# SOUTHWEST RESEARCH INSTITUTE®

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Institute Quality Systems
Institute Calibration Laboratory
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## Certificate of Calibration

| | | | |
|---|---|---|---|
| **Submitted By:** | DIV20 | **Work Order:** | 303064626 |
| **Address:** | B57 | **Date Issued:** | Jun 13, 2005 |
| **Contact:** | BRADLEY WERLING | **Calibration Date:** | Jun 13, 2005 |
| **Manufacturer Model:** | BARNSTEAD INTL. E896X5 | ***Calibration Due:** | Jun 13, 2006 |
| **Description:** | RESISTOR | **Calibration Location:** | Bldg. 64 |
| **Serial No:** | 896020321720 | **Environment:** | Temp. 72.0°F   Hum. 42 %RH |
| **Asset No:** | 009582 | ****Data Type:** | FOUND-LEFT |
| **Procedure:** | RESISTORS JAN/04 | | |

This certificate documents traceability to the National Institute of Standards and Technology (NIST) and the International System of Units (SI). The Laboratory quality system conforms to ISO/IEC 17025, 1999, ANSI/NCSL Z540-1-1994 and relevant requirements of the ISO 9000-2000 standard. This certificate shall not be reproduced, except in full, without the written approval of the Southwest Research Institute Calibration Laboratory. This certificate shall not be used to claim product endorsement by Southwest Research Institute, American Association for Laboratory Accreditation (A2LA) or any agency of the U. S. Government. Results of this calibration relate only to the instrument described above at the time of calibration and does not imply any long term stability of the instrument.

*Determined by the customer, does not imply the instrument will remain within tolerance as any number of factors may cause an out-of-tolerance condition before this date. **Found/Left = adjustment and/or repair was not required, As Left = adjusted and/or repaired was required. The client has sole responsibility for determination of in-/out-of-tolerance or compliance/noncompliance. See Remarks or attached Measurement Report with the same Work Order number for data.

Reported uncertainty calculated in accordance with the ISO "Guide to the Expression of Uncertainty in Measurement" (GUM) and represents an expanded uncertainty with a coverage factor of k=2 to approximate a 95% confidence level.

**Remarks:** None

## Standards Used

| Asset No. | Serial No. | Manufacturer | Model | Description | Cal Due |
|---|---|---|---|---|---|
| 007001 | 2823A21362 | HEWLETT-PACKARD | 3458A/OPT-002 | MULTIMETER | Feb 17, 06 |

Approved by: Walt Hill
Manager
m:\a2la1.rpt Rev date March 6, 2005

Measurements by: Curtis Laurence
Metrology Technician

| Work Order: | 303064626 | Mfr. | Barnstead Int. | | Technician | WCL |
|---|---|---|---|---|---|---|
| Asset No. | 009582 | Model | E896X5 | | | |
| Serial No. | 896020321720 | Type. | Resistor | | Cal Date. | 13-Jun-05 |
| Remarks: | | | | | | |
| | | Tested to +/- 1 % | | | | |

| Function/Range | Test Point | TI Reading | Difference | +/-Limit | +/-Uncertainty | Found/Left |
|---|---|---|---|---|---|---|
| | MOhm | MOhm | MOhm | MOhm | MOhm | Result |
| 1.5 Mohm | 1.5000 | 1.5049 | 0.0049 | 0.0150 | 0.0053 | Pass |
| | Ohm | Ohm | Ohm | Ohm | Ohm | |
| 552.95 Ohm | 552.95 | 553.337 | 0.387 | 5.53 | 0.0085 | Pass |

END OF REPORT