GE Healthcare
**Vivid**Club

No. 02- 2007

# Application News


GE imagination at work

# AFI

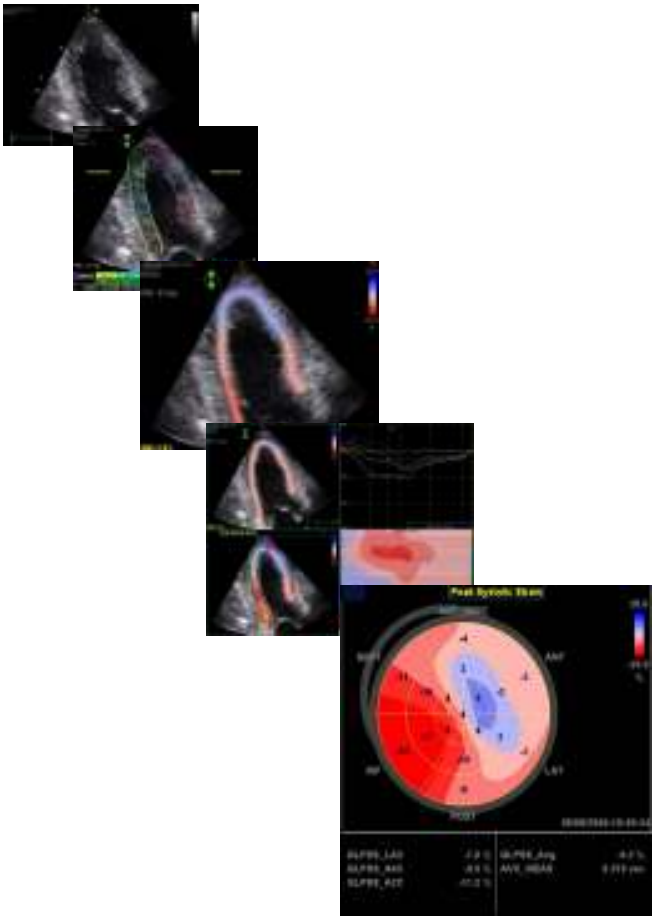
# Automated Functional Imaging

## Vivid 7

## Echo PAC

A short summary

Training material



# Table of content

# Getting started

1. Create an exam
2. Connect the ECG
    a. Press **Physio** and change **ECG Lead** to get the best signal
    b. Obtain a stable ECG trace

# Optimising images

1. Sector width
    - Not too small, the myocardium must be visible during the entire cardiac cycle.
    - Not too big, this lowers the frame rate

2. Frame rate
    - Optimal between 40-90 fps
    - Optimise the frame rate with the rotary knob

3. Use the dual focus if the image quality in the apex is not acceptable
    - Check the frame rate and increase it accordingly with the rotary.

4. Store loops from all apical views
    - Apical 4 CH
    - Apical 2 CH
    - Apical LAX
    - It is recommend to acquire all three apical views sequentially in order to get comparable heart rates in all views.

# Measure the AVC

## From M-Mode

1. Acquire a nice M-Mode signal where the valve closure is clearly visible.
2. Press **Measure.**
3. Open the folder for **Event Timing.**
4. Select AVC.
5. **Set** the marker for the closure.

or

## From Doppler

1. Acquire a nice doppler signal; most likely including the valve clicks.
2. Press **Measure**.
3. Open the folder for **Event Timing**.
4. Select AVC.
5. **Set** the marker for the closure.

Now the measurements are stored in the worksheet and will be used for the AFI analysis.

# Starting the analysis

## The measurement

1. Open the **APLAX** view
2. Press **MEASURE**
3. In the Measurement menu, select **AFI**.

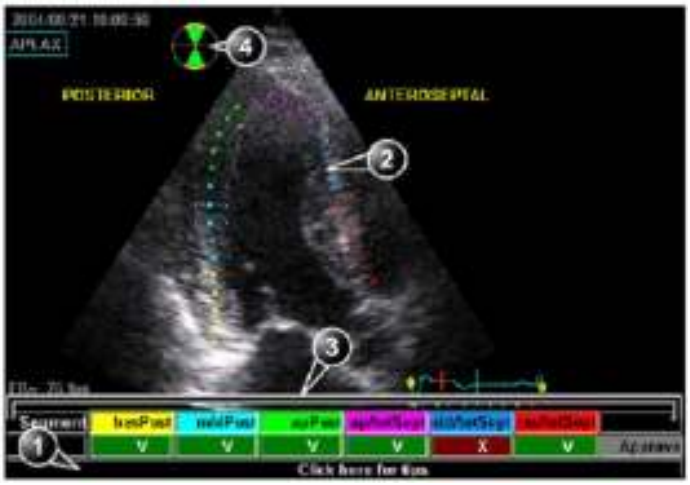
The *View selection menu* is displayed (see Figure 2).



4. Select APLAX
   - It is recommended to start with the APLAX view. This allows defining the Aortic Valve Closure (AVC).

## Defining the ROI

1. Only three clicks!
2. Define the endocardial border on both basal points of the annulus and in the apex.
3. Follow the instructions on the pointer or in the status bar.
4. Correct ROI definition is crucial to get good tracking
5. After placing the three points the ROI is displayed.
6. The shape can be changed with the cursor (click on the points in the inner border and move them).
7. The processing of the whole loop starts automatically (when the cursor will not be moved any more).
8. The data is processed and the tracking validation screen is displayed.




9. Check the tracking quality and make changes on the ROI if necessary.
10. Approve the scoring table, once you can agree with it.
11. Set the AV closure

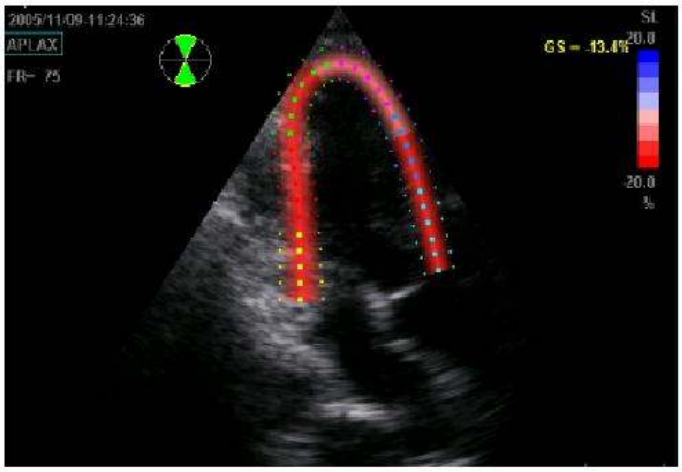
## AV Closure

Three ways to define the AVC:

1. Measure the event timing before starting the AFI.
2. Default AVC selected by the system (determined by the temporal contraction of all LV segments (strain curves)).
3. From the 2D image select the first frame where the AV is closed (only visible in APLAX, therefore we start with this) and press Select.
4. Look carefully on the message and make your decision.

Once the AVC is defined this will be used for the other views as well (therefore comparable heart rates are crucial).

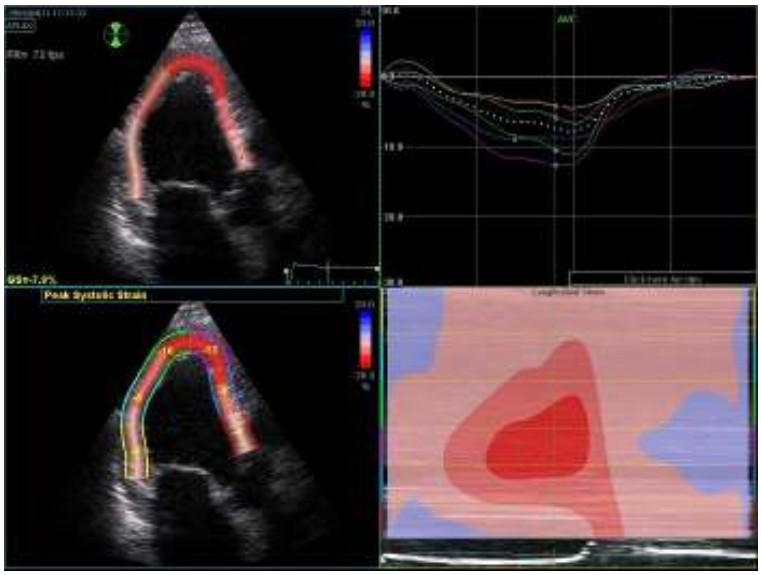
Now the *Parametric systolic strain APLAX view* is displayed



## The quad screen

Press **quad screen** to see all information.
To change the peak marker position select it and move it to another position.

Press **Image store** to store the quad screen to the clipboard.



## Next analysis:

- Take the 4CH view from the clipboard and do the same analysis again:
- Take 4 CH.
- Click on 4CH in the view selection menu.
- Mark the 3 points
- Check the tracking quality and approve
- Enter the quad screen and store

At the end do the same procedure for the 2 CH view.

Once all views are analysed there is an additional button beside the quad screen:
The bull's eye.

## The Bull's Eye

- Press **BULL'S EYE** after the last view has been analysed.
- The Single Bull's eye screen is displayed.
- Press **IMG STORE** to save the results.
- The measurements are available in the worksheet and can be used in the report.