

Choice of Spatial Resolution Measurement Methods to Implement

Considerations Under a “New Laboratory”-Scenario for Imaging Optical Testing and Research.

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Abstract

A key imaging quality metric for an optical system (e.g. a camera or surveillance device) is its resolution. Methods to measure this, range from visual observation methods on resolution target charts, through more rigorous characterization, e.g. determining the modulation transfer function (MTF). When a new test-and-research laboratory is being established for testing imaging optical systems, some practical constraints impact on the choice of which of these measurement methods to implement first. Constraints include: The priority of resolution characterization versus other testing capabilities, balancing available equipment funds between different priorities, and demands arising from the need for practical skills-building on different test methods. Under this “new laboratory” scenario, this paper considers the merits of some of the methods available for resolution characterization. One major consideration is the widespread availability and use of digital imaging systems. The methods considered include: (1) Use of conventional resolution targets, (2) the so-called “spatial frequency response (SFR)” method, (3) and more rigorous MTF measurement methods.