



ISTITUTO NAZIONALE
DI OCEANOGRAFIA E DI GEOFISICA SPERIMENTALE – OGS
DIPARTIMENTO OGA - CTO

Test Report

**IDRONAUT OS316
s/n 0202229**

Property of:

Marine Biology Station Piran

Prepared by: Nevio Medeot, Rajesh Nair, Paolo Mansutti

Approved for release by:

Dr. R. Mosetti
Director, OGA

REL. 26/2004 – OGA – 7 , Borgo Grotta Gigante (TS), 27 April 2004



Test Report

Unit Under Test: IDRONAUT OS316, s/n 0202229

Test Equipment

Instrument	Model	Serial no.
Seawater Calibration Bath	Hart 7052	A1A003
Laboratory Salinometer	Guildline Autosal 8400B	65744
Precision Digital Thermometer	Hart - 1590	A1A164
Metal-sheath SPRT	Rosemount 162CE	1844

Measurements performed by: Nevio Medeot, Rajesh Nair, Paolo Mansutti

Approved by:
N. Medeot, CTO Group



Temperature calibration sheet - 1

Test date: 27 April 2004

Ambient conditions:

Temperature : 21° C ± 0.5° C

Relative Humidity : 45% ± 5%

Old¹ temperature calibration coefficients:

a = -244.57866

b = 2.3359592

c = 0.0010775949

Reference (°C)	Probe units (Counts)	Predicted [*] (°C)	Predicted-Reference (°C)
2.3194	100.987	2.313	-0.006
4.9943	102.033	4.985	-0.009
10.1311	104.040	10.119	-0.012
15.1339	105.992	15.120	-0.014
20.0685	107.915	20.056	-0.013
25.0082	109.836	24.994	-0.014
27.9931	110.996	27.980	-0.013

* Accuracy declared by the Manufacturer = ±0.003 °C.

where:

Reference = the bath set-point temperatures (in °C; IPTS-68), measured using the reference Standard Platinum Resistance Thermometer;

Probe units = the instrument output counts at specific bath set-point temperatures;

Predicted = the bath set-point temperatures (in °C; IPTS-68), as computed by the instrument using the old calibration coefficients;

Predicted-Reference = the temperature residuals (in °C; IPTS-68), i.e. the difference between the "Predicted" and "Reference" bath set-point temperatures.



Temperature calibration sheet - 2

Test date: 27 April 2004

Ambient conditions:

Temperature : 21° C ± 0.5° C

Relative Humidity : 50% ± 10%

New temperature calibration coefficients:

a = -2.4595020055e+002

b = +2.3614862141e+000

c = +9.6002859327e-004

Reference (°C)	Probe units (Counts)	Predicted [*] (°C)	Predicted-Reference (°C)
2.3194	100.987	2.320	0.001
4.9943	102.033	4.994	0.000
10.1311	104.040	10.130	-0.001
15.1339	105.992	15.134	0.000
20.0685	107.915	20.070	0.002
25.0082	109.836	25.008	0.000
27.9931	110.996	27.993	0.000

* Accuracy declared by the Manufacturer = ±0.003 °C.

where:

Reference = the bath set-point temperatures (in °C; IPTS-68), measured using the reference Standard Platinum Resistance Thermometer;

Probe units = the instrument output counts at specific bath set-point temperatures;

Predicted = the bath set-point temperatures (in °C; IPTS-68), as computed by the instrument using the new calibration coefficients;

Predicted-Reference = the temperature residuals (in °C; IPTS-68), i.e. the difference between the "Predicted" and "Reference" bath set-point temperatures.



Conductivity calibration sheet - 1

Test date: 26 April 2004

Ambient conditions :

Temperature : 21° C ± 0.5° C

Relative Humidity : 50% ± 10%

Old² conductivity calibration coefficients:

a = +0.022728177

b = +0.56374139

c = +1.3866447e-005

Reference (mS/cm)	Probe Units (Counts)	Predicted [§] (mS/cm)	Predicted-Reference (mS/cm)
38.4667	68.412	38.654	0.187
43.5977	77.538	43.817	0.219
48.6100	86.451	48.862	0.252
53.4230	95.008	53.708	0.285
58.3730	103.799	58.688	0.315

[§] Accuracy declared by the Manufacturer = ±0.003 mS/cm.

where:

Reference = the reference set-point conductivities (in mS/cm), obtained from inverted salinity measurements (on the Practical Salinity Scale) of the seawater occupying the temperature bath (using a Guildline Autosol 8400B laboratory salinometer) at specific bath set-point temperatures (in °C; IPTS-68);

Probe Units = the instrument output counts at reference set-point conductivities;

Predicted = the bath set-point conductivities (in mS/cm), as computed by the instrument using the old calibration coefficients;

Predicted-Reference = the conductivity residuals (in mS/cm), i.e. the difference between the "Predicted" and "Reference" bath set-point conductivities.

² OGS -CTO, Trieste; 04-03-2003



Conductivity calibration sheet - 2

Test date: 26 April 2004

Ambient conditions :

Temperature : 21° C ± 0.5° C

Relative Humidity : 50% ± 10%

New conductivity calibration coefficients:

a = +8.6777398188e-002

b = +5.6003503443e-001

c = +1.4352667626e-005

Reference (mS/cm)	Probe Units (Counts)	Predicted [§] (mS/cm)	Predicted-Reference (mS/cm)
38.4667	68.412	38.467	0.000
43.5977	77.538	43.597	-0.001
48.6100	86.451	48.610	0.000
53.4230	95.008	53.424	0.001
58.3730	103.799	58.372	-0.001

[§] Accuracy declared by the Manufacturer = ±0.003 mS/cm.

where:

Reference = the reference set-point conductivities (in mS/cm), obtained from inverted salinity measurements (on the Practical Salinity Scale) of the seawater occupying the temperature bath (using a Guildline Autosal 8400B laboratory salinometer) at specific bath set-point temperatures (in °C; IPTS-68);

Probe Units = the instrument output counts at reference set-point conductivities;

Predicted = the bath set-point conductivities (in mS/cm), as computed by the instrument using the old calibration coefficients;

Predicted-Reference = the conductivity residuals (in mS/cm), i.e. the difference between the "Predicted" and "Reference" bath set-point conductivities.



Summary of actions taken

- 1. Calibration of temperature sensor performed, and new coefficients introduced via instrument software.**
- 2. Calibration of conductivity sensor performed, and new coefficients introduced via instrument software.**