



M2M CAPTURE V4.1

NEW FEATURES DESCRIPTION

This document introduces the new features in M2M Capture version 4.1 released on March 2023.

Capture v4.1 is compatible with all Gekko, Mantis, PC and Panther under a subscription plan.

Please refer to the release note for more information.

For any question or support, please contact us at support@eddyfi.com



New features list

CAPTURE 4.1

TFM

- PCI
- Pitch-catch TFM
- Sensitivity map

ANALYSIS

- 2D gates in analysis
- Global data file reset



TFM improvement

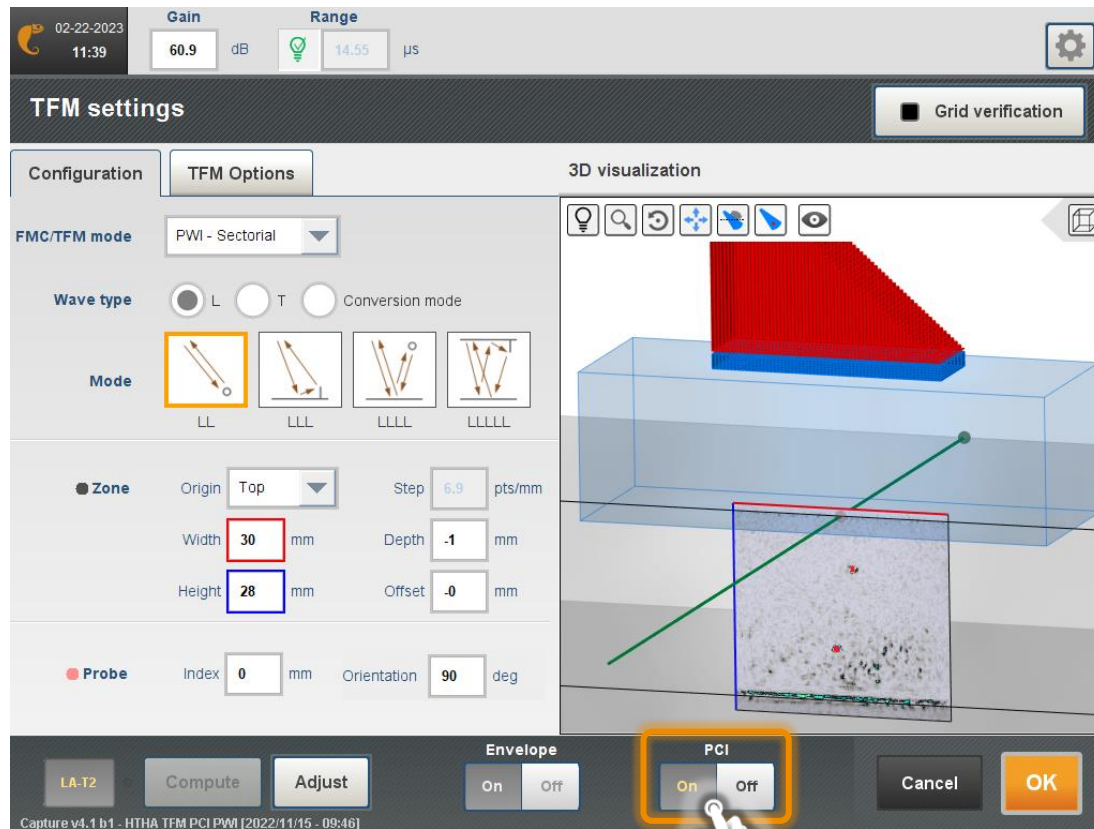
Capture v4.1 brings new imaging techniques



TFM #1

PHASE COHERENCE IMAGING (1/2)

Phased Coherence Imaging (PCI) is a new imaging method based on the Total Focusing Method. The data acquisition is similar to TFM, i.e. FMC or PWI, but the reconstruction process uses the phase information rather than the amplitude.



How to activate PCI

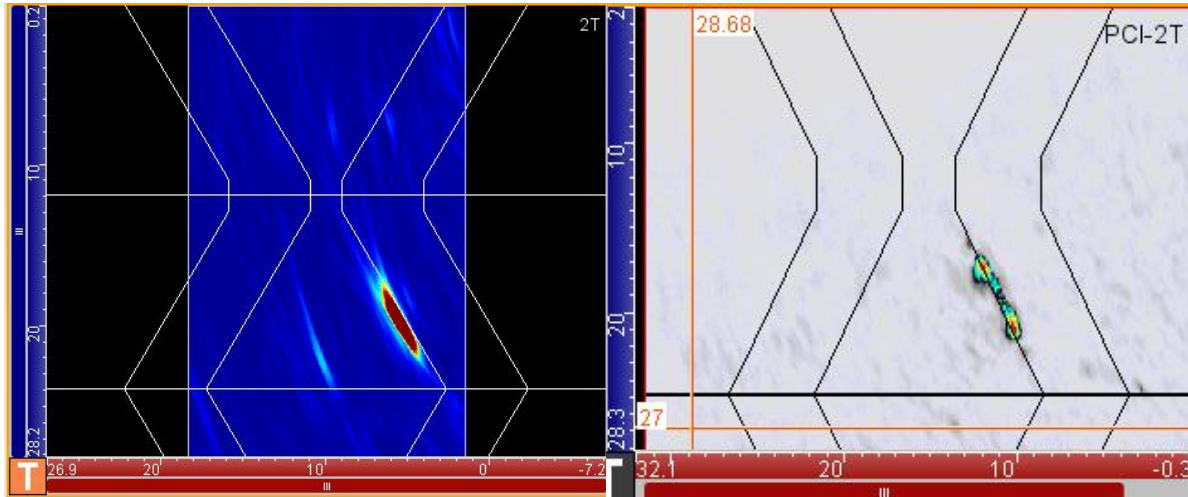
- From a TFM template wizard or application, access the TFM settings panel
- A PCI toggle button is added in the bottom banner of the TFM settings panel
- PCI is fully compatible with all transmission methods (elementary FMC, fast FMC and Plane Wave Imaging)
- PCI is compatible with all phased array probes (linear, matrix, DLA and DMA)

PCI is not compatible with the Panther yet

TFM #1

PHASE COHERENCE IMAGING (2/2)

By using only the phase information, PCI becomes more sensitive to diffraction echoes (tip diffraction and small volumetric defects) and less to specular echoes (front surface, backwall..).



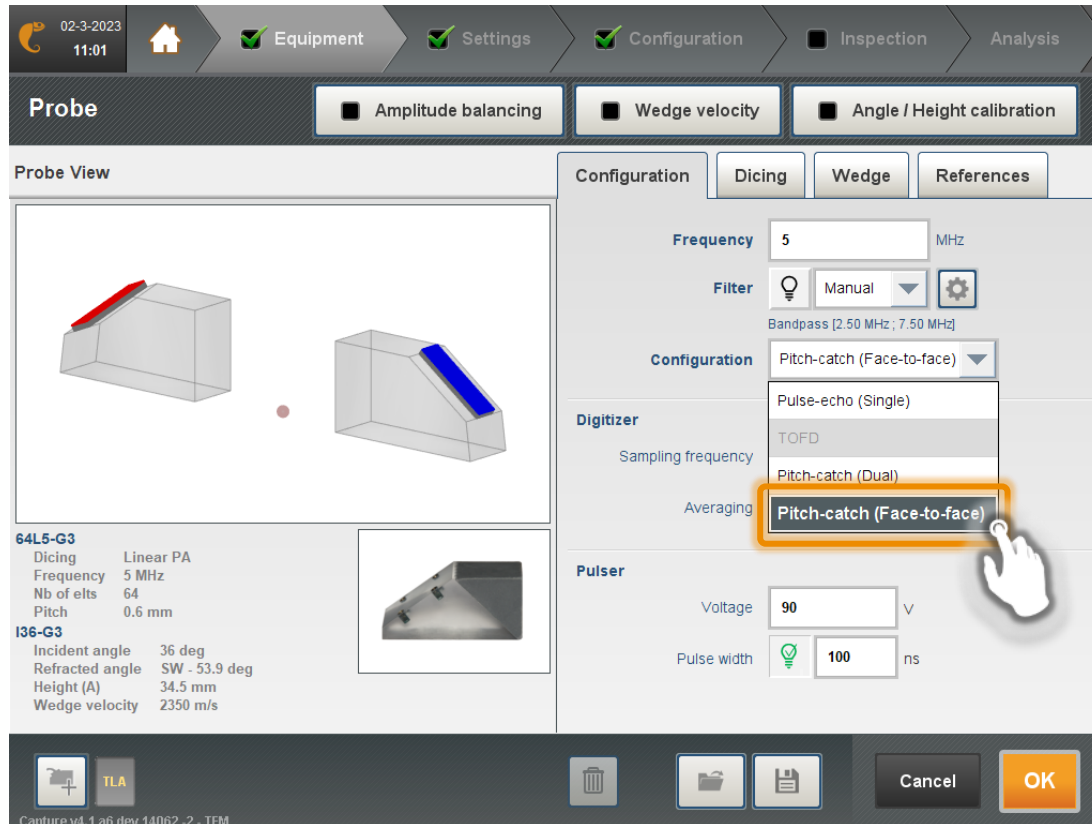
How to use PCI in Capture

- PCI can be used in a multigroup configuration
- For views coming from PCI group, a “PCI” information is displayed on the top right corner
- Everything (views, indication banners...) stays the same as TFM except for TCG, which is not available as it is a non-amplitude based technique

TFM #2

FACE TO FACE TFM (1/2)

Capture 4.1 offers a pitch-catch (PC) TFM/PCI mode for face-to-face configurations



How to configure face-to-face probes

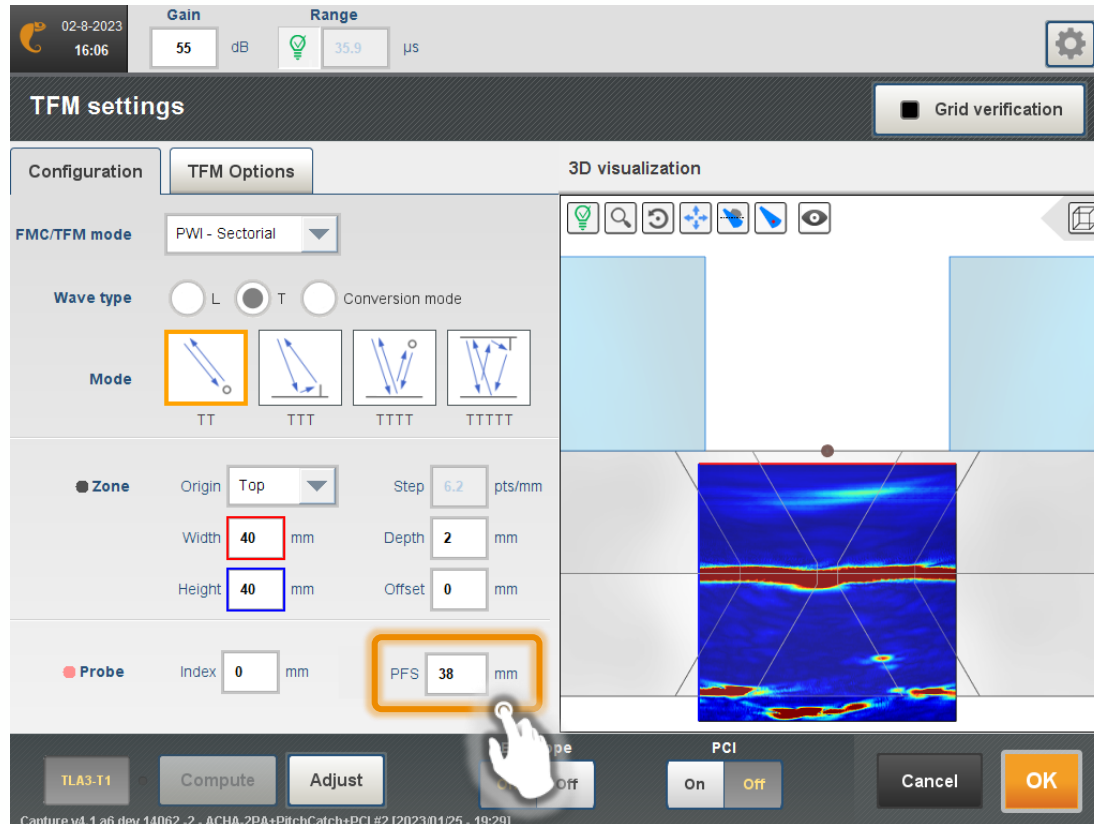
- From a TFM template wizard or application, select in the Probe section the appropriate configuration (see on the left image)
- The name of this probe is “TLA” as Transmission Linear Array (or “TMA” if matrix arrays) and its associated groups are named Tx
- For a TLA or TMA probe configuration, the wedge for the two transducers is identical

A pitch-catch configuration is defined as a new probe even if it uses elements already in use for pulse/echo configurations

TFM #2

FACE TO FACE TFM (2/2)

Like TOFD, TFM PC is highly sensitive to tip diffractions but provides the defect orientation information



How to adjust face-to-face probes

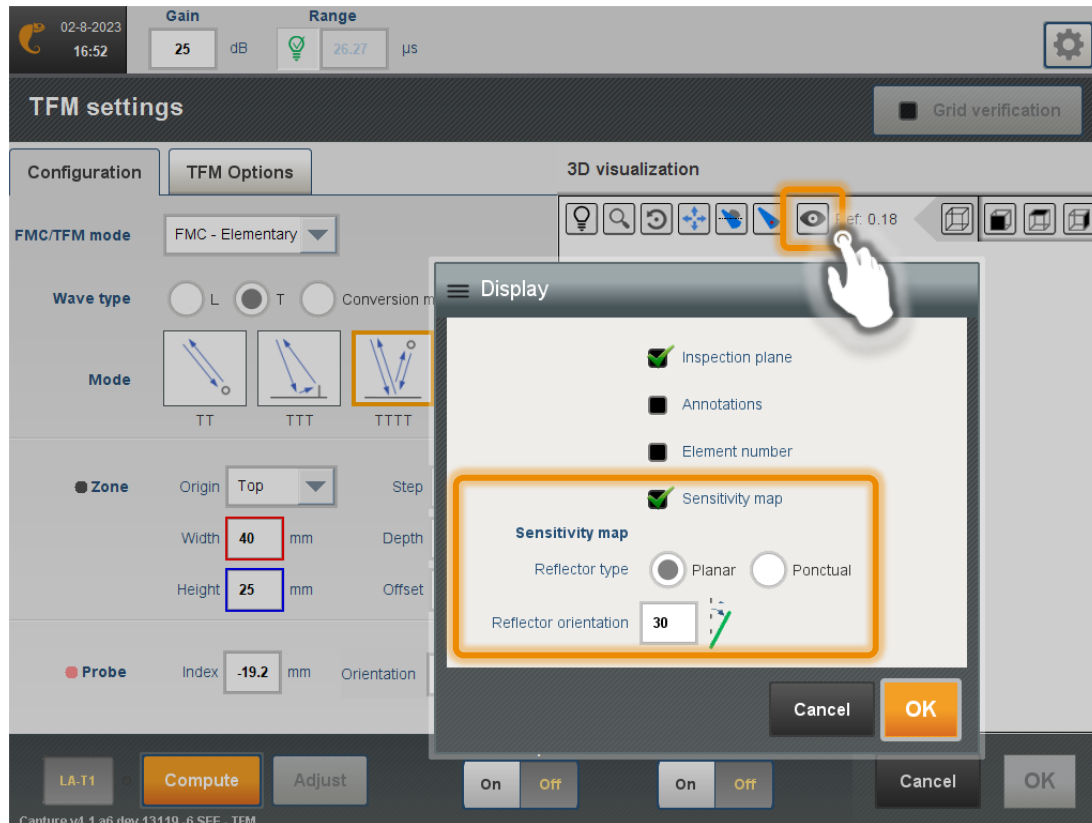
- The Probes Front Separation (PFS) is set into the TFM settings panel
- The right PFS is obtained when the amplitude of the backwall echo is maximal.
- All TFM settings and layout are similar to pulse-echo TFM groups

The quality of the inspection is highly sensitive to the probe separation.

TFM #3

TFM SENSITIVITY MAP

Based on simulation, Capture offers an acoustic sensitivity map that predicts energy location inside the TFM zone for a given TFM mode and reflector type.



How to use the sensitivity map feature

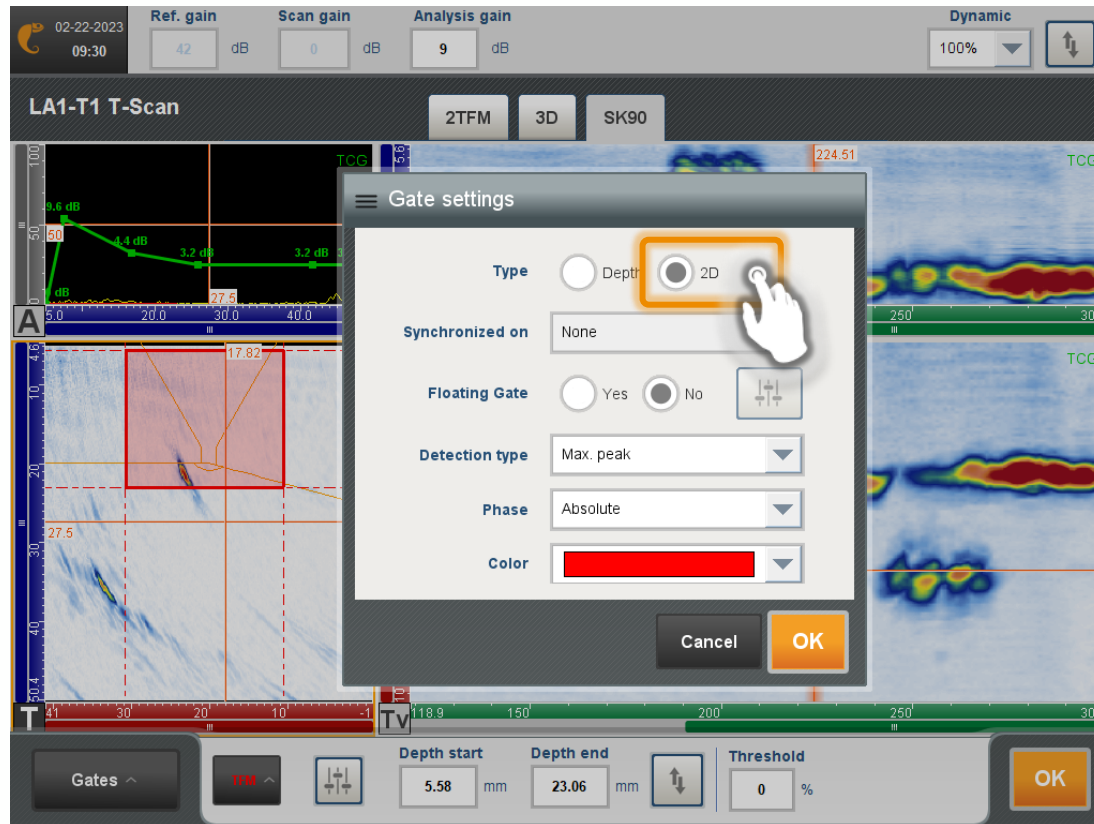
- This is accessible in the 3D view by clicking on the “eye” icon. When the TFM is computed, it can be viewed by clicking on the “ray” icon
- Two reflector types are available:
 - Point-like for volumetric defects
 - Planar for crack-like defects, which requires to enter an orientation
- The sensitivity map can be slow for large TFM areas. It is also accessible in acquisition and analysis

It is limited to plate and circumferential welds and pulse/echo configurations

Analysis #1

2D GATE TFM

Geometrical indications can interfere with important indications in Top and Side-view. 2D gates allow user to select a particular region of the TFM image and exclude the unwanted echoes



How to activate 2D gates in analysis

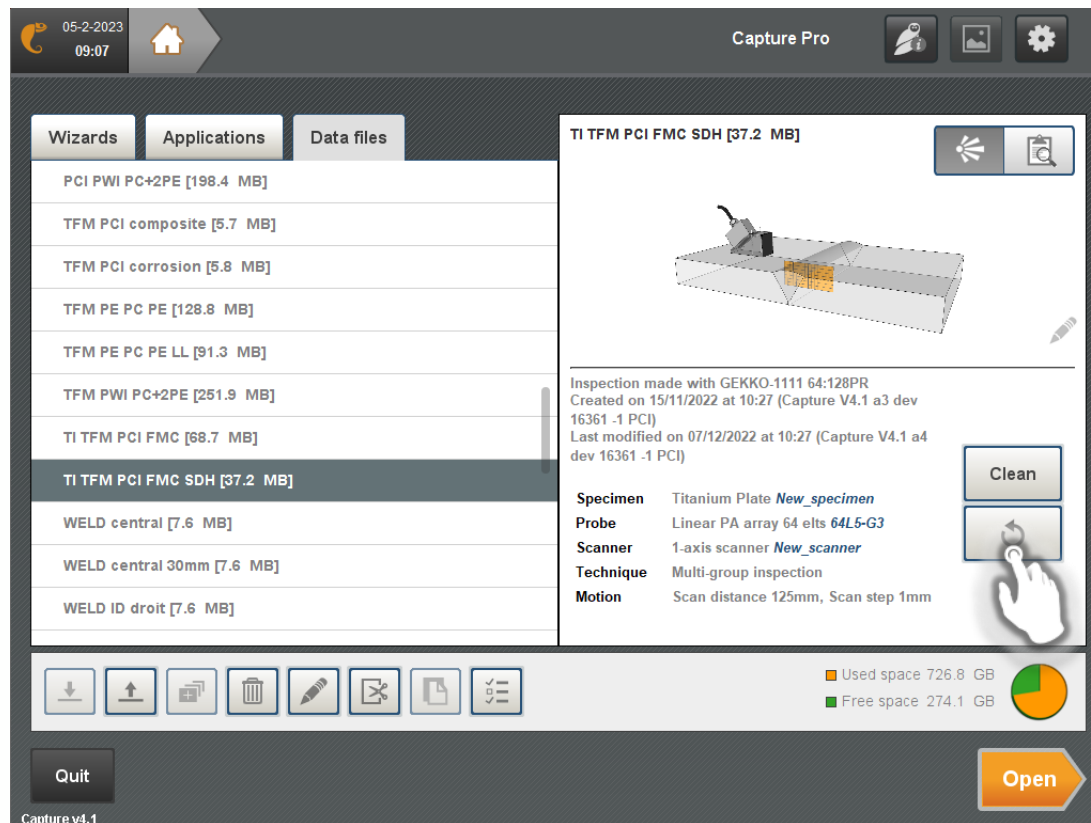
- From the Gates mode, open the Gate settings and select 2D for the gate type
- Adjust the start and end of the gate (index or depth) at the bottom banner or by moving cursors directly in the TFM image
- Press OK to compute the gate

G1 must be selected for the Top & Sideviews, echodynamic and 3D view in the layout


Analysis #2

GLOBAL RESET

This allows to remove any analysis applied and get back to the original acquisition file



How to reset

- In the home panel, select the file and click on the following icon 
- It is valid even for files acquired with older versions

This feature replaces the reset button accessible in analysis for gates and offset in previous versions