REPORT OF CALIBRATION

Temperature datalogger

Elitech Technology, Model RC-5+, Serial EFI183200353

Submitted
by
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The temperature datalogger was calibrated using air of known pressure and temperature in a temperature controlled chamber maintained as part of the NIST Hybrid Humidity Generator (HHG). The following procedure was used for the calibration. The chamber set temperrature was adjusted and monitored until it reached a steady state. Following this, the temperature was averaged over a minimum of thirty minutes. The customer datalogger results were averaged over the same thirty minutes. The average values of the chamber temperature are presented below in Table 1 for all calibration points.

In Table 1, uncertainty values are provided for each calibration point. $U(T_{\text{NIST}})$ is the expanded uncertainty of the NIST-determined values of the temperature at each point. $U(T_{\text{DUT}})$ is the expanded uncertainty of the temperature measured by the device under test due to reproducibility, estimated using the manufacturer's validation tolerence. Finally, $U_{\text{Tot}}(T)$ is the combined expanded uncertainty of the temperature, obtained by adding the NIST and DUT uncertainties in quadrature. An expanded uncertainty is expressed as $U = k u_{\text{c}}$, with U determined from a combined standard uncertainty u_{c} and a coverage factor $k = 2$.

For the Director
National Institute of Standards and Technology

Measurement and analysis performed by Tobias Herman
Test Number: 293003-19
Service ID: 36070S
Purchase Order Number: ET20190311
Measurements performed: 6/6/19-6/11/19
Original Report Date: 2 August 2019
Report Reissue Date: 13 September 2019

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Test No: 293003-19
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Date: 2 Aug 2019

Table 1

Elitech datalogger, RC-5+, serial: EFI183200353
Test Chamber Temperature T

Pt.	Calibration Values		Calibration Uncertainties		
	T_{NIST} (°C)	T_{DUT} (°C)	$U(T_{NIST})$ ($k=2$) (°C)	$U(T_{DUT})$ ($k=2$) (°C)	$U_{Tot}(T)$ ($k=2$) (°C)
1	60.18	60.4	0.03	0.5	0.5
2	25.69	25.9	0.03	0.5	0.5
3	0.19	0.5	0.03	0.5	0.5
4	-9.81	-9.6	0.03	0.5	0.5
5	-25.05	-24.8	0.03	0.5	0.5

In this table,

T_{NIST} is the test chamber temperature, as measured by the NIST reference thermometer.
$U(T_{NIST})$ is the expanded uncertainty (k=2) of temperature inside the test chamber.

NIST
National Institute of Standards and Technology
Technology Administration, U.S. Department of Commerce