

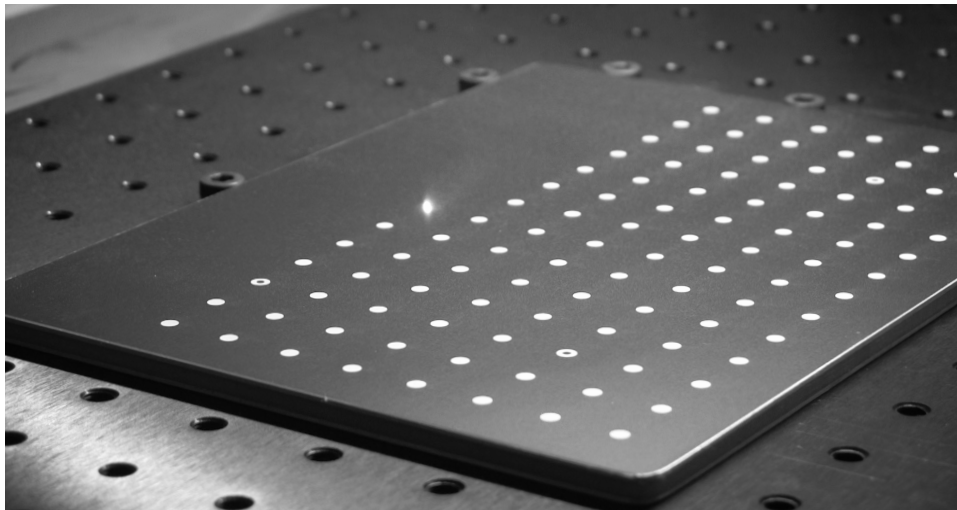
Application Note

Laser Marked Calibration Target Tips

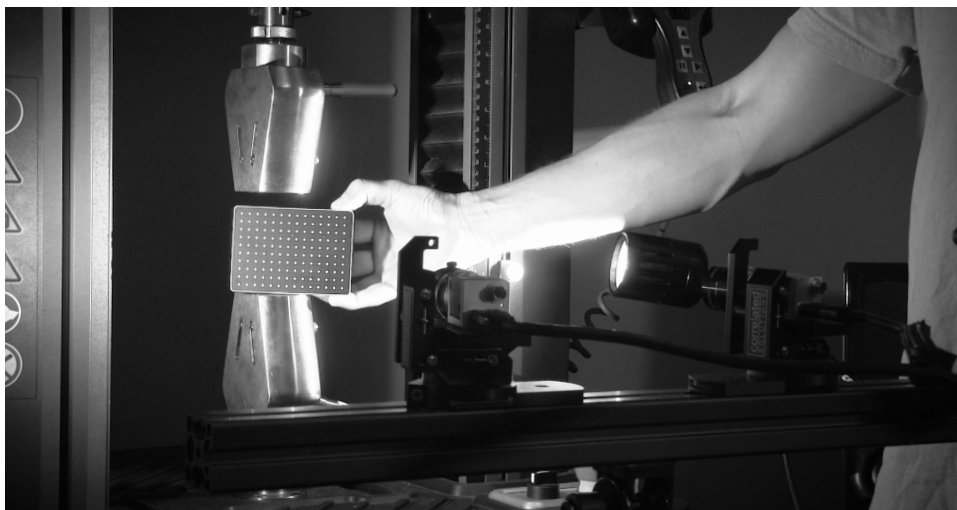
VIC-3D 9

2021

Laser Marked Calibration Target Tips



In 2021, Correlated Solutions started providing laser-marked calibration targets to allow for more robust calibrations. These laser-marked targets are black anodized aluminum panels, with the anodization removed through laser marking. The change from matte white targets to anodized aluminum means the surface of the panels creates more reflections both in the marked regions and outside area than older methods. This application note will cover some tips on how to achieve the best overall calibration using the new and improved laser marked calibration targets.



Over-Exposure

Although not always necessary, we recommend increasing the exposure evenly across the grid to the point that the calibration dots are over-exposed (in VIC-Snap over-exposure is signified by the over exposed areas turning red), and the reflections from the black regions of the panel are minimized as much as possible.

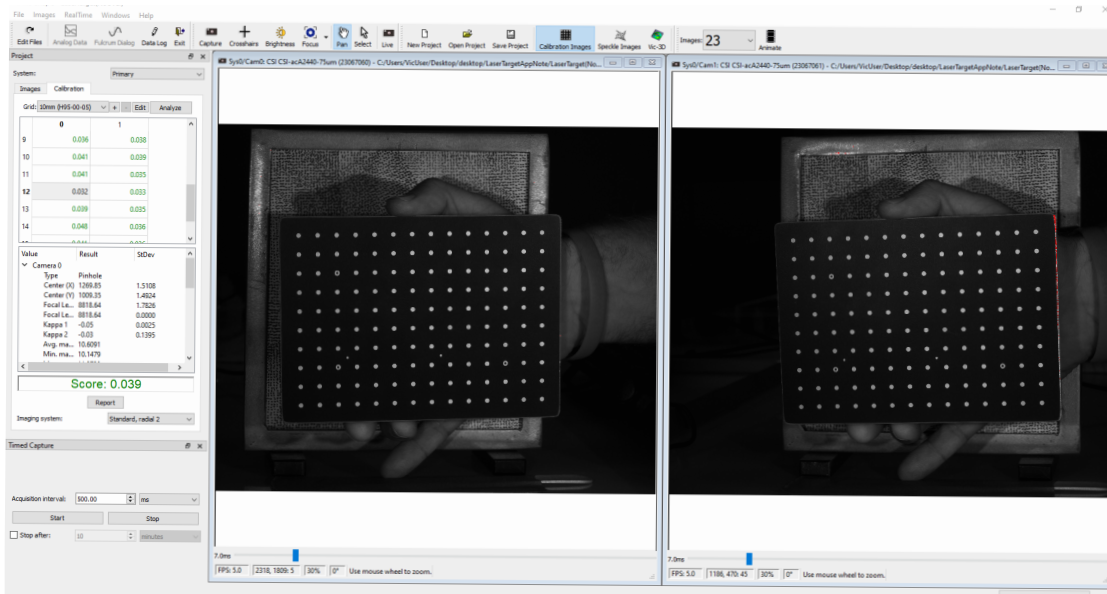


Fig. 1 - Laser Marked Target with standard exposure

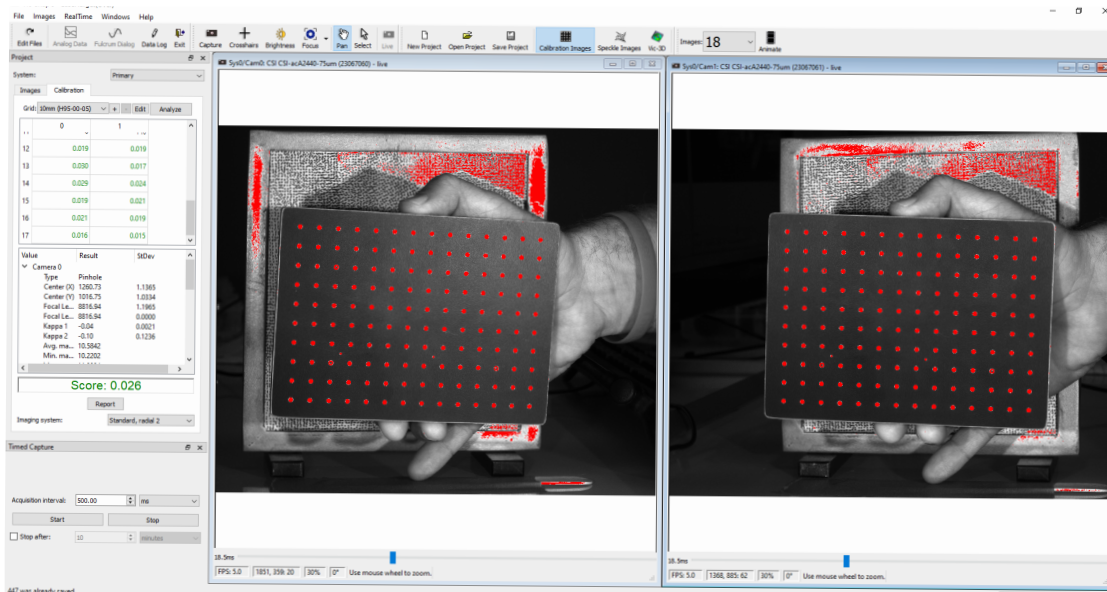


Fig. 2 - Laser Marked Target over-exposed

Polarizers

Using polarizing filters on both the lenses and the light source is also recommended. As shown in the picture below, using polarizing filters greatly reduces glare while maintaining a bright, crisp image. When using polarizers, extra light may be needed as polarizers tend to cut light transmission by 1.5 to 2.5 stops.

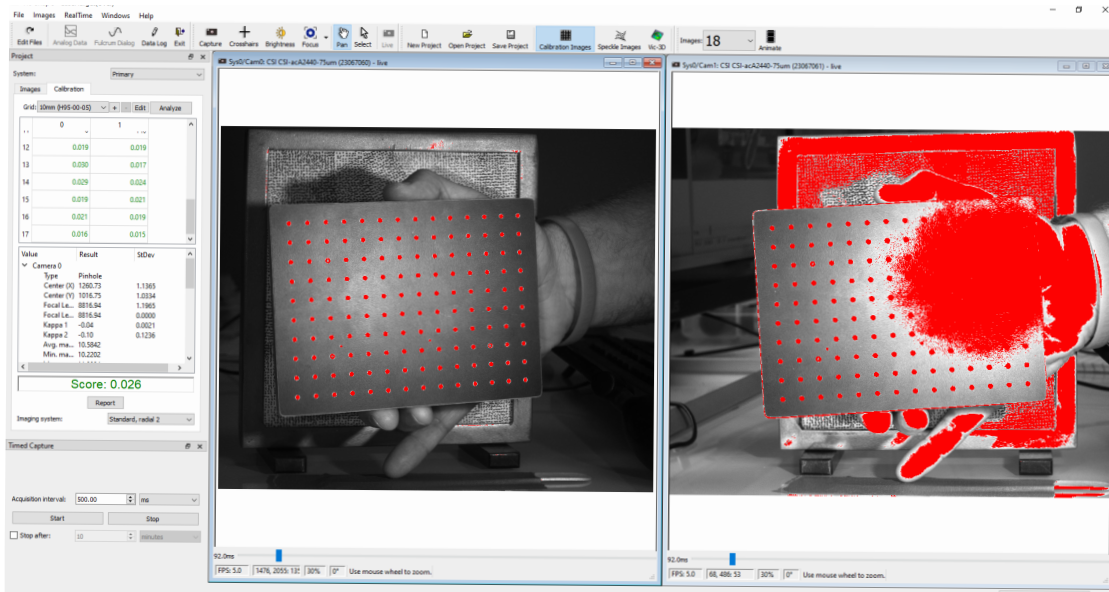


Fig. 3 – Polarized image (left window) versus a standard image (right window)



Fig. 4 – Correlated Solutions camera and LED with polarizing filters

Combating Glare

When using a laser marked target for calibration, the user may notice hot spots or glare patches when tilting the grid towards the light sources (as shown below). It is recommended to try and avoid hot spot angles when calibrating by tilting the target in those directions and also tilting down or up to avoid direct light to the target face. It is also recommended to try and keep light sources above or below the target and specimen, as to not have the light source shining on the same plane as the optical path. Using a diffuse light source, allowing to the light to wash over the specimen from the sides, tends to work well to avoid hot spots when acquiring images.

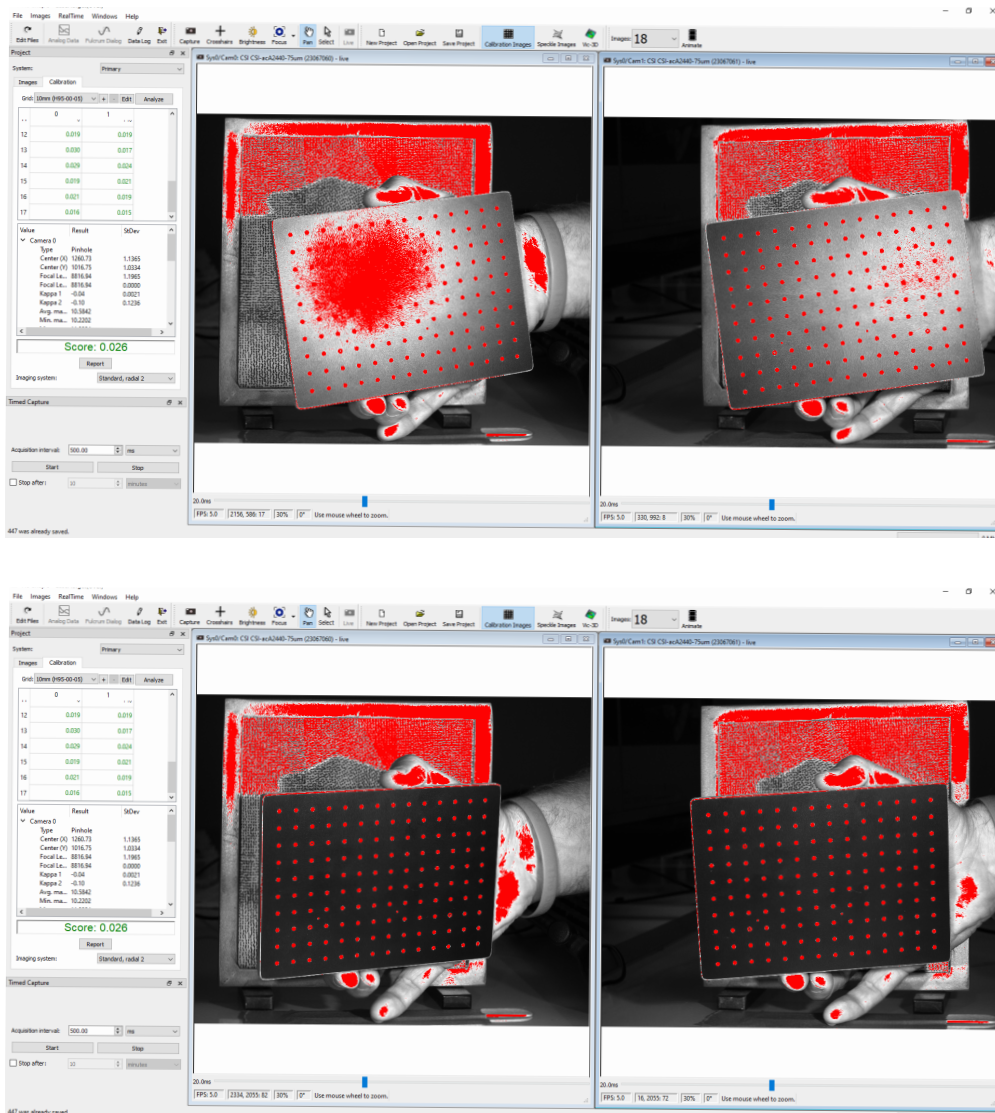


Fig. 5 – Hot spots and glare patches while tilting (above) versus avoiding glare (below)

Maintaining a Clean & Scratch-free Target

We always recommend using a target, laser marked or otherwise, that is clean from debris and cared for to avoid becoming scratched, dented or deformed in any way. The robustness of the calibration depends heavily on having a precise and accurate calibration target. These targets can be cleaned by simply using isopropyl alcohol and a cloth. If a target has become damaged or worn, please contact the support engineers at Correlated Solutions to inquire about a replacement. Laser marked calibration targets are also sold on the Correlated Solutions website: www.correlatedsolutions.com.

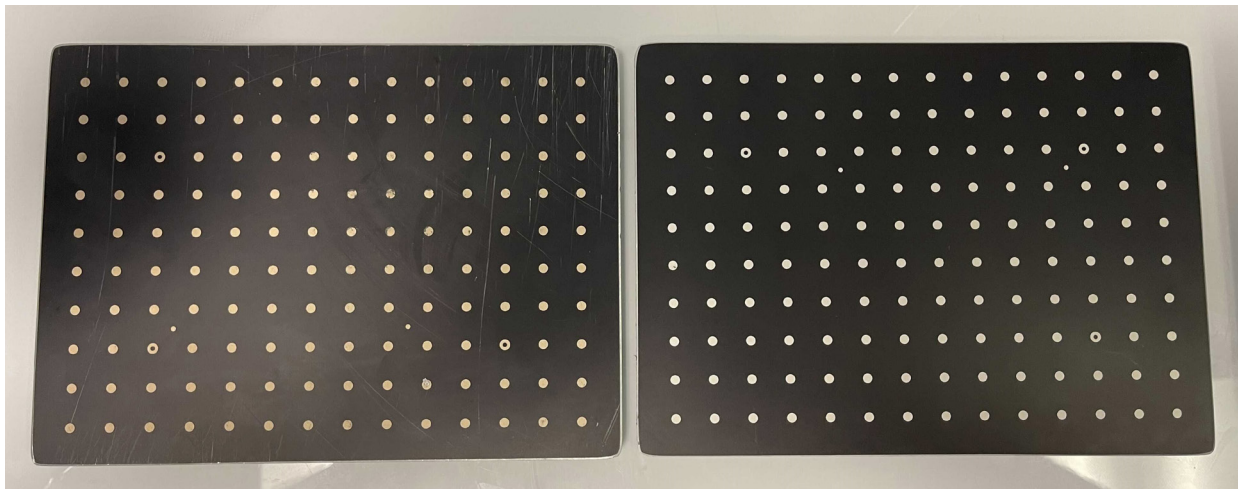


Fig. 6 – Scratched and dirty target (left) versus a clean, scratch free target (right).

Support

If you have any questions about this Application Note or any other questions, comments, or concerns about your Correlated Solutions system, please feel free to contact support@correlatedsolutions.com, or the local technical representative. We'll be happy to help evaluate options for preparation and analysis that will result in the best achievable results.