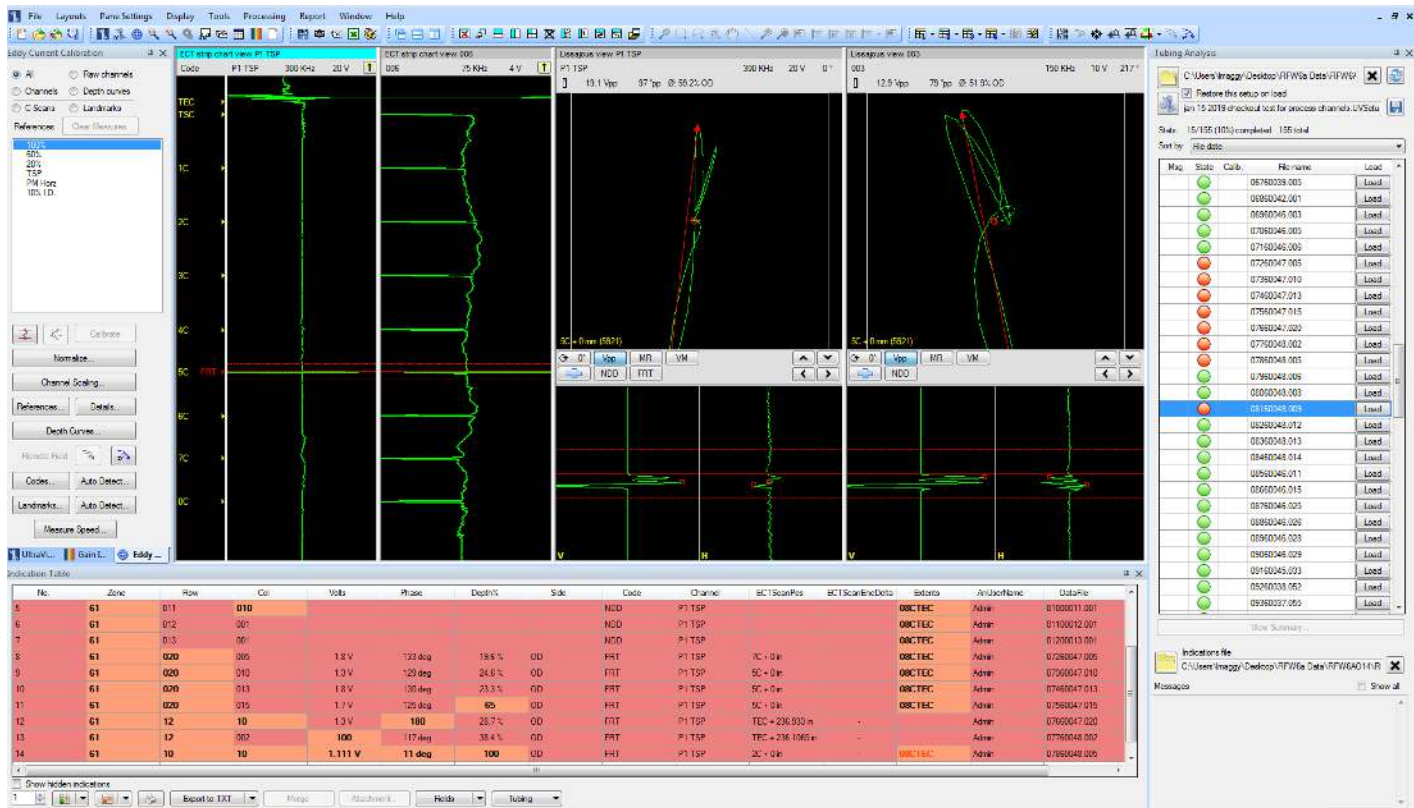


ULTRAVISION ET

Technical Guidelines – Release 3.9R19



UltraVision ET tubing analysis inspection package

Table of Content

Table of Content	2
IMPORTANT MESSAGE.....	3
Changes to LANDMARK AUTO LOCATE features.	4
Adjusting locating errors improvement-.....	6
Three letter codes configuration screen.....	8
Separation of Landmarks and indications in the long strip chart view.....	10
Analysis percent completed.....	11
Single analysis report per acquisition calibration group.....	12
New Features for how acquired data can be displayed.	14
Quick Action functionality.....	15
Normalizing Voltage feature-.....	16
CHANNEL Scaling Feature-	17
Probe speed/sample rate calculation-	19
New Save Setup functionality	20

IMPORTANT MESSAGE

UltraVision ET 3.9R19 is the latest UltraVision release dedicated to tubing inspection using eddy current technology. This new software version incorporates a series of new features and improvements.

Please note that only the (x86) UltraVision installer supports the data to read Velocity, MultiView, ECVision and MIZ-27/28 files. These data file can be opened and analyzed with UltraVision ET, but the setup information is not loaded from data.

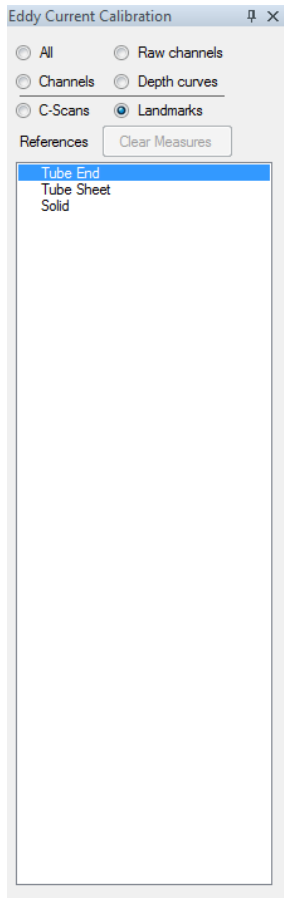
Zetec is committed to the highest levels of product quality.

If you detect any limitations or anomalies when using UltraVision ET 3.9R19, please contact us at: Support-UTProducts@zetec.com. Detailed information about the problem will help our software team expedite the correction process.

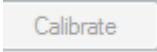
Changes to LANDMARK AUTO LOCATE features.

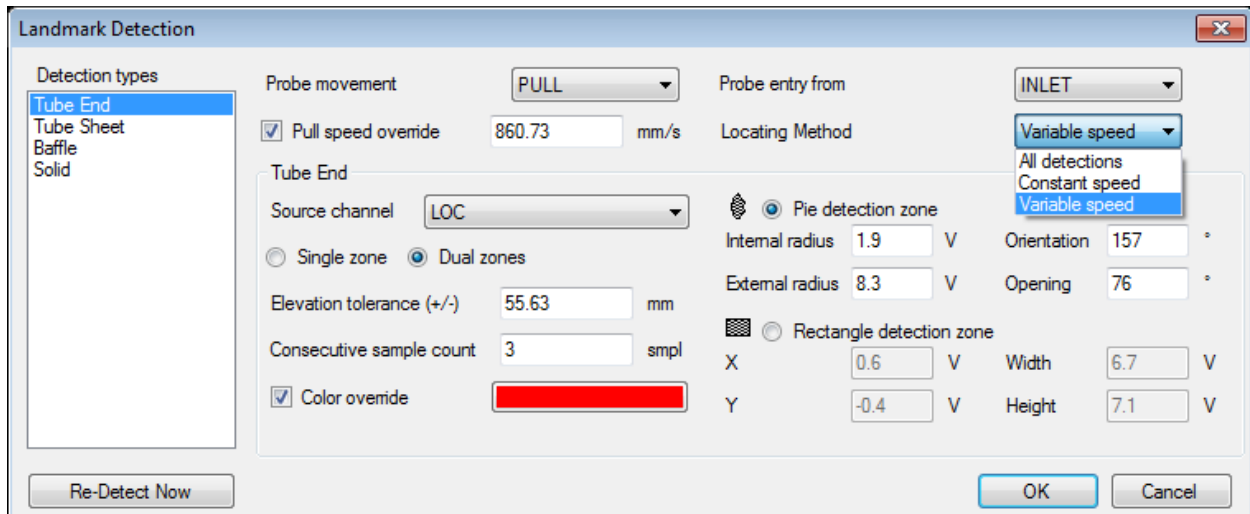
There have been numerous upgrades to the auto landmark detection functions that will be explained below:

The structures are now set by selecting the Landmarks radio button in the Eddy Current Calibration screen.



The user must identify each of the landmarks to be used for detection and set those locations using the Set button .

Once all the landmarks have been identified and set, pressing the Calibrate button  will automatically set the alarm boxes in the software for each of the various types of landmarks.



1. Pull Speed Override - Using the newly developed Pull Speed measurement tool (explained later) the user has the ability to PUSH the calculated average pull speed information to the Landmark Detection window. This information will then be used to assist in detecting the structures identified in the landmark table.
2. The user now has three selections to choose from under the LOCATING METHODS drop down menu.
 - All Detections - this option is used as a tool to determine which structures are being detected and as an aid in setting up the various detection alarms
 - Constant speed - designed to be applied when a mechanical probe pusher is being used
 - Variable Speed NEW - has been designed to work with primarily hand pulled data
3. COLOR OVERRIDE - The functionality is used to apply different colors to the various alarm boxes used for the detection of landmarks. This will assist when the user is required to make minor adjustments to a specific detection alarm box.

Note - it is suggested that in most cases the Consecutive Sample Count window be left at its default value of 3 samples.

Adjusting locating errors improvement

The ability to rapidly correct locations errors has been added to the software. In Fig. 1 below, the Tube Sheet signal was incorrectly identified. When this occurs, the user can use the left mouse button to select the incorrect landmark and while holding the left mouse button down, drag the structure identifier to its proper location.

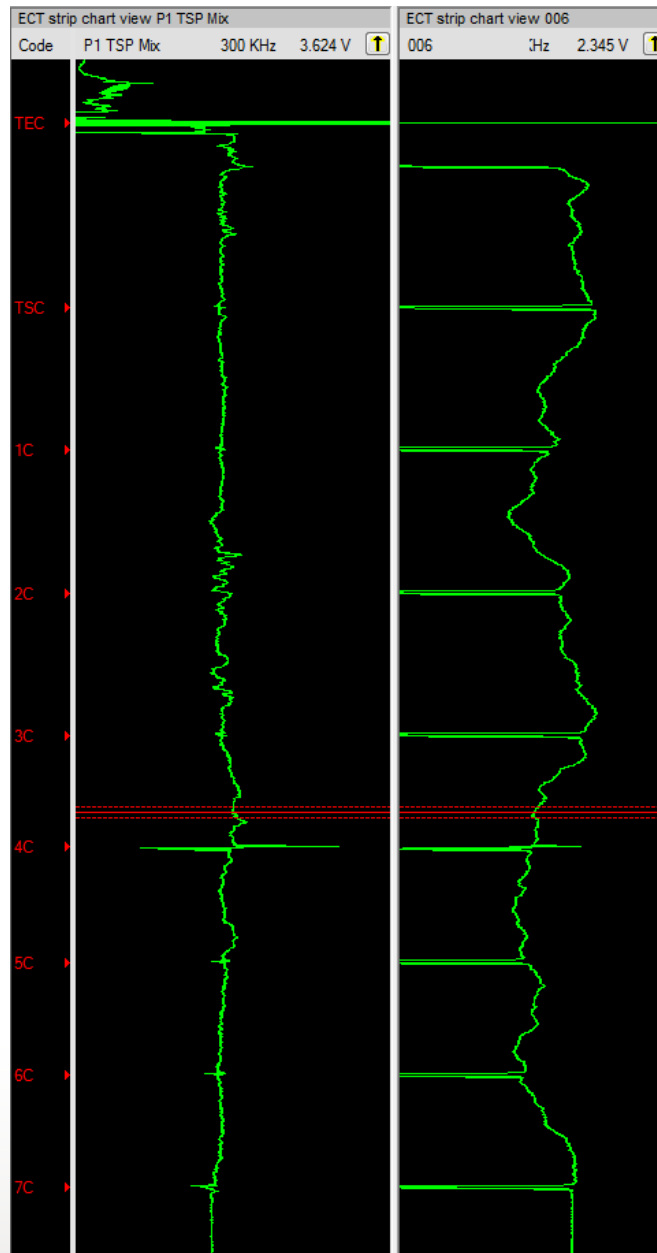


Figure 1 Incorrect locating of tubesheet signal

The figure below shows the locating corrections once the mis-identified structure has been corrected. Upon correction, the software will automatically correct all remaining structures on the tube being analyzed.

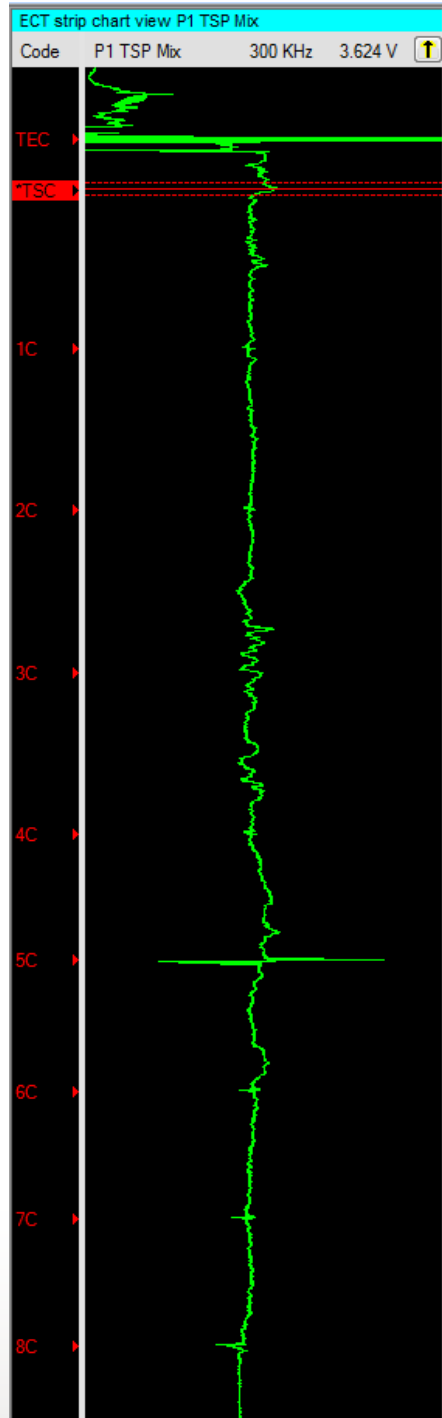


Figure 2 Corrected landmark locations

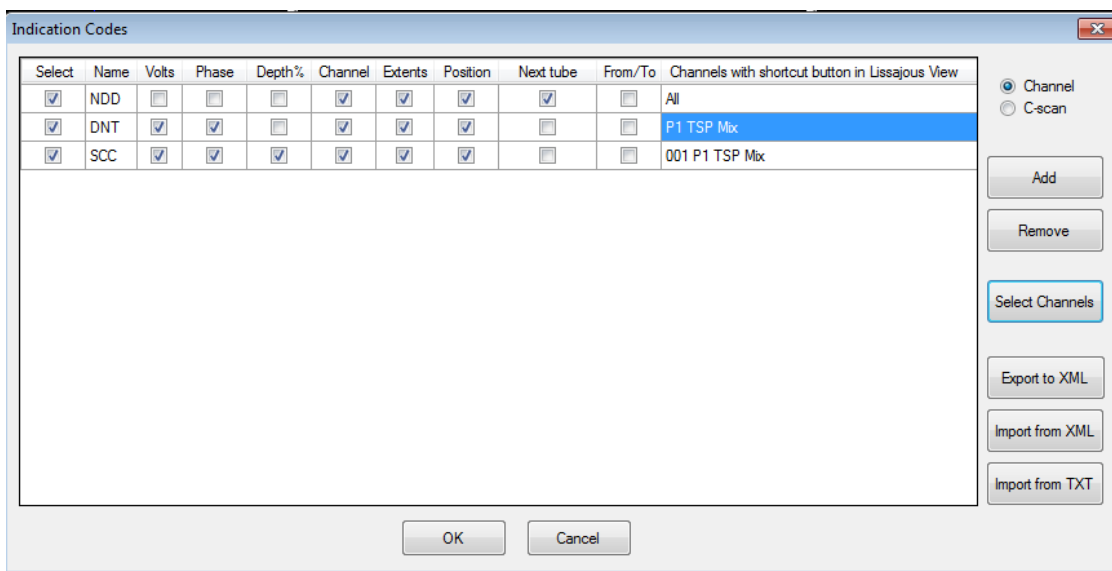
Three letter codes configuration screen

See Codes on the Eddy Current calibration screen

Codes button 

The ability to edit the information entered to the final report when using a 3-letter code has been added to the software.

When the Codes button is selected the following screen will appear.

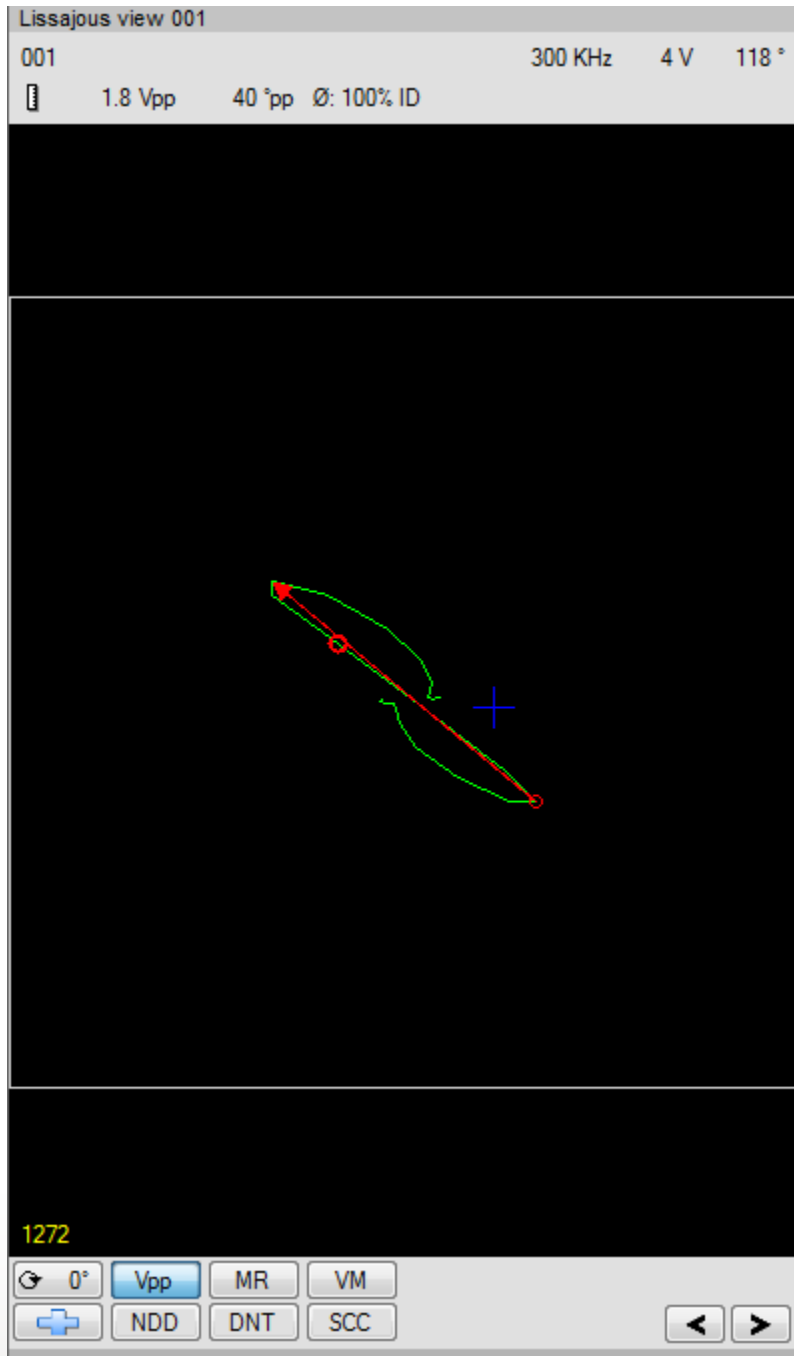


NDD - Is the only default code that will be displayed in the codes window. Additional codes can be added through the buttons on the right-hand border of the screen.

- Add - creates a new 3 letter code line for the user to fill in. Once the code name has been entered, the user has the ability to define what information will be entered to the analysis report when an entry associated with that codes is used. If the NEXT TUBE check box is selected, the software will automatically display the next tube onto the analysis screen after an entry using that code has been made.
- Remove - used to delete an existing code from the code list.
- Select Channels - will display a pop-up window of all the existing channels permitting the user to select which channels an indication can be entered to the analysis report from.
- Export to XML - the codes once populated on the screen can be exported so that additional analysts can load them; reducing the chance of errors.

- Import from XML - provides the ability to import already defined codes for use.

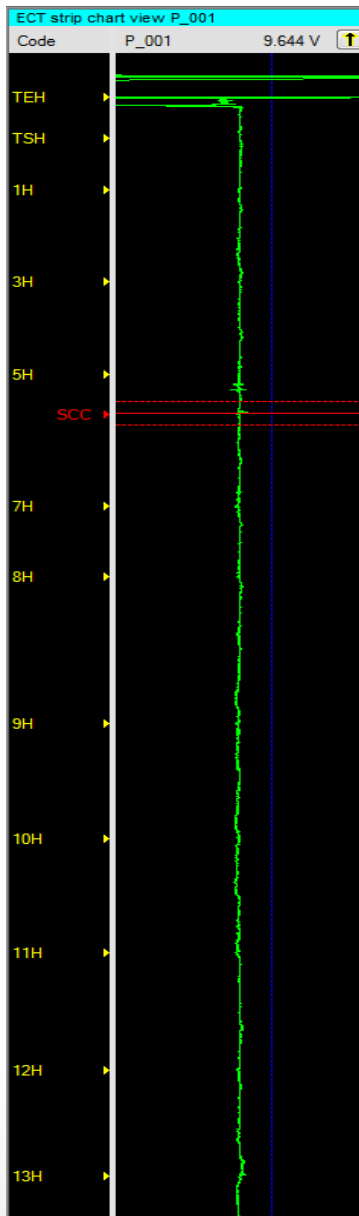
Upon defining the codes to be used for a specific inspection, the CODES will appear in the user workspace beneath the Lissajous windows for each channel as shown in the graphic below.



During analysis, once a measurement classification has been selected for a signal, pressing the appropriate 3 letter code button will enter that code as defined above into the final report.

Separation of landmarks and indications in the long strip chart view

The software has been updated to display landmarks and reported indications in separate columns. The graphic below shows how these details are displayed.



Note: To display the columns individually, the user may have to increase the width of the CODE display.

Analysis percent completed



Percent completed calculations Stats: 1/80 (1%) completed 80 total

The statistics display located at the top of the T-list pane no longer adds calibration standards or retest tubes into the calculations.

Changes in analysis report options.

Msg	State	Calib.	File name	Load
	●		00361999.999	Load
	●		00461999.999	Load
	●		00561999.999	Load
	●		00661001.001	Load
	●		00761001.002	Load
	●		00861001.003	Load
	●		00961001.004	Load
	●		01061001.005	Load
	●		01161001.011	Load
	●		01261001.016	Load
	●		01361001.017	Load
	●		01461001.018	Load
	●		01561001.019	Load
	●		01661001.020	Load
	●		01761001.021	Load
	●		01861001.023	Load
	●		01961001.024	Load
	●		02061001.025	Load
	●		02161001.026	Load
	●		02261001.027	Load
	●		02361001.030	Load
	●		02461001.031	Load
	●		02561001.032	Load
	●		02661001.033	Load
	●		02761001.034	Load
	●		02861001.035	Load

View Summary...

Indication file
 C:\Users\Imaggy\Desktop\RFW6a Data\RFW6AI01\RF 

The ability to create batch analysis reports has been added permitting the user to build one analysis report from multiple calibration groups.

The ability to have one analysis report for each acquisition cal group has been retained with some added functionality as well. Each will be covered below.

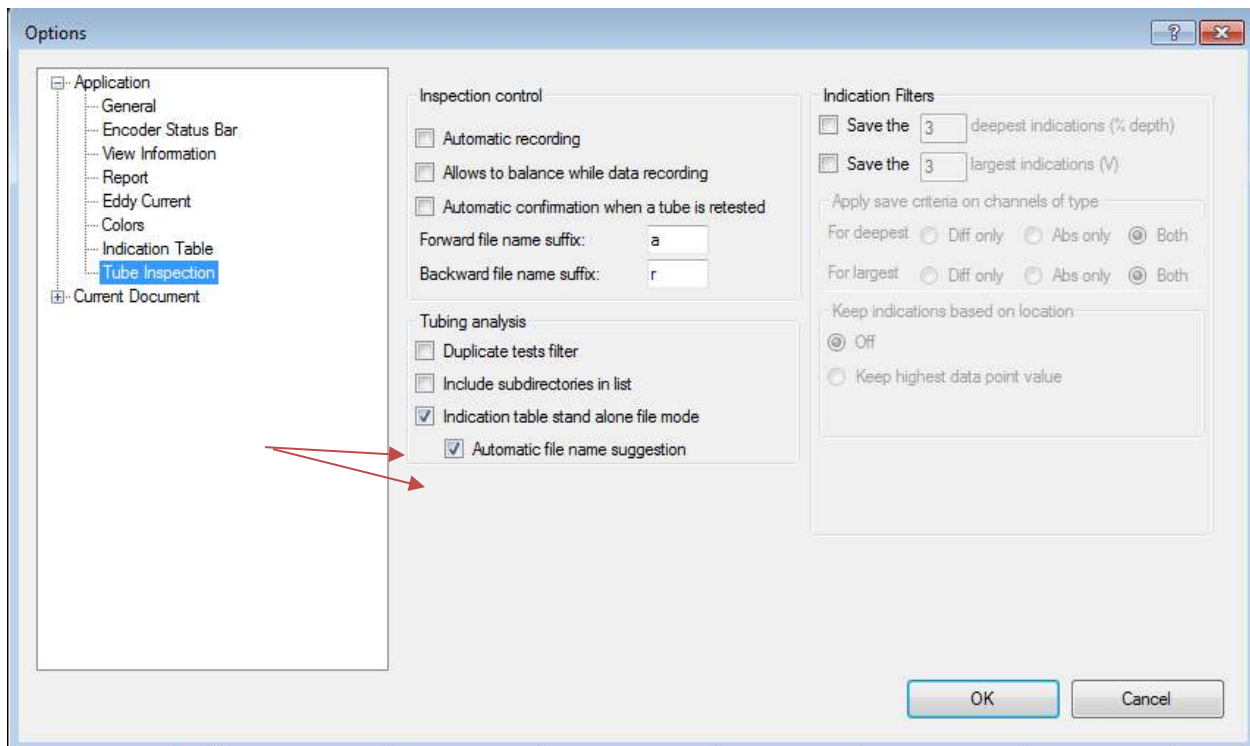
Batch analysis reports - This method of creating an analysis report works as follows

- When in the analysis screen, the user will see the **indications file**, located at the bottom of the T-list pane on the far-right border in analysis.
- Selecting the open folder option will allow the user to create a name for the analysis report to be used.
- This report file name will be used for all analysis reports until the time when the analyst creates a new final report using the technique outlined above.

Single analysis report per acquisition calibration group

UVET has also retained the ability to create individual analysis reports for each acquired calibration group.

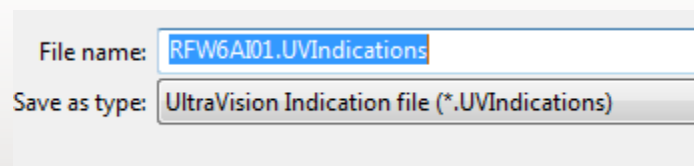
This function is started by the user going to **TOOLS-OPTIONS-TUBE INSPECTION** and selecting the following:



- **Indication table standalone file mode** - informs the program that each cal group will have an individual analysis report.

- **Automatic file name suggestion** - This feature if selected will automatically use the name of the acquisition calibration group to create the analysis final report.

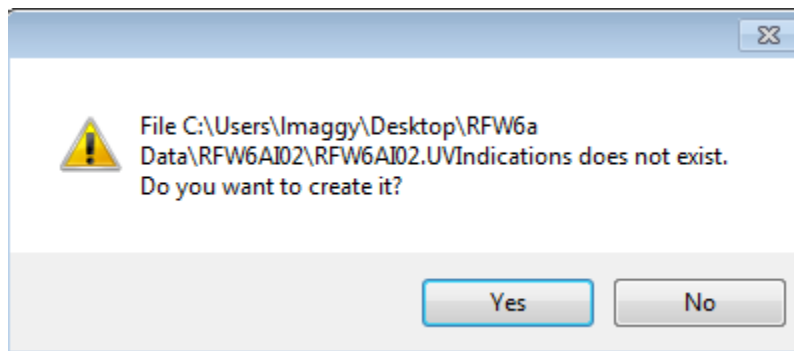
When this feature is active, as soon as a new calibration group is opened for analysis, a secondary window with the suggested final report name will appear (see graphic below)



If the user selects **SAVE**, the analysis report will be created.

If an existing report with the same name already exists, the software will not ask the user if they want to create an analysis report using that name but will recognize that there is already a report with the suggested name and when SAVE is selected the original report will be continued.

If no analysis report file is present, when the user selects SAVE using the suggested name, an additional window will appear (see below).

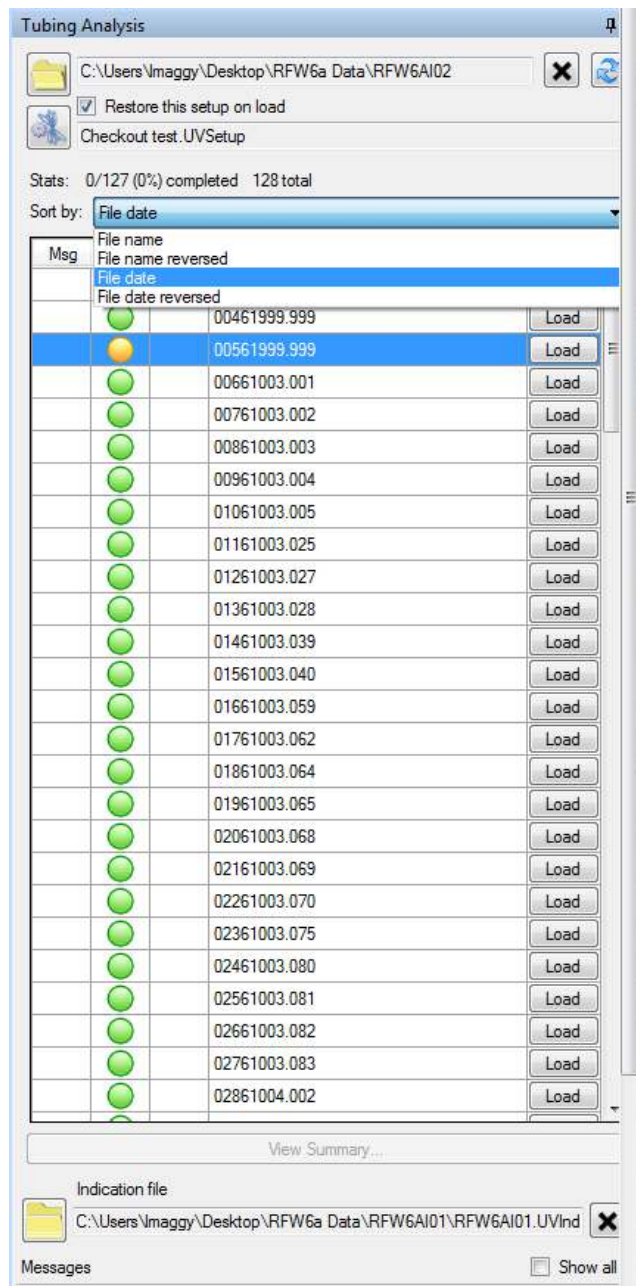


The **Yes** option will create the new analysis report using the suggested name.

Selecting No will revert to the previous screen allowing the user to create their own unique analysis report name.

New Features for how acquired data can be displayed

The acquired data displayed as part of the tube list can now be displayed using one of four methods.

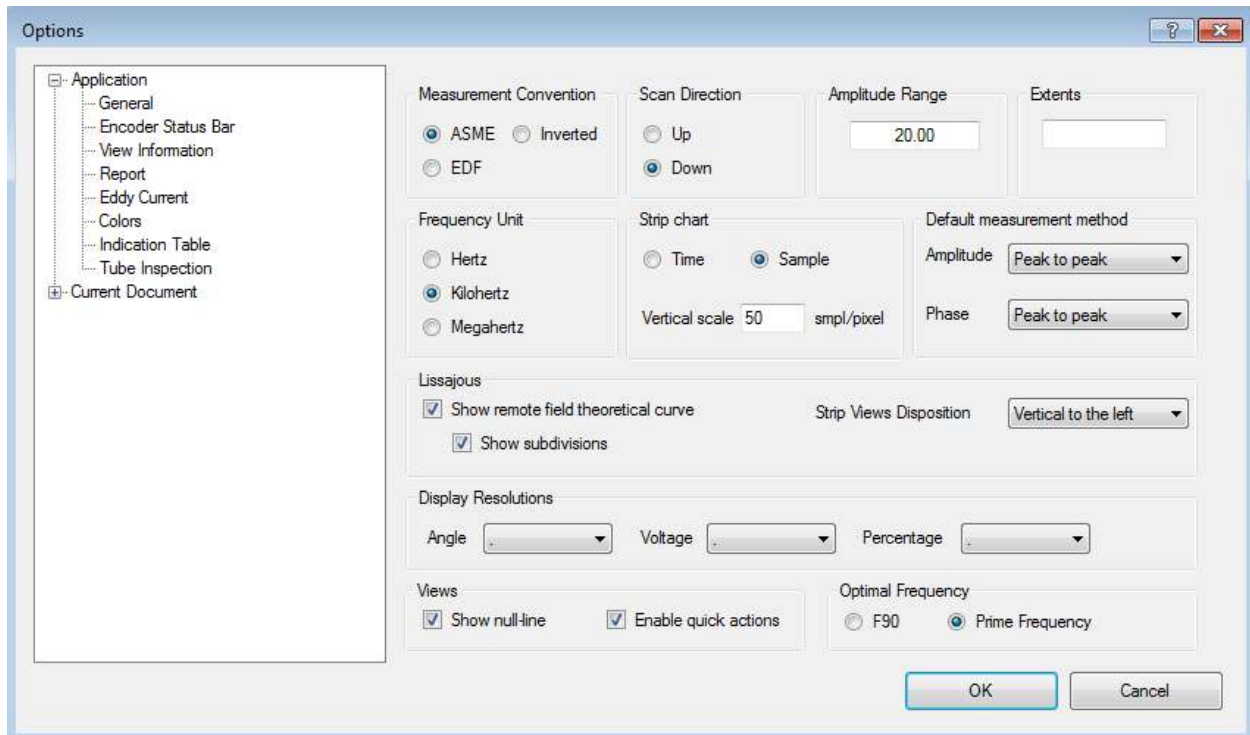


These new functions are located in the **SORT BY** drop down window in the tube list screen.

1. File name - uses the acquired tube name to display the data
2. File name reversed - inverts the previously displayed data
3. File date - *Most commonly used*, puts all data in order based on the date and time stamp of the acquired files.
4. File date reversed - inverts the function outlined above.

Quick Action functionality

In the Options menu - Eddy Current - the user now can enable quick action features which have been developed to speed up the analysis process.

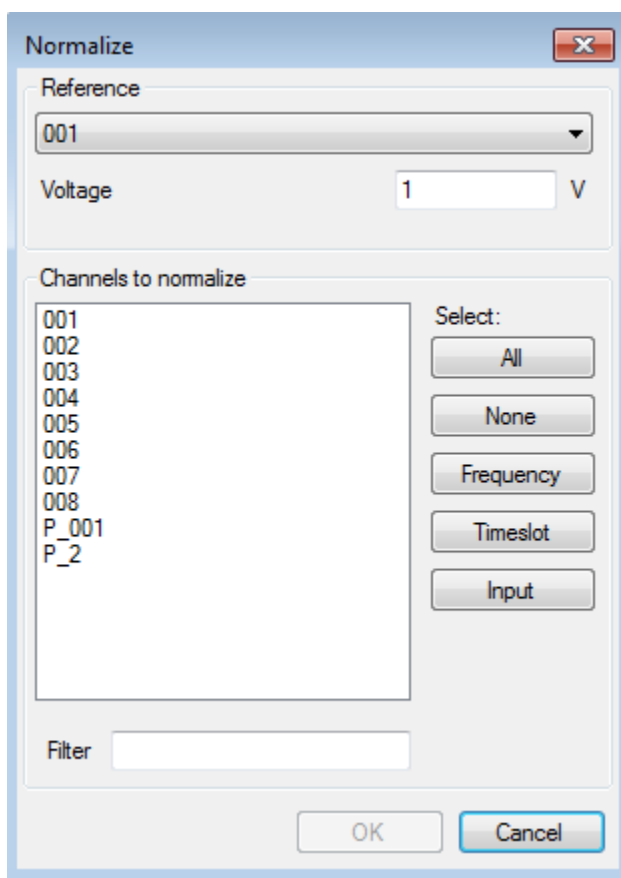
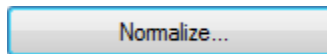


Enabling quick action functionality will allow the user to center a signal in the Lissajous window with a single left mouse click while at the same time the data in the strip charts will be centered to the same data point value.

Normalizing Voltage feature

The ability to SET VOLTS for all channels including process channels has now been added to the software.

Selecting the Normalize button on the **Eddy Current Calibration** panel will open a pop-up window containing all the functions for setting voltage.



Reference - This is the channel that will be used to base the voltage equivalent for all other channels from.

The user places the signal of interest into the Lissajous window (for instance 20% ASME indication).

Next, the channel to base the initial voltage settings from is selected in Reference, Channel 1 in this instance.

The Voltage is then entered. In this case, the 20% ASME flaw will be set to 1.00 volts on channel 1, and all other selected channels will be set to a ratio of the voltage from channel 1.

There are several different techniques for select channels built into the screen.

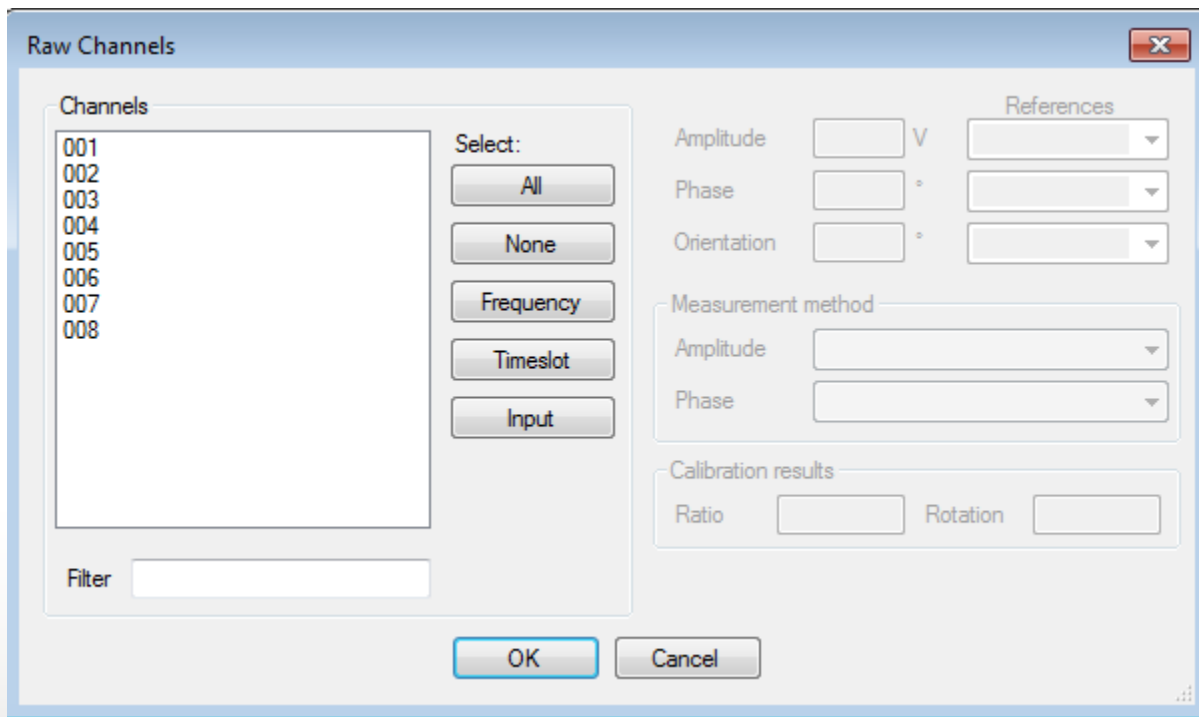
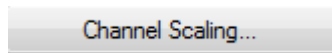
They can be selected individually by the user.

- ALL - will select all the available frequencies.
- None - deselects the channels displayed.
- Frequency - displays the frequencies from the setup and permits the user to set voltage on a frequency specific basis.
- Timeslot - selects channels based on the timeslot they are fired in.
- Input - allows the user to select specific inputs to set voltage by.

CHANNEL Scaling Feature

This feature allows the user to quickly set calibration signals to a specific orientation and amplitude.

On the **Eddy Current Calibration** panel, select the button labeled Channel Scaling.



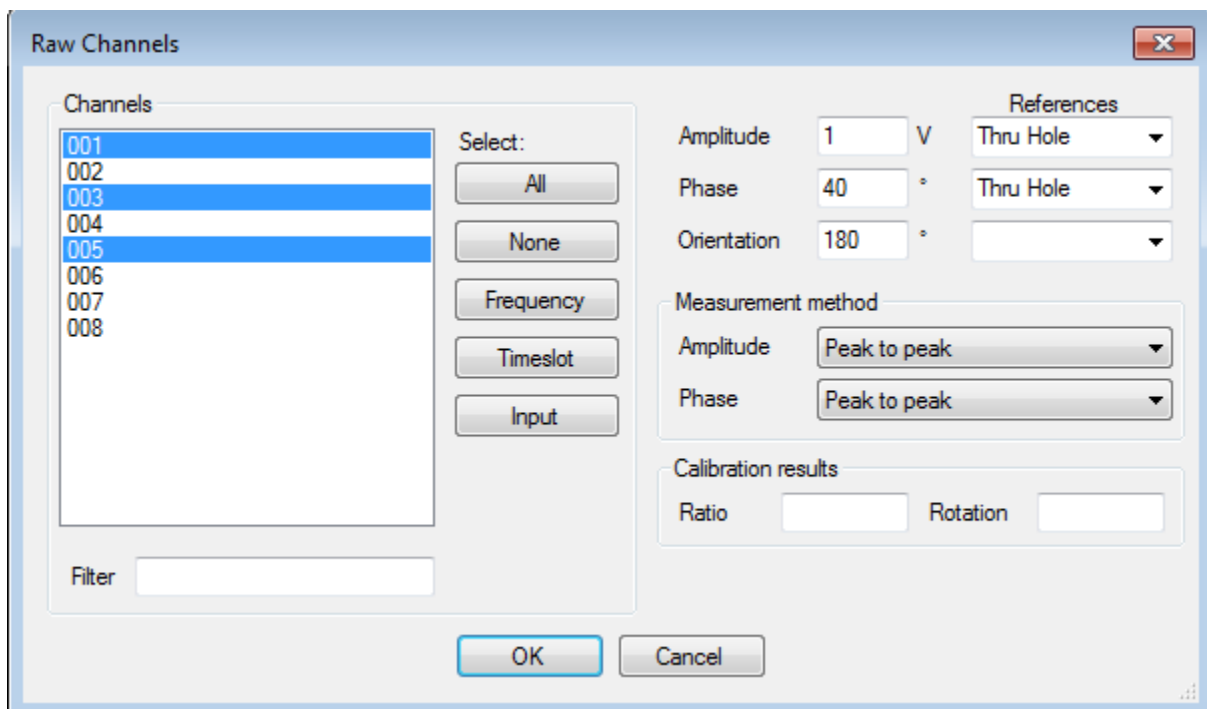
A pop-up window will appear as displayed in the graphic above.

All the channels from the raw data as well as processed channels will be displayed in the Channels box.

Under **Select** there are several modes to assist the user in picking channels to be calibrated.

- All - will select all the raw data channels for manipulation
- None - will unselect any channels already highlighted.
- Frequency - selects channels based on the acquired frequency.
- Timeslot - selects channels based on the desired timeslot selection.
- Input - selects channels base on the input selected.

Once channels have been selected, for instance channels 001,003,005 which are all considered as analysis channels, the greyed-out screen to the right of the pop-up screen will become active as shown in the graphic below.



The user now can enter the Amplitude and Phase of a desired indication for calibration purposes. All selected channels will be set using the input information.

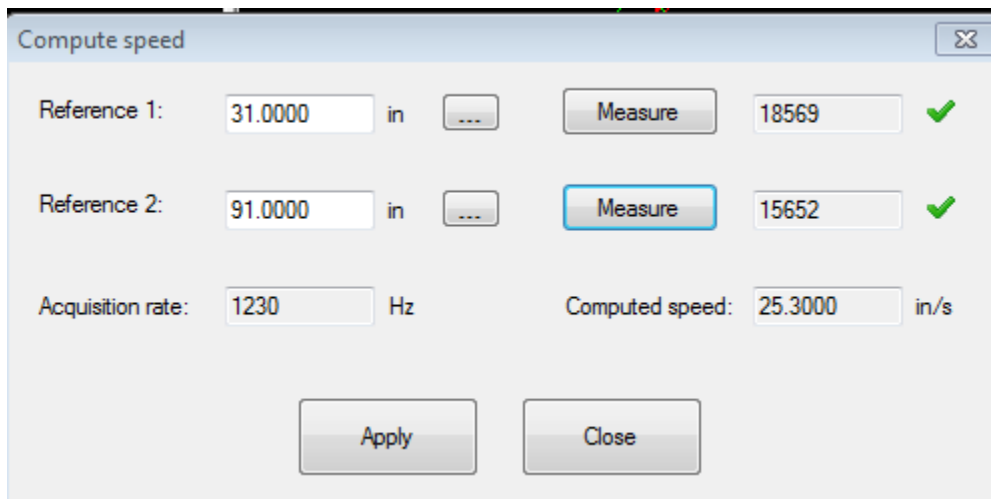
Note - It is suggested that this screen be used once to setup the differential channels and then again to establish to orientation of absolute channels. The software has been designed to remember which channels have been selected and the Amplitude/Phase values associated with those channels.

Probe speed/sample rate calculation

Functionality to permit the measurement of probe speed and average sample rate has been added to the system.

The compute speed function works in one of two methods

1. Using known landmarks - if a landmark table is being used as part of the analysis, the user can select the two required references by selecting the which will display the landmark table. For the first reference, the structure to be used needs to be centered in the expanded strip chart window. The user will then select the and the list of landmarks will be displayed. Select the structure corresponding to the signal on the screen and press the Measure button.
2. Next, place a new structure to be measured into the center of the expanded strip chart window and repeat the process from step 1. The average probe pull speed and sample rate will now be displayed on the bottom of the display.

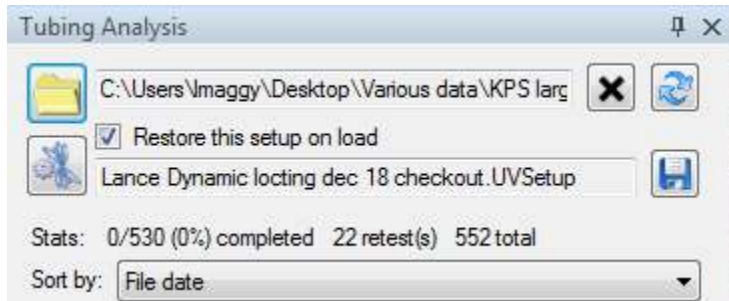


Field	Value	Unit	Action	Result	Status
Reference 1	31.0000	in	Measure	18569	✓
Reference 2	91.0000	in	Measure	15652	✓
Acquisition rate	1230	Hz			
Computed speed	25.3000	in/s			

When no landmark table is in use, the user can enter the distance between two known structures, such as the two tube ends. If the first tube end is entered as 0.00 inches and the second entered as the physical measured distance from the initial entry, the output at the bottom of the display will provide the desired probe speed and sample rate information.

New Save Setup functionality

This new functionality is in the Tubing Analysis pane. The user no longer has to go to File, Save Setup. Select the diskette button to open the save setup feature.



The save setup screen will appear with a suggested name for the setup file, which will correspond to the name of the calibration group supplied by acquisition.

The user can opt to use the analysis setup name used by the software or may enter a unique setup name at this time. Once the setup is saved, all additional save functions will continue to use the same naming convention until either changed by the analyst or a new calibration group is started.