Ultrasonic Phased Array- Level II
Specific Training 80 hours
Training Course Outline

The Phased Array Level II training includes the Principles of Ultrasonic Phased Array Principles. The module will also cover PAUT in lieu of Radiography.
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 will include practicals on plates/pipes with embedded flaws.
The training is conducted over a two week period to meet the Level II Requirements of SNT-TC-1A.

PAUT Week 1 (40 hours): Basic Principles of Phased Arrays and Manual PAUT
PAUT Week 2 (40 hours): Encoded Scans, Omni-PC and Analysis

TRAINING
Training is conducted in Modules

Module PA1A: Phased Array Certification

Module PA 1B: Phased Array Physics
- 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 Technology
- Probe frequency, element size and Aperture
- L-wave Probes
- S-wave Probes
- Probe definition

**Module PA3 Phased Array Equipment**
- Starting the instrument
- Navigating Menus
- Submenus

**Module PA4: Omniscan Menus and Setups**
- Navigation
- Menus, Submenus
- UT Settings, Focal laws
- Straight beam and Angle beam

**Module PA5: Omniscan Calibration**
- Sound velocity
- Wedge Delay
- Sensitivity
- TCG

**Module 6 PhasoOmnivPC – Analysis Software**
- Loading data
- Analysis tools

**Module 7: Phasor Menus and Setup**
- Menus
- Setting
- Setting sectorial scan

**Module PA8: Phasor calibration**
- Sound velocity
- Wedge Delay
- Sensitivity
- TCG

**Module PA9: Element Check**
- Element Check

**Module 10: Straight Beam Inspection**
- Probe Selection
- Focal law
- Sweep Nagle

**Module 11: Weld Inspection**
- Setup
- Probe/part
- Scanning Weld Samples

**Module 12: Encoded Scans**
- Setup of scanner
- Encoder Calibration
- Scanning Weld Samples
Module 13: PAUT in lieu of RT
- ASME Section V, Article 4, Appendix VIII and IX
- ASME Section VIII, Section 7.5.5 (previously Code Case 2235-09)
- B31.3 Code Case 181-2, Use of Alternate Acceptance Criteria
- Examples of Accept/Reject

Module 14: Special Applications; Inspection of stainless steel, duplex steels and A 625 welds using refracted L-waves
- Generating of Refracted L-waves
- Limitation of Refracted L-waves
- Inspection of welds in stainless steels and duplex steel
- Inspection of A625 closure welds
- Inspection of A625 clad

References


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