


DOCUMENT NAME	Course Curriculum					
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ROYAL TECH TRAINING & CONSULTANCY

Method & level	Phased Array Ultrasonic Testing- welds- Level 1
Course Duration - Days & Hours	5 DAYS - 50 HOURS
Revision & updated on	Rev 0- Updated on 29-4-2023

PCN Level 1 Phased Array Ultrasonic Testing

Duration: 5days (50 Hours)

Course Overview:

This course provides the knowledge required to operate equipment and perform manual & encoded phased array testing on welds. The course covers theoretical aspects on phased array application, its advantages and limitations, application of phased array. The course also covers in depth practical aspects for application of Phased Array on plate butt welds.

Course content:

1. History of PAUT, TOFD, AUT. Advantages, limitations, application of PAUT
2. Principles of phased array probes- Array of piezo-electric elements- Delays- Control of beam shape and angle- Laws
3. Fundamental principles of probe performance and design
4. Principles of inspection sensitivity- Reference reflectors -Sensitivity to mis-aligned defects
5. Phased Array Instrument- Control panel including input and output sockets- Block diagram of internal circuit modules
6. Scanning with phased array probes- Swept beams - Linear scans- Fixed beam scans- Line scans – raster scans
7. Calibration and checks -Checking probe elements- Beam angles and offsets/index point -Beam shape
8. Calibrations such as velocity, wedge, sensitivity, TCG, optimization
9. Testing of specimen samples- Software for data collection - Setup parameters
10. Inspection sequence –encoder setting- UT settings
11. Data presentation- Software familiarity - display types –A, B, C, D scan formats and merged volumetric views
12. Reporting and data file conversions available, Saving files
13. Procedures for verification of flaw existence and position, Reporting
14. Application of a written instruction
15. Practical exercise and Daily assessment

Course objectives:

1. Understand the basic concept of Phased Array ultrasonics, probes, delay laws
2. Understanding equipment Electronics, digitisation
3. Understand the various scanning patterns
4. Calibrating using calibration blocks for weld inspection
5. Optimisations of Set up for various welds, Performing inspection and data collection, reporting
6. Follow and apply the instructions
7. Meet the syllabus requirements for PCN Level 1 as per PCN/GEN Appendix E9.2

Experience:

1. 1 month experience required in order to gain full qualification and certification.
2. PCN UT Level 1 or any BINDT recognised UT Level 1 qualification is mandatory to be eligible for PAUT Level 1 exam