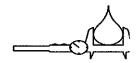
DROPLET MEASUREMENT TECHNOLOGIES, INC.

5710 Flatiron Parkway, Suite B Boulder, Colorado 80301 (303) 440-5576



PCASP Calibration Report

DMT Order Number:	0804217	Client/Probe Owner:	Gun
Date: 5/10/48		Model Number:	PCASP LOOK
Work Performed by:	JAMES Wiggins	Serial Number:	30013-1191-11
Other information:			

PRE-CALIBRATION BEFORE CLEANING

Preliminary Visual Inspection			
General Condition of the Exterior:	oK		
General Condition of the Interior:	OK		
Other information:	N/A		

Working Status Of Probe Prior To Cleaning				
Condition and general appearance of the laser firing:	Bore sight is good and Laser ReF=7.62Ude No power fluctuations.			
Vibrational sensitivity of the laser:	Grood.			
Heater Status:	Power Rating (watts):	215		
	Voltage Rating (volts):	28		
	Calculated Heater Resistance R = V ² /P (ohms)	3.7.0		
	Actual Measured Heater Resistance (ohms)	3.84.0		
+5 V Power Supply:	5.00 VDC	$2\phi\phi$ mVAC noise		
+15 V Power Supply:	15.00 VDC	50 mVAC noise		
-15 V Power Supply:	-15. \$4 VDC	5Ø mVAC noise		

INITIAL CALIBRATION PROCEDURES

A precision bead pre-calibration, using the DMT aerosol generator, was performed on the probe, the results of this pre-calibration are attached to this report.

Our technician's comments about this calibration are as follows:

The sample flow and the sheath flow were measured using pneumatic flow meters and the results are tabulated below. The probe was adjusted for the proper flow rate and the rates were measured and tabulated again.

Time of Measurement	Sample Flow in cc/sec	Sheath Flow in cc/sec
Before Adjustments	15	
After Adjustments	15	1

Additional comments made by the technician performing this procedure are:

The reference voltage was measured to be <u>7.62</u> volts, in a properly operating probe, this voltage should be greater (in magnitude) than six (6) volts.

The signals GAIN1, GAIN3 and GAIN4 were measured and then adjusted to be within the manufacturer's specification. The results of these measurements are tabulated below.

Signal Name:	GAIN1 (mvolts) (Signal-3, Low Gain)		G C	GAIN3 (mvolts) (Signal-2, Mid Gain)		GAIN4 (mvolts) (Signal-1, High Gain)			
	Low Peak	High Peak	Average	Low Peak	High Peak	Average	Low Peak	High Peak	Average
Before Adjustment	-96	96.		-100	(ØØ		150	150	
After Adjustment	-96	96		-100	IØØ	-	-125	125	

Our technician's comments concerning this procedure are:

CLEANING

A thorough cleaning was performed on the probe, the following table summarizes the steps that were performed.

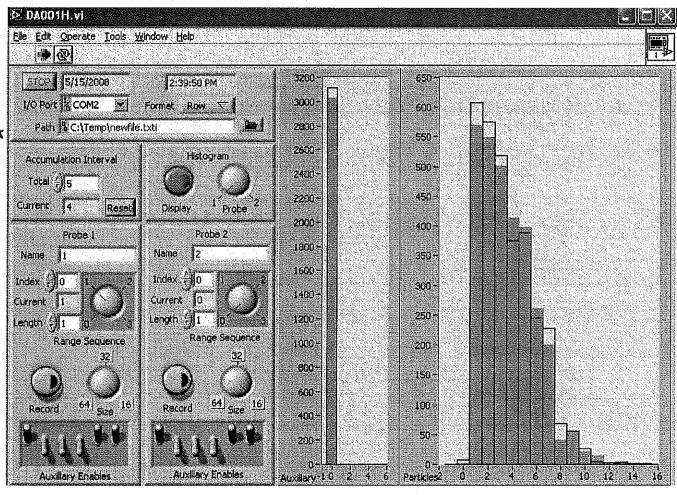
Electrical Contacts	
Contact Description	Status and/or Service Performed
Amphenol Connector	Checked - O.K.
Card Seating	Checked- O.K.
Card Edge Connectors	Checked - O.K.
Optical System Components	
Component Description	Status and/or Service Performed
Aspheric Collector	Cleaned
45 Degree Mirror	Cleaned
Parabolic Mirror	Clament Inspected O.K.
Laser Output	Cleaned

Additional comments made by the technician performing this procedure are:	
The laser required a slight adjustment achieved through the crystal	assembla
Gimble serens. The inlet was also peaked luring calibration.	6

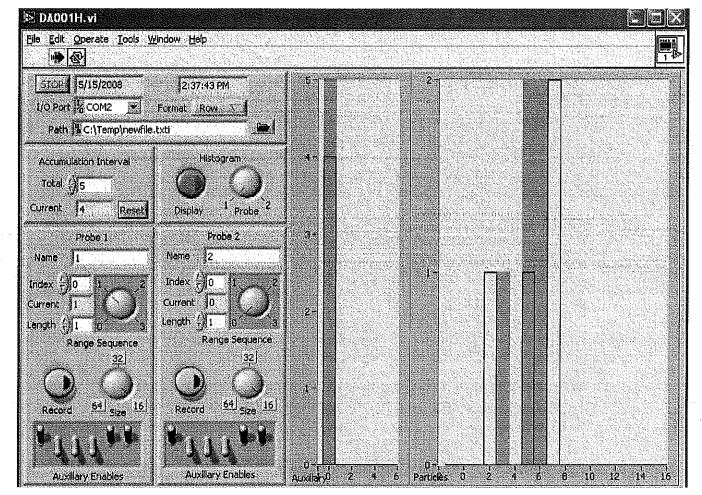
ALIGNMENT

The reference voltage was measured and various adjustments were performed to make it come into specification. Laser Reference Voltage: 7.97
Using the DMT aerosol generator, the probe's inlet jets were adjusted to provide the strongest signal possible to the in coming aerosols.
The desiccant was replaced with fresh royal blue desiccant.
Our technician's comments concerning this procedure are:
CALIBRATION
A final calibration, using the DMT aerosol generator, was performed on the probe, the results of this final calibration are attached to this report.
Our technician's comments about this calibration are as follows: The instrument only required cleaning of the optics, Adjustment of the crystal assembly. Increase of gain on Pre Amp, and slight adjustments to the bigs offsets.
Additional comments made by our technician: R_{22} initial value = 45 K Ω $AFFRCAl = 45 K \Omega$
Baseline pre-cal: High = 3. Lelo Baseline afrecal: High = 6.82
1/10-10-

Pre Cal Ambient Dist.

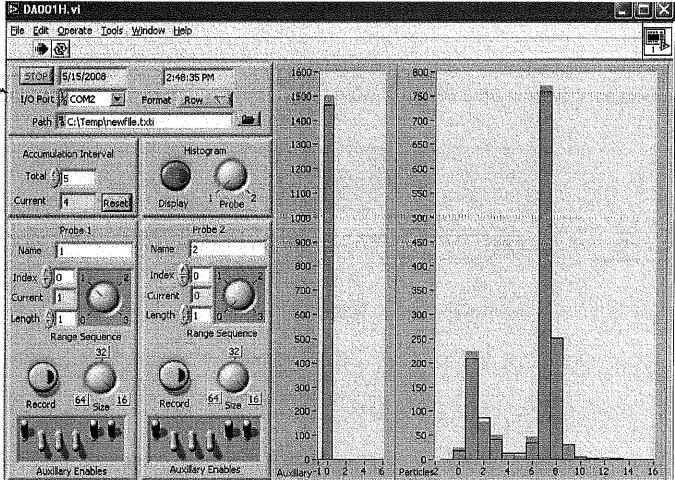


Pre Cal Oct



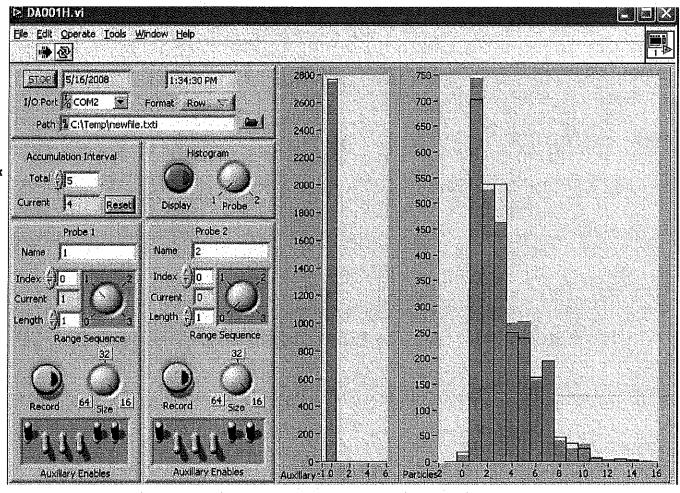
DAOO1H.vi <u>File Edit Operate Tools Window Help</u> ♠ ② STOP 15/15/2008 20000 4750 2:50:57 PM 1/0 Port COM2 Format Row V 19000-4500 18000 -4250 Path \$ C:\Temp\newfile.txti 17000 4000 Accumulation Interval 16000 Histogram 3750 15000 Total 🗐 5 3500 14000 Current 4 **9250** · Reset 13000 3000· Probe 1 Probe 2 12000-2750-11000 Name 1 Name 2 2500-10000-Index ()0 Index 🗐 0 2250-9000 Current ∫i Current 0 2000 0000 Length 🗐 i Length 🗍 1 1750-7000 Range Sequence Range Sequence 1500 6000 1250-5000 1000-4000 750-3000 500 2000 1000 250 Auxillary Enables

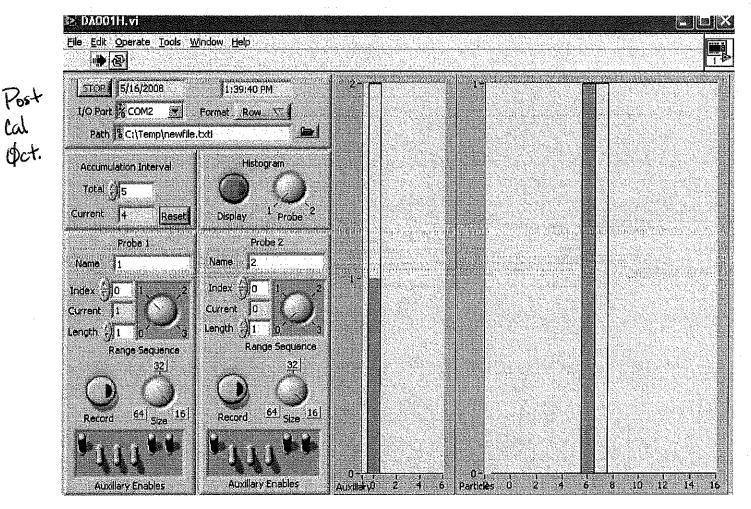
PreCal .43pm Gen.

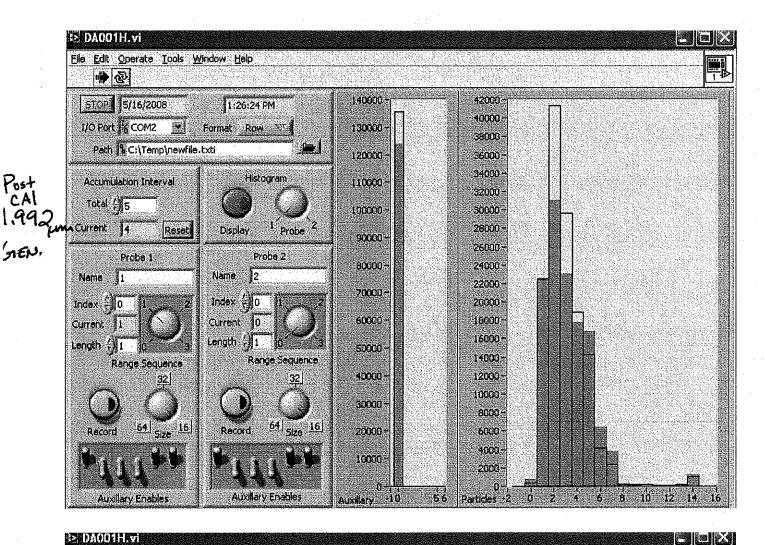


≥ DA001H.vi Elle Edit Operate Tools Window Help **₩** & 8500 3000 STOR 5/15/2008 2:52:08 PM 8000 I/O Port & COM2 2800 Format Row V 7500+ Path 12 C:\Temp\newfile.txti 2600-7000 Histogram 2400-Accumulation Interval 6500 -Total 4/5 2200 -6000 2000-Reset 5500 Probe 2 1800-Probe 1 5000 2 Name Name 1 4500 1600-Index 🗐 0 Index 🗐 🗓 4000 -1400-Current 0 3500 1200 -Length 🚮 Length 4)1 3000 1000 -Range Sequence Range Sequence 2500 800-2000 600 -1500-400-1000-200 -500 **Auxillary Enables Auxillary Enables**

Pie Cal 222m Gen Post Cal Ambient Dist.







File Edit Operate Tools Window Help **♣** ② 1150 65D 510R 5/16/2008 11:28:31 PM 1100 I/O Part 16 COM2 ▼ Format Row To 600 -1050 Path & C:\Temp\newfile.txtl 1000 550 950 Histogram Accumulation Interval 900 500 850 Total (#5 800 450 Current 4 Reset Display Probe 750 400 700 Probe 2 Probe 1 650 Name 350 600 Index 🗐 0 550 Index ∰0 300 500 Current 0 Current 450-250 Length 쉬 [Length 👭 i 400-Range Sequence Range Sequence 200 350 300 150 250 200 100 150 100 50 50 Auxillary Enables Particles2 0 2 4 8 10 12 14 **Auxillary Enables**

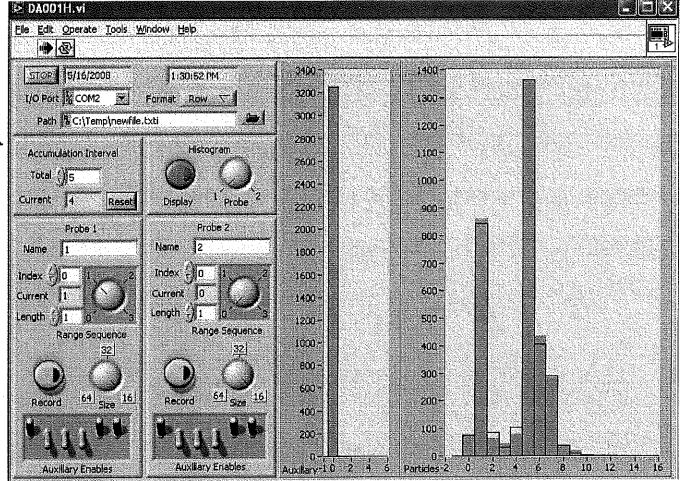
Post CAI ,43µm Grena

File Edit Operate Iools Window Help **₩** Ø 8500 2300 5TOP 5/16/2008 1:22:02 PM 2200 8000 I/O Port To COM2 Format Row 💟 2100 7500 Path 🖁 C:\Temp\newfile.txti 2000 Post Cal .93µm Gon. 1900 7000 Histogram Accumulation Interval 1800 6500 1700 Total 4 5 6000 1600-Current 4 1 Probe Reset 5500 1500 1400 Probe 2 Probe 1 5000 1300 Name 2 Name 4500 1200 Index 🗐 0 Index 🗐 0 1100-4000 1000-Current 0 Current 1 3500 900 -Length 🗐 I Length (#1 3000 -800 -Range Sequence Range Sequence 700 • 2500 600 2000 * 500 1500 400-300 1000 200-500 100

Auxillary Enables

Post cal 202 µm Gren. 12 minutes

Auxillary Enables



Particles 2

8 10 12 14 16