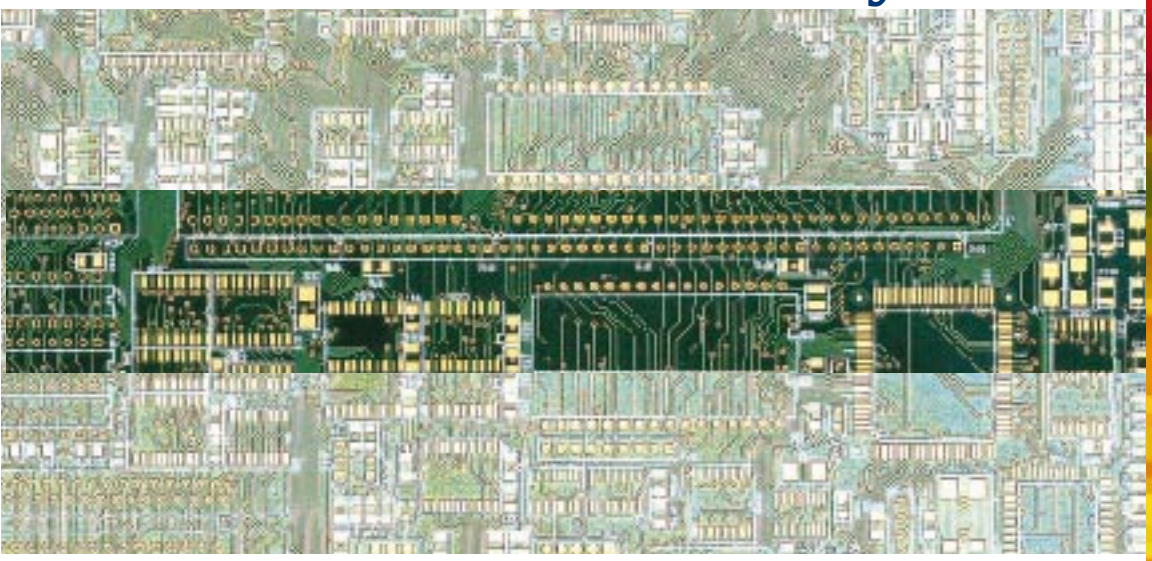
RITS500s
Robotic Impedance Test System



Automated impedance measurement for volume coupon testing with excellent R&R

Repeatable, accurate, traceable measurements

Precision verification using airlines

SPC datalogging and reporting option

Fast production throughput

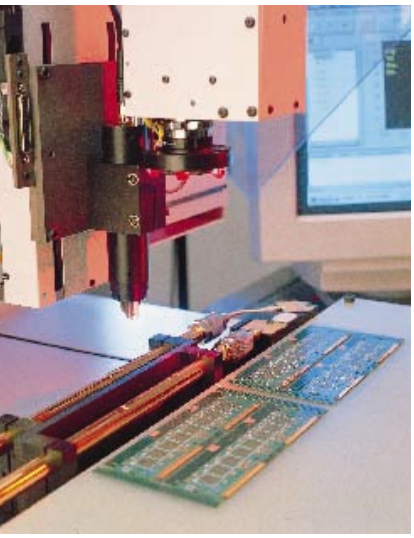
Polar

polarinstruments.com

MEASUREMENT TRACEABLE TO NPL AND NIST STANDARDS

FLYING PROBE MECHANISM

EXCELLENT R&R



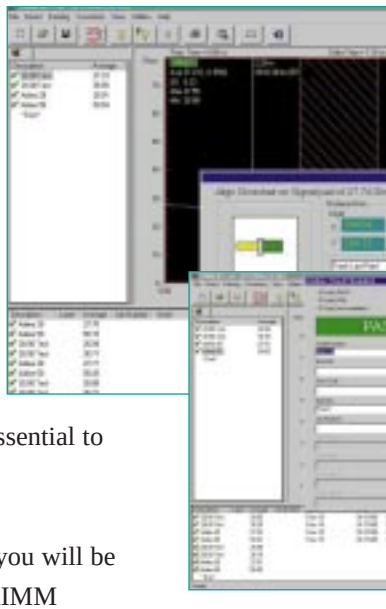
With an average test time of under 1.5 seconds, the RITS500s flying probe technology is as fast as any fixture-based impedance test system. Unlike functional bare-board test, there is no time advantage in using a fixture for RF test. What is more, a fixture-based measurement cannot be verified at the probe tip.

Automatic testing of controlled impedance PCB coupons

In response to the increasing volume of PCBs with controlled impedance, Polar Instruments has developed a turn key system for automated impedance testing of PCBs and coupons in a production environment.

RITS500s automates the industry standard CITS500s (Controlled Impedance Test System) to give fast, repeatable volume testing of coupons and PCBs. CITS500s employs proven technology and is currently used worldwide for manual testing of controlled impedances.

Even if you have not had much experience of electrical or RF testing before, you will find RITS500s easy to use. The system is controlled via intuitive Windows software. Test set-up is straight forward, results data is automatically logged in accessible formats, and there is the option of a built-in report generator. We have found that system operators can usually be fully trained in just half a day.

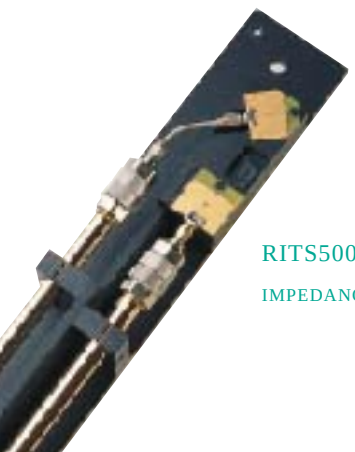


Rambus memory technology

Faster processors, accelerated graphics and faster communications require more system memory bandwidth. The evolving demands of multi-media applications and three-dimensional graphics functions in PC technology, mean that a high bandwidth memory is becoming essential to sustain system performance.

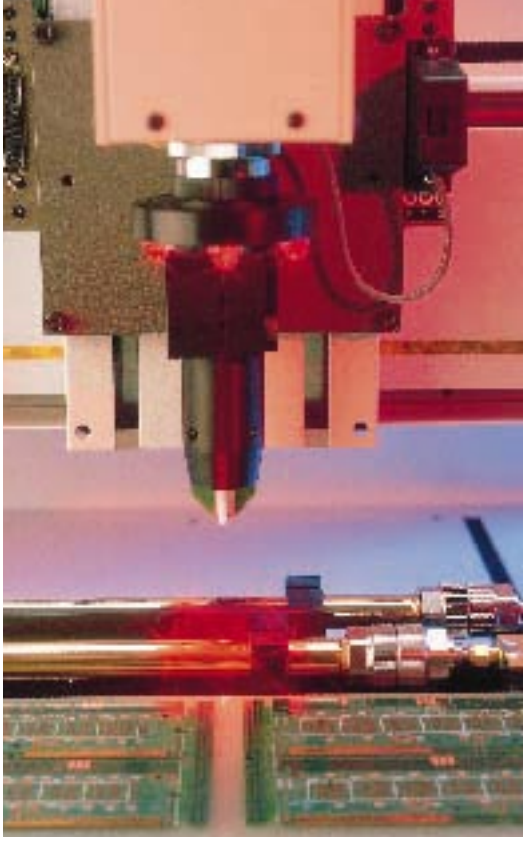
If you are a developer of RDRAM® components for the PC industry, you will be familiar with the exacting standards of the Rambus specification for RIMM memory modules and C-RIMM continuity modules. Accurate impedance traces are required, to control impedance to 28 ohms ±10%.

The challenge for the PCB industry is to develop reliable, repeatable processes for cost-effective volume manufacture of this next-generation memory technology.



RITS500S HIGH PRECISION REFERENCE AIRLINES MAKE IMPEDANCE MEASUREMENTS TRACEABLE TO THE PROBE TIP

Accurate, traceable measurement

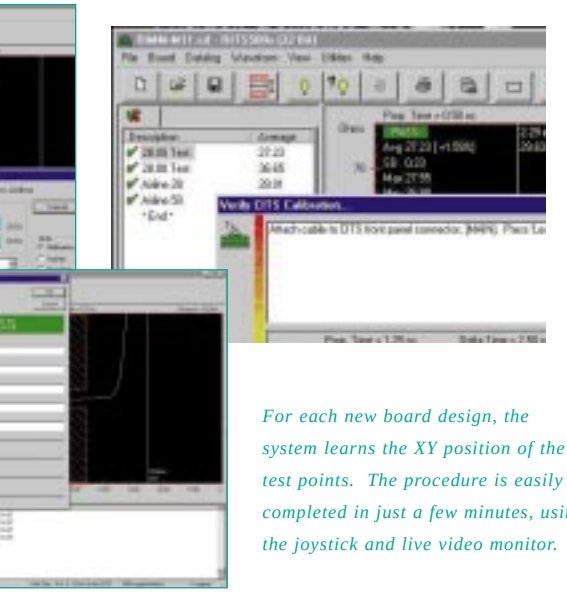


- *Automatic logging of test results*
- *SPC datalogging and report generator option*
- *Single ended and differential measurements*

RITS500s uses proven time domain reflectometry (TDR) techniques to measure the reflection of fast rise-time pulses. High precision reference airlines - traceable to NPL and NIST standards - ensure repeatable measurement accuracy to allow the trace impedances to be controlled.

You can be sure of the repeatability of the test measurement because RITS500s verifies its own calibration regularly. Unlike other impedance test systems, *verification contact is between airline and probe tip,* confirming the accuracy of the entire system, including the test probe. The system is able to make both single ended and differential measurements.

The calibration data is automatically logged for reference in the system log file and can be easily imported into Microsoft® Excel for inclusion in customer conformance reports.



For each new board design, the system learns the XY position of the test points. The procedure is easily completed in just a few minutes, using the joystick and live video monitor.

Test results are displayed on screen and automatically saved.

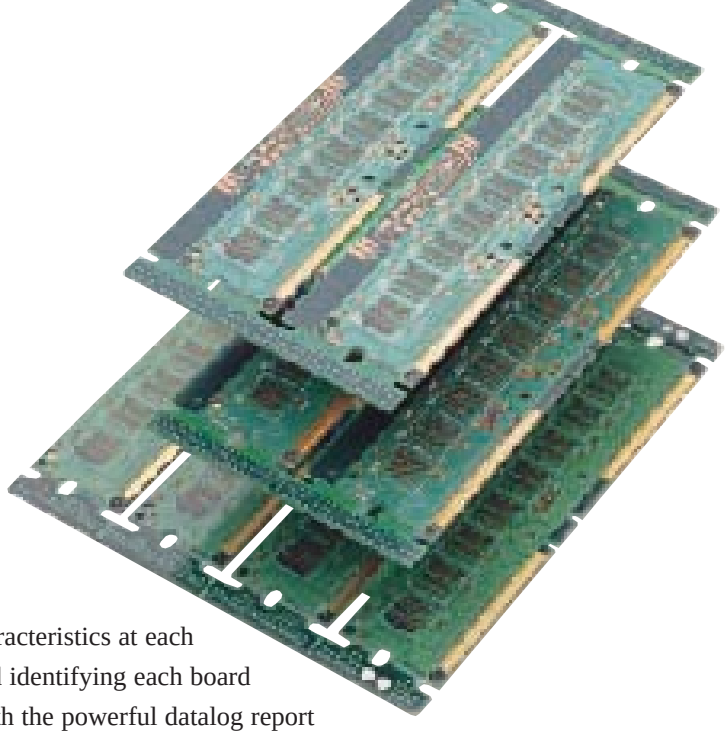
You can share graphical test results by email and view using the CITSView software which is available for download from ***www.polarinstruments.com***

Flying probe technology

For each new board design, RITS500s 'learns' the location of the impedance test points, usually grouped together on a test coupon. In a procedure which takes about ten minutes to complete, the operator identifies the XY location of each point to be probed using the live video monitor and joystick supplied.

The data is saved, and thereafter, RITS500s automatically probes each test point in turn every time you run the test. Step resolution is just half a mil (13 microns), so you can be sure of accurate probing even with very fine pitches.

It takes approximately 30 seconds to test a four-RIMM module panel using RITS500s, including manual loading and unloading of the panel, and carrying out five tests on each module. The average test time is under 1.5 seconds; that is about the same as a fixture-based system. For speed of operation in a production environment, there is a foot switch you can use to run the next test.



Datalogging and statistical process control

RITS500s verifies impedance characteristics at each test point, logging results data and identifying each board as ‘pass’ or ‘fail’. In addition, with the powerful datalog report generator (DRG) option, you can record results in useful statistical formats, and generate reports automatically.

Minimum, maximum and average impedance measurements are logged, along with standard deviations for each batch and statistical process control values Cp and Cpk. All data is saved in pipe-delimited ASCII format, for world-wide compatibility with popular analysis and reporting packages.

You can produce customer conformance reports, including pass only data, as well as reports showing all test results for internal records or analysis.

Manufacturers already using Polar’s TDR technology for impedance testing of PCBs include:

CMK
Daeduck
Gold Circuits
Hadco
IBM
Japan Circuits
Nan Ya
Praegitzer
Samsung
Siemens
Viasystems

All airlines used and supplied by Polar are traceable to national standards NIST or NPL.

RITS500s

Probing System Specifications

	Metric	Imperial
Probing area (max.)	235 x 410mm	9.25”x 16”
PCB size (max.)	275 x 550mm	10.8”x 21.7”
Test speed	1.5 tests per second (typical)	1.5 tests per second (typical)
Z axis travel	10mm	0.4”
Accuracy	± 0.04mm over 300mm	± 1.6 mil, 0.0016” over 12”
Repeatability	± 0.008mm (typical)	± 0.3 mil, 0.0003” (typical)
Resolution	0.016mm	0.6 mil, 0.0006”
Probe pressure	Less than 142gm	Less than 5oz
Dimensions	940x650x524mm	37”x25.6”x20.6”
Weight	95kg (approx.)	210lbs (approx.)

Prober Interface	PC Custom Interface board supplied (full length, 122mm height inc. edge connector)

Measurement System

Range	0-150Ω
Accuracy	1% at 50Ω, 1.25% at 75Ω, 1.5% at 28Ω and 100Ω
Self calibration	Precision airlines mounted on table for auto-calibration/verification at probe tip
Horizontal display resolution	0.2mm (0.008”)
Vertical display resolution	0.03Ω

Standard Accessories	External monitor and joystick plus all leads, cables Operator Manual
Optional Accessories	Datalog Report Generator software (ACC230), Signal Integrity & Impedance design tools Laboratory test Fixtures Service Manual
Controller	Pentium PC, running Windows 95, Windows 98 or Windows NT, 16Mb RAM, VGA monitor
Approvals	Conforms to applicable European Directives and is CE marked Polar Instruments Ltd is certified to ISO9001

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