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Supersedes:	17-Jul-2020
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1.0 PURPOSE

- 1.1. This procedure establishes the requirements to adhere to when performing calibration of field test instruments.
- 1.2. Calibration shall be to the requirements of ISO 10012 or ANSI/INCSSL Z 540-1. These requirements are considered to be met if calibration is done by a laboratory accredited to ISO/IEC 17025.

2.0 REFERENCE DOCUMENTS

- 2.1. PI-167 Control of Inspection, Measuring, and Test Equipment.

3.0 ALTEK 422 / PIE 422 TEMPERATURE CALIBRATOR

- 3.1. ID Numbers: LOG 1524 EG, LOG 4146 EG, LOG 6524 EG.
- 3.2. Uses: Calibration of controlling, monitoring, or recording instruments and performance of SATs.
- 3.3. Calibration Frequency: 3 months max.
- 3.4. Calibration Standard: Primary or secondary standard traceable to NIST, or other equivalent National Standard.
- 3.5. Calibration Setpoints: 250°F, 400°F, 842°F, 1150°F, 1370°F, 1590°F, 1810°F, 2030°F and 2250°F (additional setpoints are permissible).
 - 3.5.1. Must be completed for each channel individually.
- 3.6. Accuracy Limits: +/- 1°F or +/- 0.1% of reading, whichever is greater.
- 3.7. Thermocouple (TC) Types to be Calibrated: J, K and R.
- 3.8. Reporting: Must meet AMS 2750 (current revision at the time of reporting).

4.0 AGILENT 34970A DATA LOGGER

- 4.1. ID Numbers: LOG 3993 VS, LOG 4348 VS, LOG 4991 VS.
- 4.2. Uses: Performance of TUS's.
- 4.3. Calibration Frequency: 3 months max.
- 4.4. Calibration Standard: Primary or secondary standard traceable to NIST, or other equivalent National Standard.
- 4.5. Calibration Setpoints: 250°F, 400°F, 842°F, 1150°F, 1370°F, 1590°F, 1810°F, 2030°F and 2250°F (additional setpoints are permissible).
 - 4.5.1. Must be completed for each channel individually.

Date		Date	
Engineering	KEITH JONES	Quality	BRIDGET NOLAN

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- 4.6. Accuracy Limits: $\pm 1^{\circ}\text{F}$ or $\pm 0.1\%$ of reading, whichever is greater.
- 4.7. TC Types to be Calibrated: K.
- 4.8. The timing function shall be calibrated and accurate to ± 1 minute/hour.
- 4.9. Reporting: Must meet AMS 2750 (current revision at the time of reporting).

5.0 TELEVAC MC300 / 7E1 COLD CATHODE / 2A TC TUBE, VACUUM INSTRUMENT/SENSORS

- 5.1. ID Number: 404228 (reference Meyer LOG 6575 PG).
- 5.2. Uses: Calibration of controlling, monitoring, or recording instruments.
- 5.3. Calibration Frequency: 12 months max.
- 5.4. Calibration Standard: Primary or secondary standard traceable to NIST, or other equivalent National Standard.
- 5.5. Calibration Setpoints: Any setpoints are acceptable so long as 20 microns (for TC tube) as well as 1×10^{-3} , 5×10^{-4} and 5×10^{-5} torr (for cold cathode) are included.
 - 5.5.1. Must be completed for each channel individually.
- 5.6. Calibration Method: Shall be in accordance with manufacturer's recommendations.
- 5.7. Accuracy Limits: ± 0.45 decade.

6.0 TRANSMATION 1045 SN PRESSURE CALIBRATOR

- 6.1. ID Numbers: LOG 1501 TH, LOG 5326 TH.
- 6.2. Uses: Calibration of controlling, monitoring, or recording instruments.
- 6.3. Calibration Frequency: 3 months max.
- 6.4. Calibration Standard: Primary or secondary standard traceable to NIST, or other equivalent National Standard.
- 6.5. Calibration Method: Shall be in accordance with manufacturer's recommendations.
- 6.6. Accuracy Limits: ± 0.2 psi.

7.0 VAISALA DMT-152 DEWPOINT INSTRUMENT

- 7.1. ID Numbers: LOG 3689 TH, COX 3488 TH.
- 7.2. Uses: Calibration of controlling, monitoring, or recording instruments.
- 7.3. Calibration Frequency: 6 months max.
- 7.4. Calibration Standard: Primary or secondary standard traceable to NIST, or other equivalent National Standard.
- 7.5. Calibration Setpoints: Any setpoints are acceptable so long as a minimum of three (3) setpoints are taken and the range from -35°F to -80°F is covered.
- 7.6. Calibration Method: Shall be in accordance with manufacturer's recommendations.
- 7.7. Accuracy Limits: Shall be within $\pm 5^{\circ}\text{F}$.



8.0 OUT OF TOLERANCE CONDITION

- 8.1. Any instrument which does not meet the requirements listed herein shall be taken out of service.
- 8.2. The calibration department shall refer to PI-167 for further action.

Revision History

Rev. Ltr.	Parg.	Description of Revision	Date Rev.	Rev. By
A	4.6	Changed an accuracy limit from +/-1% of reading to +/- 0.1%	8/14/13	O. Bagriy
B	7.5	Allowed any setpoints for Vaisala so long as -60°F to -80°F is covered	3/20/15	K. Jones
C	3.5, 4.5, 5.5	Required each channel to be calibrated individually	6/25/15	K. Jones
C	3.5	Changed setpoints on Altek to go down to 750F, made others equally spaced	6/25/15	K. Jones
C	3.6	Changed accuracy limit from +/-1% of reading to +/- 0.1%	6/25/15	K. Jones
C	4.1	Corrected ID #	6/25/15	K. Jones
C	4.5	Changed setpoints on Agilent to go down to 750°F, made others equally spaced	6/25/15	K. Jones
C	5.0	Added 2A TC Tube	6/25/15	K. Jones
C	5.1	Referenced serial number on vacuum instruments/sensors	6/25/15	K. Jones
C	5.5	Required setpoints 20 microns, 1x10 ⁻³ , 5x10 ⁻⁴ , 5x10 ⁻⁵ torr	6/25/15	K. Jones
C	7.5	Required three (3) setpoints	6/25/15	K. Jones
D	3.5, 4.5	Changed setpoints to 250°F, 400°F, 842°F, 1150°F, 1370°F, 1590°F, 1810°F, 2030°F and 2250°F	7/20/2015	S. Lawless
D	5.7	Changed .5 decades to .45 decades.	7/20/2015	S. Lawless
E	1.2	New section covering ISO requirements	3/11/16	K. Jones
F	8.0	New instrument added GE MMY245	6/23/17	K. Jones
F	All	General formatting throughout document	6/23/17	K. Jones
G	7.7 & 8.7	Changed accuracy limit on dewpoint to +/- 5F	12/20/18	K. Jones
H	3.0, 3.1	Added PIE 422 LOG 6524 EG to list	7/8/20	K. Jones
H	8.0	Removed GE MMY245 instrument	7/8/20	K. Jones
J	7.5	Changed -60°F to -35°F	7/17/20	K. Jones
K	3.7	Added type J	3/17/2022	K. Jones
K	4.1	Added LOG 4991 VS	3/17/2022	K. Jones
K	4.8	New section covering timing function for data loggers	3/17/2022	K. Jones
K	5.0	Changed MM200 to MC300	3/17/2022	K. Jones
K	5.1	Changed ID number to 404228, changed LOG number to 6575 PG	3/17/2022	K. Jones
K	6.1	Added LOG 5326 TH	3/17/2022	K. Jones
K	All	Corrected spelling and punctuation	3/17/2022	K. Jones