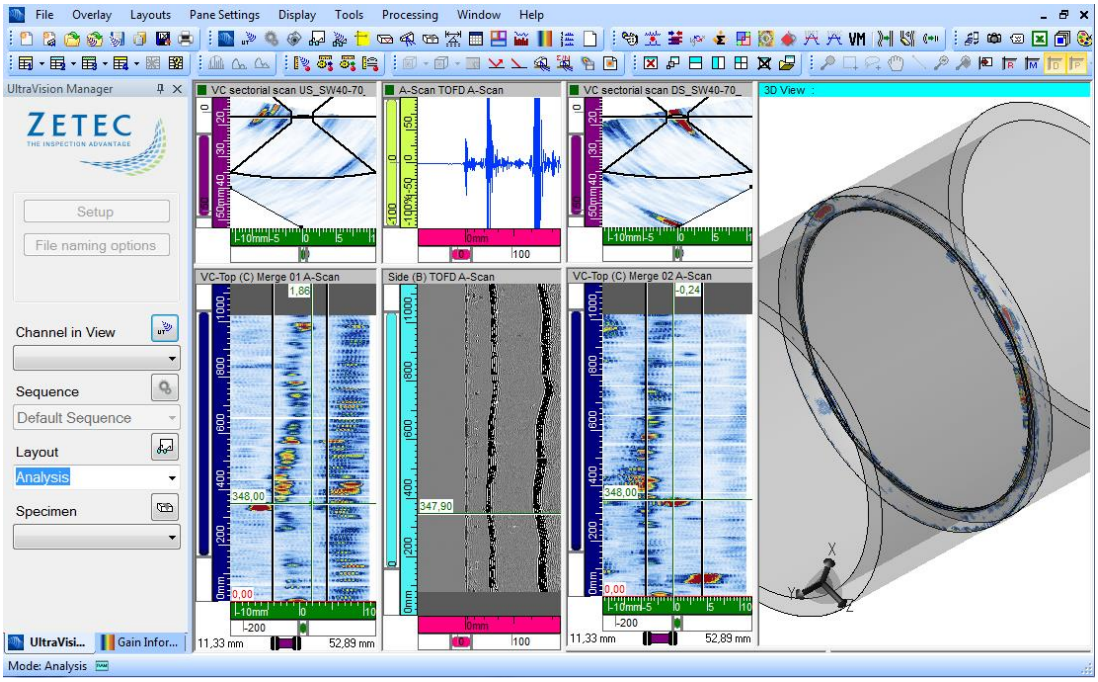
ULTRAVISION 3.8R13

Technical Guidelines



UltraVision®, a complete UT and Phased Array inspection package!

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IMPORTANT MESSAGE

UltraVision® Classic 3.8R13 is the latest UltraVision release in UltraVision Classic software. This new version incorporates a series of new features and improvements as described in the Product Bulletin document.

Zetec is committed to the highest levels of product quality. Some limitations and remaining anomalies were detected during the validation campaign and are listed in this document.

If using UltraVision Classic 3.8R13 you detect any other limitations or remaining anomalies not included in this document, please contact us at the address: Support-UTProducts@zetec.com. Detailed information about the problem will help our software team to expedite the correction process.

Sectorial View Improvement

DGS (Distance-Gain-Size curves)

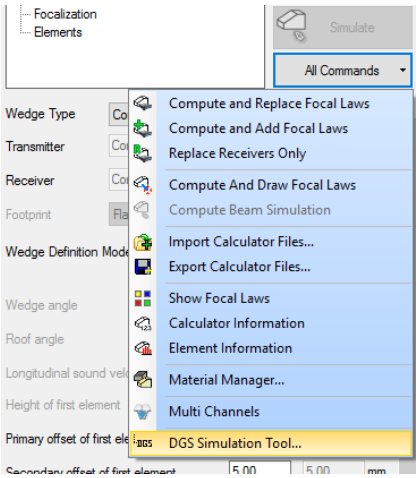
DGS curves can be generated for each combination of specimen geometry and probe configuration, using either phased array or conventional probes.

DGS (Distance/Gain/Size) is a sizing technique that relates the amplitude of the echo from a reflector to that of a flat bottom hold at the same depth or distance. DGS curves include the effect of beam spreading and material attenuation.

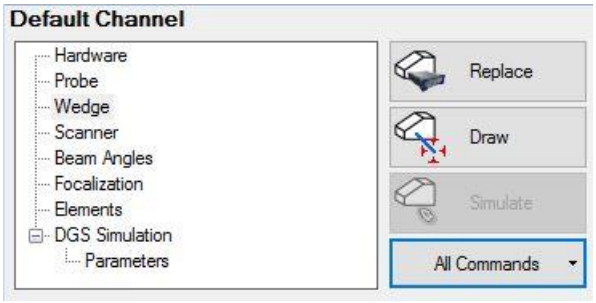
The DGS Simulation Tool

To create a DGS simulation:

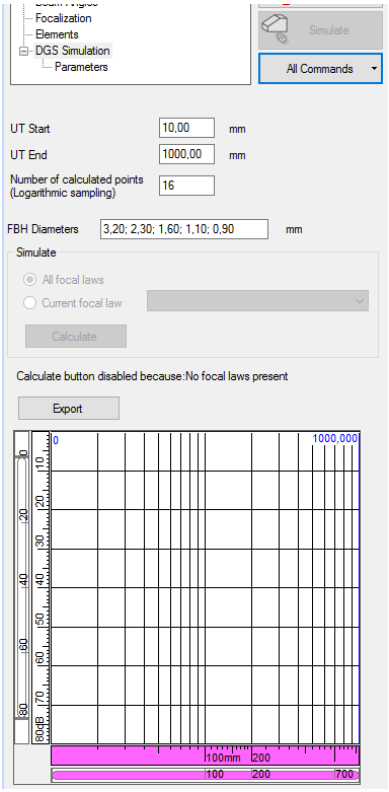
1. Select the correct probe to create the curves.
2. From **Advanced Calculator**, set your wedge to **Contact**.
3. From the **All Commands** menu, enable the **DGS Simulation Tool**.



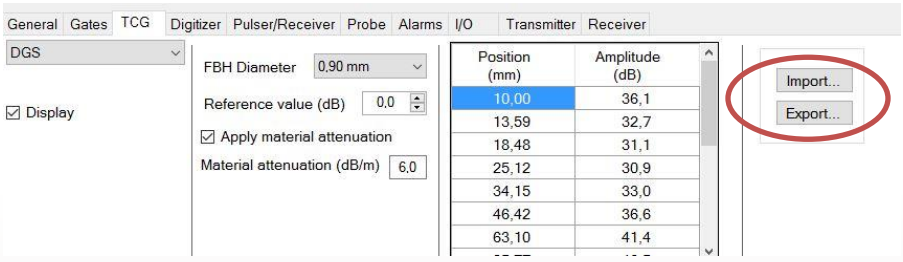
4. Select the **DGS Simulation** tab from the **Default Channel** selection window.



The DGS Simulation is displayed:

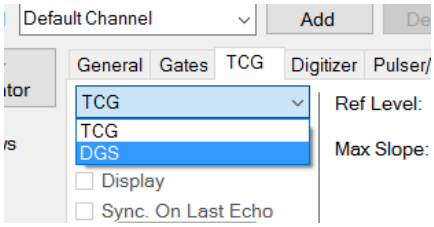


5. ***Only when in online mode***: Click **Replace** to apply the probe and wedge changes.
6. Select your curve parameters.
   Adapt the **UT Start** and **UT End** to the UT range of your specimen.
   You can add new FBH diameters by entering them manually and using a ‘’;’’ as a separator between variables.
7. Click **Calculate**.
   The Tool will create one curve per FBH.
8. **Export** the curves in a **.dgs** file.

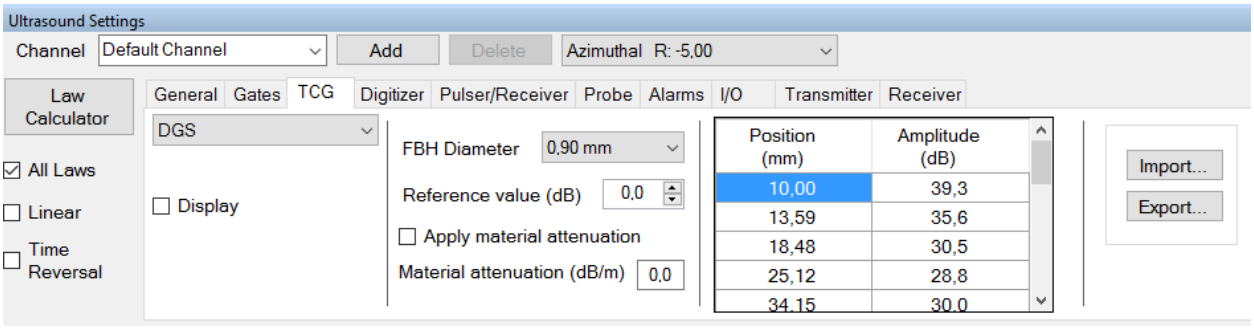


Note: This is the end of the simulation which can be performed either online or offline. The next steps must be performed online.

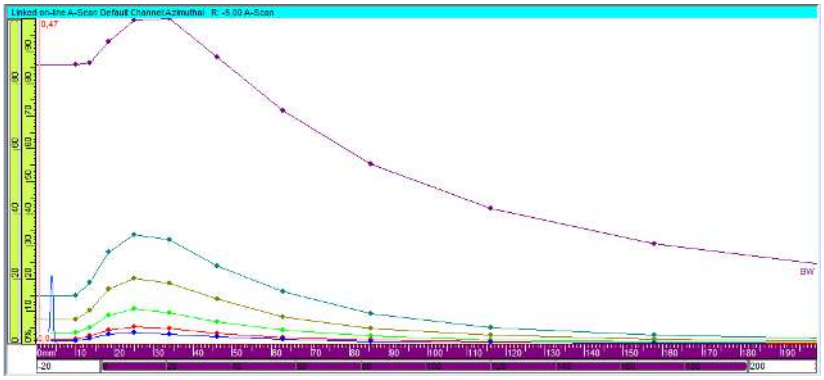
9. From **Ultrasound Settings**, under the **TCG** tab, select **DGS** in the type drop-down list.



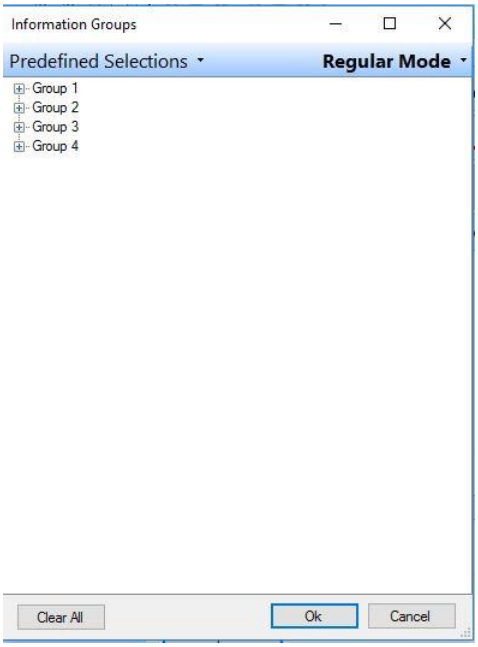
10. Click **Import** and select the DGS curve txt file. The DGS points are loaded into the UT Setting.

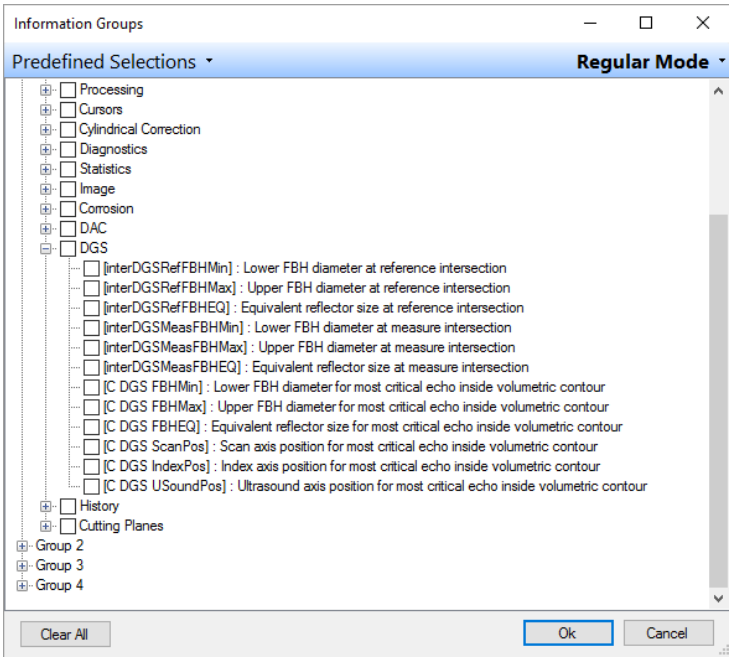


11. The DGS curves can be displayed on an A-Scan view by checking the **Display** box. Click in the view to activate.



12. The **FBH Diameter** drop-down list allows you to select the curve displayed in the table for the current law.
13. The **Material Attenuation (dB/m)** applied can be modified. The new curves can then be exported in a new .dgs file.
14. The DGS curves are saved with the setup and the data file. A new selection of information fields has been developed to help the analysis of the DGS curves in **Predefined Selections**, (found in Information Groups 1 to 4):

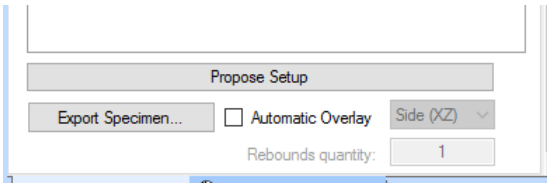

Information Groups
Predefined Selections
Regular Mode
Group 1
Group 2
Group 3
Group 4
Clear All
Ok
Cancel


Information Groups
Predefined Selections
Regular Mode
Processing
Cursors
Cylindrical Correction
Diagnostics
Statistics
Image
Corrosion
DAC
DGS
[interDGSRefFBHMin] : Lower FBH diameter at reference intersection
[interDGSRefFBHMax] : Upper FBH diameter at reference intersection
[interDGSRefFBHEQ] : Equivalent reflector size at reference intersection
[interDGSMeasFBHMin] : Lower FBH diameter at measure intersection
[interDGSMeasFBHMax] : Upper FBH diameter at measure intersection
[interDGSMeasFBHEQ] : Equivalent reflector size at measure intersection
[C DGS FBHMin] : Lower FBH diameter for most critical echo inside volumetric contour
[C DGS FBHMax] : Upper FBH diameter for most critical echo inside volumetric contour
[C DGS FBHEQ] : Equivalent reflector size for most critical echo inside volumetric contour
[C DGS ScanPos] : Scan axis position for most critical echo inside volumetric contour
[C DGS IndexPos] : Index axis position for most critical echo inside volumetric contour
[C DGS USoundPos] : Ultrasound axis position for most critical echo inside volumetric contour
History
Cutting Planes
Group 2
Group 3
Group 4
Clear All
Ok
Cancel

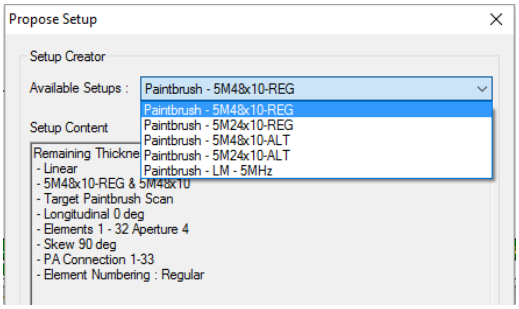
Weld and Corrosion Propose Setup

Corrosion Propose Setup

1. From the **Specimen Settings** menu, select a **Flat** or a **Cylindrical** specimen.
2. Set **Thickness** less than or equal to 25.4 mm (1in.).
3. Click **Propose Setup** at the bottom of the **Specimen Settings** menu, as shown below.

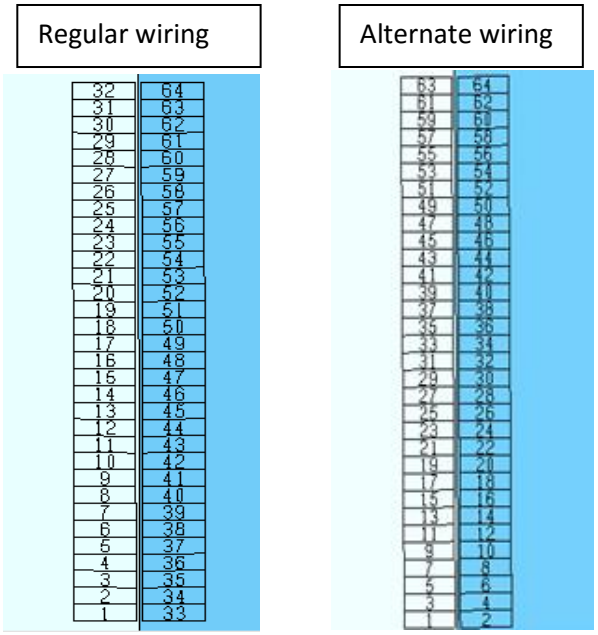


4. Select the probe to use for your Paintbrush configuration. The **Corrosion Propose Setup** gives access to several linear configurations using the Paintbrush with different probes as shown in the figure below:

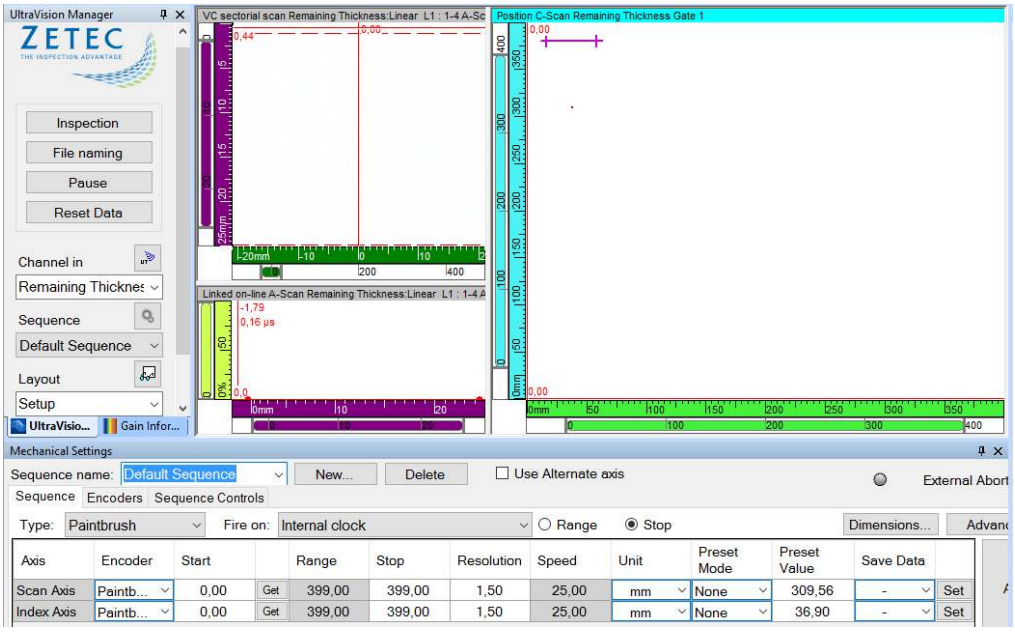


The Propose Setups with regular and alternate probes are an easy way to set up a Paintbrush when using a dual linear array type probe (refer to probe catalog for details). Two probe wirings are available:

- **Regular**: the first element pulses and the 33-element receives and so on (this wiring scheme is not compatible TOPAZ[16])
- Alternate: first element pulses and the second element receives, and so on.

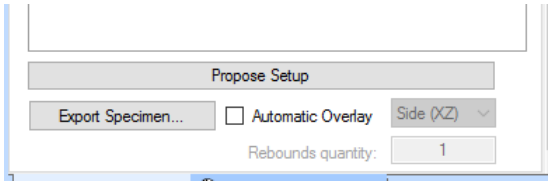


The **Corrosion Propose Setup** also sets up a linear sweep and a layout of views to be ready rapidly for corrosion inspection.

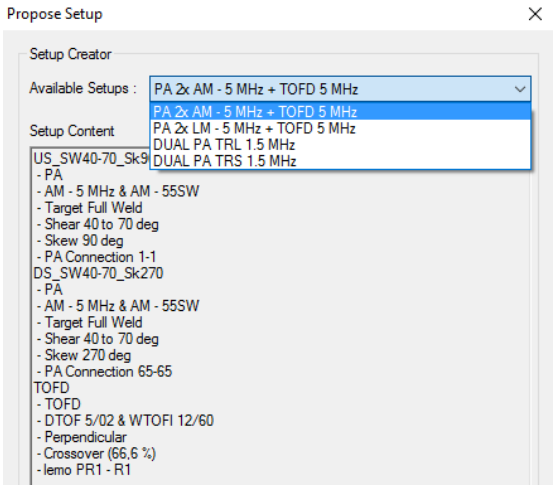


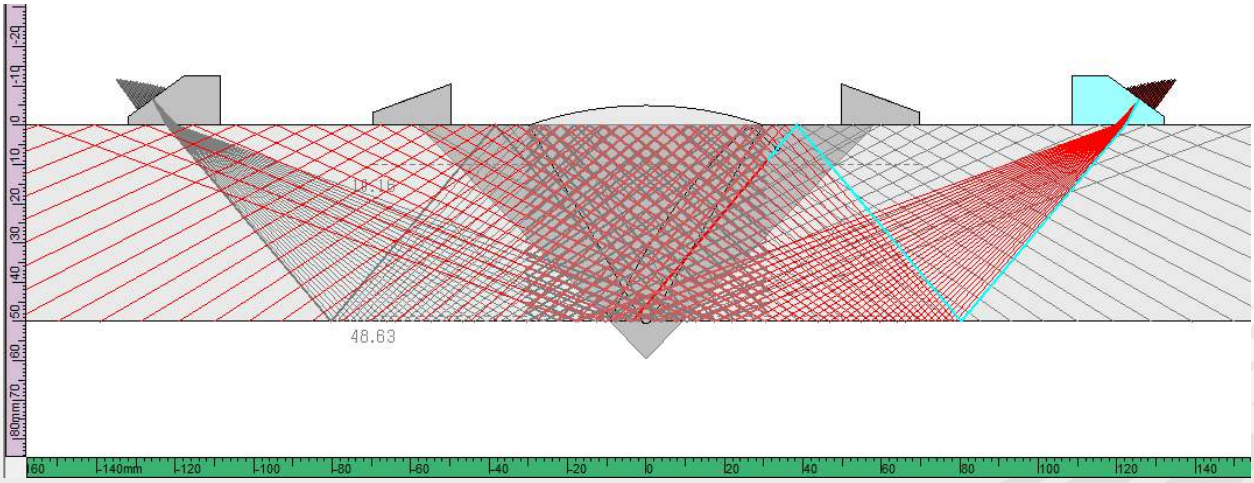
Weld Propose Setup

1. From the **Specimen Settings** menu, select a **Plate Butt Weld**, **Pipe Butt Weld** and **Pipe Axial Weld** specimens.
2. Set the diameters, thickness and weld of your specimen. **Weld Propose Setup** is available for Plate Butt Weld, Pipe Butt Weld and Pipe Axial Weld 12.5mm (0.5 inch) and 152.7mm (6 inches).
3. Click **Propose Setup** at the bottom of the **Specimen Settings** menu, as shown below:



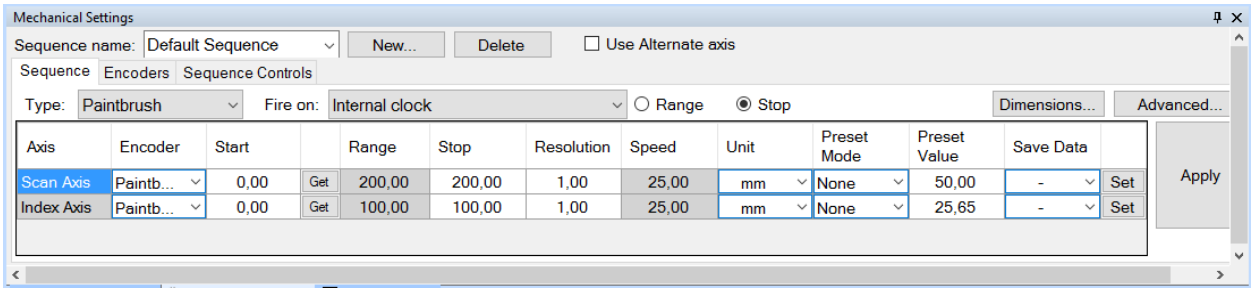
4. Select the PA-TOFD or 2D-Matrix probe configuration for your specimen and designed to work with a Weld Crawler.





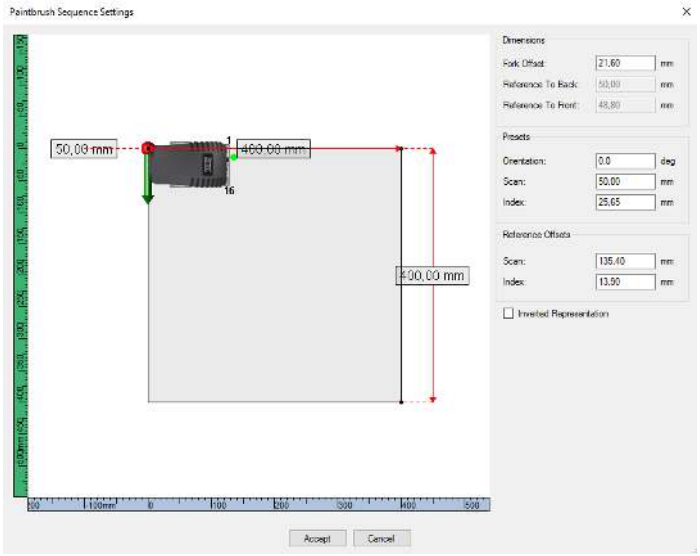
Paintbrush support on ZIRCON

The Paintbrush, previously supported only on TOPAZ, is now supported by ZIRCON. UltraVision will auto-detect the Paintbrush as soon as it is connected to the ZIRCON. From this point, accepting will load the Paintbrush as the current mechanical sequence.



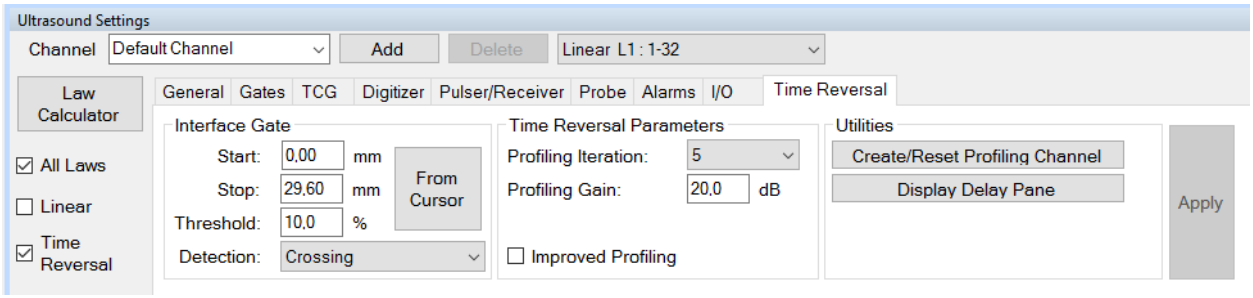
You can set your mechanical **Sequence** and **Resolution** as you would for a raster scan.

Advanced Paintbrush Settings allows you to set **Reference Offsets** of the Paintbrush to the specimen.



Time Reversal on TOPAZ32

1. From the **Calculator**, under the **Probe** tab, select your probe. Make sure that you use **Longitudinal Waves**.
2. From the **Calculator**, under the **Wedge** tab, select your wedge. Generally, **Time Reversal** is used in **Immersion**; you can select this option from the **Wedge type** drop-down list.
3. From the **Calculator**, under the **Beam Angles** tab, set the **Type** to **Linear** and the **Refraction Angle** to **0˚**. Time Reversal is designed to work longitudinal linear 0-degree laws.
4. Click **Replace**.
5. Check the **Time Reversal** box in the **Ultrasound Settings** menu to have the Time Reversal tab displayed and to have Time Reversal enabled.



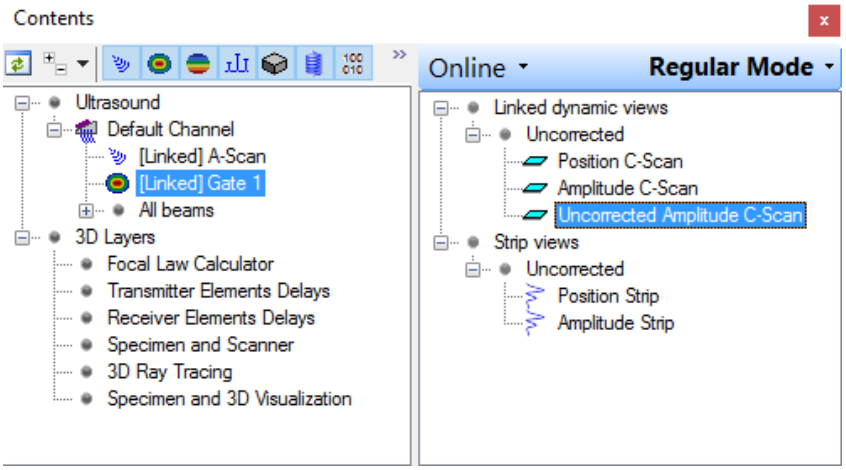
Pause Mode

Pause mode gives you access to the data recorded in analysis mode. The Soft Gates, Data cursor, and the info fields will then be available. When activating Pause mode, the layout will also change to Analysis, but the Analysis layout can be changed while in Pause.

Pause mode is available in Setup mode and in Inspection mode. You can activate it using the Pause button in the UltraVision Manager, as shown in the figure below. When in Pause, the button switches to Resume to leave the Pause mode. When resuming, the layout switches back to Inspection (or Setup) and the data displayed before the pause is still displayed.

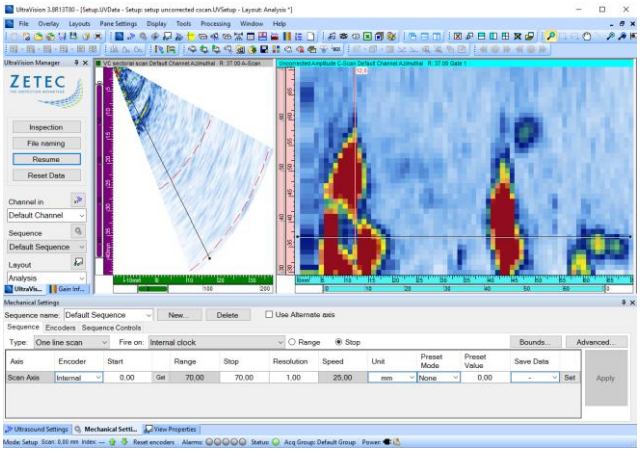
Uncorrected C-Scan View

1. Select your probe and wedge, and set an azimuthal sweep. This view **Type** is only available with azimuthal sweep.
2. Create a gate. This View Type is only available with a gate activated.
3. From the **Pane Settings,** open the **Contents** pane.



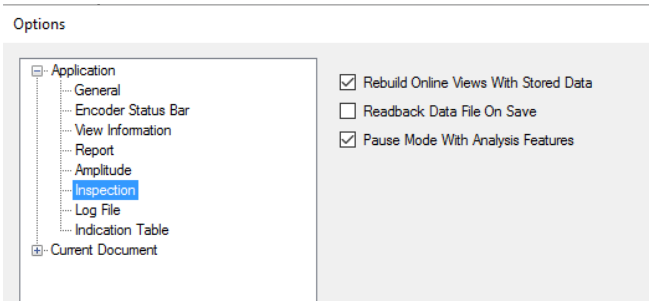
4. Select the gate you want to display this view. Select **Uncorrected Amplitude C-Scan** for this gate.

It might also be useful to accompany this view with a **Sectorial Scan** for its law selector.



Readback Mode

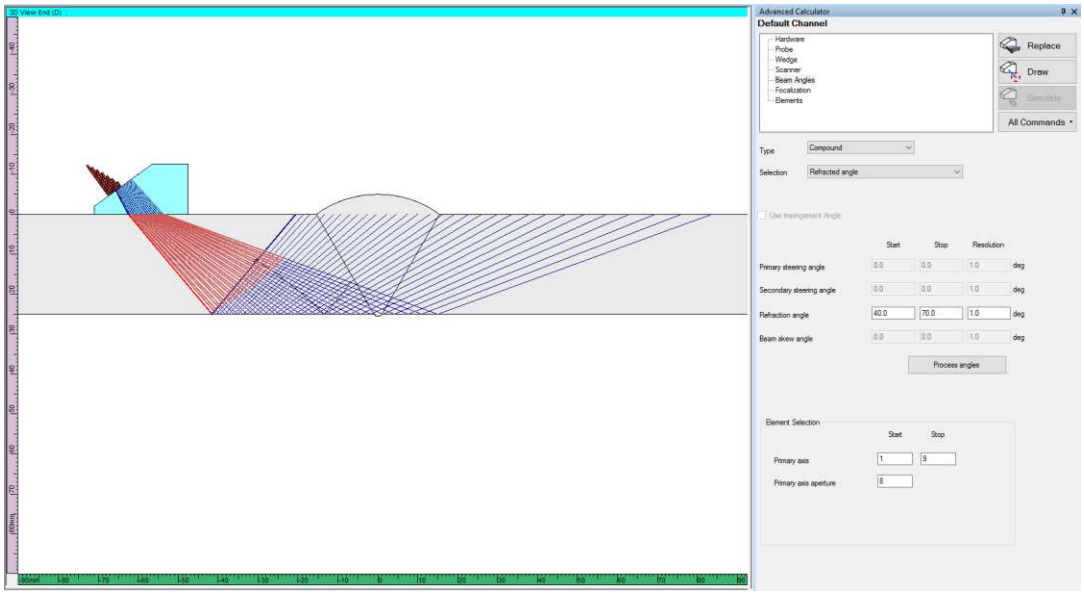
1. From the **Tools** menu, select **Options**.
2. From **Application**, select the **Inspection** tab.



The **Readback Data File On Save** is unchecked by default. When checked, the just-saved data file will automatically open each time you save a copy.

Compound Scan

1. From the **Calculator**, under the **Beam angles** tab, set the type to **Compound**.



It is now possible to define the resolution for the compound scan generation (this replaces the option **Sparse/Dense** available in previous versions).

The increment in aperture element will now be a function of the number of focal laws and the length of the probe to cover.

Quality

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

Toll free: 800.643.1771 (USA)

info@zetec.com

www.ZETEC.com