



Phased array ultrasonic (PA) is an advanced method of ultrasonic testing that has applications in medical imaging and industrial nondestructive testing. Common applications are to noninvasively examine the heart or to find flaws in manufactured materials such as welds. Single-element (non-phased array) probes, known technically as *monolithic* probes, emit a beam in a fixed direction. To test or interrogate a large volume of material, a conventional probe must be physically scanned (moved or turned) to sweep the beam through the area of interest. In contrast, the beam from a phased array probe can be focused and swept electronically without moving the probe. The beam is controllable because a phased array probe is made up of multiple small elements, each of which can be pulsed individually at a computer-calculated timing. The term *phased* refers to the timing, and the term *array* refers to the multiple elements. Phased array ultrasonic testing is based on principles of wave physics, which also have applications in fields such as optics and electromagnetic antennae.

About the course:

This course is designed to provide the participants, a better understanding about theory and application of phased array ultrasonic testing, to train them and qualify them as PCN Level II in phased array ultrasonic testing.

Qualification: Shall have minimum PCN Level II in Ultrasonic Testing.

Experience requirements: Minimum work experience of 4 months as Level II in Ultrasonic testing is a mandatory requirement to appear for examination and certification.

Vision requirements: Vision requirements as per PSL-44 (<http://www.bindt.org/downloads/psl44.pdf>)

Last date for registration: One week prior to the commencement of the course (subject to availability)

Training Hours: 120 Hours

Course content:

- Intro & history of UTPA
- Fundamentals / Principals
- UTPA probes
- Beam forming
- UTPA scanning
- Digitization principals
- Data view & display
- Selection of parameters & calibrations
- Software options & Data collection
- Practical exercises-calibrations
- Butt Weld plate inspection & Interpretation (Minimum 6 plates)



Learning outcomes:

- Successful candidate will be able to set up, calibrate the equipment, perform the test, interpret and evaluate the results as per applicable procedure or codes and standards.
- The candidate will be trained to organize and report the testing results using phased array ultrasonic testing technique.

Examination and validity: Training program comprises of daily assessment after completion of each chapter and the participants are required to get above 70% marks. Based on daily assessment exams, candidate is awarded with successful completion of training. Then the participants are required to undergo examination which consists of specific and practical examination. Candidate has to obtain a minimum of 70% in each examination to get certified as PCN PAUT level II. This certificate is valid for 5 years from the date of certification. The certificate has to be renewed as per PCN requirements.

Documents to be submitted for registration:

1. PSL 57-A Initial Examination application
2. PSL 30- Log of Experience
3. PSL 44-Vision Requirements (which has to be certified by a registered medical practitioner)
4. PCN Wallet card copy
5. PCN UT level II Certificate copy

Note:

1. TIW reserves the right to disqualify the participants from certification program when the personnel is found that they he/she shall not meet the PCN requirements
2. Participants are not allowed to use their own equipment during the training and examination. TIW provides candidate with Omni scan MX2 advanced Flaw detector for practical inspection and laptop for interpretation(for both training and examination)