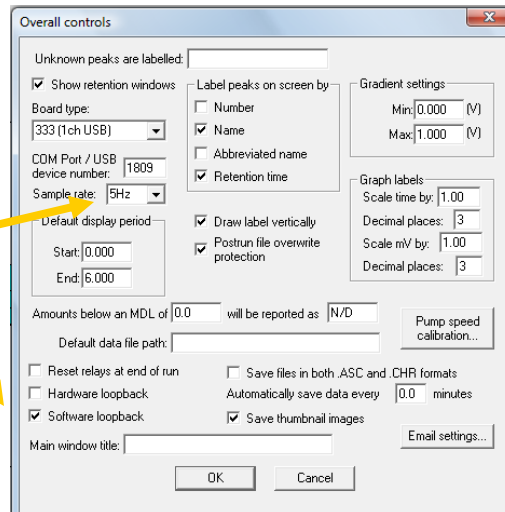
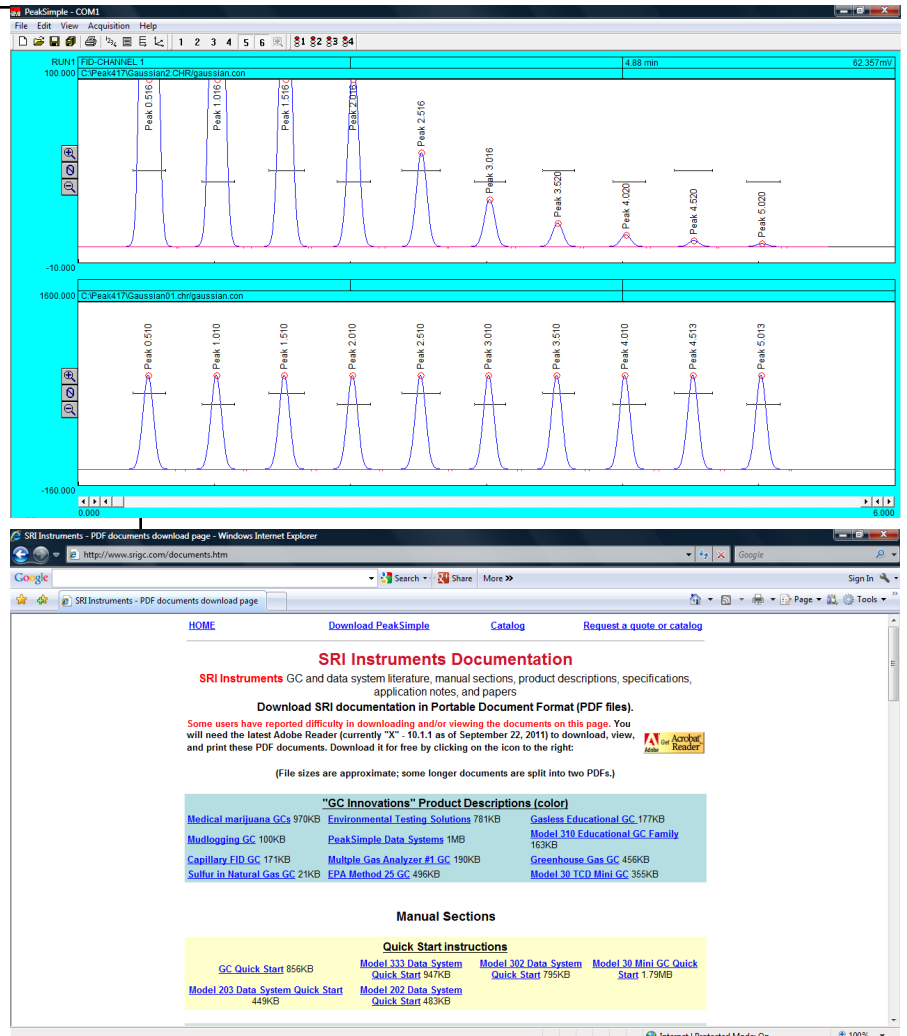


PeakSimple Software Self Validation

PeakSimple is SRI's software that allows a GC to communicate and interface with a Windows computer through an A/D (analog to digital) converter. The latest version can be downloaded for free from www.srigc.com.

Download the validation data package from www.srigc.com. Place the three files (Validation components.cpt, Reproducibility.chr, and Linearity.chr) into a folder on your C: drive named "Validation" (C:\Validation).

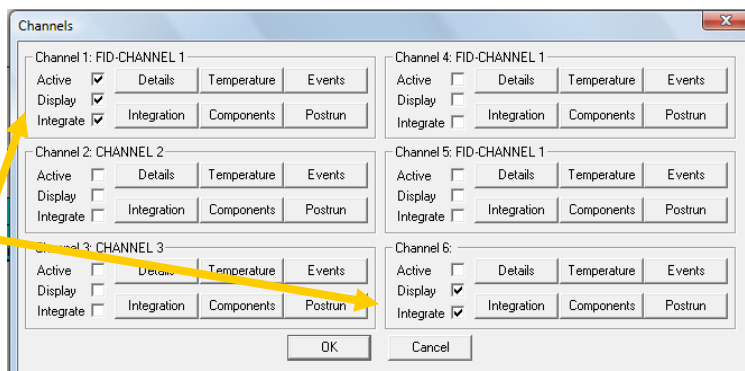
In order to validate the PeakSimple software the user will employ either **Hardware loopback** or **Software loopback**, which can be selected from the "Overall controls" menu accessible from the "Edit" Menu on PeakSimple's main screen. Make sure that the "Sample rate" is set to 5Hz.



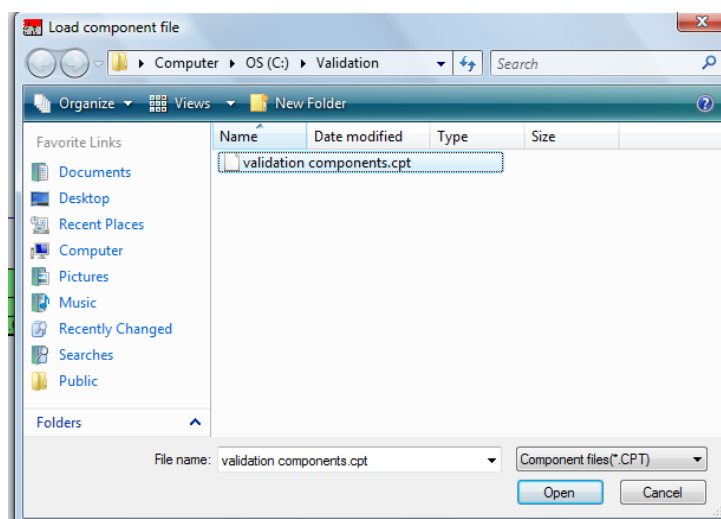
SRI Tech Support 310-214-5092
www.srigc.com

PeakSimple Software Self Validation

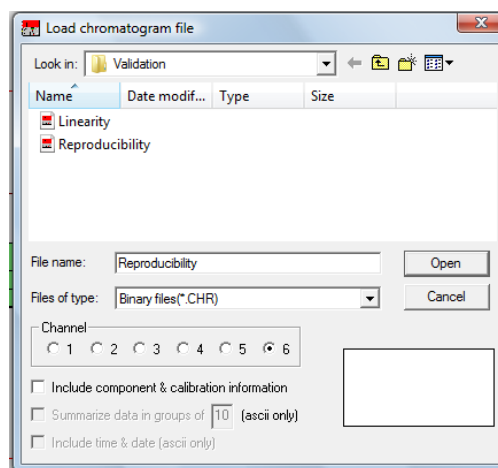
Initiate communications between PeakSimple and the GC or data-system. In the “Channels” Menu, make sure that Channel 1 is active, displayed, and integrated by checking the appropriate boxes. Ensure that Channel 6 is displayed and integrated.



From the main PeakSimple screen, right-click on Channel 1 and select “Components”. From the Components screen select “Load” and open the “Validation components.cpt” file from the C:\Validation file folder. Do the same thing for Channel 6.

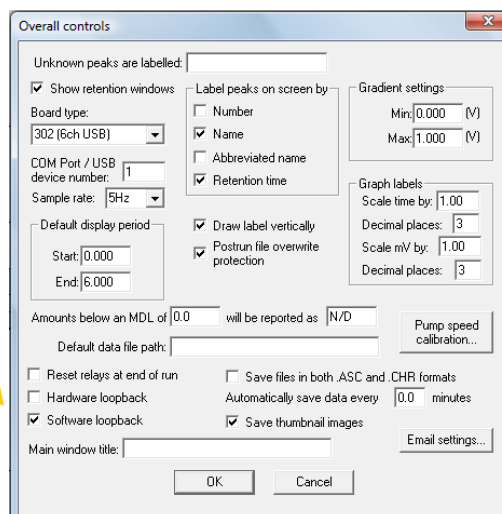


Load the “Reproducibility.chr” chromatogram into Channel 6 by selecting “Open” from the File menu, selecting the “6” Channel button, and selecting the Reproducibility.chr file from the C:\Validation folder. Hit the Open button.

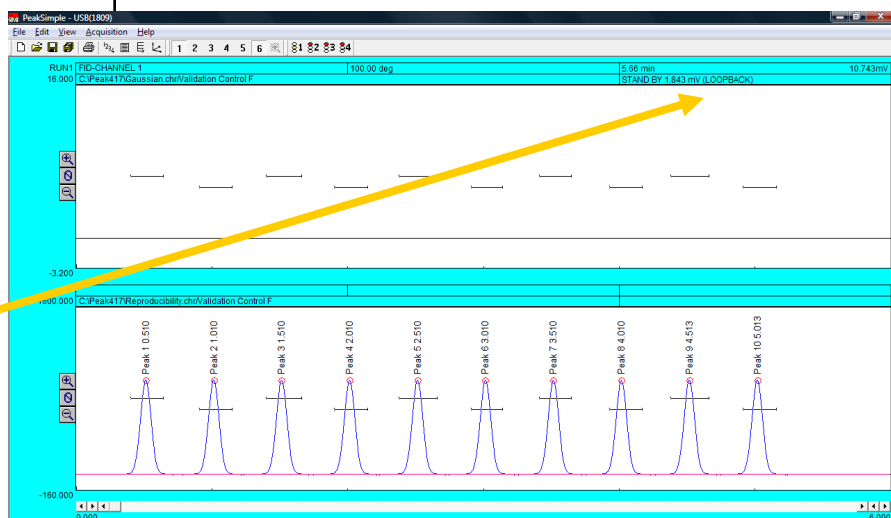


PeakSimple Software Self Validation

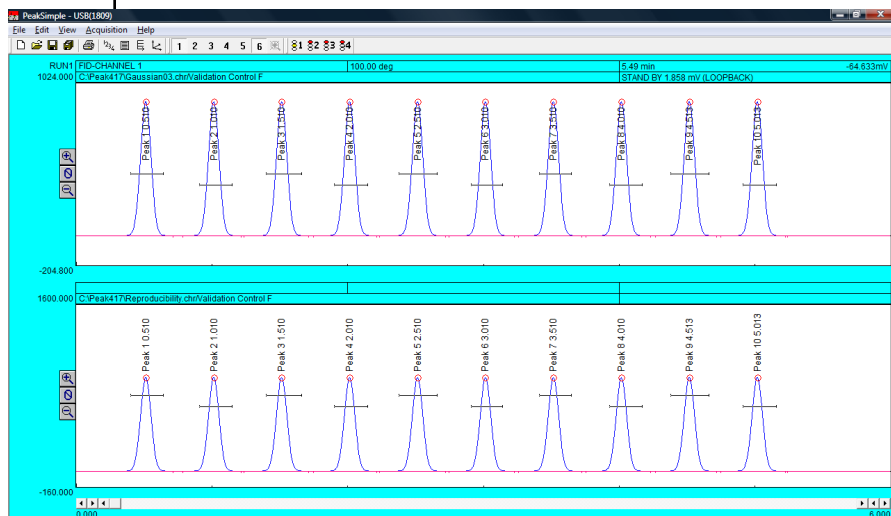
In the Overall Controls menu select "Software loopback" and hit the OK button. Software loopback will take whatever chromatogram is in Channel 6 and reproduce it in Channel 1. The data is transferred bit for bit in real time just as if Channel 1 is acquiring new data.



Your PeakSimple screen should look like this. Notice the "(LOOPBACK)" next to the signal display in the upper right hand corner of the screen.

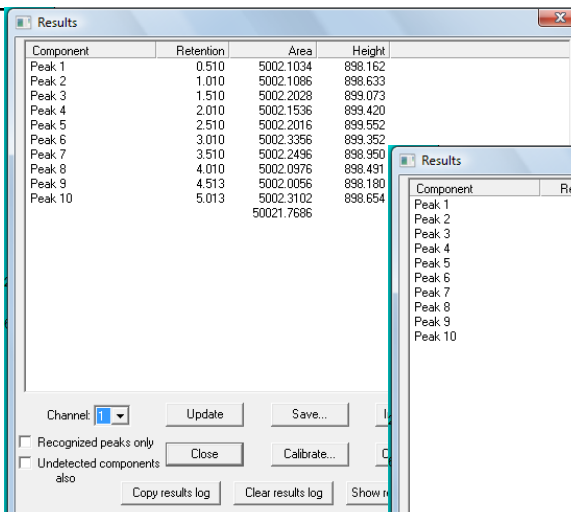


Start the Validation run by selecting "Run" from the Acquisition menu or press the Spacebar on your keyboard. At the end of the run your screen will look something like this.



PeakSimple Software Self Validation

Once the run is completed compare the results of Channel 1 to Channel 6 in order to see how faithfully the data was reproduced. In this instance, the area counts of all the peaks are identical.



Results

Component	Retention	Area	Height
Peak 1	0.510	5002.1034	898.162
Peak 2	1.010	5002.1086	898.633
Peak 3	1.510	5002.2028	899.073
Peak 4	2.010	5002.1536	899.420
Peak 5	2.510	5002.2016	899.552
Peak 6	3.010	5002.3356	899.352
Peak 7	3.510	5002.2496	898.950
Peak 8	4.010	5002.0976	898.491
Peak 9	4.513	5002.0056	898.180
Peak 10	5.013	5002.3102	898.654
		50021.7686	

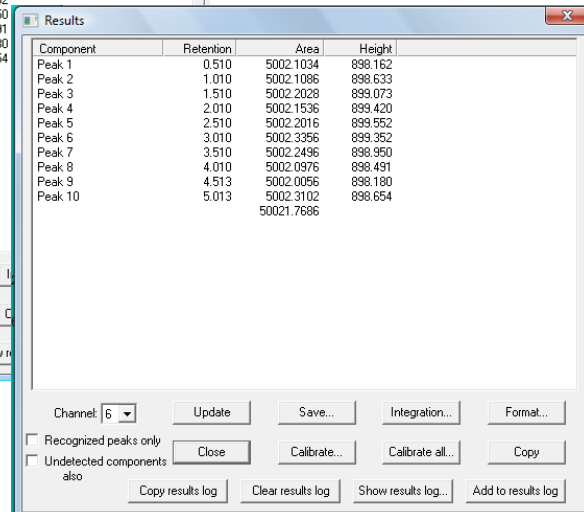
Channel: 1

Update Save... Integration... Format...

Recognized peaks only Undetected components also

Close Calibrate... Calibrate all... Copy

Copy results log Clear results log Show results log Add to results log



Results

Component	Retention	Area	Height
Peak 1	0.510	5002.1034	898.162
Peak 2	1.010	5002.1086	898.633
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Peak 7	3.510	5002.2496	898.950
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Peak 9	4.513	5002.0056	898.180
Peak 10	5.013	5002.3102	898.654
		50021.7686	

Channel: 6

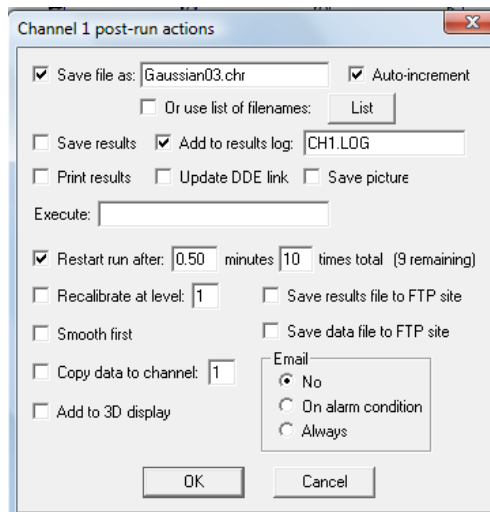
Update Save... Integration... Format...

Recognized peaks only Undetected components also

Close Calibrate... Calibrate all... Copy

Copy results log Clear results log Show results log Add to results log

In order to calculate statistically meaningful measurements (i.e. standard deviation), several validation runs may be required. To simplify the process, the user can automate the validation runs by opening up the "Postrun" menu from the Channels menu. In the Postrun menu ensure that the "Save file as" box is checked and given a name and the "Auto-increment" box is checked. Check the "Add to results log" box and give it a name. Finally, check "Restart run after" and enter a time and the number of runs that you would like to have it perform. The data from the runs will be saved to the .LOG file where it can be viewed or easily exported to a data management program like Excel.



Channel 1 post-run actions

Save file as: Gaussian03.chr Auto-increment

Or use list of filenames: List

Save results Add to results log: CH1.LOG

Print results Update DDE link Save picture

Execute: _____

Restart run after: 0.50 minutes 10 times total (9 remaining)

Recalibrate at level: 1 Save results file to FTP site

Smooth first Save data file to FTP site

Copy data to channel: 1

Add to 3D display

Email

No

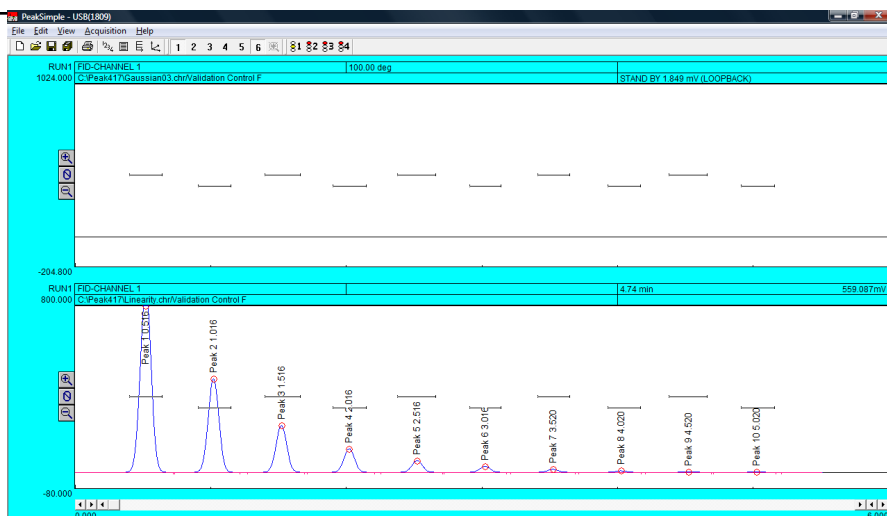
On alarm condition

Always

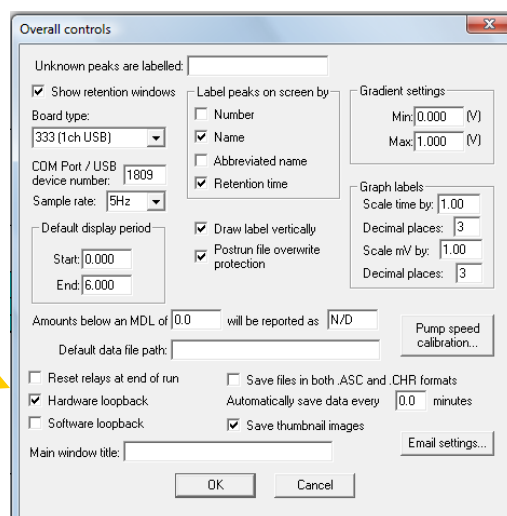
OK Cancel

PeakSimple Software Self Validation

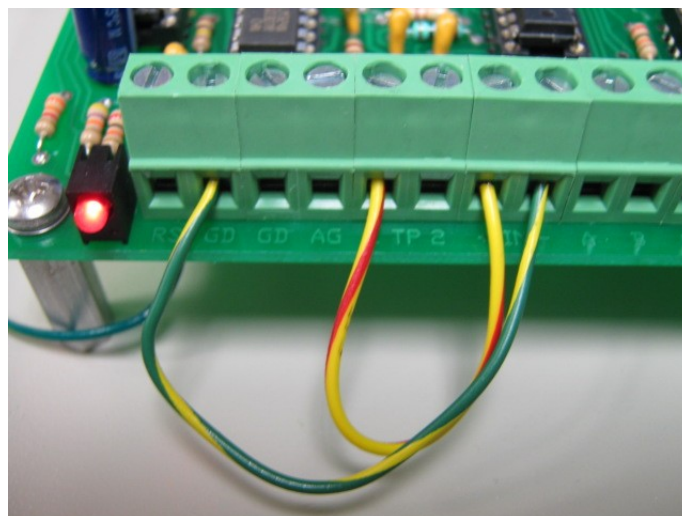
To test for linearity rather than reproducibility, simply perform the same process as previously outlined, except this time load the “Linearity.chr” file into Channel 6. For this chromatogram each succeeding peak has half the area counts of the one before it. When you do this the PeakSimple screen will look something like this.



To perform Hardware loopback validation select “Hardware loopback” from the “Overall controls” menu. In general, Hardware Loopback will have more deviation than Software loopback due to a difference in resolution (14 bits for Hardware, 24 bits for Software). With Hardware loopback the chromatogram in Channel 6 is played back as an analog voltage which Channel 1 re-acquires just like a real chromatogram.

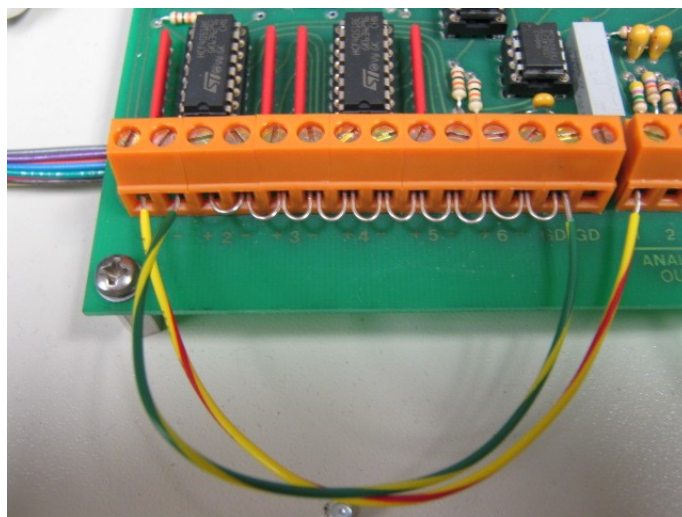


If you have a 333 single channel data system (or board inside your GC) connect a wire from ground to the negative signal input terminal, and another wire from the TP 1 terminal to the positive signal input terminal. It should look like the picture to the right.



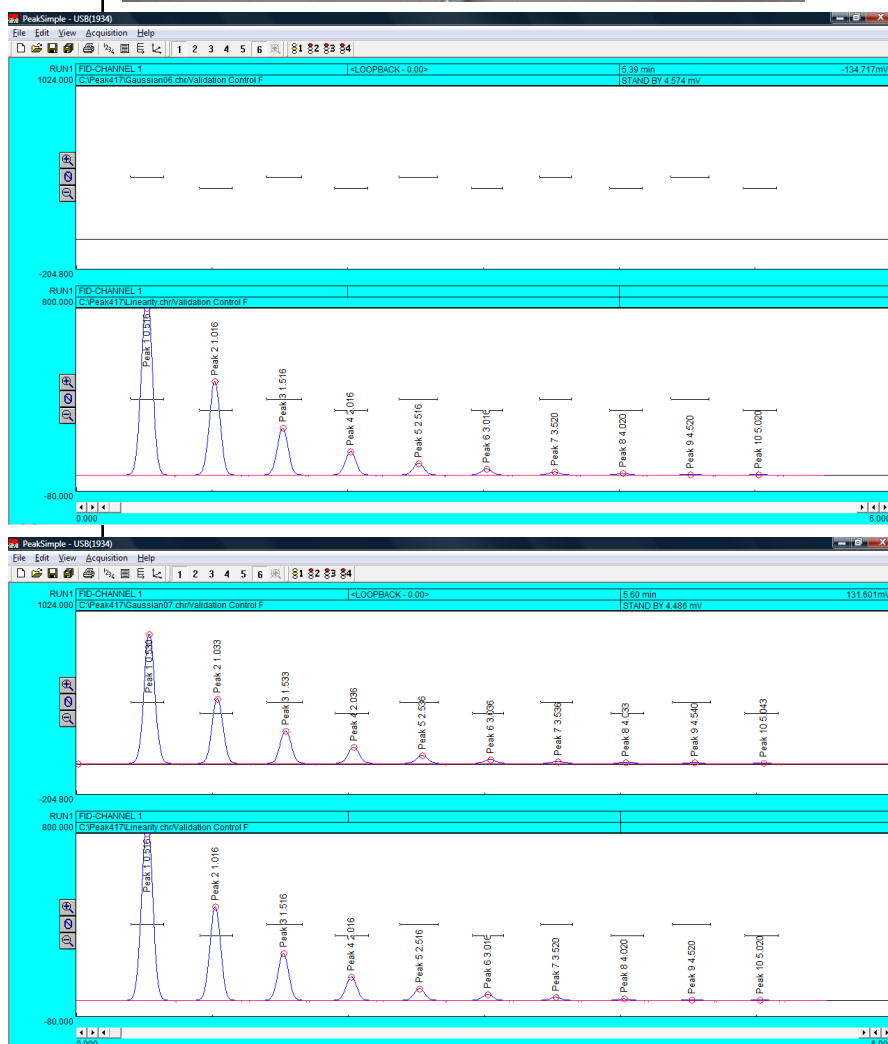
PeakSimple Software Self Validation

If you have a six-channel 302 data system (or board inside your GC) connect a wire from ground to the negative channel one and another wire from the 1 analog out terminal to the positive channel one terminal. It should look like the picture to the right.



With the Validation components file loaded into Channels 1 and 6 and either the Reproducibility or Linearity chromatogram loaded in channel 6 (in this case Linearity is loaded) start the run.

When the run is completed compare the area counts between the two channels. As discussed previously, you can automate a number of validation runs in order to collect statistical information.



PeakSimple Software Self Validation

The Reproducibility.chr and Linearity.chr chromatograms are very clean and easy for the software to integrate. It may be beneficial and more realistic to use your own chromatogram in order to obtain your validation data. In this instance, load a chromatogram of your choosing into Channel 6 and perform Software loopback or Hardware loopback as discussed previously.

Make sure to add retention windows over the peaks (see the PeakSimple tutorial for adding retention windows), save the resulting component file, and load it in channel 1. This will allow you to quantify the area counts of your peaks after each validation run.

For any validation runs, print the chromatograms in order to have a hard copy of your data.

