

Retroreflector Arrays

- Dialog continues with relevant agencies on the importance of including reflectors on GPS-III satellites;
- Specification for GNSS arrays approved by the ILRS, GGOS and IAG;
- Study underway at GSFC on hollow cube technology in collaboration with the testing facility at INFN-LNF in Italy)
 - Zerodur test cubes have been delivered;
 - Preliminary tests at ambient temperatures underway at GSFC;
 - Final testing planned at INFN-LNF;
 - Fall back position is solid, uncoated cubes;
- INFN/Frascati
 - LAGEOS sector, GPS array, and “new” Russian cubes at INFN for testing;
 - Thermal analysis of the LAGEOS sector underway;
 - Optical tests on the Glonass CCR underway;
 - Modifications have been made to the chamber to rotate and translate the target array;

ILRS Retroreflector Standards

(Revision September 28, 2007)

- Retroreflector payloads for GPS, GLONASS, and COMPASS satellites should have an “effective cross-section” of 100 million sq. meters (5 times that of GPS-35 and -36) for GNSS satellites;
- *Added Recommendation: Retroreflector payloads for satellites such as Galileo in higher orbits should scale the “effective cross-section” to compensate for the R^{**4} reduction in signal strength;*
- The parameters necessary for the precise definition of the vectors between the effective reflection plane, the radiometric antenna phase center and the center of mass of the spacecraft be specified and maintained with an accuracy sufficient to support GGOS objectives;
- Standards now need to be developed for LEO and Synchronous satellites;