CIVA 2015

CIVA N·D·E 2015

The simulation and analysis platform for NDE

CIVA 2015 proposes significant improvements **from the CIVA 11.0 version**: In addition to simulation capabilities, CIVA is now a powerful analysis tool for acquisition data (M2M® systems, GEKKO®, Omniscan®, etc.). Regarding the simulation tools, significant new capabilities are provided to the users (among which the ability to enter units in inches!). This version also includes a lot of issues corrections and optimizations.

Don't miss this release to optimize your simulation works and discover the new analysis tools of CIVA!

CIVA is now a powerful tool for the analysis of your UT acquisition data:

As multiple acquisition systems are now compatible with CIVA UT (M2M systems, GEKKO®, Omniscan®, etc.), many CIVA users want to use the CIVA to perform the **analysis of their acquisition files**. This is now possible with CIVA 2015.

CIVA analysis window

CIVA UT Analysis now includes the tools allowing to **easily and quickly extract indications from UT Data** (#id, depth, size, etc.) and to fill in an indication table that can be exported in ASCII file and/or prepare directly an examination report, including images, distances and comments by a simple click.

Memory performance has been enhanced as well as the GUI in order to efficiently perform such analysis works even on large industrial acquisition data files, including Phased Array technology.

Always wishing to propose cutting-edge features and not only basic ones, the indication selection cannot only be performed manually or based on classical "-N dB grouping" operations, although these operations are from now on really easy to do in CIVA, but a powerful algorithm called **"One Click Segmentation" is now available to automatically extract the relevant information in a given area** (even from the C-scan view).

Another one-click feature allows you to **see relevant data in the 3D view of the component**.

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This new version proposes both improvement of basic functionalities (cursors, measurement and selection tools, gates and limitations, A-scan time tracker, etc.) and powerful tools for advanced analysis (automatic & simplified segmentation as said above but also one click "-N dB grouping", advanced segmentation, **"Simulation – Acquisition" direct comparisons**, signal processing, hysteresis fixing, amplitude histogram, eraser, etc.) and data reconstruction (simple reconstruction, surface reconstruction, **Total Focusing Method**). Analysis environment is also adapted to **multi-sensor acquisitions** (links between different cursors, multi-burst layout).

Once the processing is performed on a given file, most steps of the procedure applied can be saved and are kept in memory in order to be able to do the job in several steps or to allow a real **traceability of the analysis process** and **a fast repeatable procedure**. These **templates** allow you to have several dedicated environment and processes **ready to use**.

These new analysis features are directly **included in CIVA UT** and can be used both for simulation and acquisition data. But it **can also be available in a standalone version** as a license of CIVA UT Analysis (i.e. without simulation tools but optionally with the CIVA beam computation module) to be used especially for data analysis, of course also on-site. Don't hesitate to contact us for pricing information for a license of CIVA UT analysis.

More information and videos on CIVA UT Analysis on:

http://www.extende.com/ultrasonic-testing-analysis-with-civa

Improvement of CIVA simulation tools

CIVA 2015 also provides **new capabilities on the simulation side**:

EMAT probes are now available in the GWT module. As in CIVA UT (introduced in CIVA 11.0), this requires a coupling with the ET module in order to define the probe and compute Lorentz Forces generation. This GWT module is now integrated in the same window as the other modules of CIVA.
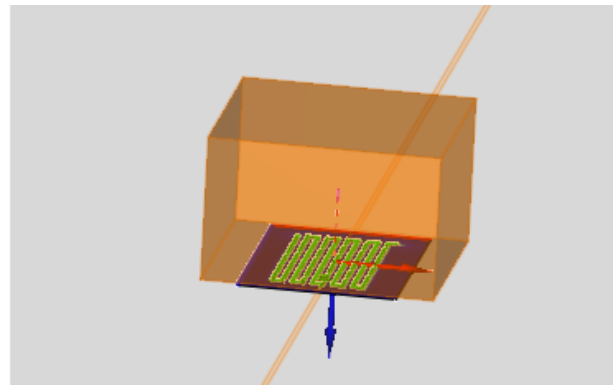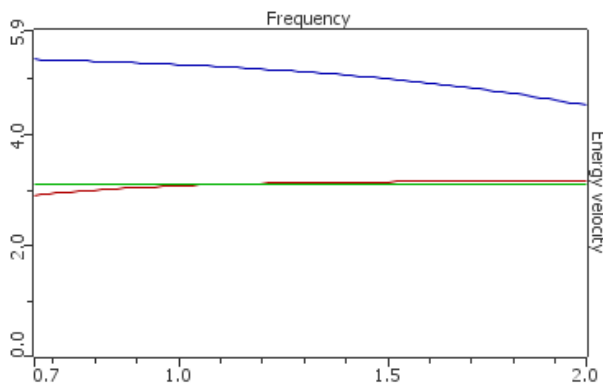

EMAT probe in CIVA GWT

In CIVA UT, some algorithms have been improved for beam/defect interaction: for instance, the SOV algorithm (more possibilities than Born model) is now available for cylindrical and spherical inclusions. Additionally, the specular algorithm has been added to the beam / flaws interaction algorithms in order to facilitate the simulation of **steel ball inspection in water**.

Predict flaw detectability in RT thanks to simulation! Detectability criteria had been implemented in CIVA 11.0 in the frame of a POD study. The detectability analysis is now available for any simulations in CIVA RT!

To precisely account for the scattering radiation in a CIVA RT simulation, it is sometimes (if not always) difficult to evaluate the required number of photons for the Monte-Carlo computation. CIVA 2015 includes a new tool that will automatically provide the **estimated number of photons for a good convergence of the Monte-Carlo** simulation. This should allow you to obtain good results in one shot and to avoid iterative trials or run computations with too many photons.
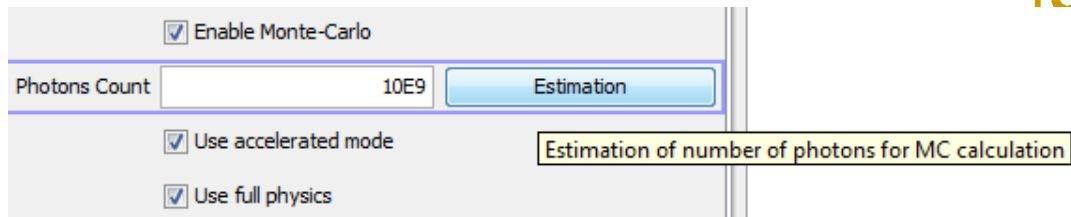
Automatic Photons estimator

Finally, in CIVA RT, a new model of detector is available as a "**generic detector**", aiming at allowing the user to enter any type of detector, including digital ones (such as flat panel), based on an experimental data file "Gray Level / Incident dose".

Regarding the Graphical User Interface (all modules in CIVA), one new feature, expected for years by our users in many countries, it is now possible to enter **dimensions in inches!**

By simply putting an "i" after the number, CIVA will interpret this input into inches. The conversion mm/inches will remain visible in a pop-up "sticker". In a similar idea, a user can also enter **fractional units: much more convenient** for geometries such as tubes or pipes where radius, diameter or wall thickness are usually provided in this unit!!
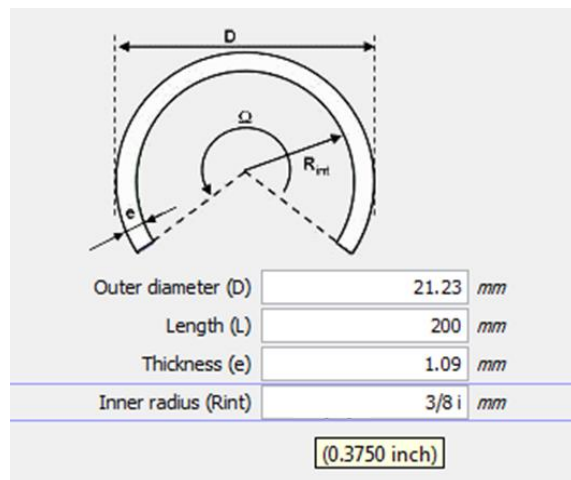
Inches and fractional units now in CIVA GUI!

As you know, CIVA never starts from a "blank page" when defining a new model but from a previous configuration kept in memory. This has advantages and drawbacks. To improve this, several **default configuration** options will be proposed in CIVA 2015 in order to start your models from a clean but relevant configuration.

Positioning options in CIVA UT have been changed in order to better fit with inspections practices. This new organization of the inspection panel is a first step to further changes in the future versions (regarding positioning and scanning).

When running a variation study, the output results were always given in "points". It is now possible to extract results directly in dB leading to an easier analysis.

Performance improvement and bug fixes

Finally, based on your feedback and our experience with CIVA 11.0, many malfunctions have been corrected in all modules and optimizations have been performed in several cases (in terms of robustness or accuracy). They cannot be described in details in this document but you will be personally informed of the corrections of the bugs you reported, at the delivery of this release.

We hope that you will enjoy this new version and its numerous improvements. Of course we will be happy to continue to receive your feedback on this version.