

Ultrasonic Phased Array

Specific Training 40 hours

Training Course Outline

The Phased Array training includes the concept of the Phased Array Principles.
The prerequisite for this Class is UT Level II

SCOPE

This course introduces the basic principles of ultrasonic phased arrays and prepares the candidate use Phased Array for ultrasonic examinations.



TRAINING

Training is conducted in Modules

Module PA1: Phased Array Theory

- Beam Profile of a Conventional Probe
- Near Field and Beam Spread
- Conventional Focusing
- Phased array Focusing using Time Delays
- Beam Steering and Element Size

Module PA2: Phased Array Probes

- Probe frequency, element size and Aperture
- L-wave Probes
- S-wave Probes
- Probe definition

Module PA3 Phased Array Instrument

- Starting the instrument
- Navigating Menus
- Submenus

Module PA4: Instrument Basic Functions

- Entering Probe Data
- Entering Wedge Data
- Probe Element Verification

Module PA5: Calibration

- Sound velocity
- Wedge delay
- Sensitivity
- TCG
- Encoder

Module 6 Flaw Detection

- Weld inspection
- Manual Scans
- Encoded Scans
- Locating Flaws

Module 7: Sizing Flaws

- Selecting Phased Array Probes for Sizing
- Focal Spot Size
- Measuring the Flaw Size

Module 8: Encoded Scans

- Using the Encoder
- Setting up the encoder
- Perform encoded scans

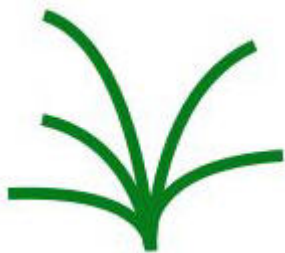
Module 9: Phased Array in lieu of Radiography

- ASME Section V and Code case 2235 and 181
- Requirements of the code cases

References

Anmol S. Birring, "Selection of Phased Array Parameters for Weld Testing", *Materials Evaluation*, vol 66, Number 9, September 2008, p 931-934

Anmol S. Birring, "Sizing Discontinuities by Ultrasonics", *Materials Evaluation*, vol 68, Number 11, November 2010, p 1208-1215



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