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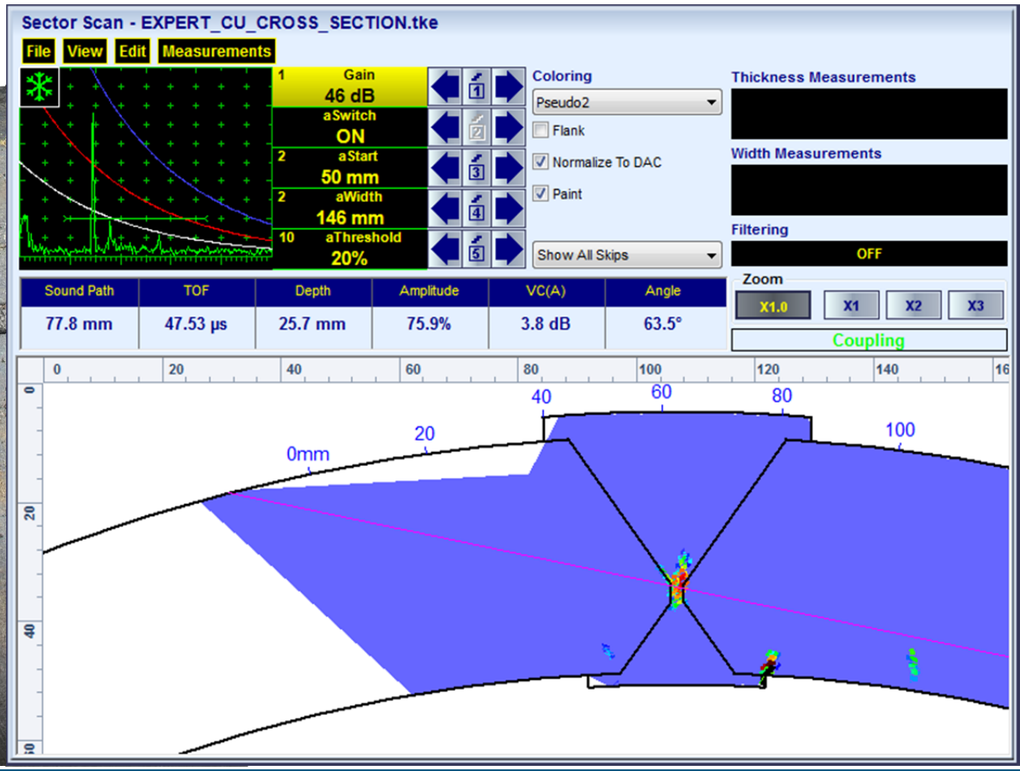
Inspection SW Application for ISONIC 3510 - Phased Array Modality: Expert CU ➪ **Weld Inspection - curved cross section welds - longitudinal welds in pipes, pressure vessels, and the like** ➪ **Inspection of the parent material in the tubes, pressure vessels, solid and hollow shafts, and the like for the longitudinal cracks** ➪ **Inspection of the tube walls for the corrison damages - touch point corrosion, CUPS, etc - SRUT GW and shear wave multiple skip** **scanning above the OD surface - circumferential insonification** ➪ True-To-Geometry Weld Overlay Volume Corrected Imaging - Cross Sectional and Top (C-Scan)- / Side- / End- View and 3D ➪ Sector-Scan Cross Sectional Coverage ➪ Intuitive Image Guided PA Pulser Receiver with Beam Forming View ➪ DAC / TCG Normalization ➪ Built-In Weld Bevel Editor and Ray Tracer - Scanning Pattern Design ➪ Independent on TCG Angle Gain Compensation / Gain Per Focal Law Correction ➪ Automatic Coupling Monitor ➪ Encoded and Time based C-Scan ➪ 100% Raw Data Capturing ➪ FMC/TFM Protocol for the data acquisition and imaging ➪ Automatic Defects Alarming Upon C-Scan Acquisition Completed ➪ Automatic Creation of Editable Defects List ➪ Puzzling Suitable C-Scan Inspection Record - Ability of Scanning Weld In Several Shots from Both Side with Storing a Number of Files Mergeable Into a Single File Inspection Report ➪ Comprehensive Postrpocessing Including: → Recovery and Evaluation of Captured A-Scans from the Recorded Cross Sectional Views (Sector Scan) and C-Scans → Recovery of Cross Sectional Views from the Recorded C-Scans → Converting Recorded C-Scans or their Segments into 3D Images → Off-Line Gain Manipulation → Off-Line DAC Normalization of the Recorded Images / DAC Evaluation → Numerous Filtering / Reject Options (by Geometry / Position / By Amplitude db-toDAC / etc) → Defects Sizing → Creation of Defect List and Storing it Into a Separate File → Automatic creating of inspection reports - hard copy / PDF File	SWA 3510005

Inspection of longitudinal weld



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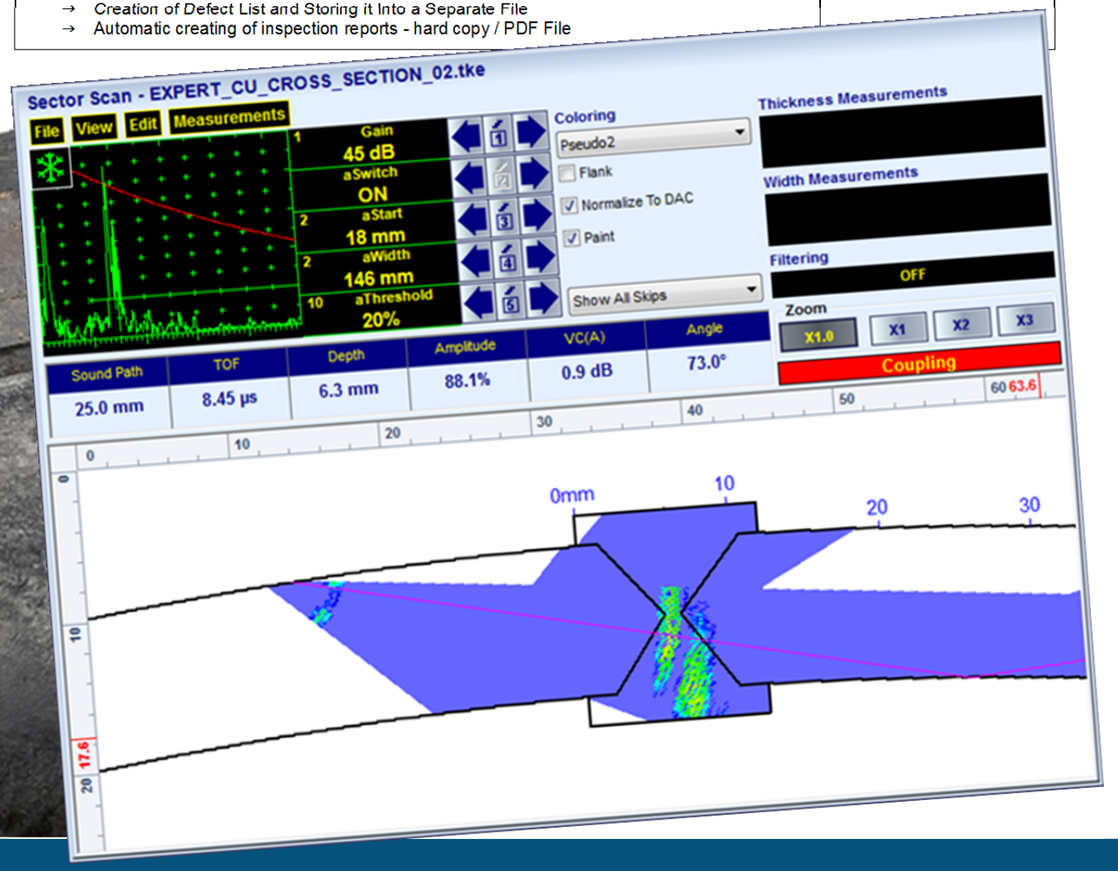
Inspection of longitudinal weld



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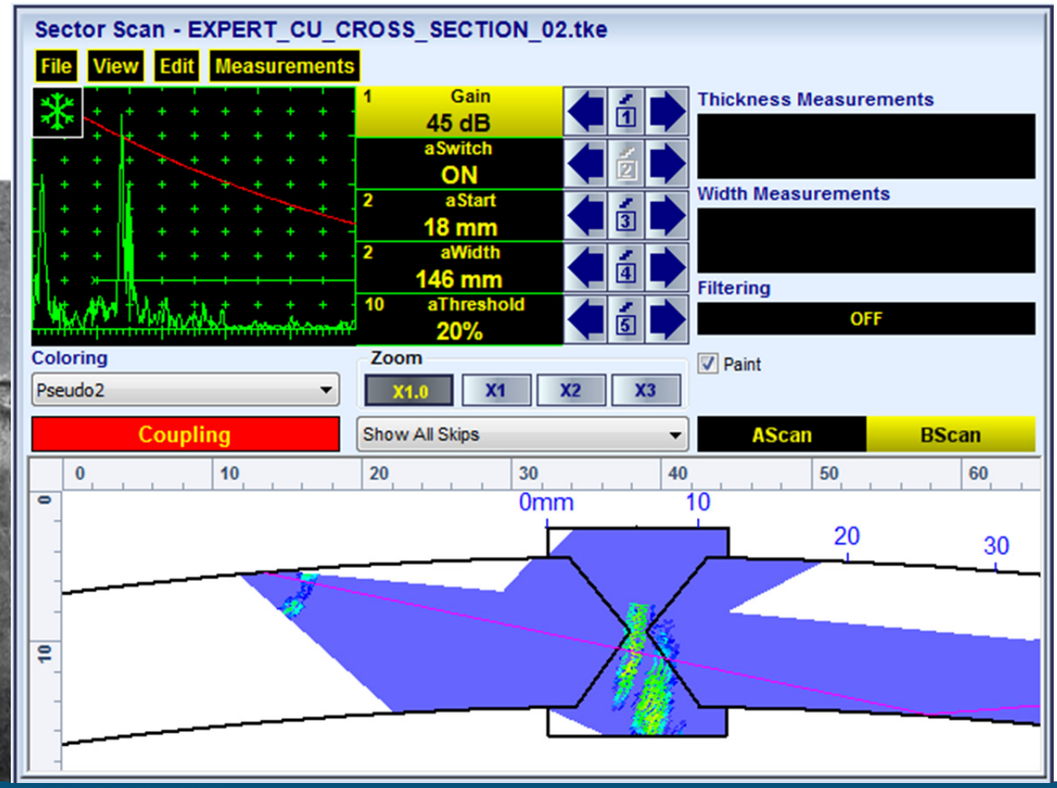
Inspection of longitudinal weld



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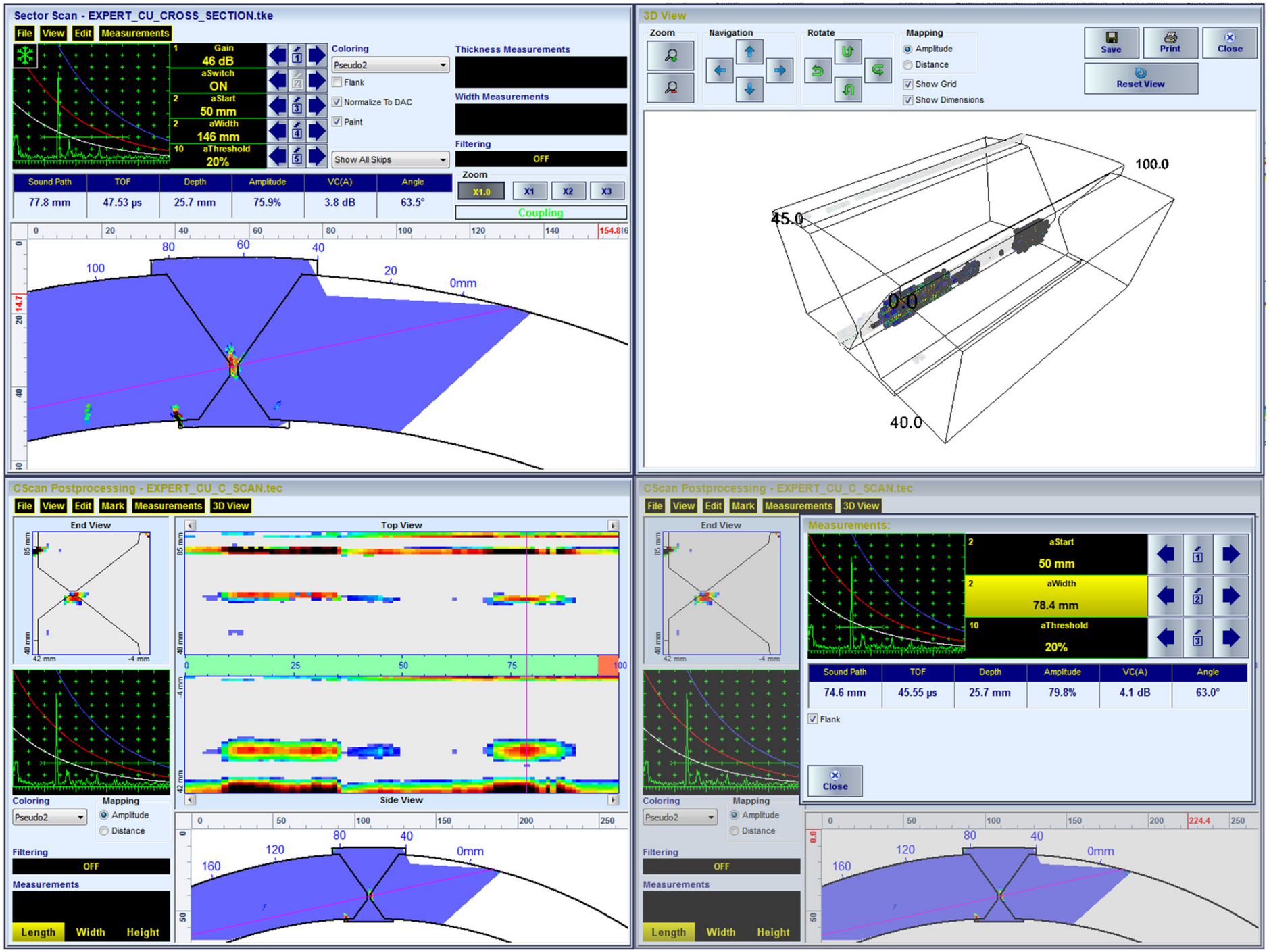
Typical Postprocessing Screenshots



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Inspection of rings and tube / vessel walls for the longitudinal cracks – calibration / performance demonstration block

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Detection and Evaluation of the Longitudinal Cracks in the Thin Wall Tubes and Tubular Parts

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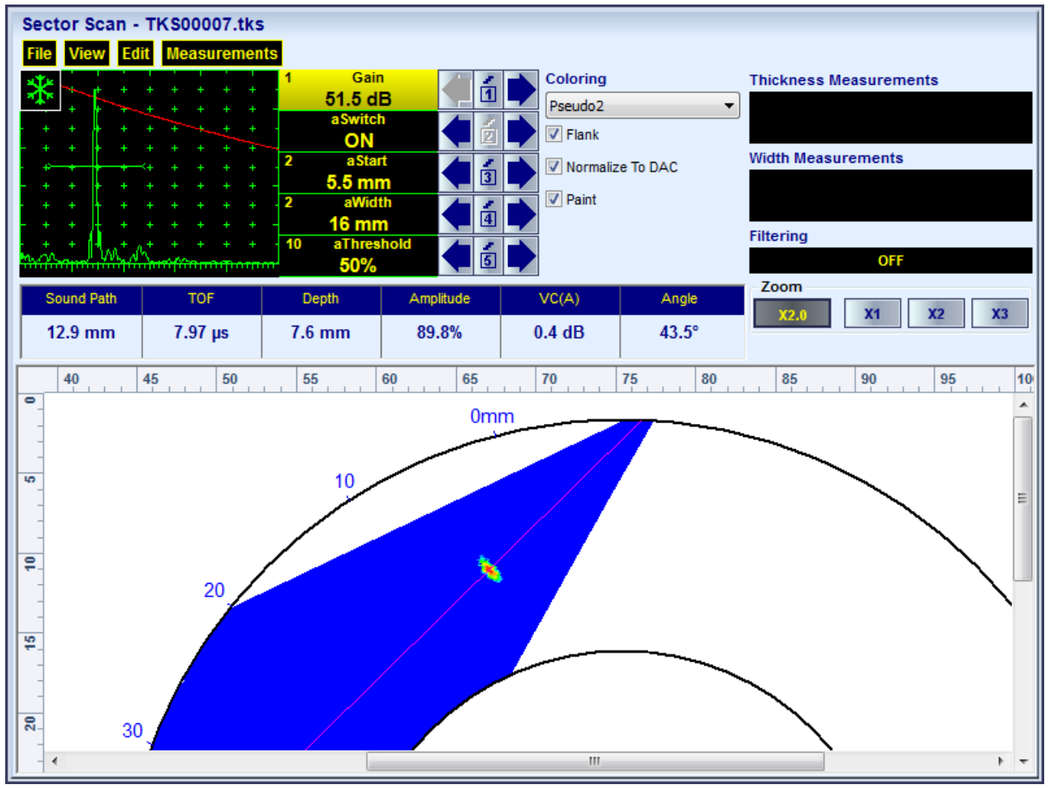
Shear wave inspection of the tubular parts for the in-wall inclusions, cracks, etc – calibration / performance demonstration block



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Inspection of the crankshaft for the longitudinal cracks

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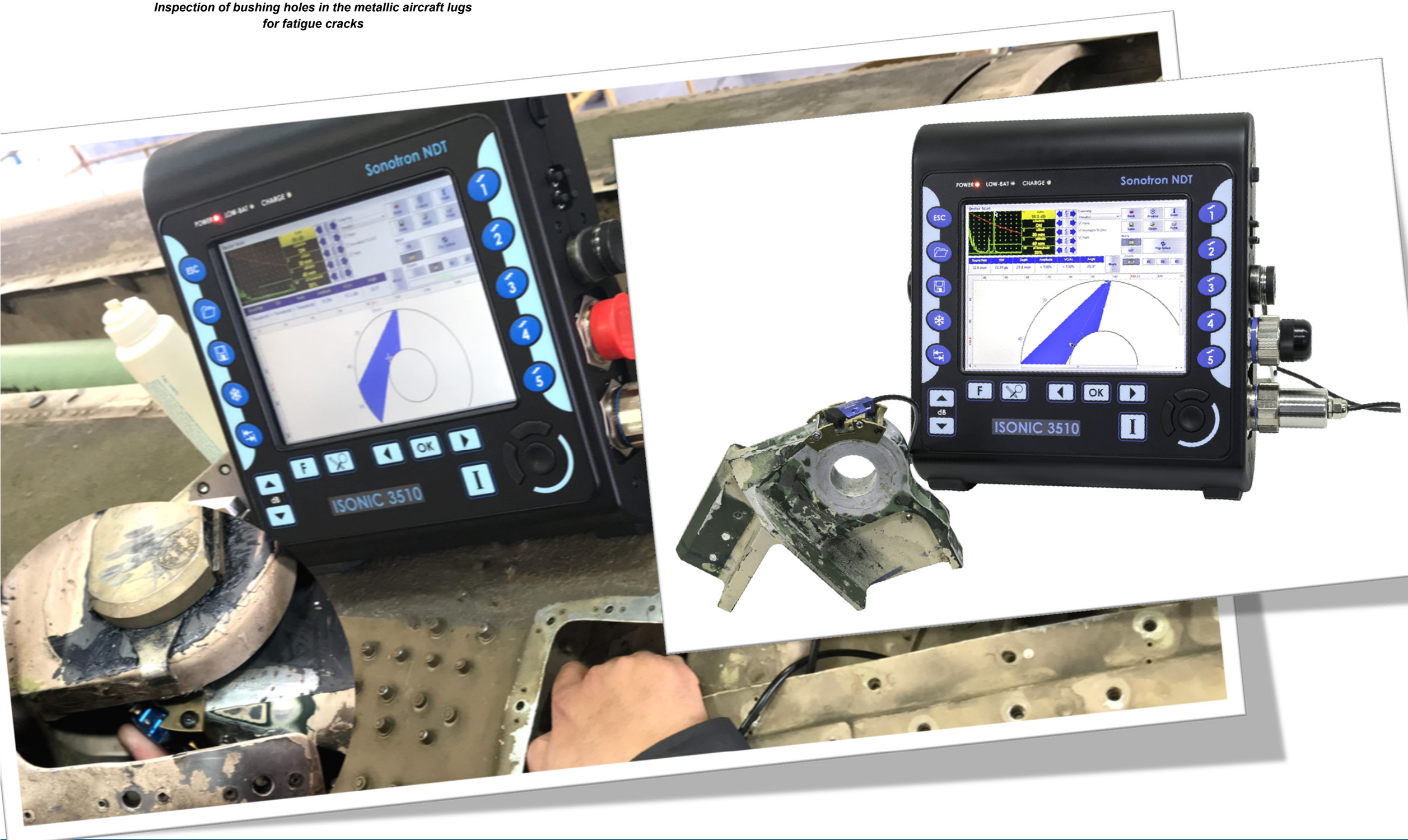
Inspection of bushing holes in the metallic aircraft lugs for fatigue cracks



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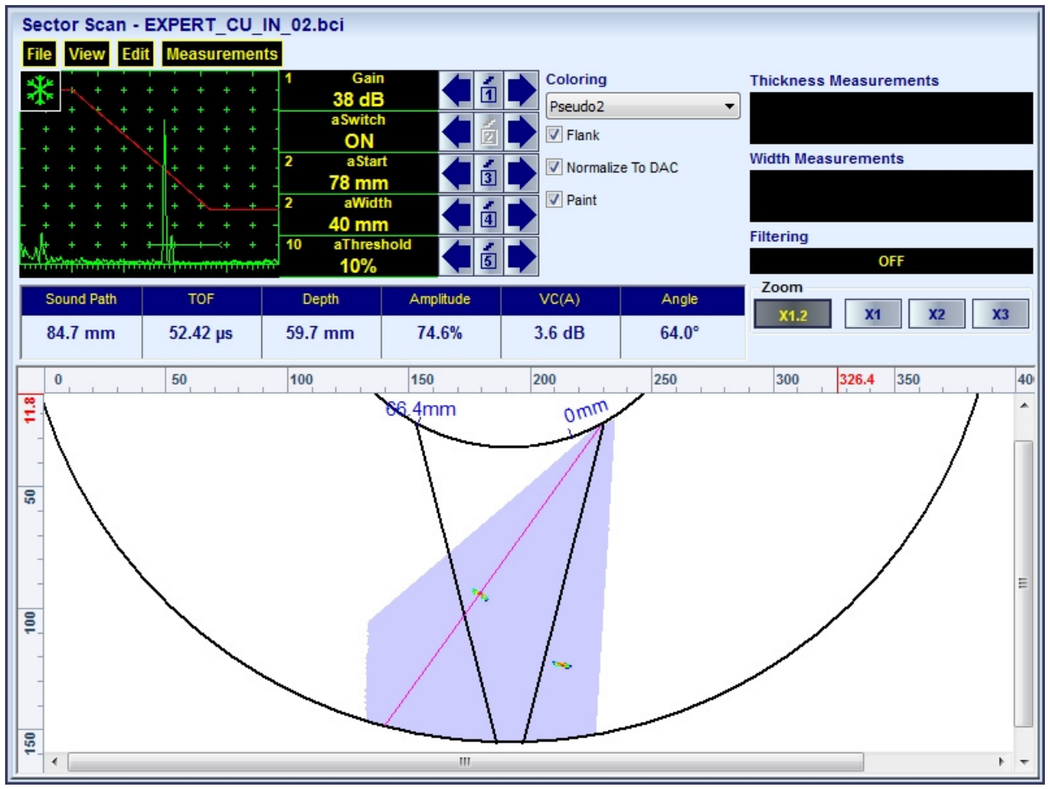

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Inspection SW Application for ISONIC 2010 - Phased Array Modality: **Expert CU IN** ⇨ **Weld Inspection - curved cross section welds - longitudinal welds in pipes, pressure vessels, and the like** ⇨ **Inspection of the parent material in the tubes, pressure vessels, hollow shafts, and the like for the longitudinal cracks scanning above the ID surface**	SWA 910827
Inspection SW Application for ISONIC 2009 UPA-Scope - Phased Array Modality: **Expert CU IN** ⇨ **Weld Inspection - curved cross section welds - longitudinal welds in pipes, pressure vessels, and the like** ⇨ **Inspection of the parent material in the tubes, pressure vessels, hollow shafts, and the like for the longitudinal cracks scanning above the ID surface** ⇨ True-To-Geometry Weld Overlay Volume Corrected Imaging - Cross Sectional and Top (C-Scan)- / Side- / End- View and 3D ⇨ Sector-Scan Cross Sectional Coverage ⇨ Intuitive Image Guided PA Pulser Receiver with Beam Forming View ⇨ DAC / TCG Normalization ⇨ Built-In Weld Bevel Editor and Ray Tracer - Scanning Pattern Design ⇨ Independent on TCG Angle Gain Compensation / Gain Per Focal Law Correction ⇨ Automatic Coupling Monitor ⇨ Encoded and Time based C-Scan ⇨ 100% Raw Data Capturing ⇨ FMC/TFM Protocol for the data acquisition and imaging ⇨ Automatic Defects Alarming Upon C-Scan Acquisition Completed ⇨ Automatic Creation of Editable Defects List ⇨ Puzzling Suitable C-Scan Inspection Record - Ability of Scanning Weld In Several Shots from Both Side with Storing a Number of Files Mergeable Into a Single File Inspection Report ⇨ Comprehensive Postrpocessing Including: → Recovery and Evaluation of Captured A-Scans from the Recorded Cross Sectional Views (Sector Scan) and C-Scans → Recovery of Cross Sectional Views from the Recorded C-Scans → Converting Recorded C-Scans or their Segments into 3D Images → Off-Line Gain Manipulation → Off-Line DAC Normalization of the Recorded Images / DAC Evaluation → Numerous Filtering / Reject Options (by Geometry / Position / By Amplitude / dB-to-DAC / etc) → Defects Sizing → Creation of Defect List and Storing it Into a Separate File → Automatic creating of inspection reports - hard copy / PDF File	SWA 909827

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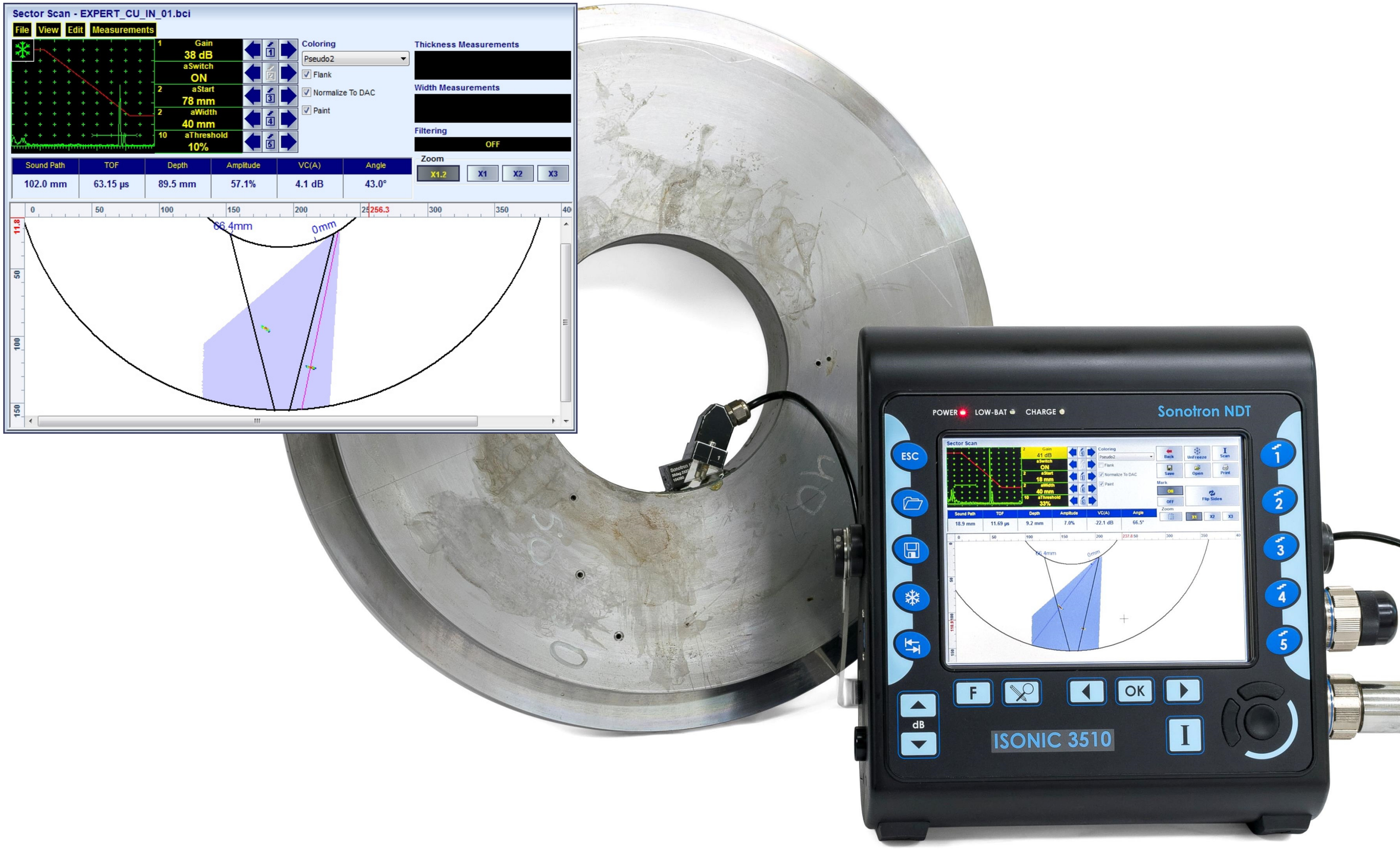

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Inspection of longitudinal seam – scanning over ID surface of the tube

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Inspection of heat exchanger tubes from inside – detection of longitudinal cracks using internal crawler carrying wedged linear array probe with CU_IN contoured contact face – detection of the reference reflector on the OD side of the calibration / performance demonstration block

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