

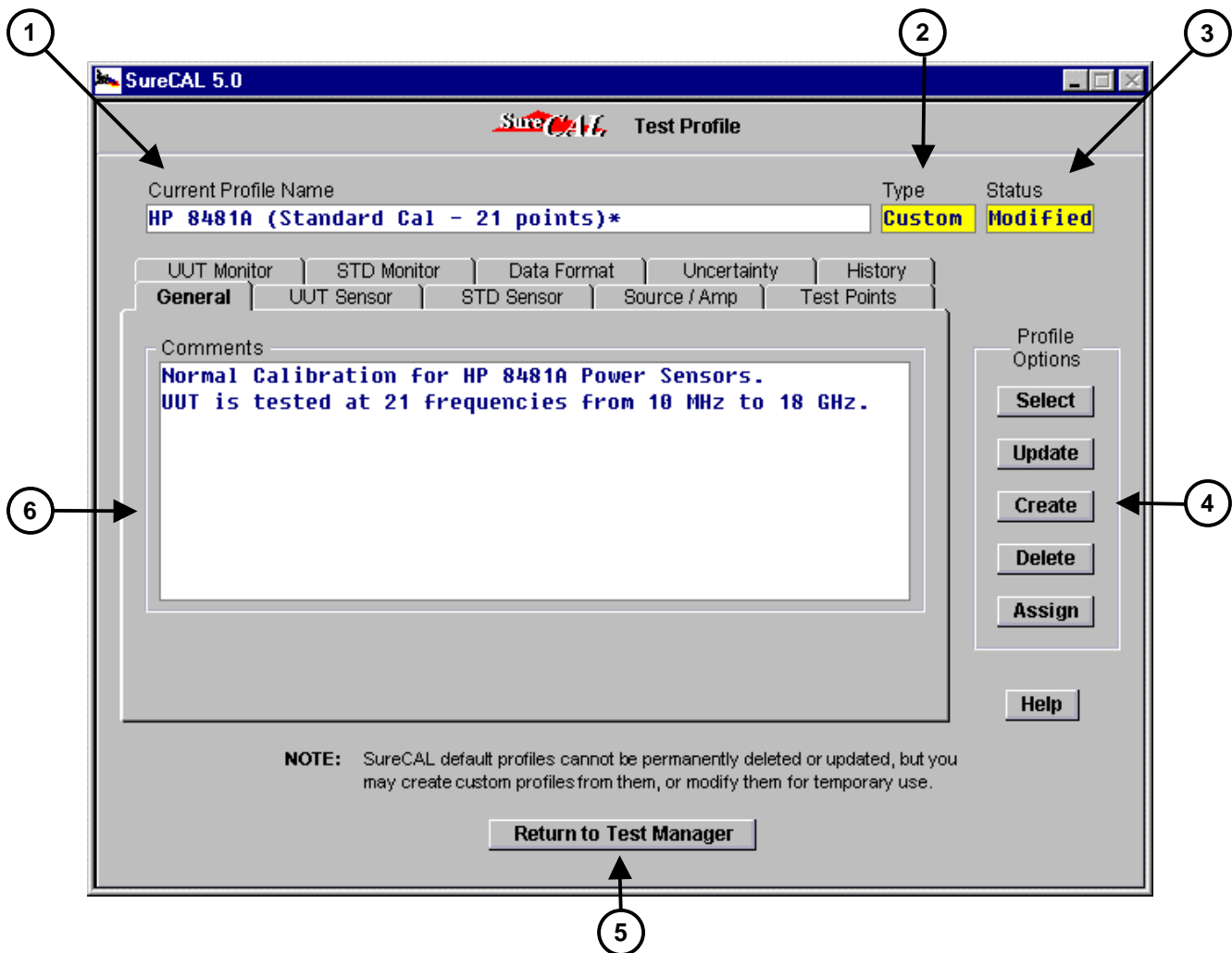
# What's New in the ~~Sure~~CAL<sup>®</sup> Power Sensor Package?

**Major changes are coming in the April 2003 Quarterly Update for the SureCAL Power Sensor Support Package. Many of the changes will be transparent to the operator, but some will affect the format of data files for STD power sensors, adapters and attenuators. You will still be able to use your existing data files, but new files will be created in a slightly different format.**

**Please read this document carefully before installing the update.**

**Your April 2003 Quarterly Update CD will include significant changes to the Power Sensor Support Package. Here's a summary of the changes:**

- **A new Test Profile editing and management screen gives you full access to SureCAL default profiles and your custom profiles.**

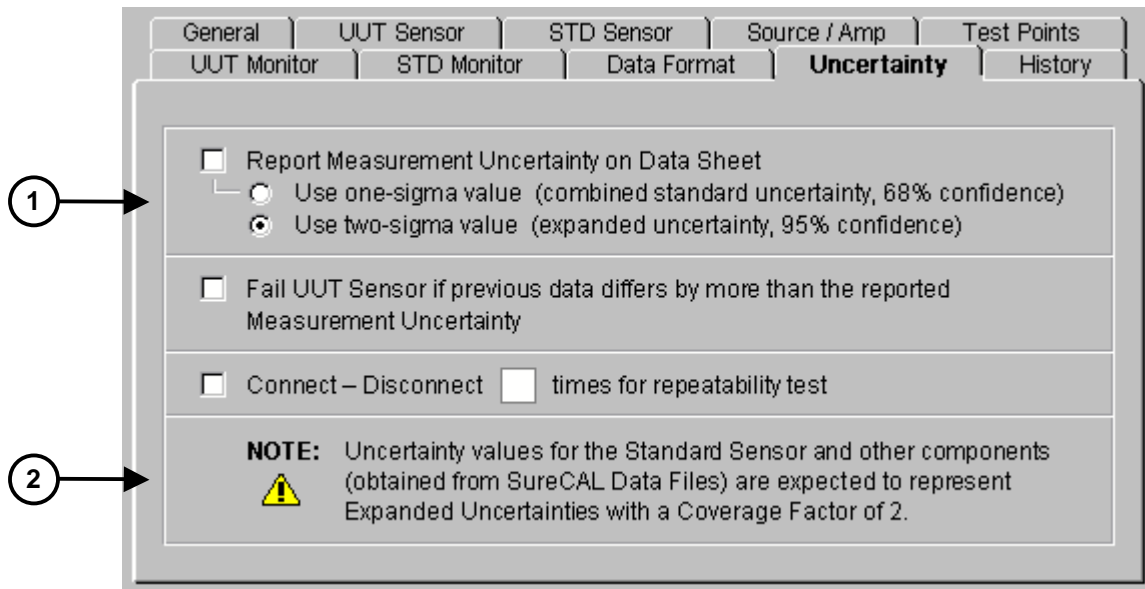


## The new Test Profile Management Screen:

- ① The name of the current Test Profile has been moved from the “General” tab to the top of the screen. This makes it much clearer which profile is being viewed or edited.
- ② The Profile Type (“Default” or “Custom”) is also displayed. In the past, whenever a SureCAL default profile was modified, you could never go back to the original version. Now, the SureCAL defaults are always available. This new field identifies which type of profile is currently loaded.
- ③ The Profile Status (“Loaded” or “Modified”) is now displayed. This indicates whether or not any changes have been made to the current profile since it was originally loaded.
- ④ New Profile Option Buttons give you improved control over your profile selection and maintenance.
  - The “Select” button lets you load any previously existing profile.
  - The “Update” button saves modifications to custom profiles.
  - The “Create” button creates a new custom profile from the current settings.
  - The “Delete” button allows you to delete one or more custom profiles. (Default profiles and the current profile may not be deleted.)
  - The “Assign” button lets you control how profiles are automatically loaded.
- ⑤ The “Return to Test Manager” Button does exactly that. Whatever the current profile settings are, those will be the ones used the next time you press the SPACE BAR to begin a new test.
- ⑥ The Test Profile tabs have changed only slightly. You will notice that some of them have been renamed and some fonts have changed, but their content is nearly identical to previous versions. One exception is the “Uncertainty” tab. More on that below...

- **Uncertainty calculations performed by the SureCAL Power Sensor Support Package are now fully compliant with the methodology of the ISO Guide to the Expression of Uncertainty in Measurement. Consequently, the “Worst Case” option on the “Uncertainty” tab has been removed.**

**The new Uncertainty tab:**



- 1 The old terminology of “RSS” and “Worst Case” have been replaced by the more precise language of the ISO GUM. All SureCAL Default Profiles now specify a 2-Sigma Expanded Uncertainty on this tab.

Previously defined custom profiles that specified the “Worst Case” option will be automatically converted to the “2-Sigma” option. Profiles that previously specified the “RSS” option will now indicate the “1-Sigma” option.

- 2 **AN IMPORTANT CHANGE:** In the past, the Power Sensor Software interpreted uncertainty values read from SureCAL data files as “1-Sigma” values. This was done to simplify the construction of our uncertainty budgets, but it caused some confusion. Other SureCAL software expected “2-Sigma” uncertainties and most of our customers also preferred working with “2-Sigma” values.

To avoid further confusion, and to make all SureCAL data files consistent, the Power Sensor Software has been changed. As of April, 2003, all new SureCAL data files should be created using 2-Sigma, expanded uncertainties.

The sample data files, SENSOR.DAT, TRANSFER.DAT, FIXEDATT.DAT and ADAPTER.DAT have all been modified to include a “2-SIGMA” label above the Uncertainty column to clarify this change. See example on the following page.

EXPIRATION DATE: 01 JAN 2010  
DATA FILE TYPE: SENSOR  
Corrections data for power sensor ID#

| FREQUENCY(MHZ) | CALFACTOR(%) | 2-SIGMA<br>UNCERTAINTY(%) | S11MAG(RHO) | S11PHASE(DEG) |
|----------------|--------------|---------------------------|-------------|---------------|
| 50             | 100          | 2.1                       | 0.0001      | 0.00          |
| 500            | 99.8         | 2.1                       | 0.0001      | 0.00          |
| 1000           | 99.3         | 2.1                       | 0.0001      | 0.00          |

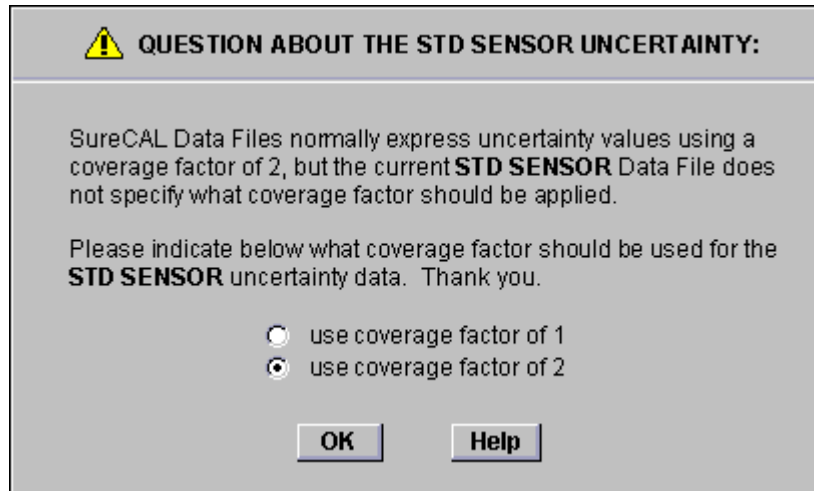
(excerpt from new SENSOR.DAT)

This change applies to data files for Standard Power Sensors, Adapters, Attenuators or Min Loss Pads used by the Power Sensor Software.

As a result of this change, all new data files created by the Power Sensor package will also specify 2-Sigma Expanded Uncertainties in the format shown above. **This will be true regardless of the selection made on the Uncertainty tab.** If a "one-sigma" option is specified in the test profile, the printed Calibration Record will indicate the one-sigma value, but any data file created or updated will indicate 2-Sigma values.

We realize that it would have been a major inconvenience to our customers if we had made this change without first considering the impact on their existing data files. Therefore, customers may continue to use their existing 1-Sigma data files.

When uncertainty data is read from an existing data file, the Power Sensor Software will look for the "2-SIGMA" label in the file. If the label is not found, the operator will be asked if the data should be interpreted as 1-Sigma or 2-Sigma.



Example dialog when an old-format data file is used

- **Profiles may now be configured to load automatically when a particular UUT is being tested. Assignments may be made by the UUT Identification Number, Serial Number, Model Number or Description.**

**The new Profile Assignment screen:**

- ① Profiles may be designated as “Floating” or “Assigned”. “Floating” profiles simply exist in a pool of available profiles and are never automatically loaded. They must be manually selected to become active. “Assigned” profiles are automatically loaded based on specified assignment criteria.
- ② All Assigned profiles must be associated with a specific SureCAL CP file and a specific Step Title within that CP. The default entries in these fields will be the current CP and Step, but other values may be entered.
- ③ A NEW Optional Assignment Parameter may be entered here. You may specify ONE of the following: Ident Number, Serial Number, Model Number or Description. This allows you to designate a profile that applies only to a single UUT, or to all UUTs with a certain Model Number or Description text.

If all assignment parameters match (i.e., CP Name, Step Title and the Optional Parameter) the profile will be loaded automatically.

If multiple profiles for the same CP and Step Title are assigned using different Optional Parameters, a matching Ident Number will take the highest priority. The order of priority is: Ident Number, Serial Number, Model Number and Description.

- ***Pre-existing Profiles may now be manually selected by the operator at run time, without requiring a password or access to the Profile editing screen. This is done from the Profile Summary Screen.***

***The new Profile Summary screen:***

Screenshot of the SureCAL 5.0 Profile Summary screen. The window title is "SureCAL 5.0". The screen displays several fields:

- Test Profile: HP 8481A (Standard Cal - 21 points)\*
- Unit Under Test: Hewlett Packard 8481A Power Sensor
- Monitored by: HP 437B Power Meter (POWER MONITOR #2) (or equivalent)
- Standard Sensor: Hewlett Packard 8481A Power Sensor w/ Splitter
- Monitored by: HP 437B Power Meter (POWER MONITOR #1) (or equivalent)
- RF Sources: 10 MHz to 50 MHz (LOW FREQ SOURCE) 50 MHz to 18000 MHz (HIGH FREQ SOURCE)
- Amplification: None
- Switching Unit: None
- Data Required: CAL FACTORS and SWR for the UUT and Standard Sensors

Below the fields is a message: "Review the settings above and select OK to proceed". At the bottom are four buttons: "OK", "Cancel", "Help", and "Select New Profile".

① The Profile Summary screen now shows the name of the current Test Profile on the top line.

② Any pre-existing test profile may be selected by pressing the "Select New Profile" button. This gives the operator control over what profile is being run, without giving out the password required to make profile changes.

- ***And one last thing... You get two new Calibration Procedures for the Boonton 57318 and 57518 EPROM sensors and a new SureCAL Driver for the Boonton 4532 Power Meter.***

***As always, these changes are being provided free of charge to customers with current Software Maintenance Agreements. Most of the improvements were a direct result of feedback from our many customers, both within Northrop Grumman and elsewhere. We truly appreciate your continued use and support of our products!***