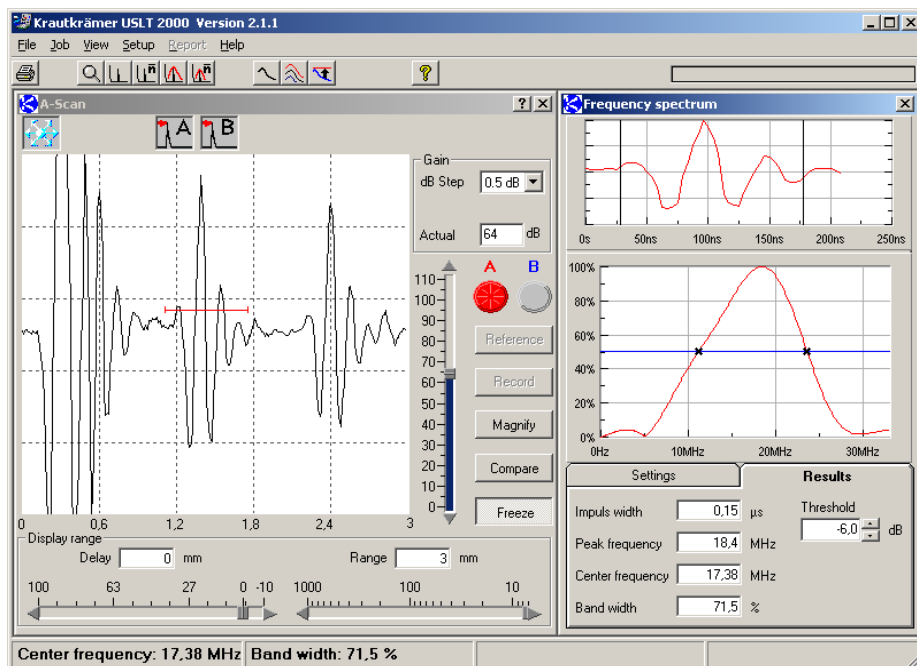# Krautkramer Software-Program
Module FFT
... for the characterization of material and reflector properties

A PLUS for the USLT 2000

The software program FFT is an additional module for the ultrasonic test system USLT 2000 that can be easily installed as an optional „Plug-In". This additional software extends the range of functions of the USLT 2000; new fields of application are opened up.

In combination with the modern computer technology and the FFT method (Fast Fourier Transform), a fundamental method of signal processing, ultrasonic signals can also be displayed and evaluated online within the frequency range. This spectrum analysis is used for the nondestructive characterization of material and reflector properties.

The method

The method makes use of the fact that every ultrasonic echo is a convolution product of the properties of the acoustic transducer, of the material, and of the reflector, among other things. If the frequency spectrum of an acoustic transducer is known - which can likewise be determined by means of the program -, the frequency shift measurement enables conclusions to be drawn with regard to the reflector and the material.

The FFT software shows the A-scan's frequency spectrum in the right-hand section of the window. The evaluation parameters are displayed below it: for the time signal the pulse duration, for the frequency spectrum the peak and center frequency, and the bandwidth.

The applications

In addition to the reflector characterization - for example the distinction between flat or planar and curved reflectors - the FFT module makes a material characterization possible, for example:

- in materials testing on metals: metallurgical properties
- in materials testing on plastics: embrittlement, consistence, matrix characterization of composite materials
- in medical applications: mineral content of bones or osteoporosis
- in foodstuff control: detection of sedimentation, gelation, impurities, temperature effect

GE imagination at work

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