Veracious Canada Inc in **partnership** with **Advanced NDT Solutions (ANS)** provides a full range of traditional NDT services focussed on the use of Advanced NDT Technology for market around the world. The group currently operates across four main industrial sectors:

1. Oil & Gas – New Construction; In-Service Inspections , Online Inspections & shutdown inspections.
2. Pharmaceutical – New Construction; 3rd Party Inspection and Maintenance
3. Power & Energy – New Construction; In-Service Inspections
4. Construction – Fabrication; Welder Approval Qualifications & CE Marking

ANS
Advanced NDT Solutions
PROVIDING THE ANSWER !
ISO 9001:2015 Certified

VERACIOUS
Delivering an experience
ISO 9001:2015 Certified

VERACIOUS

Delivering an experience

Our Goal:

To be considered a trusted source for our clients in delivering Quality Advanced NDT Inspection services and with an ongoing commitment to develop new applications through technology to solve industry requirements for complex inspection problems.

Some of our Customers

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Global Projects ● Where we have been

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Service Line

- General NDT (UT/RT/MT/PT/VT/ET) Vendor Audits ; FAT Inspections ; Borescope Inspections
- Advanced Services – C-Mapping ; Laser Profiling; HIC & SOHIC Surveys
- Phased Array Ultrasonics of Welds/Complex Geometry/Flanges/CUPS /Hi-temp
- Applications TOFD New construction; In-service and Hi-Temp Applications
- Austenitic Weld Inspection – Phased Array Ultrasonics
- Advanced Ultrasonic Sizing Techniques (CW/HALW/Tipp Diff)
- HTHA - High Temperature Hydrogen Attack
- LRUT ; SRUT and CHIME Surveys
- ACFM & ECA Inspection Techniques
- Tube Inspection Services - Eddyfi Ectane (ECT/ ECA / RFT/NFT/MFL / IRIS)
- In-Situ Field Replication – Creep & Sigma Phase Evaluation (Alstom & DNV
- Approved) MFL-Floor 3D-Map/ Tank Inspection Surveys
- FFS Evaluation and Failure Analysis

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Service Line Continued:

PEC – Pulsed Eddy Current	**Supported by Global Associates:**	AE – Acoustic Emission
Wire Rope Testing - Flare Guidelines & Wire Rope Suspension Bridges	Online Robotic Tank Inspections	Ultrasonic Smart Pig Pipeline Testing
Internal RT Pipe Crawlers	External UT Pipeline (Pipe Wizard)	Electromagnetic Imaging

Continuous Technology Investment

- Borescopes
- MFL Silverwing Floormap 3D
- PMI (XRF)
- X-ray; Gamma; Auto Film Processors, Computerised Radiography
- Phased Array / TOFD System Omniscan MX2 / SX2
- Phased Array/ TOFD Systems Isonic 2009
- Olympus Microscope / Replication Kits
- Corrosion Mapping System / Accuscan
- Accutrak Scanner auto tracking
- ECA and Tube Inspection / PACE ACFM
- PEC – Maxwell System

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Examples of Technologies Development

- Phased Array Applications (Riser Butt Welds)
- Phased Array TOFD (Sonotron)
- ECA – Sharck Probe Eddyfi Systems
- ECA (Eddy Current Array) - Tube Inspection Applications
- High Temperature Applications PAUT & TOFD
- Reformer Tube Inspection – Electromagnetic Techniques
- ET Thermocouple Inspection
- Flange Face Corrosion - PAUT

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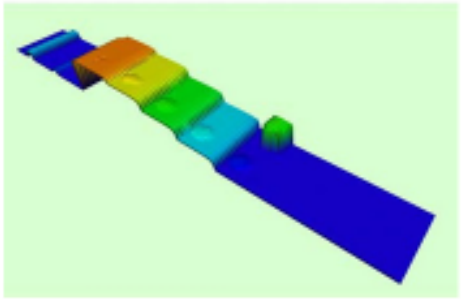

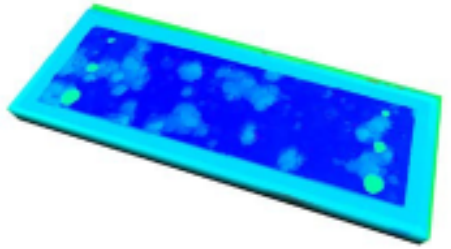

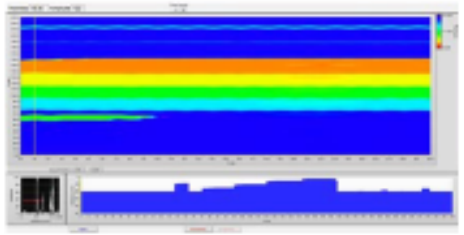

CORROSION MAPPING

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ADVANCED NDT TECHNOLOGIES

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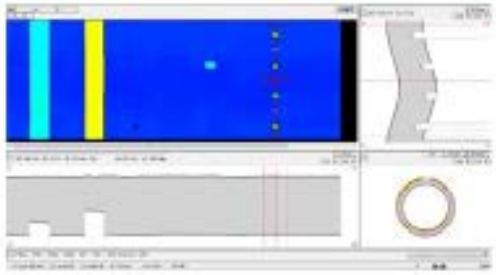

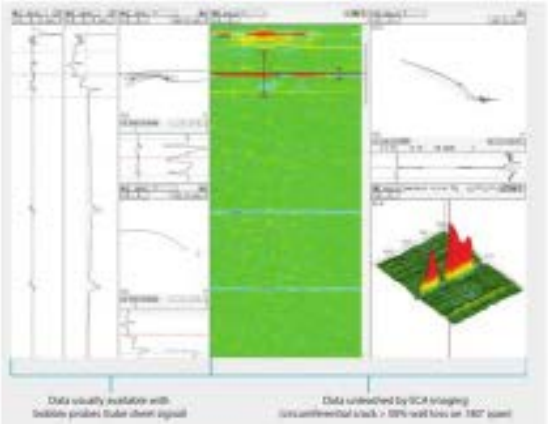

Actual field results showing cracking under tubesheet

TUBE INSPECTION SERVICES

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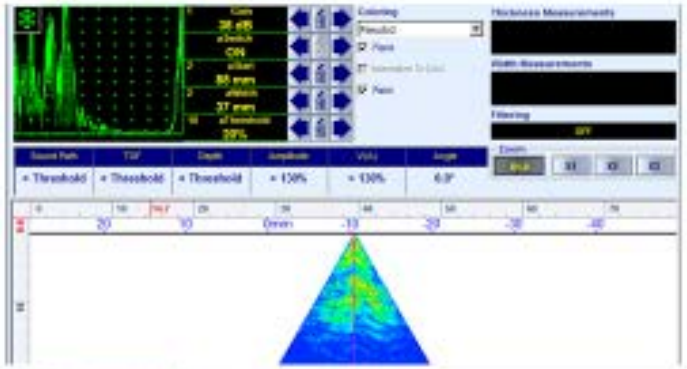
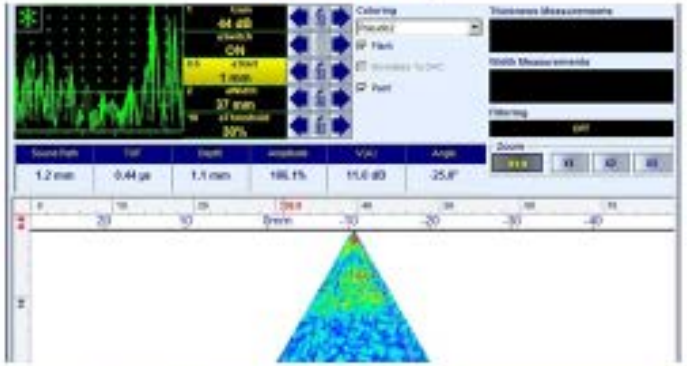
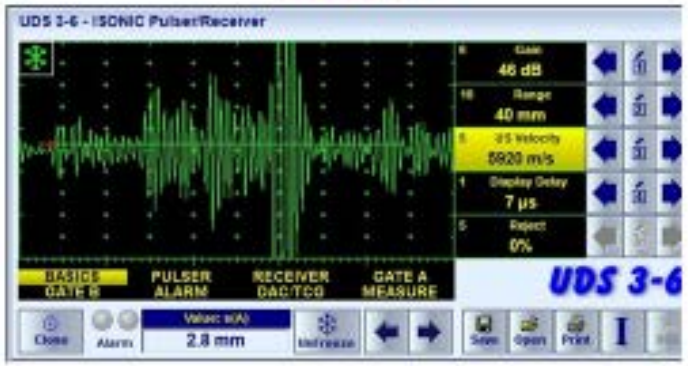
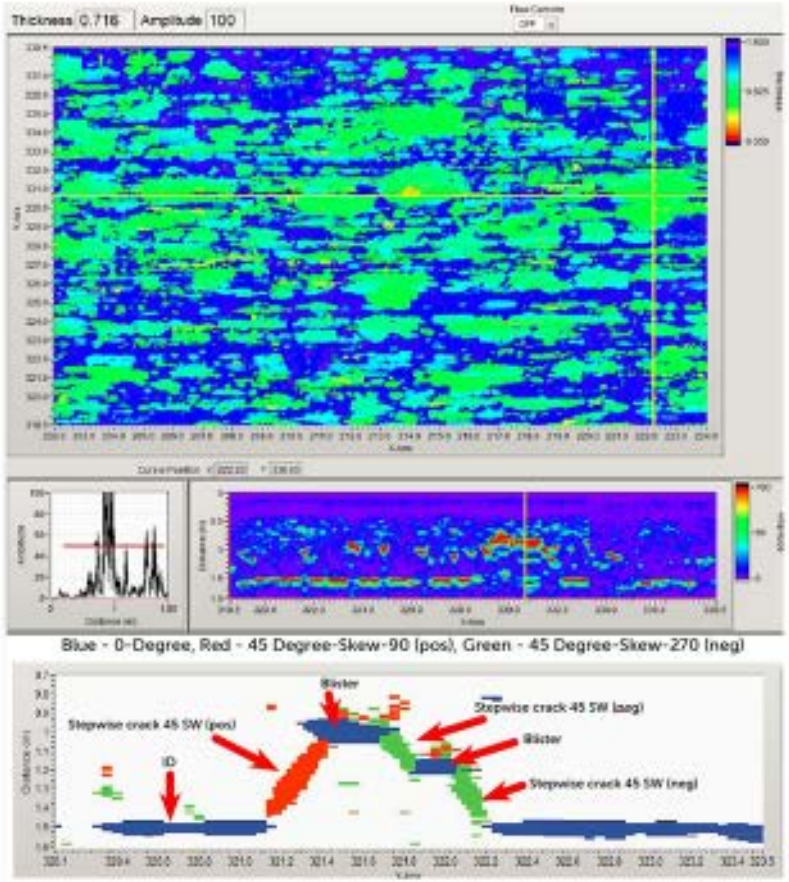


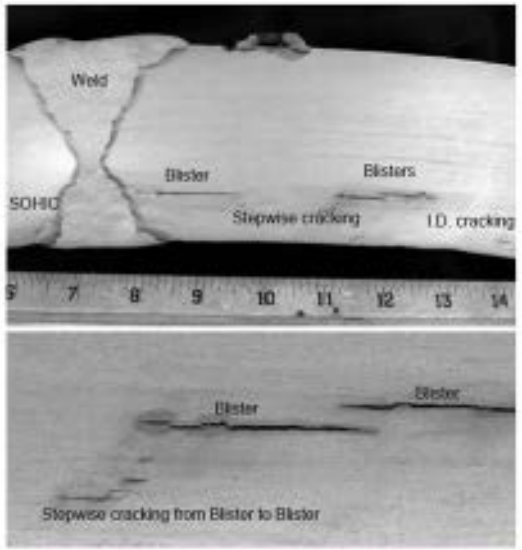


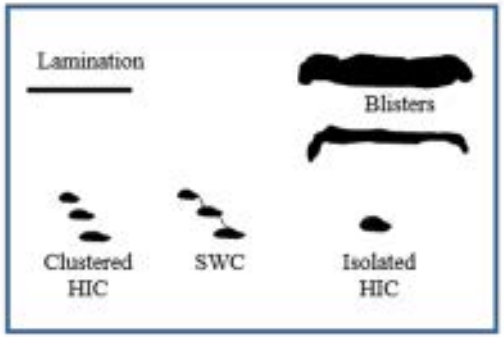


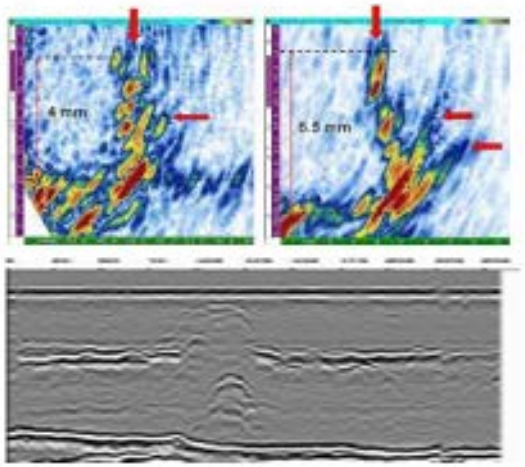
HIGH TEMPERATURE HYDROGEN ATTACK

HYDROGEN INDUCED CRACKING (HIC)









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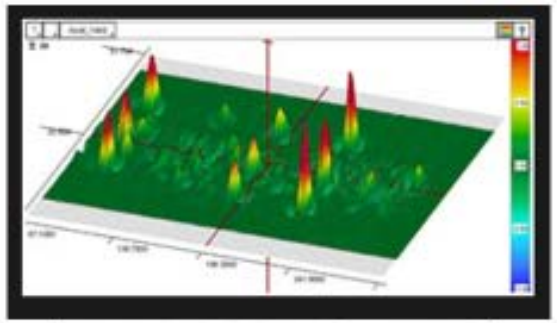

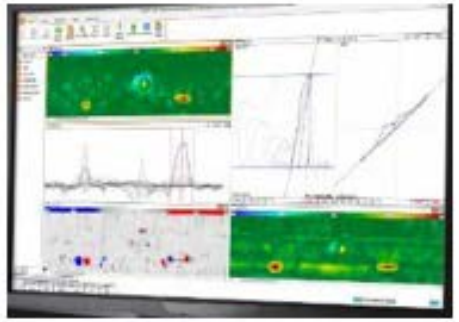

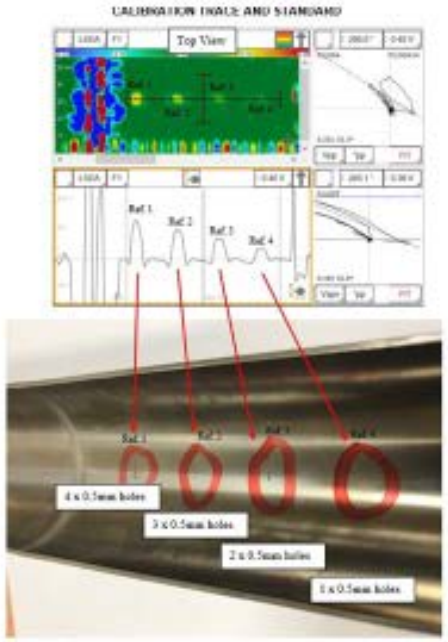

STRESS CORROSION CRACKING ECA

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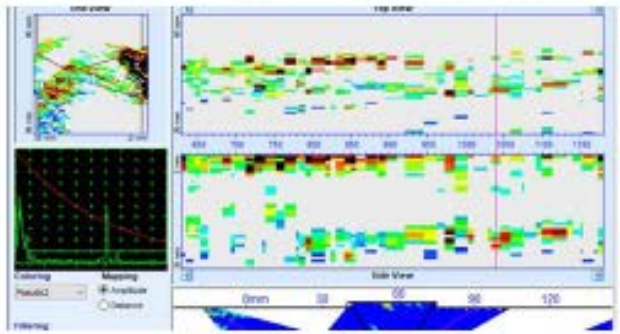

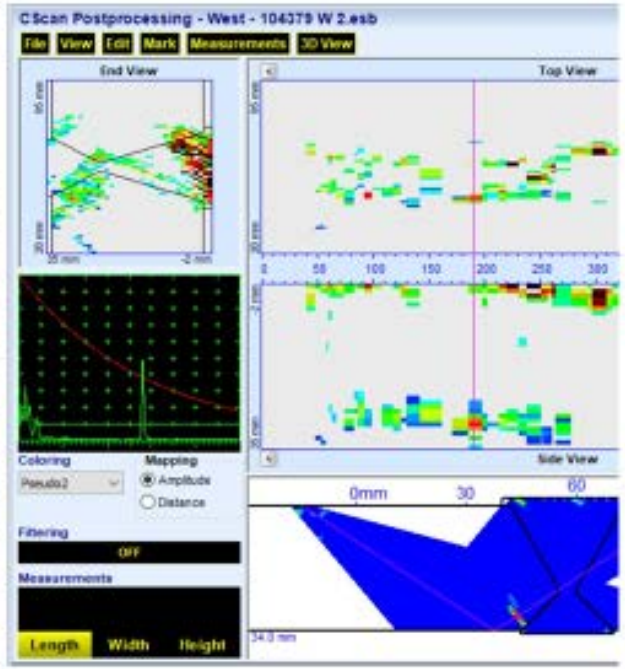

STRESS CORROSION CRACKING AUT

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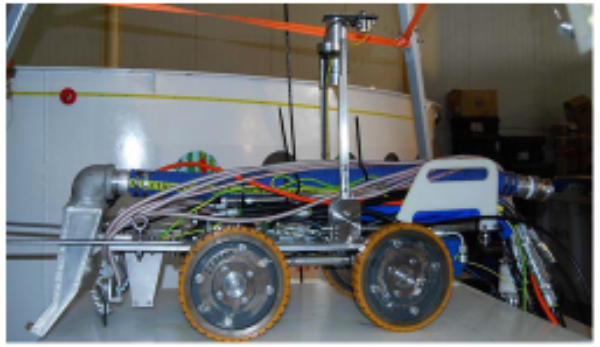
Online Robotic Tank Inspection & Cleaning



- Eliminate the high cost of taking down your tanks
- Complete an API 653 inspection in days instead of weeks or months
- Avoid disruptions in normal service and keep revenue consistent
- Perform repairs only as needed
- Minimize impact to your costs and operations
- Reduce environmental and safety risks without opening the tank or due to manned entry

Measure the savings – by adding up the true costs of conventional out-of-service inspection.

The total cost of conventional inspections are far greater than the expense of cleaning and MFE inspection. The cost of material transfer, product downgrades and tank downtime are enormous.

The hidden cost of premature repairs can be just as high. When the tank is empty, you'll have to complete all repairs quickly. This usually means paying a premium for service – and completing repairs that aren't necessary for another five to 10 years. Now you can reduce costs by completing an API 653 inspection of your AST (Above-Ground Storage Tank) without taking the tank down for manual cleaning and inspection.

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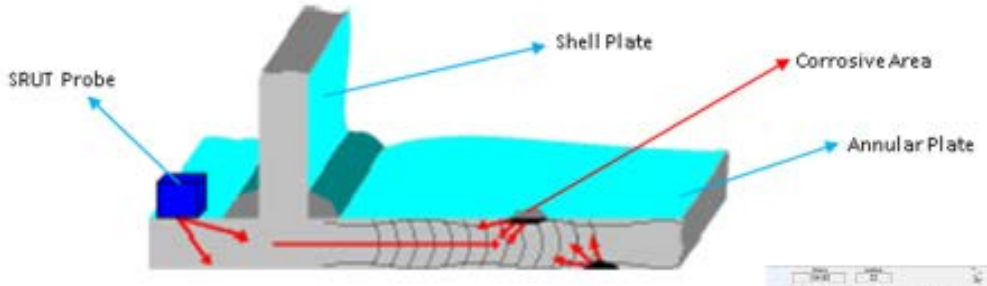
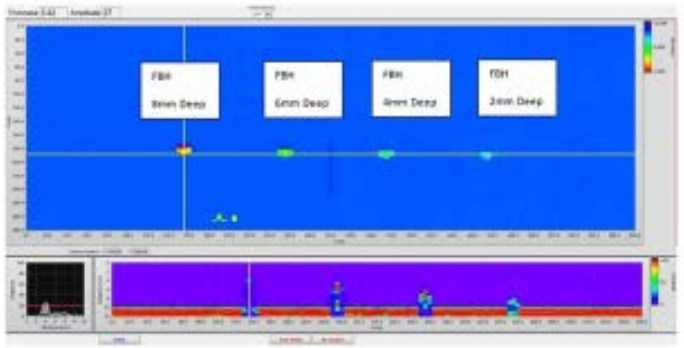
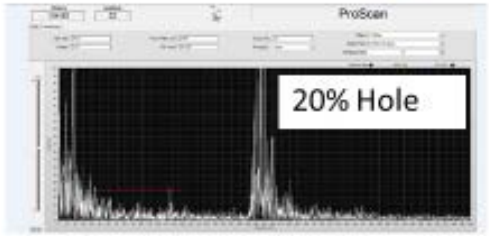
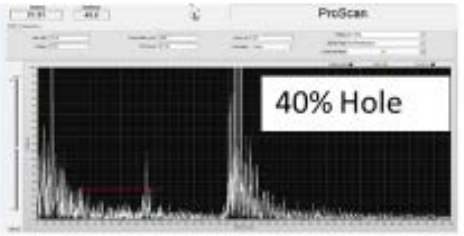
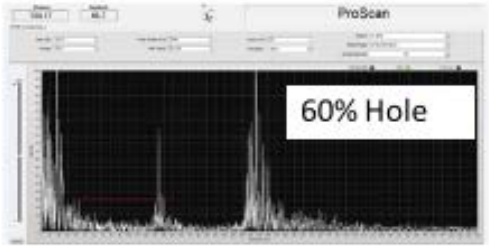
SRUT – SHORT RANGE UT

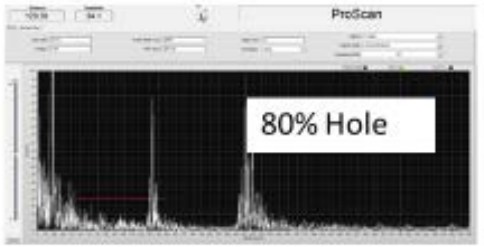






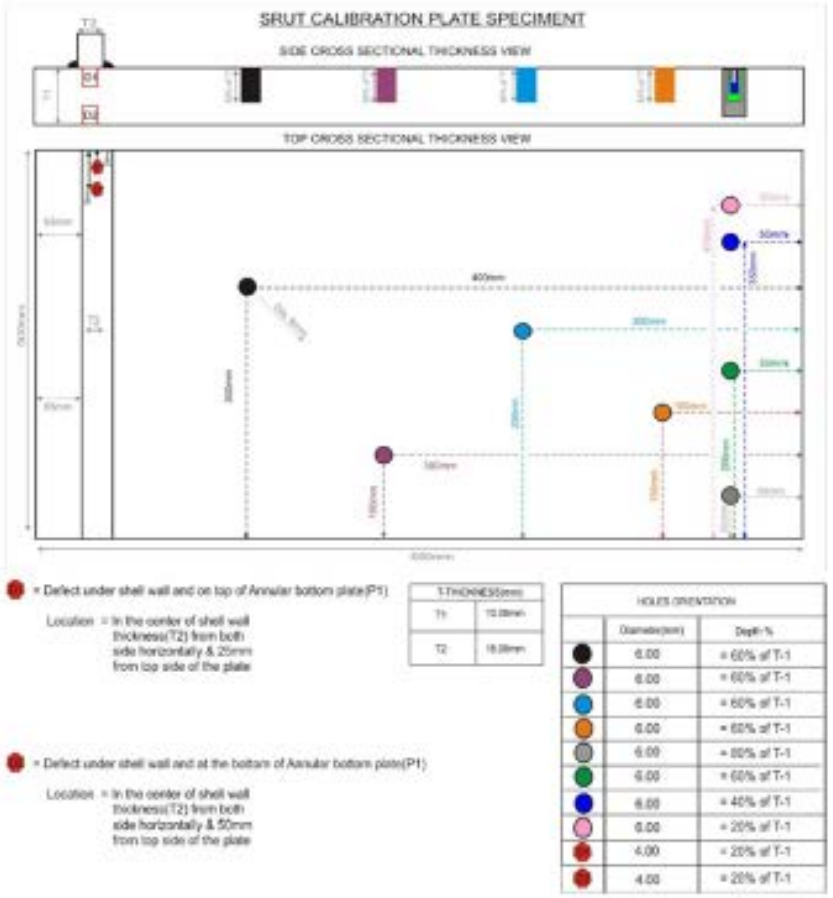






SRUT – SHORT RANGE UT

Calibration Reference Standard Design

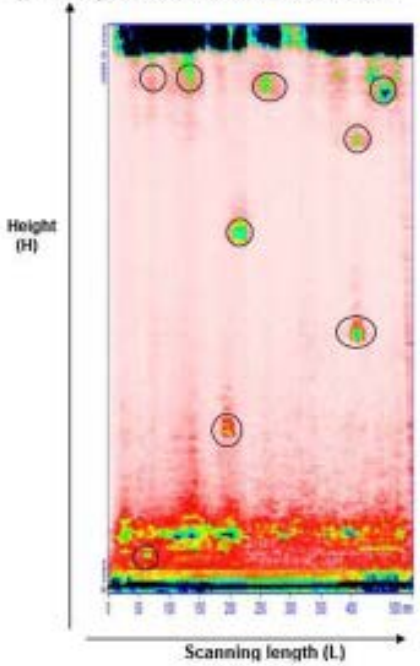


SRUT – SHORT RANGE UT

Calibration Reference Standard Design

The equipment was calibrated on the calibration block having the flat bottom holes. Several important settings were considered when calibrating the equipment including gain, velocity etc.
Dimensions of the calibration block: 600mm X 500mm
Thickness of the calibration block: 10mm
Depth of the FBH's: 20%, 40%, 60% & 80%.

Typical image of the calibration was shown below.



SRUT scan on Calibration plate

SRUT Calibration plate

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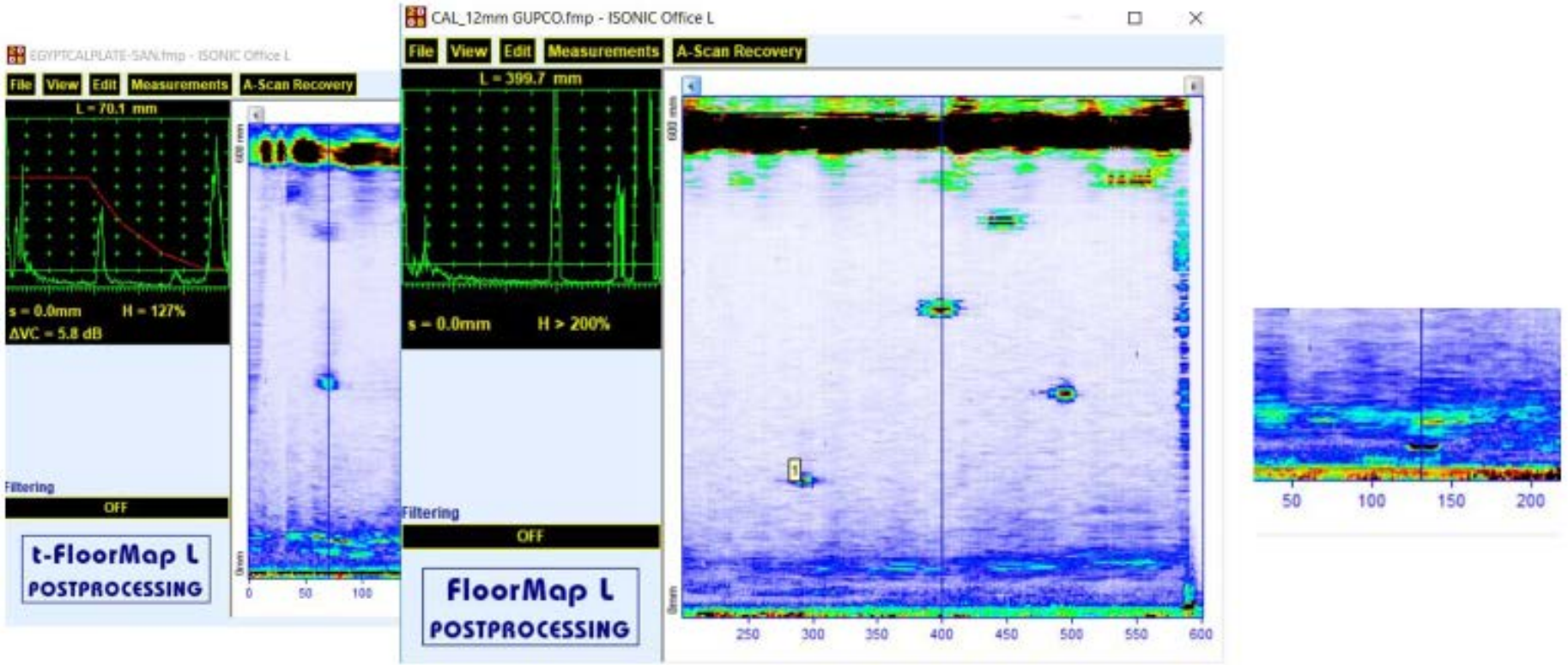
SRUT – SHORT RANGE UT



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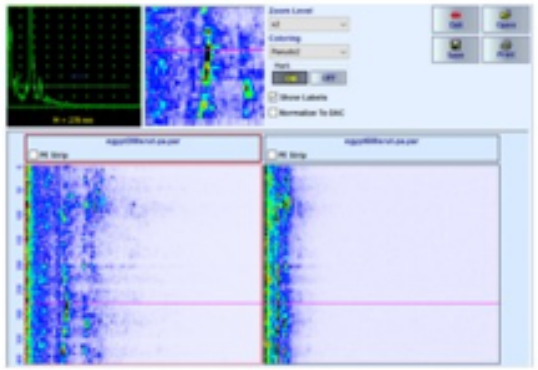
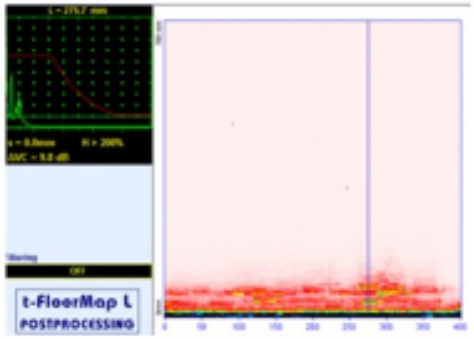
SRUT – SHORT RANGE UT
PAUT Verification

This indication further investigated by PA instrument:



Length - 278mm,
Sound path – 44.6mm,
Depth – 3.2mm

II. SRUT Scan-109 has indication below the shell wall on annular plate:



Length -275.7mm,
Height – 36.9mm

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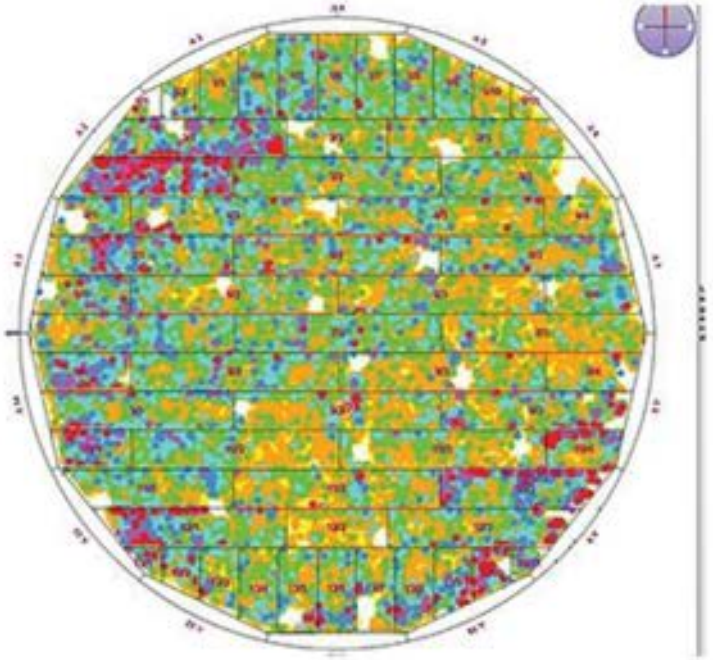
MFL FLOOR TANK INSPECTIONS



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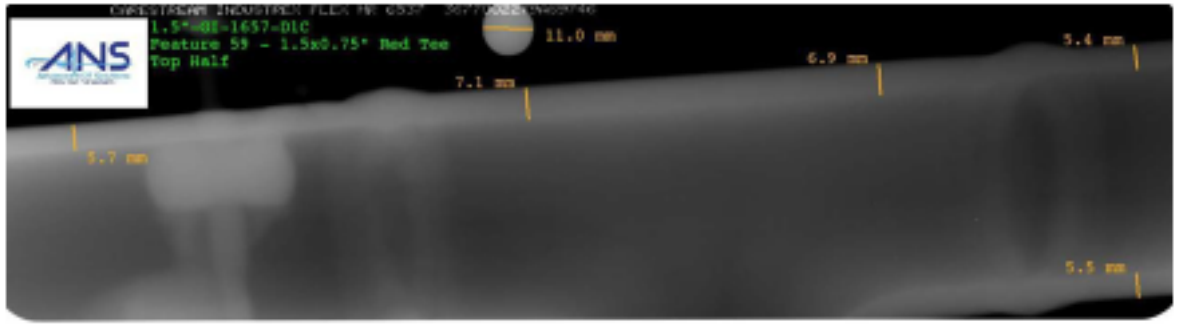
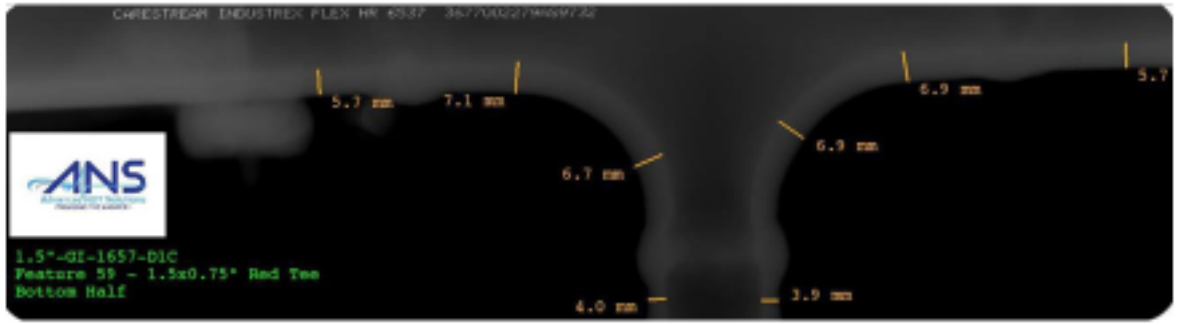
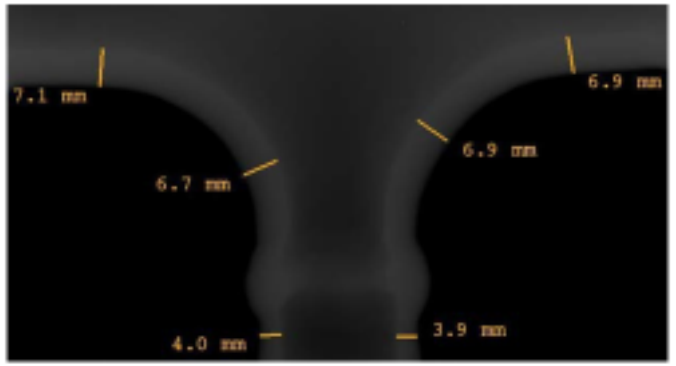




COMPUTERISED INSPECTION TECHNOLOGY



IDEAL FOR PROFILE RADIOGRAPHY

Minimum wall thickness noted on Feature 59 was 6.7mm at Tee outlet. No significant corrosion or deposits were evident.

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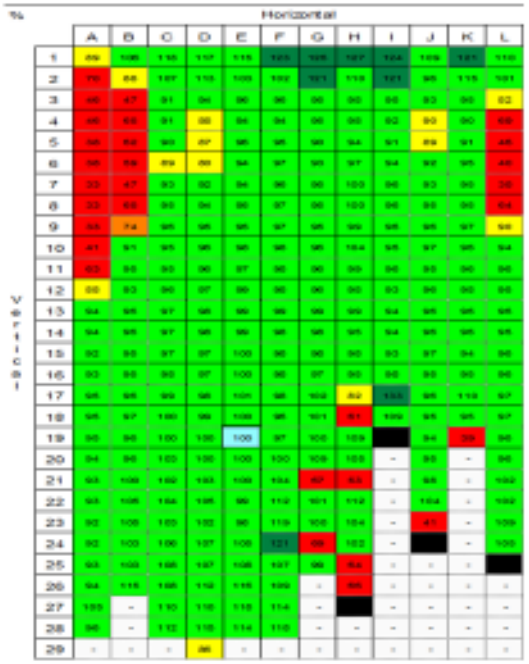
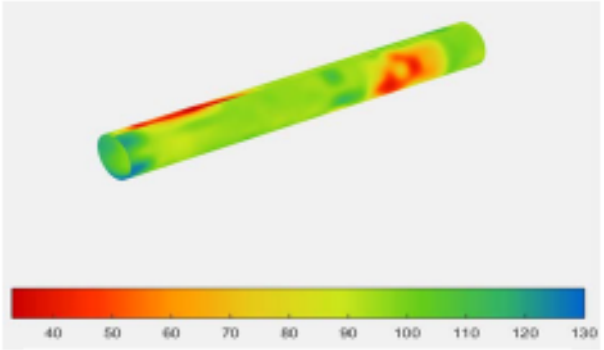
PEC – PULSED EDDY CURRENT APPLICATIONS

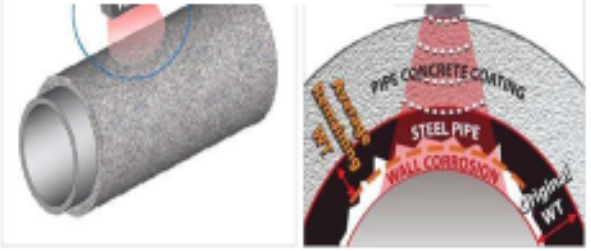


APPLICATION:

Primary application is to collect and validate data in real-time and to store this data in electronic format. Due to excellent repeatability continued monitoring of critical flaw growth can be performed. Finally the ability to document and visually present the defect % loss is extremely important when communicating with the client and in supporting Fitness For Service Assessment. PEC can also be used for CUI, Corrosion under Fireproofing, Composite Repairs, Weight Coat and remaining Thickness under Scab Corrosion.



Below image of PEC sensor and interaction with test sample



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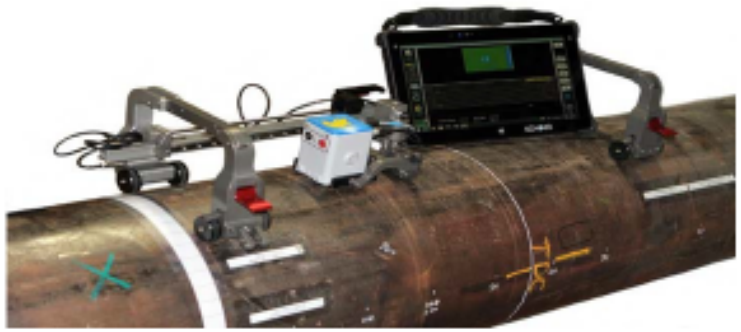
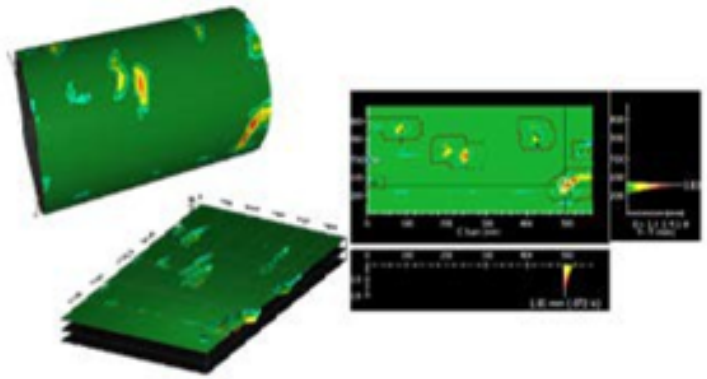
ECHO-3D

(An Advanced NDT Method Using Electro-Magnetic Field Imaging)





Applications

Pipeline

- Detect & measure defects through coatings
- Designed for IN-DITCH integrity inspections
- SCC Detection and depth measurement.
- EFW and ERW Seam Inspections

Refinery/Petro Chemical

- Cracks in high nickel CLAD materials
- Ferrous And Non-Ferrous Piping
- Process Equipment and Vessels

Refinery/Power Generation

- Detect And Measure Cracks and Corrosions

Real Time Imaging & Analysis Software

Figure – 3DModels & Sectional Analysis

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Application Specific Development

- CUPS (Corrosion Under Pipe Supports)
- Shell Tank Corrosion Mapping (High Speed)
- Inconel Weld Overlay
- Complex Geometries
- Austenitic Materials
- (Thin-wall Butt Welds in Piping > 3mm)
- Flange Sealing Surface
- LNG 9Ni Storage Tanks
- High Temperature Applications Up to 425°C (Corrosion)
- PAUT Hi-Temp 250C

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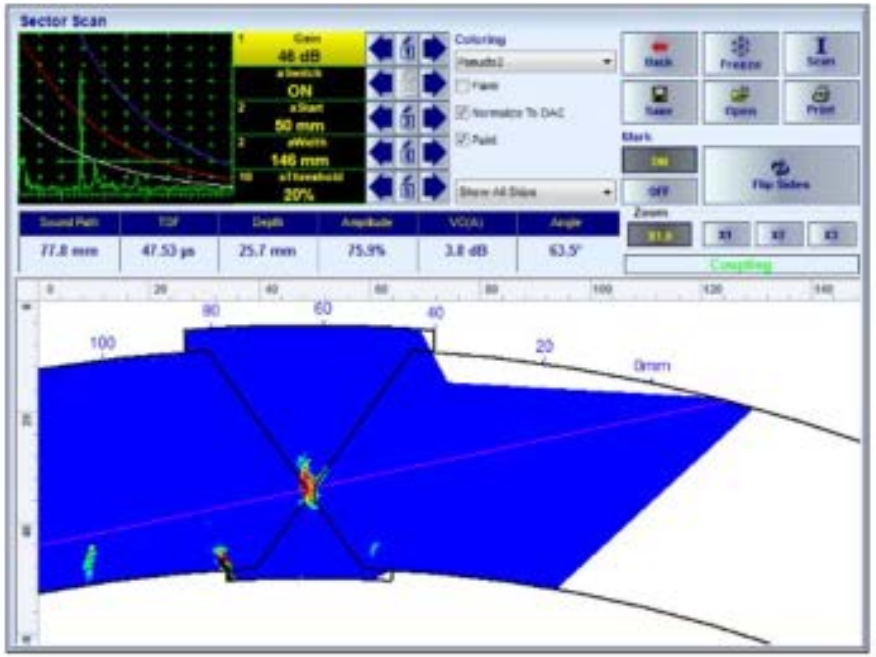
ENHANCED PHASED ARRAY TECHNOLOGY

TRUE TO GEOMETRY IMAGING



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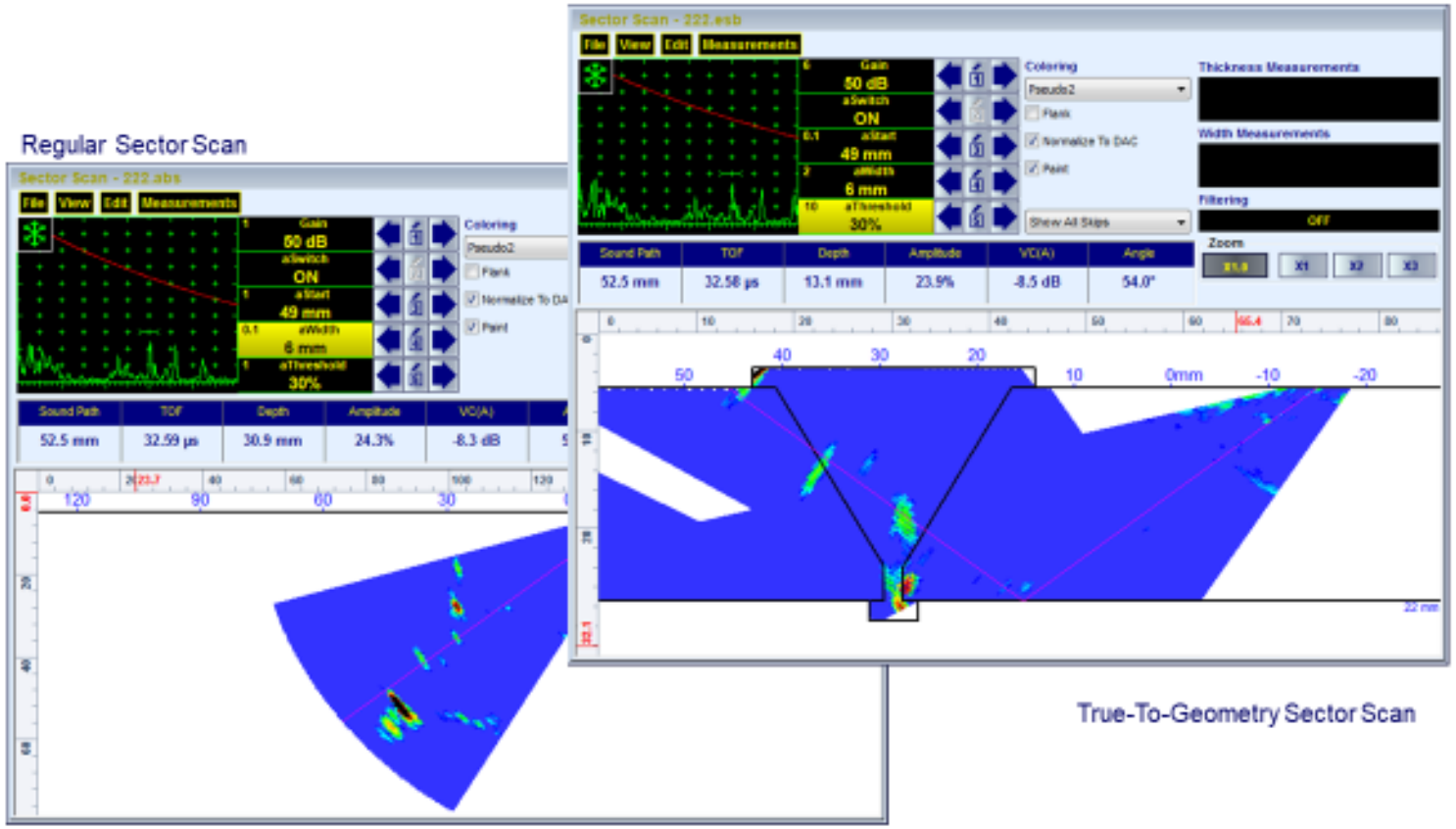
True-To-Geometry Imaging of ultrasonic PA inspection data



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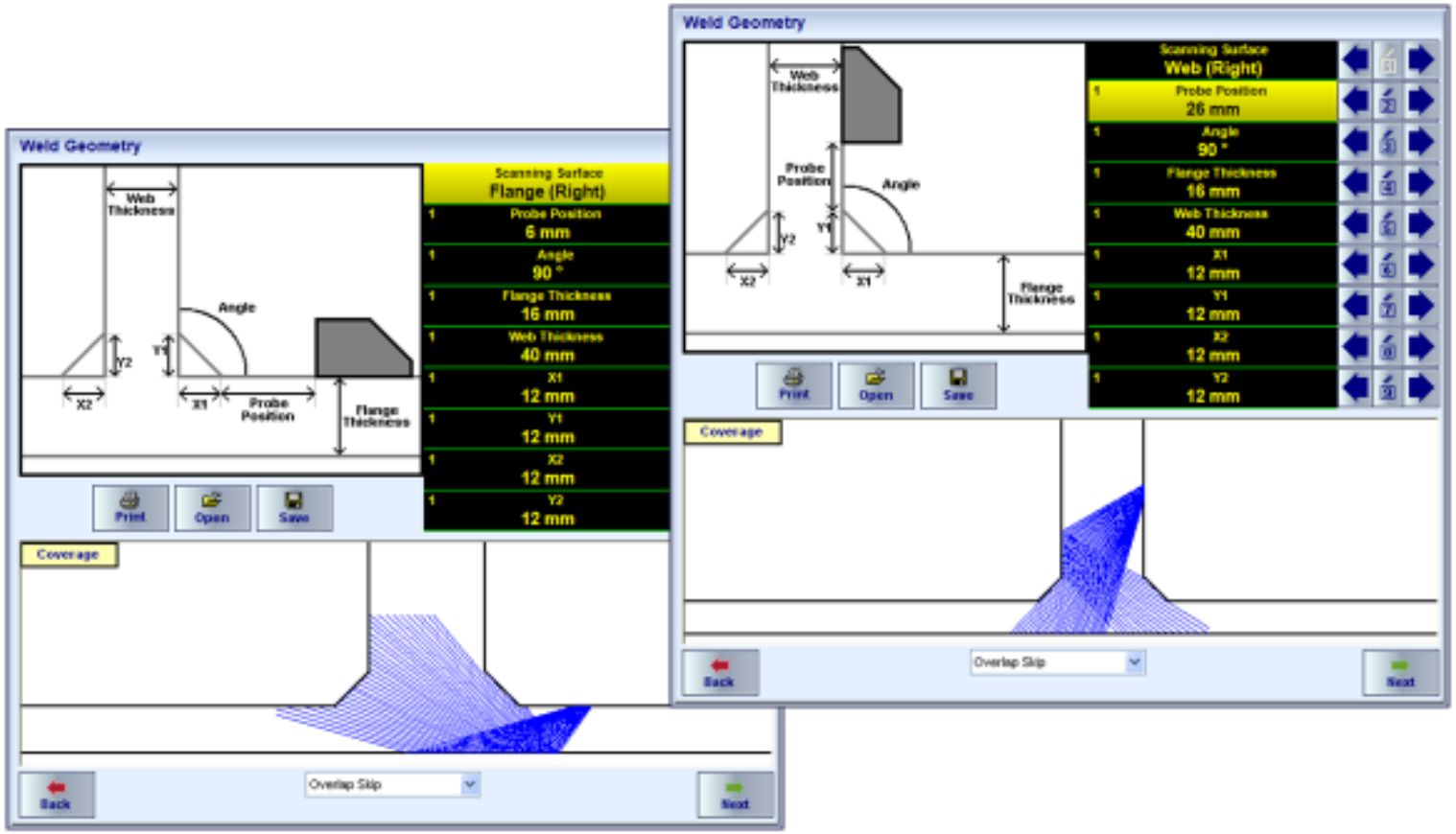
Inspection of complex geometry welds

Pre-Scanning Instrument Screen: Beam Tracing for the Desired Probe Position (Sector Scan)



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Inspection of complex geometry welds

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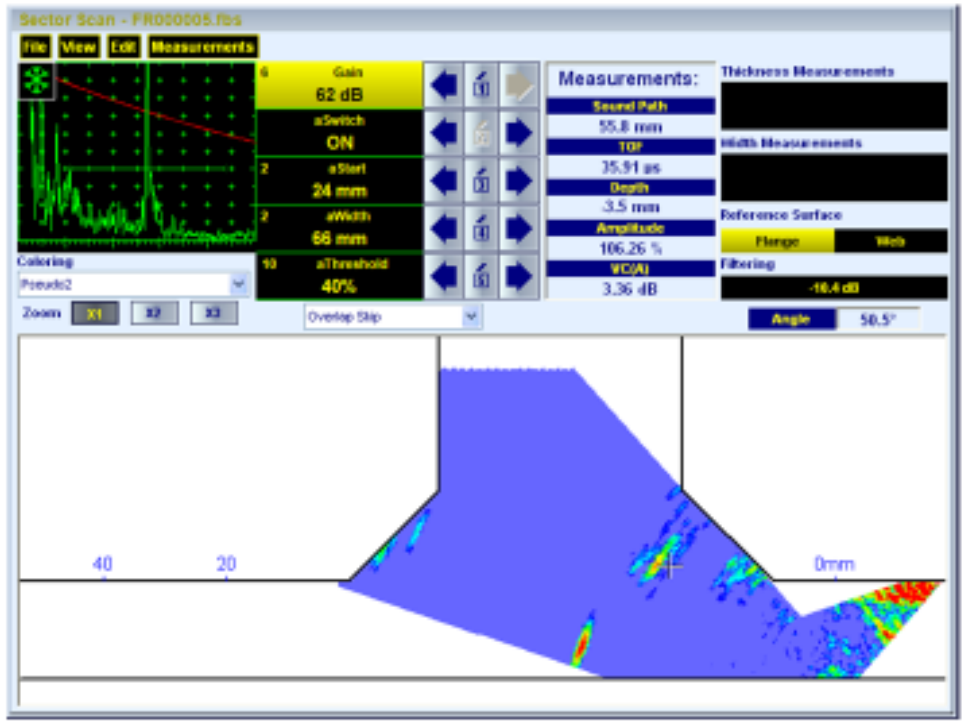
Inspection of complex geometry welds

Typical Cross Sectional Image (Sector Scan) with true to geometry imaging



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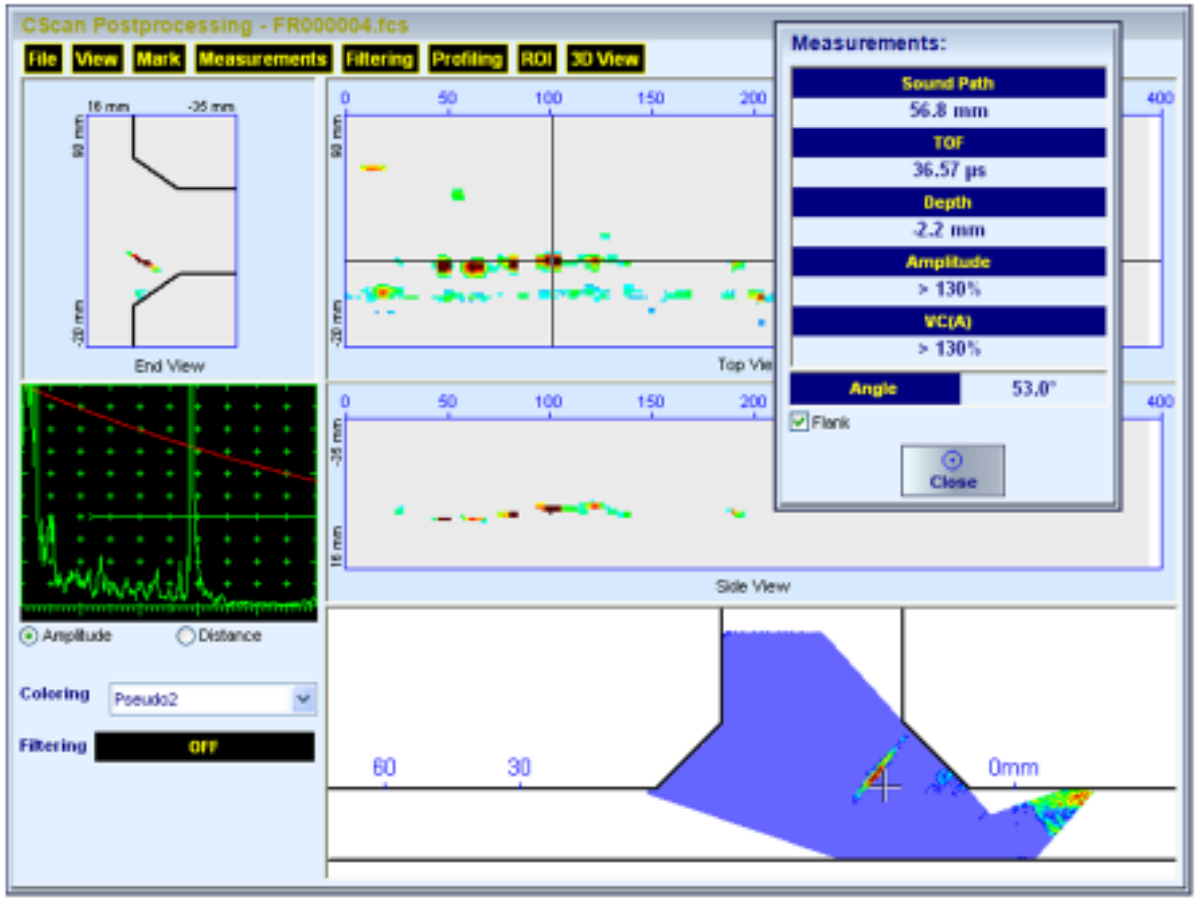
Inspection of complex geometry welds

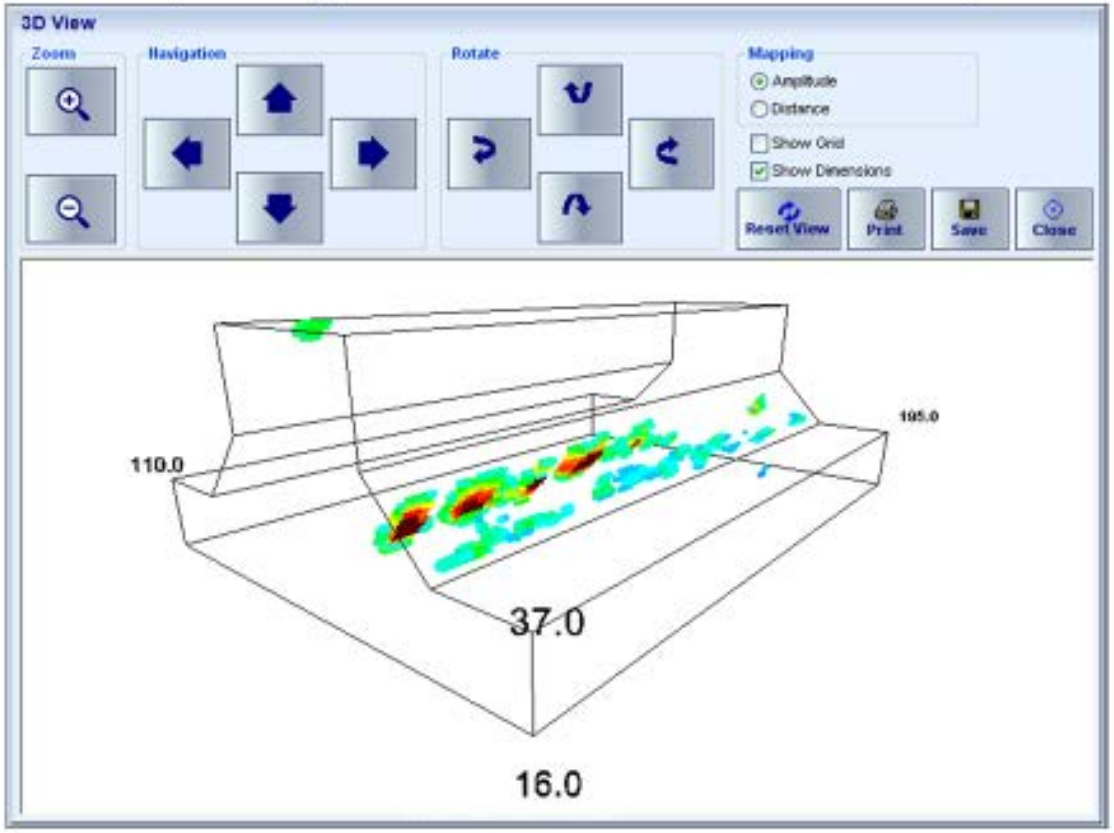
Postprocessing of the Recorded Data in the Instrument / Computer with sector scan normalized to DAC



VERACIOUS

Inspection of complex geometry welds

Postprocessing of the Recorded Data in the Instrument / Computer

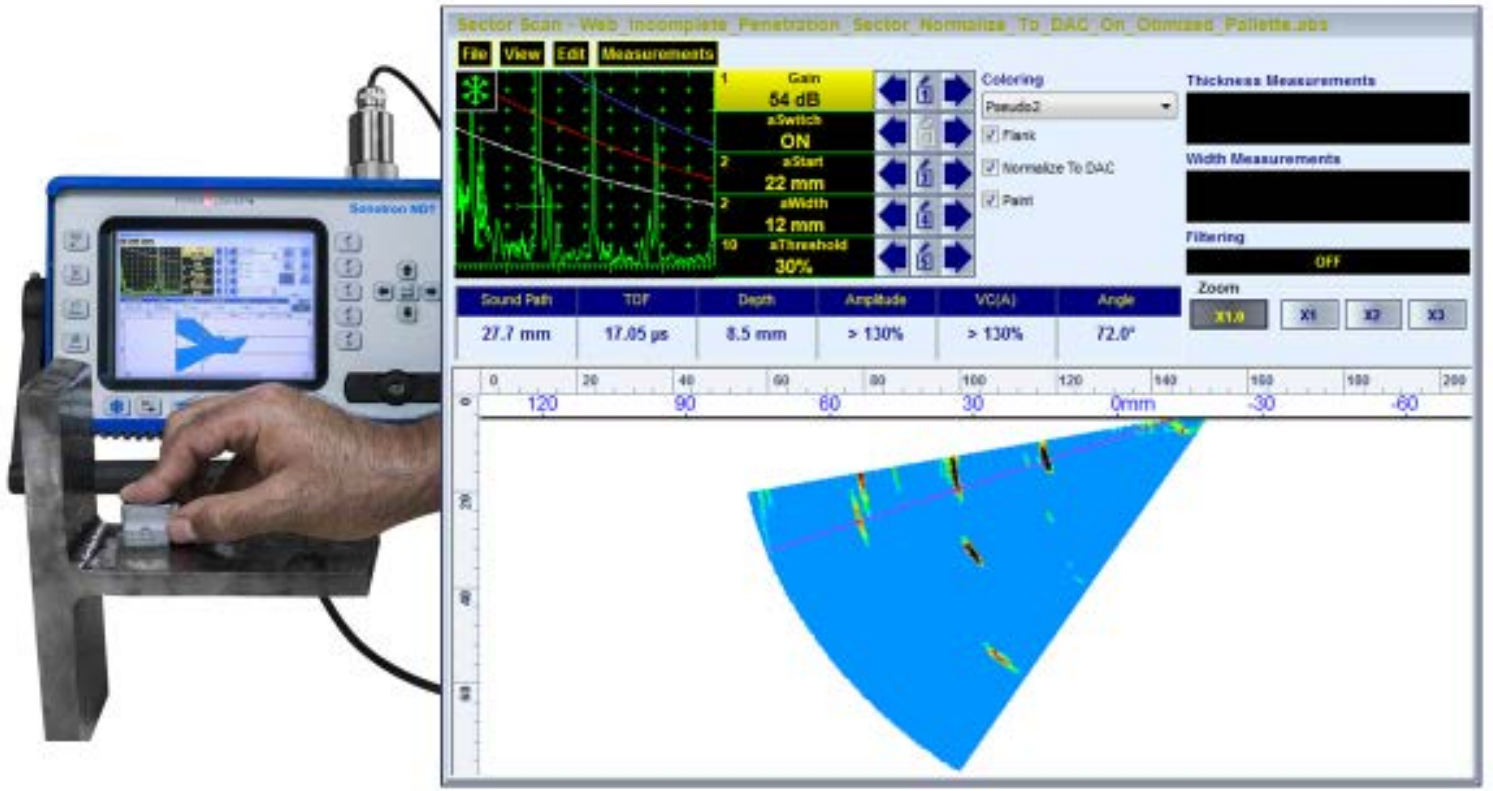


VERACIOUS

Inspection of complex geometry welds

Detection of incomplete penetration in the full penetration fillet weld

Interpretation of regular sectorscan is difficult



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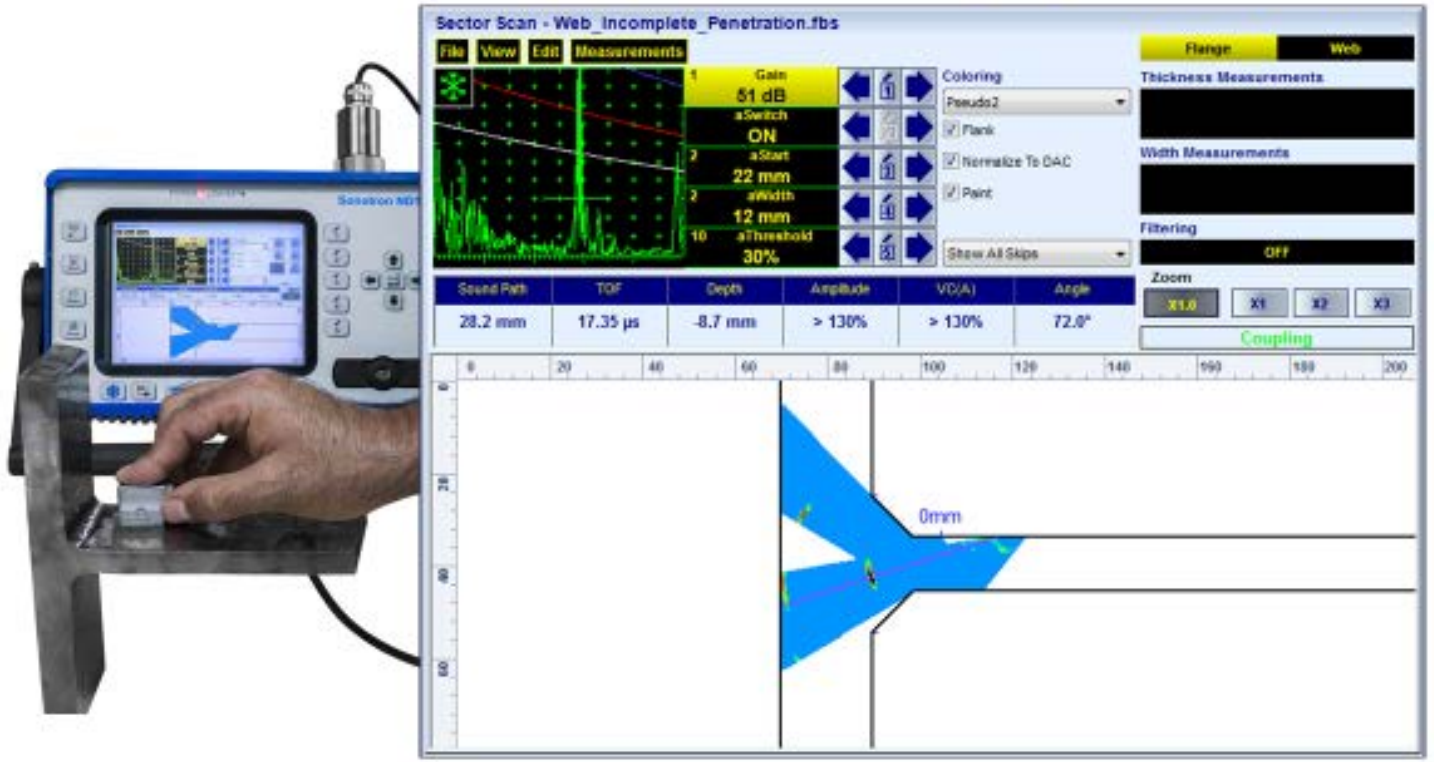
Inspection of complex geometry welds

Detection of incomplete penetration in the full penetration fillet weld

True to Geometry image: Interpretation is self explaining



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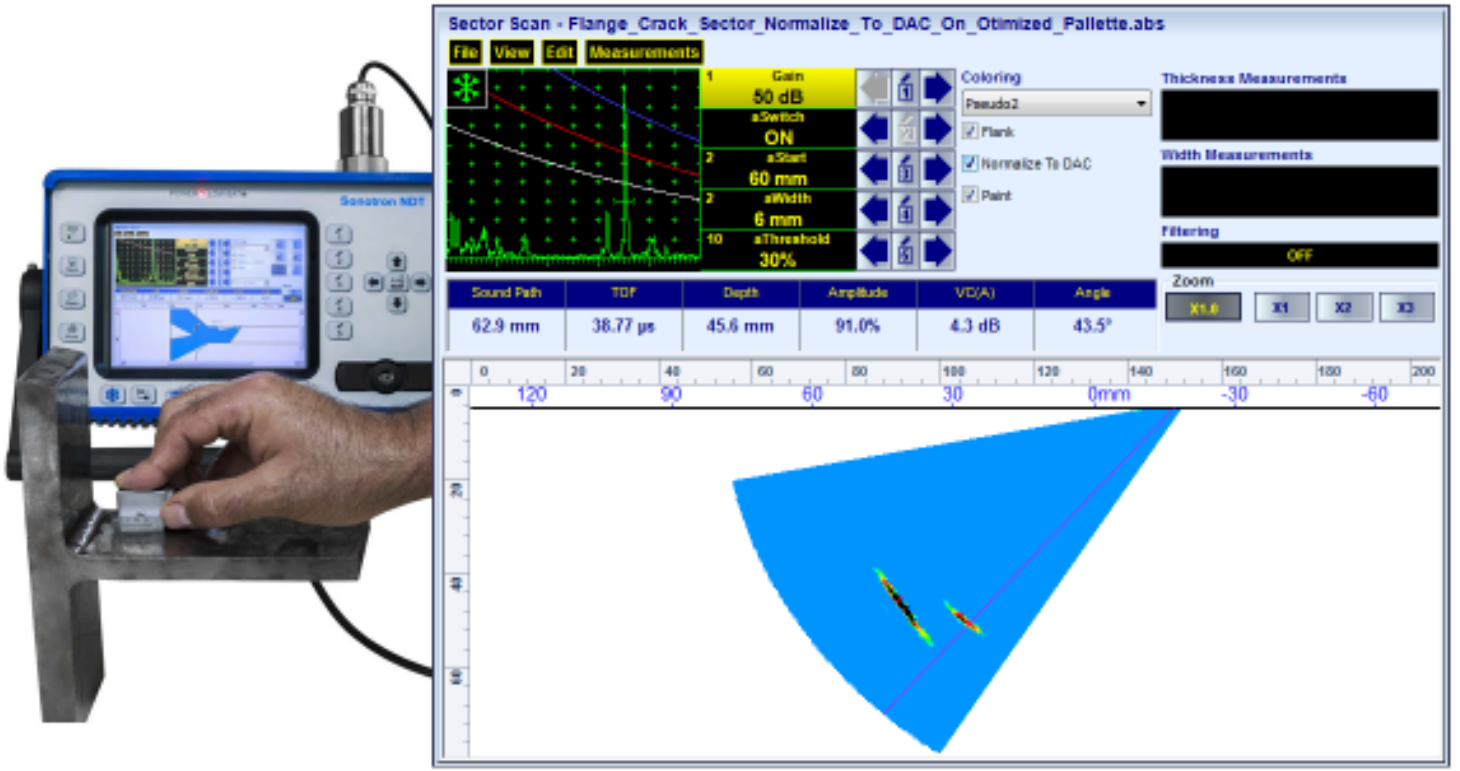
Inspection of complex geometry welds

Detection of crack in the full penetration fillet weld
Interpretation of regular sector is difficult



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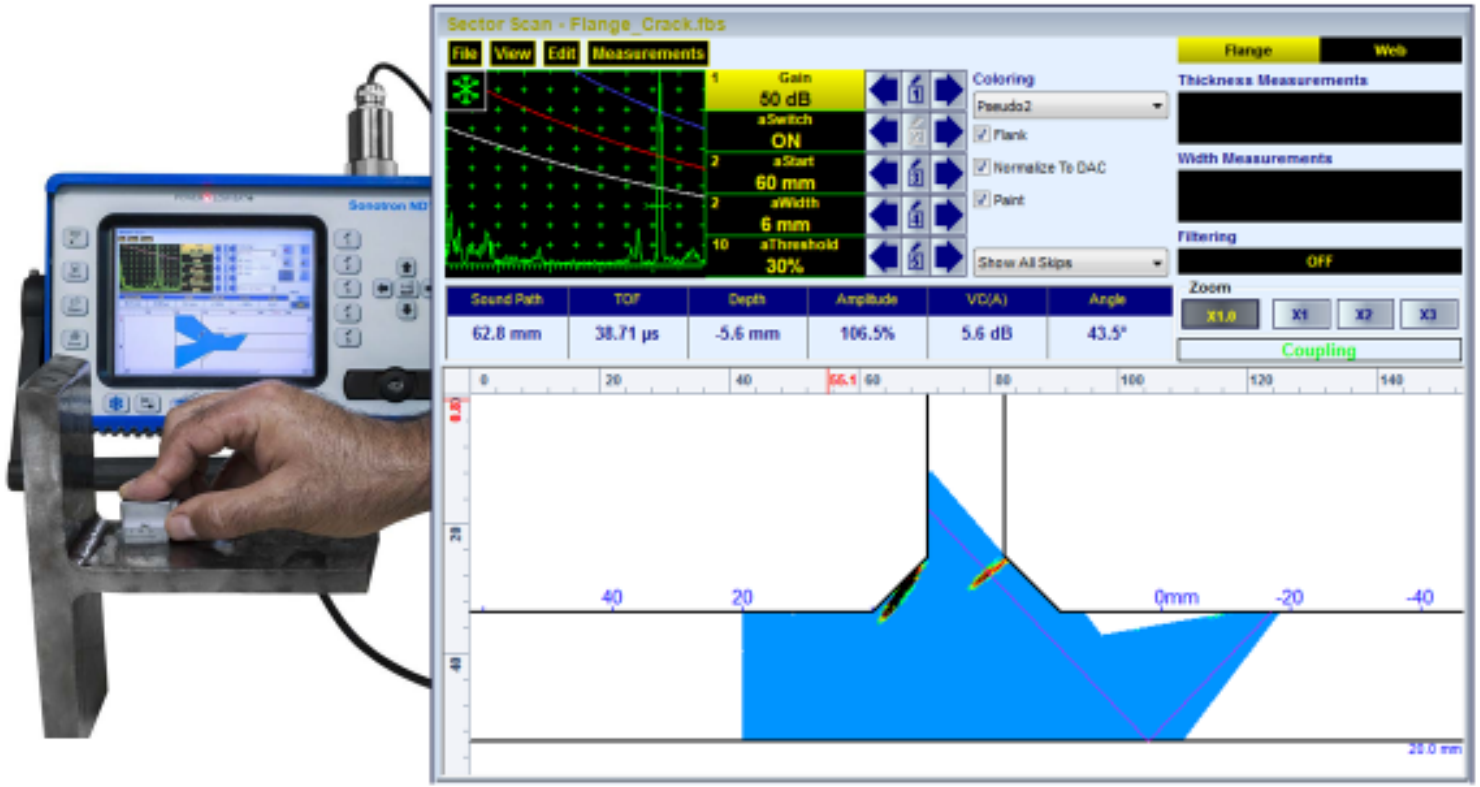
Inspection of complex geometry welds

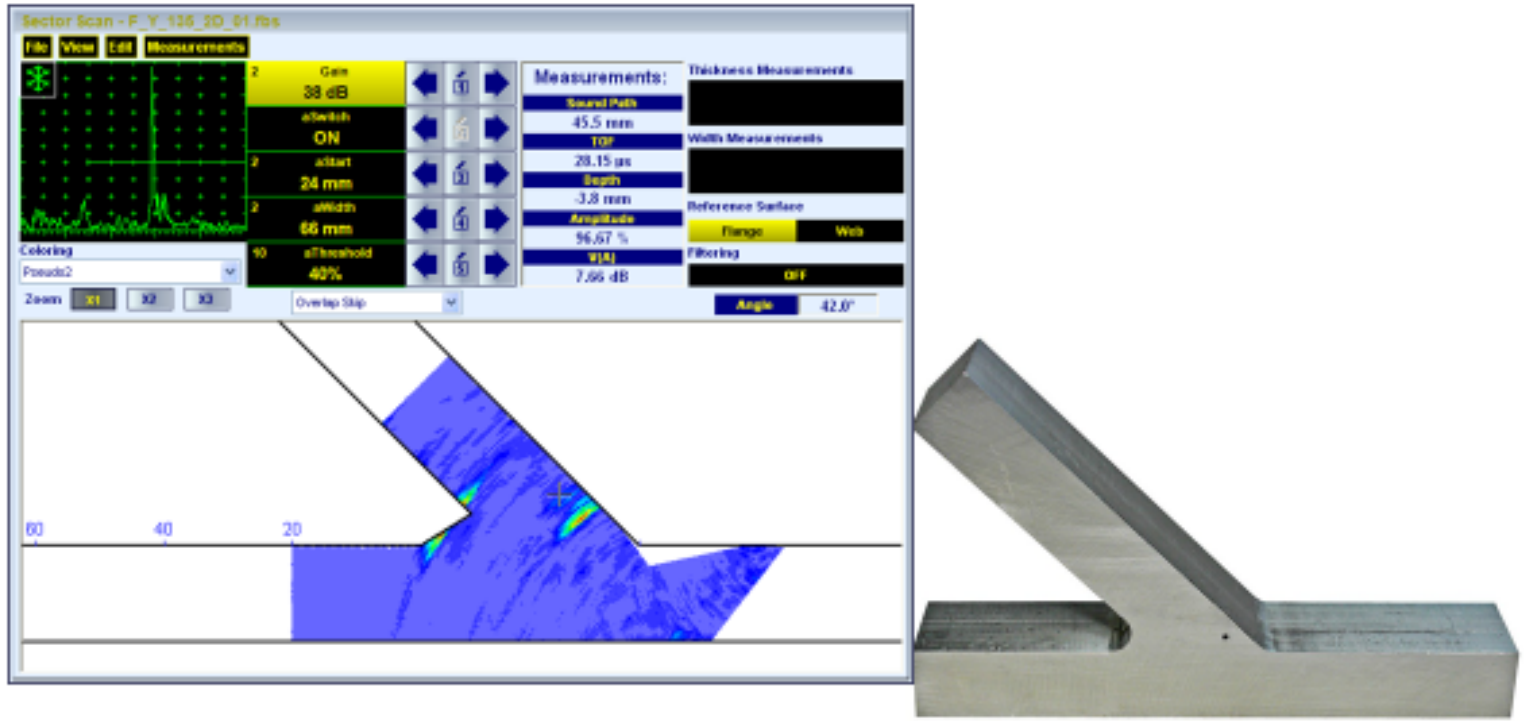
Detection of crack in the full penetration fillet weld

True to Geometry image: Interpretation is self explaining



VERACIOUS

Inspection of complex geometry welds



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Inspection of complex geometry welds

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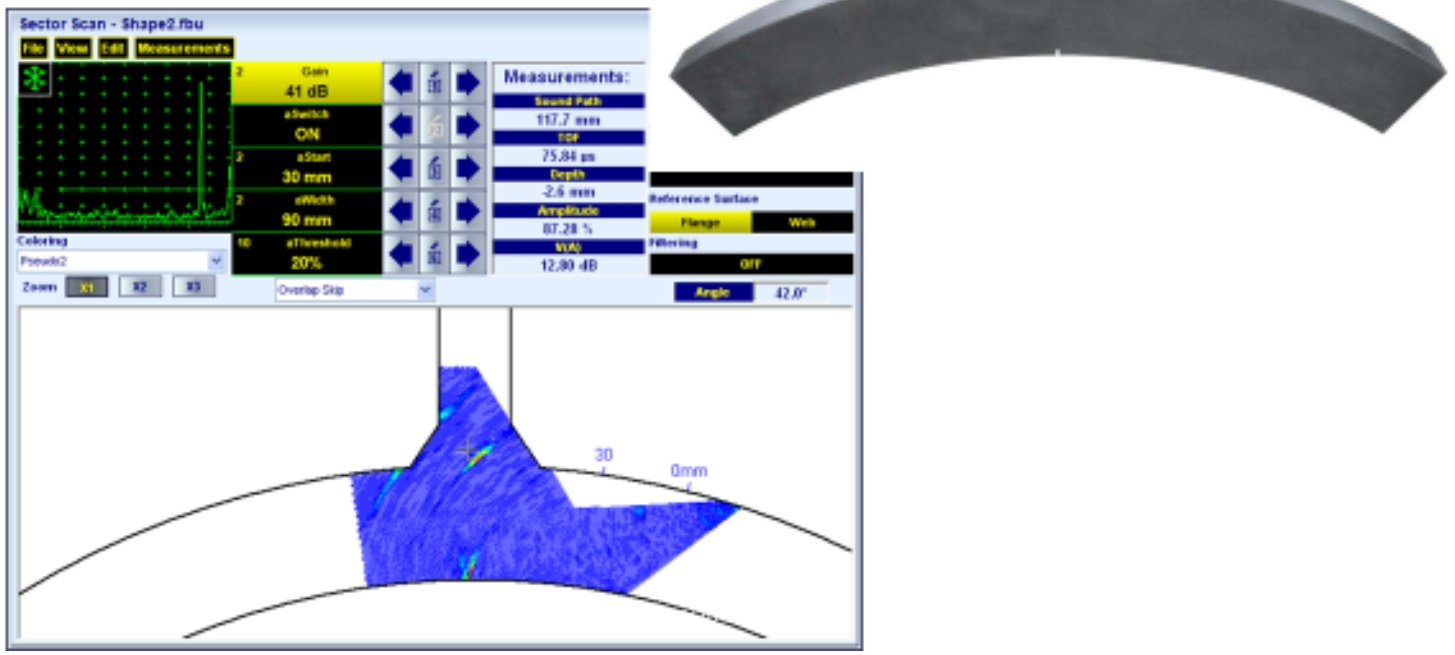
Inspection of complex geometry welds



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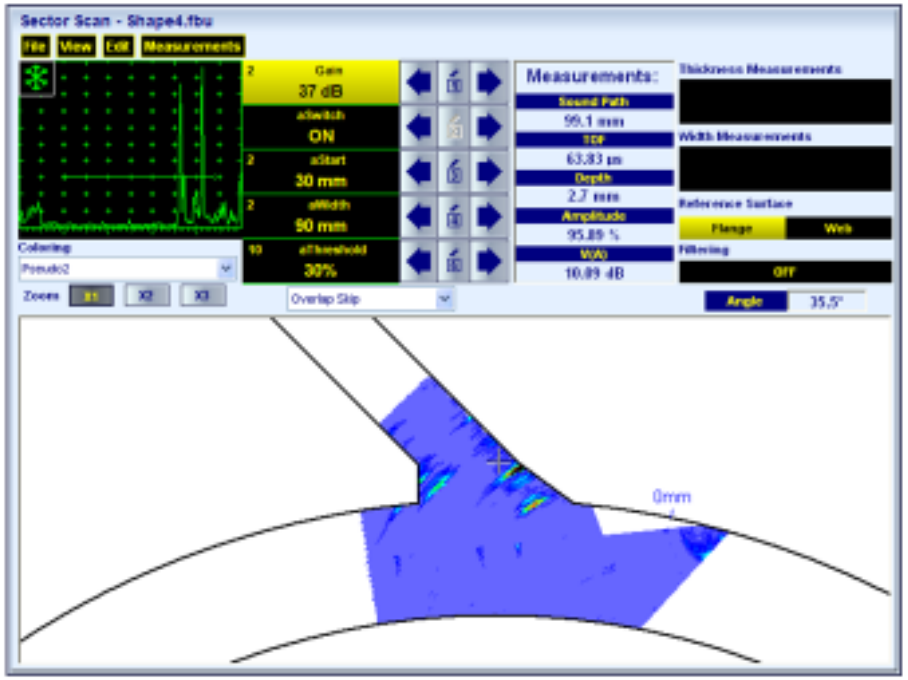
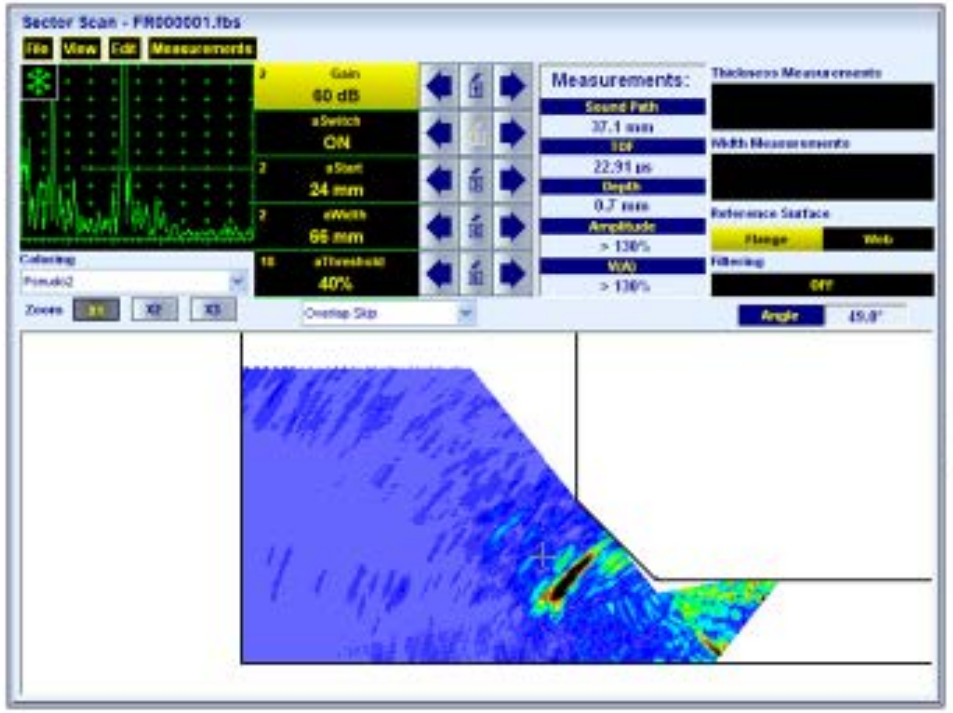
Inspection of complex geometry welds



VERACIOUS

Inspection of complex geometry welds



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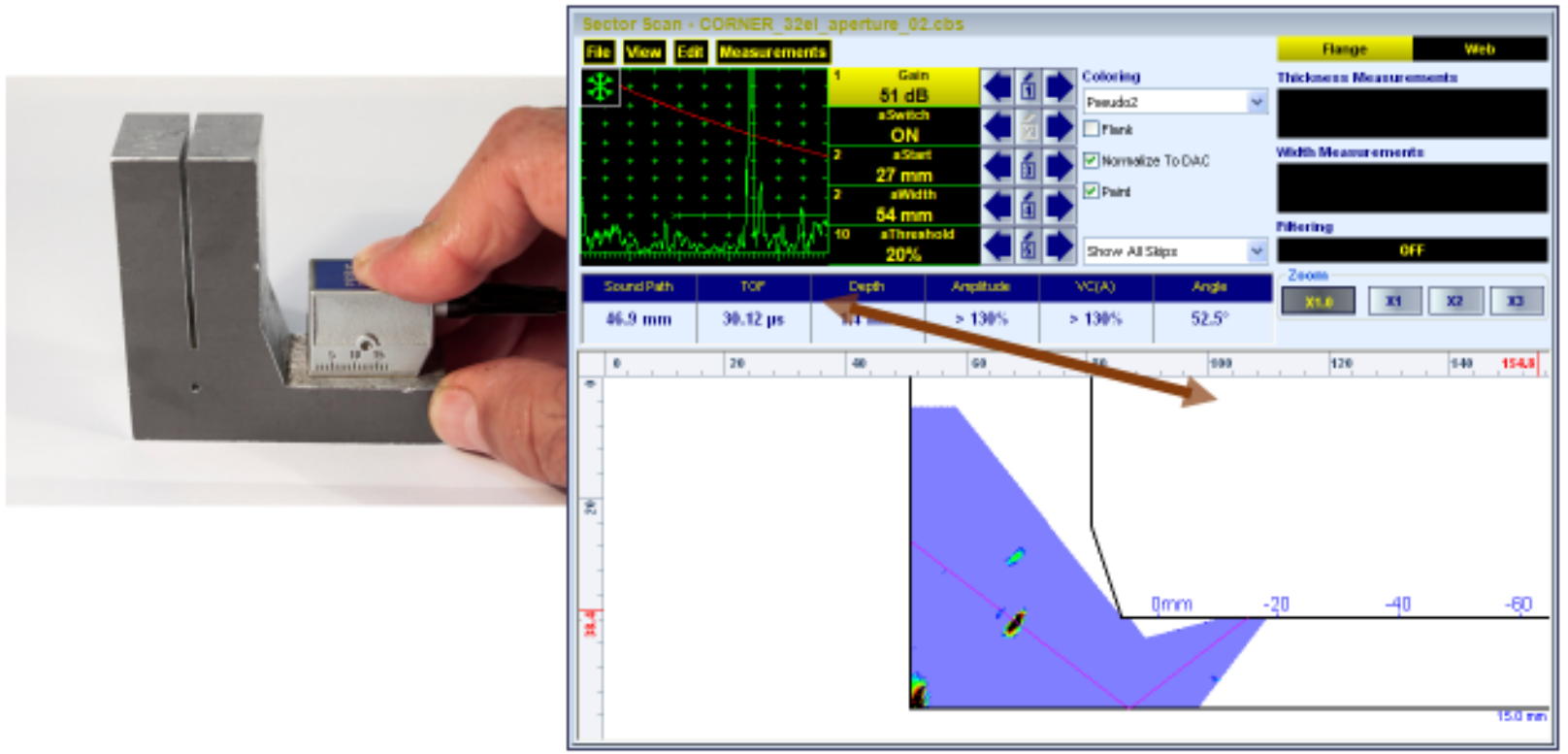
INSPECTION OF COMPLEX GEOMETRY WELDS

Example of Phased Array inspection on nozzle weld with reinforcement plate



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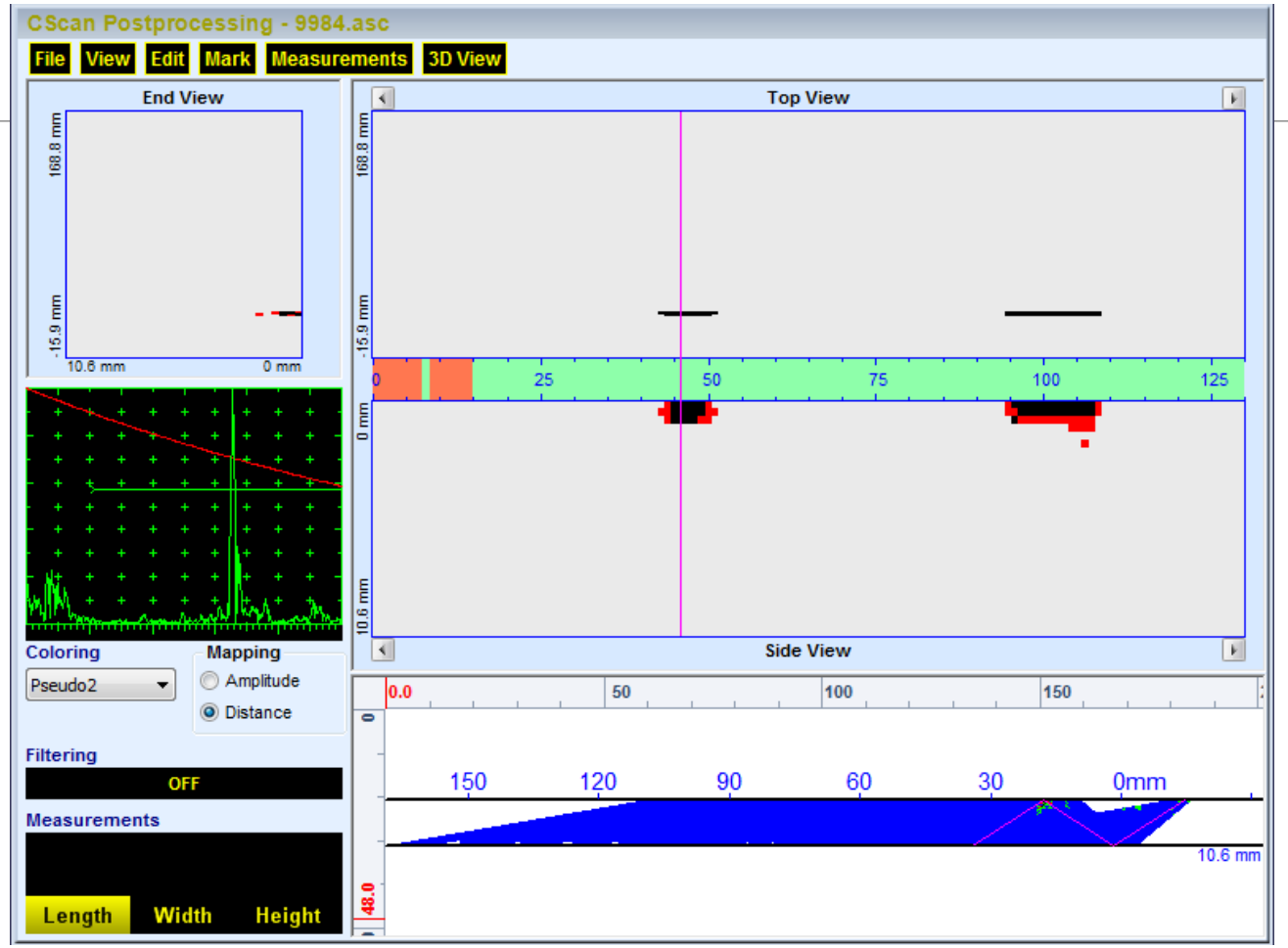
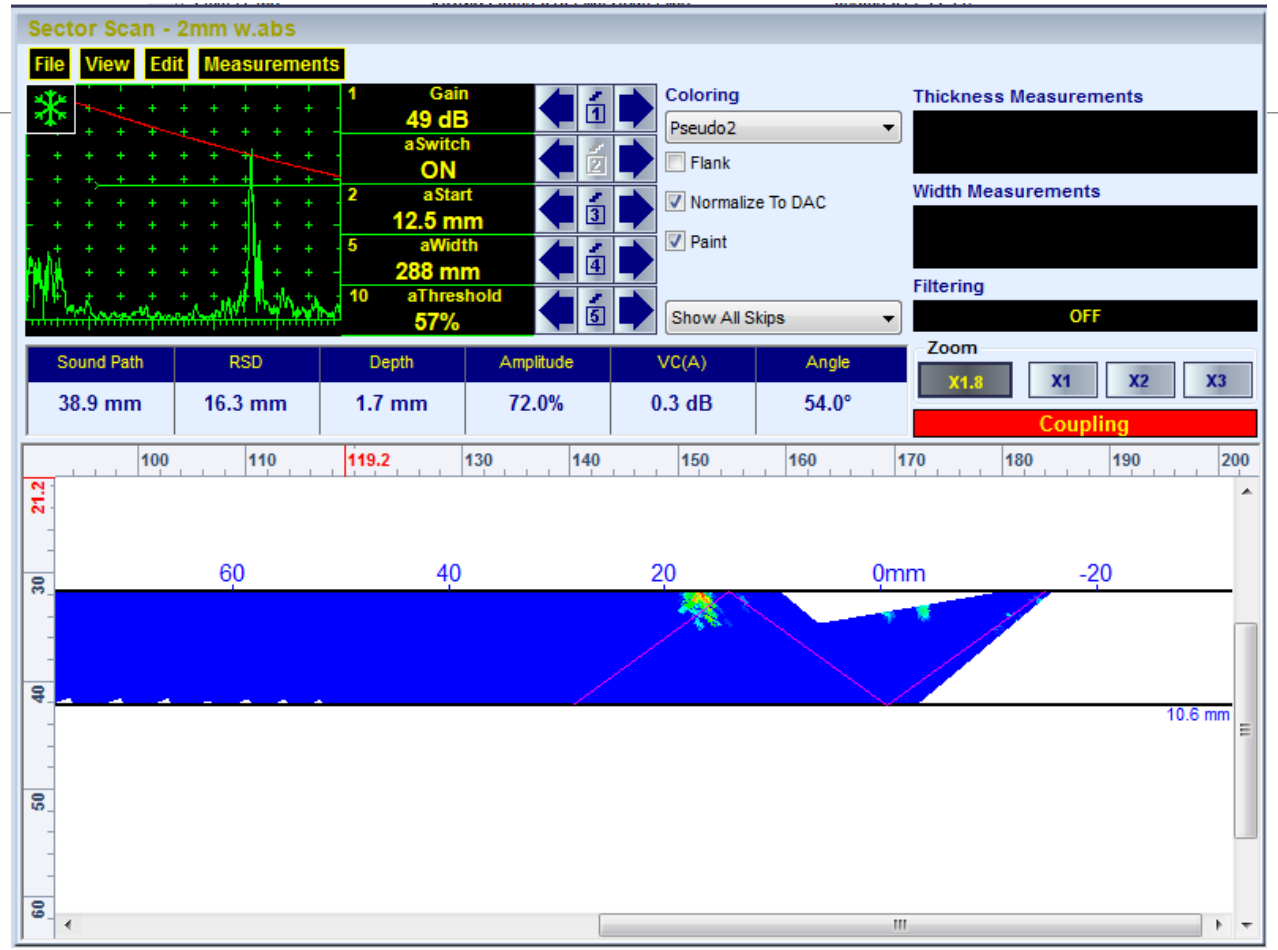
Surface Breaking Defects(Cracks)



Detection scan

Surface Breaking Defects (Cracks)



2 mm defect raw data

Surface Breaking Defects (Cracks)

2 mm defect zoomed, filtered and viewed in full skip

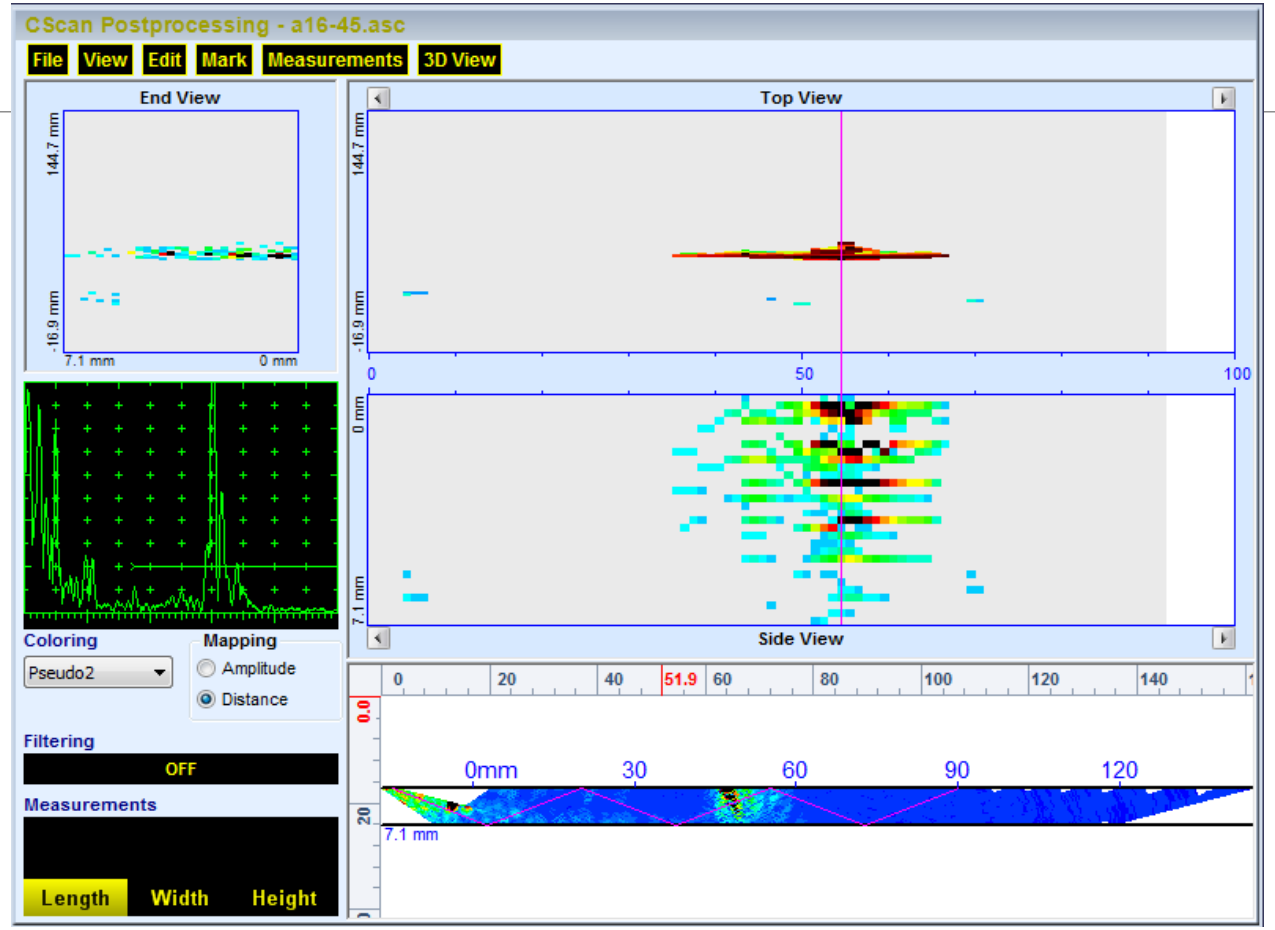
Surface Breaking Defects (Cracks)

6 mm defect raw data

Surface Breaking Defects Cracks)

6 mm defect zoomed, filtered and viewed in full skip

Surface Breaking Defects(CUPS)



Circumferential scan over corrosion area

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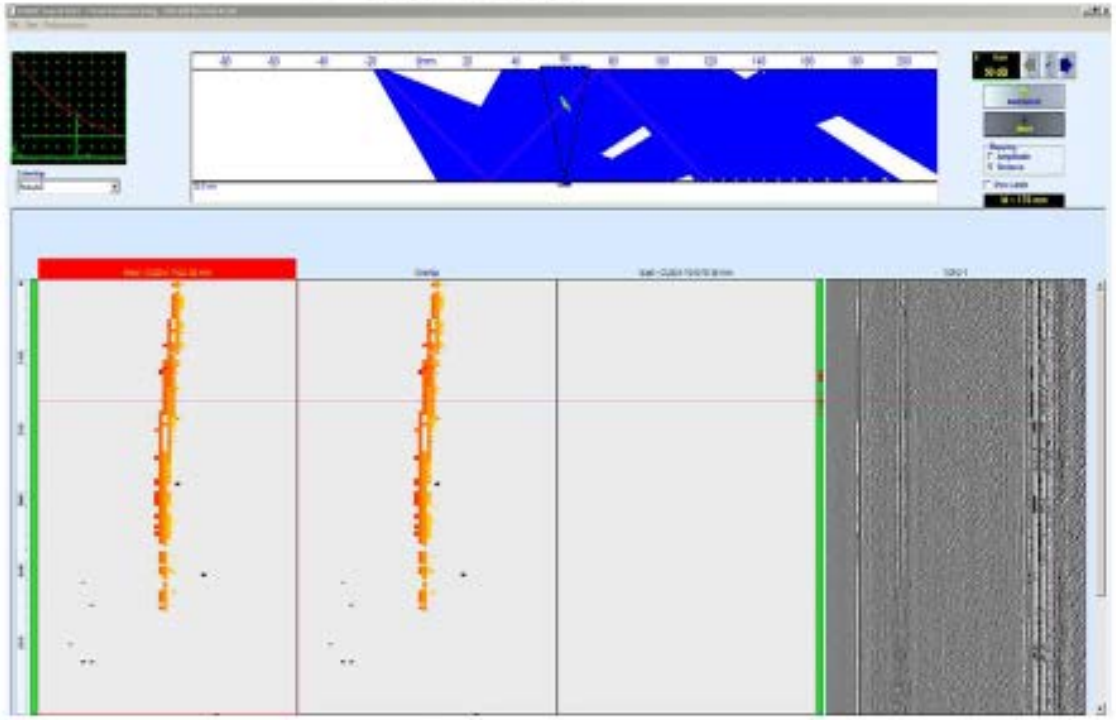
Defects



DUET Detection Scan (PA and TOFD out of 1 pair of PA probes

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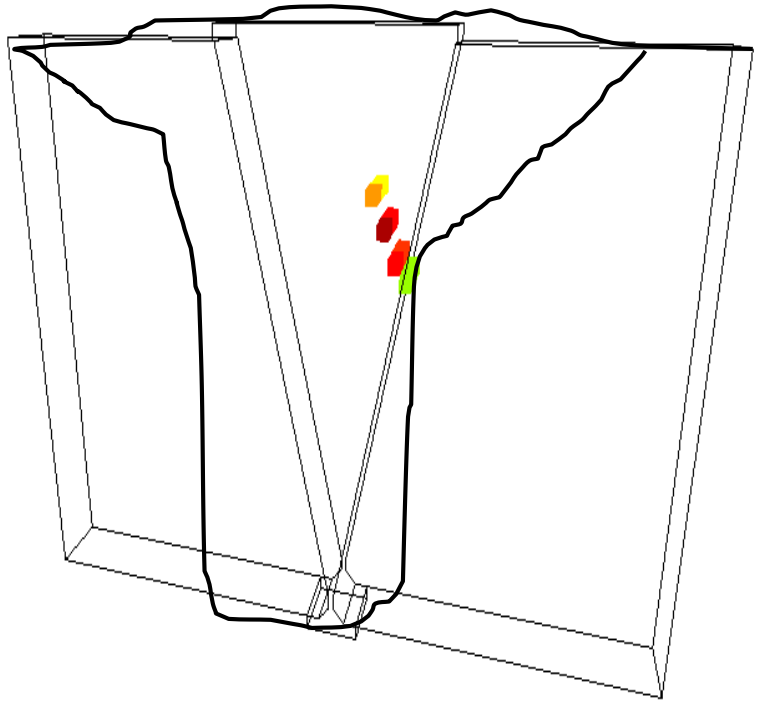
Embedded Defects

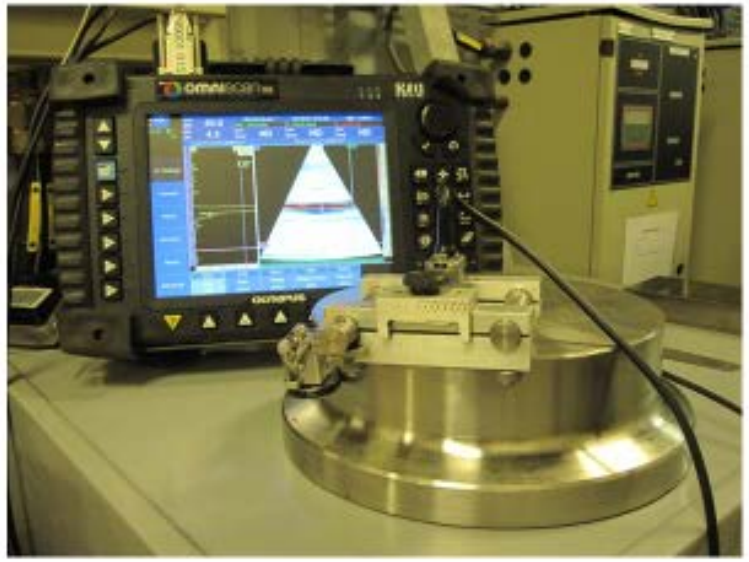
Macro slice of previous defect with a height of 0,64 mm

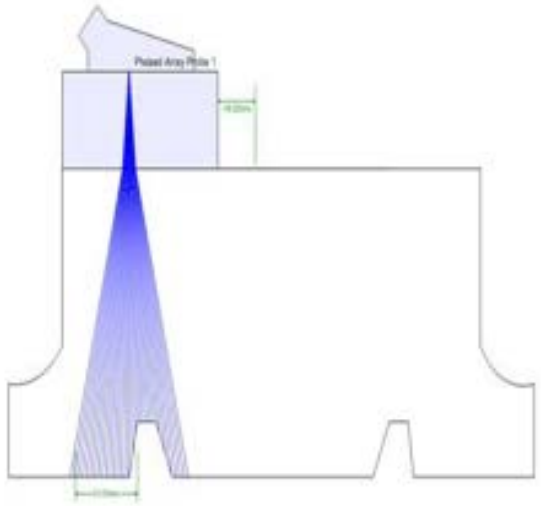
Embedded Defects (Blind Test)



3D image and actual macro slice

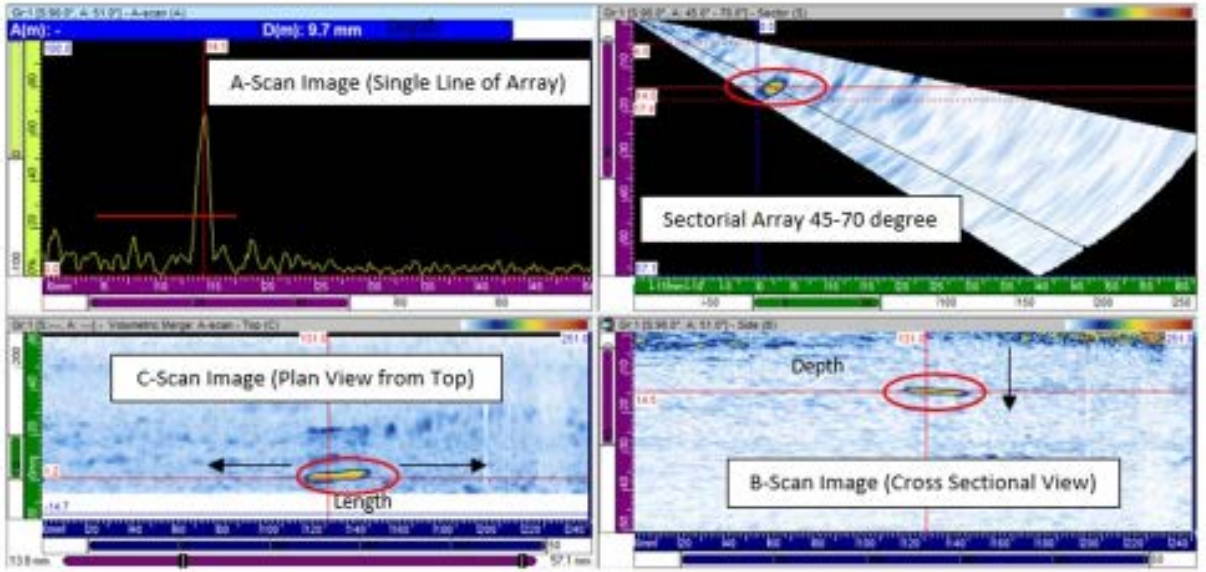
End Cap Sand Erosion – South Erne, Denmark





PAUT on Thinwall 316L/6Mo/Duplex 3mm

ID Notch scanned from the same side of weld as location of notch



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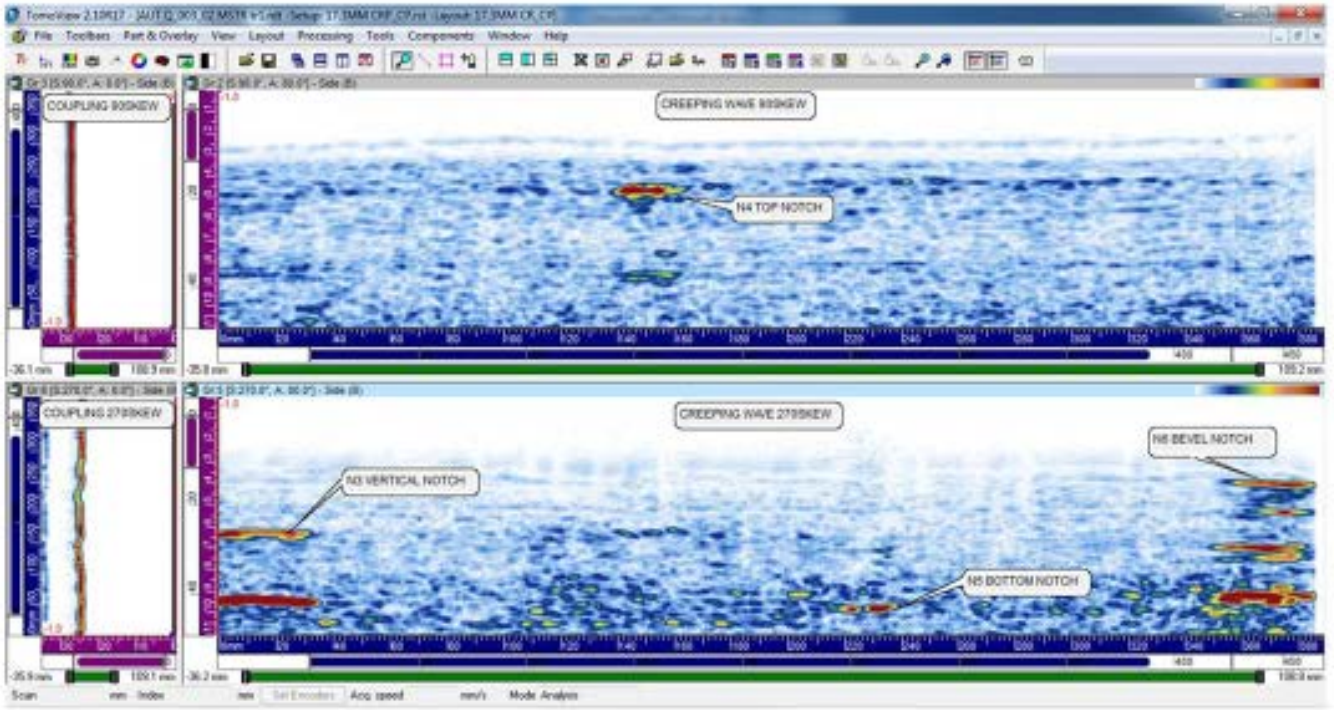
LNG Tanks 9Ni Inspection (Siberia)



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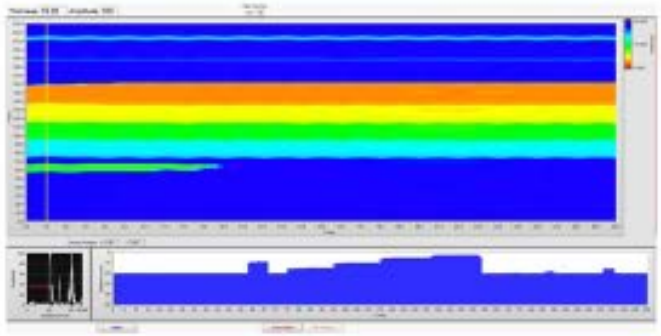
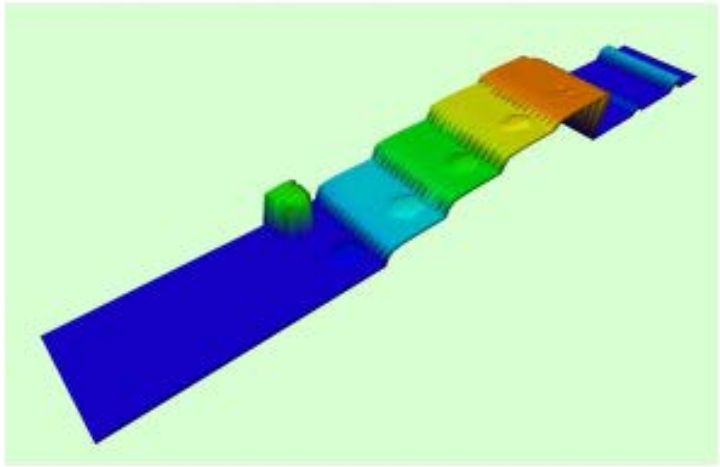
Corrosion Mapping





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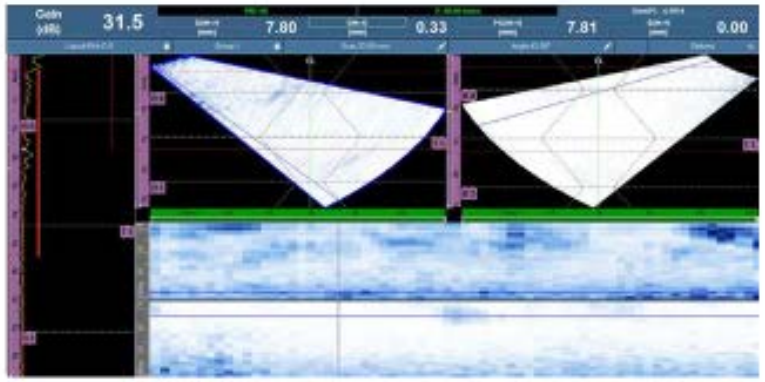
PAUT Boiler Tubes in Lieu of Radiography Edenderry -2015



Accreditation

- ISO Quality 9001: 2015

Achieved Accreditation in 2013

  - Continued Implementation & Improvements
  - SAFED Accreditation 2020-2021

- Currently pursuing ISO17020
- Expect Accreditation for 17020 (2021)

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