

HR-241 Developmant of EDM I Calibration Baseline

Key Words: EDM I, Surveying, Equipment calibration

ABSTRACT

Electronic distance measuring instruments (EDMI) are used by surveyors in routine length measurements. The constant and scale factors of the instrument tend to change due to usage, transportation, and aging of crystals. Calibration baselines are established to enable surveyors to check the instruments and determine any changes in the values of constant and scale factors. The National Geodetic Survey (NGS) has developed guidelines for establishing these baselines.

In 1981 an EDM I baseline at ISU was established according to NGS guidelines. In October 1982, the NGS measured the distances between monuments.

Computer programs for reducing observed distances were developed. Mathematical model and computer programs for determining constant and scale factors were developed. A method was developed to detect any movements of the monuments. Periodic measurements of the baseline were made. No significant movement of the monuments was detected.