



SEA-BIRD
SCIENTIFIC

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Pressure Test Certificate

Test Date: 2017-12-14

Description: Slocum CTD

Sensor Information:

Model Number: Slocum

Serial Number: 9446

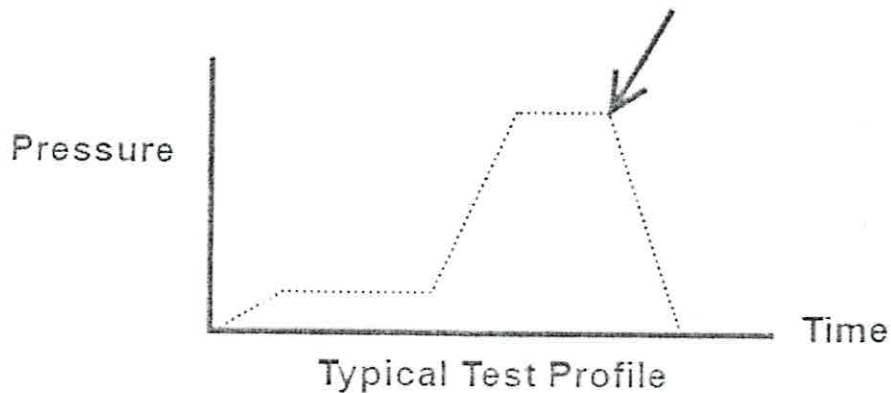
Pressure Test Protocol:

Low Pressure Test: 40	PSI	Held For: 15	Minutes
High Pressure Test: 40	PSI	Held For: 15	Minutes

Passed Test: True

Tested By: DC

High pressure is generally equal to the maximum depth rating of the instrument





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SENSOR SERIAL NUMBER: 9446
CALIBRATION DATE: 15-Dec-17

Slocum Payload CTD PRESSURE CALIBRATION DATA
1450 psia S/N 10724295

COEFFICIENTS:

PA0 = 6.420343e-001
PA1 = 4.433719e-003
PA2 = -1.926322e-011
PTEMPA0 = -6.389185e+001
PTEMPA1 = 5.253999e-002
PTEMPA2 = -2.919106e-007
PTCA0 = 5.241844e+005
PTCA1 = 4.725721e+000
PTCA2 = 1.068166e-001
PTCB0 = 2.520949e+001
PTCB1 = 2.957393e-003
PTCB2 = 0.000000e+000

PRESSURE SPAN CALIBRATION

THERMAL CORRECTION

Table with 8 columns: PRESSURE (PSIA), INSTRUMENT OUTPUT (counts), THERMISTOR OUTPUT (volts), COMPUTED PRESSURE (PSIA), RESIDUAL (%FSR), TEMP (°C), THERMISTOR OUTPUT (volts), INSTRUMENT OUTPUT (counts). Includes data points and summary statistics for thermal correction.

y = thermistor output (counts)

t = PTEMPA0 + PTEMPA1 * y + PTEMPA2 * y^2

x = instrument output - PTCA0 - PTCA1 * t - PTCA2 * t^2

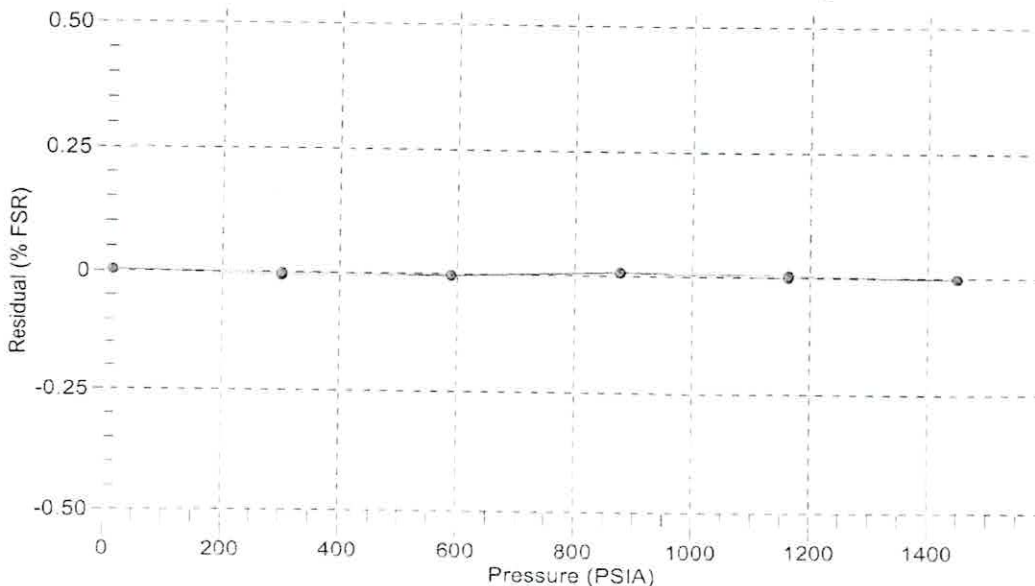
n = x * PTCB0 / (PTCB0 + PTCB1 * t + PTCB2 * t^2)

pressure (PSIA) = PA0 + PA1 * n + PA2 * n^2

Residual (%FSR) = (computed pressure - true pressure) * 100 / Full Scale Range

Date, Offset (%FSR)

● 15-Dec-17 -0.00





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SENSOR SERIAL NUMBER: 9446
CALIBRATION DATE: 24-Dec-17

Slocum Payload CTD CONDUCTIVITY CALIBRATION DATA
PSS 1978: C(35,15,0) = 4.2914 Siemens/meter

COEFFICIENTS:

g = -9.799179e-001
h = 1.237450e-001
i = -1.007142e-004
j = 2.243481e-005

CPcor = -9.5700e-008
CTcor = 3.2500e-006
WBOTC = 8.8790e-008

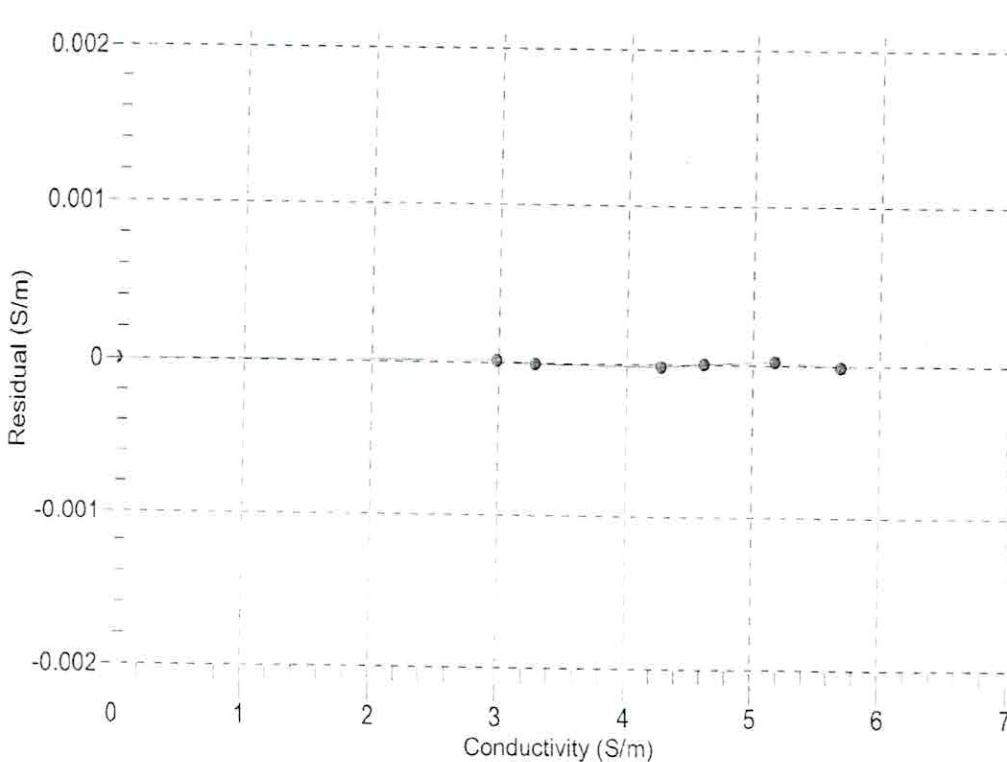
BATH TEMP (° C)	BATH SAL (PSU)	BATH COND (S/m)	INSTRUMENT OUTPUT (Hz)	INSTRUMENT COND (S/m)	RESIDUAL (S/m)
22.0000	0.0000	0.00000	2815.24	0.00000	0.00000
1.0000	34.8068	2.97523	5650.16	2.97524	0.00001
4.5000	34.7875	3.28227	5864.59	3.28227	-0.00001
15.0000	34.7460	4.26390	6502.09	4.26388	-0.00002
18.5000	34.7373	4.60902	6711.58	4.60902	0.00000
24.0000	34.7275	5.16688	7036.73	5.16690	0.00002
29.0000	34.7217	5.68857	7327.39	5.68855	-0.00001
32.5000	34.7173	6.06068	7527.72	6.06074	0.00007

$f = \text{Instrument Output(Hz)} * \text{sqrt}(1.0 + \text{WBOTC} * t) / 1000.0$

$t = \text{temperature (°C)}$; $p = \text{pressure (decibars)}$; $\delta = \text{CTcor}$; $\epsilon = \text{CPcor}$;

$\text{Conductivity (S/m)} = (g + h * f^2 + i * f^3 + j * f^4) / (1 + \delta * t + \epsilon * p)$

$\text{Residual (Siemens/meter)} = \text{instrument conductivity} - \text{bath conductivity}$



Date, Slope Correction
● 24-Dec-17 1.0000000



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Slocum Payload CTD TEMPERATURE CALIBRATION DATA
ITS-90 TEMPERATURE SCALE

COEFFICIENTS:

a0 = -1.563097e-004
a1 = 3.156161e-004
a2 = -5.042520e-006
a3 = 2.158781e-007

BATH TEMP (° C)	INSTRUMENT OUTPUT (counts)	INST TEMP (° C)	RESIDUAL (° C)
1.0000	578019.4	1.0000	0.0000
4.5000	494664.0	4.5000	-0.0000
15.0000	316176.1	14.9999	-0.0001
18.5000	274053.3	18.5002	0.0002
24.0000	220225.7	24.0000	0.0000
29.0000	181629.5	28.9998	-0.0002
32.5000	159239.9	32.5001	0.0001

n = Instrument Output (counts)

Temperature ITS-90 (°C) = $1 / \{a_0 + a_1[\ln(n)] + a_2[\ln^2(n)] + a_3[\ln^3(n)]\} - 273.15$

Residual (°C) = instrument temperature - bath temperature

