



Agilent Technologies

Innovating the HP Way

Flat or Unresponsive Baseline Problems

Applies to 5973A/N MSD

WHAT COULD CAUSE THE PROBLEM:

A non-responsive or dead baseline could have one of several causes. Typically when the baseline goes dead during the run (especially if it seems to stop during a peak eluting) the most common cause is a blown filament in the Mass Specs source. Even though a blown filament is one of the most common problems to cause a flat or unresponsive baseline, there is the possibility of other hardware or electronics problems.

WHAT TO DO:

1) Go into [MANUAL TUNE] and perform a spectrum scan:

Note: If the spectrum scan is successful, then the Mass Spec is most likely okay and the problem may be sample-introduction related, i.e. Auto-sampler or syringe, clogged or possible broken column, column flow or lack there of, or column installation. These are but a few of the problems that can cause a dead or flat baseline, and do not involve direct problems with the Mass Spec.

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- 2) If hardware or electronic problems exist, most will generate and display an error.

The following errors could appear:

- a) No Emission Current
- b) Excessive Signal Level
- c) Excessive Source pressure
- d) Difficulty with Mass Filter Electronics

Note: This is just a few of the errors that could appear, if your error does not appear in this list refer to your hardware manual or call Agilent Technologies TECHNICAL SUPPORT for clarification of your particular error.

HOW TO ADDRESS A PARTICULAR ERROR:

If you're getting the error –

NO EMISSION CURRENT...

- Typically this error indicates a blown filament. 5973A/N's have 2 filaments in the source. If the Mass Spec has blown a filament, the user can change to the alternate filament through the Chemstation software, by selecting **[MANUAL TUNE]**, **[ADJUST PARAMS]** followed by, **[EDIT MS PARAMS]**. Once in this screen you can proceed to the FILAMENT SELECT BOX, (which could have either FILAMENT 1 or 2 selected), select the opposite filament, then attempt a Spectrum scan or Profile scan from this screen by using the buttons at the bottom of the screen labeled, “ **[Scan]** or **[Prof]** ”, respectively.
- If the scan is successful, exit this screen, but before exiting Manual tune, select **[FILE]**, then **[SAVE TUNE VALUES]**. The box that pops up should already have, “ATUNE.U”, selected. Press **[OKAY]** to save to tune file or select the appropriate tune file in use, then press **[OKAY]** to save.

- If the error still persists, then it's suggested to do the filament test as outlined in the hardware manual, or follow the vent procedure, remove the analyzer, and visually or with a volt/ohm meter, check the continuity of the filaments. If the filaments appear to be bad, replace them, pump the system down, and allow an appropriate time for the system to pump down, then attempt a spectrum scan. If the error does not occur, the problem is corrected.

If the problem persists then Agilent Technologies TECHNICAL SUPPORT OR ONSITE SERVICE IS RECOMMENDED!!!

EXCESSIVE SIGNAL LEVEL...

- This error typically is a result of an excessive ELECTRON MULTIPLIER VOLTAGE or a Saturated Signal level, but can be the result of
 - Cleaning the source, then tuning without first lowering the Multiplier voltage.,
 - A sample that is too concentrated,
 - Too much sample/solvent injected
 - An electronics problem.

If the problem occurred after the source was cleaned, it could be as a result of the high multiplier voltage caused by the dirty source, which could cause an excessive signal level when the Mass Spec is initially tuned or scanned after the clean source is installed. To correct this problem, lower the Multiplier voltage to approximately 1000 volts in **[MANUAL TUNE]** and save this value to, "**[TUNE PARAMETERS]**", in the ATUNE.U tune file and re-tune the Mass Spec. If the Mass Spec passes the tune, more than likely the MS is okay.

If the problem still exists during the analytical run, make a blank run (no injection) to determine if the MS will complete the run without generating the error. If the Mass Spec will complete the blank run the error could be the result of a highly concentrated sample, too much sample injected, or a solvent delay time that's not sufficiently long enough to allow the solvent peak to elute before the MS filament is turned on.

Also don't forget to check the vacuum manifold pressure, as read from the gauge controller (if available) or from the **[VACUUM DIAG]** screen in the Chemstation software.

If the error is generated under all of the above conditions, reset the Electron Multiplier voltage to zero in, [MANUAL TUNE], then save to [TUNE PARAMETERS] in the Atune.U file. Retry performing a scan or start a blank run, if the error persists then Agilent Technologies TECHNICAL SUPPORT OR ONSITE SERVICE IS RECOMMENDED!!!

DIFFICULTY IN MASS FILTER ELECTRONICS...

Difficulty in MASS FILTER ELECTRONICS simply means that for some reason the Mass Spec has lost control of the MASS FILTER. This can be the result of a mechanical problem, (Quads or Quad contact leads), an electronics problem or even possibly improper vacuum.

Verify that vacuum is good in the vacuum manifold. Follow the vent procedure to vent the MS and undo analyzer thumbscrews to allow the analyzer door to swing open to facilitate access to the analyzer mass filter. Locate quad contact leads at rear of mass filter and verify that they are making a good connection at the plug in pins on the swing out door and also at the quad contact on top of mass filter.

Be careful not to touch anything in the analyzer section with bare hands, (always wear protective gloves). Examine visually the condition of the quad as best you can before closing the analyzer into the vacuum manifold.

Pump the system down, making sure that you press in on both ends of the analyzer door until the effects of the vacuum complete the seal and pull the analyzer door in. Allow enough time for the system to pump down properly. When satisfied with the vacuum, execute a scan or tune to determine if the problem has been corrected.

If the problem still occurs, the possibility of a hardware or electronics problem exists and Agilent Technologies TECHNICAL SUPPORT OR ONSITE SERVICE IS RECOMMENDED!!!