Phased Array Technology Based Ultrasonic Inspections with Use of Portable Instruments

ISONIC 2009 UPA Scope and ISONIC 2010

Exemplary Applications Booklet

Part 1

2015

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Item	*Order Code (Part ##)*
Inspection SW Application for ISONIC 2009 UPA-Scope - Phased Array Modality: **Expert - Weld Inspection - planar cross section butt welds / girth welds** ⇨ True-To-Geometry Weld Overlay Volume Corrected Imaging - Cross Sectional and Top (C-Scan)- / Side- / End- View and 3D ⇨ Sector-Scan and B-Scan (Linear 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 ⇨ 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 / B-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 909804

Inspection of planar butt weld

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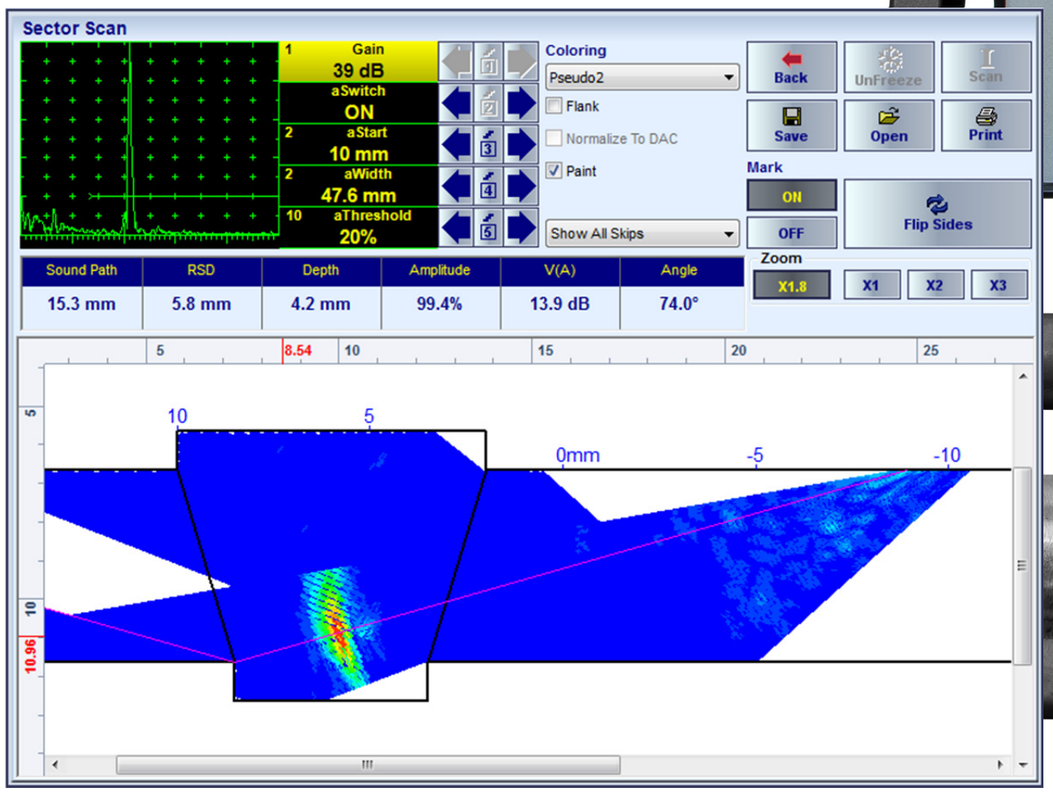
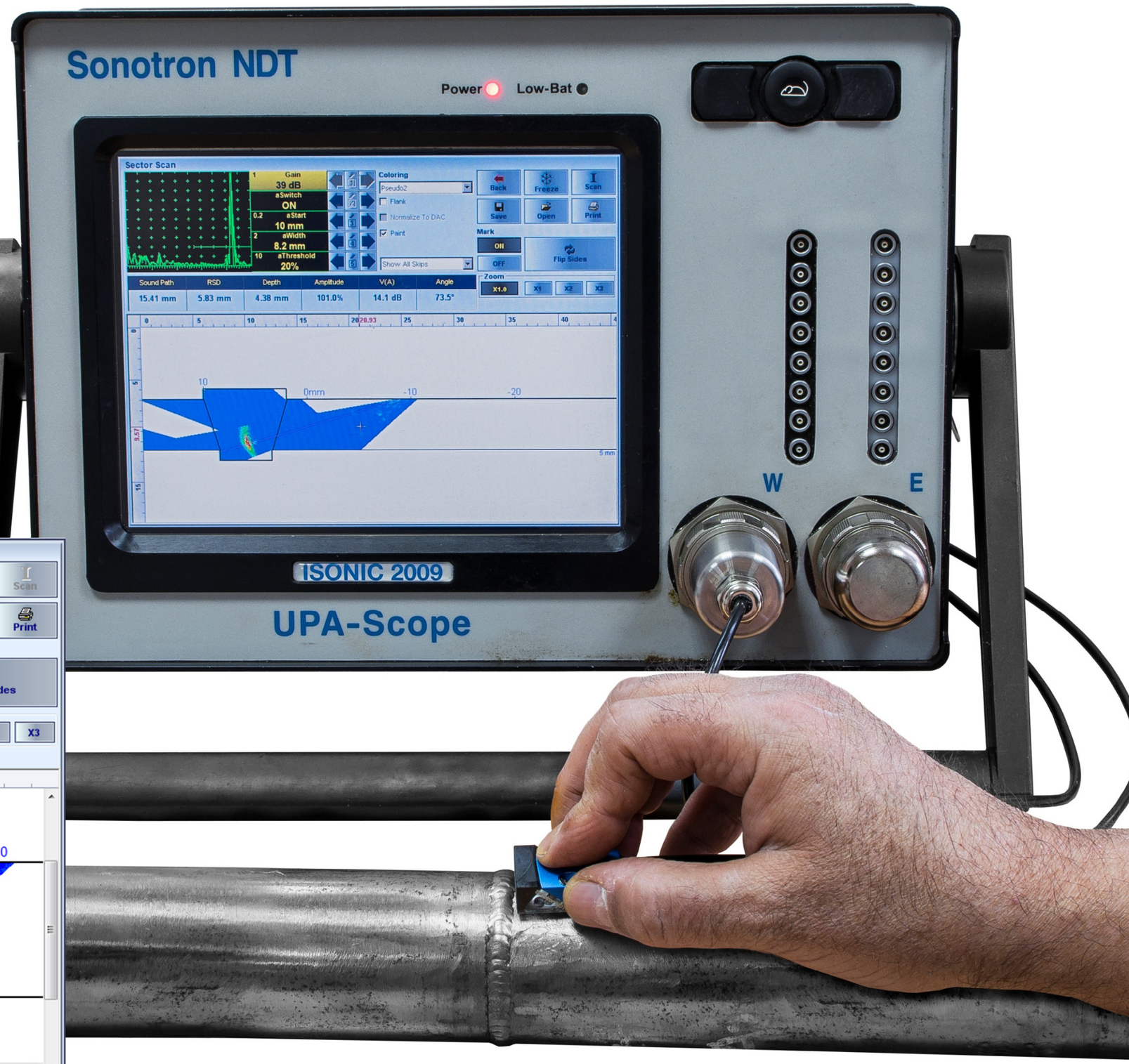
Inspection of circumferential butt weld – boiler tubes





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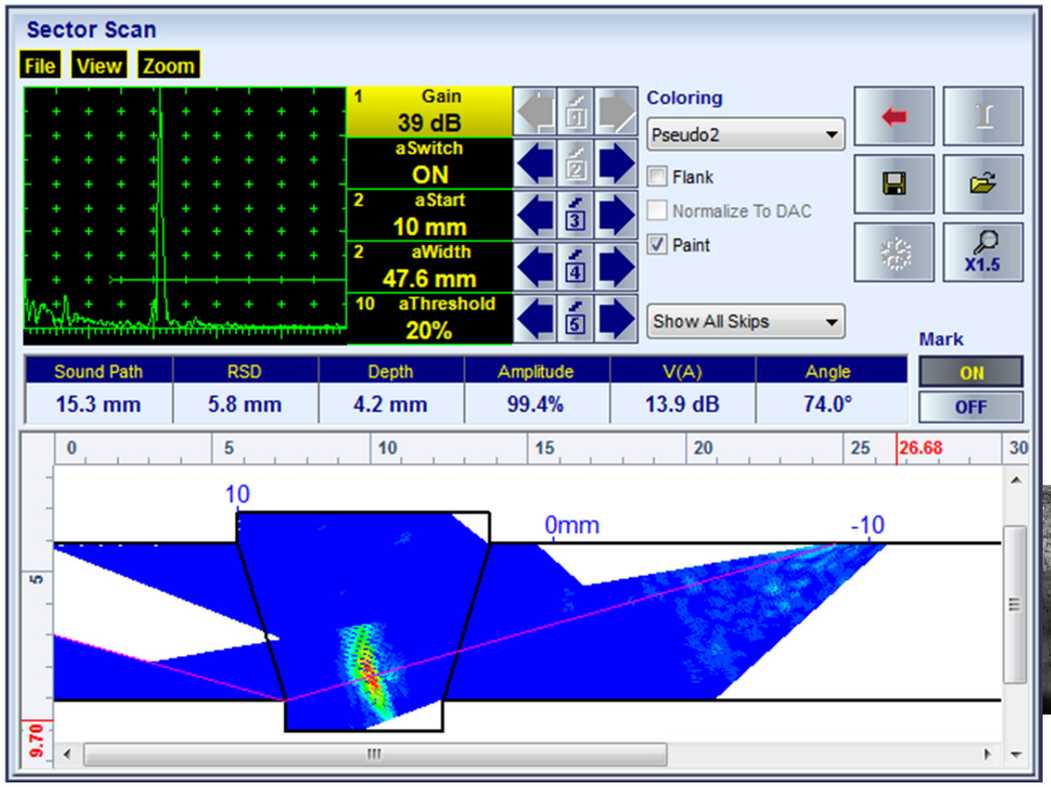

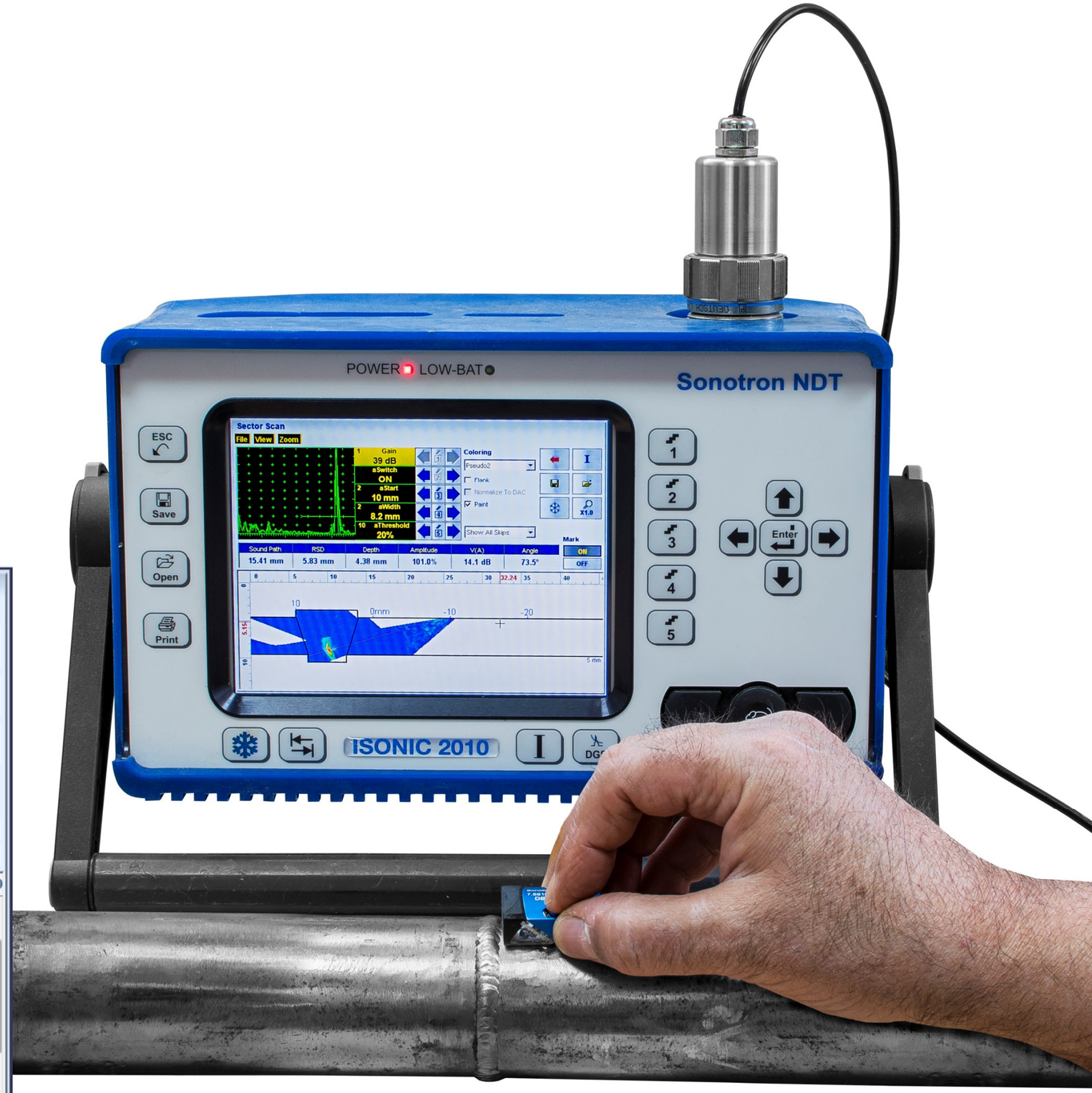

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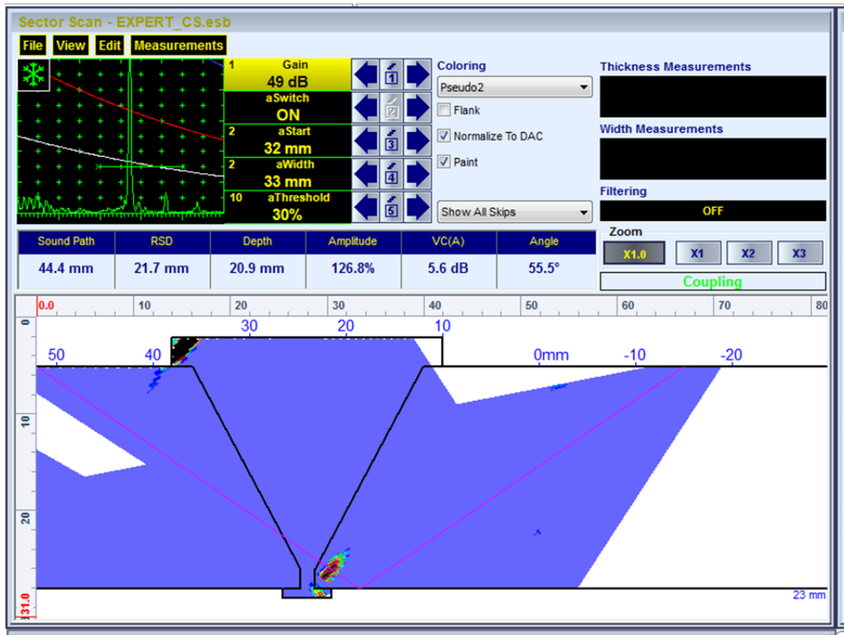
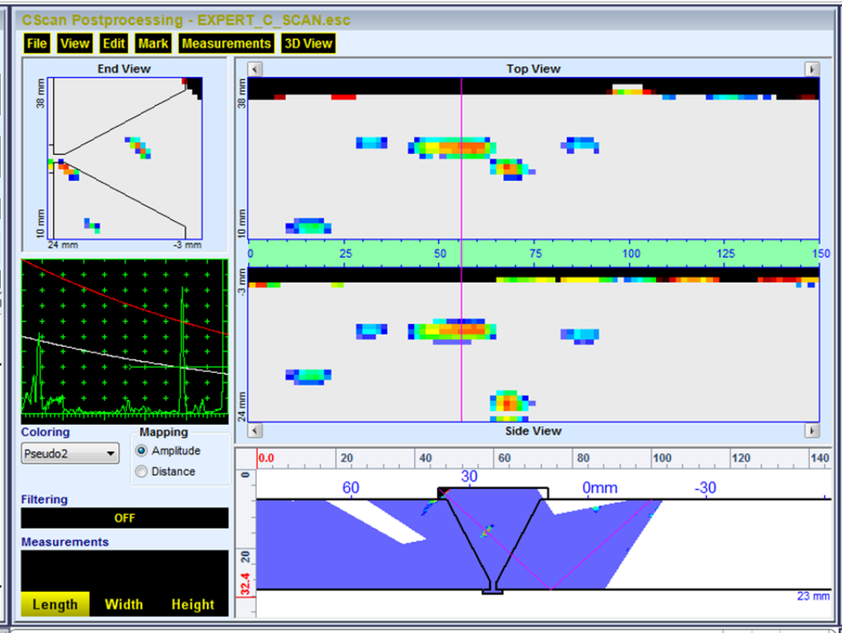
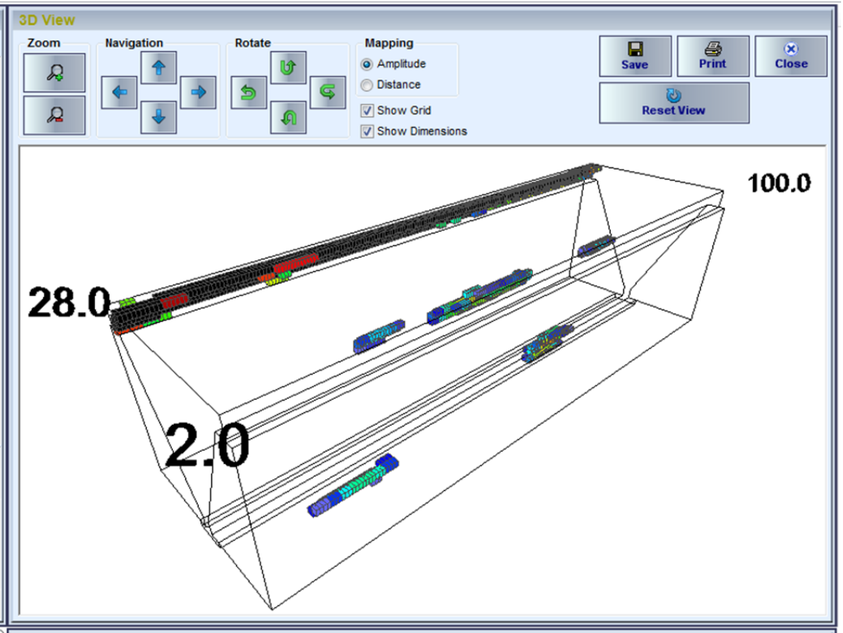
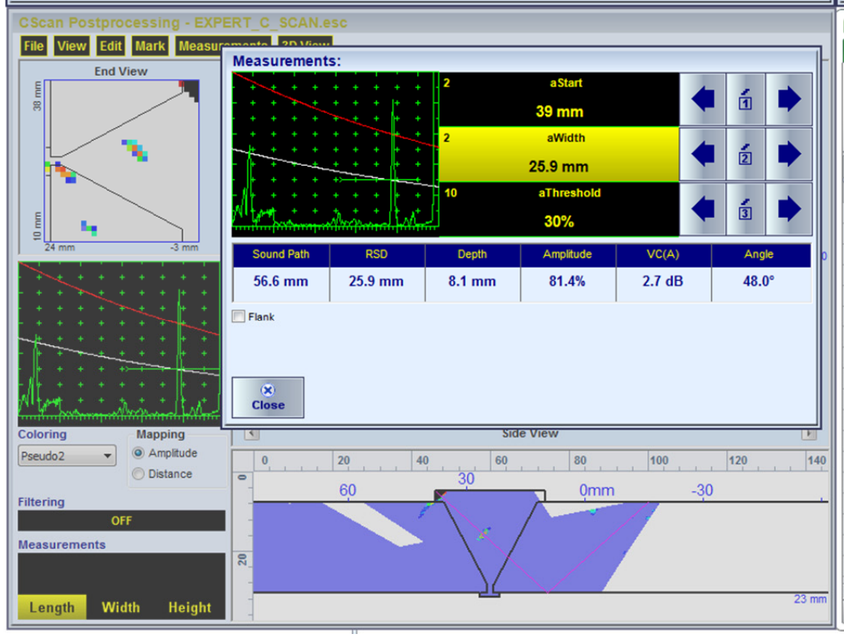
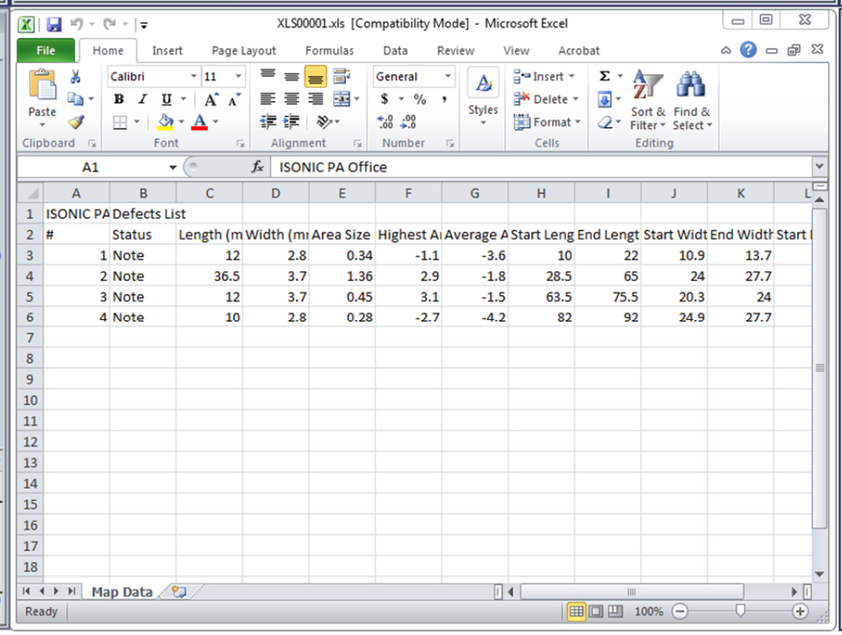
Typical Postprocessing Screenshots

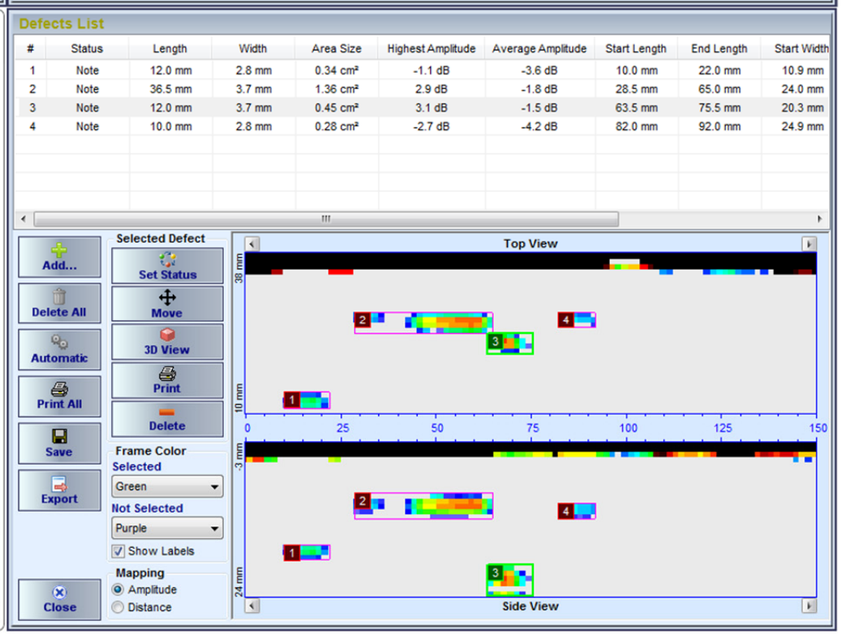












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Inspection of heavy thickness narrow gap butt welds – calibration / performance demonstration block

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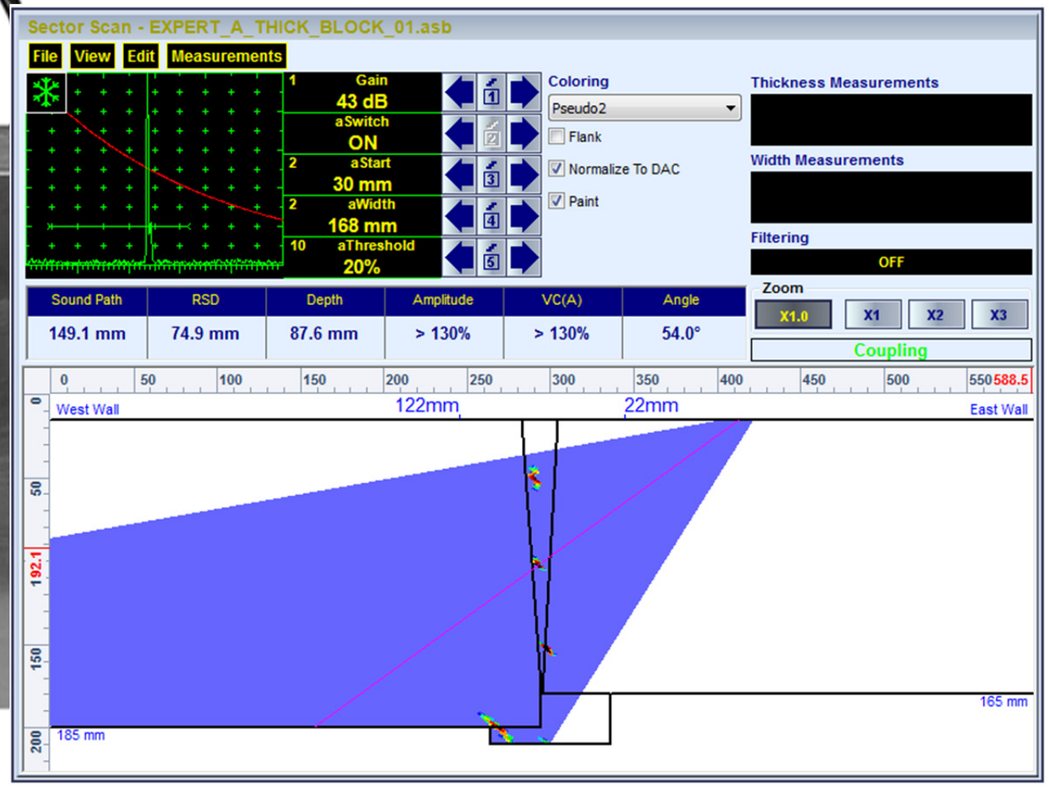
Inspection SW Application for ISONIC 2009 UPA-Scope - Phased Array Modality: **Expert A - Weld Inspection - asymmetrical bevel planar cross section butt welds / girth welds** ⇨ True-To-Geometry Weld Overlay Volume Corrected Imaging - Cross Sectional and Top (C-Scan)- / Side- / End- View and 3D ⇨ Sector-Scan and B-Scan (Linear 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 ⇨ 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 / B-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 909825



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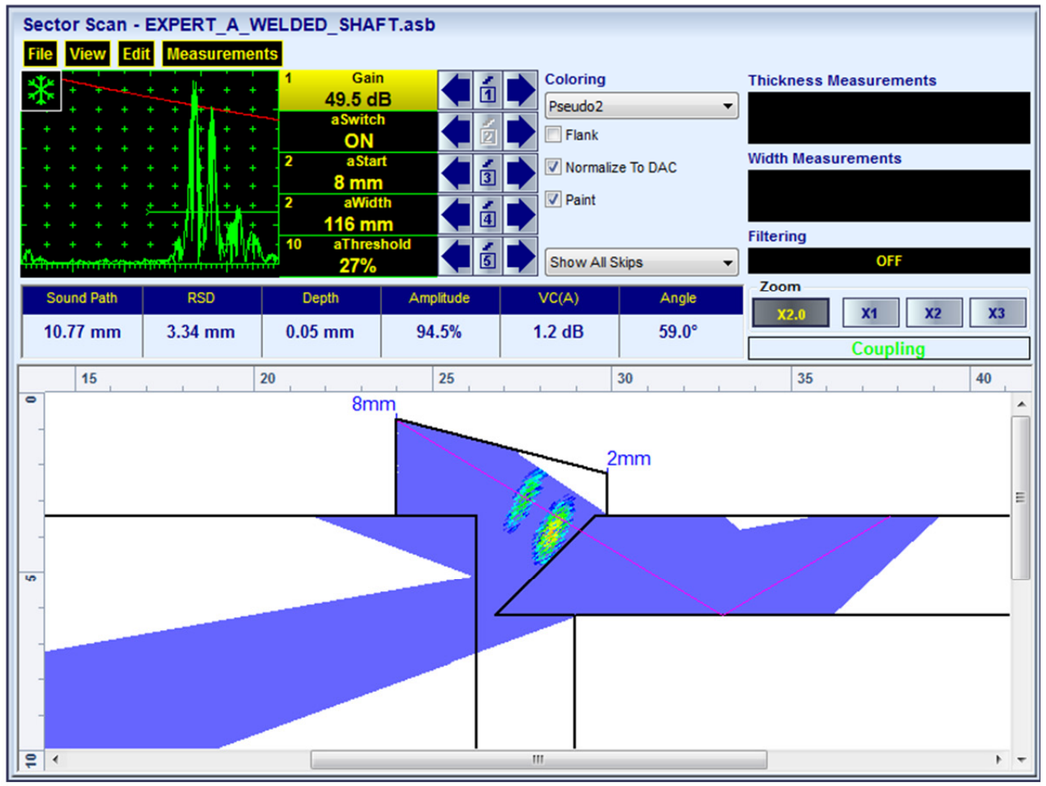

Inspection of the asymmetrical wall tube to cast ring circumferential asymmetrical weld

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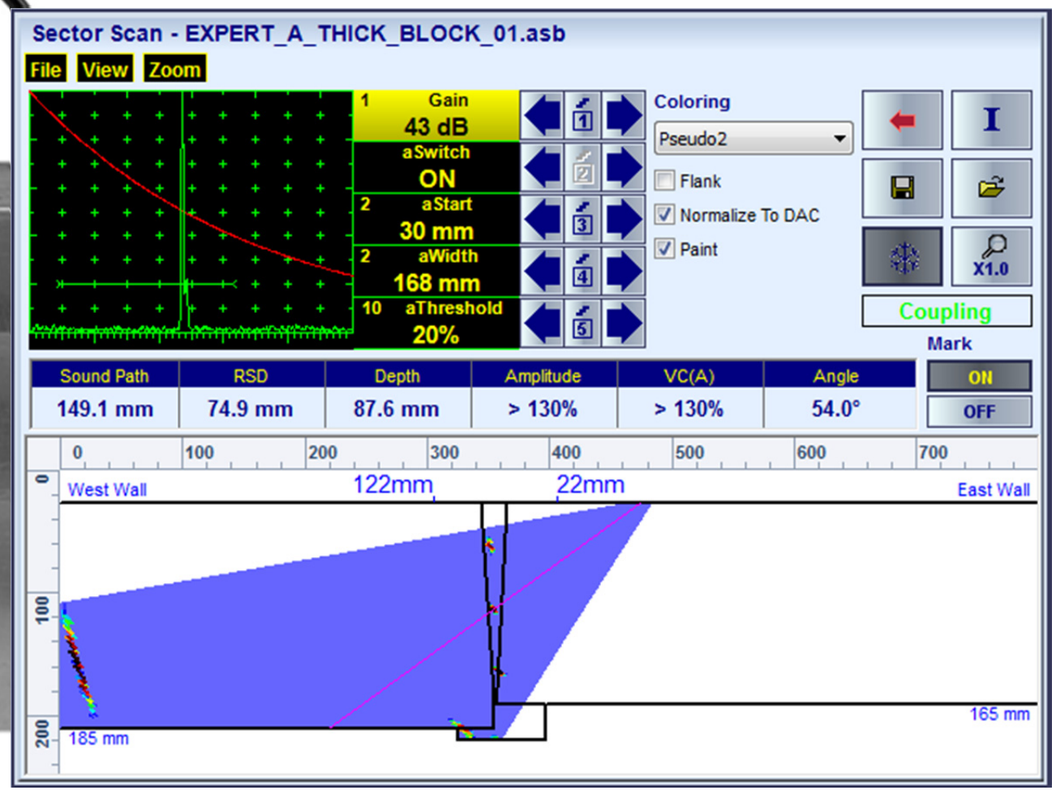

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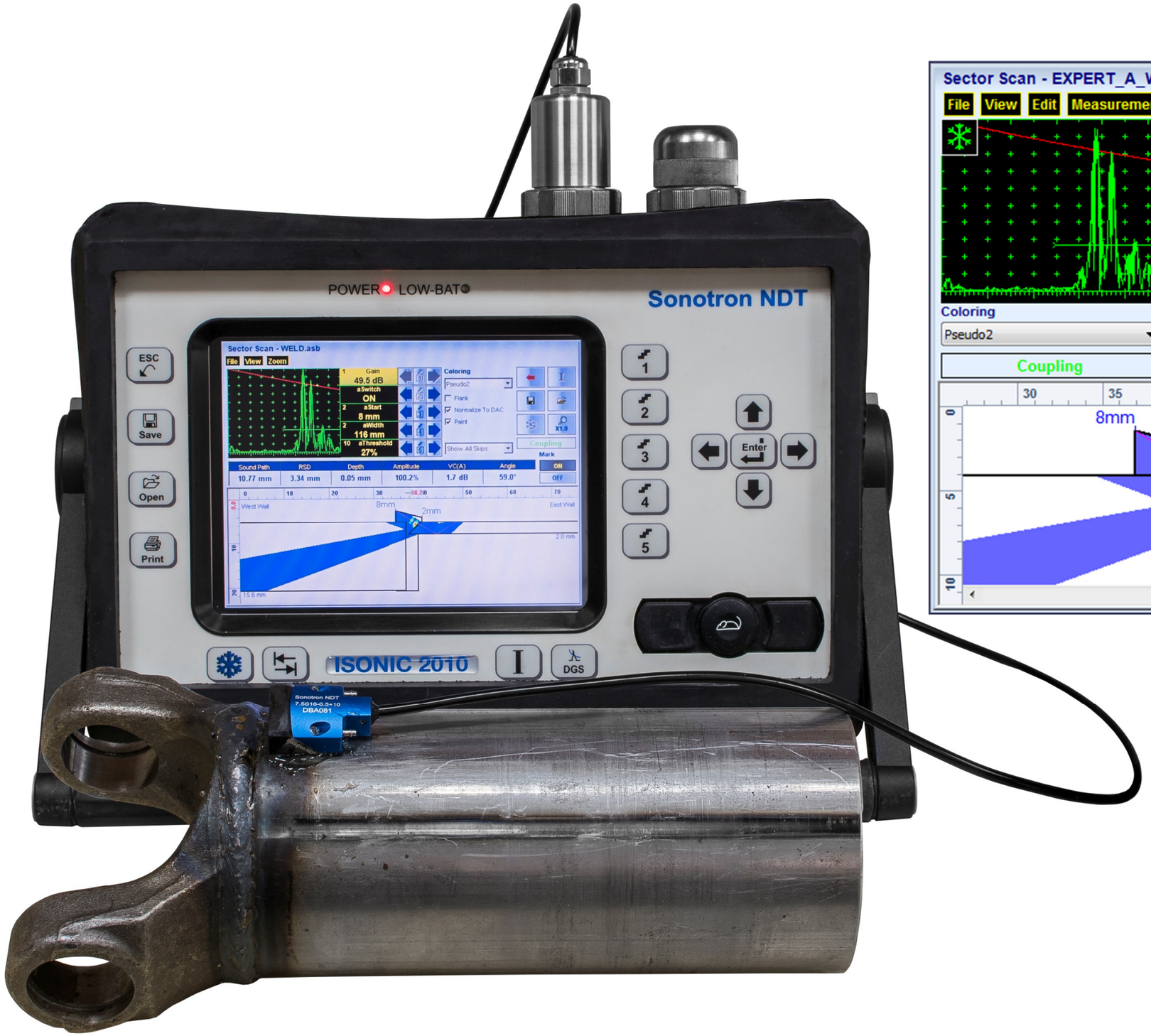

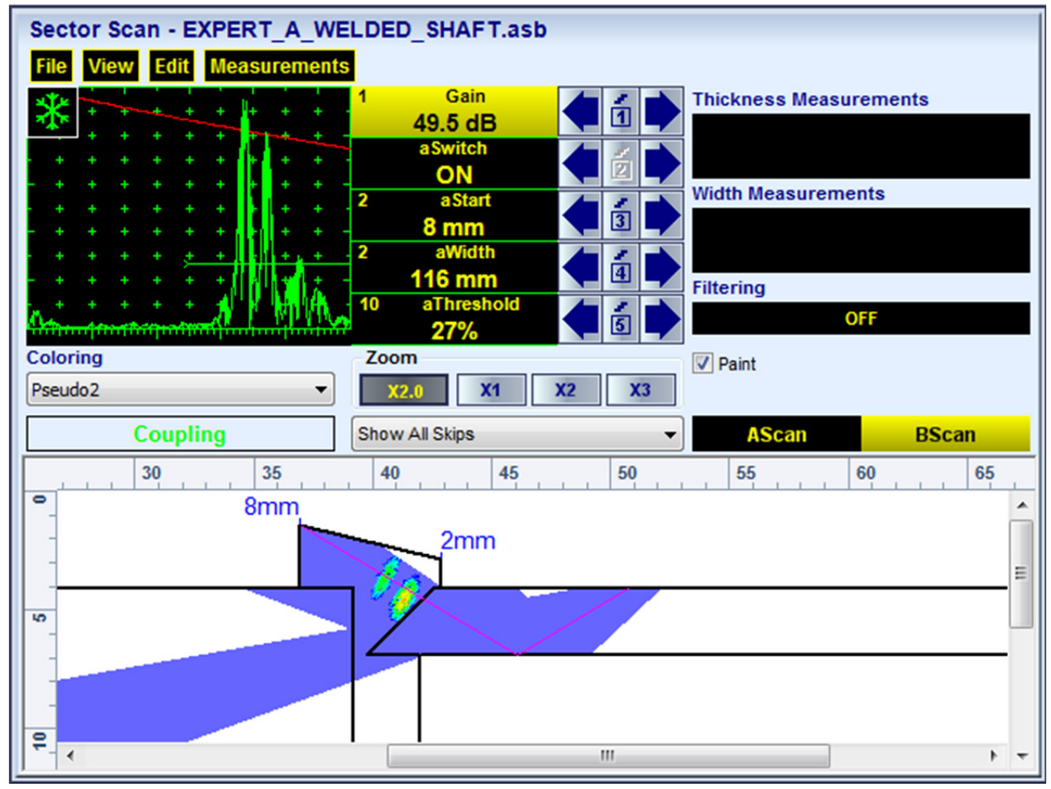

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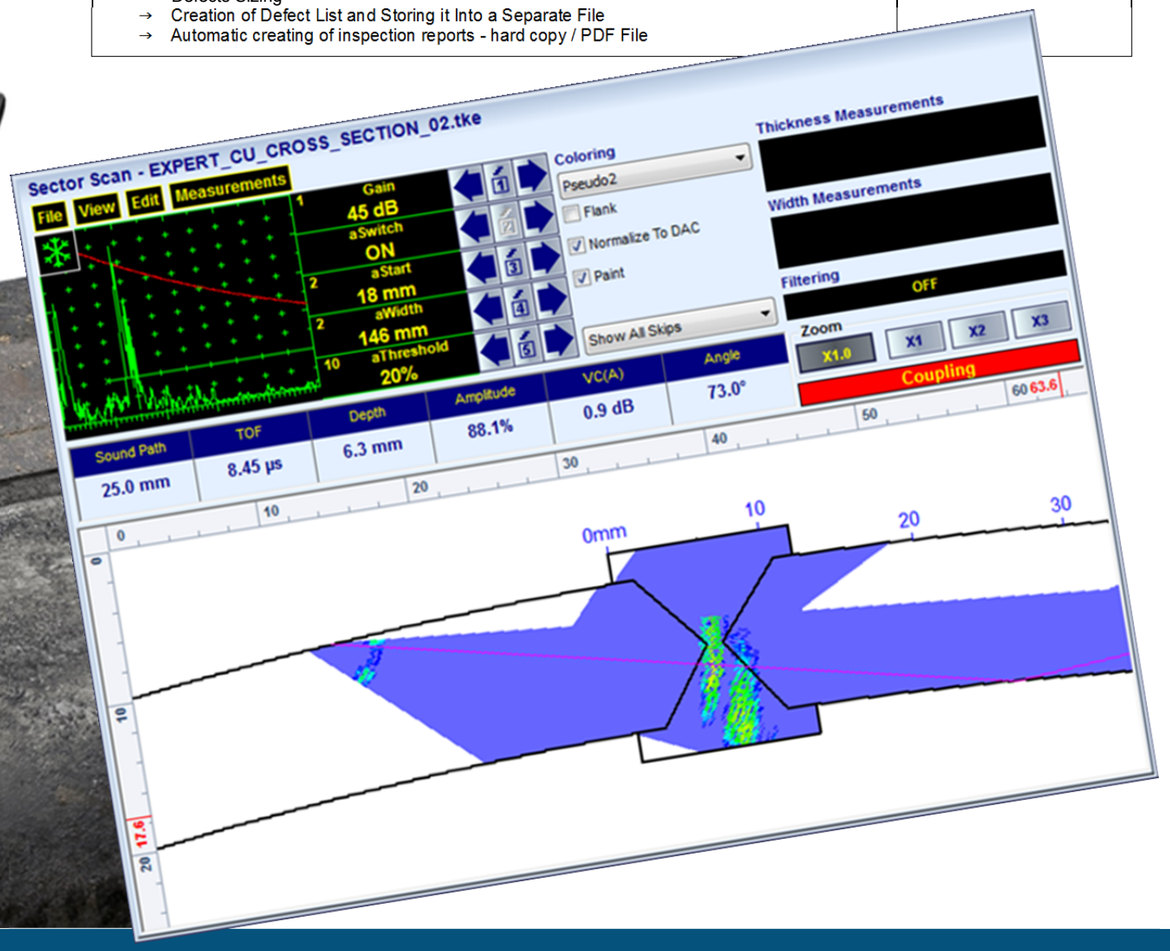
Inspection of longitudinal weld



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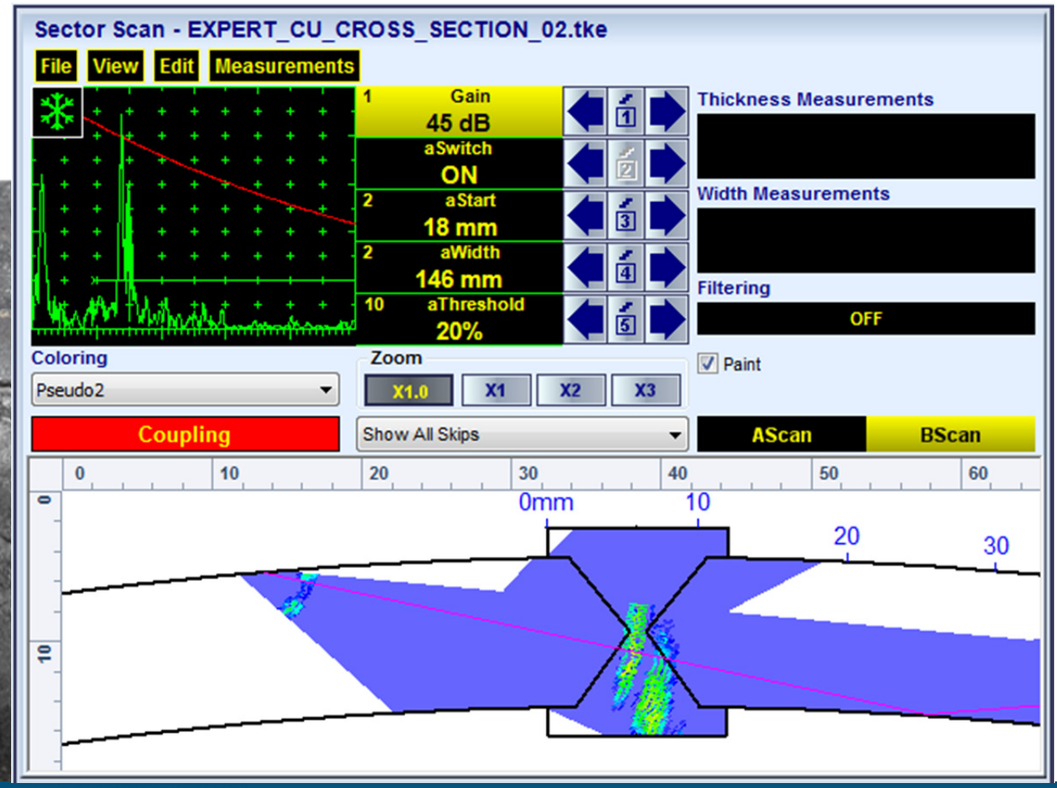

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Inspection of rings and tube / vessel walls – calibration / performance demonstration block

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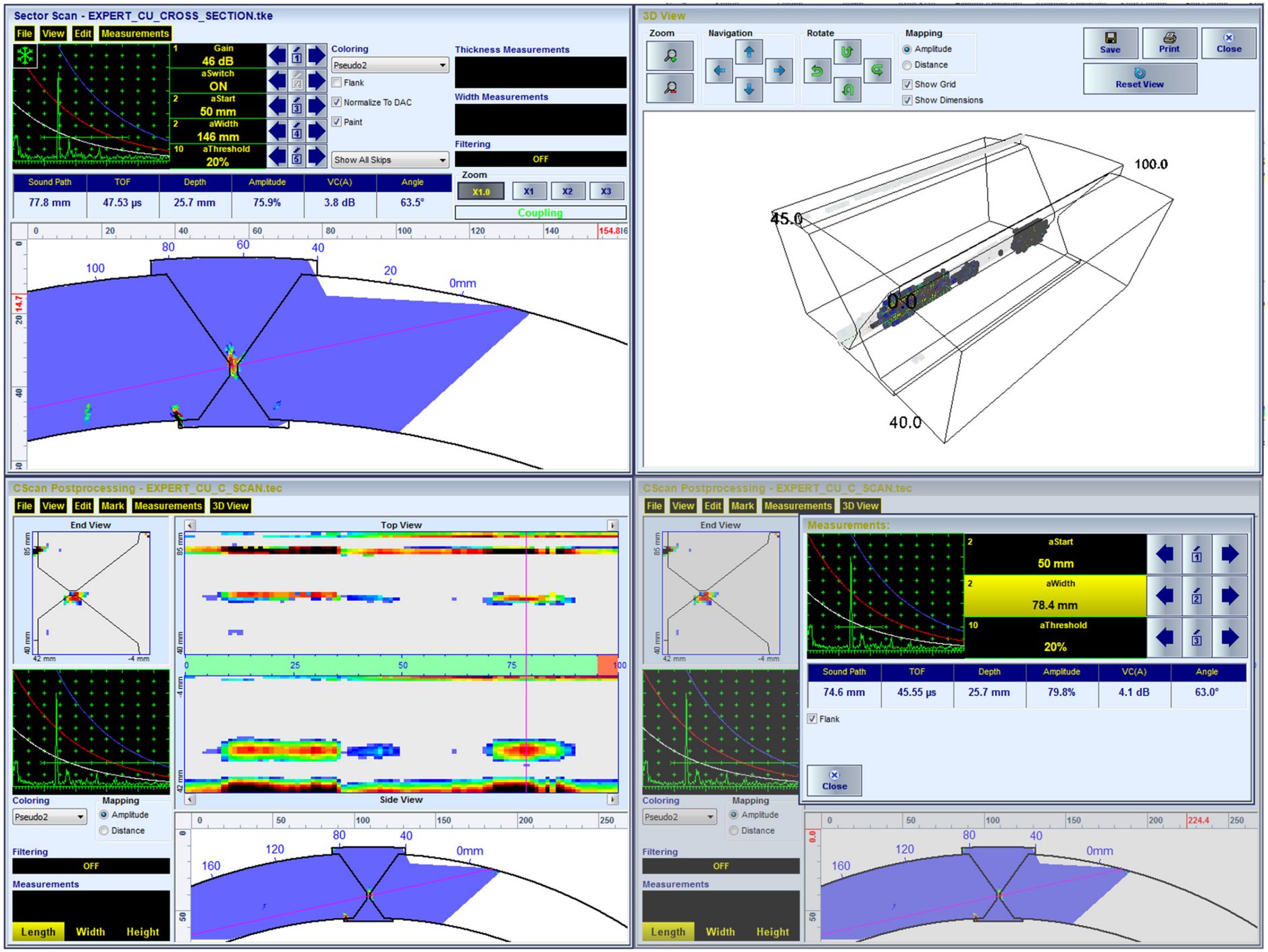

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Shear wave inspection of the fillet weld – probe placement on the inner side of the flange

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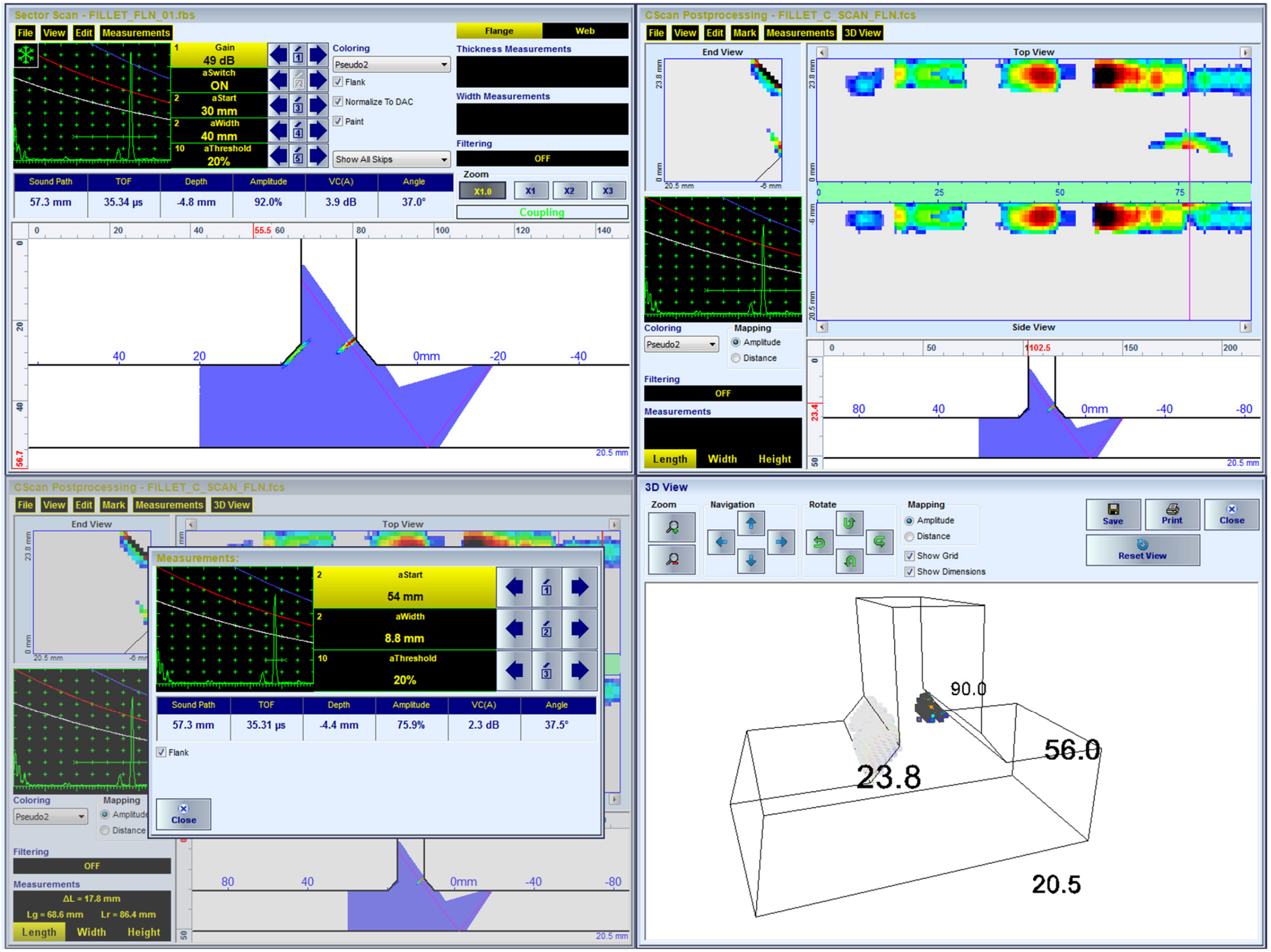

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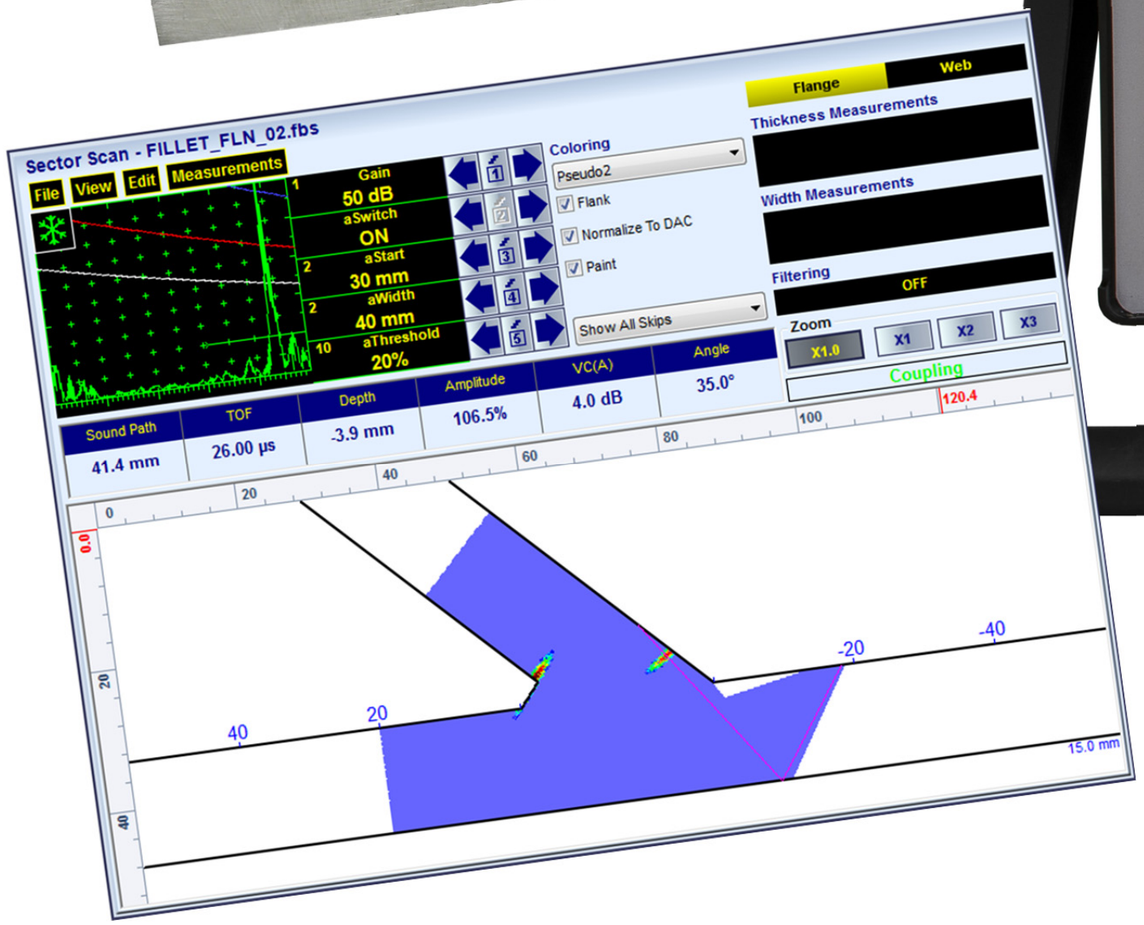
Shear wave inspection of the skewed fillet weld (performance demonstration block) – probe placement on the inner side of the flange



Shear wave inspection of the fillet weld – probe placement on the web

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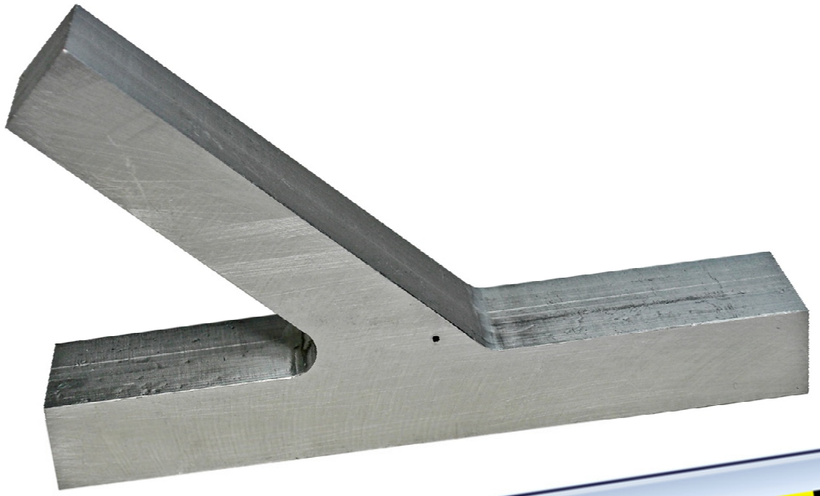

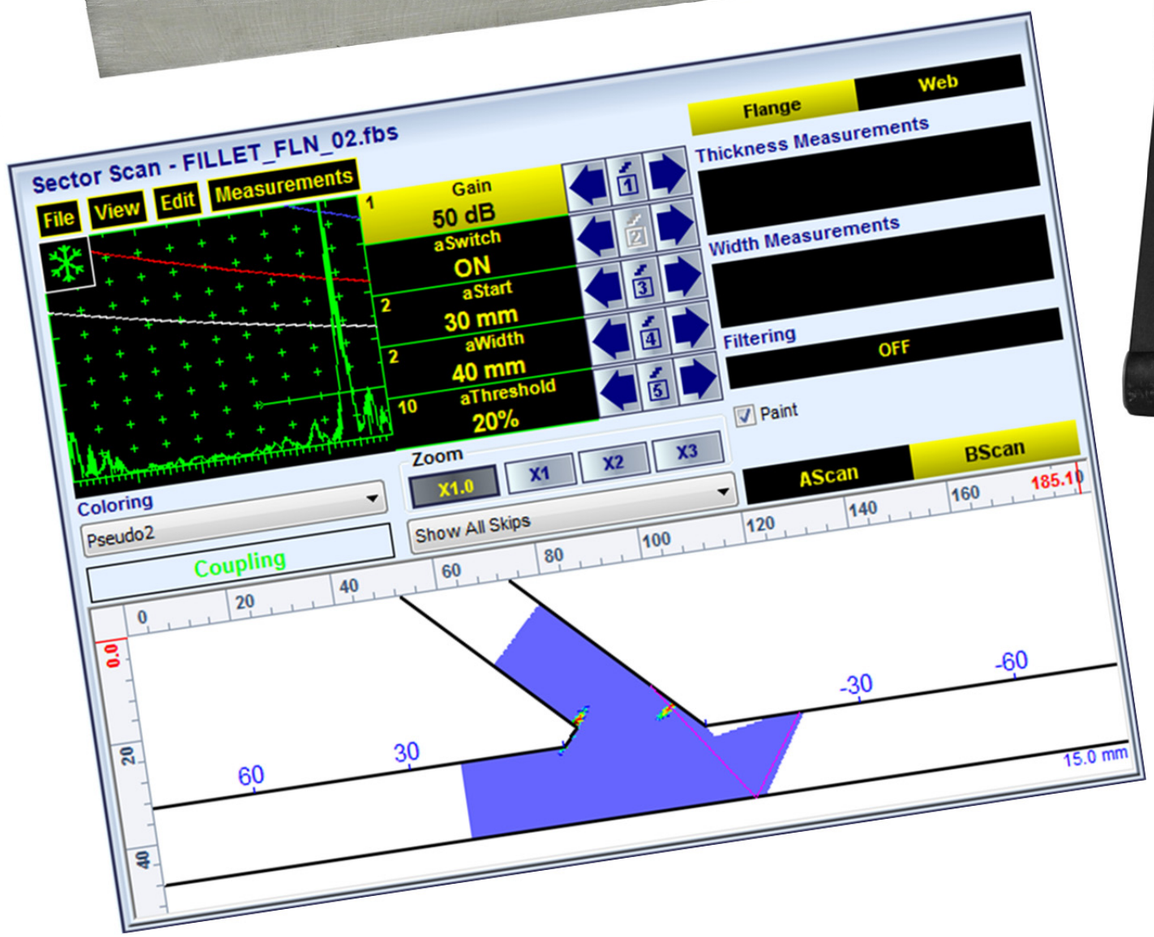

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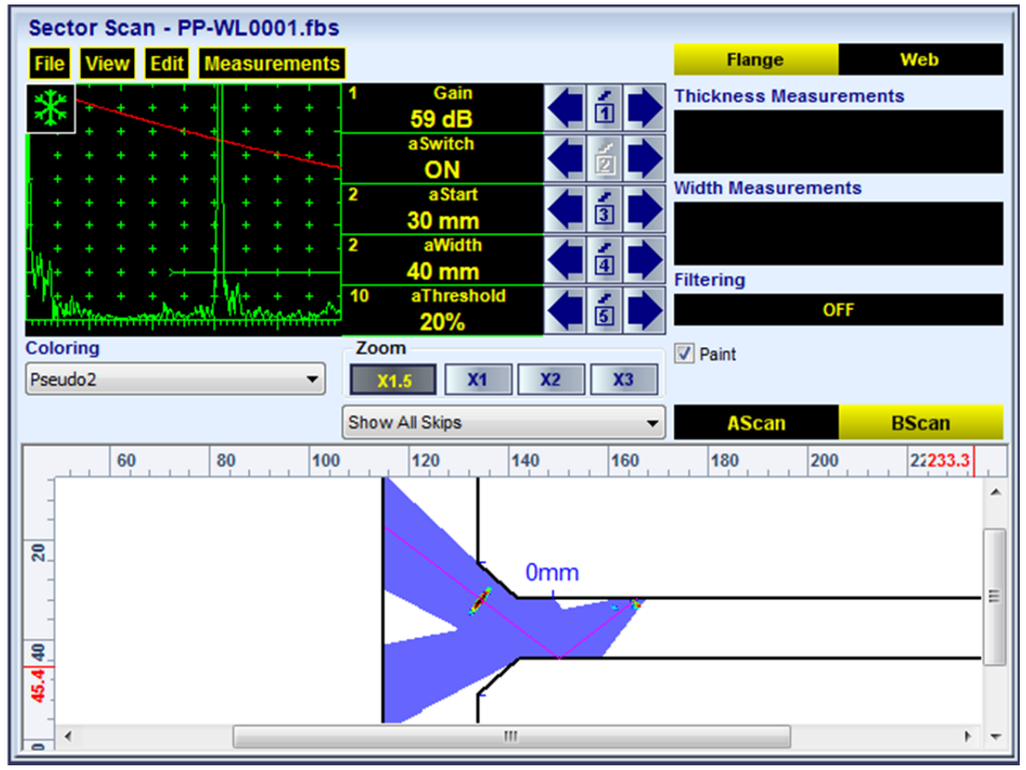

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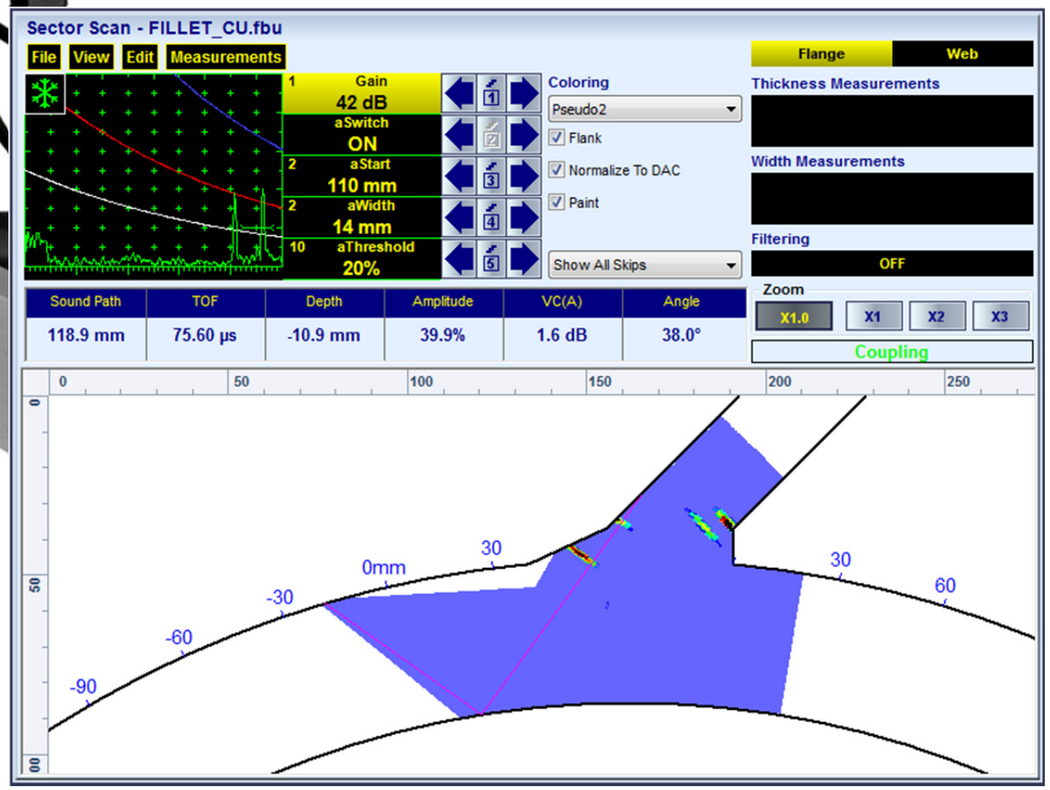
Item	*Order Code (Part ##)*
Inspection SW Application for ISONIC 2009 UPA-Scope - Phased Array Modality: **Expert FILLET CU - Inspection of Fillet, Tee- , TKY- welds, and the like with PA Probe placed either on curved flange or web surface** ⇨ True-To-Geometry Weld Overlay Volume Corrected Imaging - 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 Geometry 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 ⇨ Automatic Defects Alarming Upon C-Scan Acquisition Completed ⇨ Automatic Creation of Editable Defects List ⇨ 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 909815



Shear wave inspection of the TKY weld – probe placement on the curved flange (performance demonstration block)

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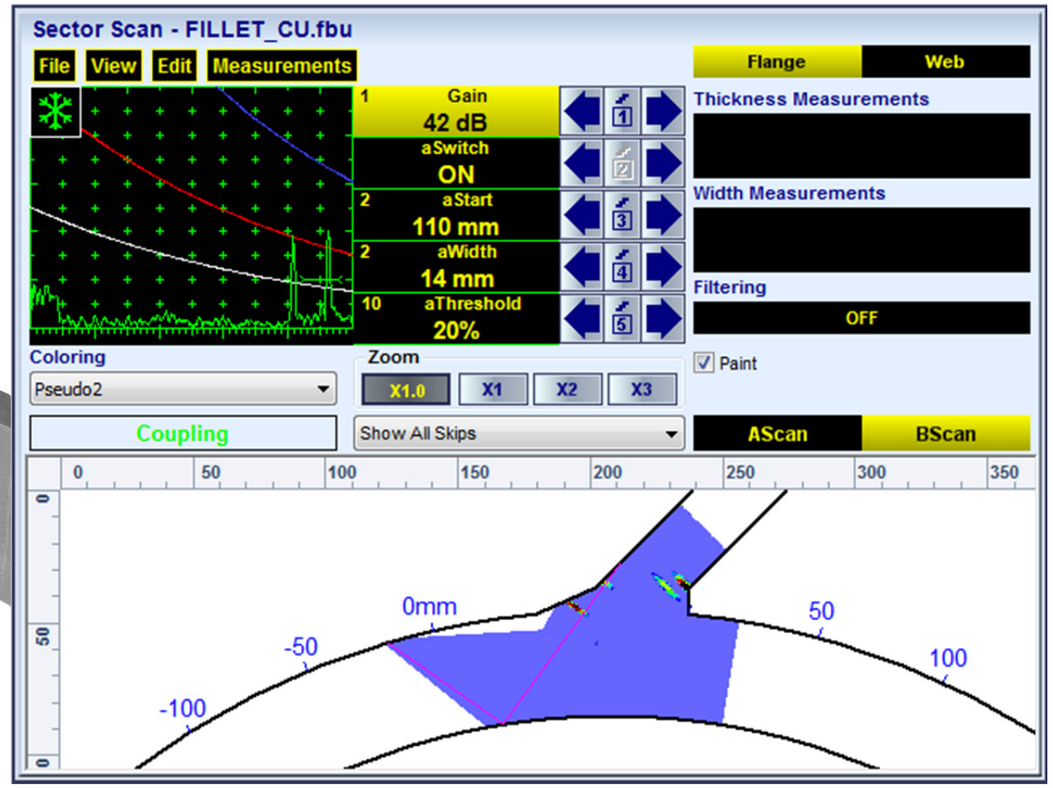
Shear wave inspection of the TKY weld – probe placement on the curved flange (performance demonstration block)

Item	*Order Code (Part ##)*
Inspection SW Application for ISONIC 2010 / ISONIC 2010 EL - Phased Array Modality: **Expert FILLET CU - Inspection of Fillet, Tee- , TKY- welds, and the like with PA Probe placed either on curved flange or web 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 Geometry 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 ⇨ Automatic Defects Alarming Upon C-Scan Acquisition Completed ⇨ Automatic Creation of Editable Defects List ⇨ 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 910815



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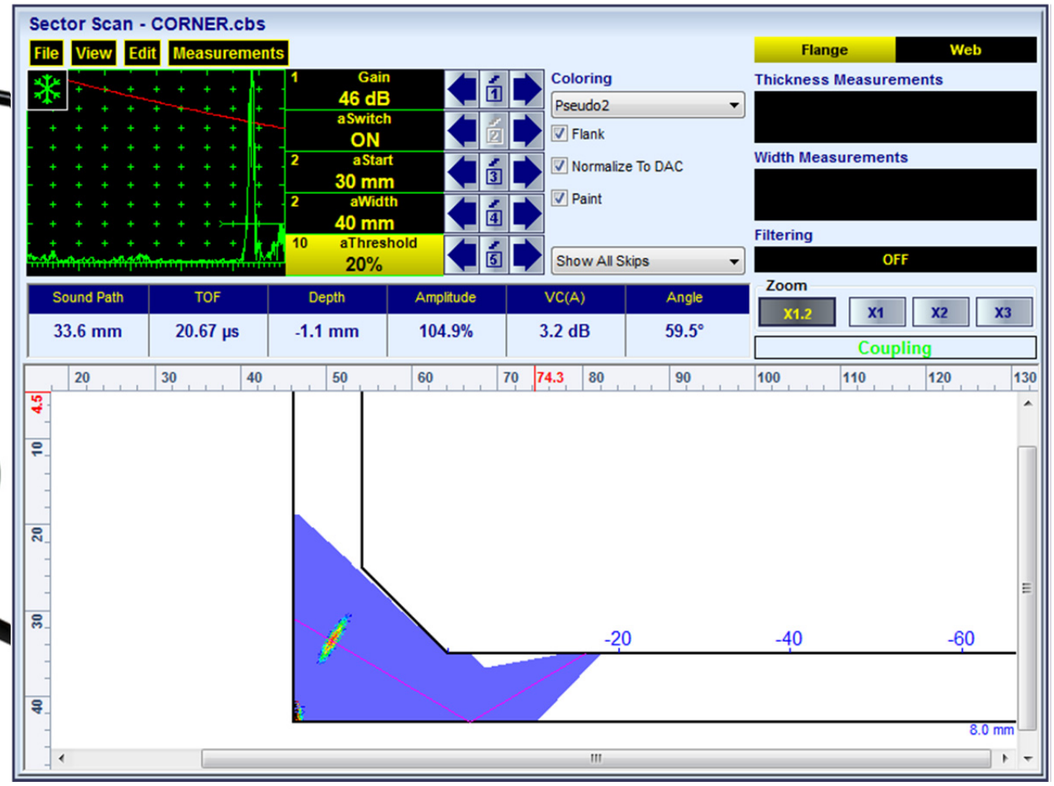
Shear wave inspection of the corner weld (calibration / performance demonstration block)

Item	*Order Code (Part ##)*
Inspection SW Application for ISONIC 2009 UPA-Scope - Phased Array Modality: **Expert CORNER - Inspection of Corner, Nozzle, L-Shape welds with PA Probe - planar cross section of the base 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 Geometry 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 ⇨ Automatic Defects Alarming Upon C-Scan Acquisition Completed ⇨ Automatic Creation of Editable Defects List ⇨ 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 909816



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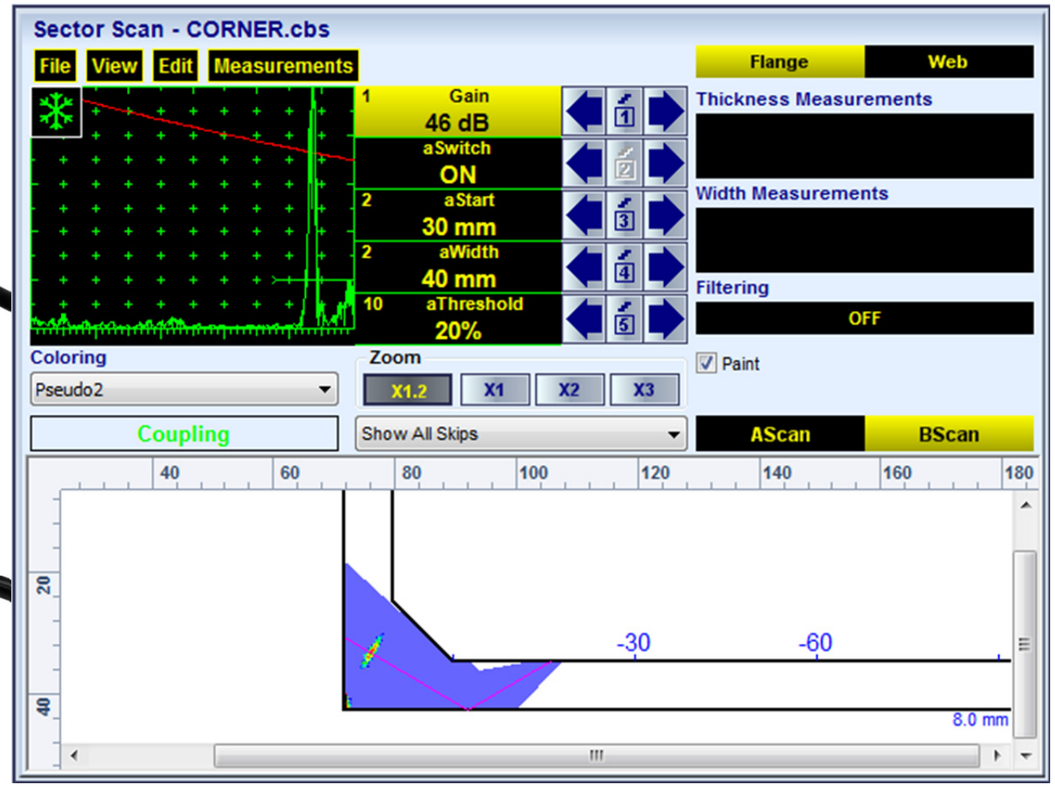
Item	Order Code (Part ##)
Inspection SW Application for ISONIC 2010 / ISONIC 2010 EL - Phased Array Modality: **Expert CORNER - Inspection of Corner, Nozzle, L-Shape welds with PA Probe - planar cross section of the base surface** ⇨ True-To-Geometry Weld Overlay Volume Corrected Imaging - Cross Sectional 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 Geometry 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 ⇨ Automatic Defects Alarming Upon C-Scan Acquisition Completed ⇨ Automatic Creation of Editable Defects List ⇨ 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 910816



Shear wave inspection of the corner weld (calibration / performance demonstration block)

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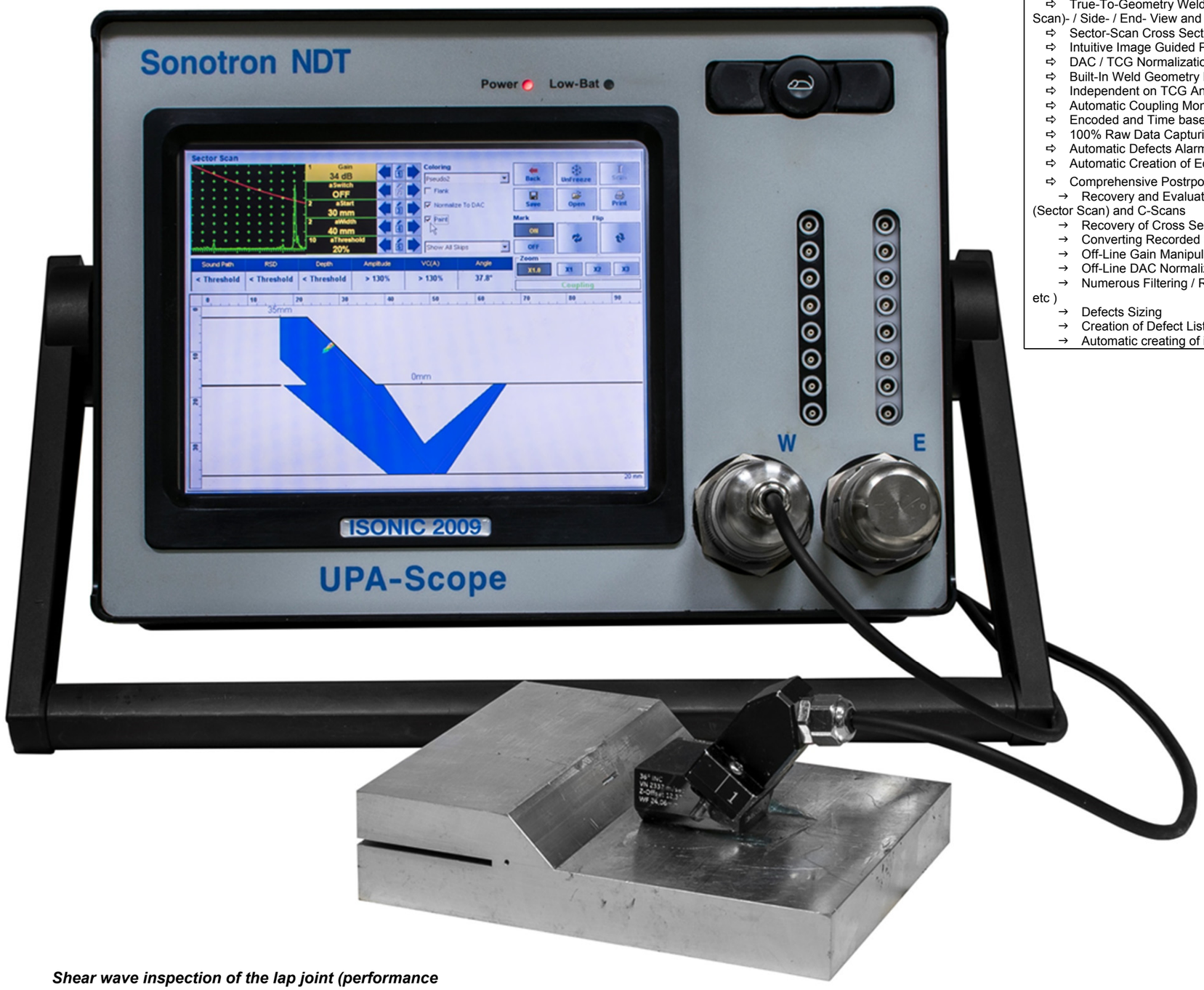

Shear wave inspection of the lap joint (performance demonstration block)

Item	*Order Code (Part ##)*
Inspection SW Application for ISONIC 2009 UPA-Scope - Phased Array Modality: **Expert Lap Joint - Inspection of Lap Joints** ⇨ 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 Geometry 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 ⇨ Automatic Defects Alarming Upon C-Scan Acquisition Completed ⇨ Automatic Creation of Editable Defects List ⇨ 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 909824

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Shear wave inspection of the lap joint (performance demonstration block)

Item	***Order Code (Part ##)***
Inspection SW Application for ISONIC 2010 / ISONIC 2010 EL - Phased Array Modality: **Expert Lap Joint - Inspection of Lap Joints** ⇨ 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 Geometry 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 ⇨ Automatic Defects Alarming Upon C-Scan Acquisition Completed ⇨ Automatic Creation of Editable Defects List ⇨ 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 910824

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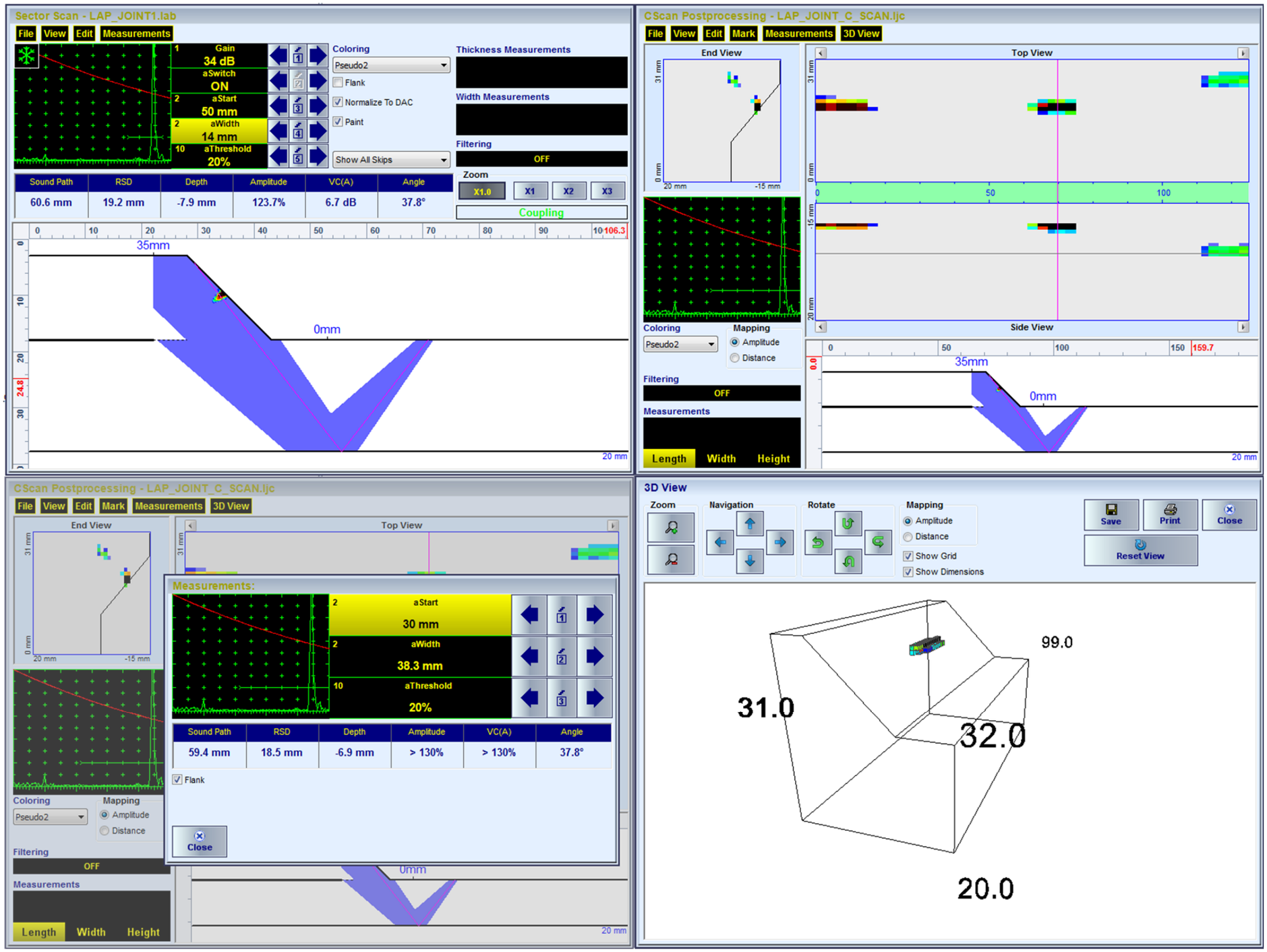
Typical Postprocessing Screenshots



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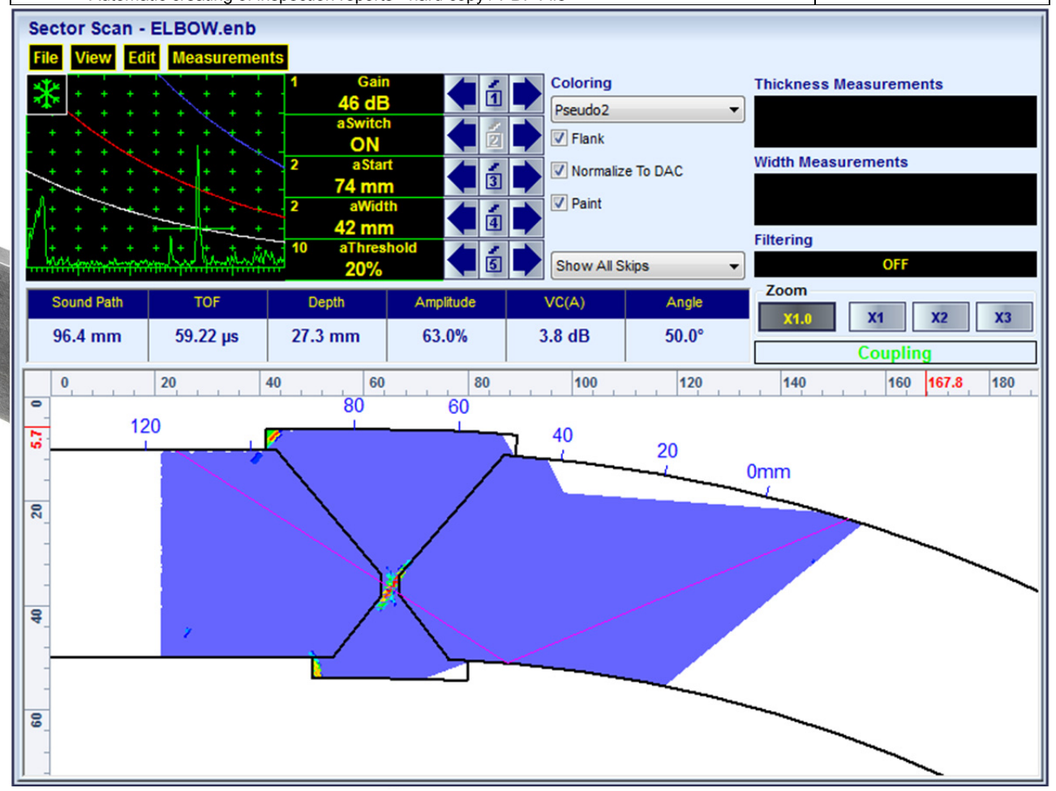
Shear wave inspection of the elbow weld (performance demonstration block)

Item	*Order Code (Part ##)*
Inspection SW Application for ISONIC 2009 UPA-Scope - Phased Array Modality: **Expert ELBOW - Inspection of elbow cross section welds (sweepolets, cylinder-to-sphere, etc)** ⇨ 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 Geometry 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 ⇨ Automatic Defects Alarming Upon C-Scan Acquisition Completed ⇨ Automatic Creation of Editable Defects List ⇨ 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 909813



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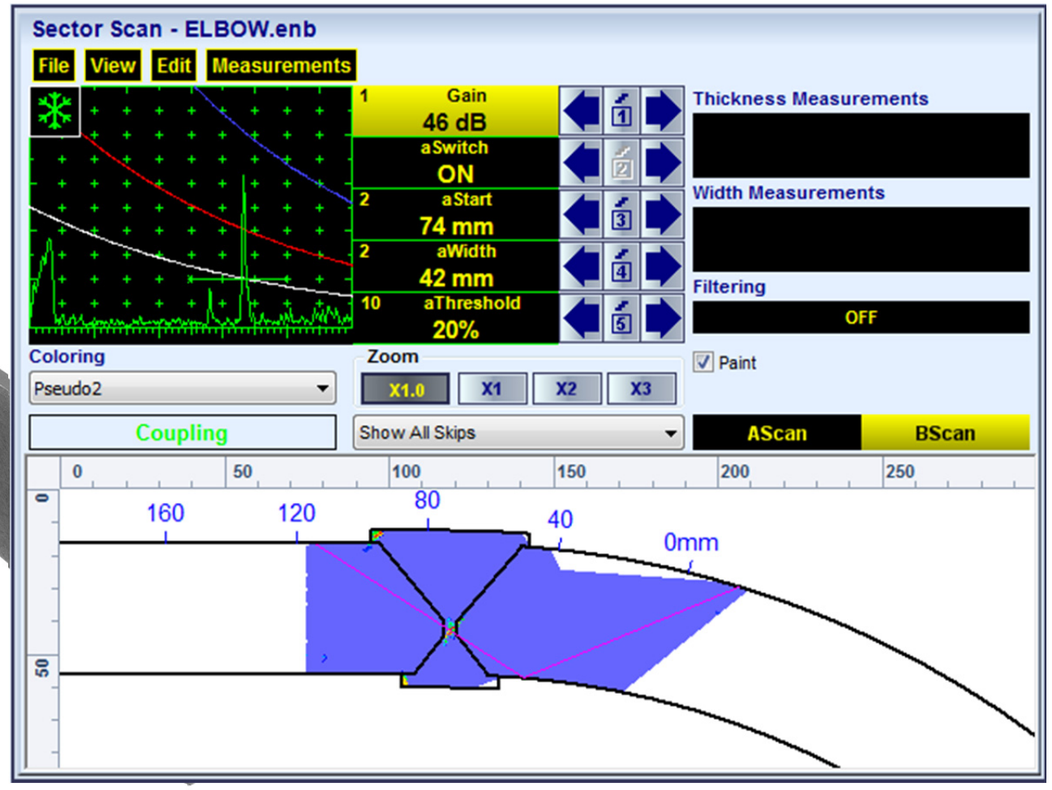

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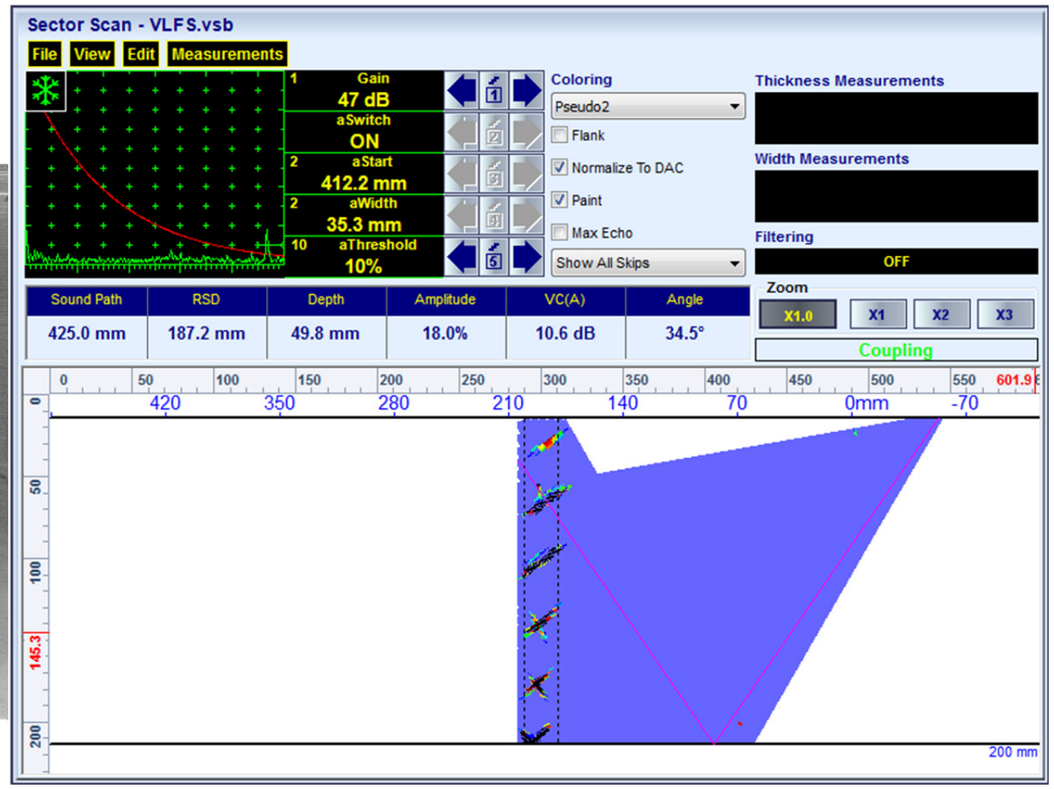
Combined half- and full skip inspection of 200 mm thick calibration block

Item	*Order Code (Part ##)*
Inspection SW Application for ISONIC 2009 UPA-Scope - Phased Array Modality: **VLFS – Vertical Line Focusing Scanning and Imaging (typical application: inspection of planar and circumferential narrow gap heavy thickness welds, ER welds, welded rails, etc)** ⇨ True-To-Geometry Volume Corrected Imaging - Cross Sectional and Top (C-Scan)- / Side- / End- View and 3D ⇨ Sector-Scan and B-Scan (Linear Scan) Cross Sectional Coverage ⇨ Intuitive Image Guided PA Pulser Receiver with Beam Forming View ⇨ DAC / TCG Normalization ⇨ Built-In 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 ⇨ 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 / B-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 909806



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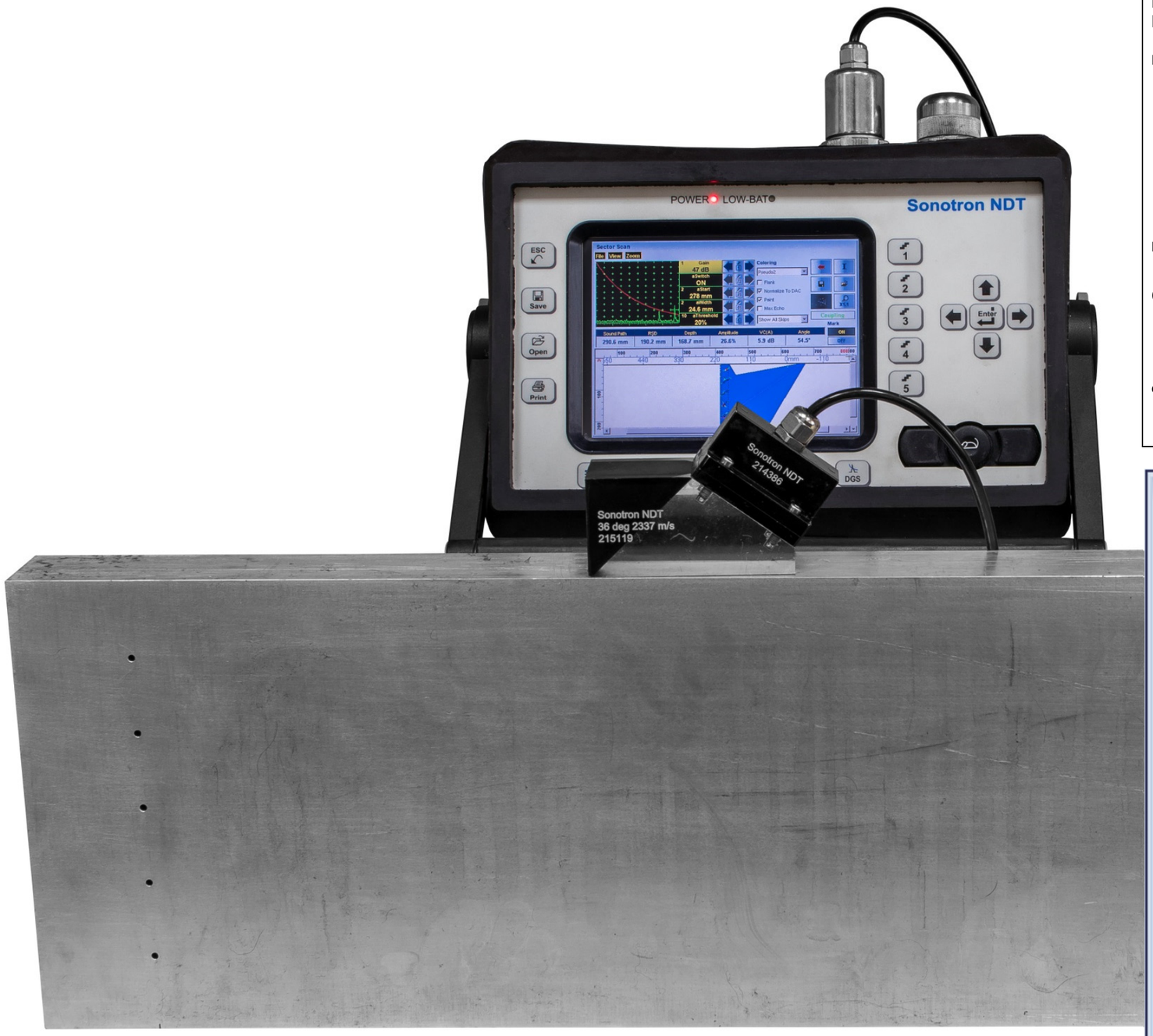
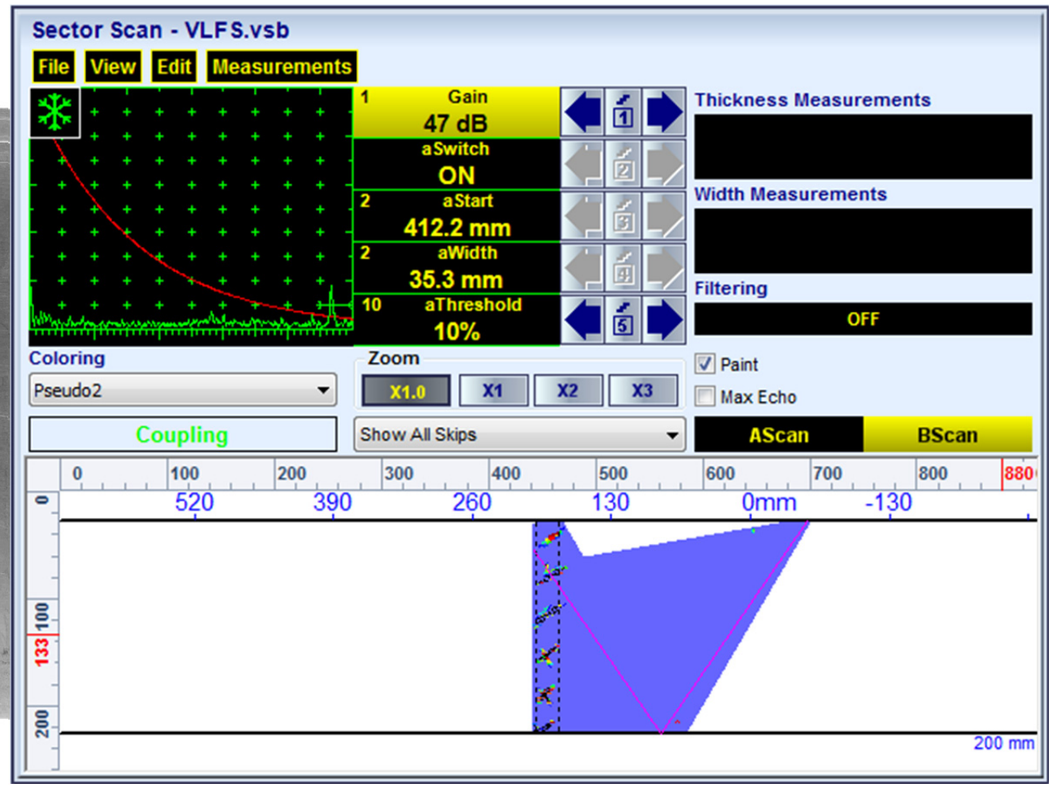
Combined half- and full skip inspection of 200 mm thick calibration block



Item	*Order Code (Part ##)*
Inspection SW Application for ISONIC 2009 UPA-Scope - Phased Array Modality: **VLFS – Vertical Line Focusing Scanning and Imaging (typical application: inspection of planar and circumferential narrow gap heavy thickness welds, ER welds, welded rails, etc)** ⇨ True-To-Geometry Volume Corrected Imaging - Cross Sectional and Top (C-Scan)- / Side- / End- View and 3D ⇨ Sector-Scan and B-Scan (Linear Scan) Cross Sectional Coverage ⇨ Intuitive Image Guided PA Pulser Receiver with Beam Forming View ⇨ DAC / TCG Normalization ⇨ Built-In 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 ⇨ 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 / B-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 909806



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Longitudinal wave sector scan coverage of the heavy thickness calibration block with artificial vertical cracks – detection of upper / lower tip diffraction signals (one-side access reverse TOFD mode) – vertical line focusing

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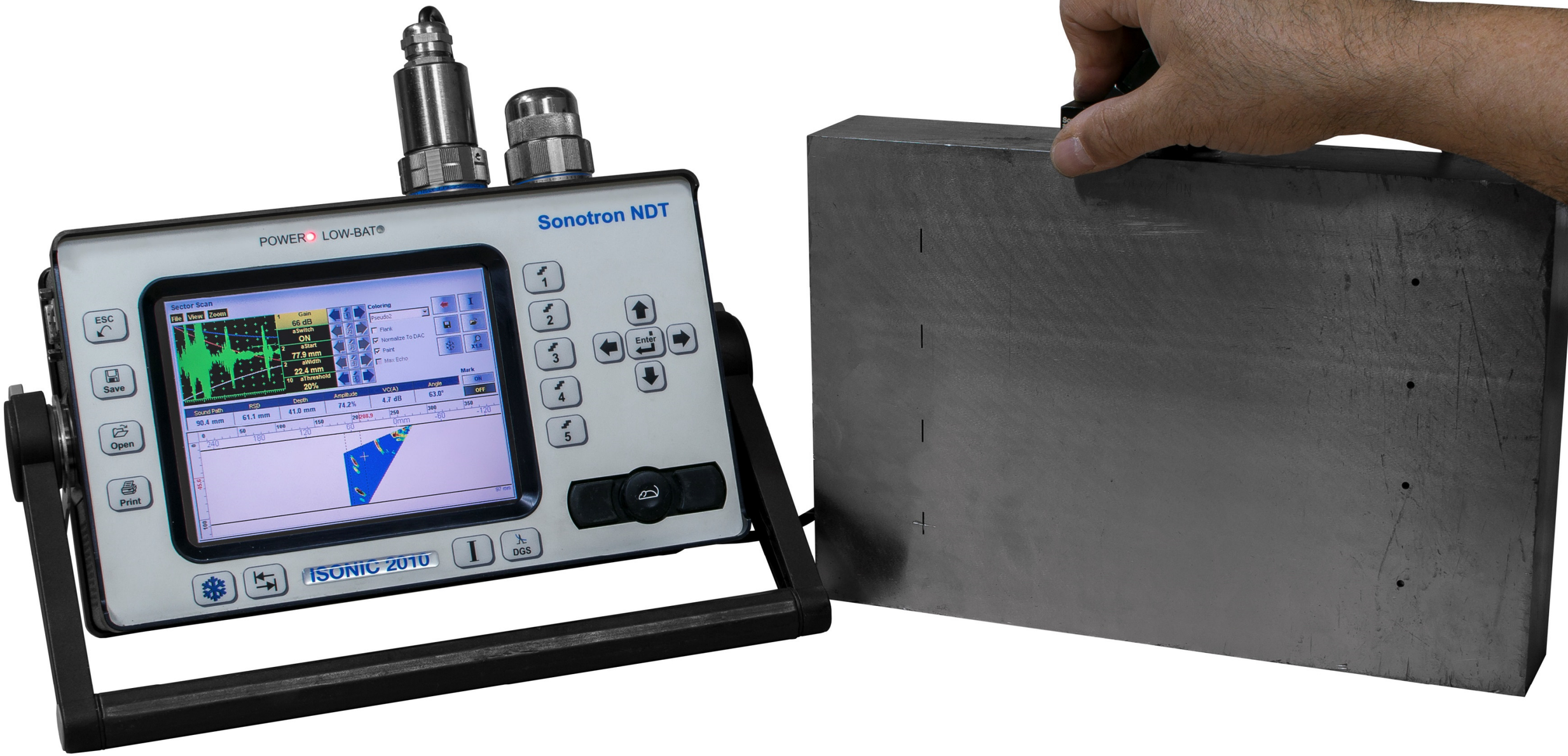

Longitudinal wave sector scan coverage of the heavy thickness calibration block with artificial vertical cracks – detection of upper / lower tip diffraction signals (one-side access reverse TOFD mode) – vertical line focusing

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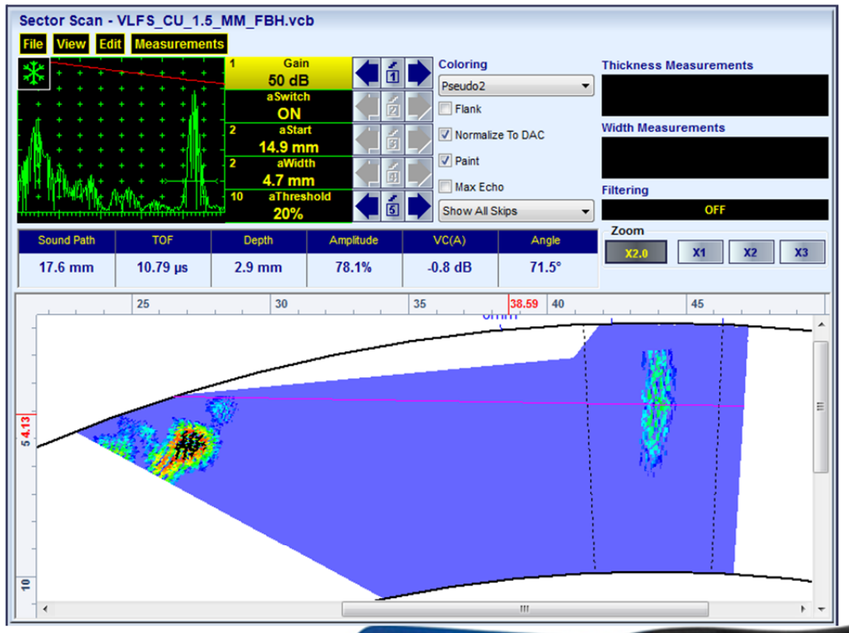
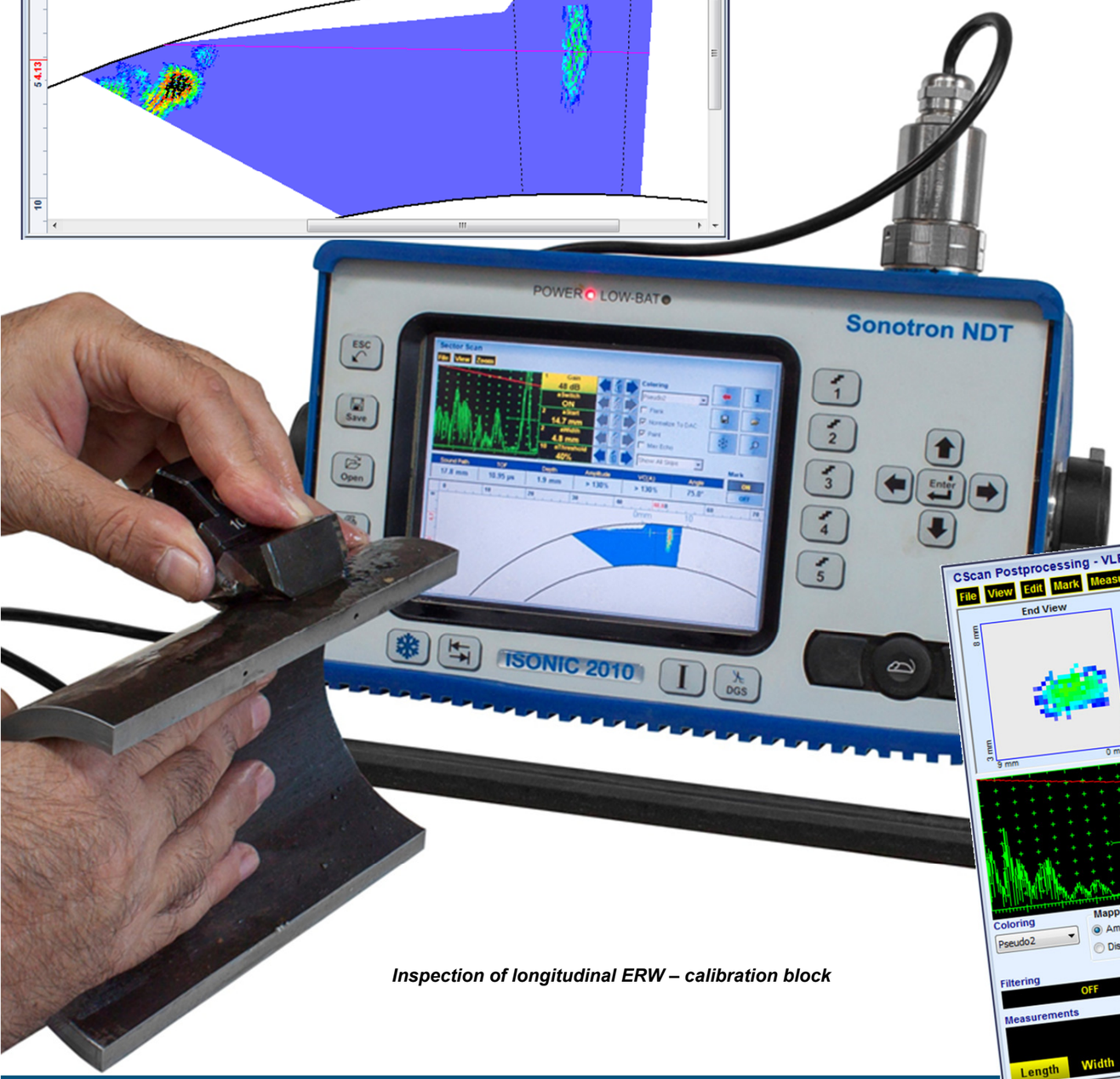
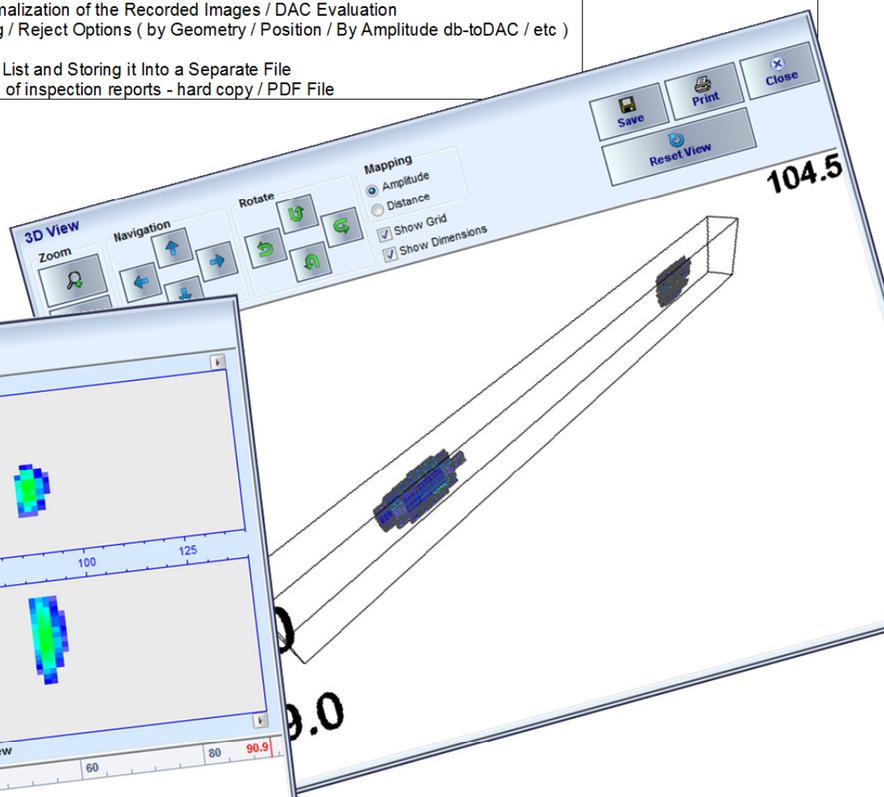
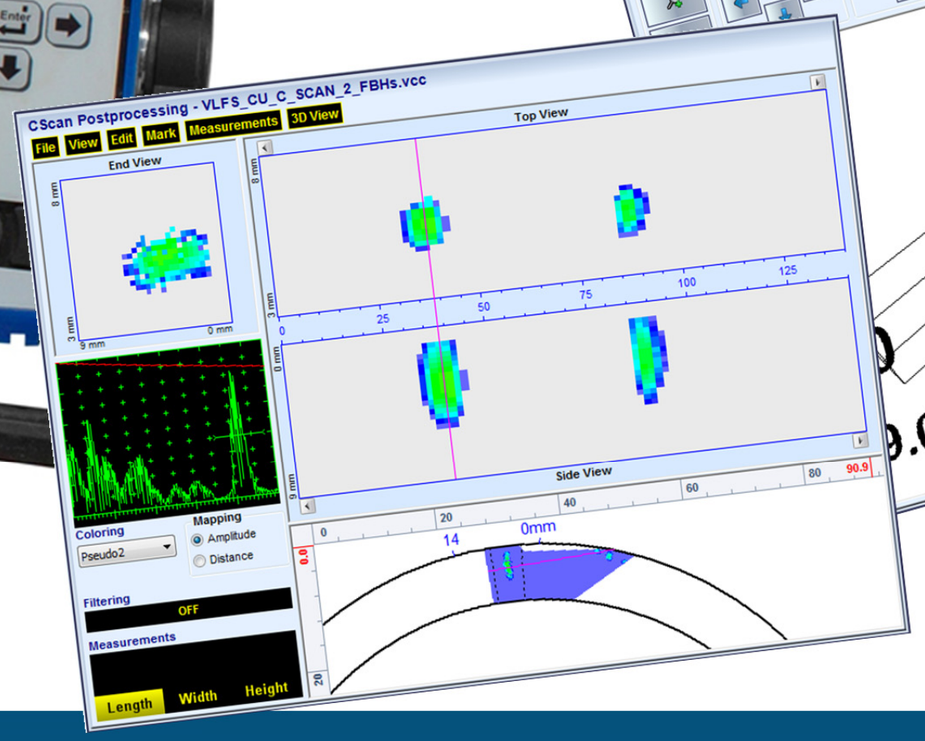
Item	Order Code (Part ##)
Inspection SW Application for ISONIC 2010 / ISONIC 2010 EL - Phased Array Modality: **VLFS CU – Vertical Line Focusing Scanning and Imaging of Tubular Objects (typical application: inspection of narrow gap heavy thickness longitudinal welds, ER welds in tubes and similar objects)** ⇨ True-To-Geometry 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 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 ⇨ 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 910807





Inspection of longitudinal ERW – calibration block





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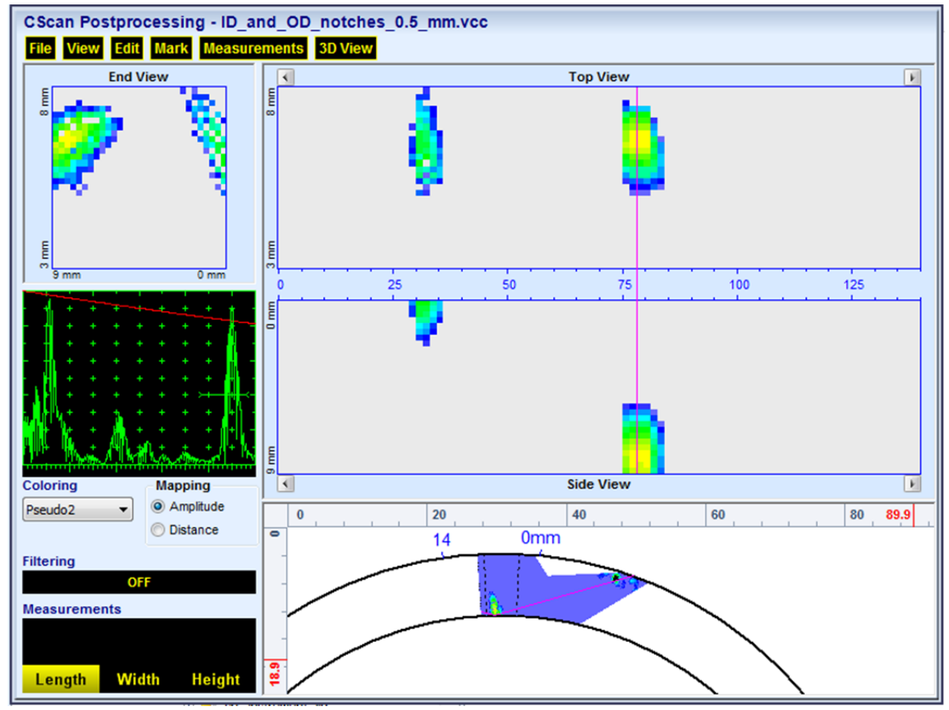
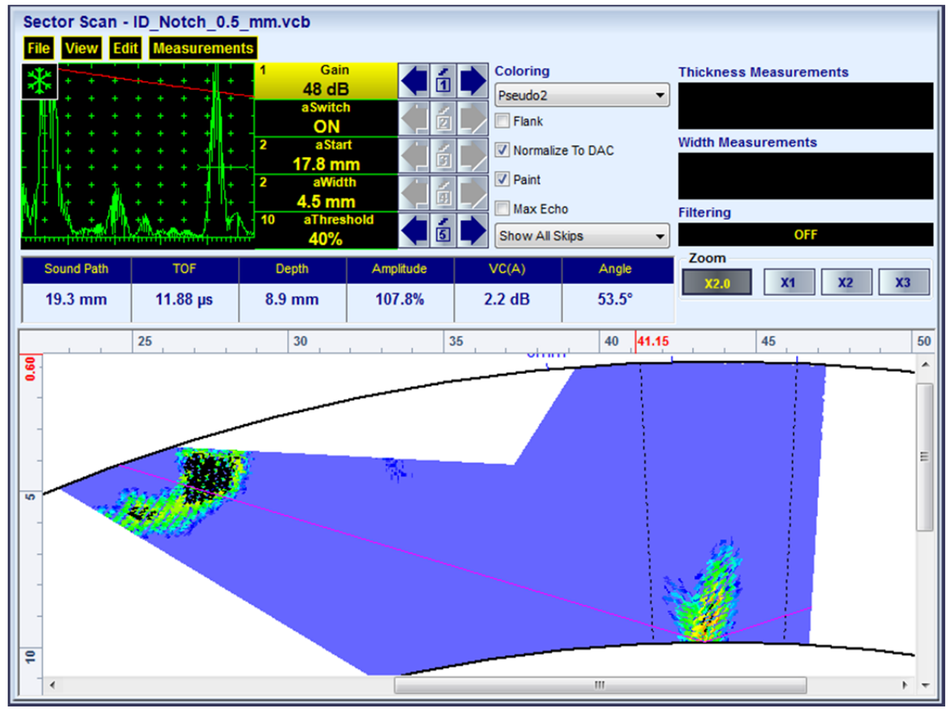
Inspection of longitudinal ERW – calibration block





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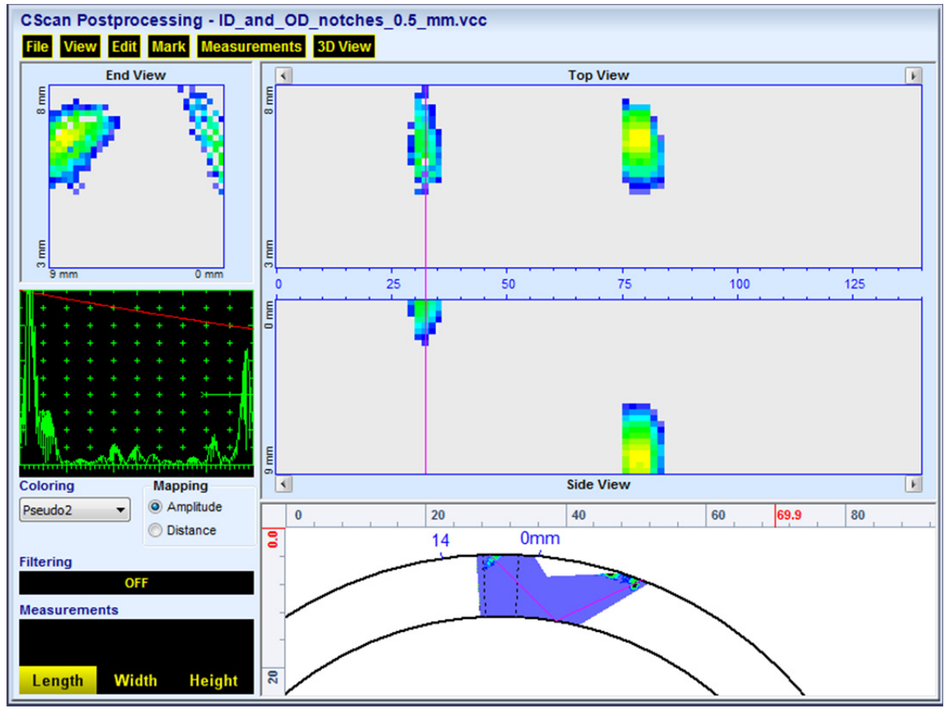
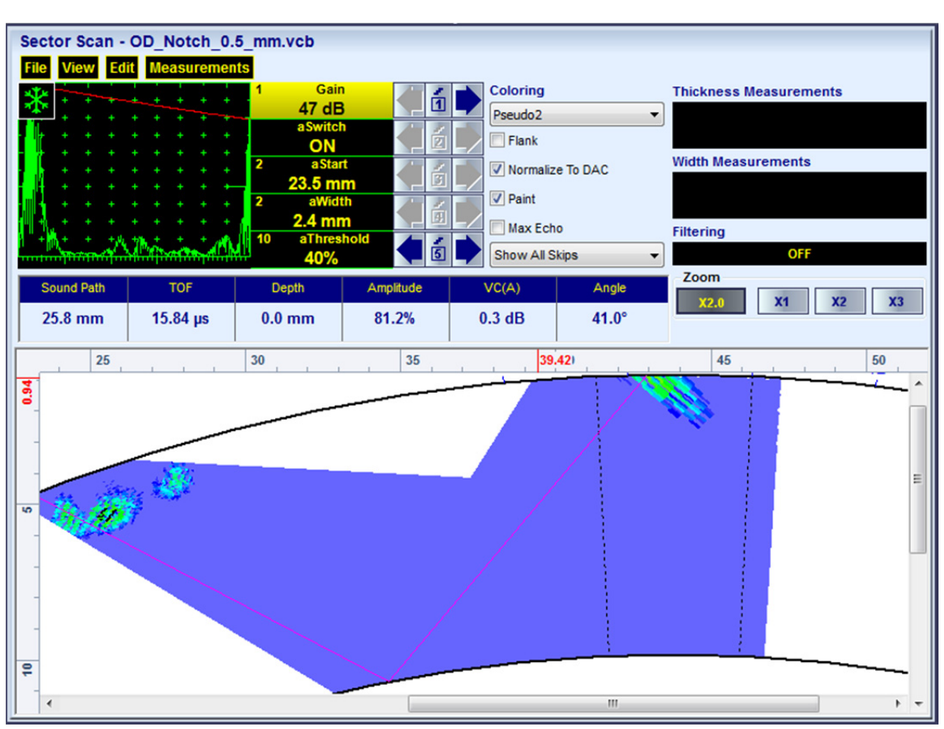
Inspection of longitudinal ERW – calibration block





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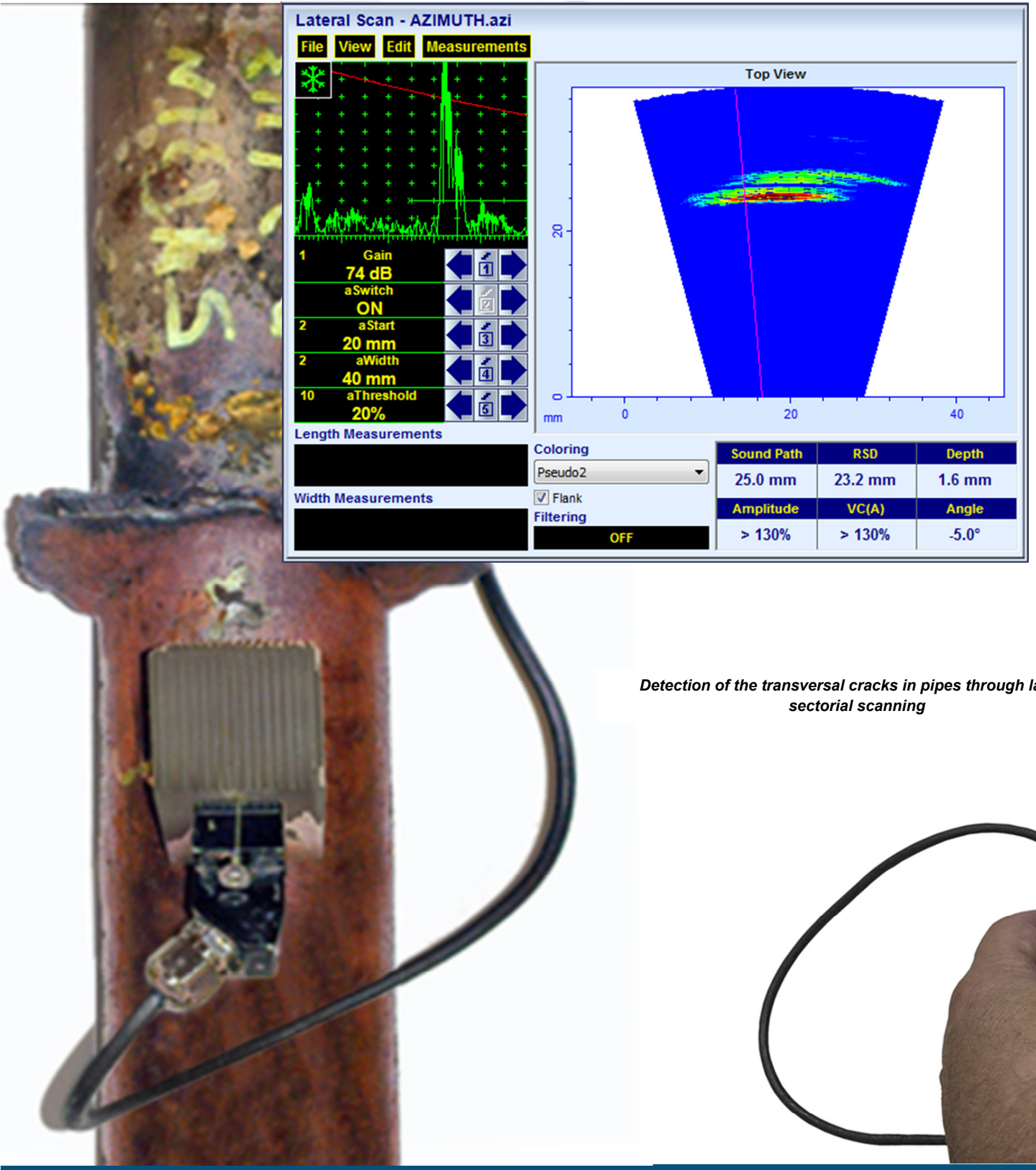

Item	Order Code (Part ##)
Inspection SW Application for ISONIC 2010 / ISONIC 2010 EL - PA Modality: **CB-Scan - Lateral Scanning** ⇨ Horizontal Plane CB-Scan Coverage and Imaging with Use of Shear, Surface and Guided Waves using Linear Arrays Situated Horizontally on the Fixed Angle Wedge ⇨ Azimuth and Linear C-Scan Coverage ⇨ Intuitive Image Guided PA Pulser Receiver with Beam Forming View ⇨ DAC / TCG Normalization ⇨ Independent on TCG Angle Gain Compensation / Gain Per Focal Law Correction ⇨ 100% Raw Data Capturing ⇨ Comprehensive Postrpocessing Including: → Recovery and Evaluation of Captured A-Scans from the Recorded CB-Scan → 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 → Automatic creating of inspection reports - hard copy / PDF File	SWA 910803

Detection of the transversal cracks in pipes through lateral sectorial scanning

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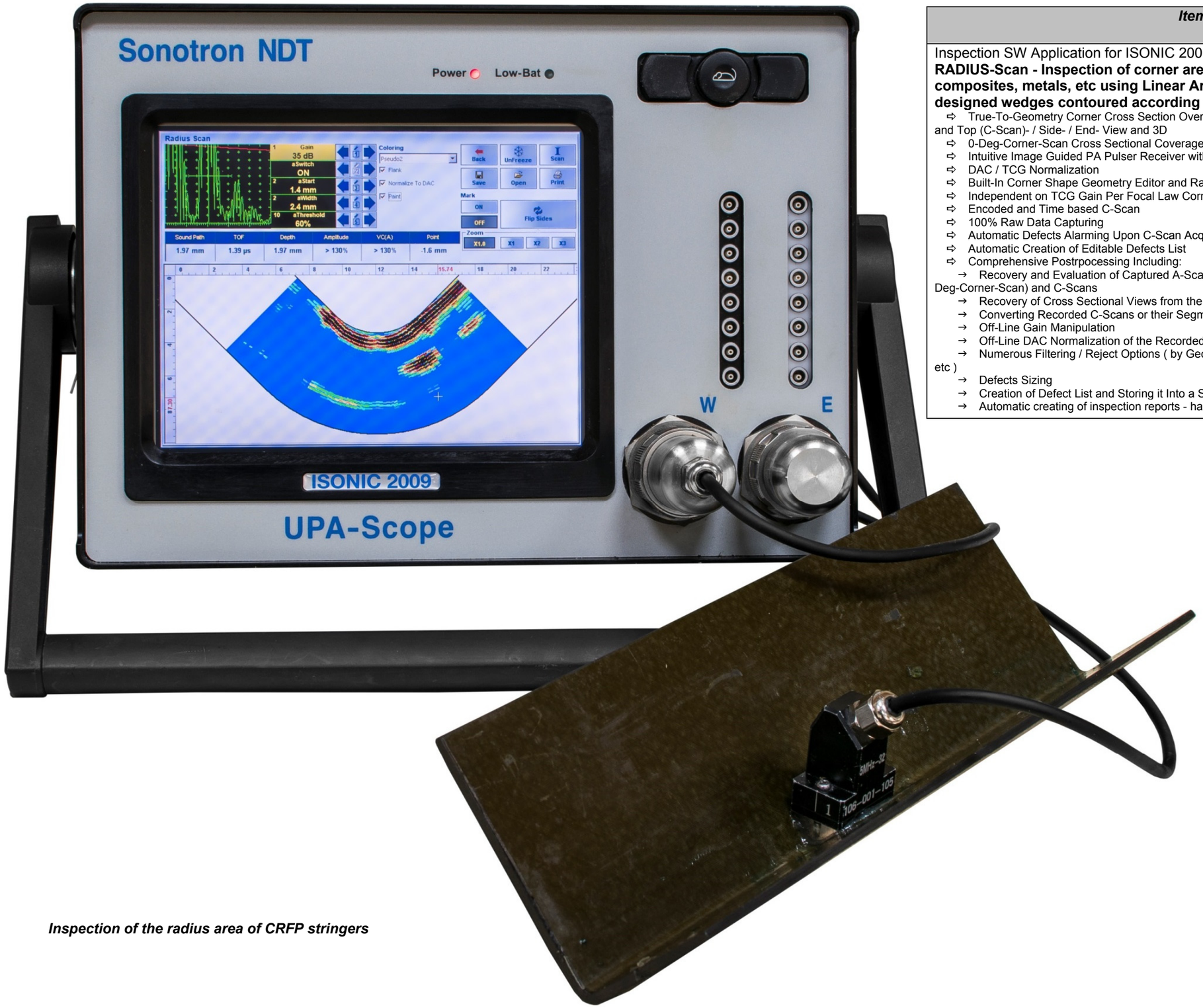

Item	Order Code (Part ##)
Inspection SW Application for ISONIC 2009 UPA-Scope - Phased Array Modality: **RADIUS-Scan - Inspection of corner areas of various parts made of composites, metals, etc using Linear Array Probes equipped with specially designed wedges contoured according to inner corner surface** ⇨ True-To-Geometry Corner Cross Section Overlay Volume Corrected Imaging - Cross Sectional and Top (C-Scan)- / Side- / End- View and 3D ⇨ 0-Deg-Corner-Scan Cross Sectional Coverage ⇨ Intuitive Image Guided PA Pulser Receiver with Beam Forming View ⇨ DAC / TCG Normalization ⇨ Built-In Corner Shape Geometry Editor and Ray Tracer - Scanning Pattern Design ⇨ Independent on TCG Gain Per Focal Law Correction ⇨ Encoded and Time based C-Scan ⇨ 100% Raw Data Capturing ⇨ Automatic Defects Alarming Upon C-Scan Acquisition Completed ⇨ Automatic Creation of Editable Defects List ⇨ Comprehensive Postrpocessing Including: → Recovery and Evaluation of Captured A-Scans from the Recorded Cross Sectional Views (0-Deg-Corner-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 909812

Inspection of the radius area of CRFP stringers

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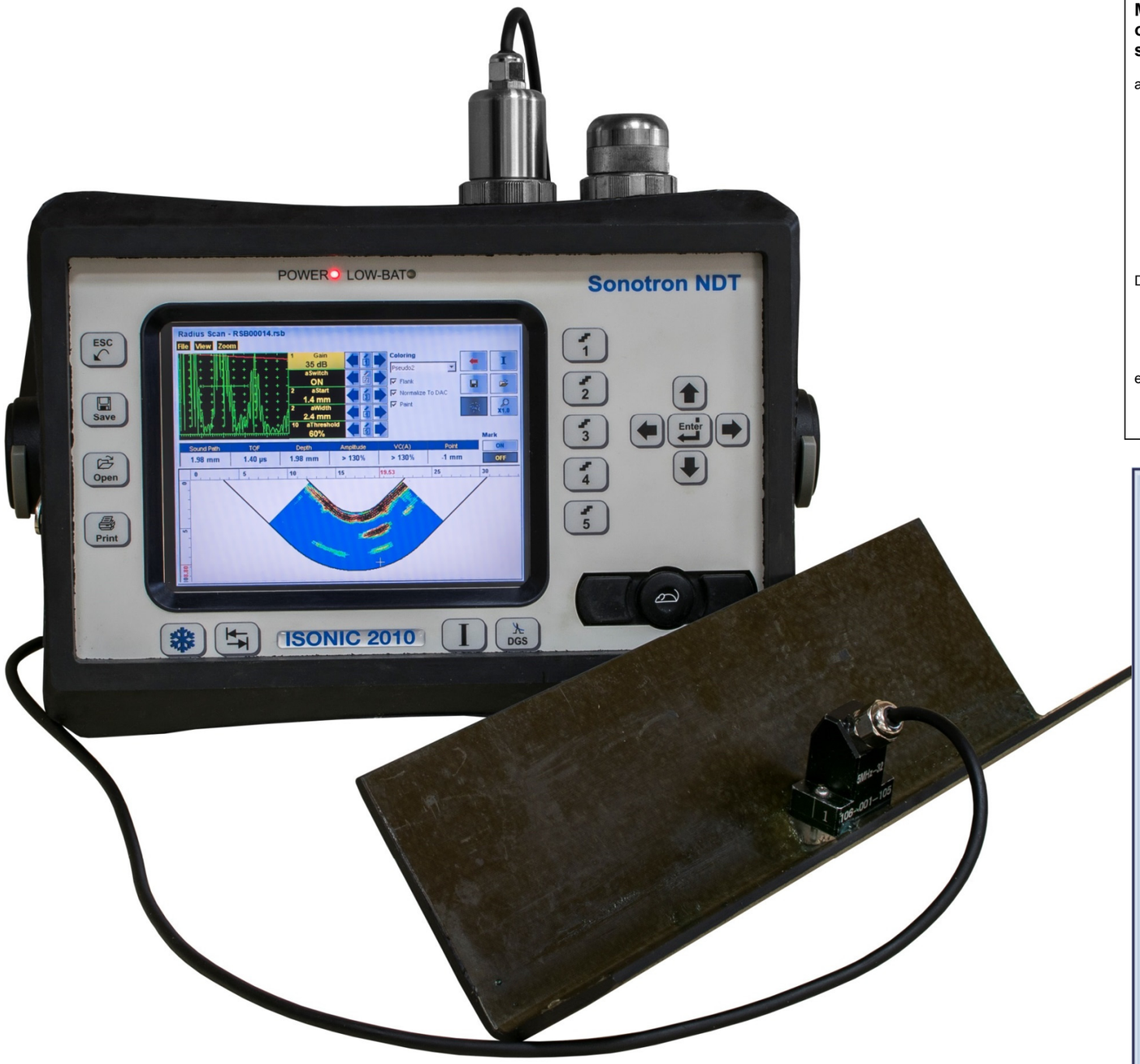
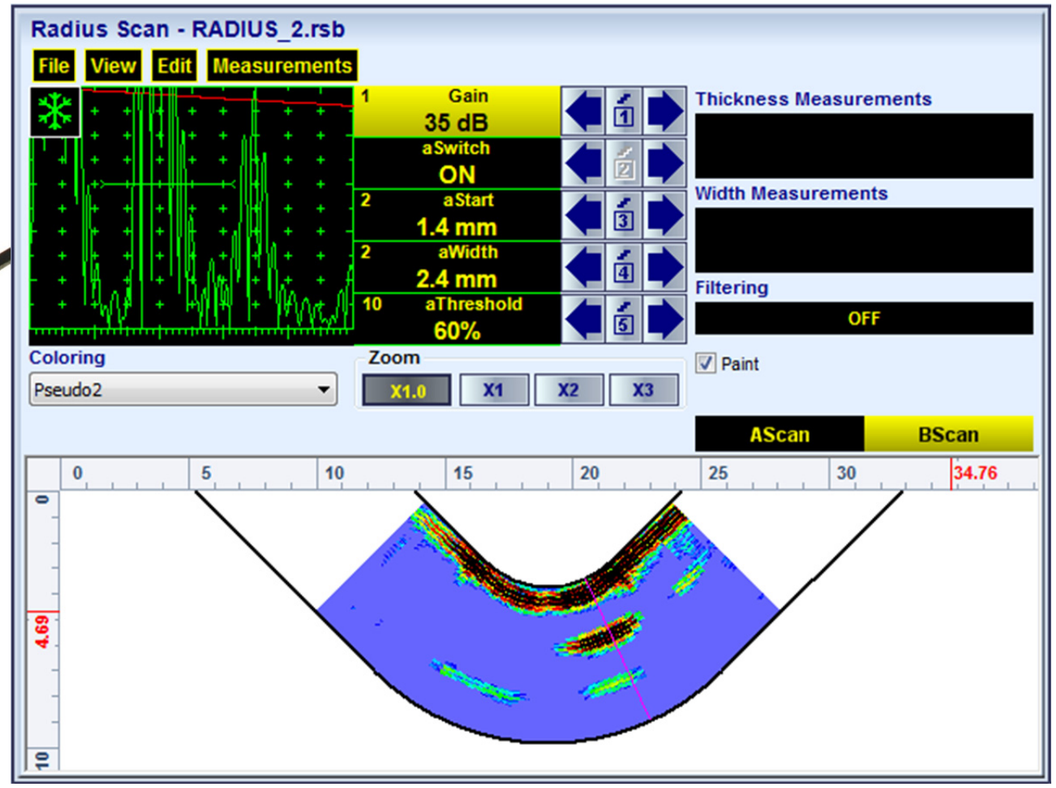
Item	Order Code (Part ##)
Inspection SW Application for ISONIC 2009 UPA-Scope - Phased Array Modality: RADIUS-Scan - Inspection of corner areas of various parts made of composites, metals, etc using Linear Array Probes equipped with specially designed wedges contoured according to inner corner surface ⇨ True-To-Geometry Corner Cross Section Overlay Volume Corrected Imaging - Cross Sectional and Top (C-Scan)- / Side- / End- View and 3D ⇨ 0-Deg-Corner-Scan Cross Sectional Coverage ⇨ Intuitive Image Guided PA Pulser Receiver with Beam Forming View ⇨ DAC / TCG Normalization ⇨ Built-In Corner Shape Geometry Editor and Ray Tracer - Scanning Pattern Design ⇨ Independent on TCG Gain Per Focal Law Correction ⇨ Encoded and Time based C-Scan ⇨ 100% Raw Data Capturing ⇨ Automatic Defects Alarming Upon C-Scan Acquisition Completed ⇨ Automatic Creation of Editable Defects List ⇨ Comprehensive Postrpocessing Including: → Recovery and Evaluation of Captured A-Scans from the Recorded Cross Sectional Views (0-Deg-Corner-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 909812**



Inspection of the radius area of CRFP stringers



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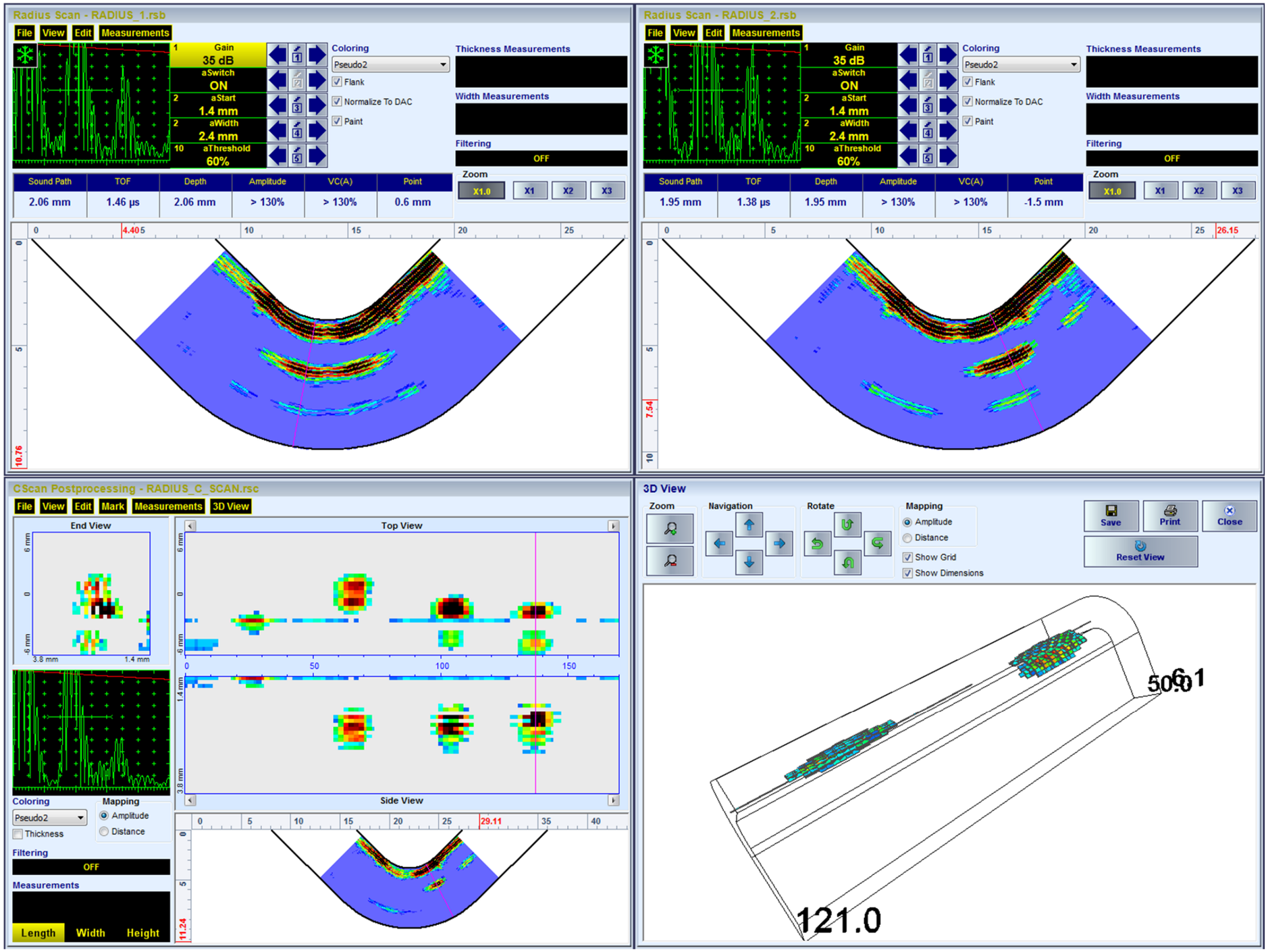
Typical Postprocessing Screenshots



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Inspection of the radius area of the heavy composite stringers

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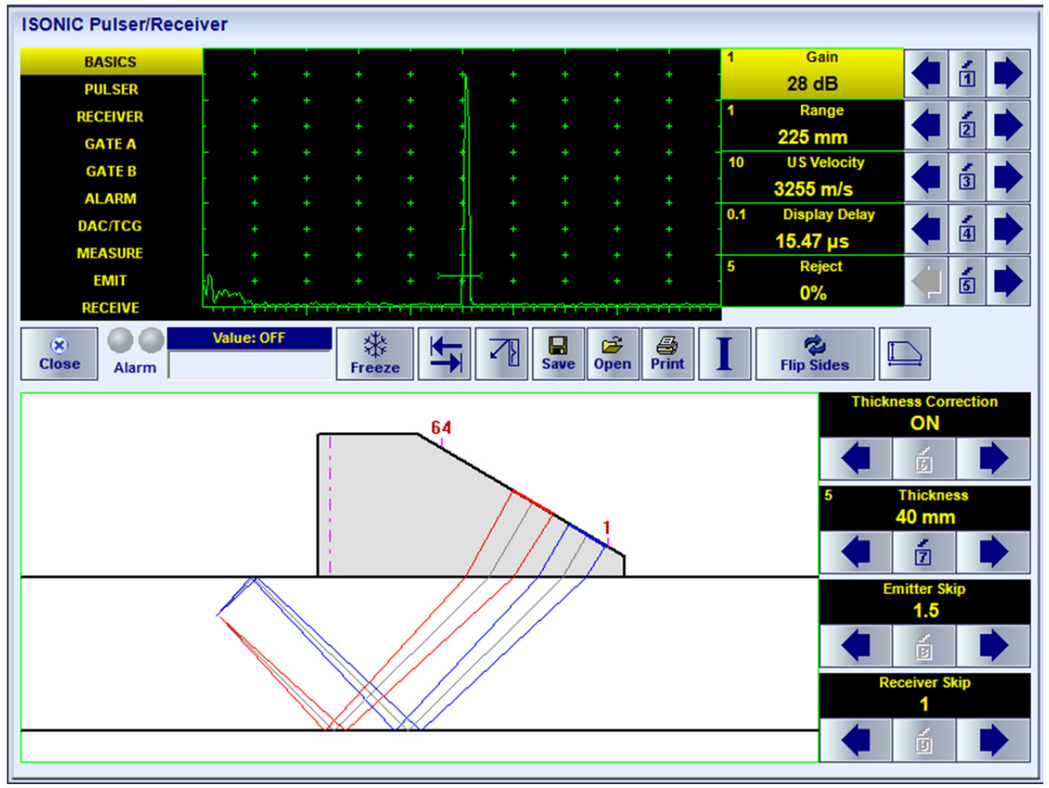
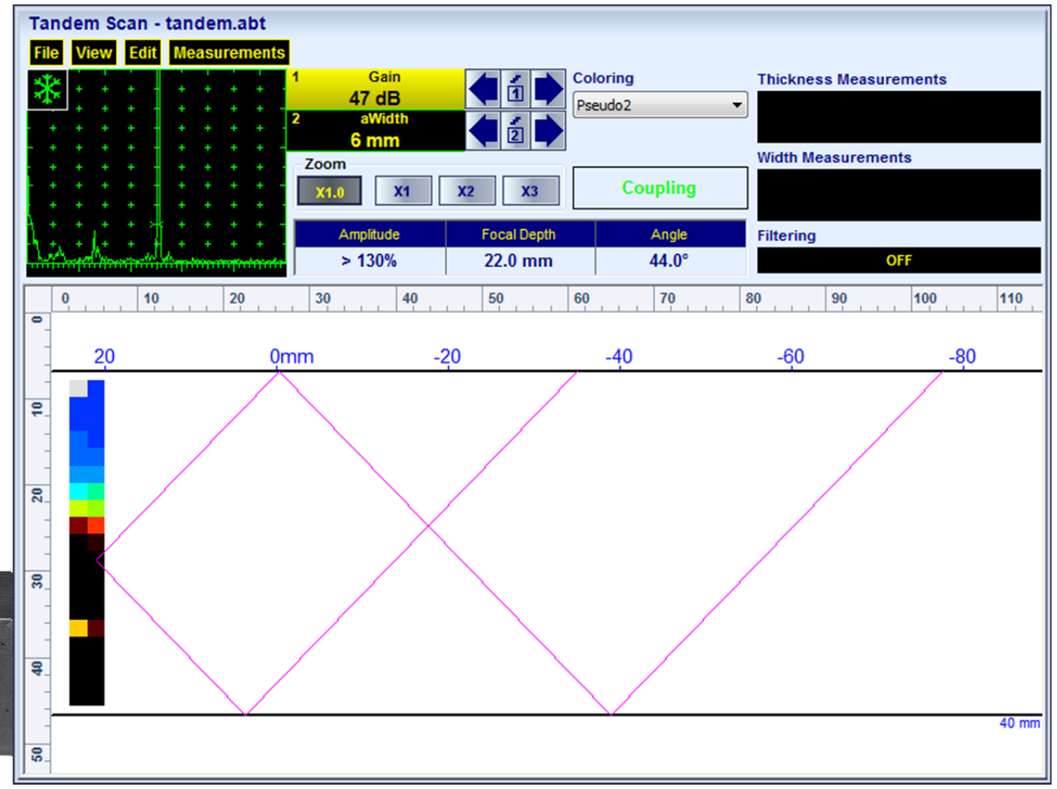
Thanks to the built-in Tandem-B-Scan cross-sectional coverage and imaging feature ISONIC 2009 UPA Scope uniquely provides the reliable detection of the vertical and close to vertical planar defects in the welds, plates, tubes and vessels walls, rails, and the like with use of 64-elements linear array probes





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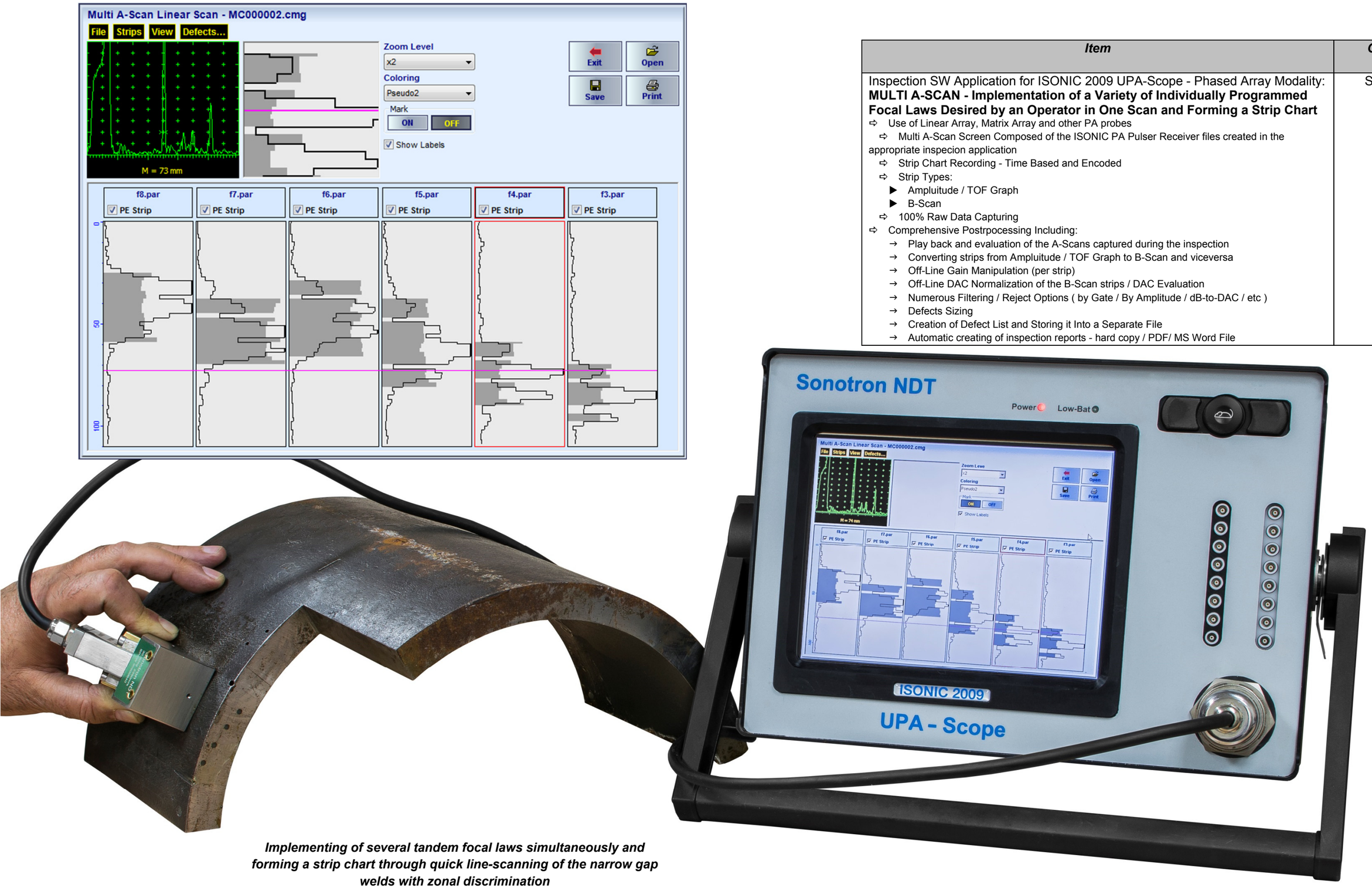
Item	Order Code (Part ##)
Inspection SW Application for ISONIC 2009 UPA-Scope - Phased Array Modality: **MULTI A-SCAN - Implementation of a Variety of Individually Programmed Focal Laws Desired by an Operator in One Scan and Forming a Strip Chart** ⇨ Use of Linear Array, Matrix Array and other PA probes ⇨ Multi A-Scan Screen Composed of the ISONIC PA Pulser Receiver files created in the appropriate inspecion application ⇨ Strip Chart Recording - Time Based and Encoded ⇨ Strip Types: ▶ Ampluitude / TOF Graph ▶ B-Scan ⇨ 100% Raw Data Capturing ⇨ Comprehensive Postrpocessing Including: → Play back and evaluation of the A-Scans captured during the inspection → Converting strips from Ampluitude / TOF Graph to B-Scan and viceversa → Off-Line Gain Manipulation (per strip) → Off-Line DAC Normalization of the B-Scan strips / DAC Evaluation → Numerous Filtering / Reject Options (by Gate / 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/ MS Word File	SWA 909830



Implementing of several tandem focal laws simultaneously and forming a strip chart through quick line-scanning of the narrow gap welds with zonal discrimination

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Standard 0-deg B-Scan coverage combined with non-linear acoustic approach allowed by the powerful PA pulser receiver of ISONIC 2009 UPA Scope ensures detection of the imperfections over entire volume of the extremely attenuating glass-fiber- and heavy composite-made parts with use of the same high frequency highly damped PA probes, which are well suitable for the regular metals inspection

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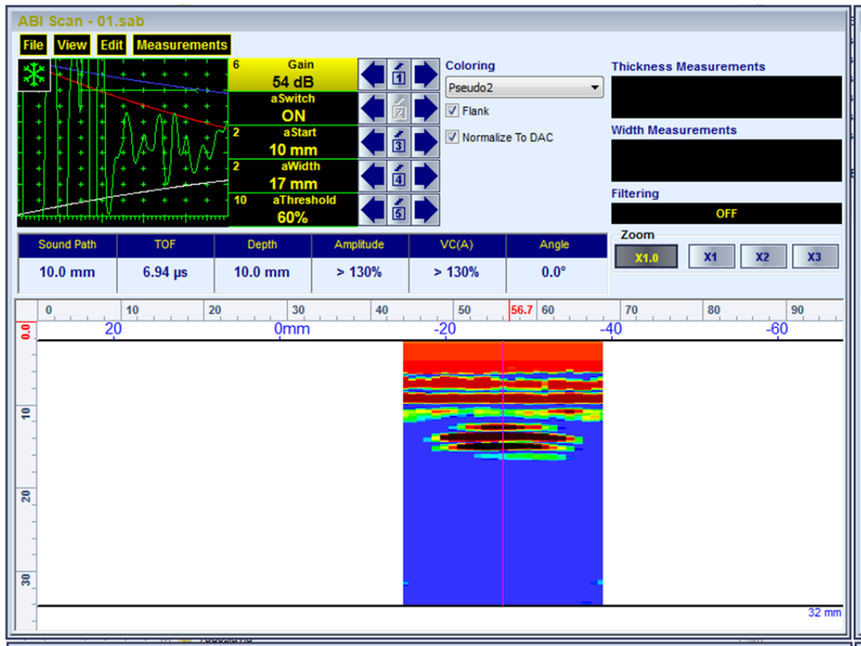
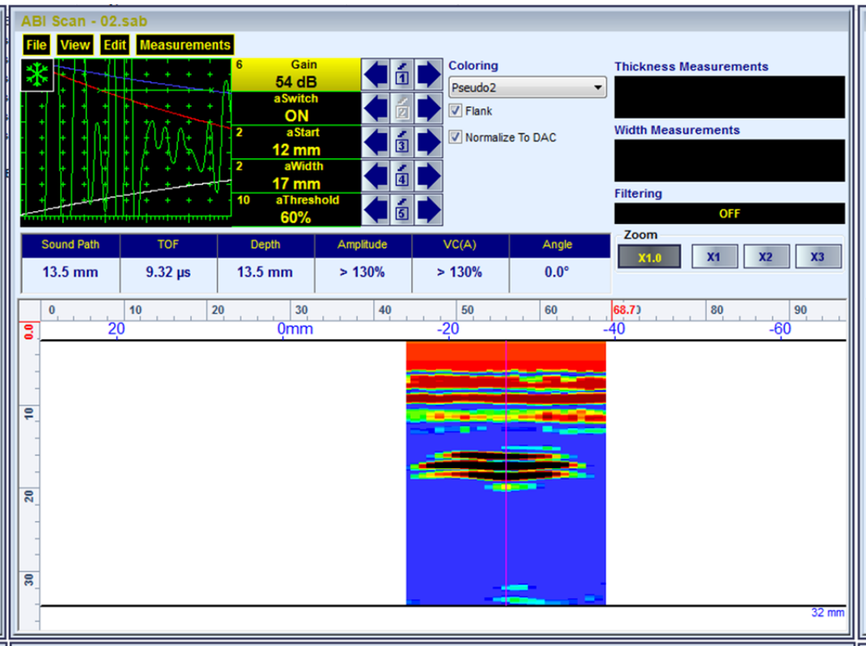
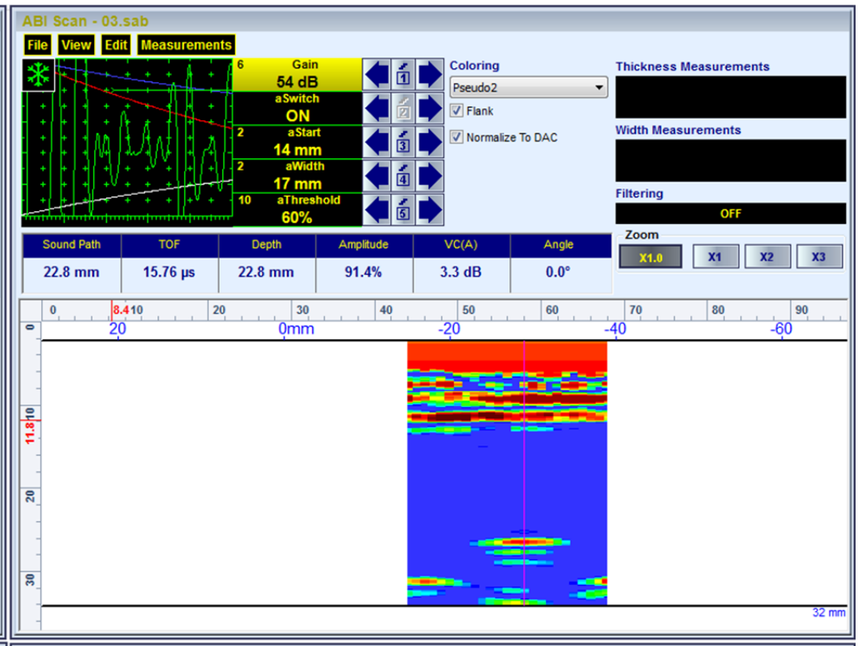
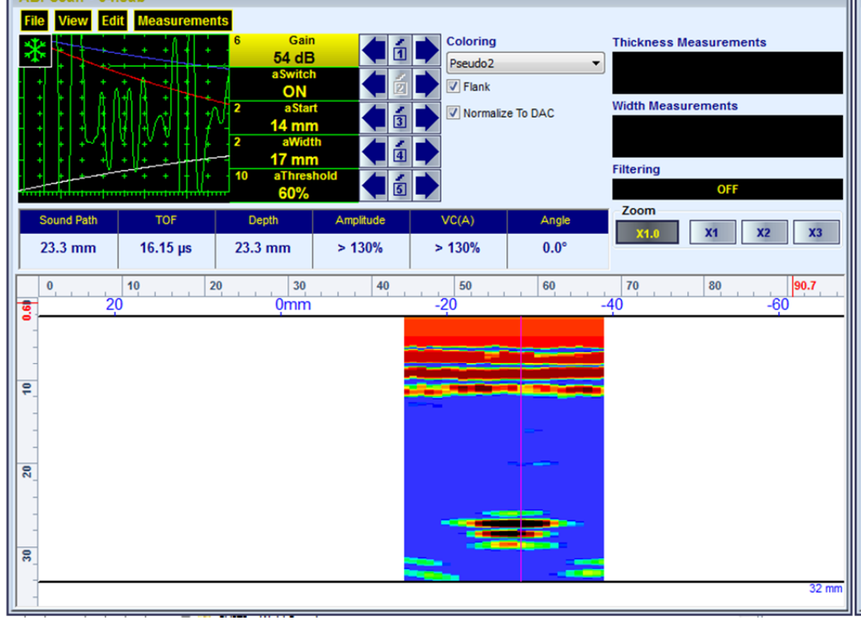
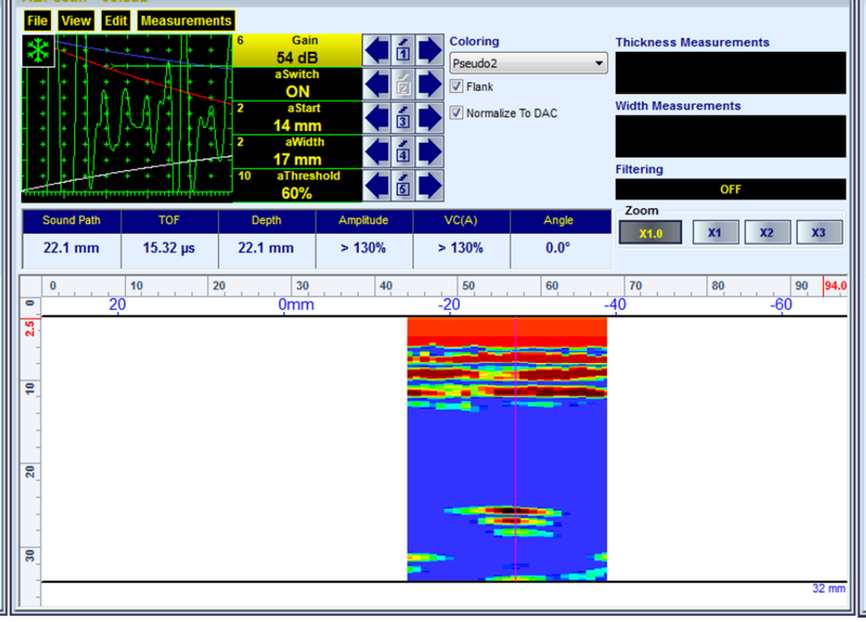
Typical Postprocessing Screenshots

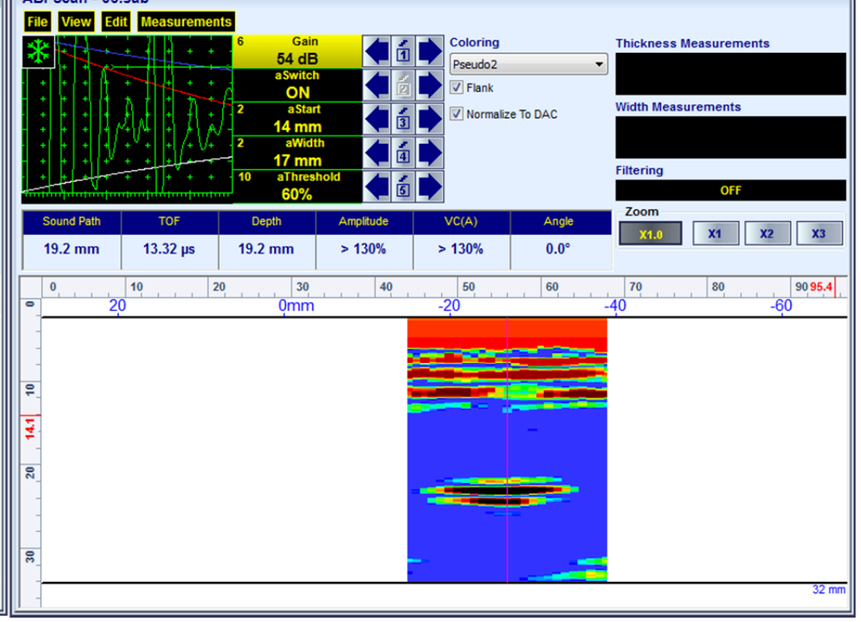












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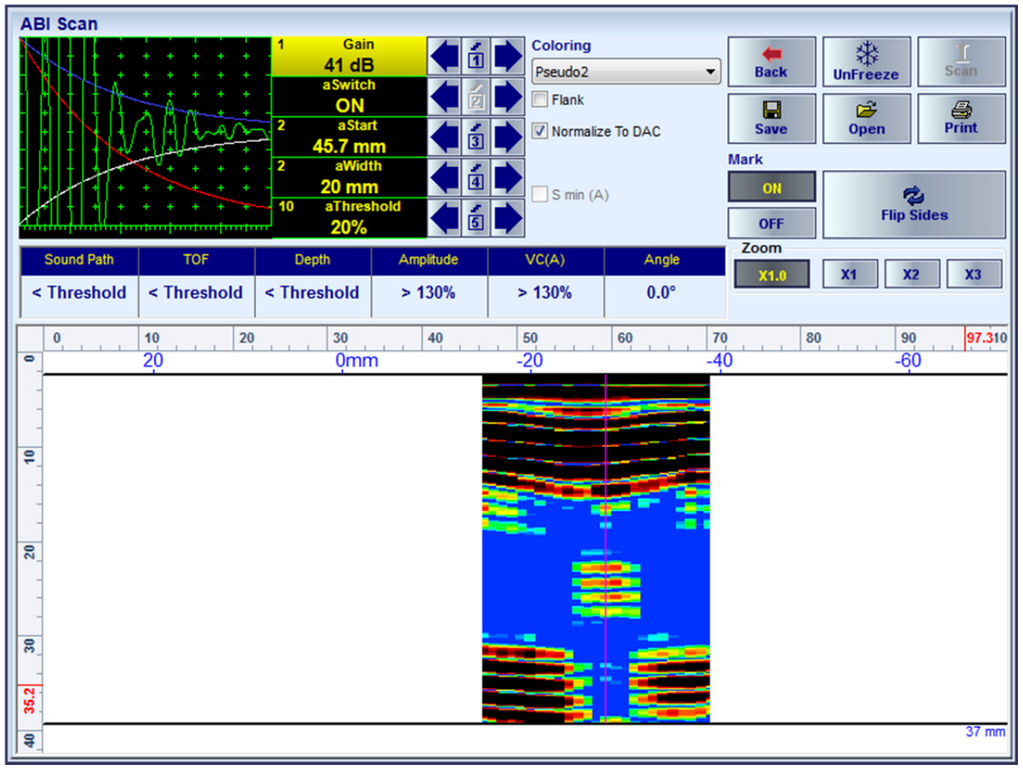
Standard 0-deg B-Scan coverage combined with non-linear acoustic approach allowed by the powerful PA pulser receiver of ISONIC 2009 UPA Scope ensures detection of the imperfections over entire volume of the sandwich-honeycomb structure parts with use of the same high frequency highly damped PA probes, which are well suitable for the regular metals inspection



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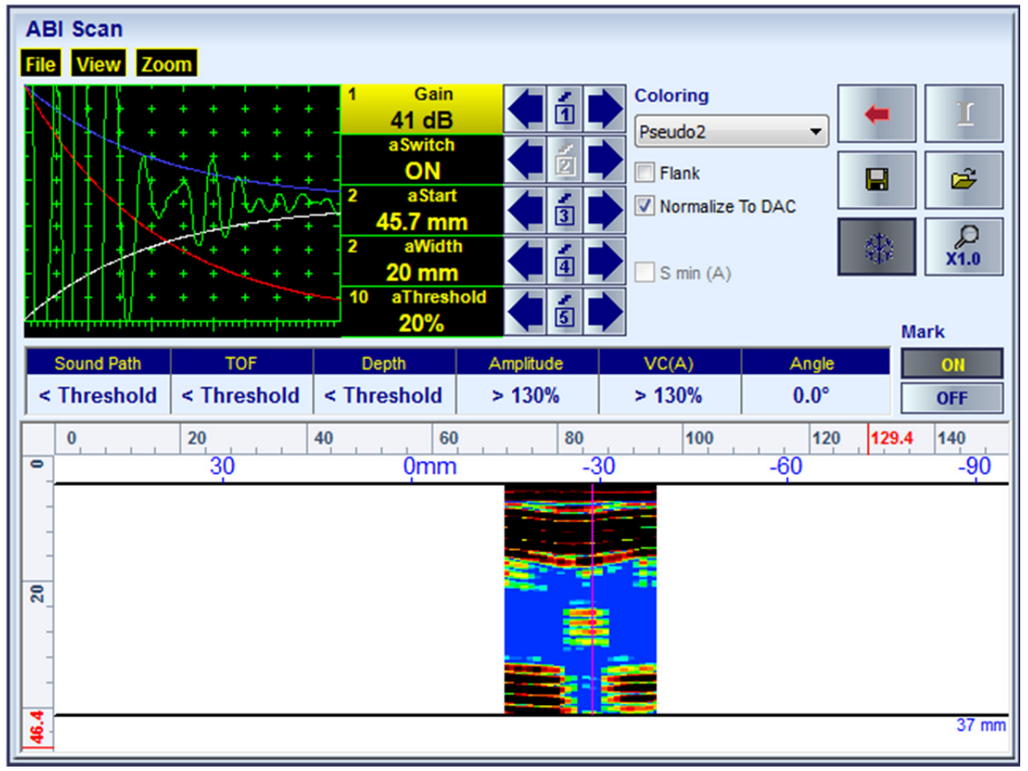

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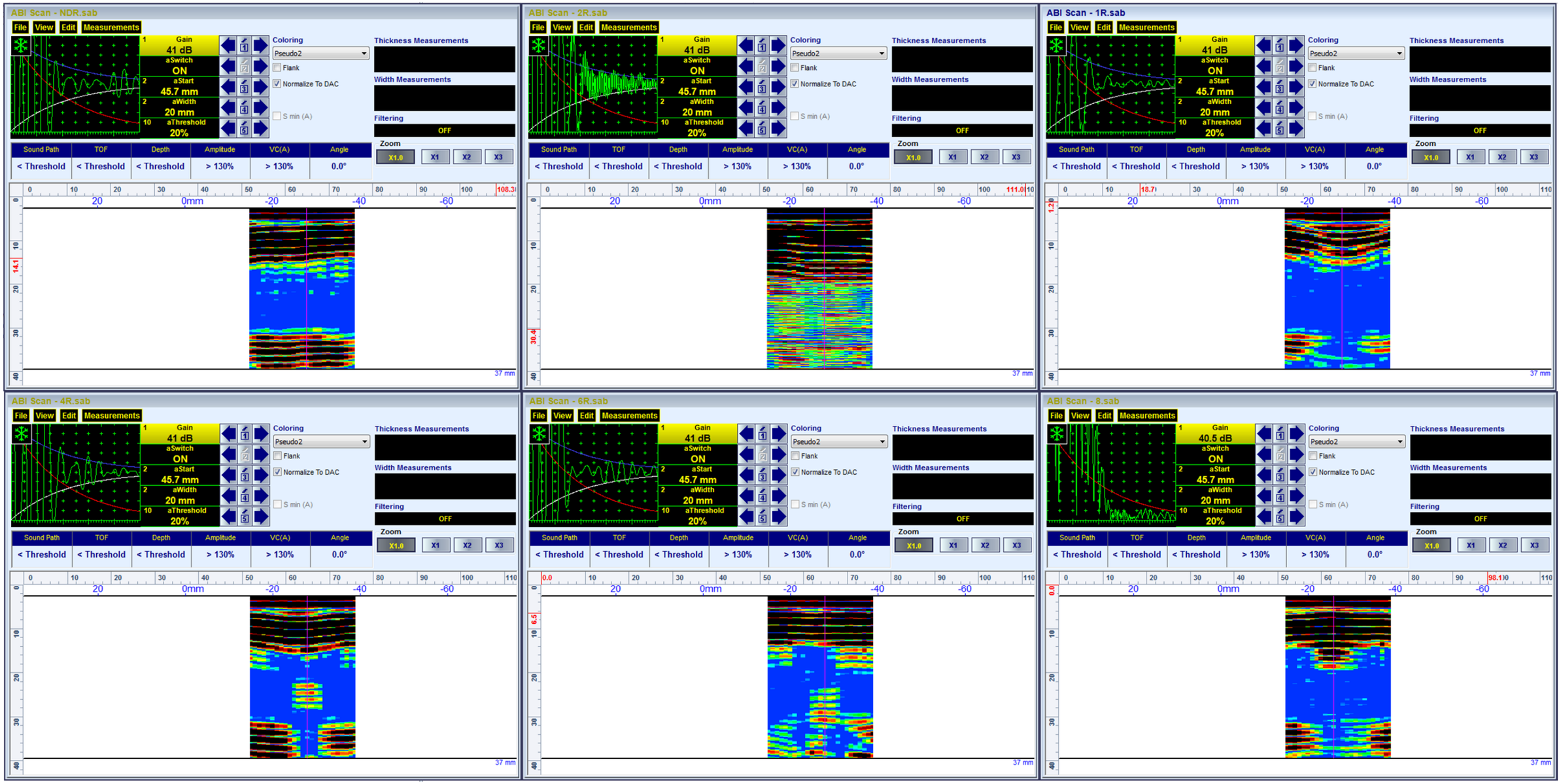
Typical Postprocessing Screenshots

No Defect Area

De-bond between skin and honeycomb at the probe placement side

De-bond between skin and honeycomb at the side opposite to the probe placement



Broken honeycomb

Broken honeycomb

Broken honeycomb

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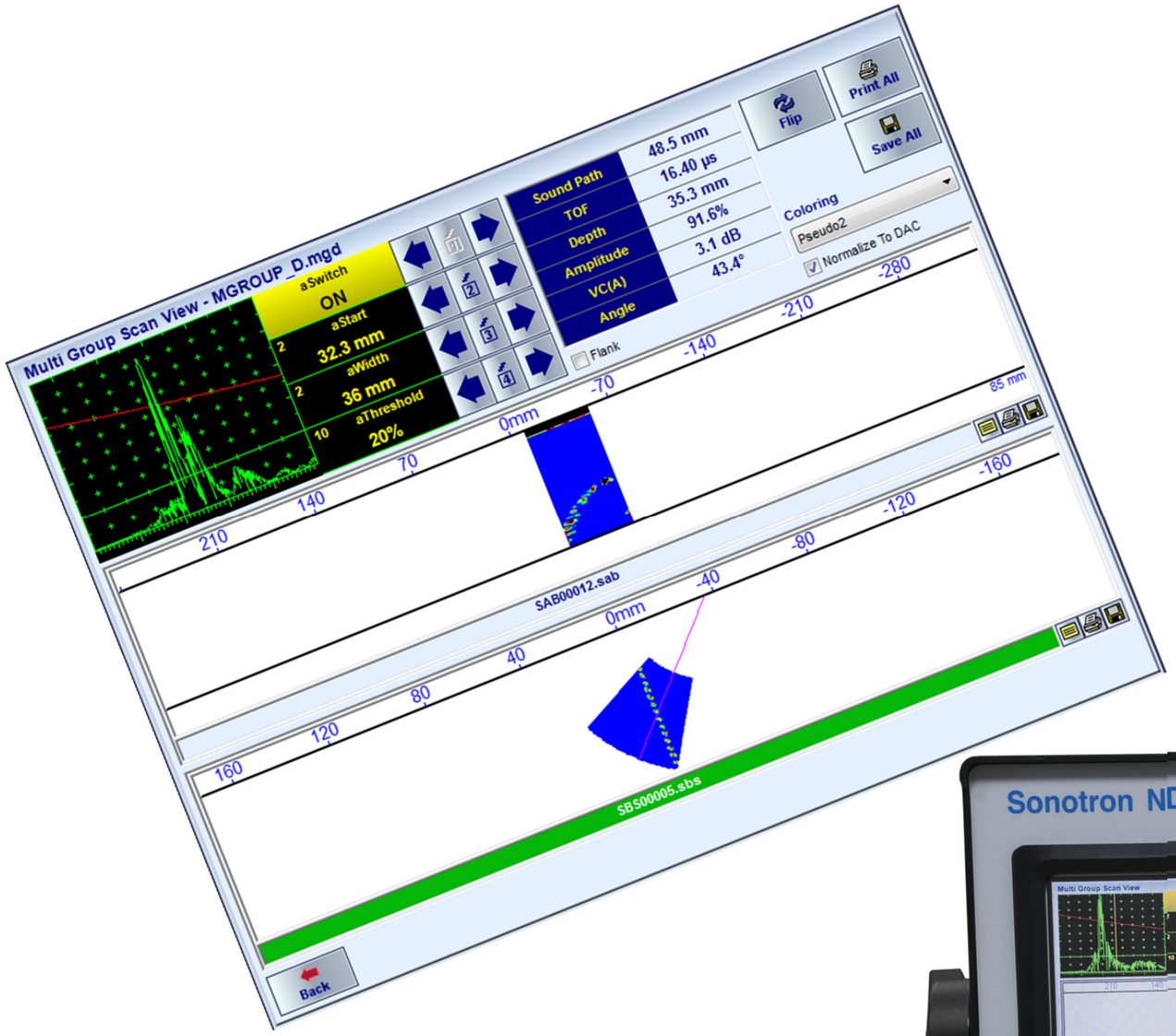

Implementing of longitudinal wave sectorial scan and linear scan simultaneously

Item	*Order Code (Part ##)*
Inspection SW Application for ISONIC 2009 UPA-Scope - PA Modality: **Multi-Group D – Implementation of Several (up to 4) Linear Scan Insonification Schemes Simultaneously with Use of One Linear Array Probe with / without Delay Line** ⇨ Multi-Group Cross Sectional Coverage - Built-In Intuitive Material Coverage Composer ⇨ Straight Beam and Inclined B-Scan (Linear Scan), and Combined Cross Sectional Coverage ⇨ DAC / TCG Normalization ⇨ Independent on TCG Gain Per Focal Law Correction ⇨ Encoded and Time Based Recording ⇨ 100% Raw Data Capturing ⇨ Automatic Creation of Editable Defects List for Each Group Scanning ⇨ Comprehensive Postrpocessing Including: → Recovery and Evaluation of Recorded Cross Sectional Views (Straight Beam and Inclined B-Scan) for all Groups Simultaneously → Exporting Every Desired Group Inspection into a Separate C-Scan File → Recovery and Evaluation of Captured A-Scans from the Recorded Cross Sectional Views (Straight Beam and Inclined B-Scan) and C-Scans for Each Group Inspection → 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 909820

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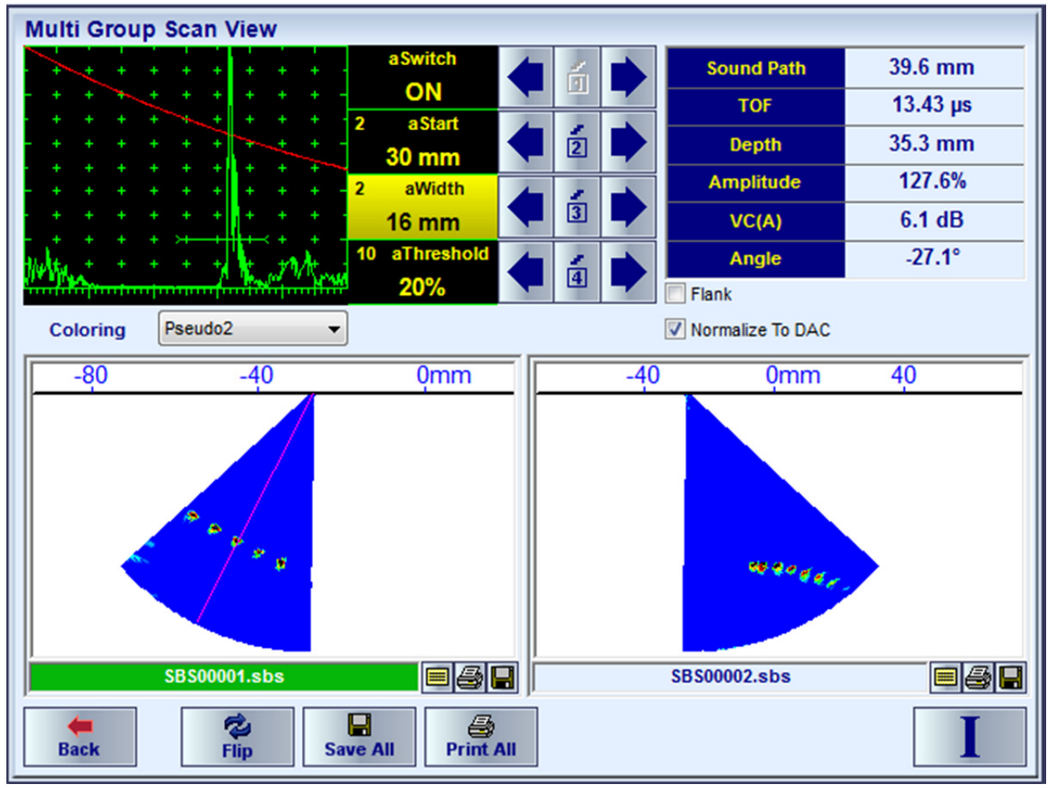
Implementing of 2 longitudinal wave sectorial scan coverage patterns simultaneously

Item	*Order Code (Part ##)*
Inspection SW Application for ISONIC 2010 - PA Modality: **Multi-Group D – Implementation of Several (up to 4) Linear Scan Insonification Schemes Simultaneously with Use of One Linear Array Probe with / without Delay Line** ➪ Multi-Group Cross Sectional Coverage - Built-In Intuitive Material Coverage Composer ➪ Straight Beam and Inclined B-Scan (Linear Scan), and Combined Cross Sectional Coverage ➪ DAC / TCG Normalization ➪ Independent on TCG Gain Per Focal Law Correction ➪ Encoded and Time Based Recording ➪ 100% Raw Data Capturing ➪ Automatic Creation of Editable Defects List for Each Group Scanning ➪ Comprehensive Postrpocessing Including: → Recovery and Evaluation of Recorded Cross Sectional Views (Straight Beam and Inclined B-Scan) for all Groups Simultaneously → Exporting Every Desired Group Inspection into a Separate C-Scan File → Recovery and Evaluation of Captured A-Scans from the Recorded Cross Sectional Views (Straight Beam and Inclined B-Scan) and C-Scans for Each Group Inspection → 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 909820



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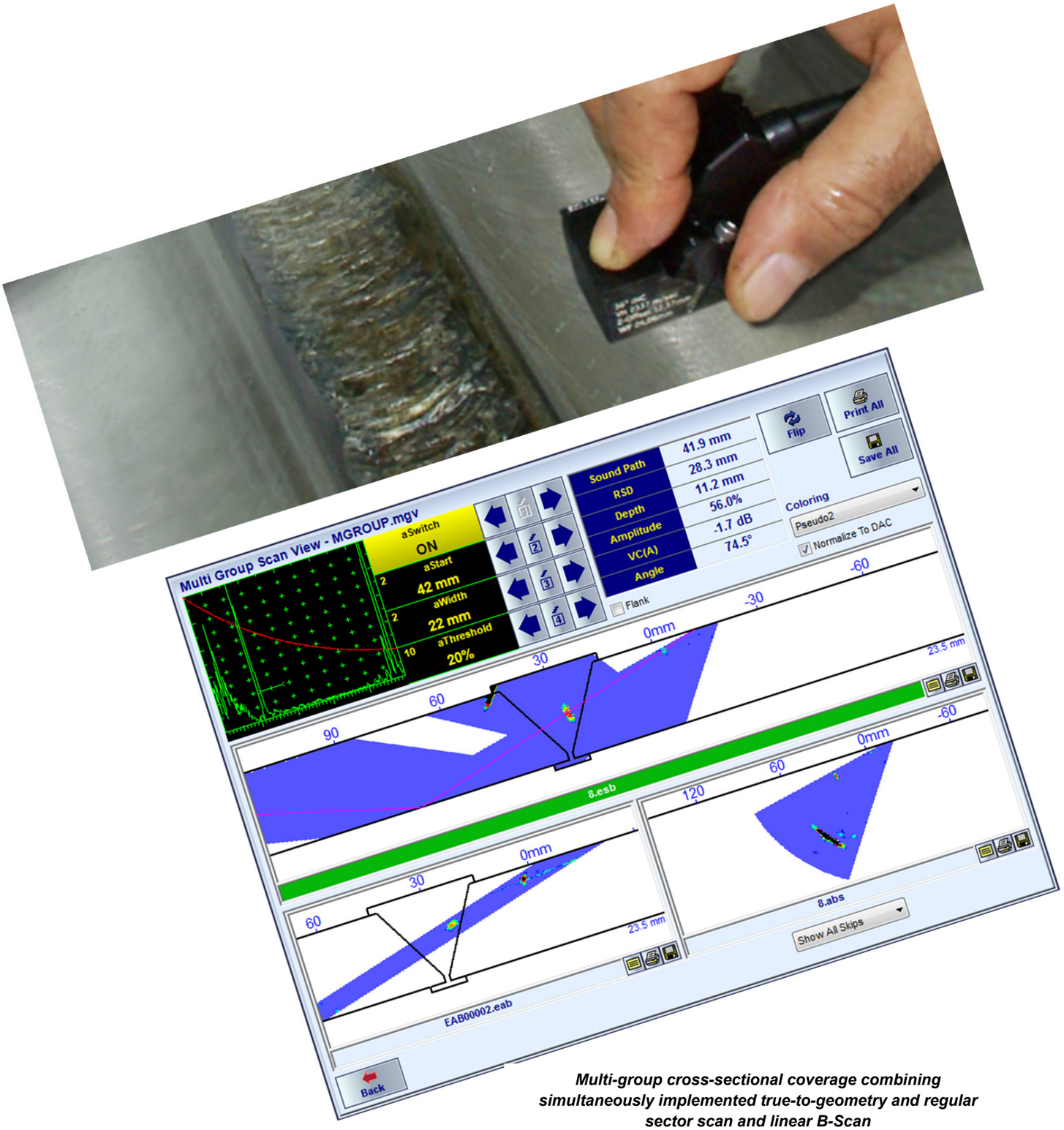

Multi-group cross-sectional coverage combining simultaneously implemented true-to-geometry and regular sector scan and linear B-Scan

Item	*Order Code (Part ##)*
Inspection SW Application for ISONIC 2009 UPA-Scope - PA Modality: **Multi-Group – Implementation of Several (up to 5) Various Insonification Schemes Simultaneously with Use of Differently Configured Groups of Elements of Wedged Linear Array Probe** ⇨ Multi-Group Cross Sectional Coverage - Built-In Intuitive Weld Bevel Coverage Composer ⇨ Sector-Scan, B-Scan (Linear Scan), and Combined Cross Sectional Coverage ⇨ True-To-Geometry Weld Overlay Volume Corrected Imaging - Cross Sectional and Top(C-Scan)- / Side- / End- View and 3D ⇨ DAC / TCG Normalization ⇨ Independent on TCG Angle Gain Compensation / Gain Per Focal Law Correction ⇨ Automatic Coupling Monitor ⇨ Encoded and Time Based Recording ⇨ 100% Raw Data Capturing ⇨ Automatic Creation of Editable Defects List for Each Group Scanning ⇨ Comprehensive Postrpocessing Including: → Recovery and Evaluation of Recorded Cross Sectional Views (Sector Scan / B-Scan) for all Groups Simultaneously → Exporting Every Desired Group Inspection into a Separate C-Scan File → Recovery and Evaluation of Captured A-Scans from the Recorded Cross Sectional Views (Sector Scan / B-Scan) and C-Scans for Each Group Inspection → 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 909810
Inspection SW Application for ISONIC 2010 / ISONIC 2010 EL - Phased Array Modality: **Multi-Group – Implementation of Several (up to 3) Various Insonification Schemes Simultaneously with Use of Differently Configured Groups of Elements of Wedged Linear Array Probe** ⇨ Multi-Group Cross Sectional Coverage - Built-In Intuitive Weld Bevel Coverage Composer ⇨ Sector-Scan, B-Scan (Linear Scan), and Combined Cross Sectional Coverage ⇨ True-To-Geometry Weld Overlay Volume Corrected Imaging - Cross Sectional and Top(C-Scan)- / Side- / End- View and 3D ⇨ DAC / TCG Normalization ⇨ Independent on TCG Angle Gain Compensation / Gain Per Focal Law Correction ⇨ Automatic Coupling Monitor ⇨ Encoded and Time Based Recording ⇨ 100% Raw Data Capturing ⇨ Automatic Creation of Editable Defects List for Each Group Scanning ⇨ Comprehensive Postrpocessing Including: → Recovery and Evaluation of Recorded Cross Sectional Views (Sector Scan / B-Scan) for all Groups Simultaneously → Exporting Every Desired Group Inspection into a Separate C-Scan File → Recovery and Evaluation of Captured A-Scans from the Recorded Cross Sectional Views (Sector Scan / B-Scan) and C-Scans for Each Group Inspection → 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 910810

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Item	*Order Code (Part ##)*
Inspection SW Application for ISONIC 2010 / ISONIC 2010 EL - Phased Array Modality: **Bridge Pin Test - Inspection of the Bridge Hanger Pins for the Transversal Cracks and Other Integrity Breacking Defects** ⇨ True-To-Geometry Bridge Pin Overlay Volume Corrected Imaging - Cross Sectional Along the Bridge Pin / Unfolded C-Scan / 3D ⇨ Sector-Scan Cross Sectional Along the Bridge Pin Coverage with Probe Placed on the Outer Side Surface ⇨ Intuitive Image Guided PA Pulser Receiver with Beam Forming View ⇨ DAC / TCG Normalization ⇨ Built-In Bridge Pin Geometry Editor and Ray Tracer - Scanning Pattern Design ⇨ Independent on TCG Angle Gain Compensation / Gain Per Focal Law Correction ⇨ Encoded and Time based Unfolded C-Scan ⇨ 100% Raw Data Capturing ⇨ Automatic Defects Alarming Upon C-Scan Acquisition Completed ⇨ Automatic Creation of Editable Defects List ⇨ Comprehensive Postrpocessing Including: → Recovery and Evaluation of Captured A-Scans from the Recorded Cross Sectional Along the Bridge Pin Views (Sector Scan) and C-Scans → Recovery of Cross Sectional Along the Bridge Pin 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 910823

Inspection of the bridge hanger pins – calibration / performance demonstration block

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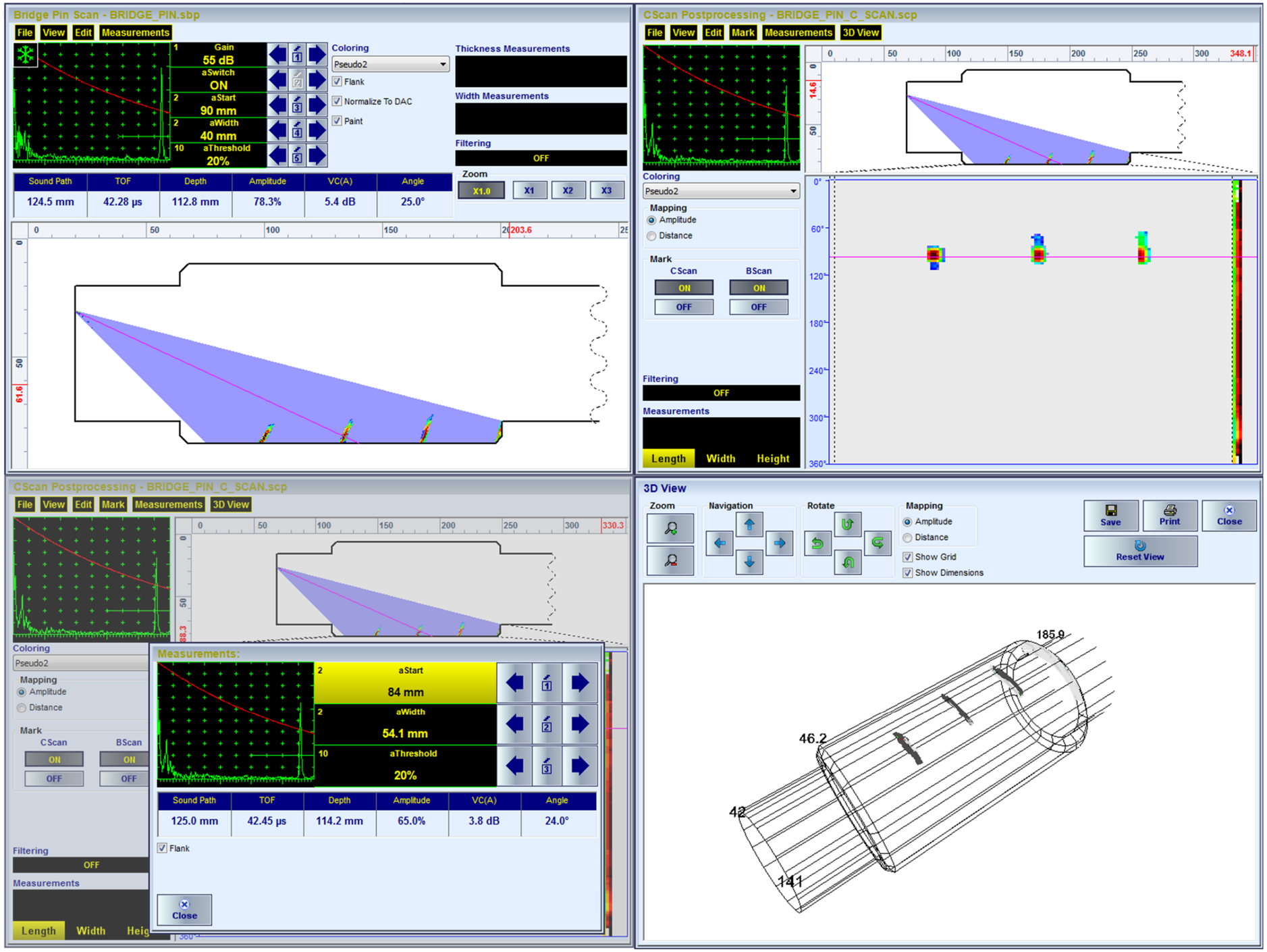
Typical Postprocessing Screenshots



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Item	*Order Code (Part ##)*
Inspection SW Application for ISONIC 2009 UPA-Scope - Phased Array Modality: **EXPERT SHAFT - Inspection of various shafts, bolts, spiundels for the transversal cracks** ⇨ True-To-Geometry Shaft/Bolt/Spindel Overlay Volume Corrected Imaging - Cross Sectional Along the Bridge Pin / Unfolded C-Scan / 3D ⇨ Sector-Scan Cross Sectional Along the Shaft/Bolt/Spindel Coverage with Probe Placed on the Outer Side Surface ⇨ Intuitive Image Guided PA Pulser Receiver with Beam Forming View ⇨ DAC / TCG Normalization ⇨ Built-In Shaft/Bolt/Spindel Geometry Editor and Ray Tracer - Scanning Pattern Design ⇨ Independent on TCG Angle Gain Compensation / Gain Per Focal Law Correction ⇨ Encoded and Time based Unfolded C-Scan ⇨ 100% Raw Data Capturing ⇨ Automatic Defects Alarming Upon C-Scan Acquisition Completed ⇨ Automatic Creation of Editable Defects List ⇨ Comprehensive Postrpocessing Including: → Recovery and Evaluation of Captured A-Scans from the Recorded Cross Sectional Along the Shaft/Bolt/Spindel Views (Sector Scan) and C-Scans → Recovery of Cross Sectional Along the Shaft/Bolt/Spindel 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 909829

Inspection the complex geometry shafts

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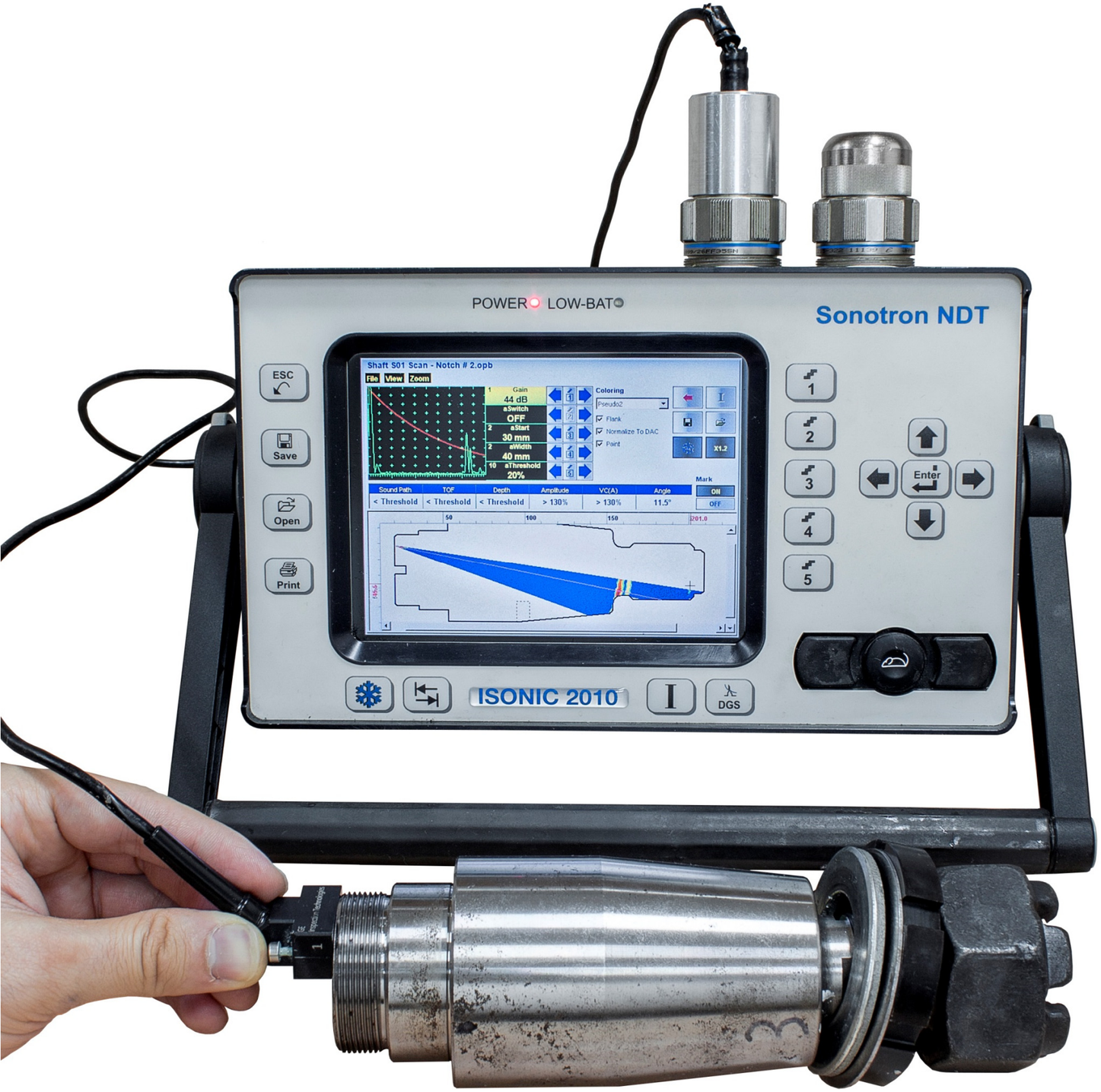

Item	*Order Code (Part ##)*
Inspection SW Application for ISONIC 2010 / ISONIC 2010 EL - Phased Array Modality: **EXPERT SHAFT - Inspection of various shafts, bolts, spiundels for the transversal cracks** ⇨ True-To-Geometry Shaft/Bolt/Spindel Overlay Volume Corrected Imaging - Cross Sectional Along the Bridge Pin / Unfolded C-Scan / 3D ⇨ Sector-Scan Cross Sectional Along the Shaft/Bolt/Spindel Coverage with Probe Placed on the Outer Side Surface ⇨ Intuitive Image Guided PA Pulser Receiver with Beam Forming View ⇨ DAC / TCG Normalization ⇨ Built-In Shaft/Bolt/Spindel Geometry Editor and Ray Tracer - Scanning Pattern Design ⇨ Independent on TCG Angle Gain Compensation / Gain Per Focal Law Correction ⇨ Encoded and Time based Unfolded C-Scan ⇨ 100% Raw Data Capturing ⇨ Automatic Defects Alarming Upon C-Scan Acquisition Completed ⇨ Automatic Creation of Editable Defects List ⇨ Comprehensive Postrpocessing Including: → Recovery and Evaluation of Captured A-Scans from the Recorded Cross Sectional Along the Shaft/Bolt/Spindel Views (Sector Scan) and C-Scans → Recovery of Cross Sectional Along the Shaft/Bolt/Spindel 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 910829

Inspection of the complex geometry shafts

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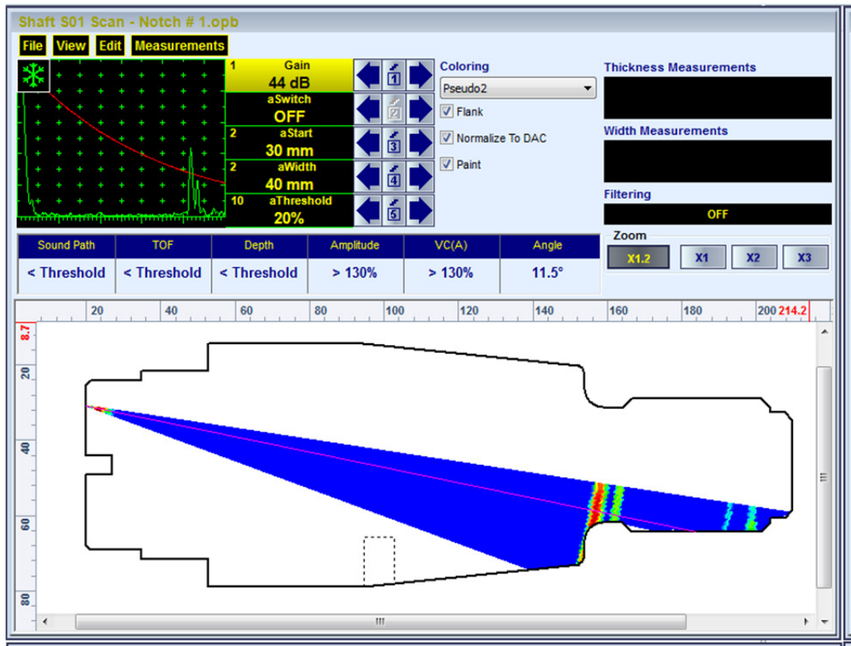
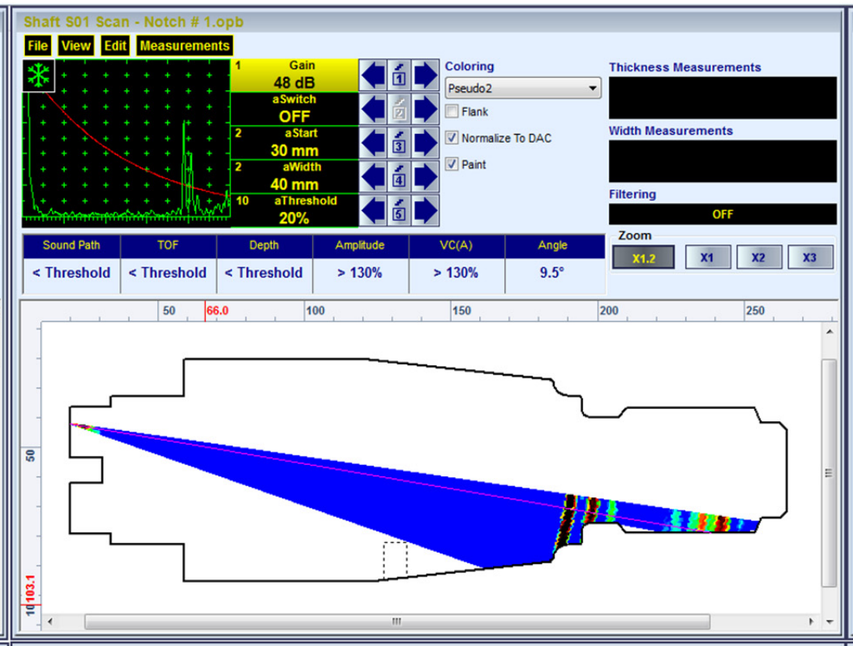
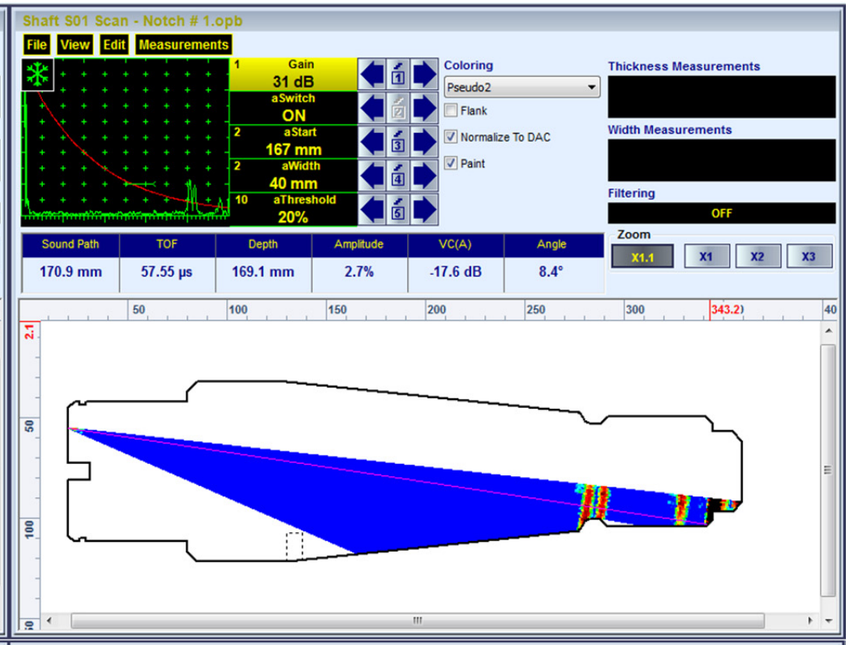
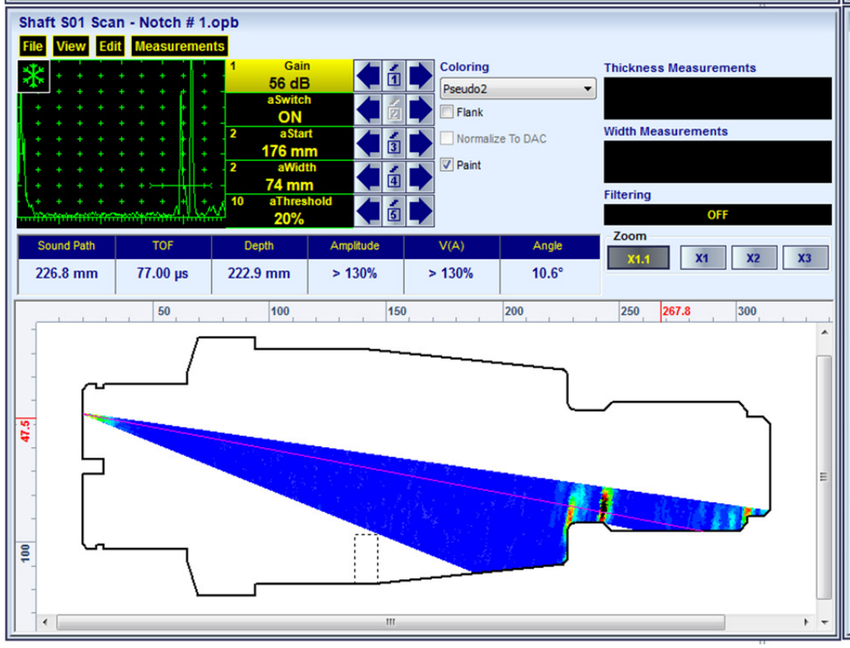
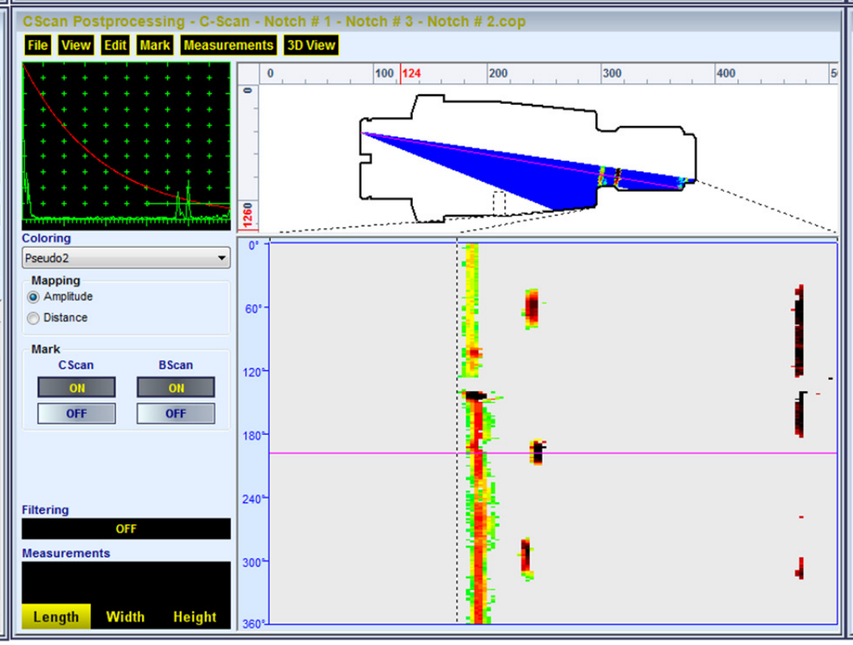
Typical Postprocessing Screenshots

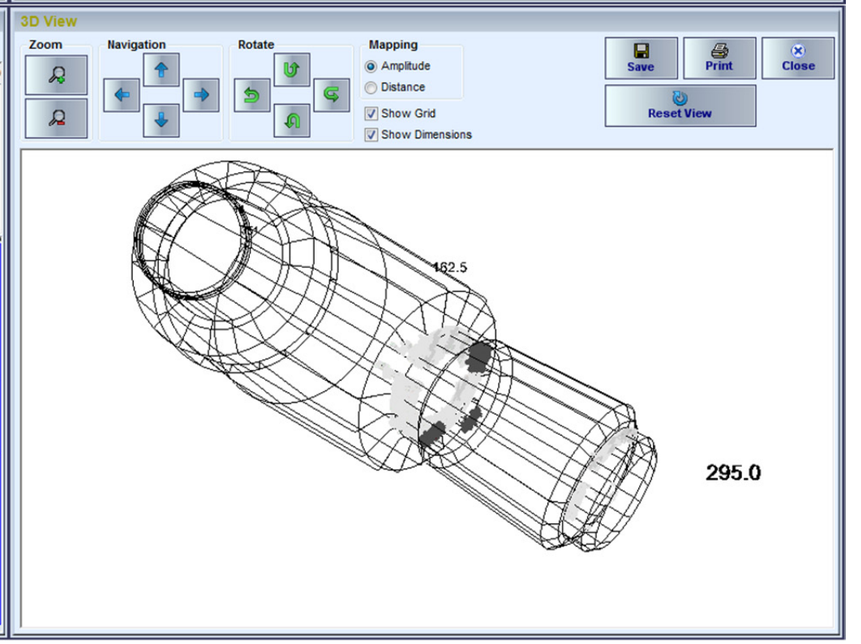












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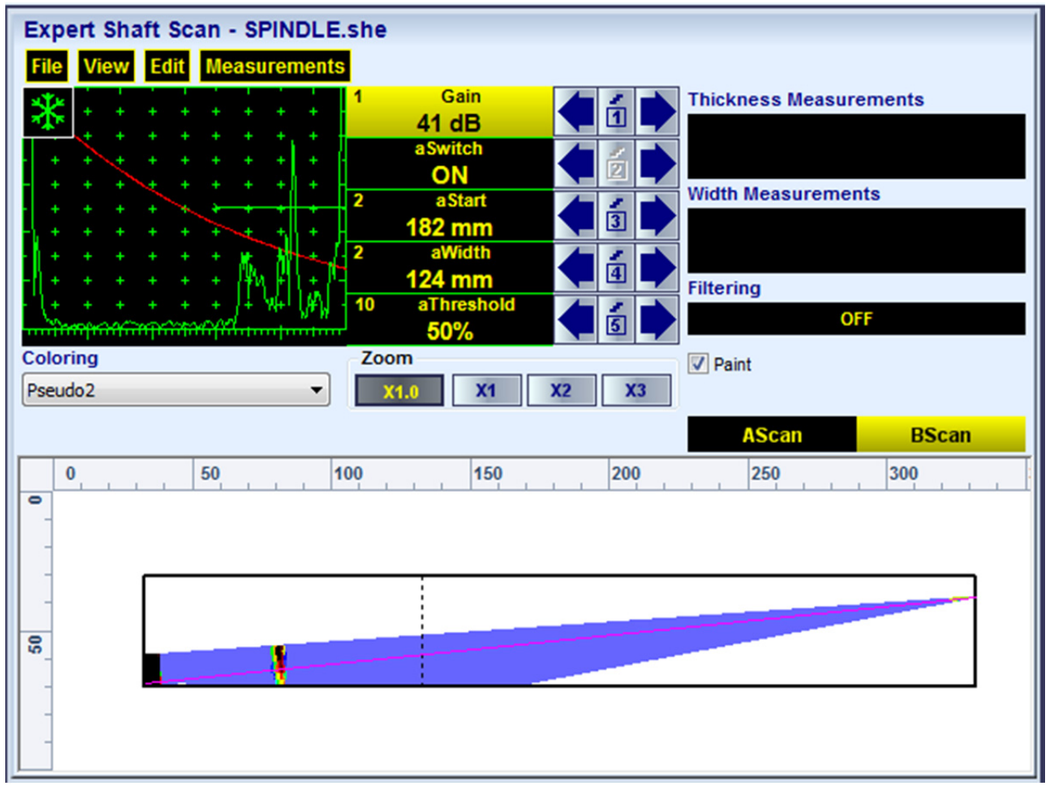

Inspection of bolts and spindles

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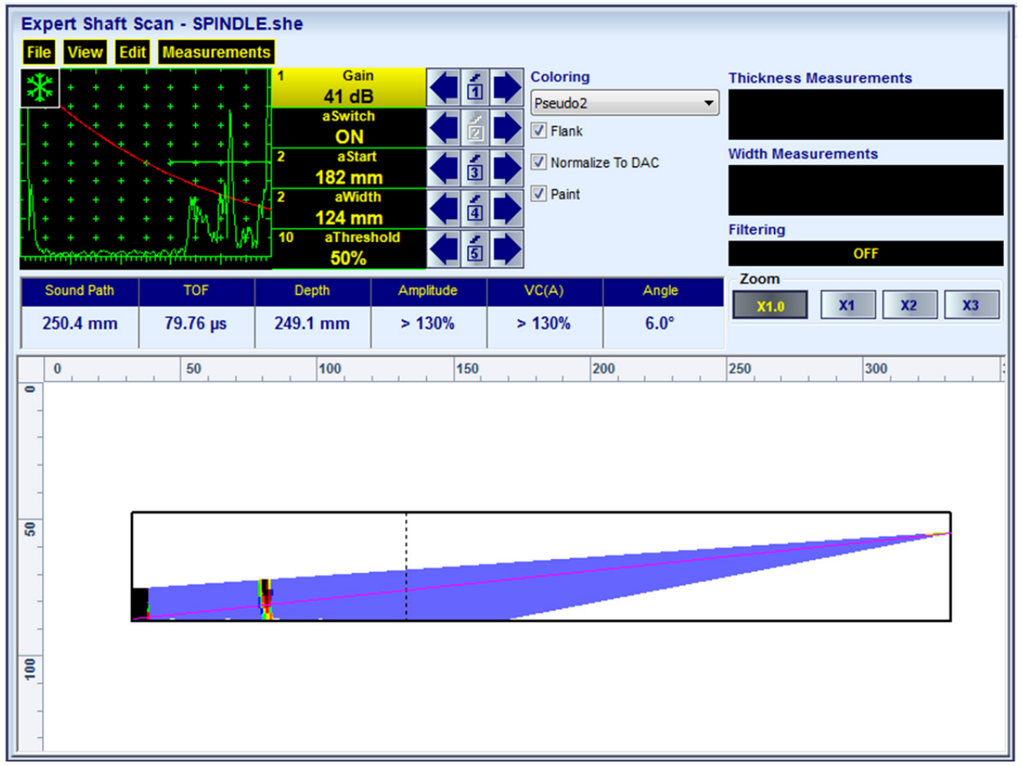

Inspection of bolts and spindles

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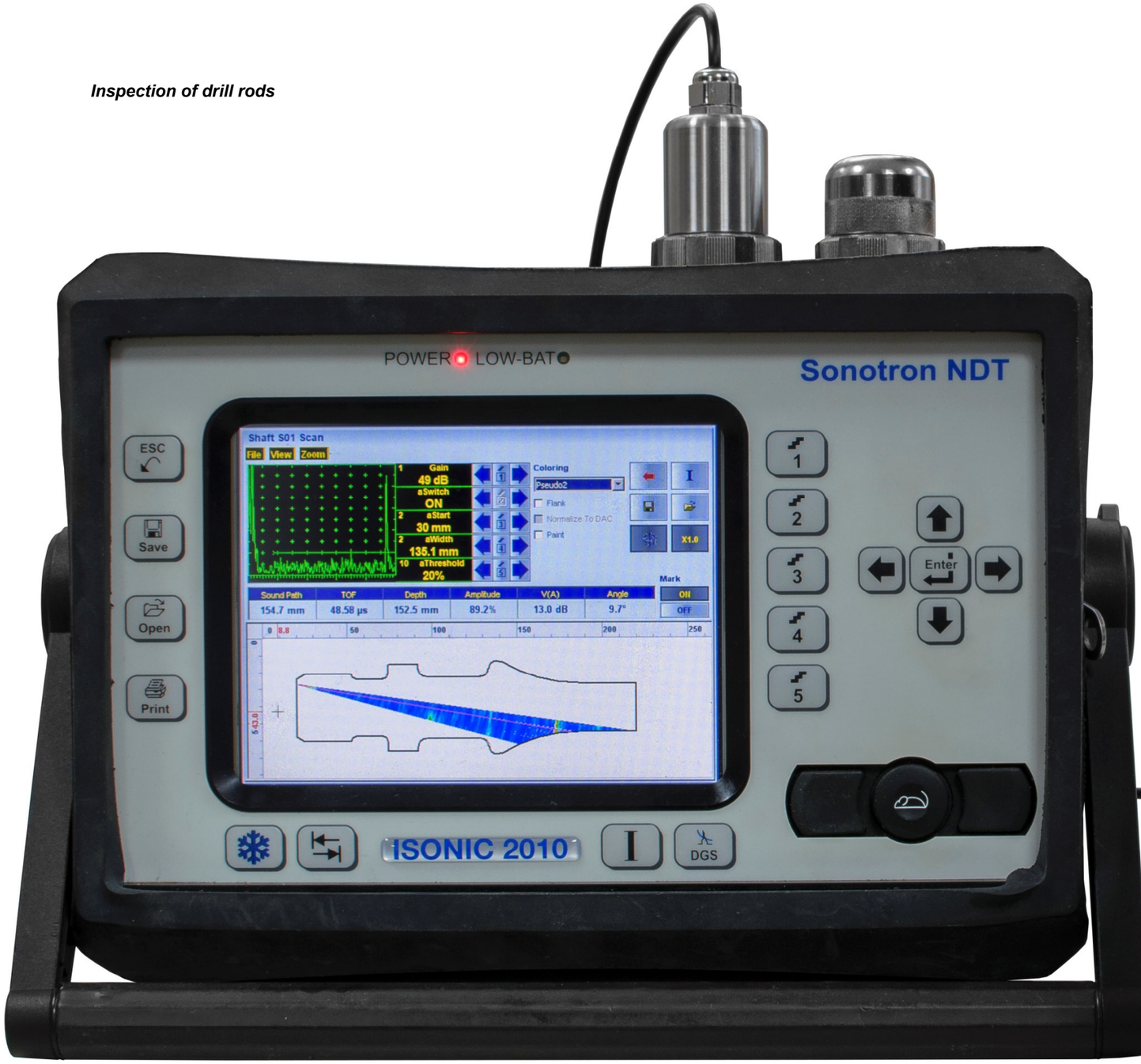
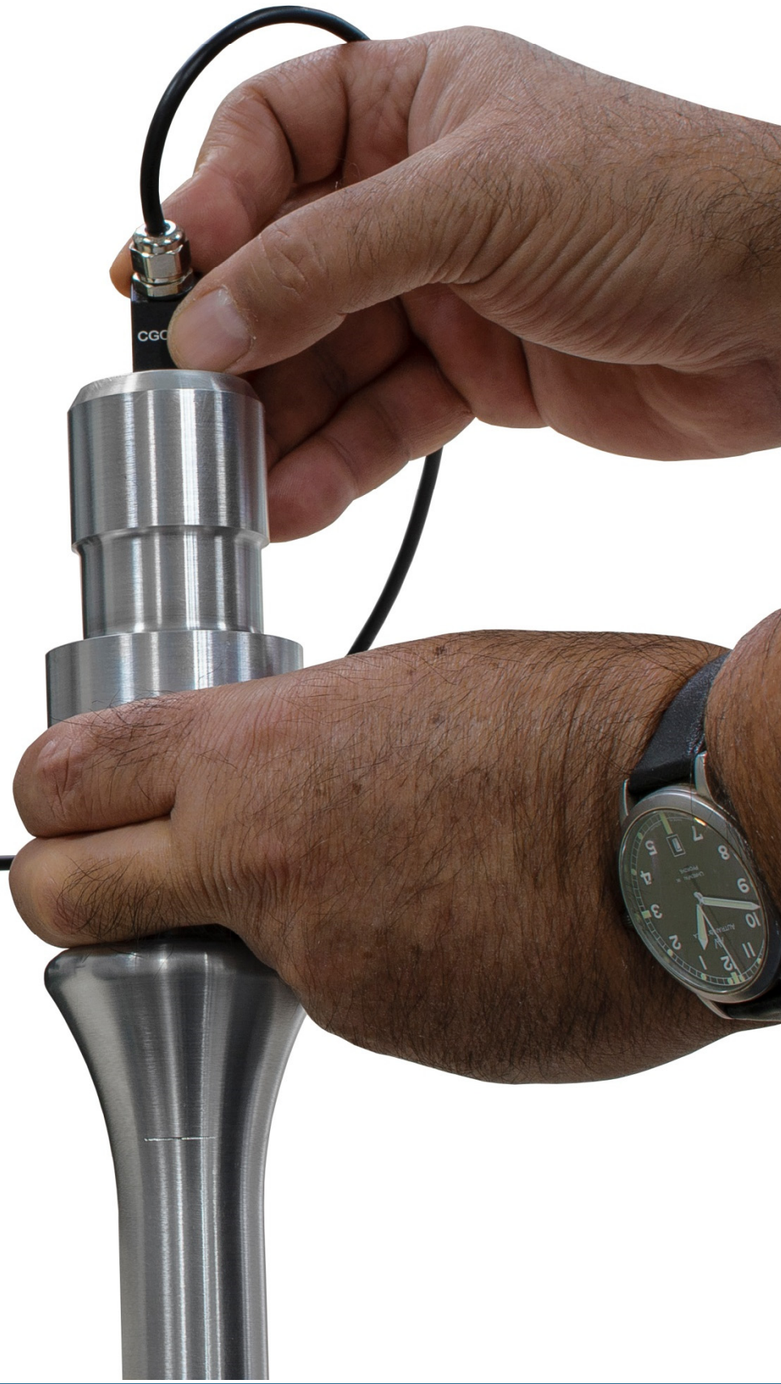
Inspection of drill rods





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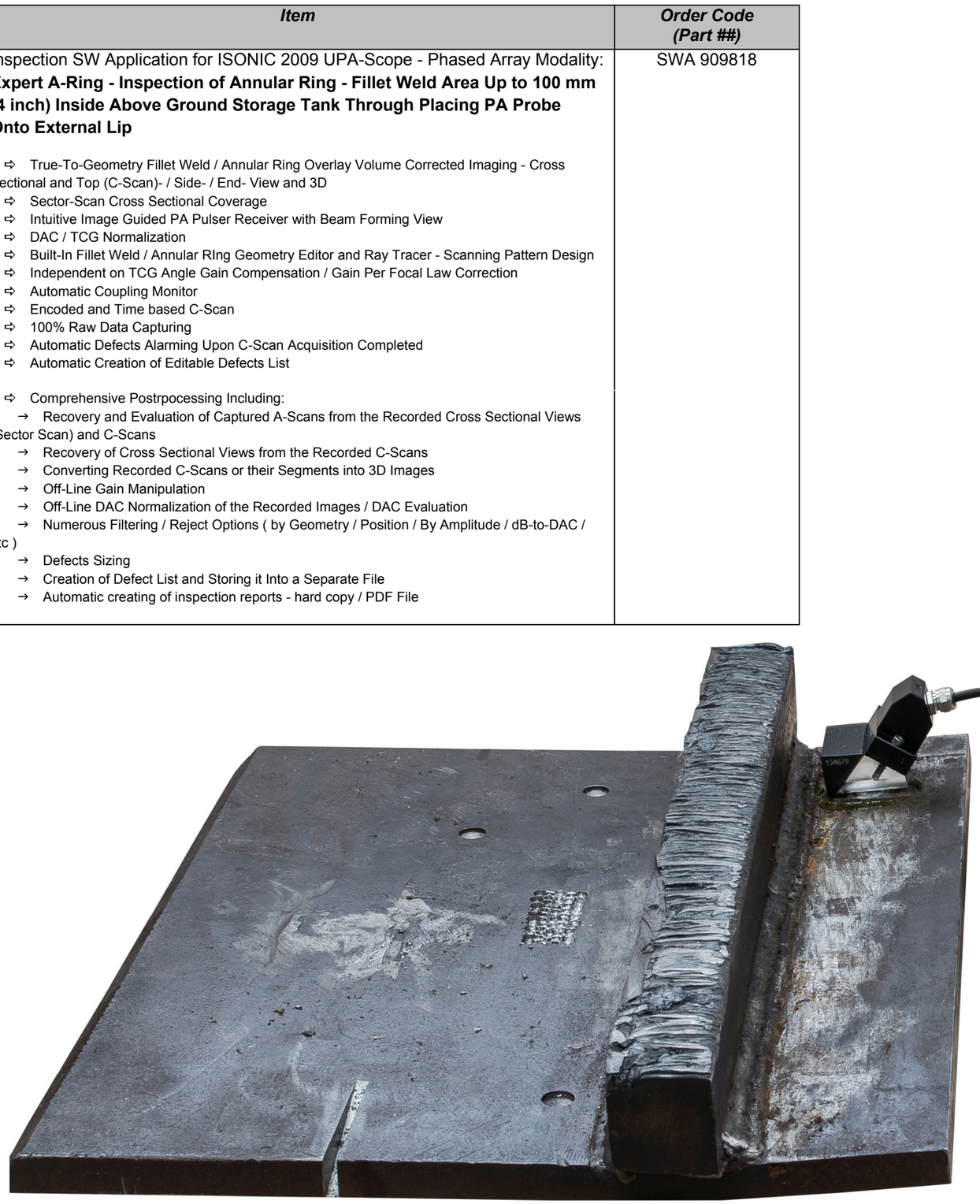
Item	*Order Code (Part ##)*
Inspection SW Application for ISONIC 2009 UPA-Scope - Phased Array Modality: **Expert A-Ring - Inspection of Annular Ring - Fillet Weld Area Up to 100 mm (4 inch) Inside Above Ground Storage Tank Through Placing PA Probe Onto External Lip** ⇨ True-To-Geometry Fillet Weld / Annular Ring 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 Fillet Weld / Annular RIng Geometry 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 ⇨ Automatic Defects Alarming Upon C-Scan Acquisition Completed ⇨ Automatic Creation of Editable Defects List ⇨ 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 909818

Detection of the damages in the annular rings in the above ground storage tanks with PA probe placed outside of the tank



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Item	*Order Code (Part ##)*
Inspection SW Application for ISONIC 2010 / ISONIC 2010 EL - Phased Array Modality: **Expert A-Ring - Inspection of Annular Ring - Fillet Weld Area Up to 100 mm (4 inch) Inside Above Ground Storage Tank Through Placing PA Probe Onto External Lip** ⇨ True-To-Geometry Fillet Weld / Annular Ring 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 Fillet Weld / Annular RIng Geometry 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 ⇨ Automatic Defects Alarming Upon C-Scan Acquisition Completed ⇨ Automatic Creation of Editable Defects List ⇨ 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 910818

Detection of the damages in the annular rings in the above ground storage tanks with PA probe placed outside of the tank

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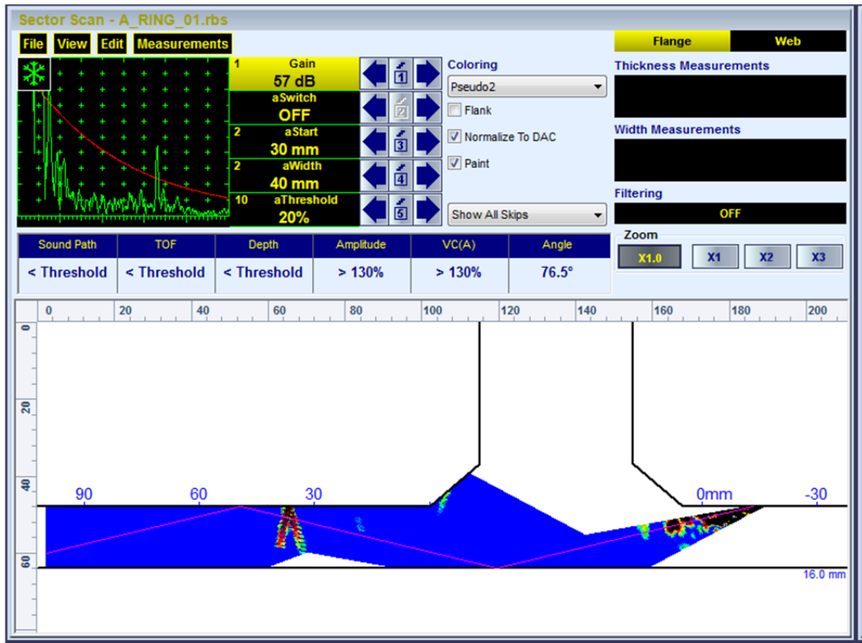
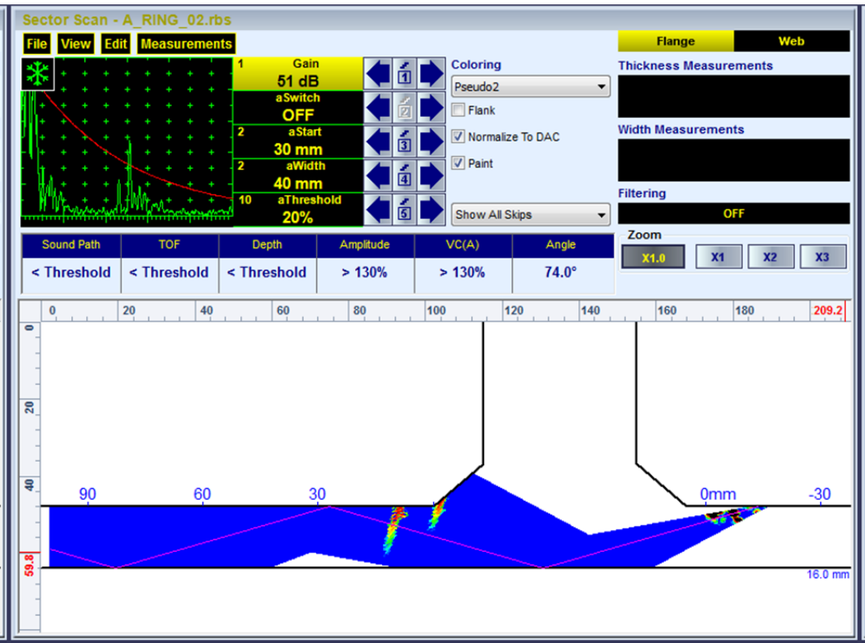
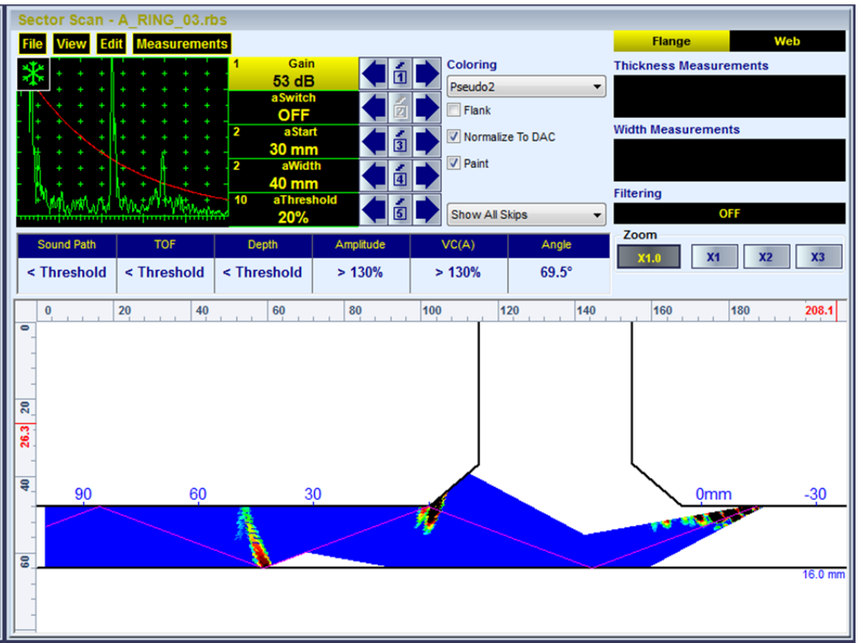
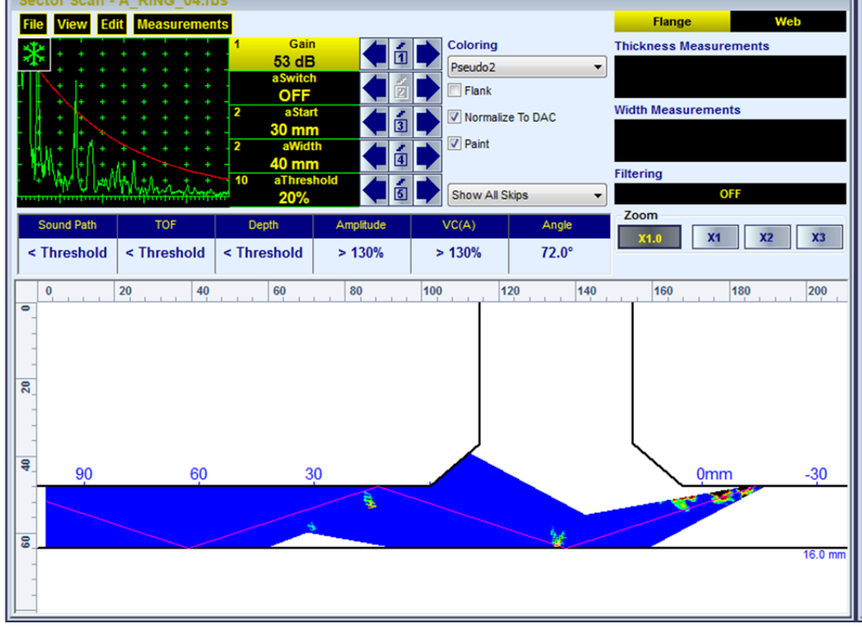
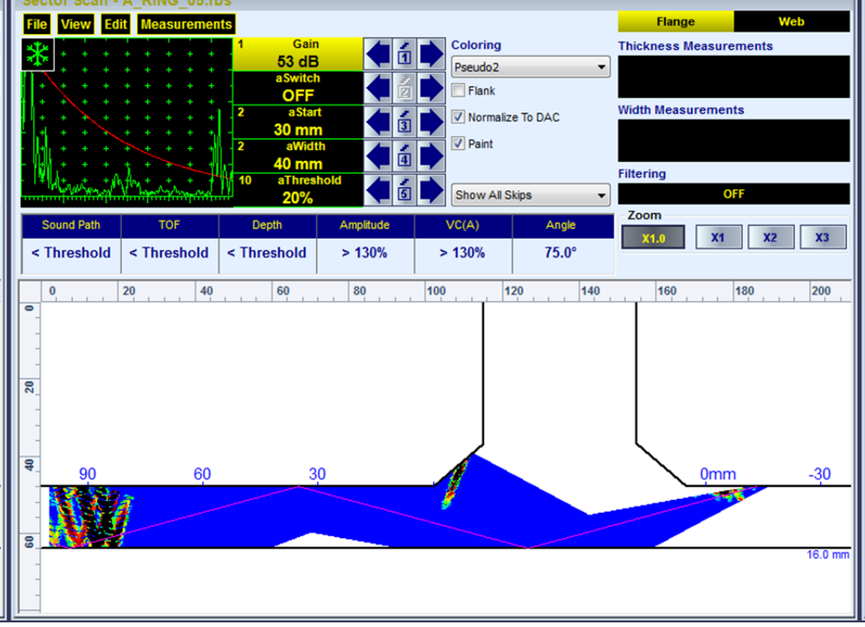
Typical Postprocessing Screenshots

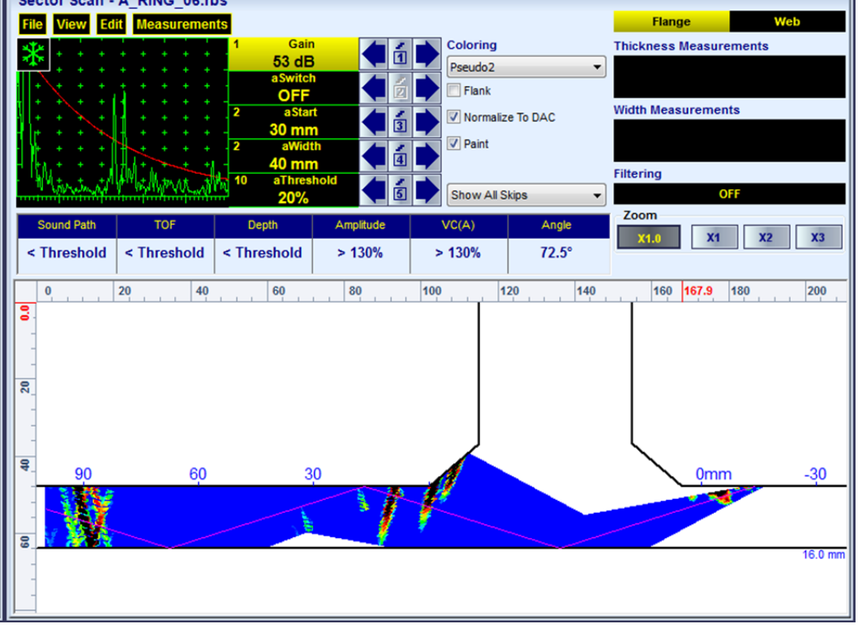












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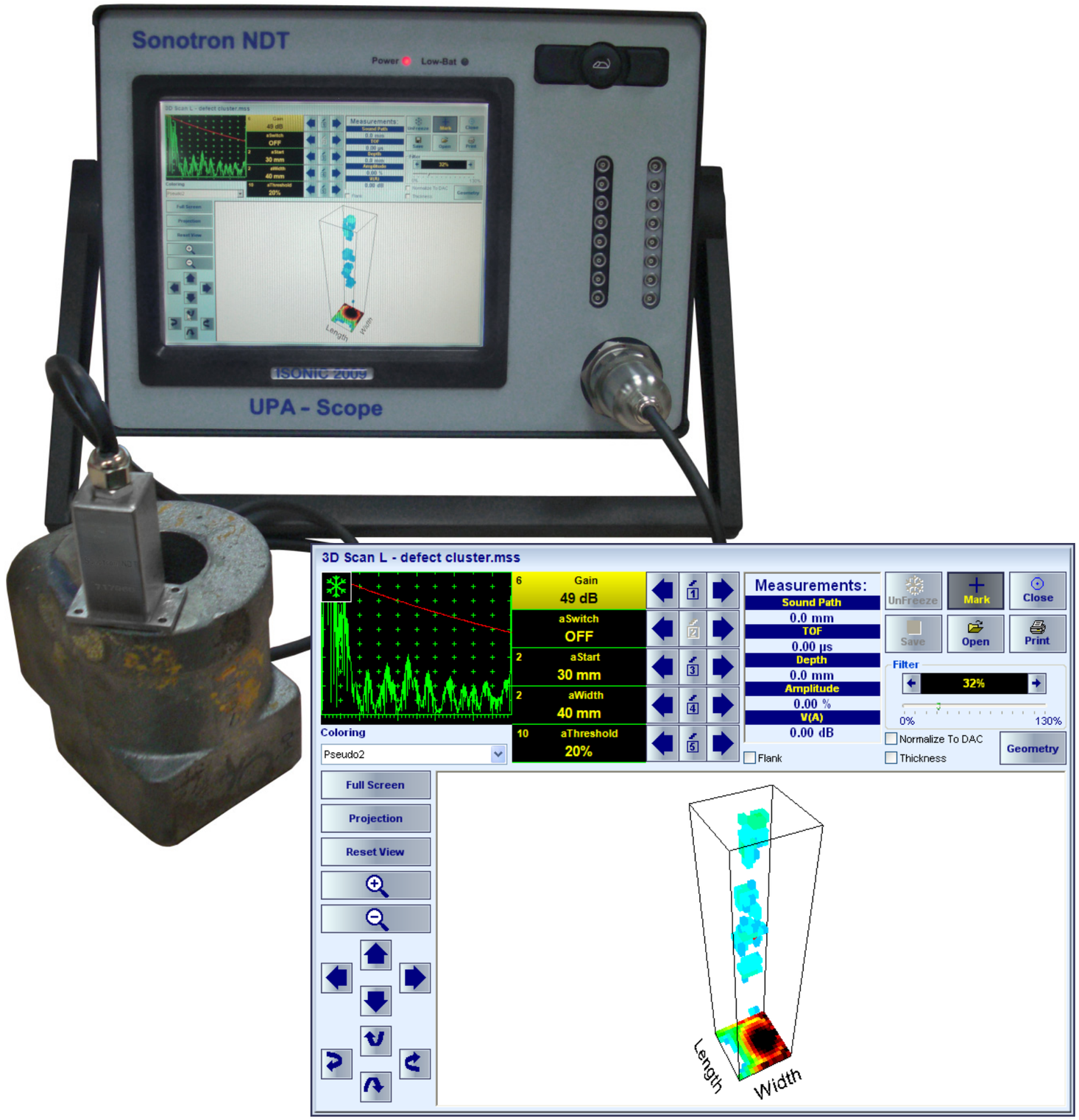

Item	Order Code (Part ##)
Inspection SW Application for ISONIC 2009 UPA-Scope - Phased Array Modality: **3D-SCAN L – Longitudinal Wave Inspection with use of Delay Line Matrix Array Probes / Dual Linear Array Probes** ➪ **Matrix Array Probes - 3D-Scan and Sector Scan Coverage** ➪ 3D-Control of Ultrasonic Beam ➪ True-To-Geometry-Volume Corrected 3D-Coverage / Real Time 3D Imaging (3D-Scan) of the Material from Single Position of the Matrix Array Probe with / without Delay Line on the Material Surface ➪ Cross Sectional and Top (C-Scan)- / Side- / End- View and 3D with Use of Matrix Array Probes with Delay Line ➪ Sector-Scan Cross Sectional Coverage ➪ True-To-Geometry-Volume Corrected Sector-Scan Coverage for Planar Cross Section Objects (Plates, Pipe Wall in Longitudinal Direction, etc) ➪ Intuitive Image Guided PA Pulser Receiver with 3D Beam Forming View ➪ DAC / TCG Normalization ➪ Independent on TCG Angle Gain Compensation / Gain Per Focal Law Correction ➪ Encoded and Time based C-Scan ➪ 100% Raw Data Capturing ➪ Automatic Defects Alarming Upon C-Scan Acquisition Completed ➪ Automatic Creation of Editable Defects List ➪ Comprehensive Postrpocessing Including: → Recovery and Evaluation of Captured A-Scans from the Recorded Cross Sectional Views (Sector Scan / B-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 ➪ **Dual Linear Array Probes with Delay Line** ➪ Traditional Sector-Scan and B-Scan (Linear Scan) Cross Sectional Coverage and Imaging ➪ True-To-Geometry-Volume Corrected Sector-Scan and B-Scan (Linear Scan) Coverage for Planar Cross Section Objects (Plates, Pipe Wall in Longitudinal Direction, etc) ➪ Encoded and Time based Line / Rotation Scanning with 100% Raw Data Capturing and Top (C-Scan)- / Side- / End- / 3D- Imaging ➪ DAC / TCG Normalization ➪ Independent on TCG Angle Gain Compensation / Gain Per Focal Law Correction ➪ Automatic Defects Alarming Upon C-Scan Acquisition Completed ➪ Automatic Creation of Editable Defects List ➪ Comprehensive Postrpocessing Including: → Recovery and Evaluation of Captured A-Scans from the Recorded Cross Sectional Views (Sector Scan / B-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 909808

Detection of the defects in the casted parts – 3D coverage through single placement of the matrix array probe

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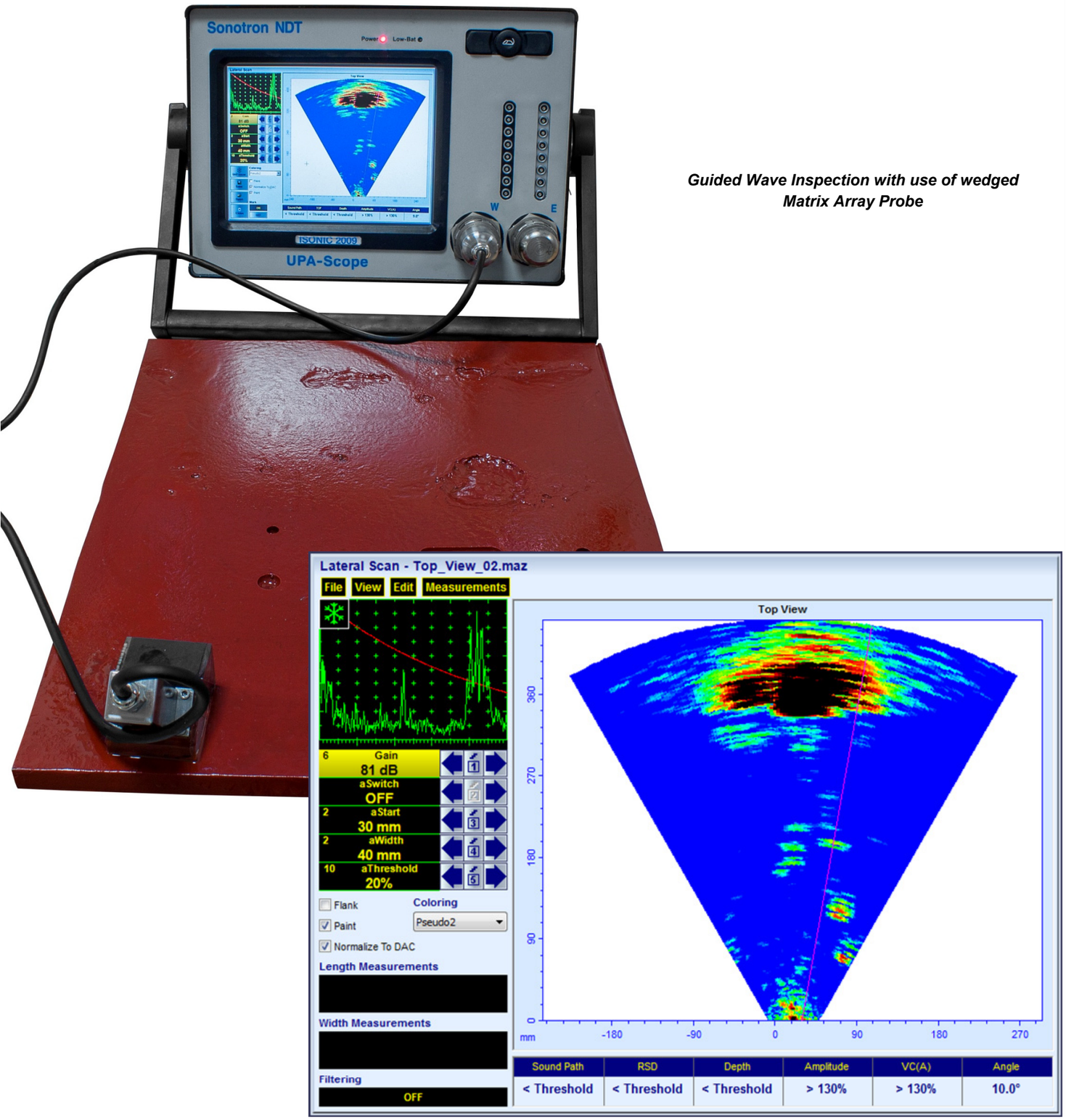

Guided Wave Inspection with use of wedged Matrix Array Probe

Item	*Order Code (Part ##)*
Inspection SW Application for ISONIC 2009 UPA-Scope - Phased Array Modality: **3D-SCAN S – Shear / Surface / Guided Wave Inspection with of Wedged Matrix Array Probes / Dual Linear Array Probes** ⇨ **Wedged Matrix Array Probes - 3D-Scan and Sector Scan Coverage** → 3D-Control of Ultrasonic Beam → Vertical Plane Focusing with True-To-Geometry-Volume Corrected 3D-Coverage / Real Time 3D Imaging (3D-Scan) of the Material from Single Probe Position → True-To-Geometry Weld Overlay Volume Corrected 3D-Coverage / Real Time 3D Imaging (3D-Scan) from Single Probe Position → True-To-Geometry Volume Corrected Sector-Scan Coverage for Planar Cross Section Objects (Plates, Pipe Wall in Longitudinal Direction, etc) → Sector-Scan Cross Sectional Coverage → Intuitive Image Guided PA Pulser Receiver with 3D Beam Forming View → DAC / TCG Normalization → Independent on TCG Angle Gain Compensation / Gain Per Focal Law Correction → Encoded and Time based C-Scan → 100% Raw Data Capturing → Automatic Defects Alarming Upon C-Scan Acquisition Completed → Automatic Creation of Editable Defects List → Comprehensive Postrpocessing Including: ▷ Recovery and Evaluation of Captured A-Scans from the Recorded Cross Sectional Views (Sector Scan / B-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 ⇨ **Wedged Matrix Array Probes - Lateral Sector Scan Coverage: Shear / Guided / Surface Waves** → 3D-Control of Ultrasonic Beam → Horizontal Plane CB-Scan Coverage and Imaging with Use of Shear, Surface and Guided Waves using Linear Arrays Situated Horizontally on the Fixed Angle Wedge → Azimuth C-Scan Coverage → Intuitive Image Guided PA Pulser Receiver with 3D Beam Forming View → DAC / TCG Normalization → Independent on TCG Angle Gain Compensation / Gain Per Focal Law Correction → 100% Raw Data Capturing → Comprehensive Postrpocessing Including: ▷ Recovery and Evaluation of Captured A-Scans from the Recorded CN-Scan ▷ 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 ▷ Automatic creating of inspection reports - hard copy / PDF File ⇨ **Dual Linear Array Probes** → 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 3D 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 → Automatic Defects Alarming Upon C-Scan Acquisition Completed → Automatic Creation of Editable Defects List → 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 909809

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Use of the regular B-Scan coverage for the inspection of threaded railway wheels according to AAR Specs with use of 64 elements linear array probes: the whole wheel is inspected completely in one revolution while 100% raw data is recorded and all imperfections found are alarmed automatically

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Regular B-Scan coverage is used for the inspection of CRFP parts with use of rolling 64-elements linear array probes

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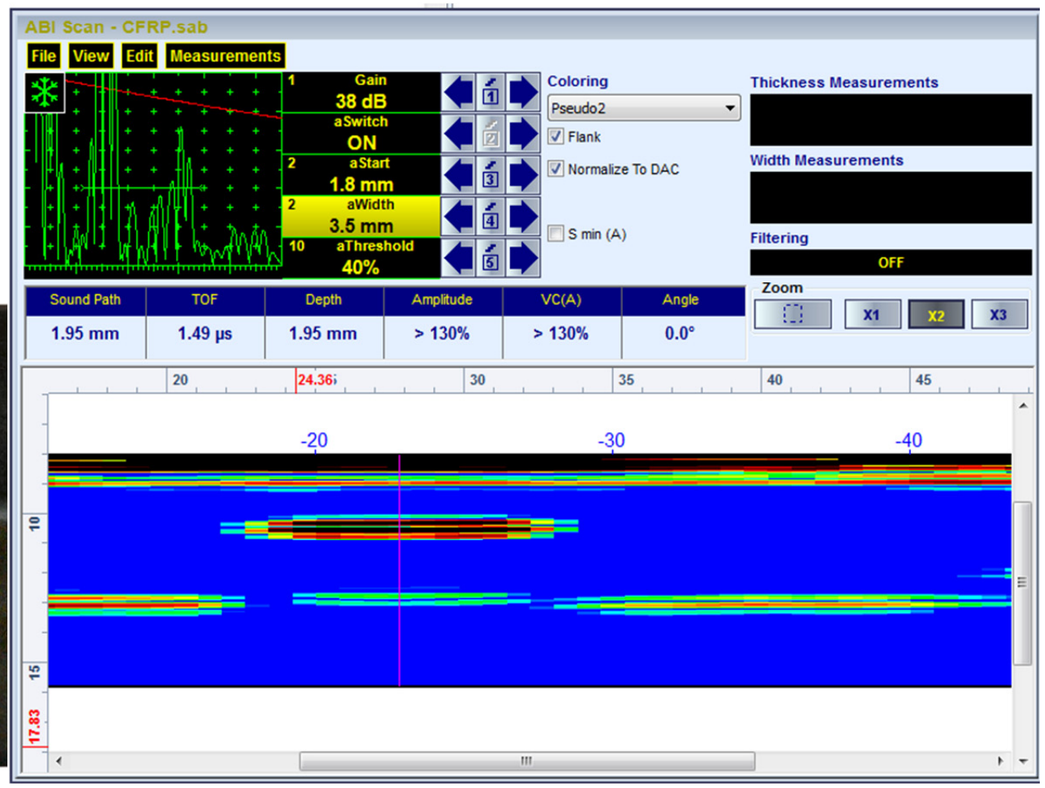
Regular B-Scan coverage is used for the inspection of CRFP parts with use of 64-elements linear array probes



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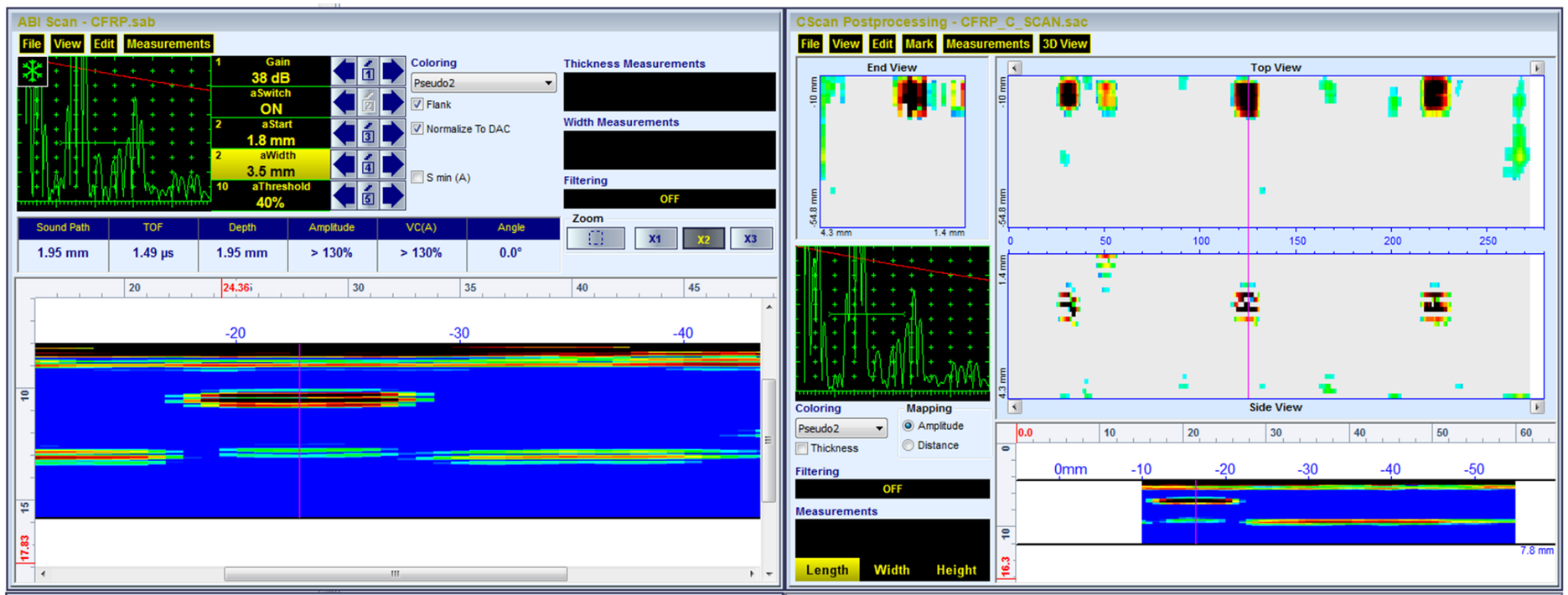
Typical Postprocessing Screenshots



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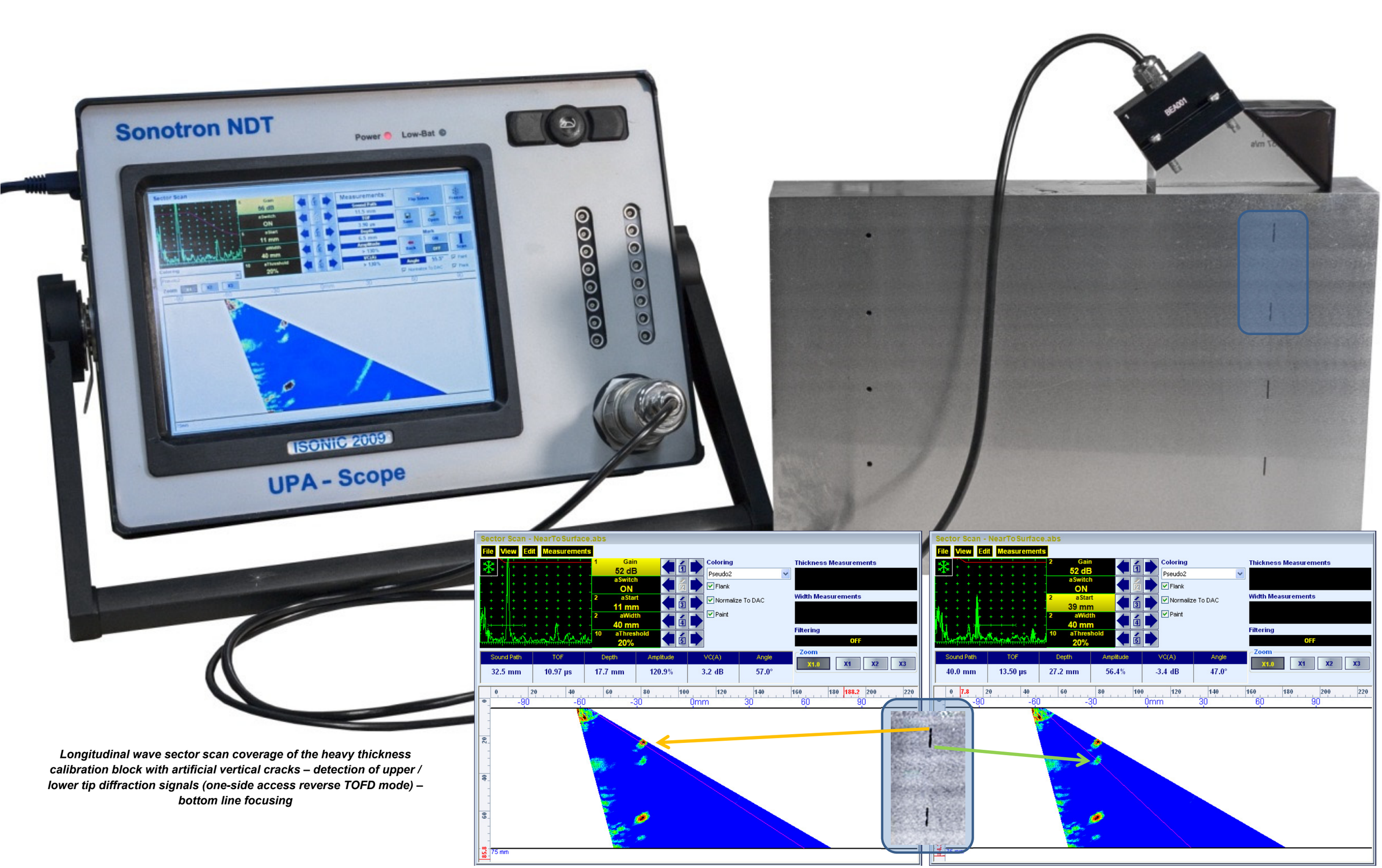

Longitudinal wave sector scan coverage of the heavy thickness calibration block with artificial vertical cracks – detection of upper / lower tip diffraction signals (one-side access reverse TOFD mode) – bottom line focusing

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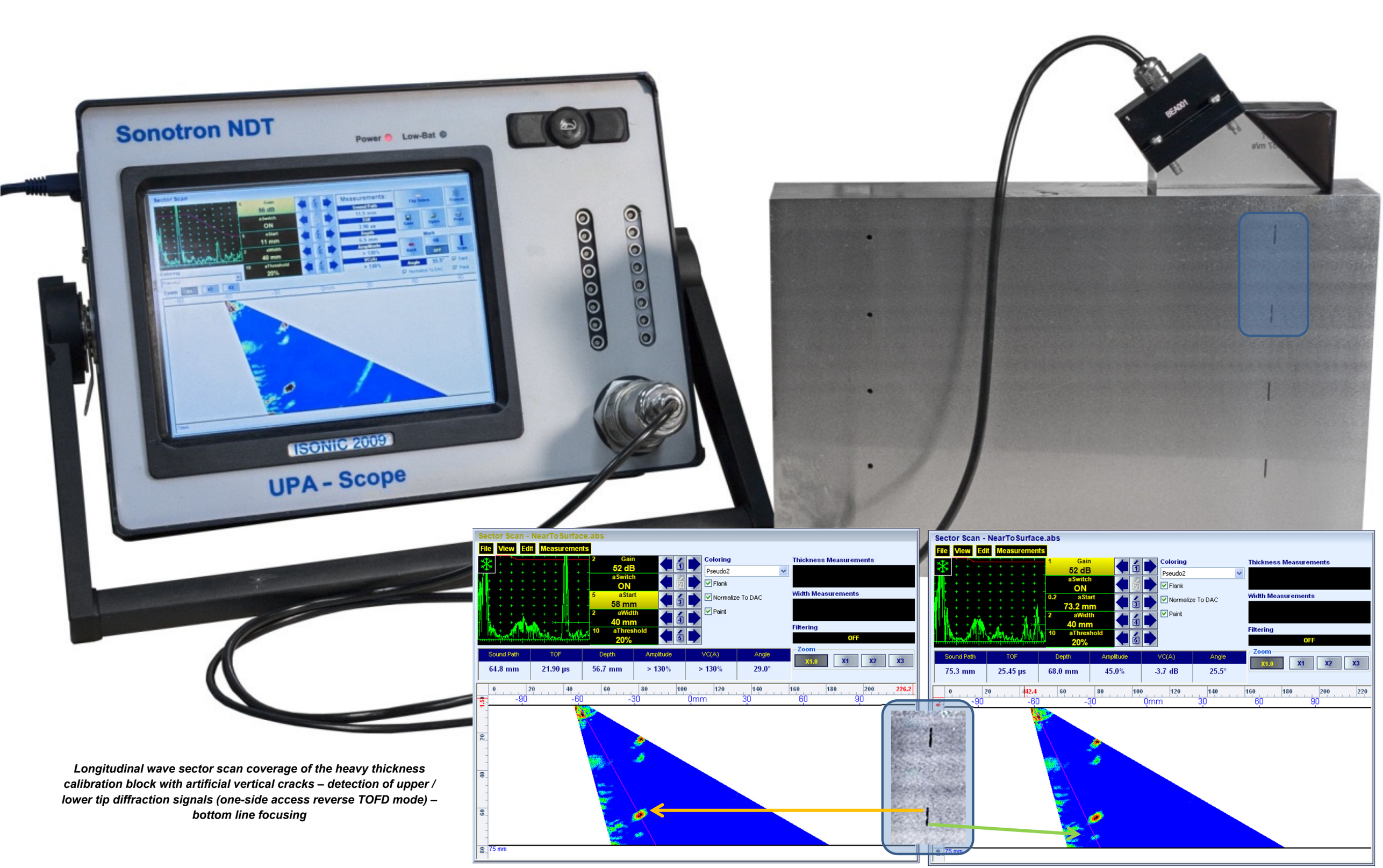

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