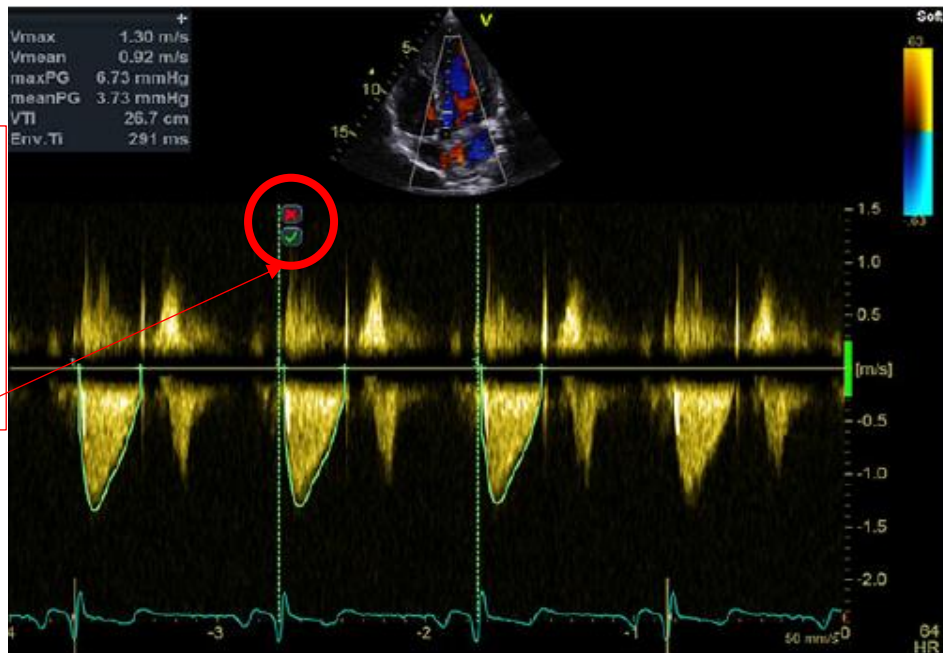
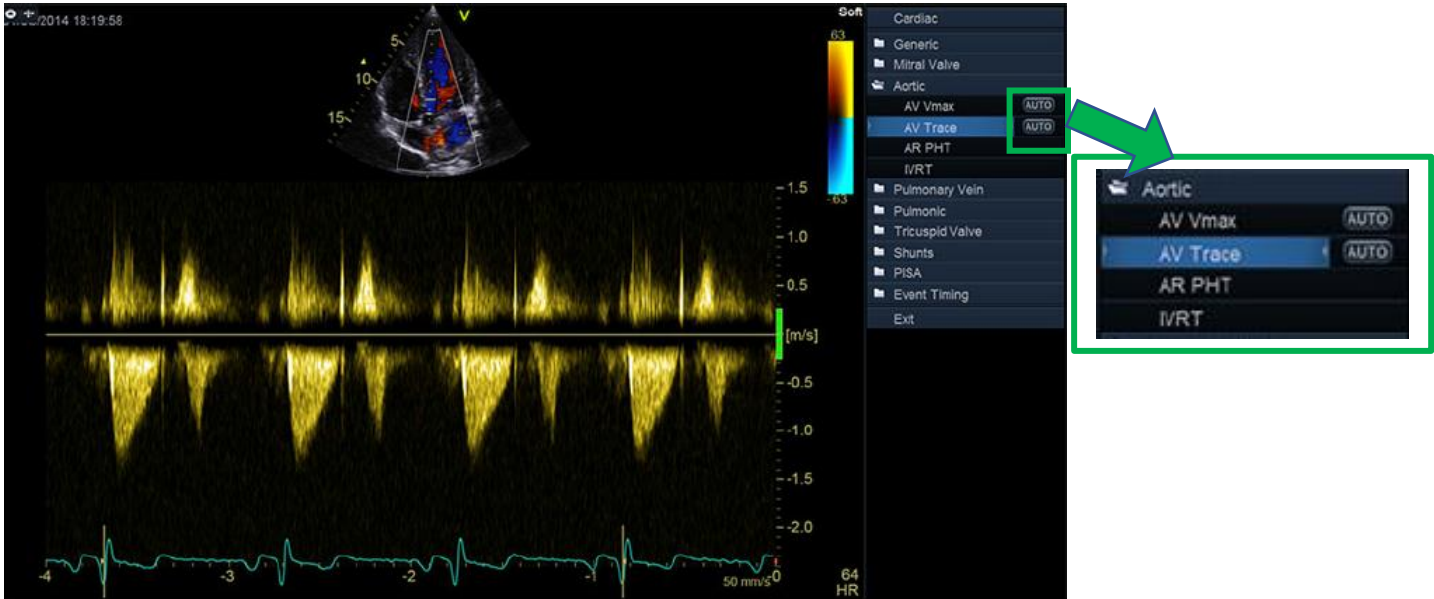




QUICK TIPS_AUTO DOPPLER/2D AND AFI

Your Vivid S70 comes with new AI technology to assist with Workflow.

The Measurements Package: Auto Doppler

Measurements within the calculations package that display “AUTO” contain the Auto Doppler feature. Select “Auto” to initiate the trace. The average measurement values are displayed for each complete cardiac cycle



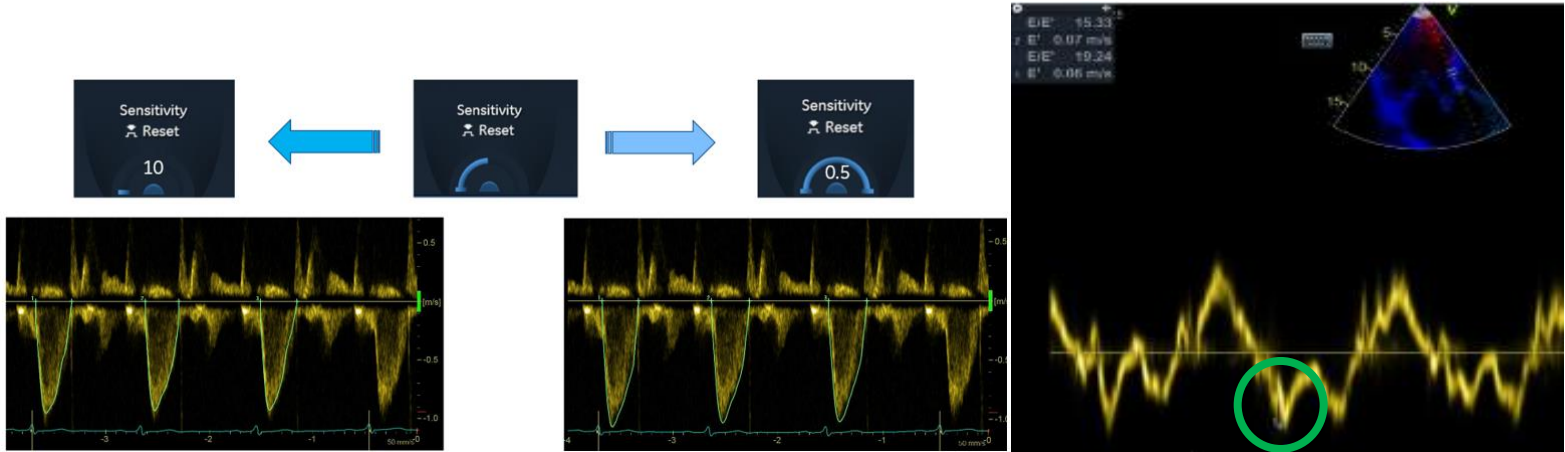
Hovering the cursor over the baseline of a cycle will reveal a  , the cycle can be rejected or exclusively kept by clicking the green check mark or red X.

NOTE: Auto Doppler works on full cardiac cycles only => ECG must be attached.
Auto Doppler will not measure the E slope when it is shorter than 1/3 of the Peak E Velocity
Auto Doppler is designed to ignore strong valve clicks, it can be confused by background noise => Optimise Gains

The Measurements Package: Auto Doppler

To adjust the Auto Doppler trace – use the “Sensitivity” Rotary knob. Turning the knob to the left will increase the sensitivity of the trace (less beard), turning the knob to the right will decrease the sensitivity of the trace (more beard).

Note: adjustments made to Auto Doppler sensitivity will be retained by the system.

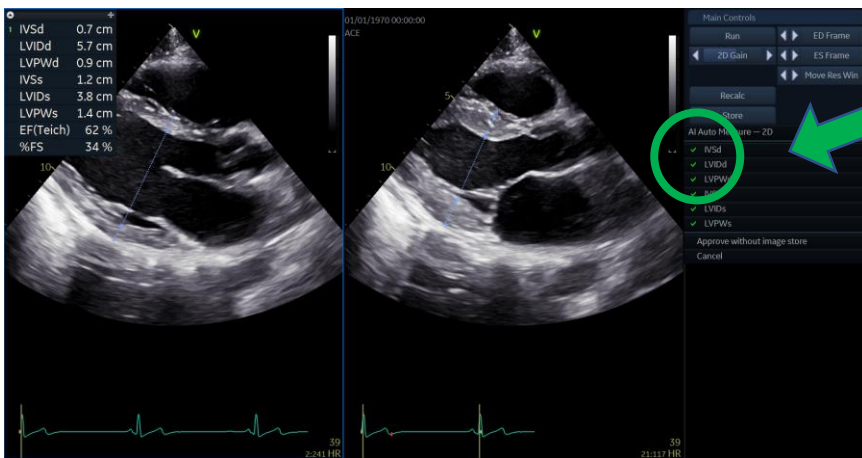


Fixed Doppler points such as Vmax and E' Sept and E' Lat may be adjusted individually. Activate the **Trackball cursor** and move to the individual point – double click using the **Select** keys and reposition the point. Press select again to set in place.

To cancel Auto Doppler either select the **Cancel** button or press the calculation in the menu a second time.

Select **Image Store** to “Approve and Exit” when you are satisfied with all displayed cycles. The results for each cycle are split into separate measurements and displayed. You now have the option to also “Approve without image store”.

Auto Measure 2D: Provides faster measurements of left ventricle dimensions: reducing the clicks from 19 to 3) with no need to scroll to look for ED and ES frames –potentially increasing throughput. To begin obtain your PLAX, press image store and then measure. Press the auto button to activate.



To remove a measurement, click on the green check mark to discard it, Removed measurements will not be approved/included in the Worksheet when Store button is pressed

To correct a point either: Double click on the point and move it to desired location or use the «Cursor select» rotary to iterate through the points to make adjustments.

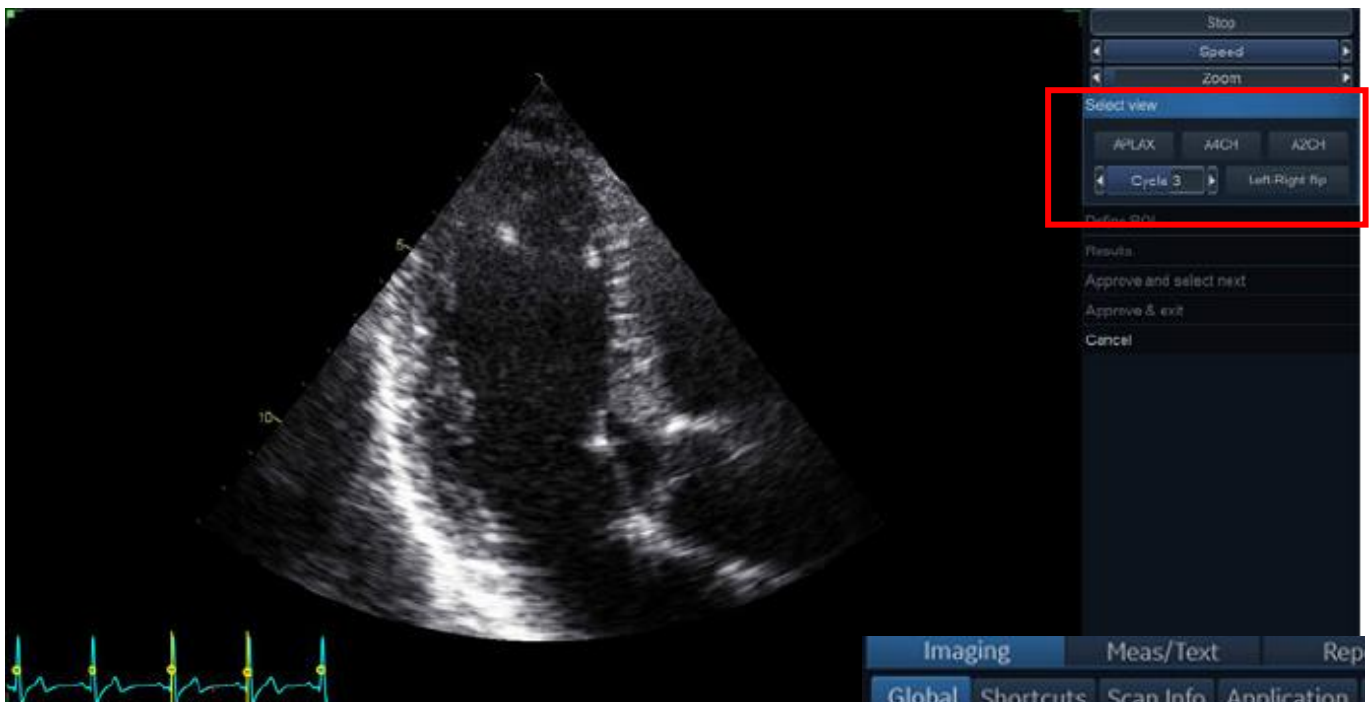
Note : Depth of the image must be inferior to 18 cm for the tool to work - otherwise an error message will appear on the status bar: **Incompatible depth for the selected auto measurement. Please decrease depth below 18 cm**

The Measurement Menu -Automated Functional Imaging with View Recognition

- Optimise the 2D sector depth and width to focus on the LV. Ensure that the LV epicardium is within the 2D sector. Leave the upper atrium in the scan plane to assist with tracking. Do not foreshorten the apex.
- Optimise 2D gain and TGC settings to enhance endocardial definition. The entire myocardium should be visible throughout the cardiac cycle.
- Heart rate variability between each view should not be >30%
- The frame rate should exceed 40 frames per second. Higher frame rates are recommended for higher heart rates. The standard AFI algorithm is not designed for HR >120bpm

Using Automated Functional Imaging (Automated 2D speckle tracking)

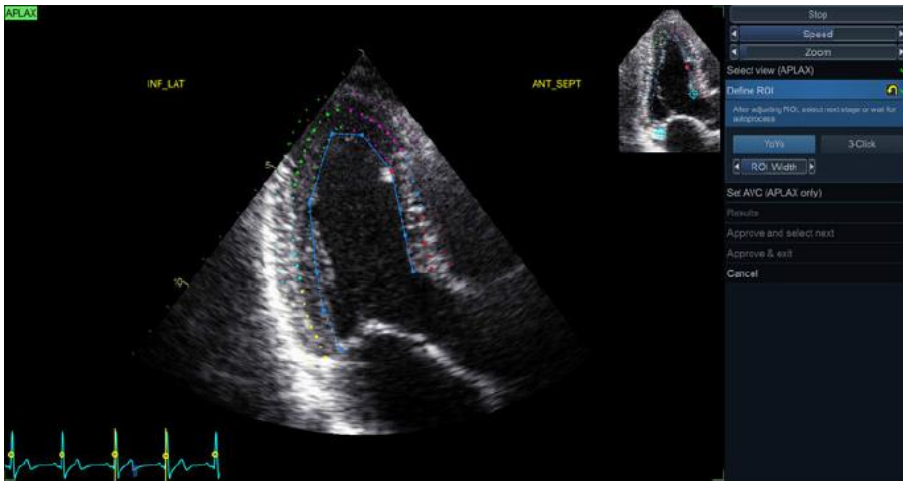
1. **Load any view**, press **Measure** and select **AFI** folder.
2. If **View Recognition** is enabled the package will select the three apical images required for AFI assessment
3. In the absence of view recognition select the view from the displayed list. – the system will now define the Region of Interest (ROI)
4. The system has the option to manually place 3 points (**3-Click**- 2 basal and 1 apex) to guide ROI placement or to go straight to automatic ROI (this is set in the configuration menu). If auto ROI placement is difficult the system will automatically default to 3 point placement.
5. **Cycle Select** – the option to select which cardiac cycle will be used for AFI is available on this screen (if more than one cardiac cycle is available).
The ROI screen will now appear.



- To **Enable View Recognition** go to **Utility-> Config** and select the **Global Imaging** tab. Tick **Enable View Recognition**.
- To **override the automatic** selection of images move the cursor to the image thumbnails and select the required image.

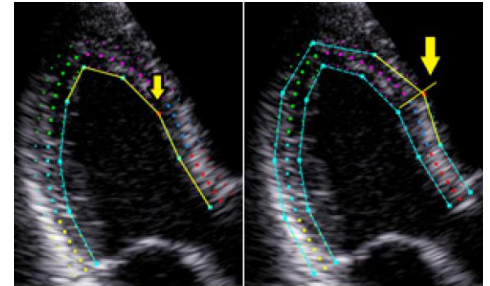
Note: once auto selection has been overridden the system will revert to manual view selection for the rest of the AFI assessment.

Automated Functional Imaging Define Region of Interest (ROI) Stage



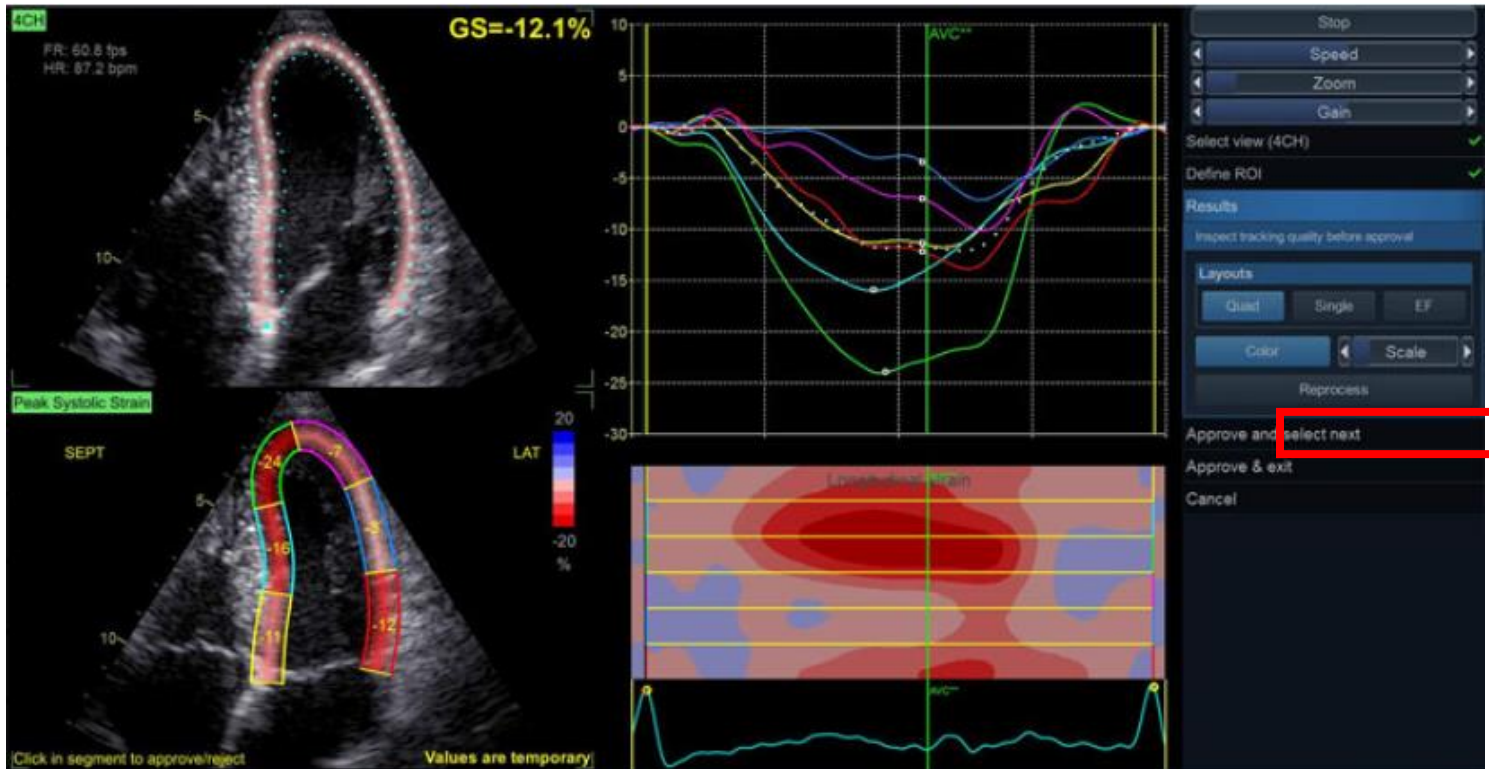
After a predefined time (set in configuration menu) the system will auto process and the Quad screen will appear.

Adjustments may be made to the ROI at this point by clicking and dragging the inner line.



Moving the outer line varies the ROI width on a segment by segment basis.

The Quad Screen

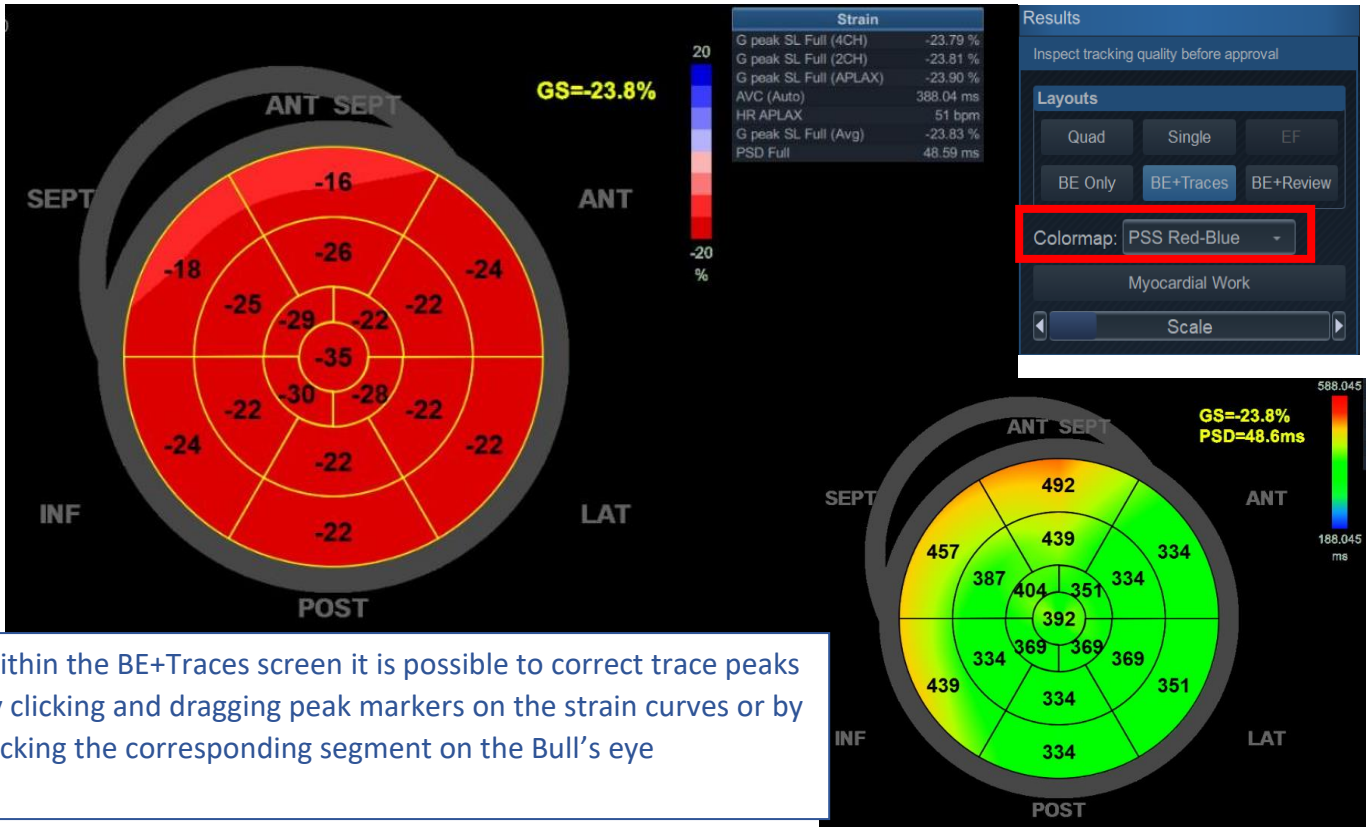


6. Assess the tracking. Ensure that the ROI covers the myocardium. The machine will give mark a red x for the segments it is not confidently tracking. If necessary, override this by clicking directly on the segment.
7. To move to the next view select **Approve and Select next**.
If adjustments are required to the ROI click **Reprocess**.
Note : AV closure timing is now set to auto. To manually adjust valve timing it must be done on the APLAX view by selecting **Set AVC**.

Automated Functional Imaging

Define Region of Interest (ROI) Stage

When all three views are completed the Bull's eye will appear. The AFI tool provides multiple Bull's eye Colormaps. To access additional Bull's eye maps select from the drop down "Colormap" list on the Bull's eye only, Bull's eye +Traces or Bull's eye Review screens.



Within the BE+Traces screen it is possible to correct trace peaks by clicking and dragging peak markers on the strain curves or by clicking the corresponding segment on the Bull's eye

Entering into EF



Select the **EF** tab in the 4ch and 2ch view to enter directly into the **Auto EF** package, pressing **Quad** returns the user to the **AFI** screen. **Note:** you must complete this step at the time you are performing AFI for the results to appear.