

IN BRIEF

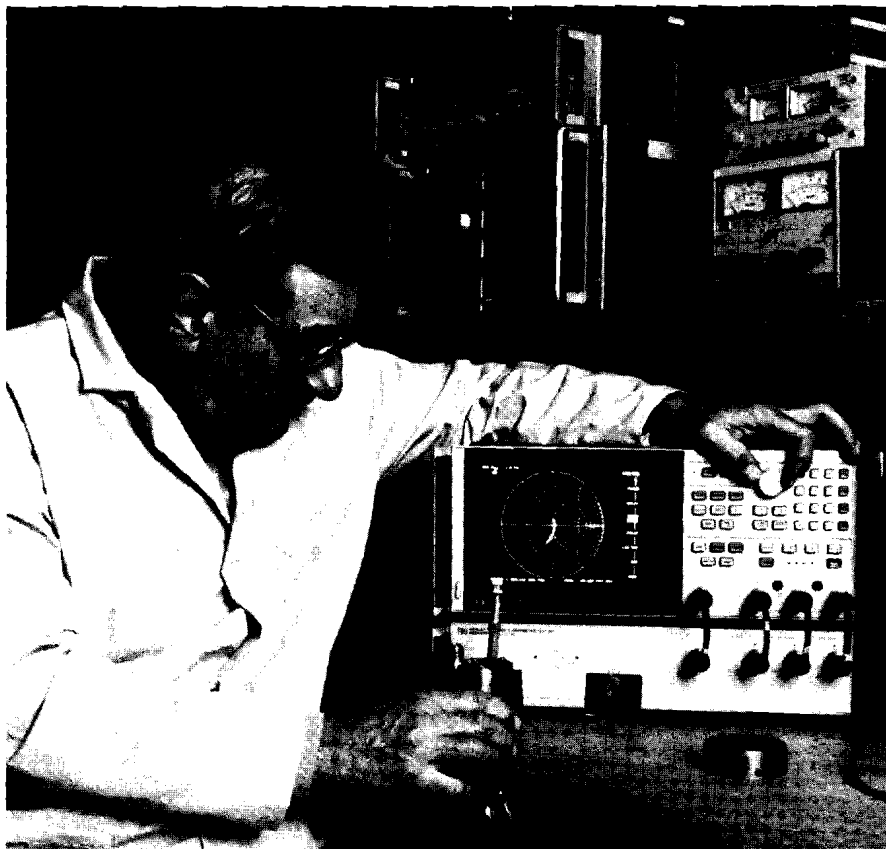
This volume of the LLE Review, covering the period October–December 1988, contains several articles devoted to our work in the understanding, identification, and correction of illumination nonuniformities on the OMEGA laser system. Finally, the activities of the National Laser Users Facility and the GDL and OMEGA laser facilities are summarized.

The following are highlights of the research reports contained in this issue:

- The effects of illumination nonuniformities on direct-drive targets are reviewed, identifying the significance of the individual contributions of the long- and short-wavelength nonuniformities on target performance.
- A significant source of illumination nonuniformities—power imbalance between incident laser beams—has been identified. The origins of power imbalance are examined and the steps taken to correct for them on the OMEGA laser system are discussed.
- The theoretical considerations for the implementation of smoothing by spectral dispersion (SSD)—a scheme for achieving high-quality, on-target laser beam patterns—on a laser system such as OMEGA are discussed.
- The physical implementation of SSD on the OMEGA laser system requires the design, engineering, and testing of several complex subsystems. Each subsystem and its introduction into the OMEGA laser system is discussed in detail.

CONTENTS

	<i>Page</i>
IN BRIEF	iii
CONTENTS	v
Section 1 UNIFORMITY CONSIDERATIONS ON OMEGA	1
Introduction	1
1.A Effects of Illumination Nonuniformities on Direct-Drive ICF Implosions	2
1.B Implementation of Power Balance on OMEGA	16
1.C Improved Laser-Beam Uniformity by the Angular Dispersion of Frequency-Modulated Light	29
1.D Broadband Phase Conversion Using SSD	40
Section 2 NATIONAL LASER USERS FACILITY NEWS	56
Section 3 LASER SYSTEM REPORT	57
3.A GDL Facility Report	57
3.B OMEGA Facility Report	58
PUBLICATIONS AND CONFERENCE PRESENTATIONS	



Carl Petras, a research engineer in the Diagnostics Development Group, is shown testing the high-Q, microwave cavity used to drive the lithium niobate phase-modulator employed in the smoothing by spectral dispersion (SSD) scheme on the OMEGA laser system.