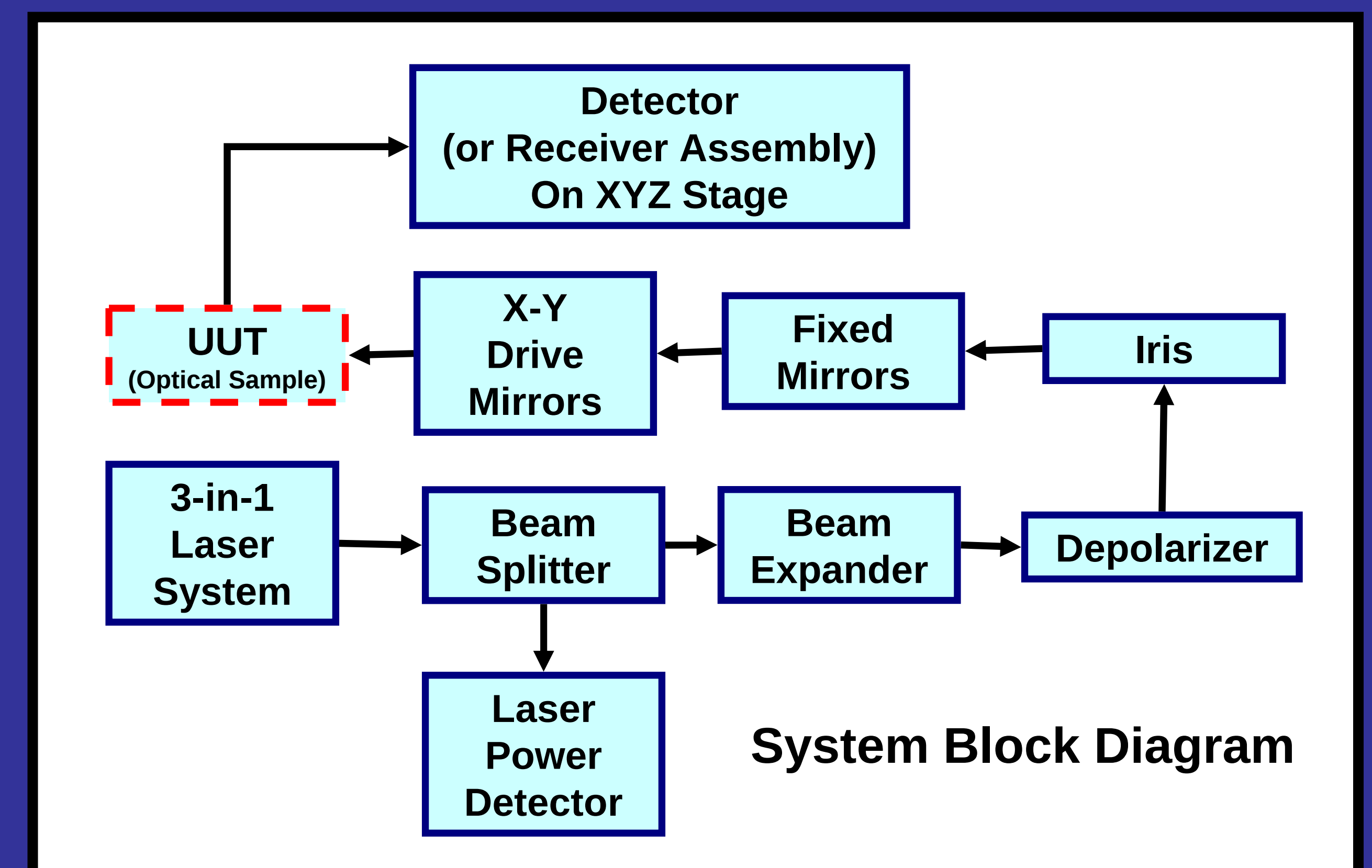
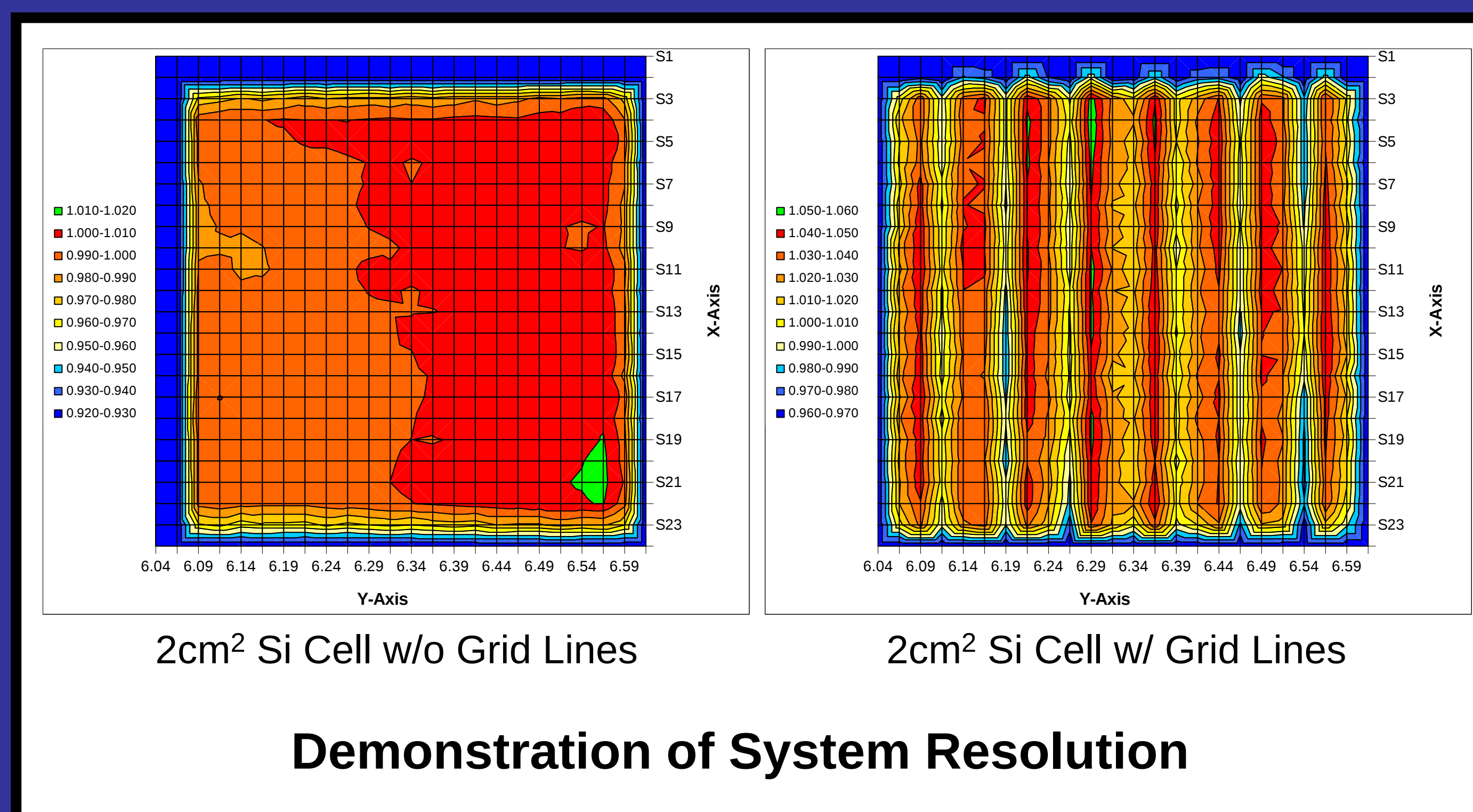


Analysis of CPV Optical Components Using an LBIC System

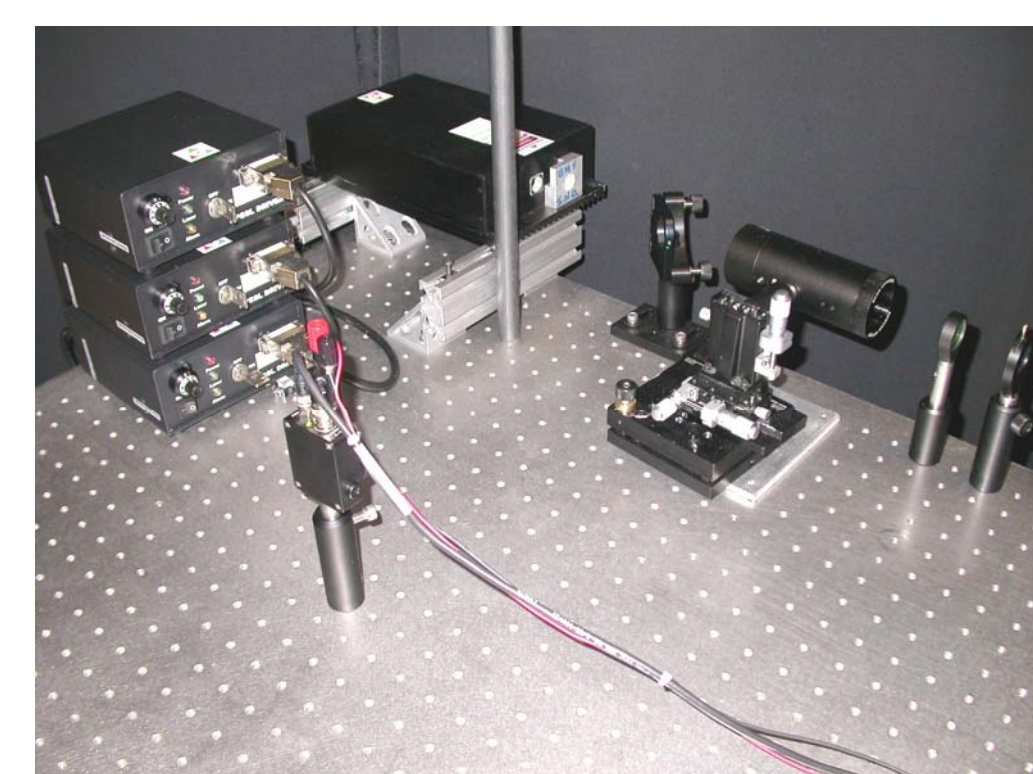
(LBIC: Light Beam Induced Current)

by Mike Sumner, Damien Buie, Igor Kozin & James Foresi (EMCORE Corp.)



Potential Uses of an LBIC Measurement System

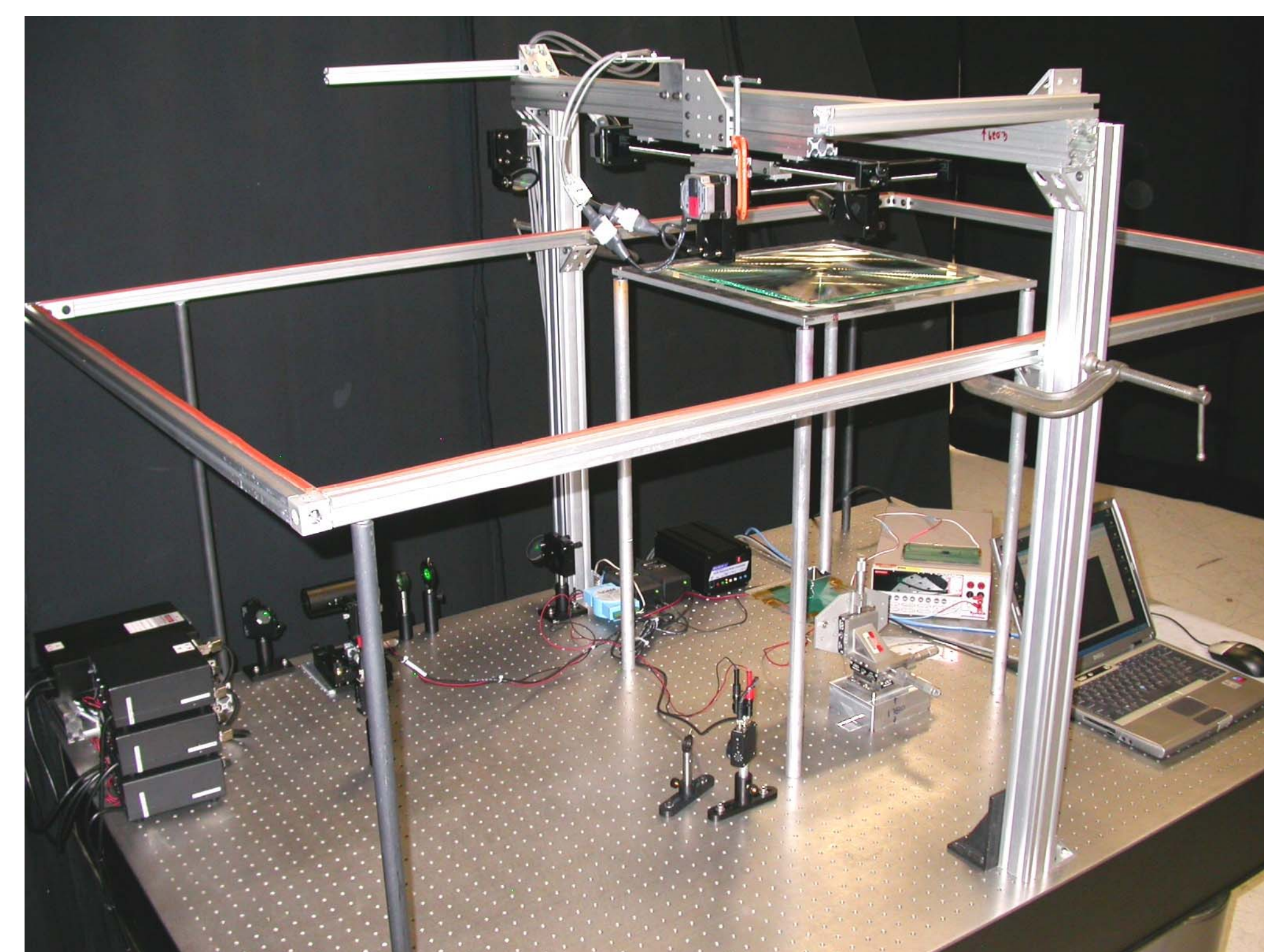
- Measuring performance and locating defects in a Fresnel lens
- Measuring performance and locating defective regions in a triple junction cell
- Measuring the performance of an optical component before and after stress or exposure tests
- Physical measurements of optical assemblies to validate optical models and designs



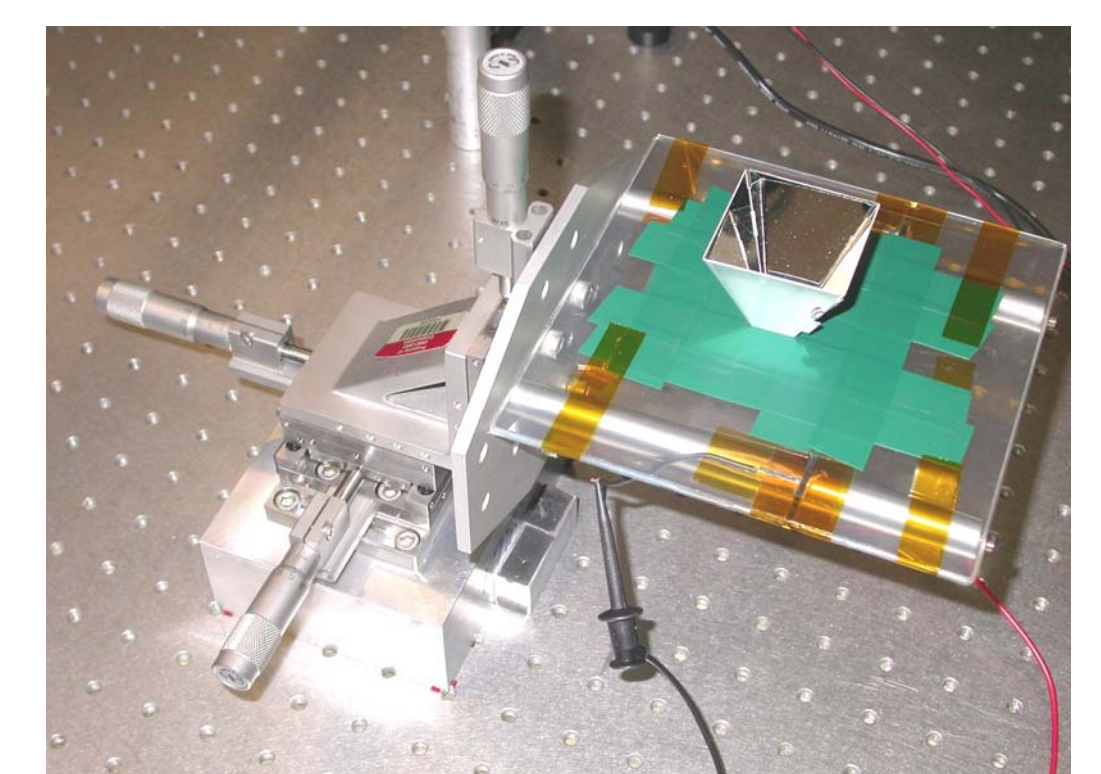
Laser, Splitter, Depolarizer & Iris



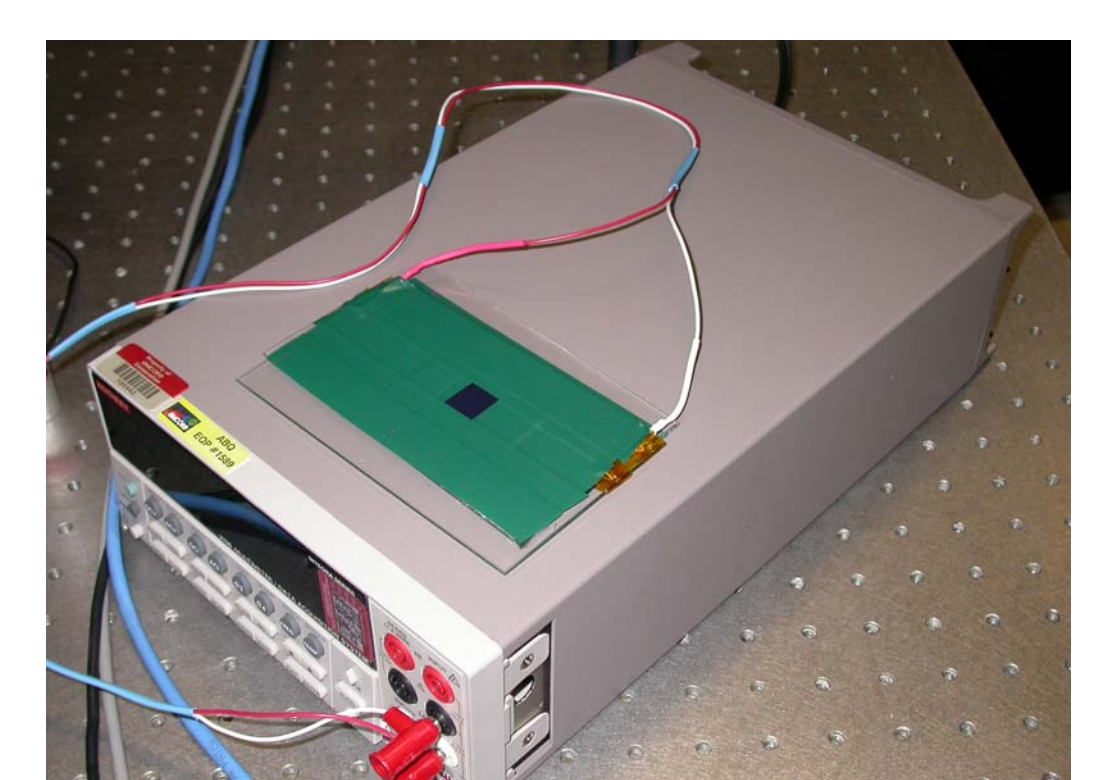
A/D Unit, PS & Motor Drive



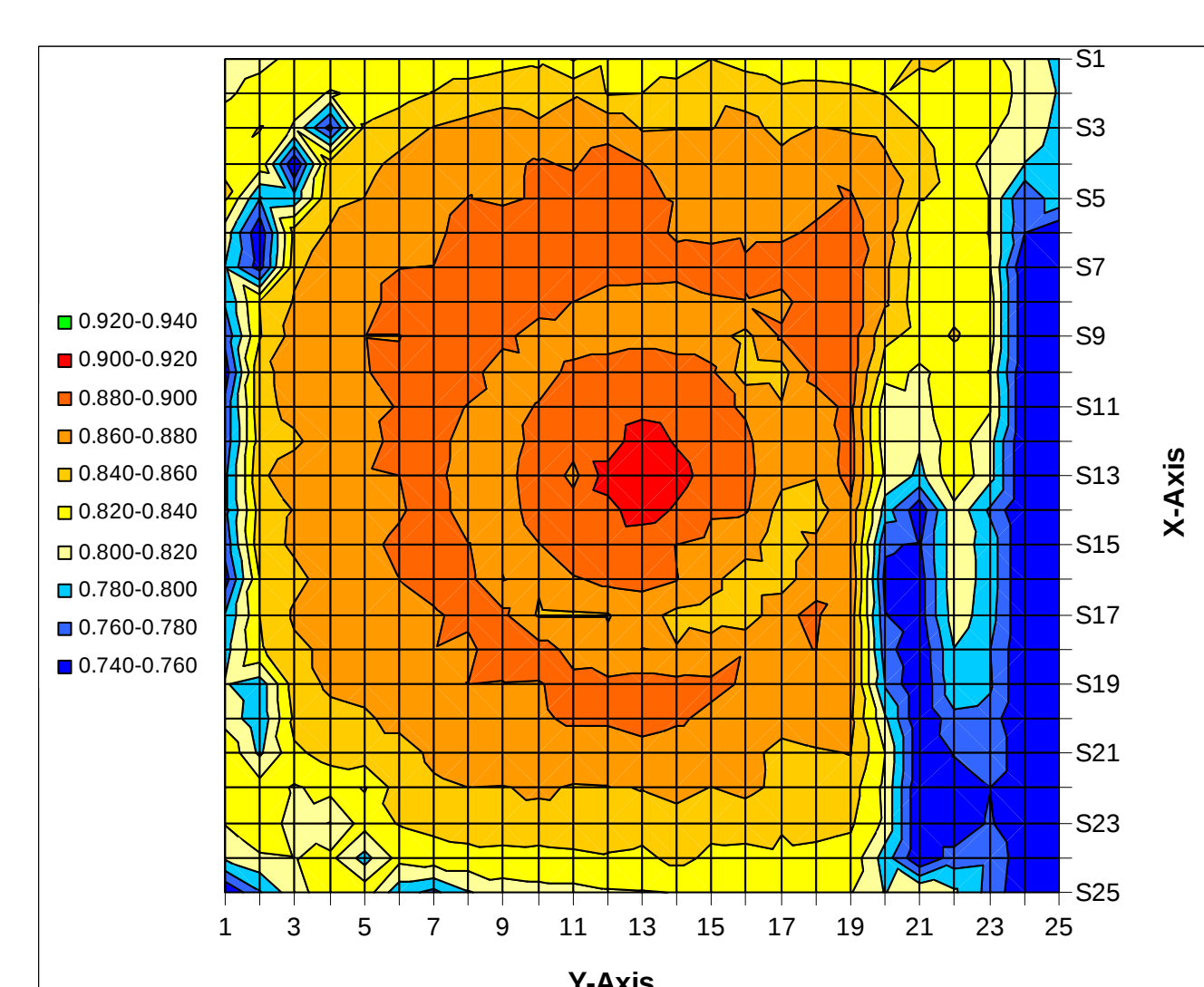
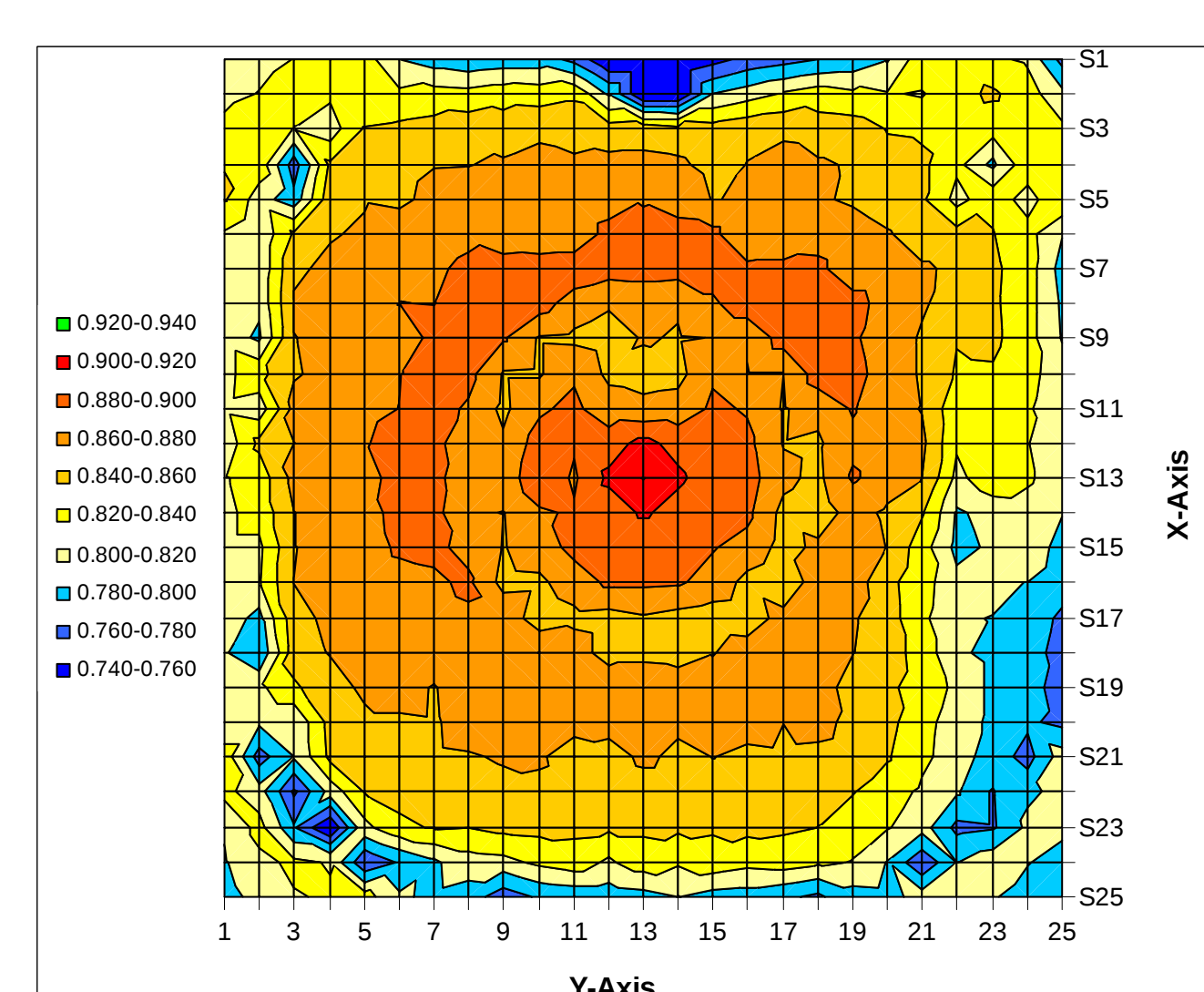
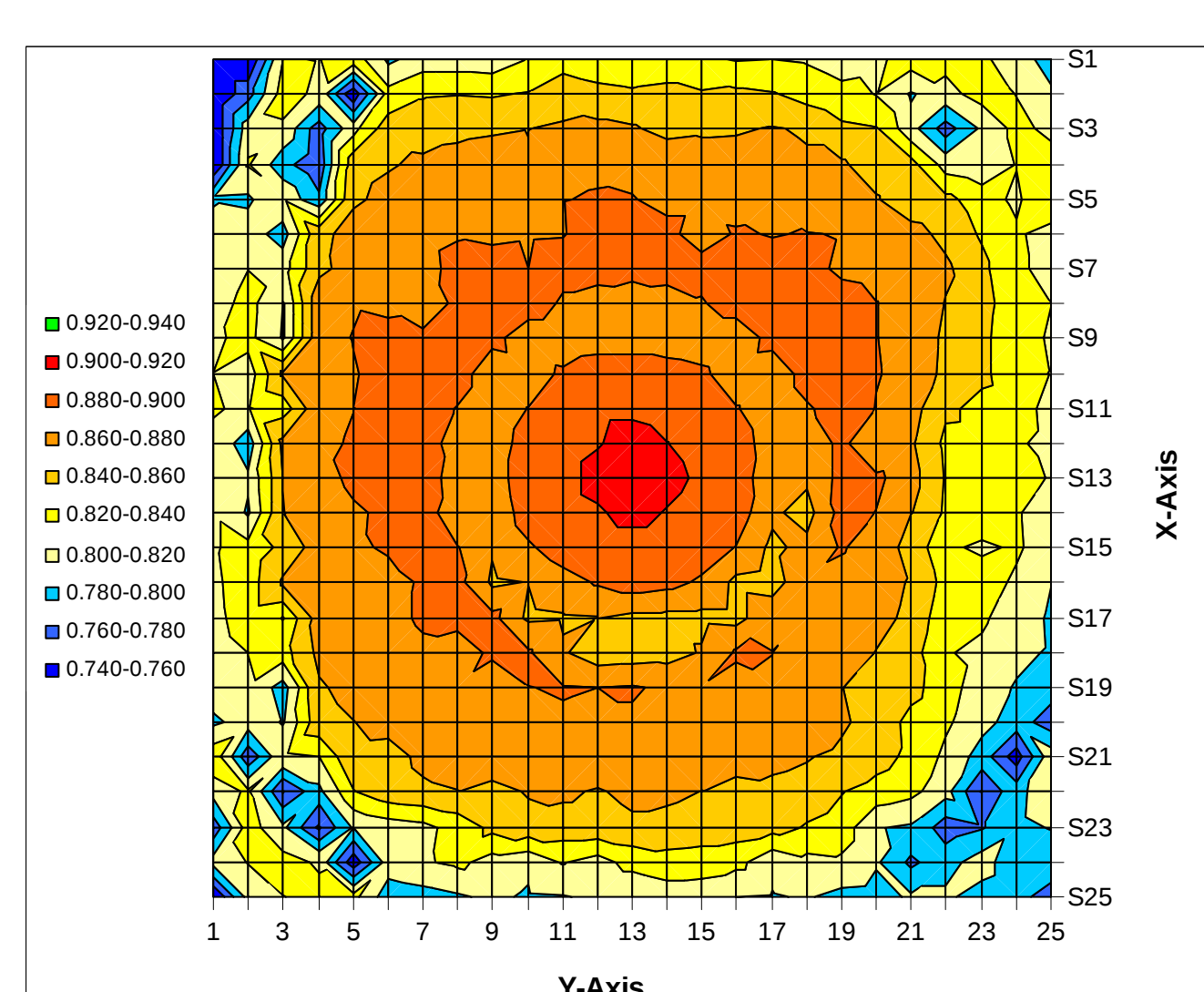
LBIC System



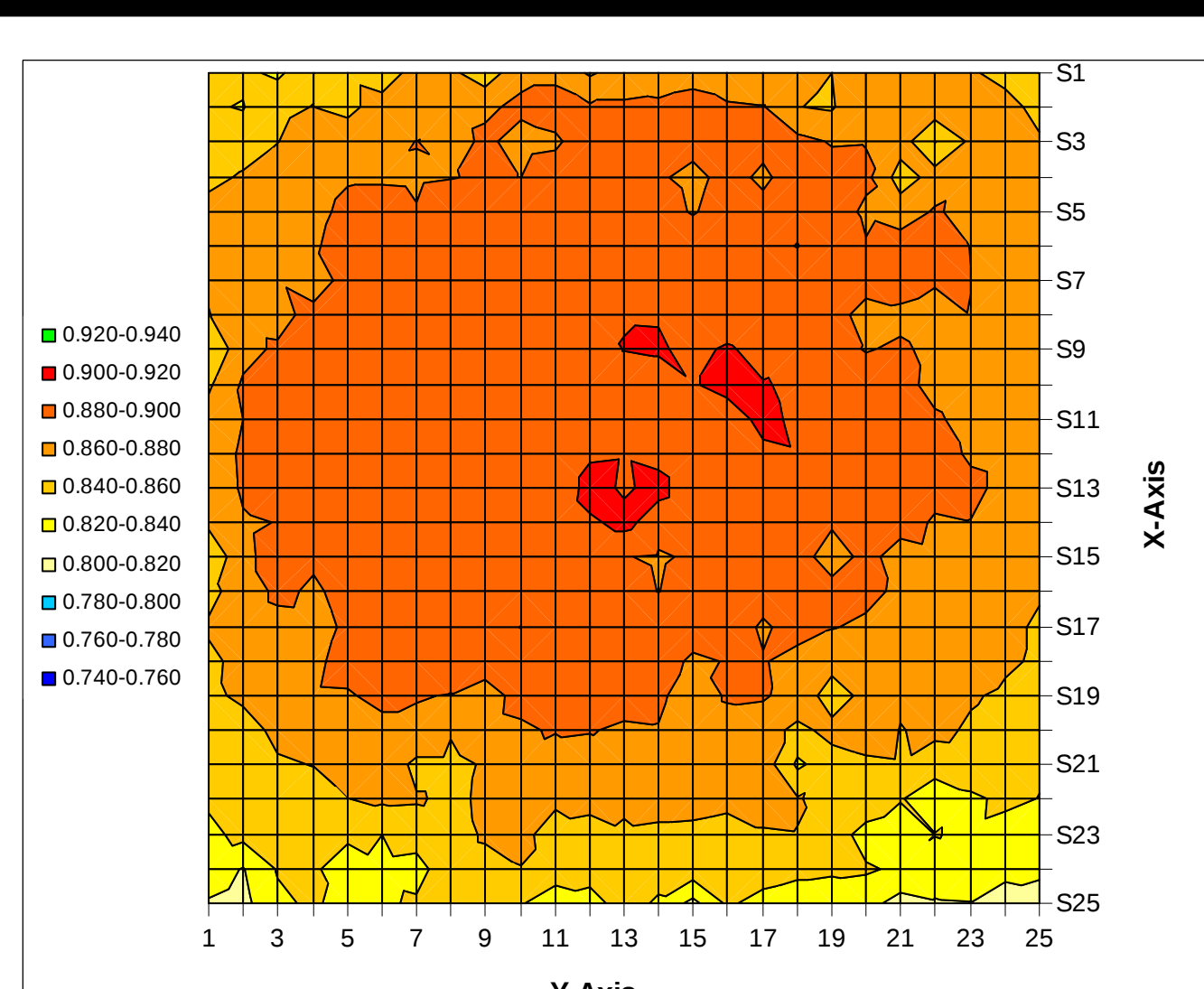
Detector (Receiver Assembly)



Beam Measurement H/W

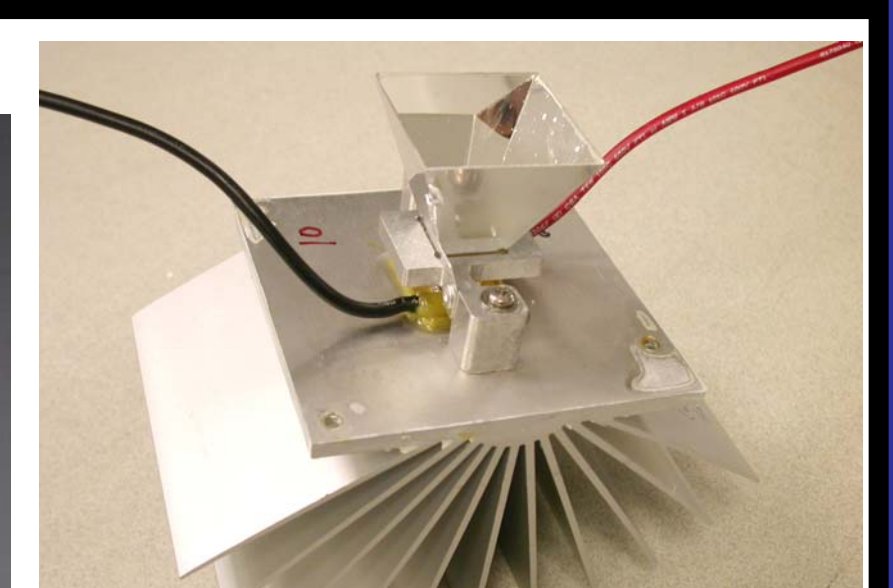
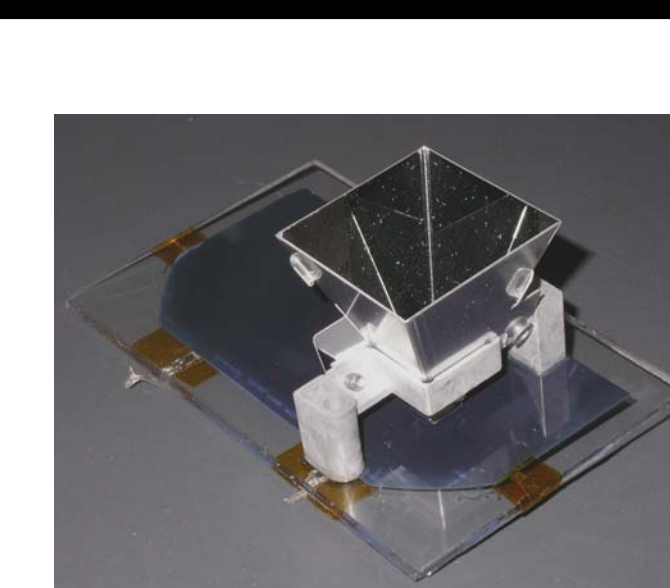
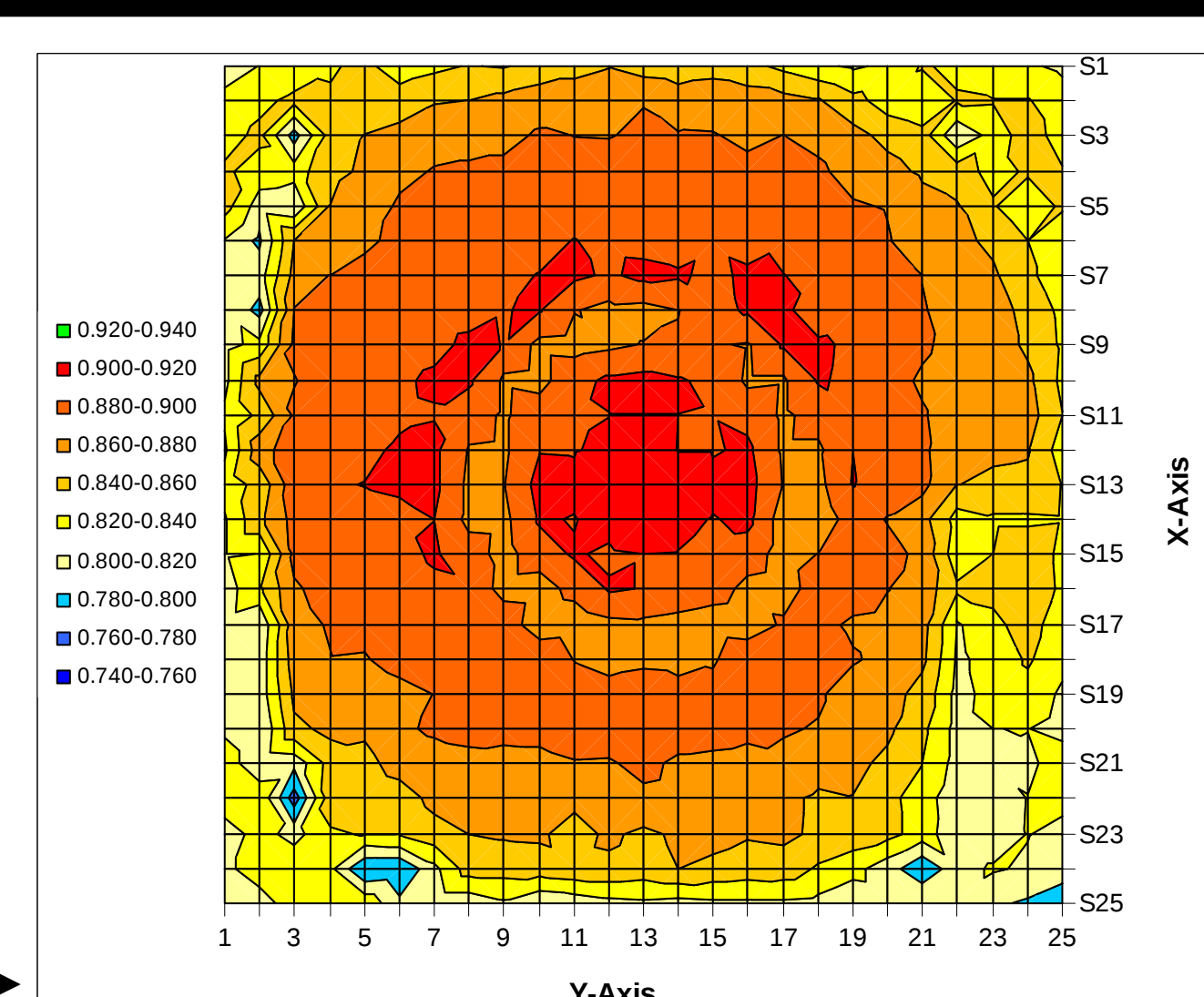


Examples of two “normal” Fresnel lenses and one “bad” Fresnel lens in a 3x5 module size parquet.



LENS	Transmission @ Center (%)	Transmission Grand Avg.
Acrylic Design	90.9	87.4
SoG Design	91.6	86.4

Silicone on Glass Fresnel Lens



Detector/Receiver Assemblies
(used in validating optical models & designs)