LI-7500 CO_2/H_2O Analyzer

Calibration Certificate

Serial Number 75H-1694

Date: 10 Mar 2009 **Technician** TCF

CO_2 Calibration Values

A = 1.55023E2
B = 1.62293E4
C = 4.50913E7
D = -1.34814E10
E = 1.87114E12
XS = 0.0013
Z = -1.70000E-3

H_2O Calibration Values

A = 5.04086E3
B = 4.02623E6
C = -2.89168E8
XS = -0.0015
Z = 1.90000E-2

Pressure Calibration*

A0 = 10.761
A1 = 26.036

* Ver 3.0.1 and above

Zero/Span set on 11 Mar 2009

CO2 Zero = 0.8603
CO2 Span = 1.0025 (at 606 ppm)
H2O Zero = 0.7945
H2O Span = 0.9983 (at 12 C)

LI-COR Biosciences
LI-COR, inc.
P.O. Box 4425
Lincoln, NE 68504 USA
Phone: 402-467-3576
FAX: 402-467-2819
Toll-free: 1-800-447-3576 (U.S. & Canada)

LI-7500 75H-1694 Calibrated 10 Mar 2009 / Checked 11 Mar 2009
Calibration file: L:\MICHAEL\CALS\75H\1694\20090310.raw

CO2 Measurements

	Type__	Time	CO2(ppm)	CO2(mm3)	CO2Abs	CO2SD	CO2Slp	H2OAbs	TOven(C)	T(C)	Press	Pa(kPa)	Fs(l/m)	Cooler	AGC	Diag
1	CO2/75	19:15:52	0	0.000	0.00037	1.71E-5	-1.41E-5	-0.00276	16.60	15.73	97.88	97.99	0.501	1.4408	50.0	C
2	CO2/75	19:16:55	92.5	3.772	0.02413	1.54E-5	9.68E-6	-0.00283	16.60	15.73	97.89	97.99	0.500	1.4413	51.0	C
3	CO2/75	19:17:58	196.9	8.029	0.04715	1.55E-5	3.04E-5	-0.00287	16.60	15.76	97.90	98.00	0.501	1.4413	51.0	C
4	CO2/75	19:19:01	300.1	12.246	0.06686	1.48E-5	6.93E-6	-0.00291	16.60	15.74	97.96	98.01	0.500	1.4423	51.0	CH
5	CO2/75	19:20:04	398.4	16.254	0.08353	1.43E-5	9.63E-6	-0.00291	16.60	15.74	97.94	98.01	0.502	1.4433	52.0	C
6	CO2/75	19:21:07	505.5	20.624	0.09983	1.65E-5	5.71E-6	-0.00295	16.60	15.74	97.94	98.02	0.501	1.4423	52.0	CH
7	CO2/75	19:22:10	605.9	24.720	0.11369	1.43E-5	3.26E-5	-0.00298	16.60	15.74	97.94	98.02	0.502	1.4413	52.0	CH
8	CO2/75	19:23:13	747.3	30.486	0.13141	1.47E-5	4.32E-6	-0.00300	16.60	15.74	97.93	98.02	0.501	1.4413	52.0	CH
9	CO2/75	19:24:19	983.0	40.101	0.15738	1.45E-5	1.69E-5	-0.00303	16.60	15.74	97.93	98.02	0.500	1.4423	53.0	CH
10	CO2/75	19:25:30	1472	60.055	0.20162	1.73E-5	2.36E-5	-0.00308	16.60	15.74	97.94	98.02	0.501	1.4413	53.0	CH
11	CO2/75	19:26:39	2096	85.513	0.24668	1.55E-5	3.18E-5	-0.00312	16.60	15.74	97.94	98.02	0.502	1.4423	54.0	CH
12	CO2/75	19:27:51	2485	101.394	0.27065	1.77E-5	2.49E-5	-0.00315	16.60	15.74	97.95	98.03	0.500	1.4408	54.0	CH
13	CO2/75	19:29:09	3086	125.908	0.30348	1.80E-5	1.76E-5	-0.00319	16.60	15.76	97.95	98.04	0.501	1.4433	55.0	CH
14	CO2/75	22:52:58	0	0.000	-0.00013	1.89E-5	-7.01E-6	0.00291	31.90	30.75	98.44	98.48	0.501	1.7339	52.0	C
15	CO2/75	22:54:01	92.5	3.606	0.02270	1.83E-5	-1.01E-6	0.00277	31.90	30.77	98.46	98.48	0.501	1.7336	52.0	C
16	CO2/75	22:55:04	196.9	7.677	0.04500	2.23E-5	1.05E-5	0.00271	31.90	30.79	98.48	98.48	0.501	1.7326	53.0	CH
17	CO2/75	22:56:07	300.1	11.701	0.06422	1.73E-5	1.61E-5	0.00265	32.00	30.77	98.47	98.49	0.501	1.7346	53.0	C
18	CO2/75	22:57:22	398.4	15.531	0.08055	2.31E-5	1.32E-5	0.00264	31.90	30.79	98.46	98.49	0.501	1.7363	53.0	CH
19	CO2/75	22:58:25	505.5	19.706	0.09656	1.85E-5	2.23E-5	0.00260	31.90	30.79	98.46	98.50	0.501	1.7346	53.0	C
20	CO2/75	22:59:28	605.9	23.628	0.11024	2.36E-5	9.24E-6	0.00256	31.90	30.75	98.48	98.50	0.501	1.7323	54.0	C
21	CO2/75	23:00:31	747.3	29.149	0.12776	2.15E-5	1.80E-5	0.00253	31.90	30.77	98.51	98.50	0.500	1.7336	54.0	CH
22	CO2/75	23:01:37	983.0	38.340	0.15352	1.98E-5	2.10E-5	0.00250	31.90	30.79	98.51	98.50	0.501	1.7349	54.0	C
23	CO2/75	23:02:49	1472	57.391	0.19758	2.40E-5	8.97E-6	0.00245	31.90	30.75	98.46	98.51	0.500	1.7316	55.0	CH
24	CO2/75	23:04:04	2096	81.750	0.24265	2.02E-5	2.70E-5	0.00240	31.90	30.79	98.51	98.50	0.501	1.7326	56.0	C
25	CO2/75	23:05:11	2485	96.912	0.26671	1.72E-5	1.52E-5	0.00237	31.90	30.79	98.50	98.50	0.501	1.7356	56.0	C
26	CO2/75	23:06:14	3086	120.342	0.29974	2.25E-5	2.80E-6	0.00233	31.90	30.75	98.48	98.50	0.501	1.7366	57.0	CH
27	CO2/75	02:38:12	0	0.000	-0.00046	2.12E-5	-2.15E-5	0.00844	45.10	43.94	98.96	98.88	0.502	2.0214	54.0	C
28	CO2/75	02:39:18	92.5	3.473	0.02165	1.78E-5	-4.15E-6	0.00828	45.10	43.94	98.94	98.88	0.502	2.0222	55.0	C
29	CO2/75	02:40:25	196.9	7.391	0.04338	2.81E-5	2.38E-5	0.00822	45.10	43.99	98.92	98.88	0.501	2.0212	55.0	C
30	CO2/75	02:41:31	300.1	11.273	0.06221	2.08E-5	3.65E-5	0.00816	45.10	43.89	98.97	98.89	0.502	2.0222	55.0	C
31	CO2/75	02:42:34	398.4	14.969	0.07828	2.15E-5	1.63E-5	0.00814	45.20	43.99	99.02	98.89	0.501	2.0250	55.0	CH
32	CO2/75	02:43:43	505.5	18.987	0.09409	2.02E-5	9.59E-6	0.00809	45.10	43.92	98.97	98.90	0.501	2.0242	56.0	C
33	CO2/75	02:44:54	605.9	22.767	0.10764	1.97E-5	1.90E-5	0.00805	45.20	43.86	98.99	98.90	0.500	2.0202	56.0	C
34	CO2/75	02:45:57	747.3	28.073	0.12502	2.27E-5	3.10E-5	0.00802	45.10	43.92	98.98	98.91	0.500	2.0214	56.0	C
35	CO2/75	02:47:02	983.0	36.930	0.15063	1.81E-5	1.55E-5	0.00799	45.10	43.92	98.99	98.90	0.499	2.0212	57.0	CH
36	CO2/75	02:48:13	1472	55.285	0.19461	2.07E-5	3.53E-5	0.00794	45.20	43.89	98.95	98.91	0.500	2.0212	57.0	C
37	CO2/75	02:49:28	2096	78.737	0.23976	2.10E-5	1.94E-5	0.00788	45.20	43.89	98.97	98.91	0.500	2.0212	58.0	CH
38	CO2/75	02:50:31	2485	93.355	0.26392	1.77E-5	1.36E-5	0.00785	45.20	43.87	98.97	98.90	0.501	2.0222	58.0	CH
39	CO2/75	02:51:45	3086	115.910	0.29719	2.09E-5	1.18E-5	0.00781	45.10	43.87	98.95	98.90	0.500	2.0202	59.0	C

CO2(ppm) - CO2 concentration (tank value)
CO2(mm3) - Computed CO2 mole density (mmol/m3), based on mole fraction, temperature, and pressure.
CO2Abs - CO2 absorptance (unfiltered)
CO2SD - Standard deviation of CO2Abs (100 samples over 10 seconds).
H2OAbs - H2O absorptance (unfiltered)
TOven(C) - Oven temperature
T(C) - LI-7500's temperature measurement from calibration tube
Press - Atmospheric pressure measured by the LI-7500 (1% sensor)
Pa(kPa) - Atmospheric pressure measured by Ruska 6200
F(l/m) - Flow through calibration tube, liters/min.
Cooler - Detector cooling voltage.
AGC - Automatic gain control value (0-100%)
Diag - Diagnostics messages, plus 'C' forCO2 stability achieved, and 'H' forH2O stability achieved.

LI-7500 75H-1694 Calibrated 10 Mar 2009 / Checked 11 Mar 2009
Calibration file: L:\MICHAEL\CALS\75H\1694\20090310.raw

CO2 Computations

Num	ppm	abs/kPa	mmol/m3/kPa	Coeffs	Predicted	Error	%Error	Temp	Drift at 370 ppm	%/C
1	0	0E0	0	1.55023E2	0	0	0.000	15C	-0.093	0.026
2	92.5	2.42811E-4	0.03853	1.62293E4	0.0392	0.00067	1.727	30C	0.285	
3	196.9	4.78011E-4	0.08201	4.50913E7	0.08208	0.00007	0.081	43C	0.627	
4	300.1	6.78998E-4	0.12501	-1.34814E10	0.12426	-0.00075	-0.598			
5	398.4	8.49406E-4	0.16596	1.87114E12	0.16483	-0.00113	-0.680			
6	505.5	1.0159E-3	0.21058		0.20918	-0.0014	-0.665			
7	605.9	1.15746E-3	0.2524		0.25079	-0.00161	-0.638			
8	747.3	1.33859E-3	0.3113		0.3095	-0.0018	-0.578			
9	983	1.60388E-3	0.40949		0.40708	-0.00241	-0.589			
10	1472	2.05559E-3	0.61318		0.60686	-0.00632	-1.030			
11	2096	2.51584E-3	0.87312		0.85926	-0.01385	-1.587			
12	2485	2.76039E-3	1.03516		1.01716	-0.018	-1.739			
13	3086	3.09568E-3	1.28543		1.26699	-0.01844	-1.434			
14	0	0E0	0		0	0	0.000			
15	92.5	2.31841E-4	0.03662		0.03734	0.00071	1.947			
16	196.9	4.58206E-4	0.07795		0.07822	0.00027	0.342			
17	300.1	6.53414E-4	0.11883		0.11857	-0.00026	-0.219			
18	398.4	8.19313E-4	0.15774		0.15732	-0.00042	-0.264			
19	505.5	9.81896E-4	0.20014		0.19973	-0.00042	-0.208			
20	605.9	1.12059E-3	0.23993		0.2396	-0.00033	-0.138			
21	747.3	1.29808E-3	0.2959		0.29582	-0.00008	-0.025			
22	983	1.55954E-3	0.3892		0.38978	0.00058	0.150			
23	1472	2.00776E-3	0.58289		0.58359	0.00071	0.122			
24	2096	2.4642E-3	0.82986		0.82819	-0.00167	-0.202			
25	2485	2.70868E-3	0.98388		0.98222	-0.00166	-0.169			
26	3086	3.04459E-3	1.22199		1.2261	0.0041	0.336			
27	0	0E0	0		0	0	0.000			
28	92.5	2.23366E-4	0.0351		0.03591	0.0008	2.292			
29	196.9	4.42983E-4	0.07472		0.07529	0.00057	0.767			
30	300.1	6.32931E-4	0.1139		0.11408	0.00018	0.155			
31	398.4	7.94827E-4	0.15117		0.15132	0.00015	0.101			
32	505.5	9.54901E-4	0.19185		0.19237	0.00052	0.272			
33	605.9	1.09153E-3	0.22999		0.23095	0.00096	0.416			
34	747.3	1.26715E-3	0.28362		0.2856	0.00197	0.695			
35	983	1.52561E-3	0.37307		0.37682	0.00376	1.007			
36	1472	1.97049E-3	0.55872		0.56582	0.00711	1.272			
37	2096	2.42608E-3	0.79556		0.80573	0.01017	1.278			
38	2485	2.67009E-3	0.94327		0.9567	0.01343	1.424			
39	3086	3.0067E-3	1.1714		1.19647	0.02507	2.140			

ppm - CO2 tank value (umol/mol)

abs/kPa - zero corrected CO2 absorptance divided by pressure

umolCO2/m3/kPa - CO2 mole density divided by pressure

Coeffs - computed calibration coeffs (fit 5th order poly to previous 2 columns)

Predicted - predicted CO2 (umol/m3/kPa)

% Error - (Predicted - actual)/actual * 100

At 370 - %Error at 370 ppm (based on curve fit of errors) for each temperature data set

%/C - Estimated span drift with temperature at 370 ppm.

LI-7500 75H-1694 Calibrated 10 Mar 2009 / Checked 11 Mar 2009
Calibration file: L:\MICHAEL\CALS\75H\1694\20090310.raw

H2O Measurements

	Type_	Time	H2O(C)	610kPa	H2O(ppt)	H2O(mm3)	CO2Abs	H2OAbs	H2OSD	H2OSlp	TOven(C)	T(C)	Press	Pa(kPa)	Fs(1m)	Cooler	AGC	Diag
1	H2O/75	19:34:26	-99.00	-0.22	0.00	0.000	0.00038	-0.00286	2.15E-5	2.73E-6	16.70	15.76	97.97	98.06	0.501	1.4423	50.0	CH
2	H2O/75	19:45:48	1.47	31.99	5.25	214.249	0.00043	0.03047	2.09E-5	-1.41E-5	16.70	15.78	97.98	98.07	0.250	1.4413	51.0	C
3	H2O/75	19:56:58	4.82	32.11	6.64	271.104	0.00043	0.03775	1.80E-5	-2.06E-5	16.70	15.76	98.02	98.11	0.250	1.4413	51.0	C
4	H2O/75	20:08:08	8.16	32.32	8.34	340.733	0.00044	0.04623	2.38E-5	2.04E-5	16.70	15.78	98.09	98.16	0.250	1.4428	51.0	C
5	H2O/75	20:19:18	11.51	32.42	10.43	425.989	0.00045	0.05565	2.15E-5	4.54E-6	16.70	15.81	98.07	98.18	0.250	1.4433	51.0	CH
6	H2O/75	20:30:28	15.68	32.73	13.65	557.768	0.00044	0.06880	1.70E-5	1.47E-5	16.70	15.79	98.11	98.21	0.250	1.4413	51.0	C
7	H2O/75	23:11:33	-99.00	-0.22	0.00	0.000	-0.00012	0.00264	2.40E-5	-6.95E-6	31.90	30.79	98.46	98.50	0.500	1.7363	52.0	CH
8	H2O/75	23:22:55	3.00	32.22	5.82	226.966	-0.00007	0.03750	2.43E-5	-1.41E-6	31.90	30.77	98.49	98.50	0.250	1.7333	53.0	CH
9	H2O/75	23:34:05	9.38	32.64	9.01	351.464	-0.00006	0.05277	1.85E-5	1.06E-5	32.00	30.81	98.53	98.51	0.250	1.7319	53.0	CH
10	H2O/75	23:45:15	15.75	32.98	13.65	532.444	-0.00003	0.07161	2.65E-5	7.91E-5	31.90	30.79	98.52	98.55	0.250	1.7343	53.0	C
11	H2O/75	23:56:25	22.14	33.49	20.27	791.179	0.00002	0.09478	2.05E-5	3.09E-5	31.90	30.81	98.59	98.58	0.250	1.7356	53.0	C
12	H2O/75	00:07:47	30.10	34.39	32.22	1257.356	0.00009	0.13054	6.85E-5	-7.45E-4	32.00	30.81	98.57	98.60	0.250	1.7346	54.0	C
13	H2O/75	02:57:10	-99.00	-0.21	0.00	0.000	-0.00044	0.00812	2.25E-5	-1.26E-5	45.20	43.86	98.97	98.90	0.500	2.0222	54.0	C
14	H2O/75	03:08:32	4.29	32.50	6.34	238.005	-0.00039	0.04418	2.08E-5	-1.46E-5	45.20	43.94	98.92	98.88	0.250	2.0212	55.0	C
15	H2O/75	03:19:58	13.32	33.13	11.63	436.770	-0.00037	0.06717	2.51E-5	9.77E-6	45.20	43.94	98.96	98.88	0.250	2.0202	55.0	CH
16	H2O/75	03:31:30	22.37	33.73	20.47	768.842	-0.00031	0.09805	2.70E-5	-2.43E-5	45.20	43.97	98.98	98.89	0.250	2.0224	56.0	C
17	H2O/75	03:43:05	31.40	34.72	34.55	1297.359	-0.00022	0.13840	1.01E-4	-7.55E-4	45.20	43.92	98.94	98.89	0.250	2.0212	56.0	C
18	H2O/75	03:55:12	42.70	36.62	63.11	2369.793	-0.00012	0.20485	3.44E-5	-2.99E-4	45.20	43.92	98.94	98.89	0.250	2.0212	57.0	C

H2O(C) - LI-610 Dewpoint generator set point
610kPa - Overpressure (kPa) in the LI-610
H2O(mm3) - Water nole density (mmol/m3) in the calibration tube. Includes overpressure correction.
H2OAbs - H2O absorptance (unfiltered)
H2OSD - Standard deviation of H2OAbs (100 samples over 10 seconds).
CO2Abs - CO2 absorptance (unfiltered)
TOven(C) - Oven temperature
T(C) - LI-7000's temperature measurement
Pa(kPa) - Atmospheric pressure, measured by Ruska 6200
Press - Atmospheric pressure measured by LI-7500 (1 % sensor)
F(1m) - Flow throughcalibration tube, liters/min.
Cooler - Detector cooler voltage
AGC- Automatic gain control value (0-100%)
Diag - LI-7500's diagnostic codes, plus 'C' for CO2 stability achieved, and 'H' for H2O stability achieved.

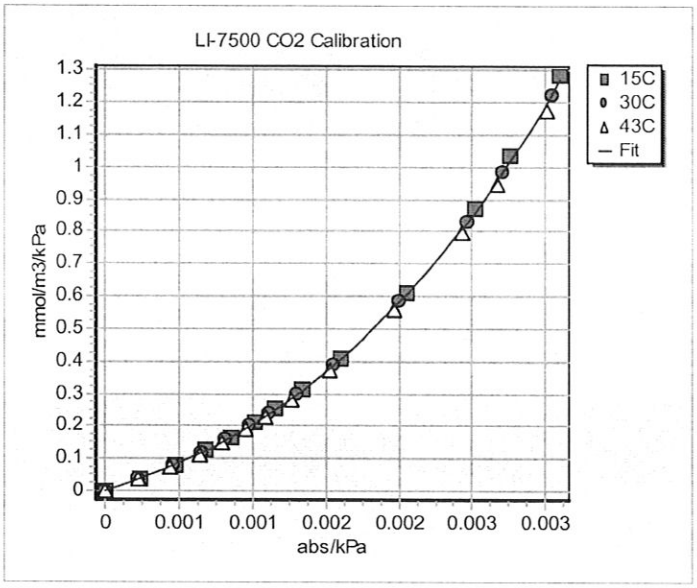
H2O Computations

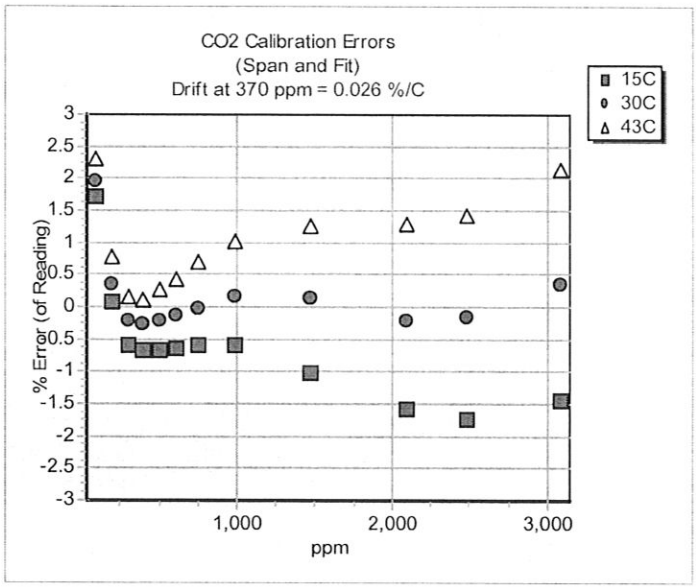
Num	ppt	abs/kPa	mmol/m3/kPa	Coeffs	Predicted	Error	%Error	Temp	Drift at 10 ppt	%/C
1	0	0E0	0	5.04086E3	0	0	0.000	15C	0.456	-0.014
2	5.2	3.39201E-4	2.18666	4.02623E6	2.16183	-0.02483	-1.136	30C	0.322	
3	6.6	4.13122E-4	2.7658	-2.89168E8	2.74926	-0.01655	-0.598	43C	0.057	
4	8.3	4.99032E-4	3.47368		3.48228	0.0086	0.248			
5	10.4	5.94913E-4	4.34372		4.36296	0.01924	0.443			
6	13.6	7.28322E-4	5.68513		5.69538	0.01025	0.180			
7	0	0E0	0		0	0	0.000			
8	5.8	3.54881E-4	2.30446		2.28305	-0.02141	-0.929			
9	9	5.10126E-4	3.56708		3.58083	0.01375	0.386			
10	13.7	7.01914E-4	5.40443		5.42191	0.01748	0.324			
11	20.3	9.37051E-4	8.02494		8.02092	-0.00402	-0.050			
12	32.2	1.30099E-3	12.75597		12.73605	-0.01992	-0.156			
13	0	0E0	0		0	0	0.000			
14	6.3	3.67521E-4	2.40604		2.3821	-0.02393	-0.995			
15	11.6	6.01591E-4	4.4136		4.42672	0.01312	0.297			
16	20.5	9.16005E-4	7.76765		7.77348	0.00583	0.075			
17	34.5	1.32754E-3	13.11258		13.11105	-0.00153	-0.012			
18	63.1	2.00465E-3	23.95182		23.95564	0.00382	0.016			

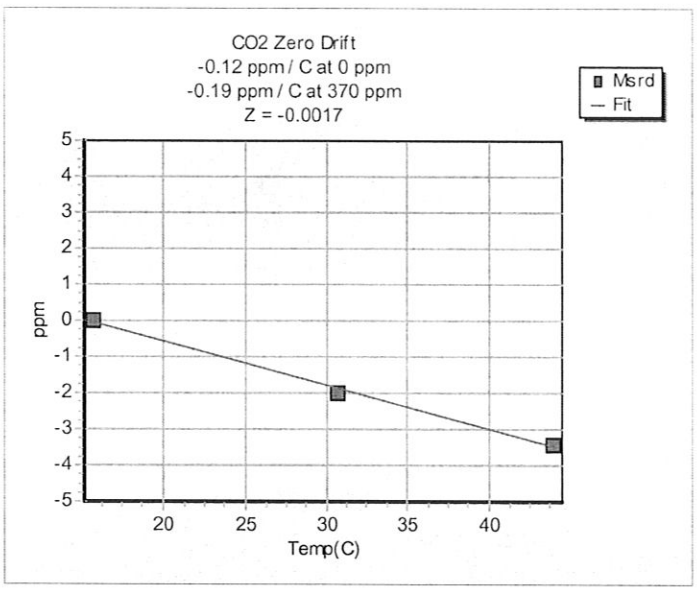
mmolH2O/mol - H2O concentration
abs/kPa - H2O absorptance divided by pressure
mmolH2O/m3/kPa - H2O mole density divided by pressure
Coeffs - computed calibration coeffs (fit 3rd order poly to previous 2 columns)
Predicted - predicted H2O (mmol/m3/kPa)
%Error - (Predicted - actual)/actual * 100
At 10 - Estimated % Error at 10 mmol/mol, based on a curve fit of the %Error values, for each temperature group
%/C - Estimated span drift at 10 mmol/mol.

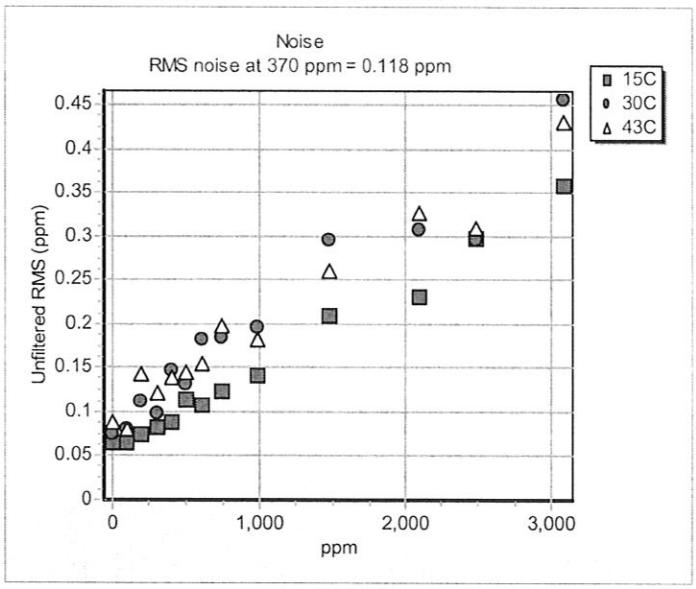
LI-7500 75H-1694 Calibrated 10 Mar 2009 / Checked 11 Mar 2009
Calibration file: L:\MICHAEL\CALS\75H\1694\20090310.raw

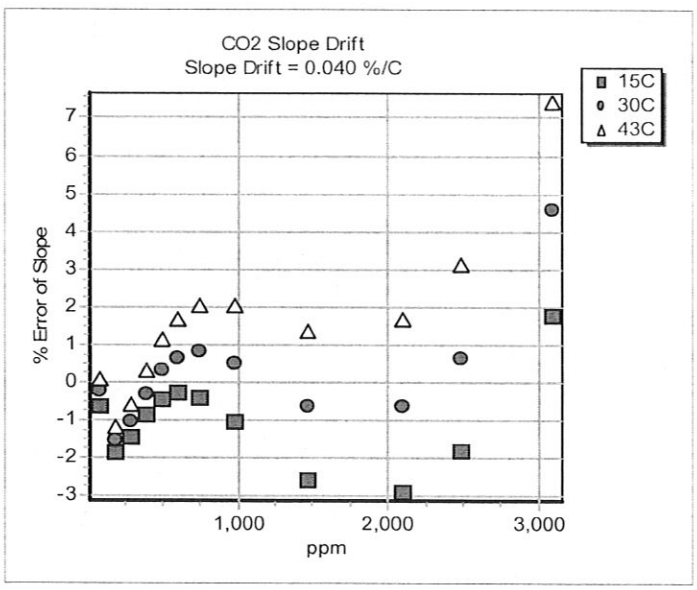
CO2 Calibration Plots

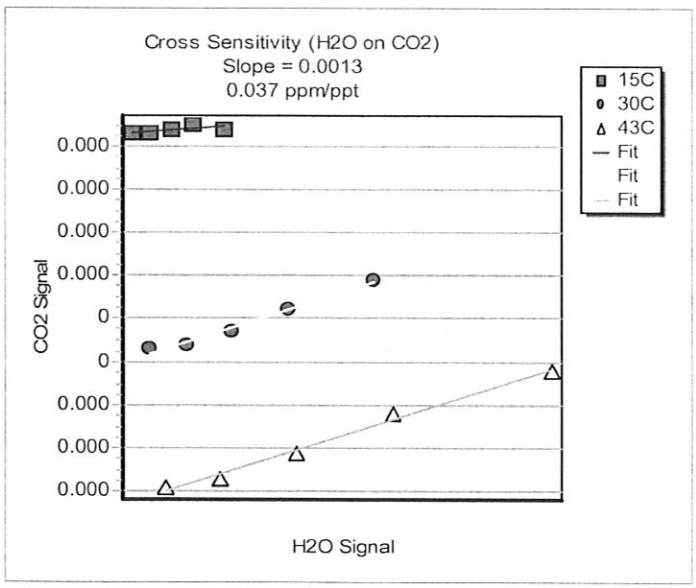






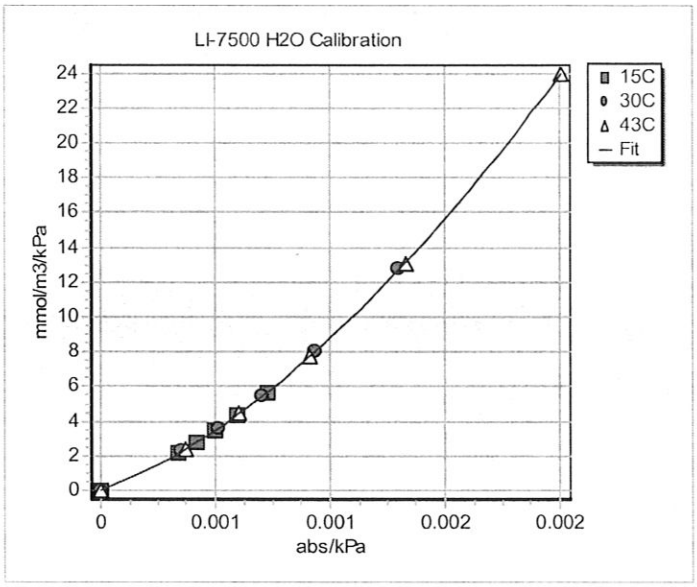


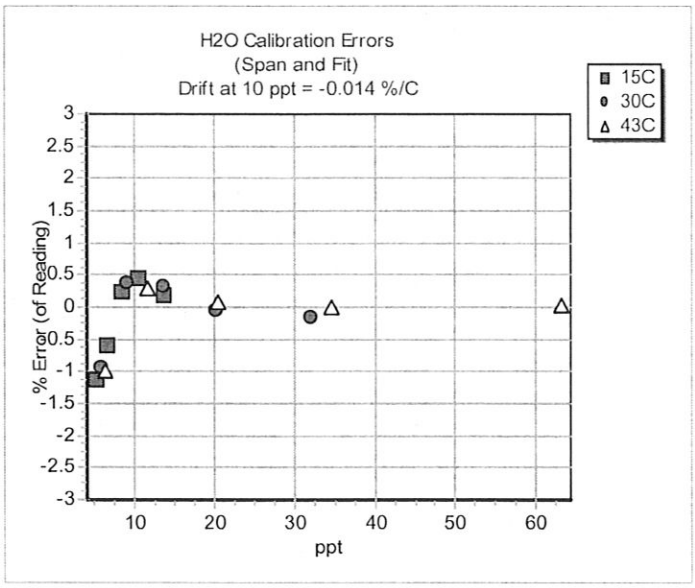


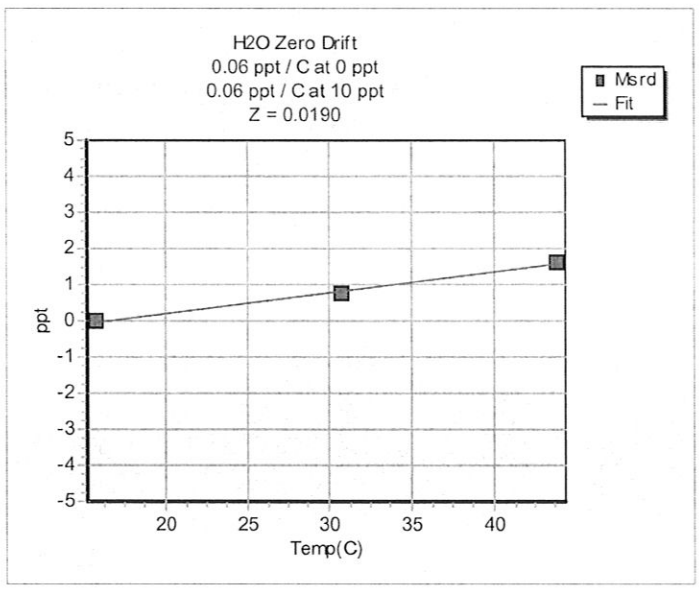


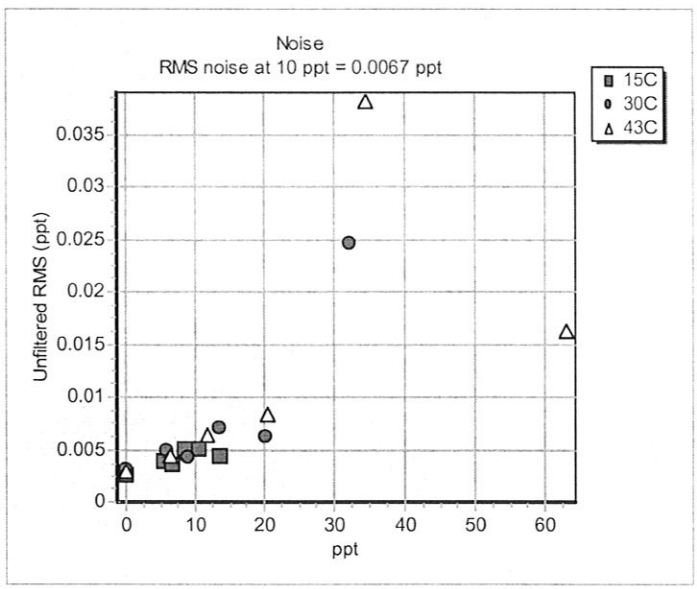
LI-7500 75H-1694 Calibrated 10 Mar 2009 / Checked 11 Mar 2009
Calibration file: L:\MICHAEL\CALS\75H\1694\20090310.raw

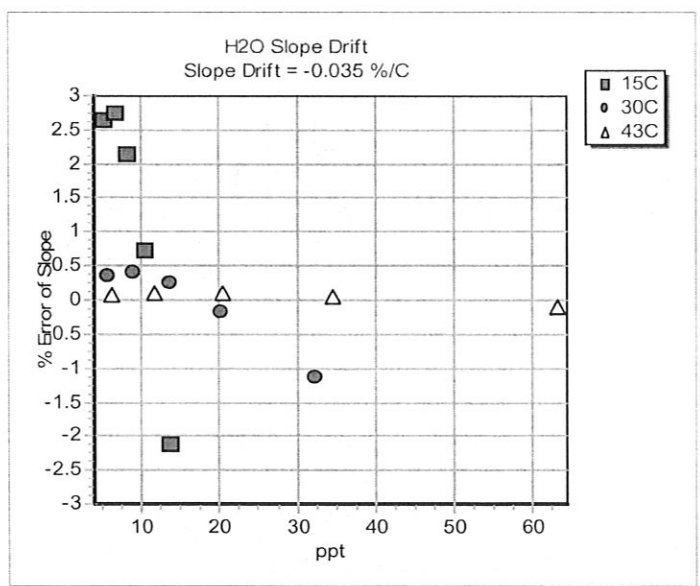
H2O Calibration Plots

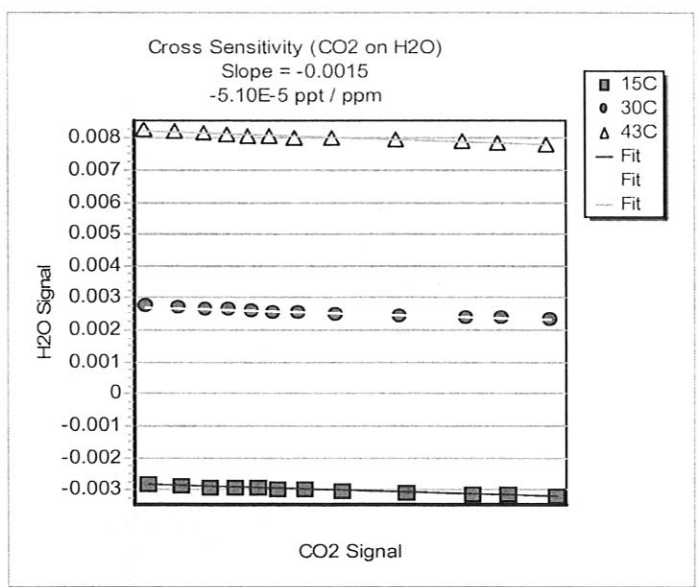






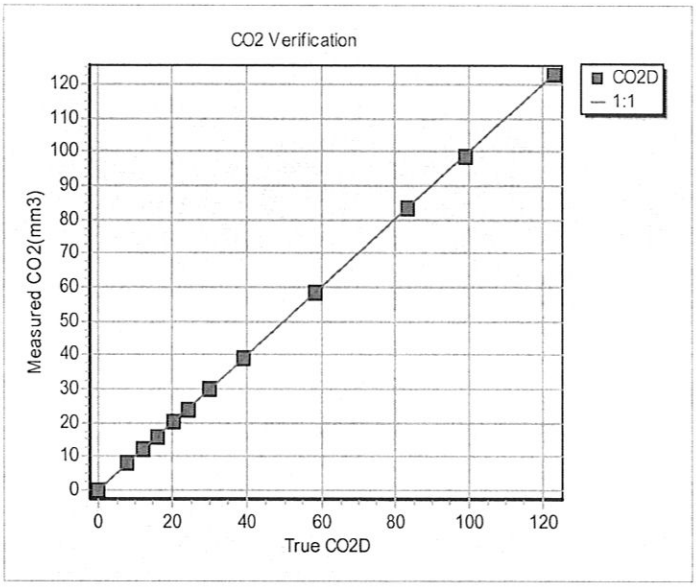


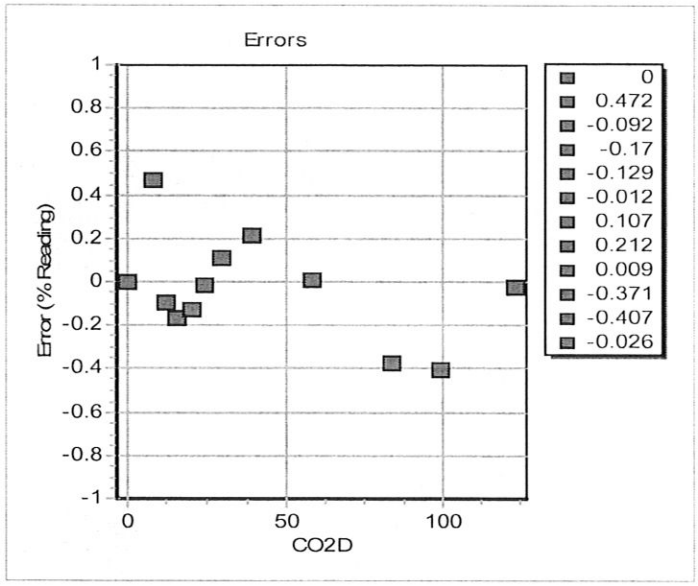




LI-7500 75H-1694 Calibrated 10 Mar 2009 / Checked 11 Mar 2009
Calibration file: L:\MICHAEL\CALS\75H\1694\20090310.raw

CO2 Final Check Plots





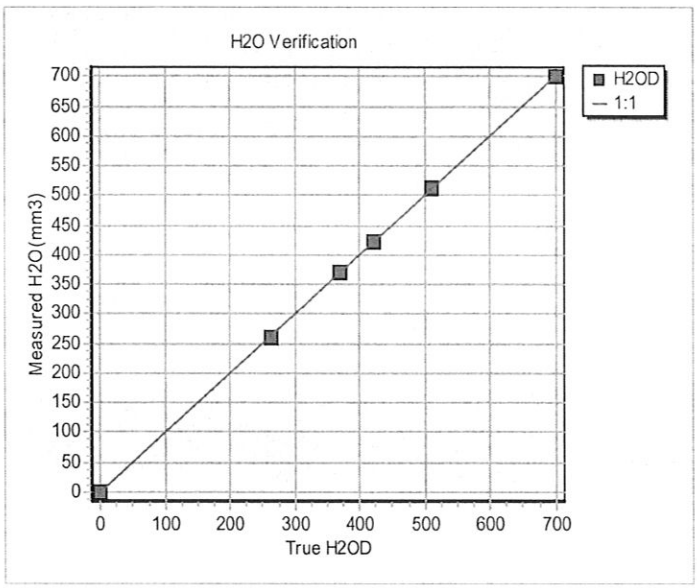
File = L:\MICHAEL\CALS\75H\1694\20090311.fc

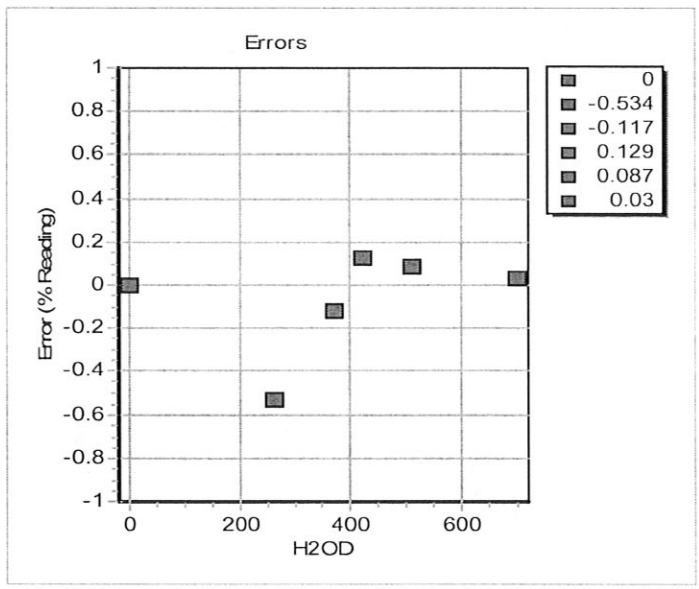
	Type__	Time	CO2(ppm)	CO2(mm3)	CO2Abs	CO2SD	CO2Slp	H2OAbs	CO2D	CO2DSD	H2OD	H2ODSD	TOven(C)	T(C)	Press	Pa(kPa)	Fs(l/m)	Cooler	AGC	Diag
1	CO2/75	06:19:08	0	0.000	0.00000	1.70E-5	-4.74E-6	-0.00017	0.001	6.87E-4	-0.9	6.23E-2	26.90	25.86	98.97	99.02	0.502	1.6337	51.0	CH
2	CO2/75	06:20:23	196.9	7.846	0.04597	2.12E-5	2.22E-5	-0.00016	7.883	9.17E-4	-0.8	6.22E-2	26.90	25.85	99.01	99.02	0.502	1.6340	52.0	CH
3	CO2/75	06:21:38	300.1	11.959	0.06547	1.75E-5	1.02E-5	-0.00017	11.948	1.27E-3	-0.9	5.75E-2	26.90	25.85	99.01	99.03	0.501	1.6340	52.0	C
4	CO2/75	06:22:53	398.4	15.876	0.08201	1.98E-5	6.55E-6	-0.00014	15.849	1.58E-3	-0.7	6.40E-2	26.90	25.85	99.01	99.03	0.502	1.6357	53.0	CH
5	CO2/75	06:24:08	505.5	20.146	0.09821	2.34E-5	3.64E-7	-0.00016	20.120	1.54E-3	-0.8	6.56E-2	26.90	25.82	99.01	99.02	0.501	1.6337	53.0	CH
6	CO2/75	06:25:23	605.9	24.142	0.11204	1.63E-5	6.15E-6	-0.00017	24.139	2.12E-3	-0.9	6.71E-2	26.90	25.85	99.00	99.03	0.501	1.6350	53.0	C
7	CO2/75	06:26:38	747.3	29.776	0.12973	2.12E-5	-1.05E-5	-0.00017	29.808	2.79E-3	-0.8	7.01E-2	26.90	25.85	99.00	99.03	0.500	1.6347	53.0	CH
8	CO2/75	06:27:53	983.0	39.173	0.15572	1.51E-5	1.04E-5	-0.00016	39.256	3.61E-3	-0.8	6.64E-2	26.90	25.84	99.01	99.03	0.500	1.6340	54.0	C
9	CO2/75	06:29:08	1472	58.654	0.20009	2.02E-5	1.59E-5	-0.00014	58.659	6.91E-3	-0.7	6.76E-2	26.90	25.84	99.00	99.03	0.501	1.6330	54.0	CH
10	CO2/75	06:30:28	2096	83.537	0.24540	1.65E-5	1.27E-5	-0.00013	83.227	9.44E-3	-0.7	6.34E-2	26.90	25.80	99.01	99.04	0.501	1.6327	55.0	CH
11	CO2/75	06:31:43	2485	99.028	0.26954	1.80E-5	9.32E-6	-0.00012	98.625	1.40E-2	-0.6	6.80E-2	26.90	25.81	99.00	99.04	0.501	1.6337	55.0	C
12	CO2/75	06:33:23	3086	123.015	0.30269	1.96E-5	4.09E-5	-0.00011	122.983	1.68E-2	-0.6	6.54E-2	26.80	25.84	99.04	99.05	0.502	1.6350	56.0	CH

CO2(ppm) - CO2 concentration (tank value)
CO2(mm3) -Actual value of CO2 mole density (mmol/m3)
CO2Abs - CO2 absorptance (unfiltered)
CO2D - Measured value of CO2 mole density (mmol/m3)
CO2DSD - Standard deviation of CO2D (100 samples over 10 seconds).
CErr - (CO2D - CO2(mm3))
H2OD - Measured value of H2O mole density (mmol/m3)
H2ODSD - Standard deviation of H2OD (100 samples over 10 seconds)
T(C) - LI-7500's temperature measurement
Press - LI-7500's pressure measurement (1% sensor)
Pa(kPa) - Atmospheric pressure (measured by Ruska 6200)
Press - LI-7500's pressure measurement (kPa)
F(l/m) - Flow through calibration tube, liters/min.
AGC - Automatic gain control value (0-100%)
Cooler - Detector cooler voltage
Diag - LI-7500's diagnostic codes, plus. 'C' indicates CO2 stability achieved, and 'H' indicates H2O stability achieved.

LI-7500 75H-1694 Calibrated 10 Mar 2009 / Checked 11 Mar 2009
Calibration file: L:\MICHAEL\CALS\75H\1694\20090310.raw

H2O Final Check Plots





File = L:\MICHAEL\CALS\75H\1694\20090311.fc

	Type__	Time	H2O(C)	610kPa	H2O(ppt)	H2O(mm3)	CO2Abs	H2OAbs	H2OSD	H2OSlp	CO2D	CO2DSD	H2OD	H2ODSD	TOven(C)	T(C)	Press	Pa(kPa)	Fs(l/m)	Cooler	AGC	Diag
1	H2O 75	06:52:42	-99.00	-0.22	0.00	0.000	-0.00001	0.00000	4.29E-5	-8.01E-6	-0.002	7.48E-4	0.0	6.93E-2	26.90	25.86	99.09	99.11	0.500	1.6347	51.0	CH
2	H2O 75	07:10:12	11.82	32.38	10.58	422.154	-0.00002	0.05804	3.73E-5	-3.30E-5	-0.004	6.42E-4	422.7	1.18E-1	26.80	25.82	99.13	99.15	0.250	1.6340	52.0	C
3	H2O 75	07:21:40	19.83	32.95	17.57	701.087	-0.00004	0.08493	3.42E-5	2.47E-5	-0.006	6.52E-4	701.3	1.38E-1	26.90	25.81	99.13	99.19	0.250	1.6330	53.0	C
4	H2O 75	07:33:15	14.82	32.65	12.83	512.052	-0.00004	0.06726	3.71E-5	-5.61E-6	-0.006	6.68E-4	512.5	1.19E-1	26.90	25.81	99.15	99.21	0.250	1.6340	52.0	CH
5	H2O 75	07:45:00	9.84	32.33	9.27	370.033	-0.00004	0.05230	3.80E-5	1.47E-8	-0.005	7.27E-4	369.6	1.10E-1	26.90	25.85	99.18	99.24	0.250	1.6337	52.0	CH
6	H2O 75	07:56:57	4.84	32.04	6.60	263.507	-0.00003	0.03975	3.71E-5	-1.57E-5	-0.005	7.10E-4	262.1	1.12E-1	26.90	25.85	99.20	99.24	0.250	1.6340	52.0	C

H2O(C) - LI-610 Dewpoint generator set point
610kPa - Overpressure (kPa) in the LI-610
H2O(ppt) - True water concentration (mmol/mol)
H2O(mm3) - True water mole density (mmol/m3)
H2OAbs - H2O absorptance (unfiltered)
H2OD - Measured value of H2O mole density (mmol/m3)
H2ODSD - Standard deviation of H2OD (100 samples over 10 seconds)
HErr - (H2OD - H2O(mm3))
CO2D - Measured value of CO2 mole density (mmol/m3)
T(C) - LI-7500's temperature measurement
Press - LI-7500's pressure measurement (1% sensor)
Pa(kPa) - Atmospheric pressure (measured by Ruska 6200)
Press - LI-7500's pressure measurement (kPa)
F(l/m) - Flow through calibration tube, liters/min.
AGC - Automatic gain control value (0-100%)
Cooler - Detector cooler voltage
Diag - LI-7500's diagnostic codes, plus. 'C' indicates CO2 stability achieved, and 'H' indicates H2O stability achieved.

LI-7500 75H-1694 Calibrated 10 Mar 2009 / Checked 11 Mar 2009
Calibration file: L:\MICHAEL\CALS\75H\1694\20090310.raw

Solar Response

Sun Angle (Deg)	Specification (ppm)	Typical (ppm)
15	10.0	< 1
25	9.2	< 1
35	8.0	< 1
45	6.0	< 1
55	4.0	< 1
65	3.2	< 1
75	3.0	< 1
85	3.0	< 1

This instrument has different filters from the original design. The above data is typical of this new design.

"Sun Angle" is the incidence angle on the source window.
"Specification" is the maximum allowable response.
"Typical" is the response by this instrument
('shaded' minus 'sunlit').