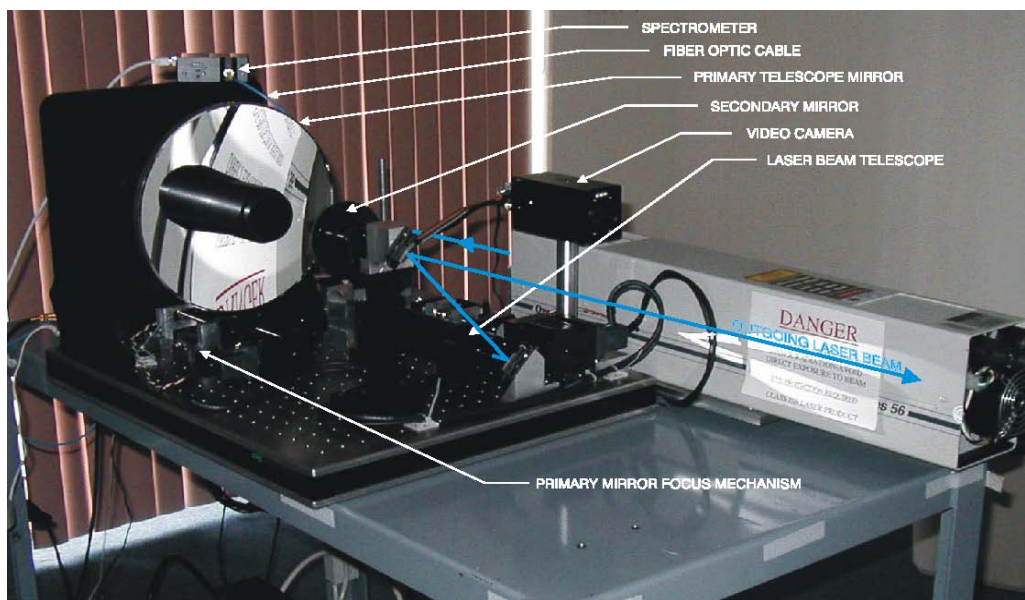


Compact Reflector Telescope - Phase II Project Summary

OPTRA developed a compact reflector telescope for short to mid range remote Raman lidar measurements of chemical spills. The system includes provision for a laser excitation source for fluorescence or Raman spectroscopy. Key features of the system include: a Galilean laser beam shaping transmission telescope, a 250 mm Cassegrain collection telescope, an operating range from 2 meters to infinity, and coaxial alignment and auto focus of the transmit and receive telescopes. Additionally, the system has been designed to work with a fiber-optic image transformer to match a circular image spot to the entrance slit of a prism or grating spectrometer.

The Phase II effort produced a working prototype system which was radiometrically characterized and also used to perform a remote Raman measurement of acetone using a commercial off the shelf helium cadmium laser, Raman edge filter, and grating spectrometer with an uncooled CCD array. A photograph of the prototype and the measured spectrum are shown below.

Compact Reflector Telescope Prototype



Remotely Measured Raman Spectra of Acetone

