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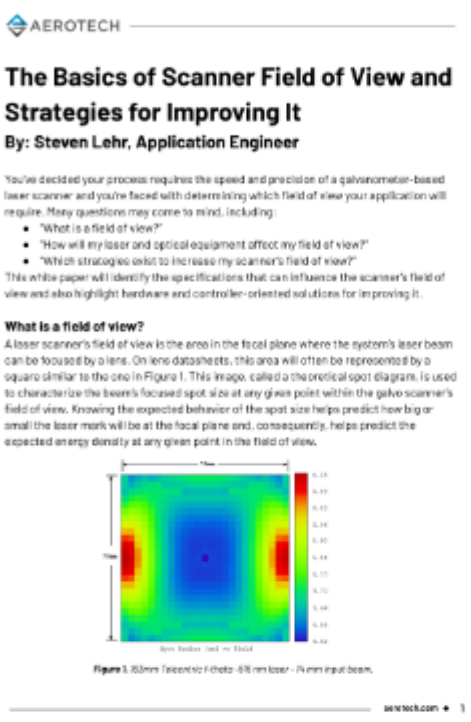
AEROTECH

The Basics of Scanner Field of View and Strategies for Improving It

By: Steven Lehr, Application Engineer

You've decided your process requires the speed and precision of a galvanometer-based laser scanner and you're faced with determining which field of view your application will require. Many questions may come to mind, including:

- "What is a field of view?"
- "How will my laser and optical equipment affect my field of view?"
- "Which strategies exist to increase my scanner's field of view?"

This white paper will identify the specifications that can influence the scanner's field of view and also highlight hardware and controller-oriented solutions for improving it.

What is a field of view?

A laser scanner's field of view is the area in the focal plane where the system's laser beam can be focused by a lens. On lens datasheets, this area will often be represented by a square similar to the one in Figure 1. This image, called a theoretical spot diagram, is used to characterize the beam's focused spot size at any given point within the galvo scanner's field of view. Knowing the expected behavior of the spot size helps predict how big or small the laser mark will be at the focal plane and, consequently, helps predict the expected energy density at any given point in the field of view.

Figure 1. 163mm Telecentric F-theta - 678 nm laser - 7 mm input beam.

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