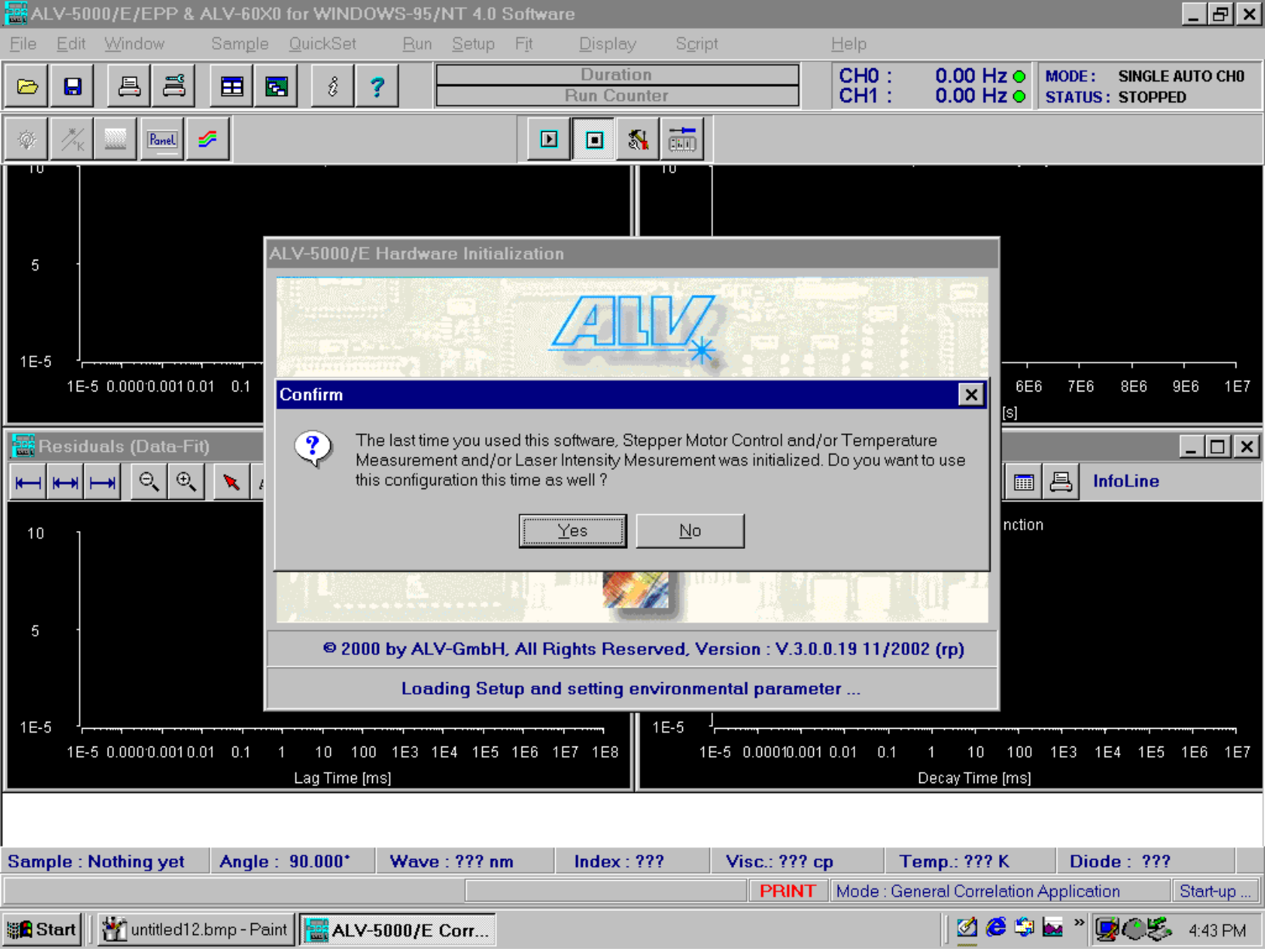
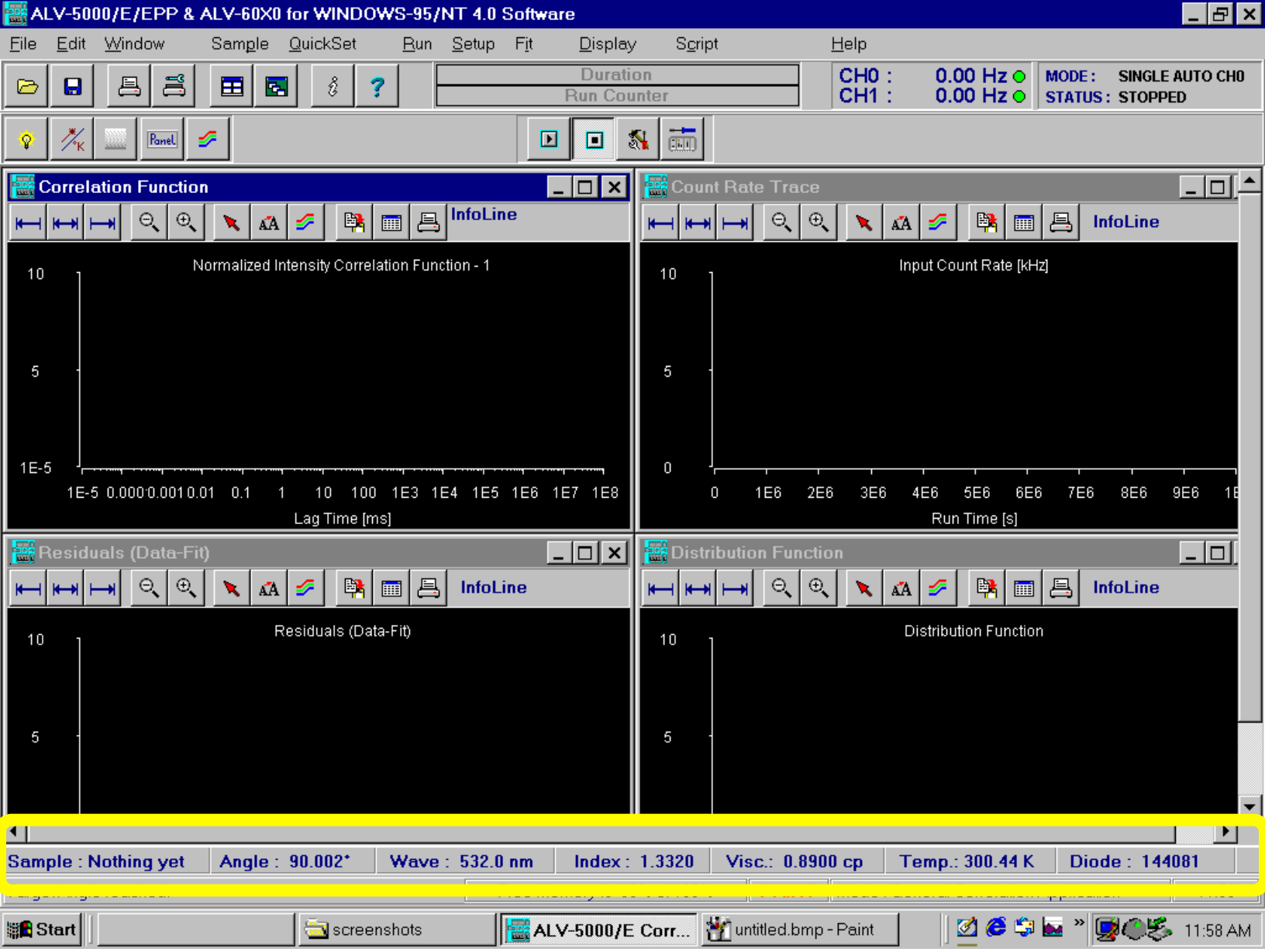


Start Screen: Select Yes

Software confirms communication with instrument



Bottom Row:

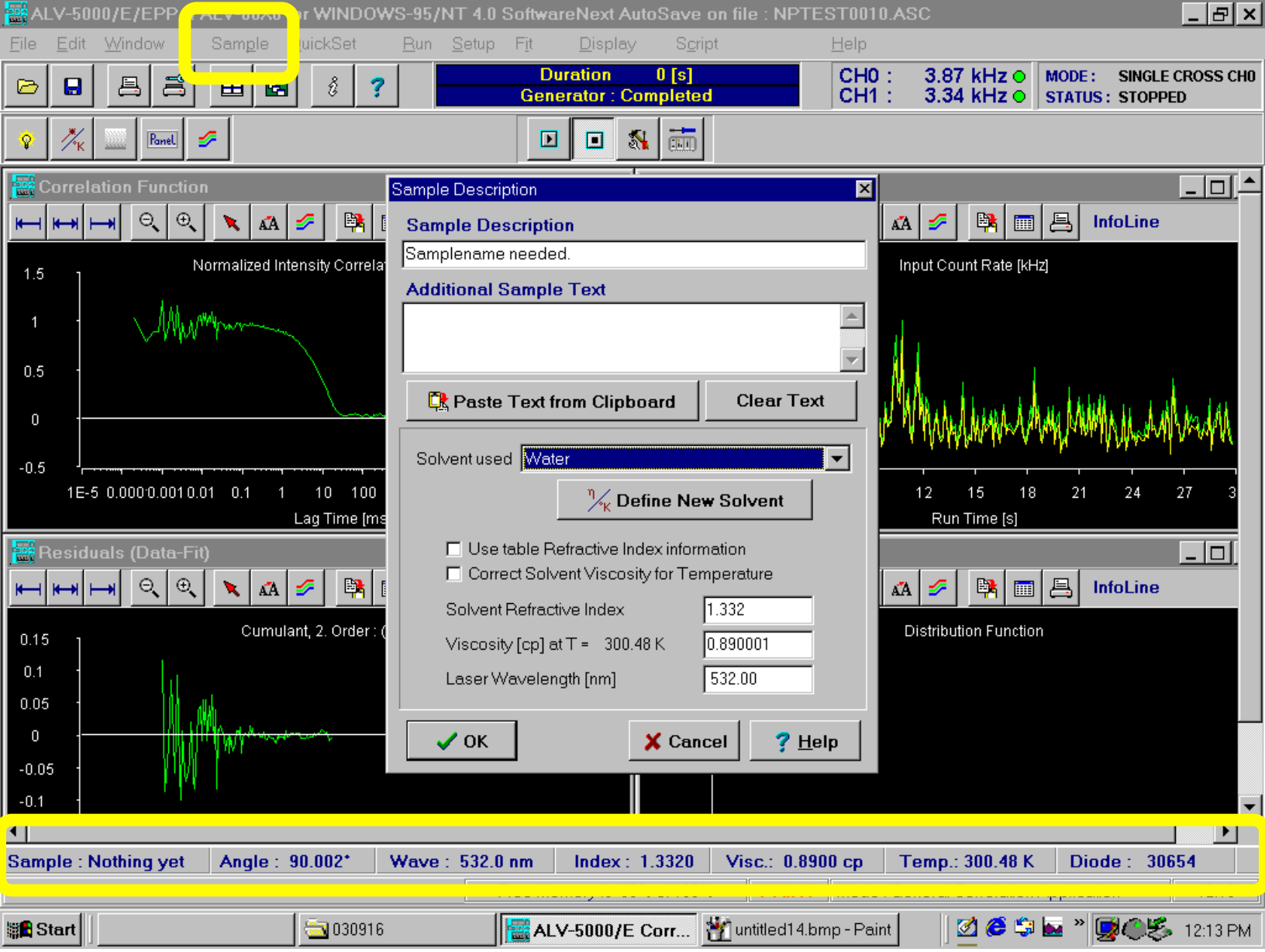
"Angle" is a control: 90 is default; double click here to move detector if desired

"Wavelength" indicates green laser: value should be 532.

Default solvent is WATER, with "Index" and "Viscosity" as Indicated

"Temp" is an indicator, measured in the sample chamber

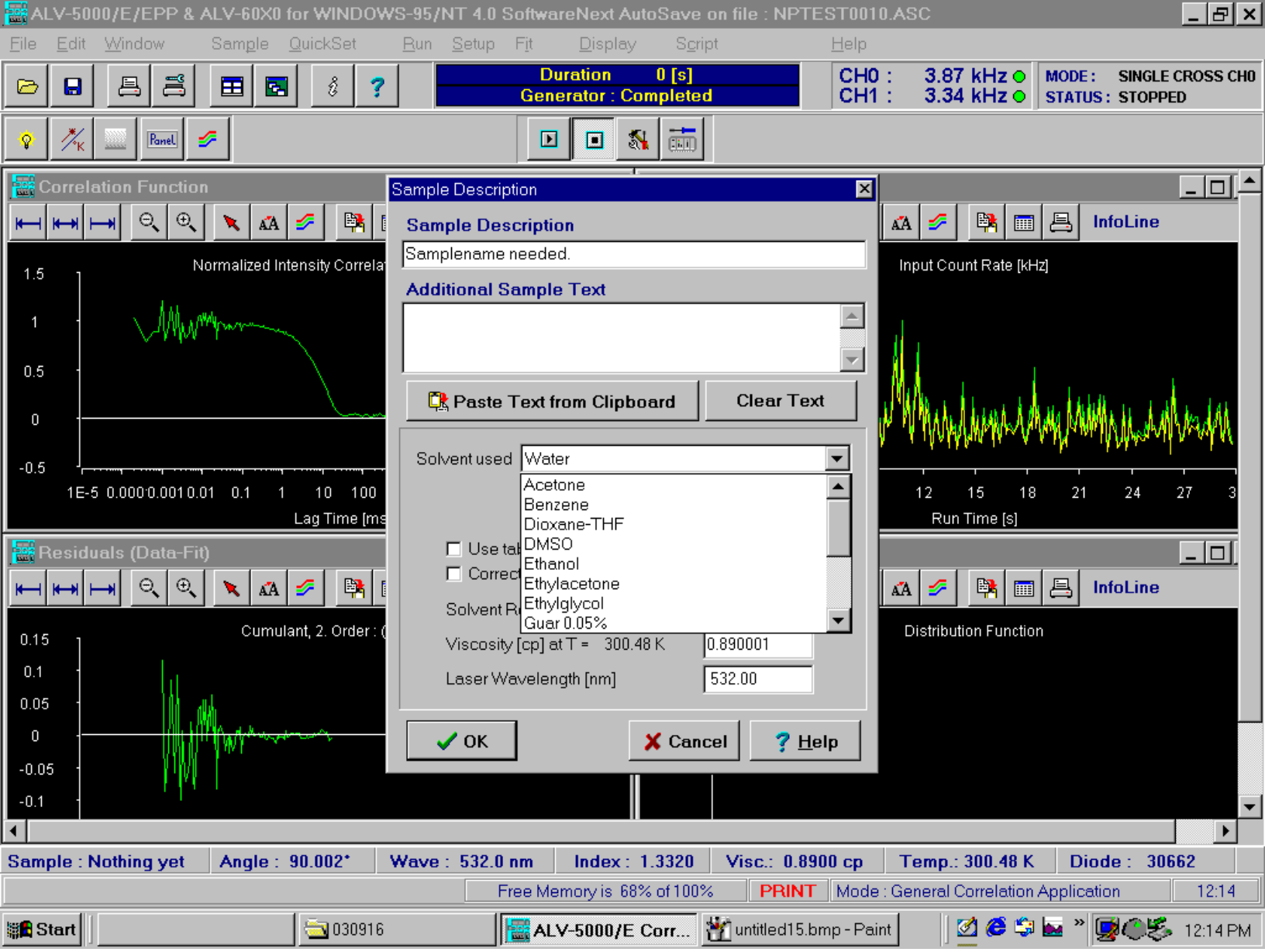
"Diode" is an indicator: control knob is on the laser line (see instructions)



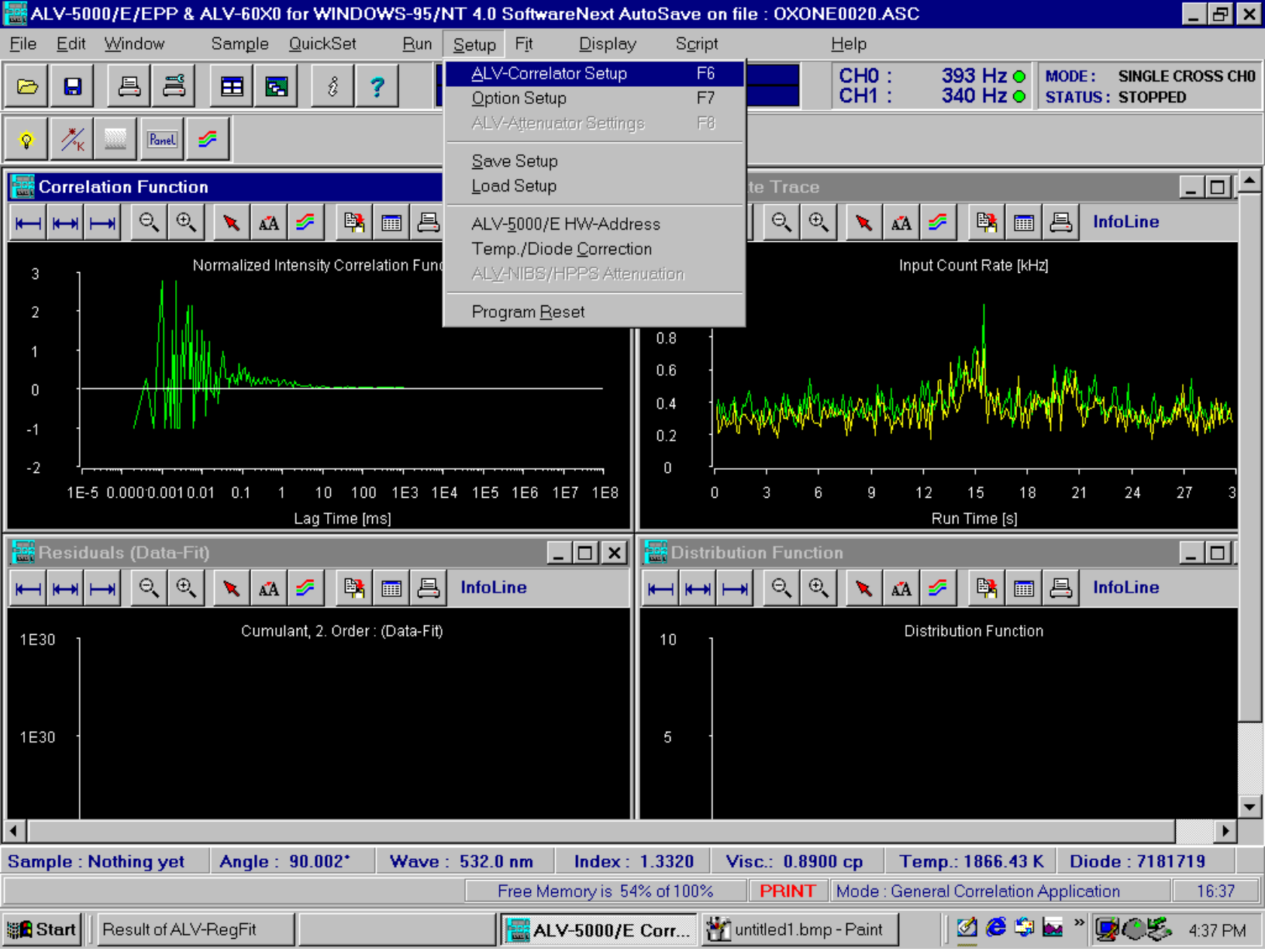
If your solvent is NOT water
Choose “Sample” either from Bottom Row or from Top Menu

Pop-up window shows solvent options, along with refractive index and viscosity, both required for size measurements.

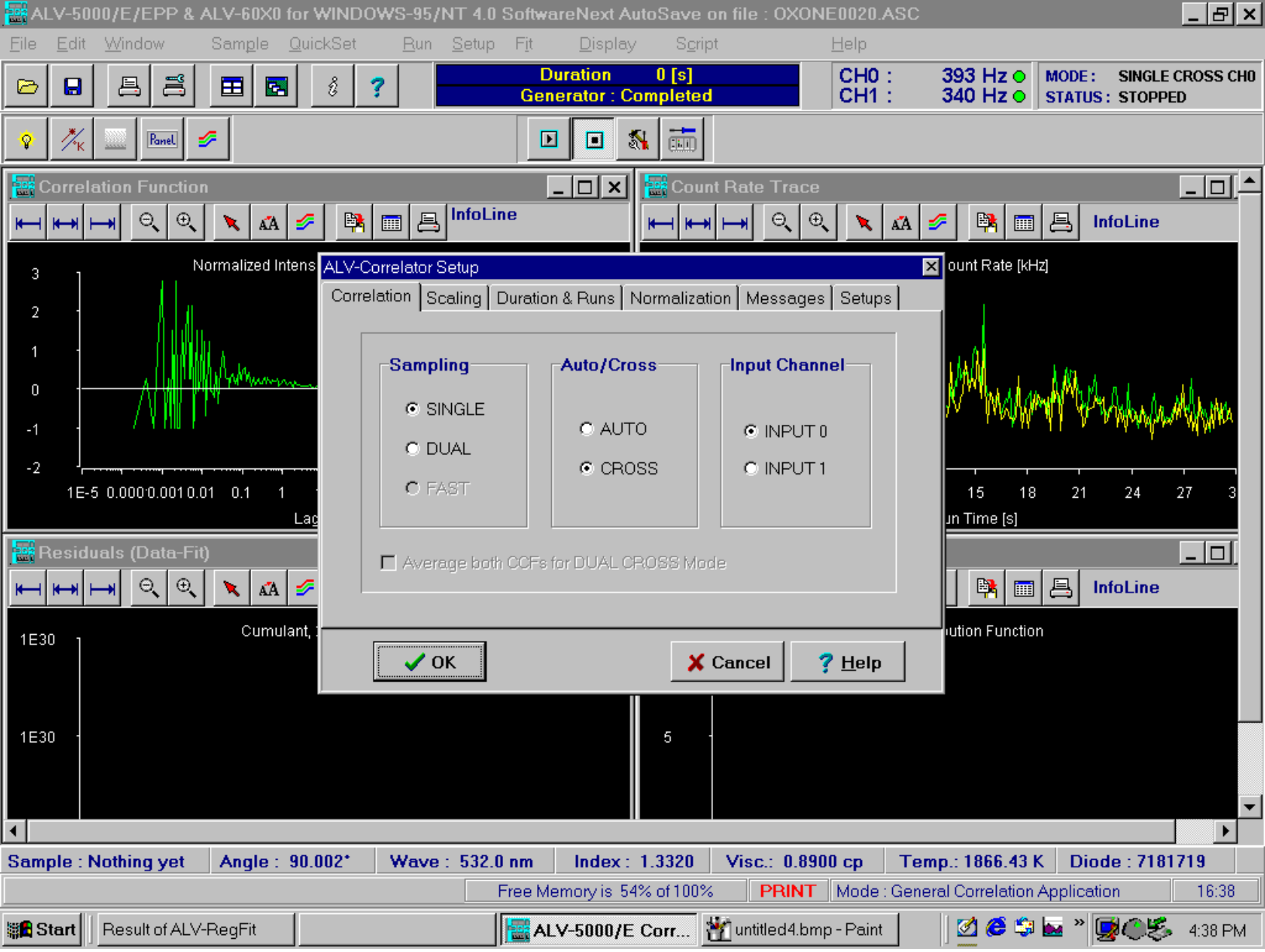
Dropdown menu provides other options or choose “Create New Solvent”



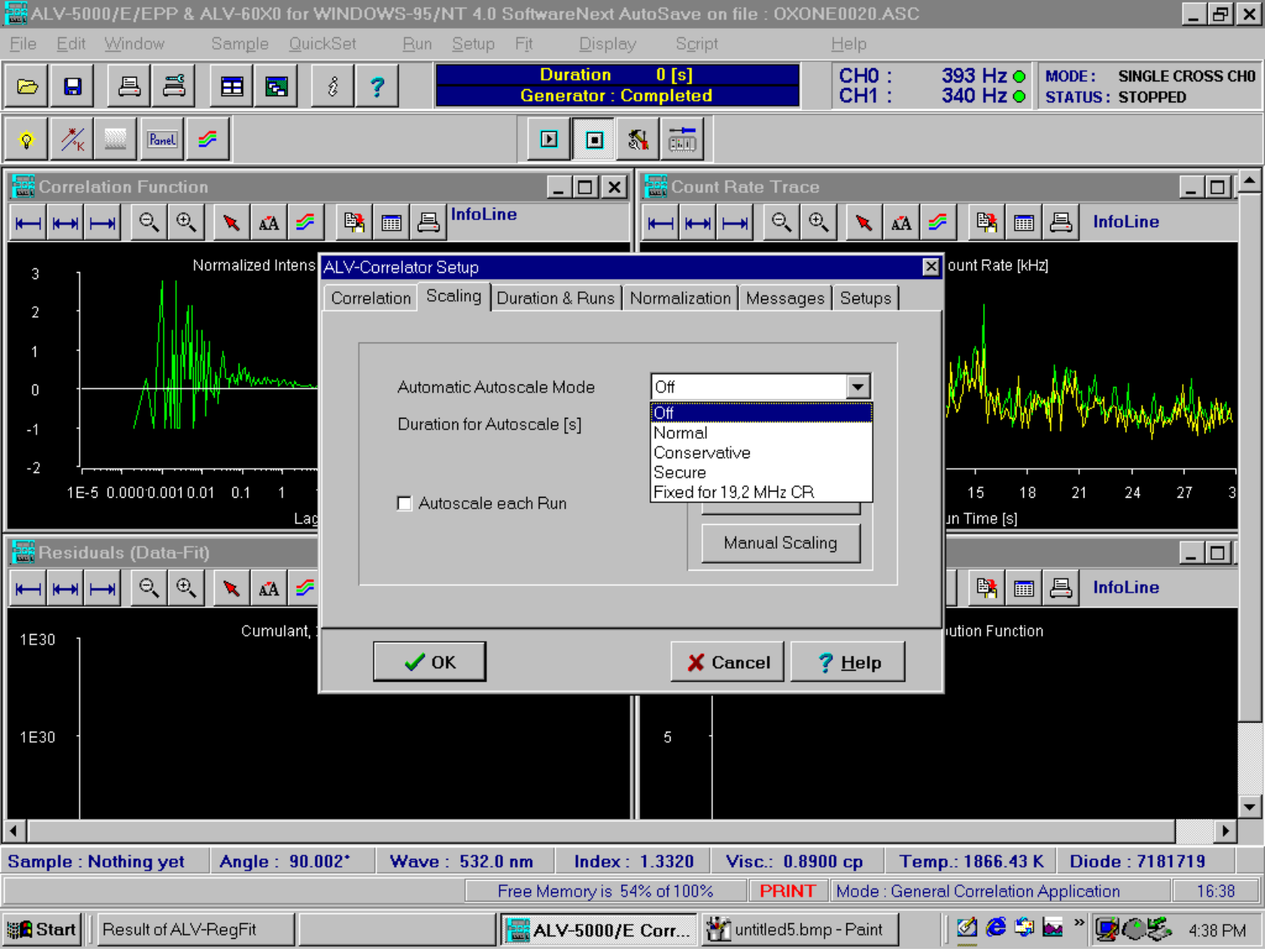
Dropdown menu provides other options
Or choose “Create New Solvent” and input:
Solvent name
Refractive Index
Viscosity



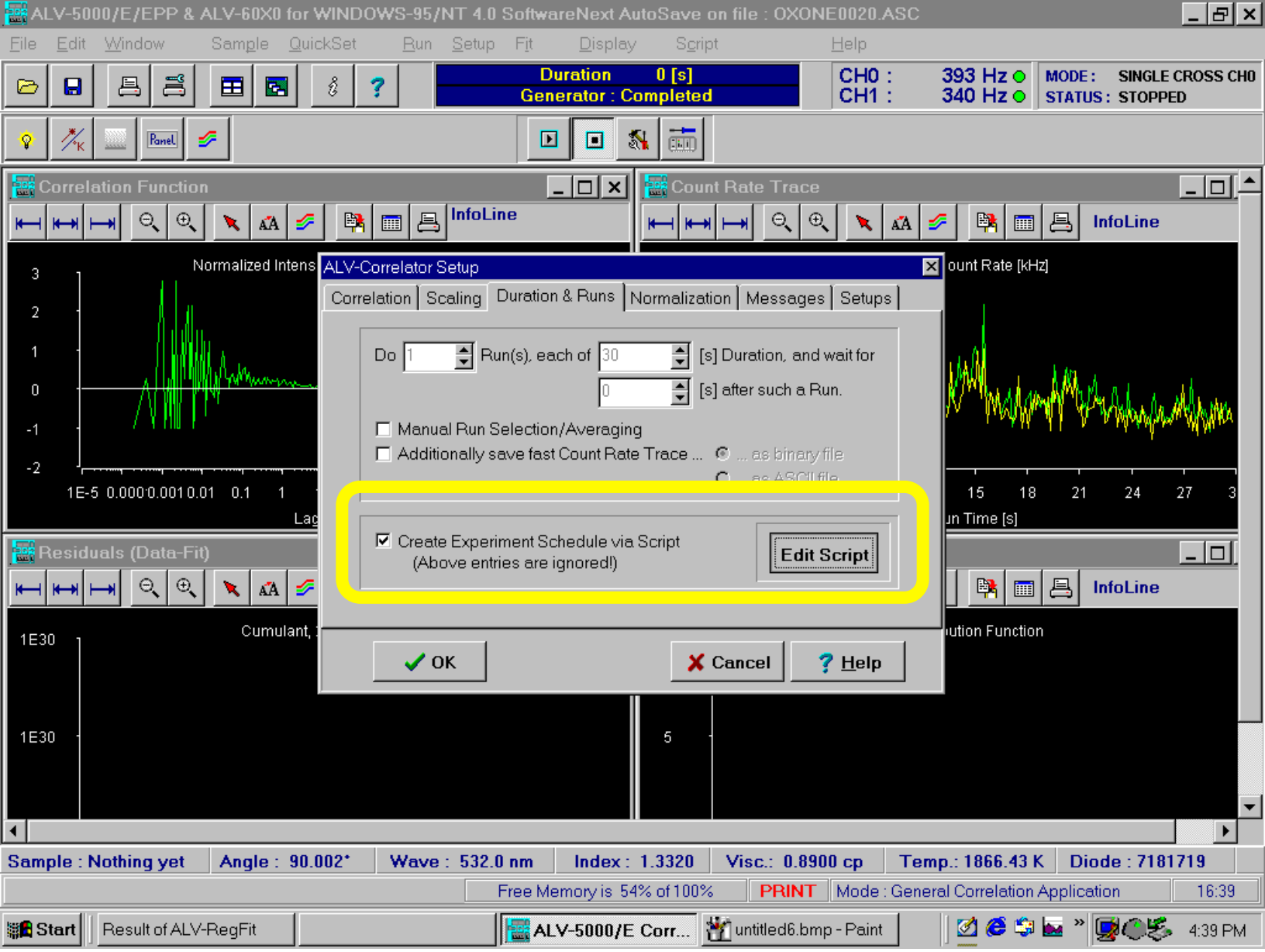
Setup Measurement Protocol:
Setup → ALV Correlator Setup



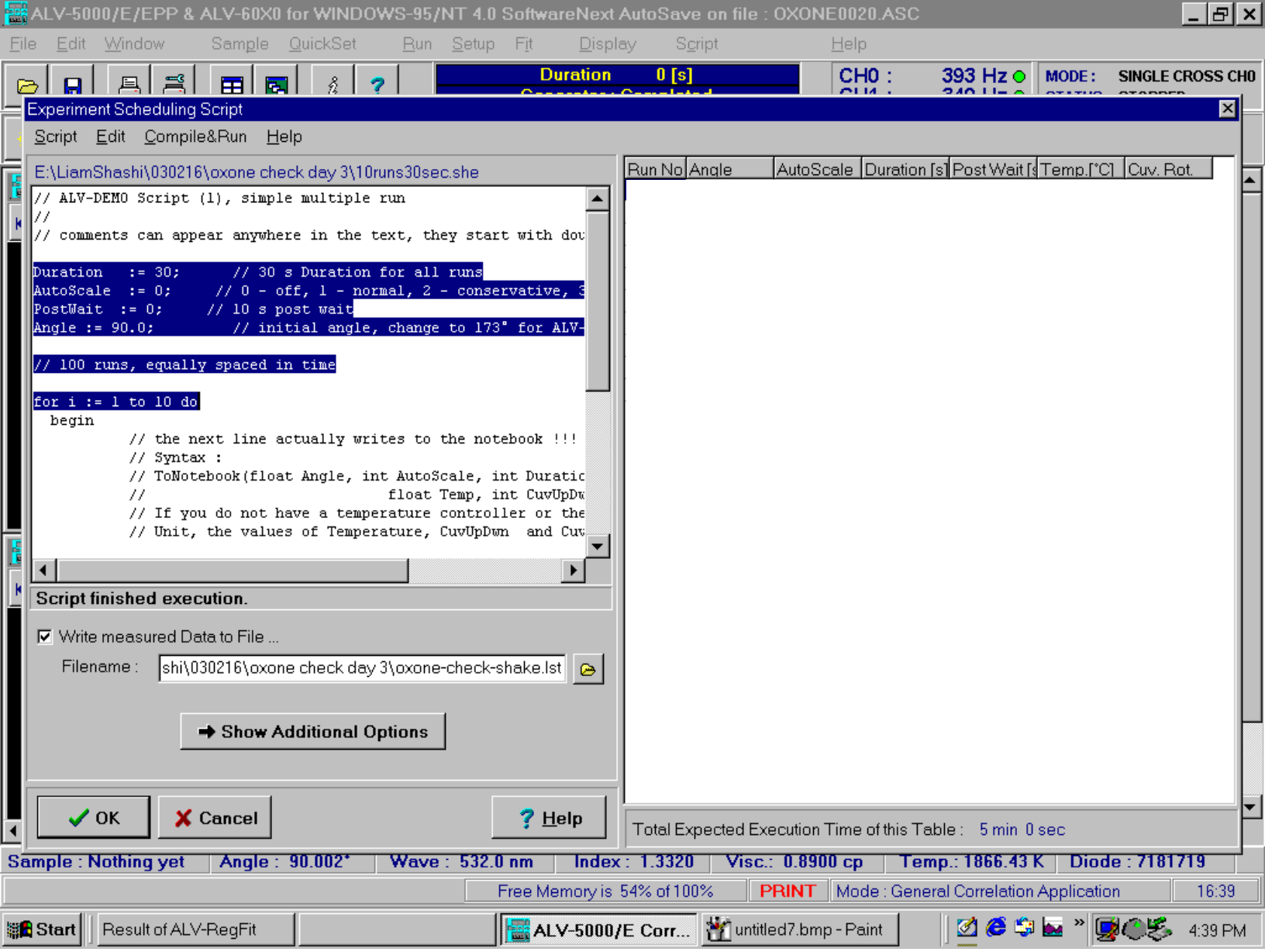
Popup Window, First Tab: Correlation
Choose “Single” and “Cross”



Popup Window, Second Tab: Scaling
Choose “Off” in Dropdown Menu



Popup Window, Third Tab: Duration & Runs
Select Box “Create Experiment Schedule via Script”
Then select “Edit Script”

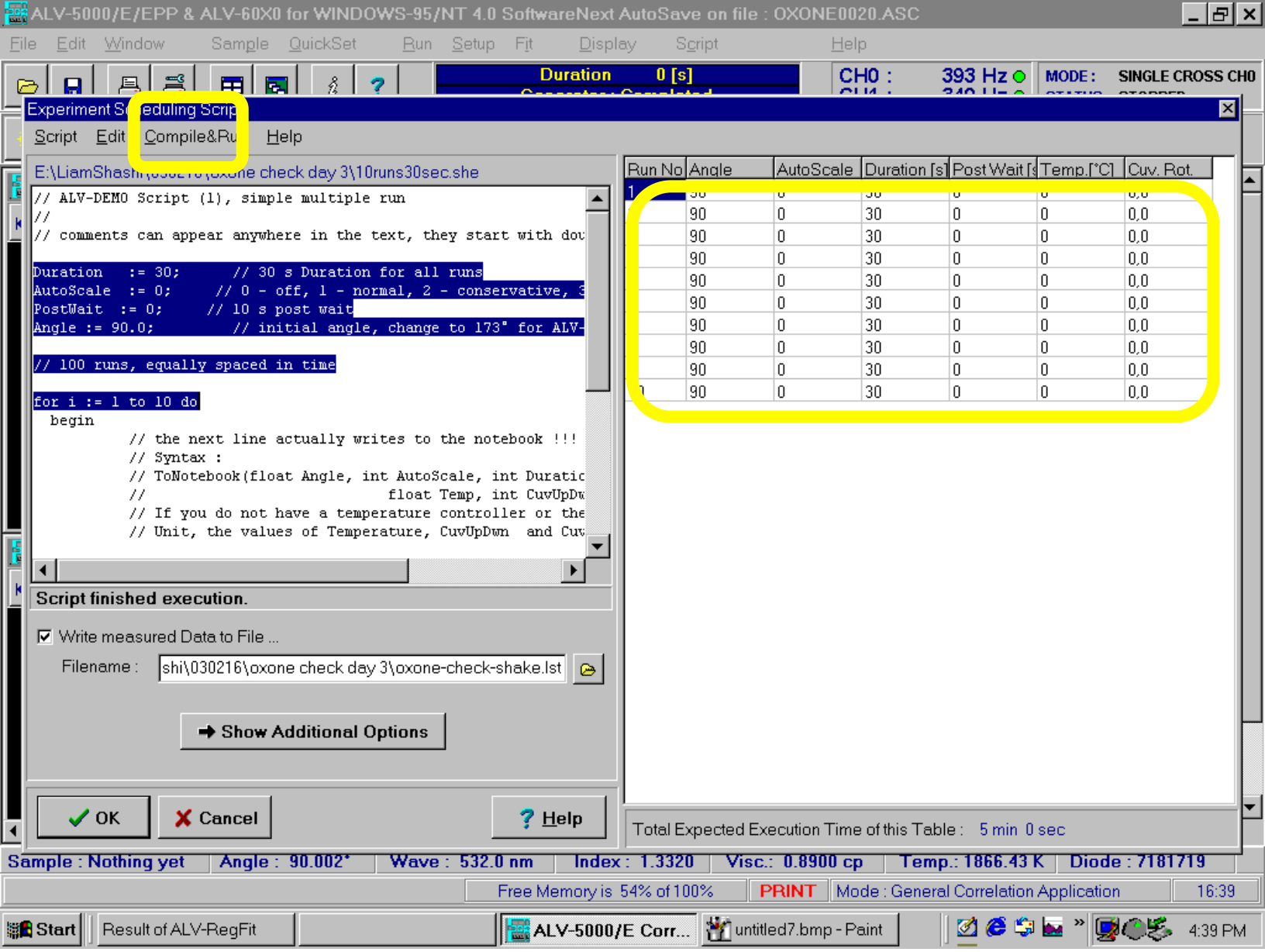


Script Popup:
Adjust highlighted Quantities as Desired
Recommendations:

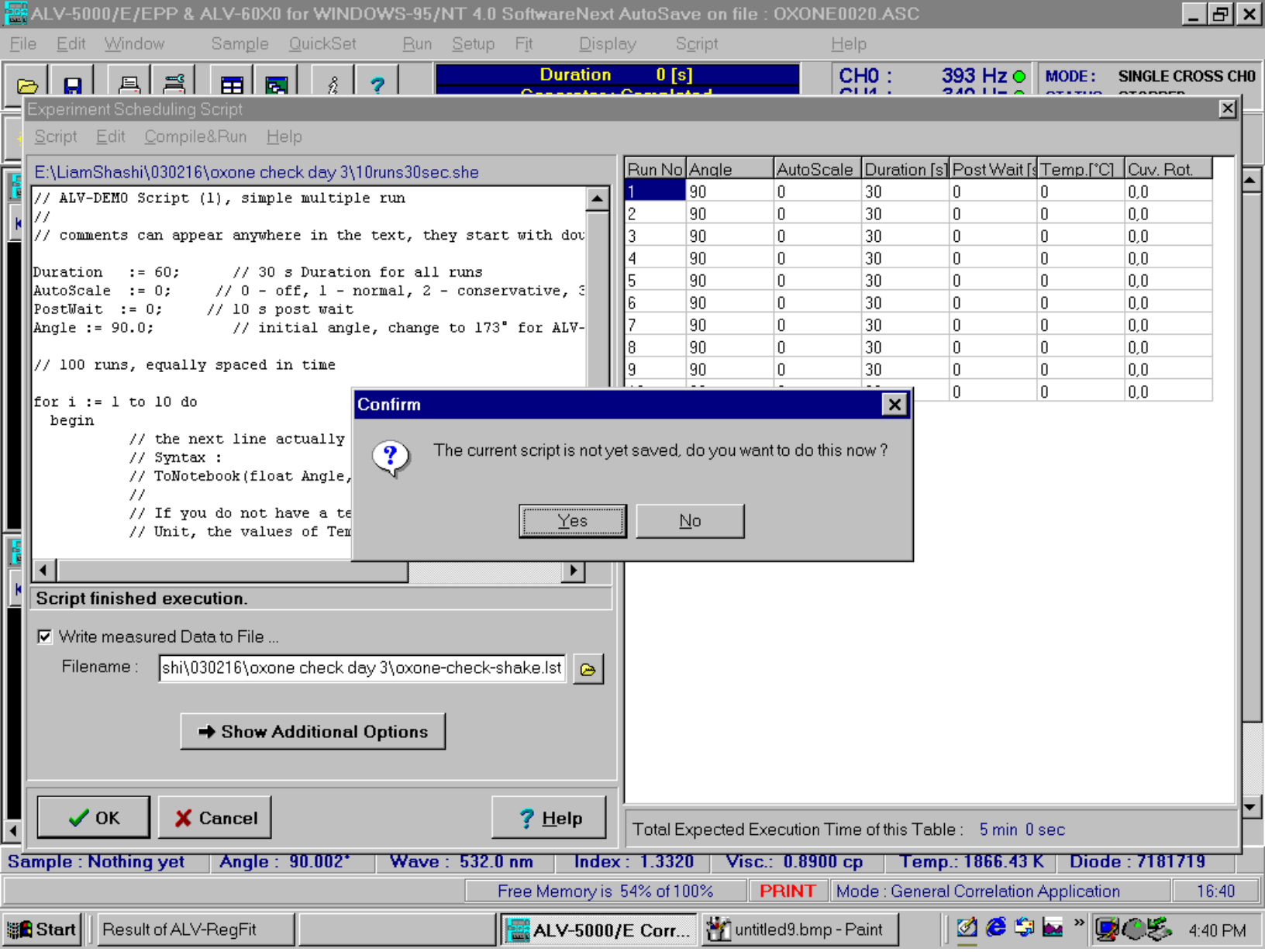
Duration: 30 seconds
(adjusted between 10 and 120 seconds, depending on sample)

AutoScale: 0 (for “off”)
PostWait: 0 (unless longer time course is desired)
Angle: 90 (default; can be adjusted to 150 for backscattering)

For i=1 to xx

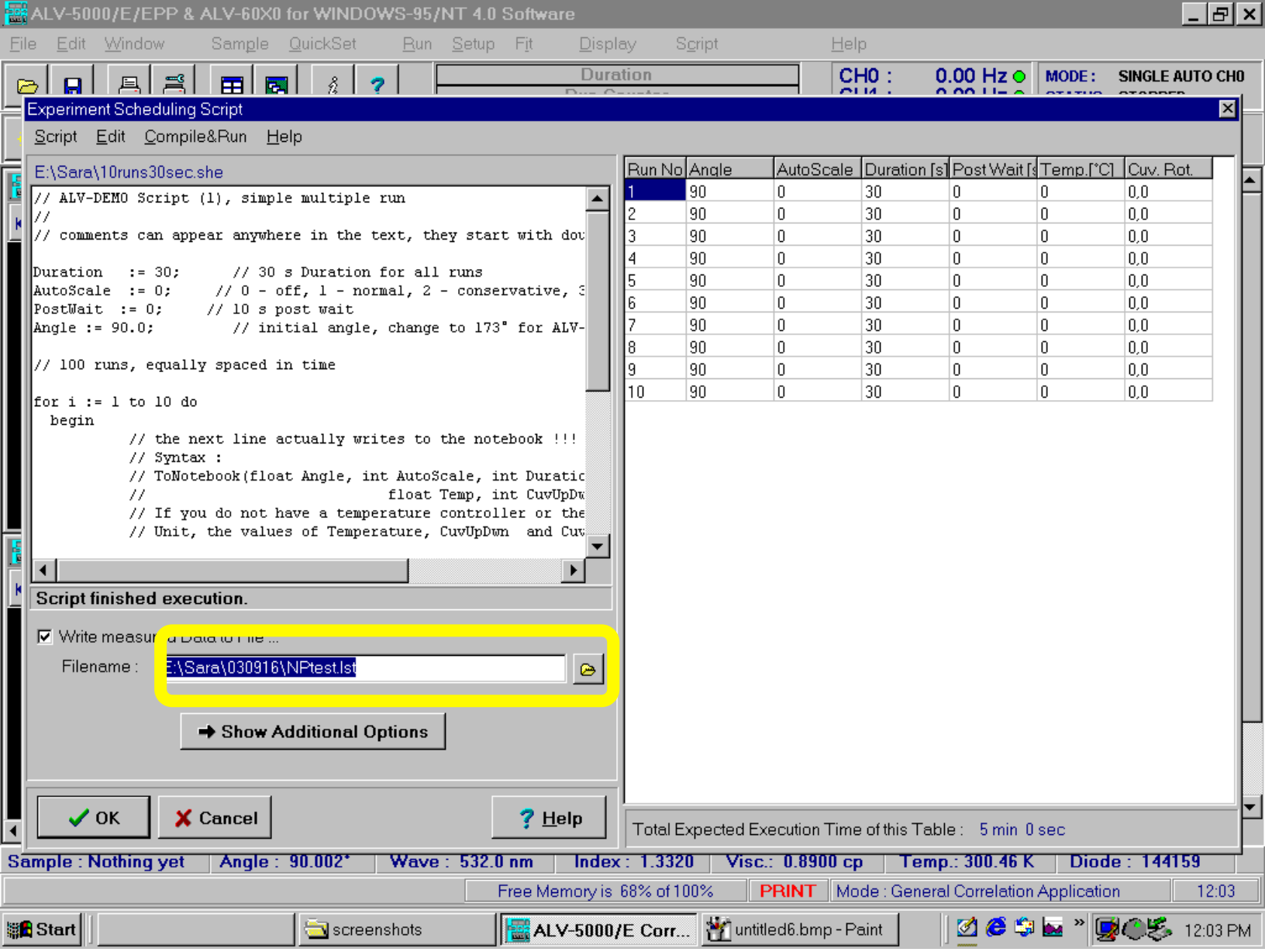


Choose “Compile & Run” to Populate Look-Up Table

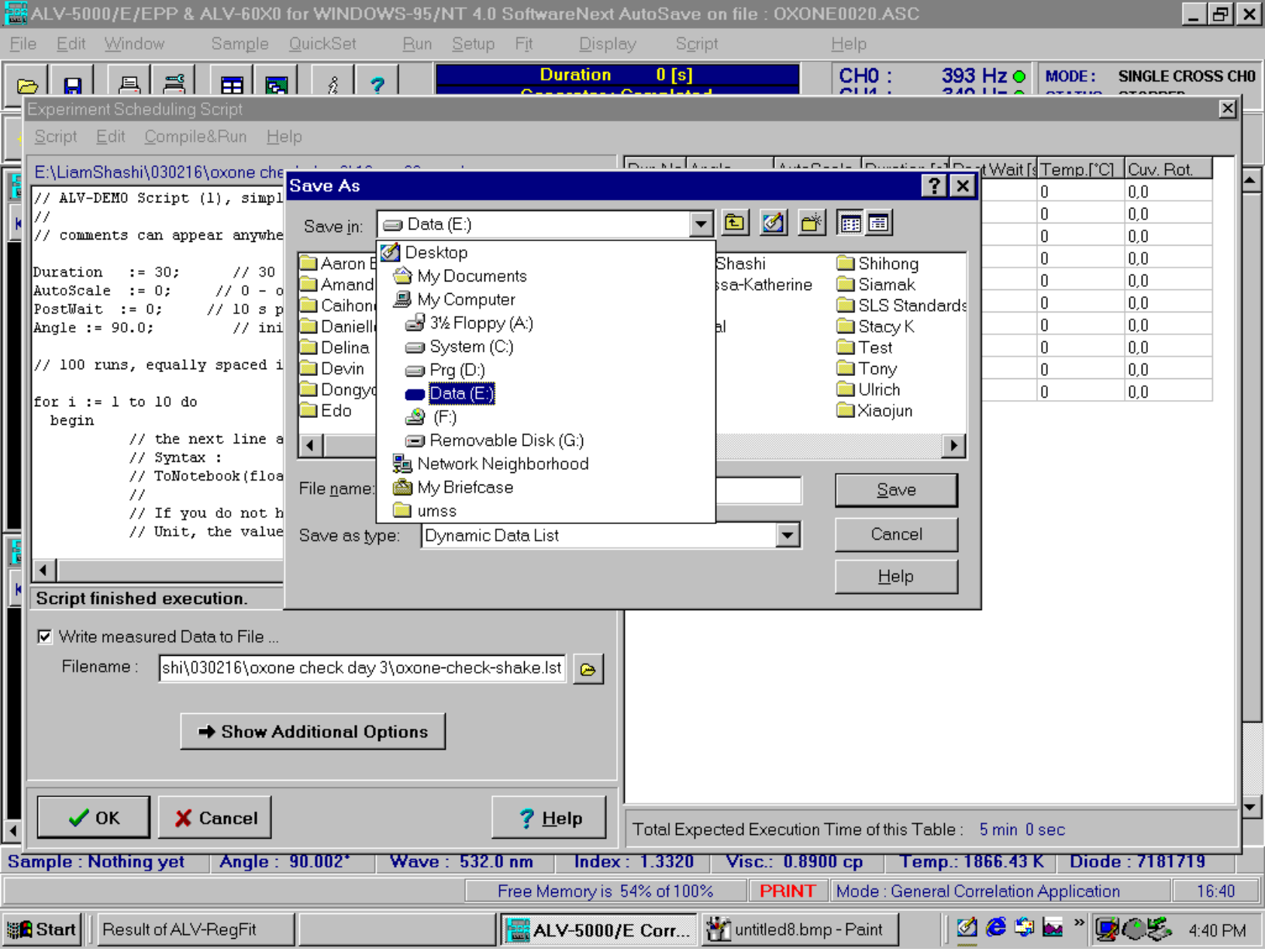


You may be prompted to Save your script

NOTE: Choosing YES saves your protocol/instructions ONLY (i.e., the lookup table)
This step does NOT save any data that will be taken.



You must choose a filename to save the data to be collected
You will navigate to your folder in the E:/ drive
The filename chosen will save a “summary” file of all runs in the script.

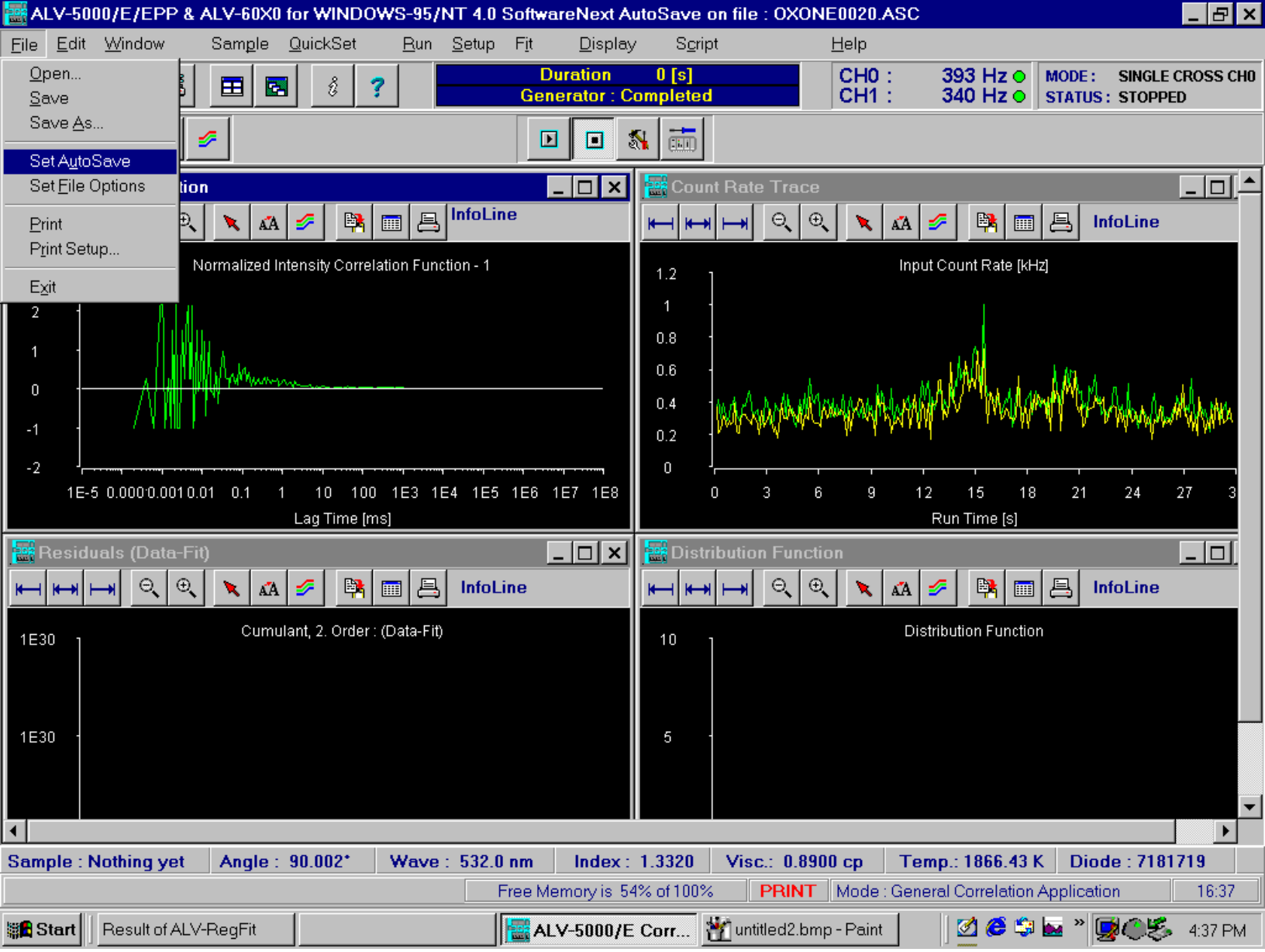


Navigate to your folder in the E:/ drive

The filename chosen will save a “summary” file of all runs in the script.

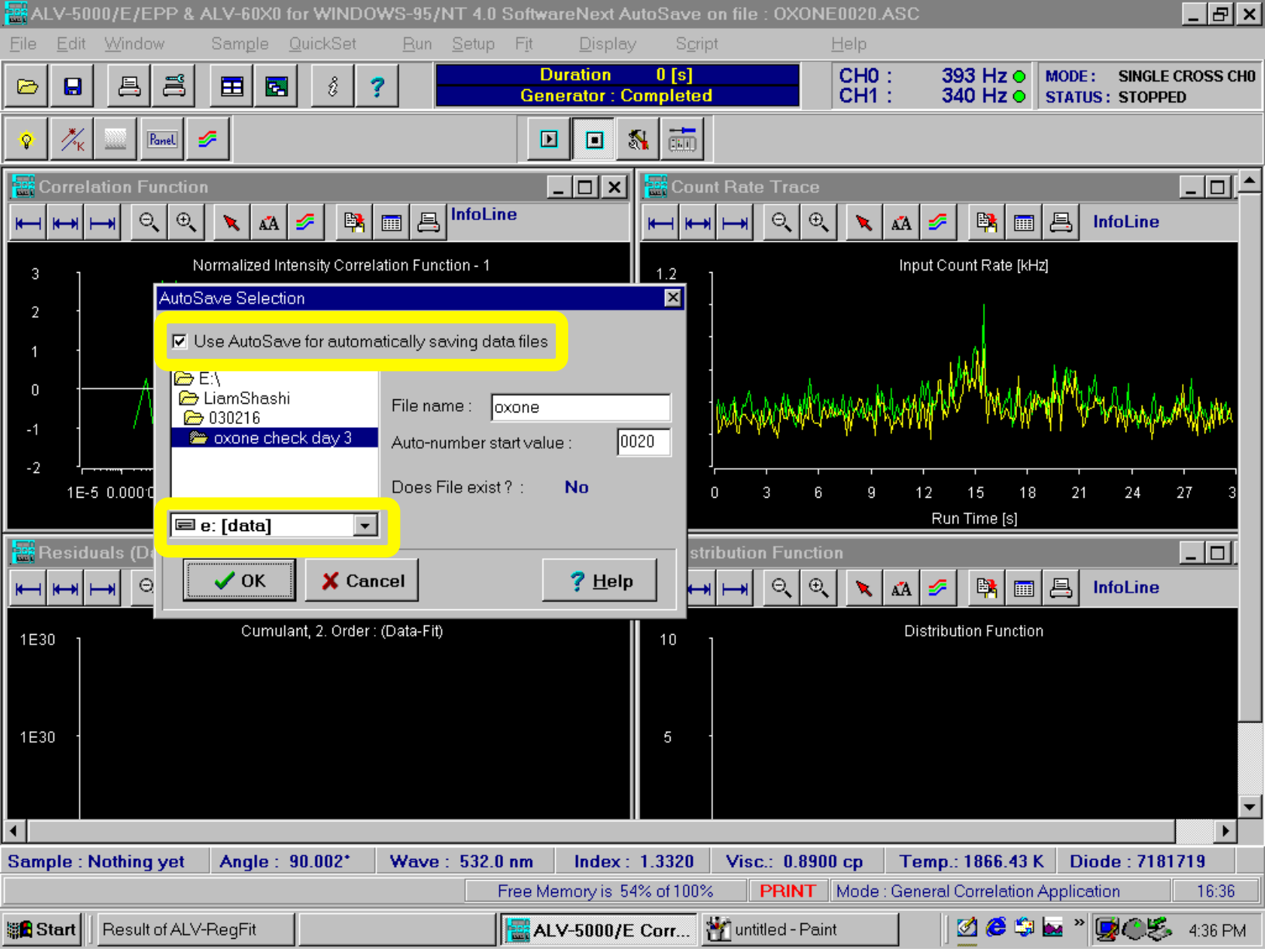
This is the “.lst” file

Note that special characters like ‘*’ are not allowed in the filename.



Click OK to exit the script and then OK to exit the setup.
Go to File → Set AutoSave to save your individual data runs.

This is in addition to saving the “summary file” that you just specified in the script window, and is important for the purposes of post-processing and data analysis.



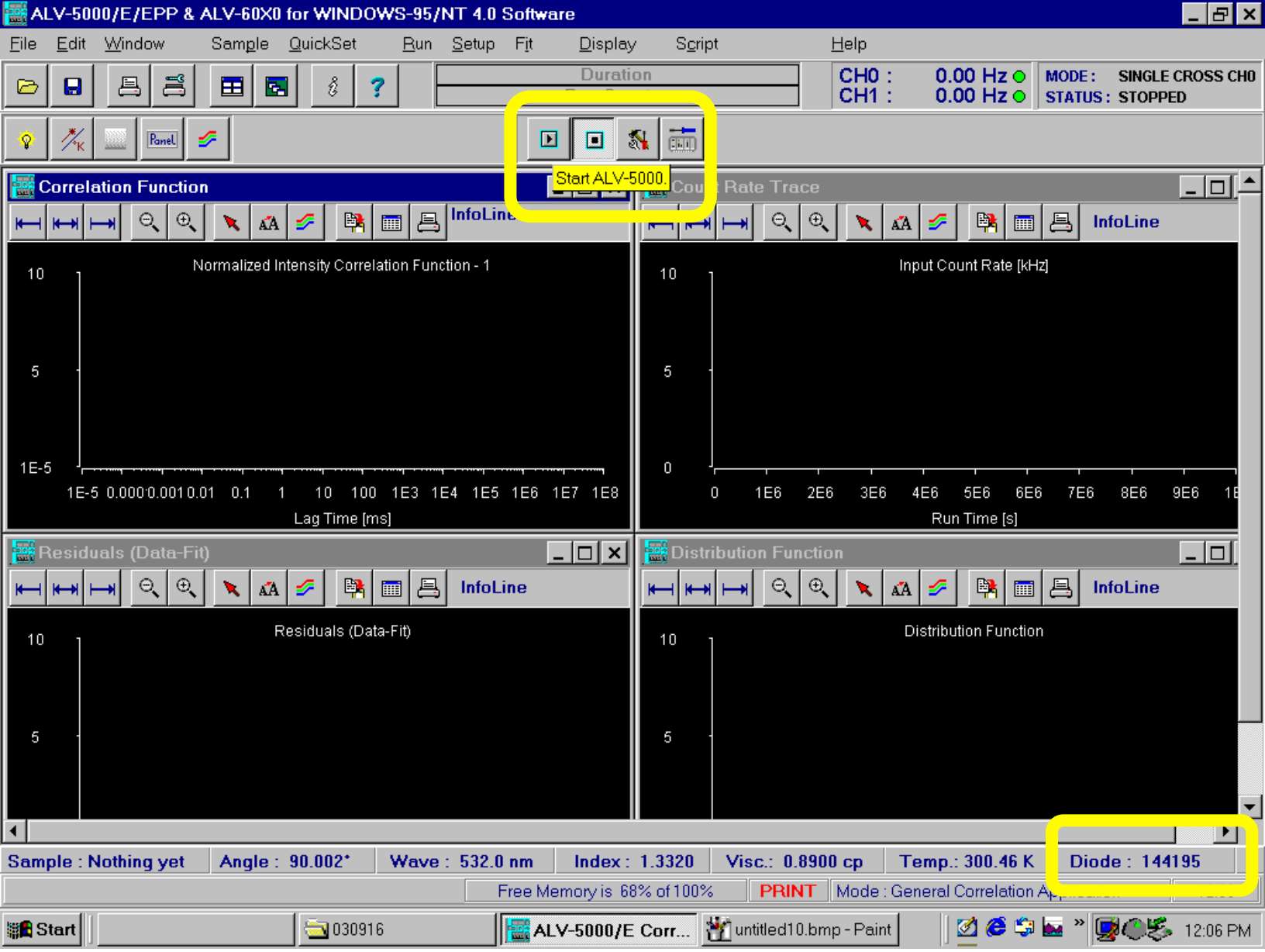
Check the box labeled “Use AutoSave…” at the top of the popup window.

Use the dropdown at the bottom of the popup window to navigate to “E:/”

The software will automatically open the most recently opened folder. If you have just completed the steps to specify the script and summary file, then your folder should open automatically. If not, simply navigate to it.

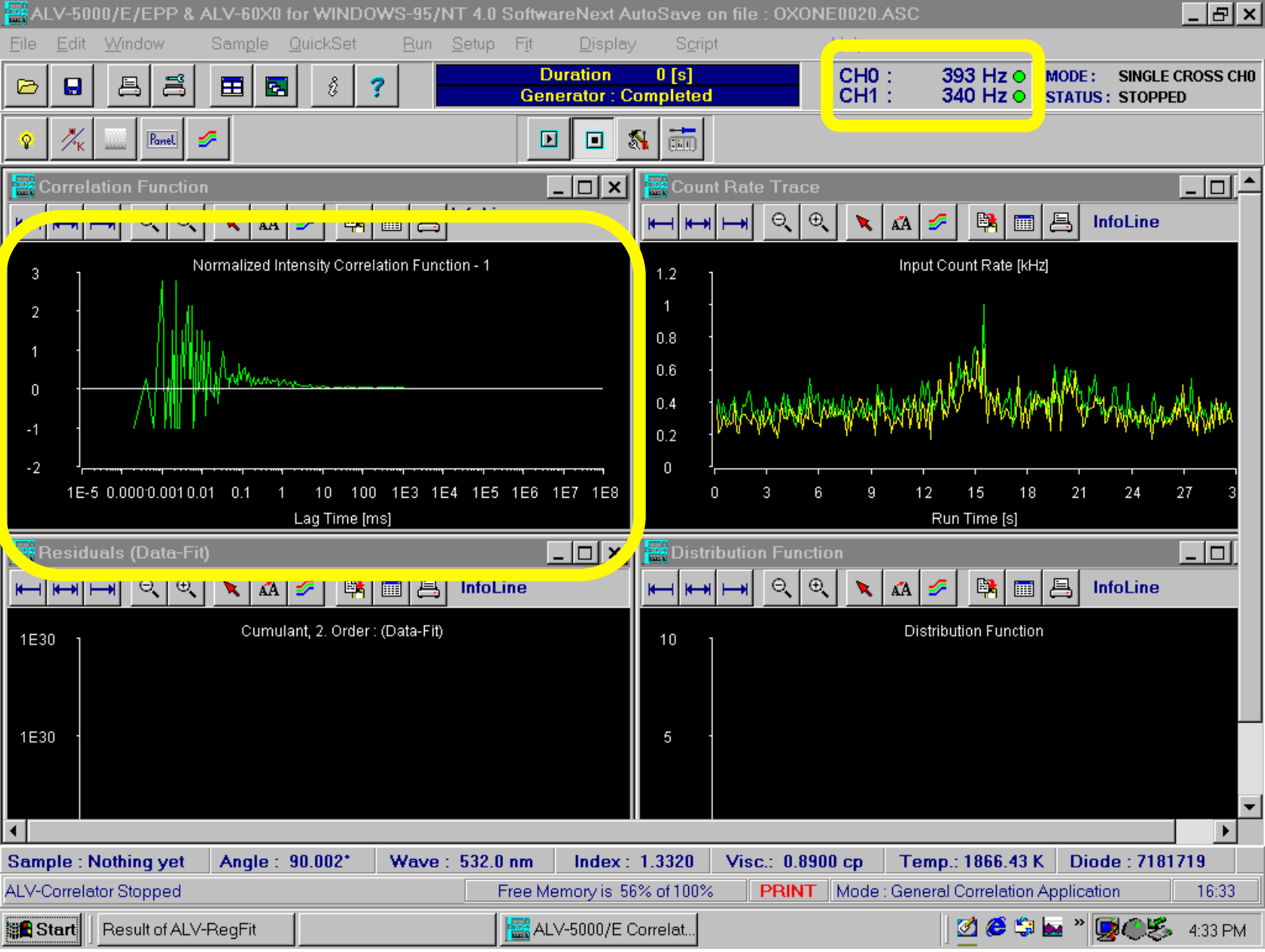
Choose a filename: this can be the same as the one chosen for the summary file. The “Auto-number start value” box must contain 4 digits.

Click OK to exit.



Check the diode level indicator in the bottom right hand of the screen. Adjust the diode level on the instrument as needed for your sample. Turn the room lights off if desired.

Press the ‘play’ arrow labeled “Start ALV” to begin your measurement.

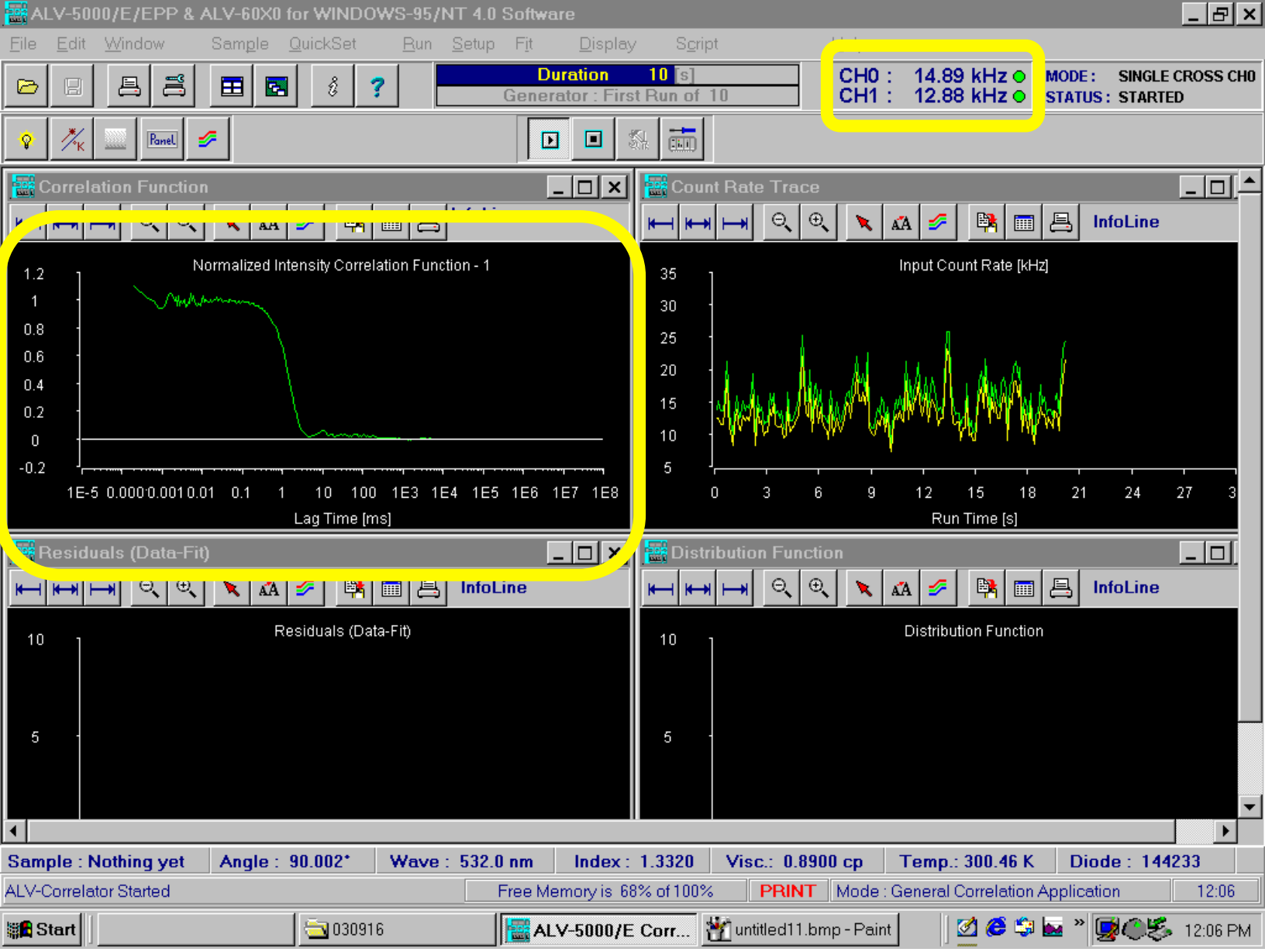


Assess your raw data quality.

For well dispersed and mono-dispersed nanoparticles, the correlation function in the upper left plot should exhibit a clean plateau and a single exponential decay.

The count rates are shown in the upper right, labeled “CH0” and “CH1.” CH0 and CH1 are typically 10’s of KHz for a clean signal

THIS IS AN EXAMPLE OF POOR DATA QUALITY.
The correlation function is very noisy and the count rate is low.
The sample may be too dilute, or the incident laser intensity not properly tuned.

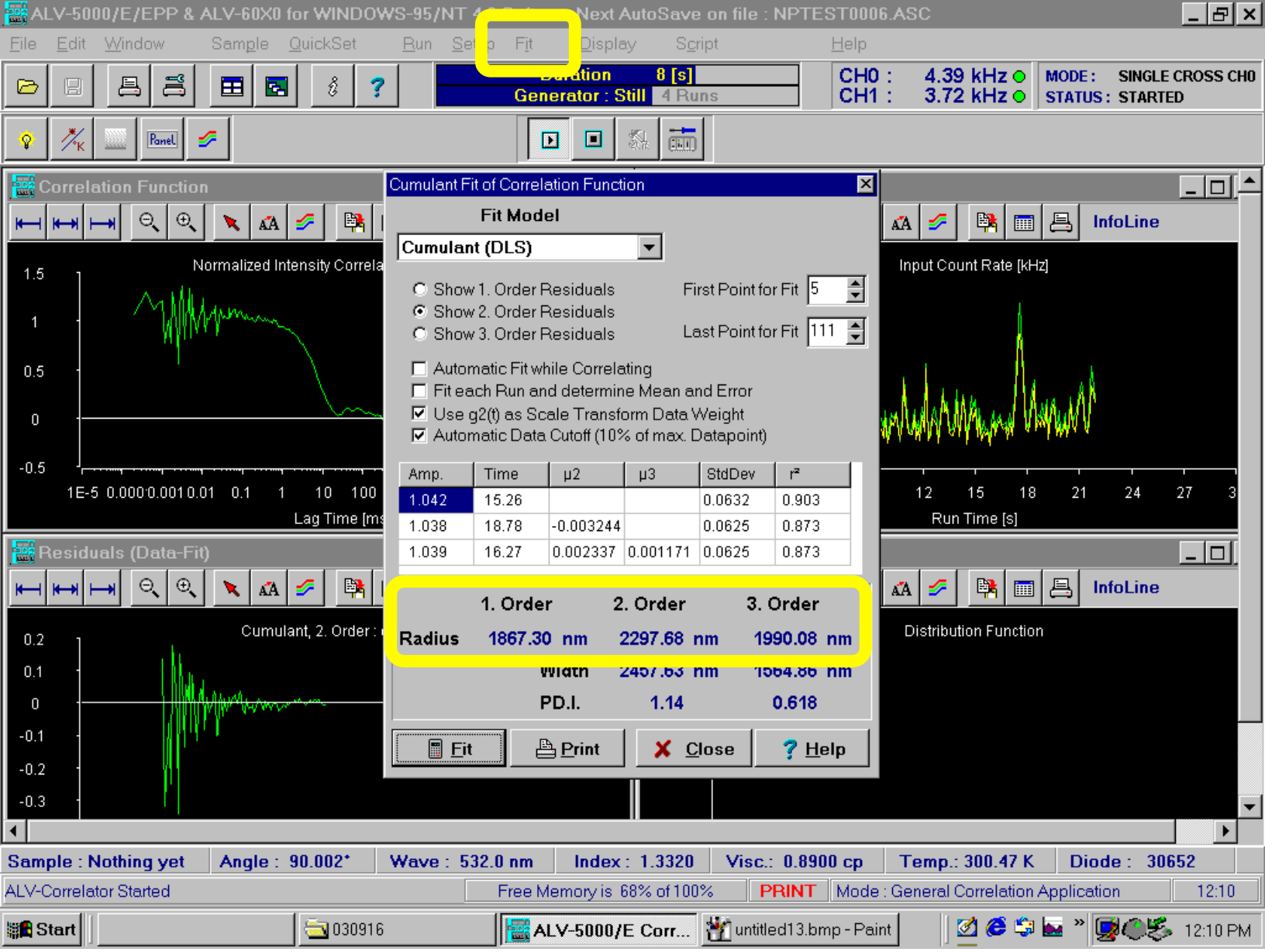


Assess your raw data quality.

For well dispersed and mono-dispersed nanoparticles, the correlation function in the upper left plot should exhibit a clean plateau and a single exponential decay.

The count rates are shown in the upper right, labeled “CH0” and “CH1.” CH0 and CH1 are typically 10’s of KHz for a clean signal

THIS IS AN EXAMPLE OF GOOD DATA QUALITY.
The correlation function is fairly clean and the count rate is reasonable.



The software provides cumulant fits to the raw data correlation functions to measure particle size. These are found in the menu labeled “Fit” under the option “Simple Fit.” The summary “.lst” file will save the cumulant fit parameters

As a general rule-of-thumb, if the 1st, 2nd, and 3rd order cumulant measurements of particle radius do not agree well, then the cumulant analysis, which assumes a Gaussian distribution of particle sizes, may not be appropriate for your sample.