



**AFRICAN NDT CENTRE**  
**COURSE CURRICULUM**  
**PHASED ARRAY TESTING LEVEL 1 and 2**

Doc No : CC-PA  
 Issue : 1  
 Date : 12-12-2016  
 Page : 1 of 4

| Contents                                    | Level 1  | Level 2  | Level 3 (Note 1) |
|---|--|--|------------------|
| 1.0<br>Principles of phased array probes    | 1.0. Array of piezo-electric elements<br>1.1 Delays<br>1.2 Control of beam shape and angle<br>1.3 Laws<br>1.4 Fundamental principles of probe performance and design | 1.1. Array of piezo-electric elements<br>1.1 Delays<br>1.2 Control of beam shape and angle<br>1.3 Laws<br>1.4 Fundamental principles of probe performance and design | Not Presented    |
| 2.0<br>Principles of inspection sensitivity | 2.0 Reference reflectors<br>2.1 Sensitivity to misaligned defects  | 2.0 Reference reflectors<br>2.1 Sensitivity to misaligned defects  | Not Presented    |
| 3.0<br>Phased array instrument              | 3.0 Control panel including input and output sockets<br>3.1 Block diagram of internal circuit modules  | 3.0 Control panel including input and output sockets<br>3.1 Block diagram of internal circuit modules  | Not Presented    |



**AFRICAN NDT CENTRE**  
**COURSE CURRICULUM**  
**PHASED ARRAY TESTING LEVEL 1 and 2**

Doc No : CC-PA  
 Issue : 1  
 Date : 12-12-2016  
 Page : 2 of 4

|  |  |   |                      |
|--|--|---|----------------------|
| <p>4.0<br/>Scanning with phased array probes</p> | <p>4.0. Swept beams<br/>         4.1. Linear scans<br/>         4.2. Fixed beam scans<br/>         4.3. Line scans – raster scans</p>  | <p>4.4. Swept beams<br/>         4.5. Linear scans<br/>         4.6. Fixed beam scans<br/>         4.7. Line scans – raster scans</p>   | <p>Not Presented</p> |
| <p>5.0<br/>Calibration and checks</p>            | <p>5.0 Checking probe elements<br/>         5.1 Beam angles and offsets/index point<br/>         5.2 Beam shape</p>  | <p>5.0 Checking probe elements<br/>         5.1 Beam angles and offsets/index point<br/>         5.2 Beam shape</p>   | <p>Not Presented</p> |
| <p>6.0<br/>Software for data collection</p>      | <p>6.0 File structure<br/>         6.1 Basic interface and windows options or panes<br/>         6.2 Status bar<br/>         6.3 Setup parameters<br/>         6.4 Inspection sequence –tabs: sequence and encoder settings<br/>         6.5 UT settings –tabs: acquisition, probe, configuration, etc.<br/>         6.6 Data acquisition controls and protocol<br/>         6.7 Acquisition toolbar<br/><br/>         6.8 Online views of data presentation</p> | <p>6.0 File structure<br/>         6.1 Basic interface and windows options or panes<br/>         6.2 Status bar<br/>         6.3 Setup parameters<br/>         6.4 Inspection sequence –tabs: sequence and encoder settings<br/>         6.5 UT settings –tabs: acquisition, probe, configuration, etc.<br/>         6.6 Data acquisition controls and protocol<br/>         6.7 Acquisition toolbar<br/><br/>         6.8 Online views of data presentation<br/>         6.9 Analysis mode<br/>         6.10 Data analysis view types<br/>         6.11 Analysis tools<br/>         6.12 Volumetric image merging principles</p> | <p>Not Presented</p> |



**AFRICAN NDT CENTRE**  
**COURSE CURRICULUM**  
**PHASED ARRAY TESTING LEVEL 1 and 2**

Doc No : CC-PA  
 Issue : 1  
 Date : 12-12-2016  
 Page : 3 of 4

|  |   |   |                      |
|--|---|---|----------------------|
| <p>7.0<br/>Principles of data analysis</p>                           | <p>Not Applicable</p>   | <p>7.0 Review of data analysis for conventional ultrasonic inspection image formats and specific application to ultrasonic phased arrays</p>  | <p>Not Presented</p> |
| <p>8.0<br/>Software familiarity</p>                                  | <p>8.0 Displays and display types – options available to customise these including echo-dynamic patterns B, C, D scan formats and merged volumetric views<br/>       8.1 Cursors and gates<br/>       8.2 Reporting and data file conversions available<br/>       8.3 Saving files</p> | <p>8.0 Volumetric merge options<br/>       8.1 Displays and display types – options available to customise these including echo-dynamic patterns B, C, D scan formats and merged volumetric views<br/>       8.2 Soft gain and thresholds including gating and DAC curves<br/>       8.3 Overlays – creating and importing/manipulating<br/>       8.4 Cursors and gates<br/>       8.5 Reporting and data file conversions available<br/>       8.6 Saving files</p> | <p>Not Presented</p> |
| <p>9.0<br/>Use of software tools for defect detection and sizing</p> | <p>Not Applicable</p>   | <p>9.0 Use of software tools for defect detection and sizing</p>  | <p>Not Presented</p> |



**AFRICAN NDT CENTRE**  
**COURSE CURRICULUM**  
**PHASED ARRAY TESTING LEVEL 1 and 2**

Doc No : CC-PA  
Issue : 1  
Date : 12-12-2016  
Page : 4 of 4

|  |   |   |               |
|--|---|---|---------------|
| 10.0<br>Data analysis  | Not Applicable  | 10.0 Data analysis  | Not Presented |
| 11.0<br>Procedures for verification of flaw existence and position | 11.0 Procedures for verification of flaw existence and position | 11.0 Procedures for verification of flaw existence and position | Not Presented |
| 12.0<br>Reporting  | 12.0 Reporting  | 12.0 Reporting  | Not Presented |

Note 1: Phased Array level 3 course not available through ANDTc