

Section 1

LASER SYSTEM REPORT

1.A GDL Facility Report

The glass development laser (GDL) system was deactivated in December 1984 for the installation of the Kuizenga oscillator, for the upgrade of the active mirror system, and for the activation of the frequency conversion system.

The schedule calls for the completion of the upgrade by early April, with testing of the synchronization of the two oscillators to occur in late March. A GDL operations summary for this period follows:

GDL Pointing, Calibration, etc., Shots	33
Beta Tank Interaction Shots (IR)	33
TOTAL	<u>66</u>

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1.B OMEGA Facility Report

During the second quarter of FY85 the wavelength conversion of all 24 beams of the OMEGA system from an IR (1054-nm) to a UV (351-nm) output was completed. The converted OMEGA system produced energy exceeding 2 kJ.

During this quarter, the conversion activities included assembly, test, and alignment of the conversion cells, and installation and alignment of the multi-wavelength energy-sensing system (MESS). In its first series of 24-beam shots on 8 February 1985, the frequency-tripled OMEGA system produced 900 J. After additional work on optimization of crystal alignment, beam transport measurements, near-field photography, focus lens characterization, and diagnostic activation, the energy was increased and reached 2087 J with 15% (rms) beam balance.

The 24-beam target experiments began in March 1985. OMEGA has demonstrated beam pointing accuracy and shot-to-shot stability of $\pm 10 \mu\text{m}$ and beam-to-beam timing accuracy of $\pm 3 \text{ ps}$.

A summary of OMEGA operations during this quarter follows:

Software Test Shots	31
Driver Test Shots	45
Beamline Test Shots	49
Target Shots	<u>107</u>
TOTAL	232

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