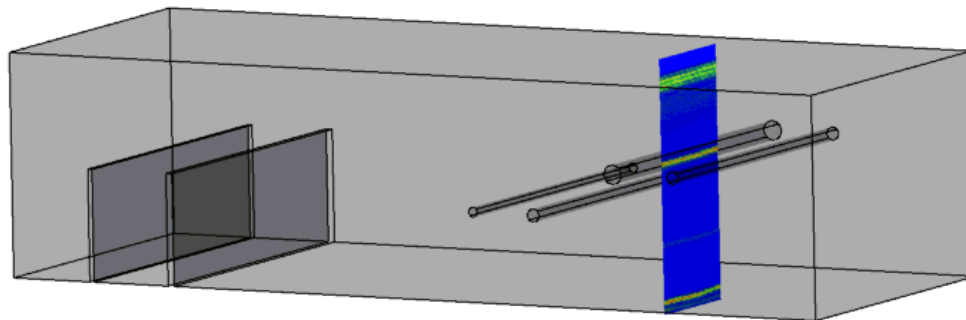
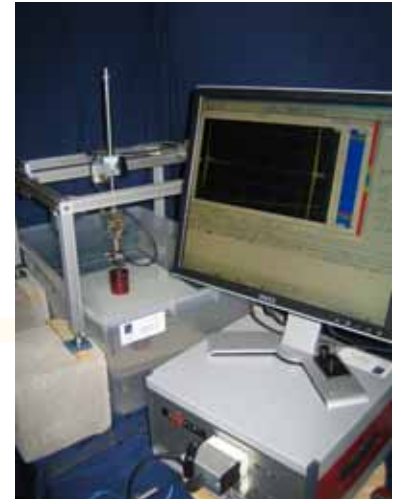


### 3D imaging, data viewer (1/3)

Our systems include standard analysis capabilities, including the ability to calculate and display FFTs, A-scans, B-scans, and C-scans. It is also possible to display measured data in 3D in real time, and to display the data in imported CAD drawings. In this example, we use an IMASONIC linear array (64 elements) to inspect a calibration block containing side-drilled holes (SDH), flat-bottomed holes (FBH) and notches (please note that the FBHs are not displayed in the CAD file, but they are evident in the measurements). The experimental setup is similar to the one displayed in the picture on the right-hand side.

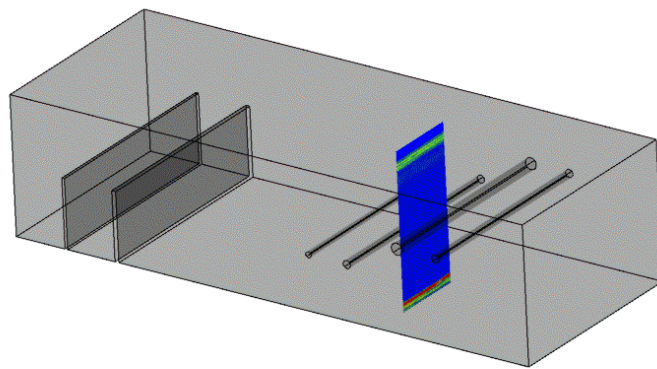
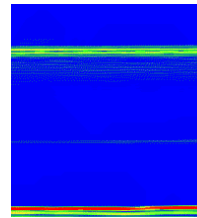
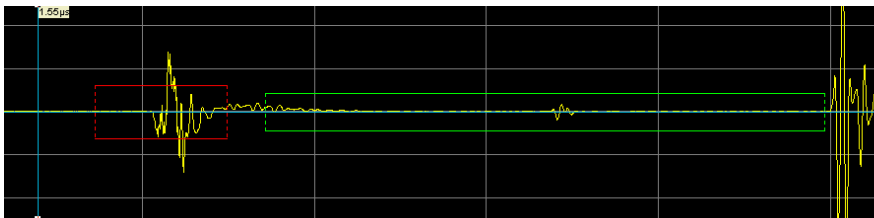
- Phased-array system: M2M MULTIX64
- Transducer: IMASONIC linear array, 64 elements @ 5MHz
- Scanner: Wayne Johnson, two-axis frame.

The animated figures below show some of the views available in the M2M software. The top figure shows a B-scan displayed in a CAD drawing of the calibration block undergoing inspection.



### 3D imaging, data viewer (2/3)

Once the inspection strategy is chosen (focusing, aperture, scan length, etc.), measurement parameters can be adjusted (time gates, DAC, display, recorded data and more). Here we used dynamic-depth focusing (DDF) in conjunction with electronic scanning in one direction and manual scanning in the perpendicular direction. Real-time measurements are displayed in the figures below.



### 3D imaging, data viewer (3/3)

The top-left figure is an A-scan that is used to setup time gates (shown in red and green), damping correction (DAC), the gain in dB and synchronization between the gates. The top-right picture is the electronic B-scan view (compilation of all A-scans measured by electronic translation of the beam along the phased-array probe). The user can select one of the individual signals "shots" to be displayed as a waveform by simply moving a cursor on the B-scan view. When the geometry of the specimen undergoing inspection is known, additional information is provided by the 3D view displaying the corrected B-scan in the CAD drawing of the part. The user can drag and rotate the view to perfectly understand the signals being shown.

After the scan is complete, the data can be visualized in a number of different ways. For example, a composite C-scan (global top view), as well as mechanical B-scans (cross-sectional views corresponding to the long dimension of the mechanical scanning axis), electronic B-scans (cross-sectional views along the probe length) and D-scans (cross-sectional views along the short axis of the mechanical scan). Taking all of these views together ensures a perfect understanding of the inspection, as well as detection, sizing and location of defects. To illustrate these features, the figure below displays a reconstructed 3D view of all 2D displays available in the M2M software.

