

UltraVision 3

Technical Guidelines – Release 3.8R30



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1 Specimen settings

1.1 Creation of 2D profile DXF file

To accompany the UltraVision Touch Custom Overlay support, it is now easy to generate a 2D profile in DXF format to import either to UltraVision or to UltraVision Touch.

1. From the Tools menu, select Specimen Generation.



2. Select Generate specimen from 2D Profiles and 3D Solids.

ecimen Gene	rator Tool							
Profiles		Name EdrudeFrom EdrudeTo Show	Profile -200,00 mm 200,00 mm Yes	Solide				
Clear All	Profile View			Specimen View	፼ ፼ ፼ ◊	E 2 2	Clear Al	
Delete	1-1500						Delete	
Add Profile	1000						+ Cuboic	d
mport Profile							+ Cylinde	ər
	1-500						+ Sphen	e
Copy Profile	-						+ Extrude Profile	
Add Line							+ Rotate Profile	
Add Arc	120							
Add Spline from csv file	11000							
	200mm			l ∠ ×				
Add Depth				1			- Extrude Profile	
50.00	mm 	I-1000mm 10	1000	Translate	Rotate Import sat	Export dof	- Rotater Profile	
				Import Si	ave Export sat	Apply	Evit	_

- 3. Create a custom specimen or import one using the button on the right side of the **Specimen View.**
- 4. Tap at the top of Specimen View.A cutting plane appears following the Y-Z plane of the specimen.
- 5. Tap again several times.
 The cutting plane rotates 90° to follow the X-Y plane; tapping again will rotate to follow the X-Z plane. Tapping this button a fourth time hides the cutting plane.
- Select the arrow at the center of the cutting plane and drag it.
 The cutting plane is dragged over the specimen. The part of the specimen on one side of the cutting plane is hidden.
- Select Export DXF.
 The DXF file is created and can be imported in the Specimen Settings or in the UltraVision Touch Custom Overlay.



2 Setup Creation

2.1 Number of rebounds inside specimen

UltraVision now allows you to control the number of rebounds displayed in the Calculator view.

To use the tool:

1. From the Advanced Calculator menu, select All Commands, and then select Calculator Information in the list.



or,

From the Tools menu, select Advance Calculator, and then select Calculator Information.



The **Calculator Information** menu opens.

2. Select the **Display** tab.

Advanced Calculator					
Information Display	Current focal law: Azimuthal	R: 40,00	 Display: 	Law formation \sim	
Display Wedge	✓ Focal Point Locus		Colors	Madaa	
Solid Wedge	Focal Point			vveage	Element Delay Transmitter
Probe	Element Delays Tx			Specimen	Element Delay Receiver
Solid Probe	Element Delays Rx			Flement	Best Fit Line
Specimen	Element Numbers Tx	Scanner - Reference		Liement	Deat fit blie
🗹 Beam	Element Numbers Rx			Beam	Sizing
Display Rebound None	V Multi Channels				

3. Select Display Rebound.



When **Display Rebound** is set to **None**, the beam will not rebound on the surface of the specimen if the focal point is further than the interface.



When **Display Rebound** is set to **Auto**, the beam will use the minimum number of rebounds to reach the focal point, all the while staying inside the specimen.



The **Display Rebound** option also allows you to select the number of rebounds displayed in the **Calculator** view up to six rebounds.

3 Inspection tools

3.1 Noise Recording Gates

Noise Recording Gates is a new addition to our corrosion inspection tools. These gates can be activated in **Setup** and **Inspection** mode, but can also be created offline.

Detection Type	ŀ
Crossing ~	Ν
Crossing ~	Ν
Crossing	Ν
Maximum	N
NR Crossing	÷.
NR Maximum	Ν
Crossing (-6dB)	

NR Crossing adds noise recording capability to the Crossing mode gates. **NR Maximum** allows recording noise on when using **Maximum** crossing mode.

3.2 AWS information fields

3.2.1 Understanding AWS readings

The American Welding Society Structural Welding defines in Code section D1.1 a technique for classifying discontinuities in welds per a "D rating" that is calculated based on three different parameters A, B and C.

The procedures and standards set forth in Code D1.1 Part F typically apply for the UT inspection of groove welds and HAZs between the thicknesses of 8 mm and 200 mm (5/16 in and 8 in) inclusive.

A is the indication level in dB (calculated using the **Reference Amplitude** value from **General** tab of the **Ultrasonic Setting** window.



B = Reference indication level in dB (Reference Gain)

C = Material attenuation factor expressed in dB calculated as (2x [sound-path length in inches – 1 in.]) if using the U.S. Customary Units **or** (2x [sound-path length in mm – 25mm] x 0.08 if using the SI Units

The indication rating D is calculated as **D** = **A** - **B** - **C**

The Statistics information field category now contains the AWS information fields allowing you to evaluate the defect according to the AWS code.

- 1. Select the Information Fields from the Pane Settings menu or the View Information toolbar.
- 2. Select **Statistics** category and check the **AWS** info fields.

Information Groups	_		×
Predefined Selections -	Reg	ular M	ode 🔹
Cursors Cylindrical Correction Diagnostics Statistics Volumetric Contour SNR Noise Contour Box SNR BAC5980 Cylindrical Correction level [B] : Reference indication level [B] : Reference indication level [B] : Reference indication level [C] : Material attenuation factor i [C] : Discontinuity indication level [D] : D rating [Min Amp] : Maximum amplitude of vis [StdDev Amp] : Mean of amplitude of vis [StdDev Amp] : Amplitude standard [Mode Amp] : Mode amplitude of vis [Ampl max] : Maximum amplitude bet [Pos Ampl Max] : Position of maximu [Ampl Max G1] : Maximum Amplitude [Ampl Max G3] : Maximum Amplitude	el in dB n dB n dB sible image visible image ude of visib deviation o ible image ween curs m amplitud within Gat within Gat	e ge f visible im ors e between te1 te2 te3 te4	age
Clear All	Ok	Cano	el

- 1. Display the information field Group on an A-Scan view by clicking on the Group number in the **View Information** toolbar.
- Position your reference and measurement cursors on each side of the indication signal. The A information field will determine the amplitude level of the highest peak between both cursors.



B field indicates the total gain applied on the current law (Hard Gain + Law Gain).C field calculates the material attenuation using the AWS code formula.

 $\mathsf{D}=\mathsf{A}-\mathsf{B}-\mathsf{C}$

4 File Management

4.1 File Management Configuration

The **File Tool** configuration window (Tools -> Options -> Application) manages the automatic options available for **File Save**, **File Close** and **File Opening**, which include the **Previous** and **Next File**. Previously, the **Element Check** function required the user to import multiple parameters increasing the complexity. In order to simplify the process, a new **Element Check** tool similar to that found in UV Touch is now available for UltraVision 3.8R30.

To activate the **File Tool** options:

- 1. From the Tools menu, select Options.
- 2. From the Application tree view, select **File Tool**.

Options		?	\times
Application General FileTool Encoder Status Bar View Information Amplitude Inspection Log File Indication Table JD Settings Current Document	File Sequence: Sot by name Sot by date Inable automatic action Display Setup Load a specific display setup: Keep default display setup: Keep default display setup Merge Execute merge File Extension Load extension file Save extension file when closing data file		
	UK	Cancel	

The File Sequence allows you to sort the file by name, or by date, in the Open File dialog boxes.

3. Check the **Enable automatic action** box.

You can now set the automatic action on File Save, File Close and File Opening.

Options		?	×
Application General File Tool For Encoder Status Bar Vew Information Report Anplitude Inspection Log File Indication Table JD Settings Current Document	File Sequence: Sot by name Sot by date Pisplay Setup Icoad associated display setup Icoad a specific display setup: Icoad a specific display setup Icoad effault display setup Merge Execute merge Icoad extension file Save extension file when closing data file	Grand	
	- OK	Canoor	

The **Display Setup** option allows you to open automatically a selected display setup when opening a data file.

The **Merge** option allows you to select a BVM (Batch Volumetric Merge) or a VMX file to automatically generate one or several merged channels when opening a data file.

The **File Extension** option will automatically load, or not, the associated extension file. It also selects the possibility to automatically save your modifications in an associated extension file, or to never save it.

4.2 Previous/Next file

UltraVision now allows you to run through the files from a folder as it did the earlier UltraVision 1. The **Previous** and **Next** options are available from the **File** toolbar and the **File** menu.

- 1. Open a data file.
- 2. From the **File** toolbar, select **Previous** or from the **File** menu, select **Previous** or **Next** file. The current data file will be closed, and the previous (or the next) file will be open.

Open Data File... Ctrl+O
 Open Previous Data File...
 Open Next Data File...
 Close Data File... Ctrl+F4

4.3 Import/Export Custom Database

The Import/Export Database File will let you import/export all custom items from Material, Probe and Wedge databases.

1. From the Calculator menu, select All Commands and select Import Database File/Export Database File in the list.

or,

From the Tools menu, select Advanced Calculator and select Import Database File...



Quality

All work is performed in accordance with ZETEC Quality standards program, which complies with 10CFR50 Appendix B, ISO 9001:2008 and ISO/IEC 17025:2005.



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