



SOUTHWEST RESEARCH INSTITUTE®

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Institute Calibration Laboratory
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Certificate #

0972-01

Certificate of Calibration

Submitted By: DIV20

Address: B57

Contact: DON BANNON

Manufacturer Model: SARTORIUS ME215S

Description: BALANCE

Serial No: 12809099

Asset No: 008780

Procedure: BALANCES & SCALES - 11 APR, 2006

Work Order: 303069102

Date Issued: May 9, 2006

Calibration Date: May 9, 2006

*Calibration Due: Nov 9, 2006

Calibration Location: B57

Environment: Temp. 70.0°F Hum. 42 %RH

**Data Type: FOUND-LEFT

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 |
|-----------|------------|--------------|-------|-----------------|------------|
| 001708 | C863 | RICE LAKE | 10G | WEIGHT, CLASS S | Jul 06, 06 |
| 001710 | C865 | RICE LAKE | 20G | WEIGHT, CLASS S | Jul 06, 06 |
| 001711 | C866 | RICE LAKE | 50G | WEIGHT, CLASS S | Jul 06, 06 |
| 001712 | C867 | RICE LAKE | 100G | WEIGHT, CLASS S | Jul 06, 06 |
| 001713 | C868 | RICE LAKE | 200G | WEIGHT, CLASS S | Jul 06, 06 |
| 001719 | C874 | RICE LAKE | 5KG | WEIGHT, CLASS 1 | Jul 06, 06 |

Reviewed by: blt () jrg () pwc () wgh ()

Metrology Technician

m:\a2la1.rpt Rev date August 15, 2005

Measurements by: Leo Salazar

Metrology Technician

Southwest Research Institute
Calibration Laboratory
Measurement Report

| | | | | | |
|---|-----------|---------------|-----------|-------------|-----------|
| Work Order: | 303069102 | Manufacturer: | Sartorius | Technician: | lgs |
| Asset Number: | 008780 | Model: | ME215S | | |
| Serial Number: | 12809099 | Type: | Balance | Cal Date: | 09-May-06 |
| Remarks: Manufacturer does not provide corner load specifications. Corner load readings are without pass or fail indications. | | | | | |
| Ambient Conditions | | 72 ° F | | 42 % RH | |
| | | | | 14.34 PSIA | |

| Function/Range | Test Point | TI Reading | Difference | +/-Limit | +/-Uncertainty | Found/Left |
|----------------|------------|------------|------------|----------|----------------|------------|
| Corner Load | grams | grams | grams | grams | grams | Result |
| Reference | 100.00000 | 100.00014 | | | | |
| Front | 100.00014 | 100.00014 | 0.00000 | | 0.000041 | |
| Rear | 100.00014 | 100.00014 | 0.00000 | | 0.000041 | |
| Left | 100.00014 | 100.00014 | 0.00000 | | 0.000041 | |
| Right | 100.00014 | 100.00013 | -0.00001 | | 0.000041 | |
| Repeatability | | | | | | |
| 1 | 100.00000 | 100.00013 | | | | |
| 2 | 100.00000 | 100.00012 | | | | |
| 3 | 100.00000 | 100.00013 | | | | |
| 4 | 100.00000 | 100.00013 | | | | |
| 5 | 100.00000 | 100.00012 | | | | |
| 6 | 100.00000 | 100.00012 | | | | |
| 7 | 100.00000 | 100.00013 | | | | |
| 8 | 100.00000 | 100.00015 | | | | |
| 9 | 100.00000 | 100.00020 | | | | |
| 10 | 100.00000 | 100.00013 | | | | |
| Std Deviation | | 0.000024 | | 0.000030 | | Pass |
| Linearity | 0.00000 | 0.00000 | 0.00000 | 0.00010 | 0.000067 | Pass |
| | 20.00000 | 20.00000 | 0.00000 | 0.00010 | 0.000067 | Pass |
| | 40.00000 | 39.99990 | -0.00010 | 0.00010 | 0.000067 | Pass |
| | 60.00000 | 59.99999 | -0.00001 | 0.00010 | 0.000067 | Pass |
| | 80.00000 | 79.99998 | -0.00002 | 0.00010 | 0.000067 | Pass |
| | 100.00000 | 99.99998 | -0.00002 | 0.00010 | 0.000067 | Pass |
| | 120.00000 | 119.99997 | -0.00003 | 0.00010 | 0.000067 | Pass |
| | 140.00000 | 139.99995 | -0.00005 | 0.00010 | 0.000067 | Pass |
| | 160.00000 | 159.99992 | -0.00008 | 0.00010 | 0.000067 | Pass |
| | 180.00000 | 179.99991 | -0.00009 | 0.00010 | 0.000067 | Pass |
| | 200.00000 | 199.99992 | -0.00008 | 0.00010 | 0.000067 | Pass |

End of Report