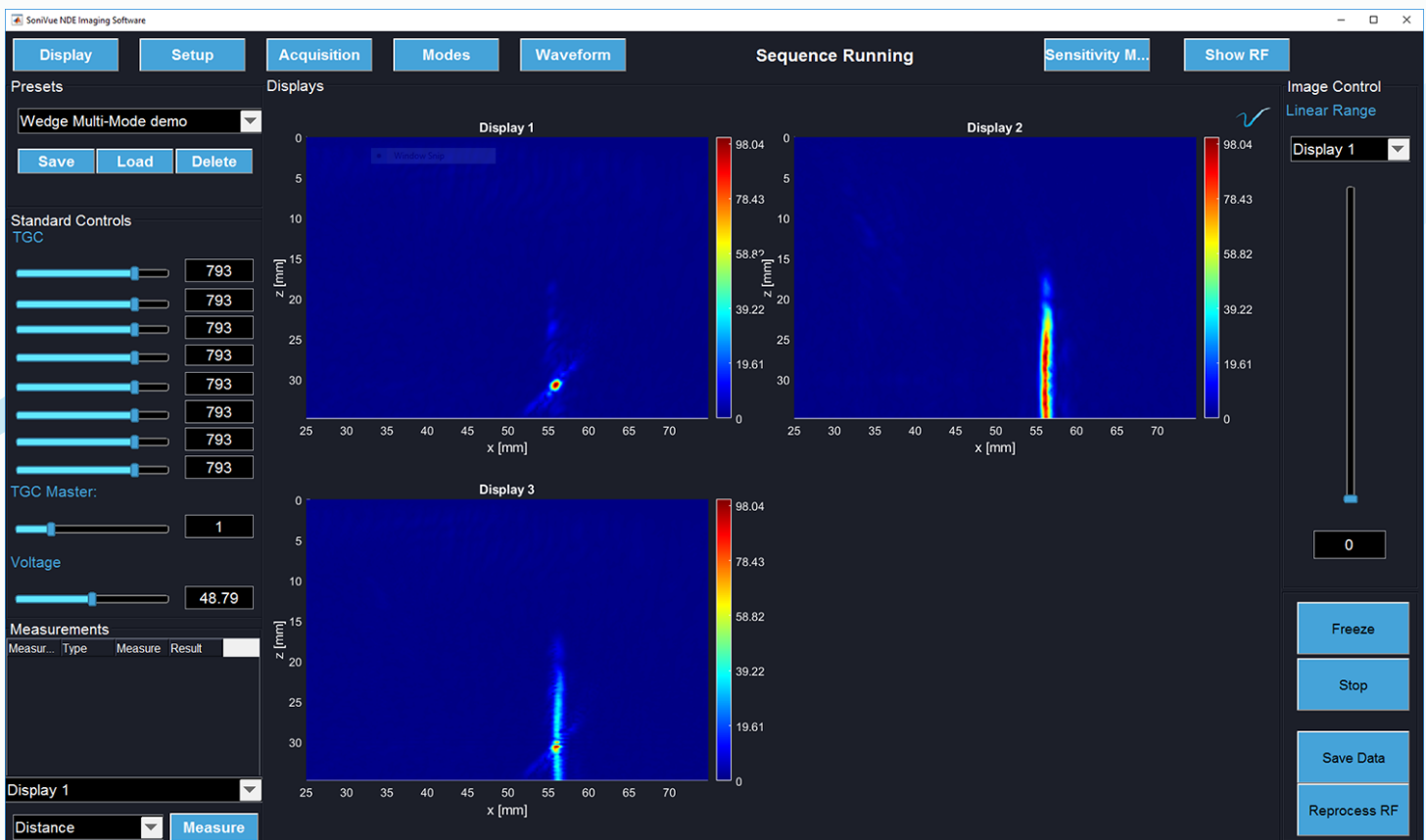


## Dedicated support for materials science research

Verasonics NDE Research Software is a GUI designed for advanced, high-speed, and custom array imaging and is tailored to support research and development in materials science. This user-friendly software package is designed to complement Verasonics' robust programming model, providing advanced real-time imaging and convenient data acquisition without the need for programming by the user.

A number of convenient tools are provided, including a signal viewer for real-time plotting of RF data signals and power spectra. A sensitivity mapping tool provides spatial sensitivity maps for the modes in each display window, computed for both point-like and planar reflector defect types. A range of image measurement and annotation tools are also included.



*Multi-mode imaging of a fatigue crack. Direct + half-skip TFM*

### Compatibility

All Vantage Systems – Standard, Low & High Frequency\*

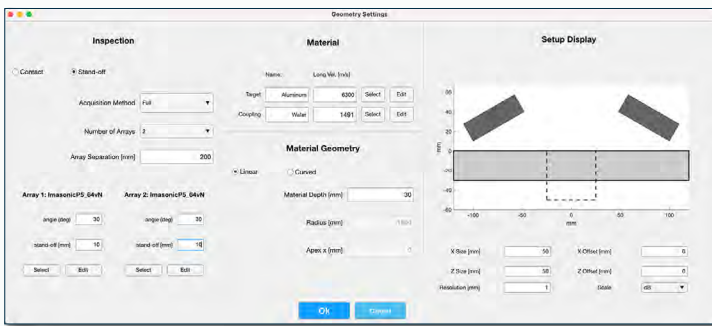
Supported UTAs	160-DH/32 LEMO	160-SH/8 LEMO	160-SI/8 LEMO
	260-S	260-D	

*\*Imaging above 15 MHz not currently supported*

## Imaging capabilities

The core functionalities of Verasonics' NDE Research Software are FMC, TFM and Plane Wave multi-mode imaging.

Multiple simultaneous image displays can be created, each of which can contain any arbitrary combination of imaging modes. Native imaging modes include all mode conversion permutations of direct, half-skip, and full-skip plane wave and TFM. Imaging is supported for one- or two-array configurations with arrays either in direct contact or through a stand-off medium (e.g. wedge or immersion) for planar or curved surface geometry. Acquisition features include FMC, HMC, Hadamard encoding and plane waves.



Setup window: Array, material and geometry settings

## Custom imaging offers:

- Real-time, quantitative comparison with established techniques, allowing the user to benefit from complementary attributes of both.
- Rapid prototyping of new applications and the easy delivery of research and development outputs, within or between organizations, with the convenience and utility of an advanced imaging software package.

*NOTE: The NDE Research Software requires the Verasonics Image Reconstruction Option be installed on the Vantage System as well. This option is included with Vantage 64 LE, 128 and 256 channel configurations. NDE Research Software options purchased for 32 LE and 64 channel systems must include the Image Reconstruction Option. For more information, please contact your Verasonics sales representative.*

## Custom look-up-table modes:

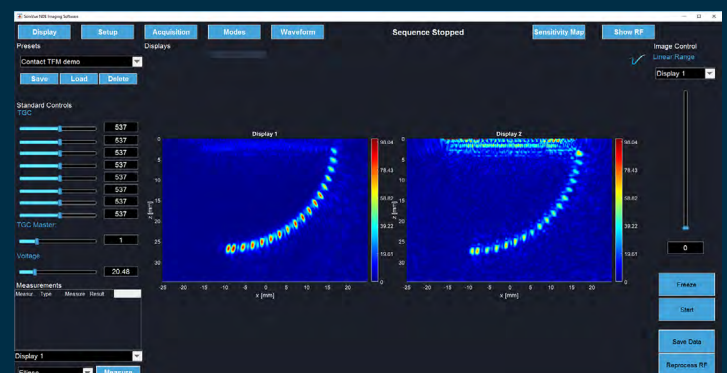
One type of custom mode makes use of Verasonics' Image Reconstruction Option for custom applications of TFM and Plane Wave imaging such as non-standard geometry, or material properties such as inhomogeneity or anisotropy.

The Image Reconstruction Option is a fast, proprietary implementation of delay-and-sum post-processed beamforming. In the context of generalized TFM, it uses look-up-tables of phase delays and amplitude weightings to apply post-processed focusing and generate an image.

The user can provide a function to compute look-up-tables for their custom application conditionally on user settings, allowing users to leverage the speed and accuracy of Verasonics' Image Reconstruction for their custom application. Once imported, the custom mode is available for selection, to be used on it's own or with any combination of other modes.

## Custom processing modes:

Alternatively, custom modes can replace the Image Reconstruction Option, processing the raw RF signal data with any custom method. In the example below, the left display is using direct mode TFM as a native imaging mode and the right display is using DORT (decomposition of the time-reversal operator), implemented through a custom processing mode.



Custom processed imaging in NDE Research Software:  
Native direct TFM and custom processing DORT

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Verasonics reserves the right to change specifications without notice.

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