



FGCS Instrument Work Group
Federal Geodetic Control Subcommittee
Federal Geographic Data Committee

December 01, 1999

MEMORANDUM FOR: THE RECORD

FROM: Joe Evjen
Chair, FGCS Instrument Work Group

SUBJECT: Test of the Leica GPS System 500

On October 31-November 02, 1999, representatives from Leica Geosystems tested their GPS System 500 at the Federal Geodetic Control Subcommittee (FGCS) Instrument Test Network in Gaithersburg, Maryland. The test included static, real-time kinematic, and post-processed kinematic observations and was designed to demonstrate the following capabilities:

- 1) Incorporate data from National CORS stations with different receiver and antenna types.
- 2) Use precise SP3-formatted satellite ephemerides in data processing.
- 3) Accomplish survey operations consistent with published accuracy and performance specifications.
- 4) Produce all files required for bluebooking the survey into the National Spatial Reference System.

The Gaithersburg network used for this test consists of over 40 accurately-positioned survey monuments spaced from 20 meters to 120 kilometers apart. The network has been repeatedly surveyed to the highest accuracy standards. Stations in the network demonstrate a variety of signal obstruction and multipath conditions, and have local accuracies in the 0.03 - 0.003 meter range.

Test observations and processing were performed by Leica personnel using model 500 receivers with model AT502 antennas and Ski-Pro processing software. Precise satellite ephemerides and National CORS data were successfully incorporated into the static processing. Bluebook files for all observations were produced.

Preliminary test results were presented in a public meeting on 05 November. Analysis of the positioning results indicate that the instrumentation and software, as tested, will meet or exceed both the manufacturer's stated specifications and FGCS requirements.

The Instrument Work Group provides FGCS with the means to test, evaluate, and report on surveying instruments used to establish geodetic control. These tests are not a certification process and are not conducted routinely on all equipment. Detailed information on FGCS instrument testing activities can be found on the FGCS web page at <http://www.ngs.noaa.gov/FGCS/>

cc: FGCS Chair & Instrument Work Group representatives

for information write:
FEDERAL GEODETIC CONTROL SUBCOMMITTEE
NOAA, National Geodetic Survey, N/NGS
1315 East-West Highway, Room 8657
Silver Spring, Maryland 20910-3282