Requirement ID: 34

Sponsor Organization: AFS POC: Hooper Harris

Requirement Title: Simultaneous Non-interfering Operations - Quantify VFR Navigation Performance

Funded Requirement:

- FY01: Yes
- FY02: Yes
- FY03: Yes
- FY04: Yes

Requirement Statement: To determine NAV performance of VFR helo pilots using IFR qualified GPS receivers. AFS needs to quantify helo pilot NAV performance for IFR and VFR pilotage which will allow the development of procedures to integrate within the national airspace system.

Background: A major part of the future changes in the NAS to improve operations for helicopters will be the emergence of simultaneous Non-Interfering Operations (SNI) for VFR helicopters and fixed wing traffic (IFR and VFR). To achieve this Airspace Redesign, to what extent is the minimum amount of airspace needed to protect the VFR helicopter flying a SNI leg/route from a human performance standpoint. The proposed concept to be employed is based on satellite navigation technology. In turn, the amount of airspace that would be needed to protect the minimally equipped helicopter will be based on technology.

Human Factors questions include: To evaluate the relationship between pilotage and radio navigation. a) what are the ATC procedures that a helo VFR pilot should follow to optimize national airspace capacity? b) what is the amount of time the pilot fixates on landmarks versus GPS output. c) does the pilot fly the GPS needle? During VFR the pilot should use landmark references but the pilot may shift visual attention to the GPS which may adversely affect pilotage. c) does the GPS affect pilot scan?

Output: a report that recommends the minimum Required Navigation Performance (RNP) value for a VFR helicopter equipped with an IFR GPS. The minimum RNP value will help ATC develop procedures for VFR SNI routes.

Regulatory Link: This research request is directly linked to HR 1000 Section 103 of the Agency's performance plan. (Implementation of the infrastructure for helicopters and tiltrotors) and Administrator's 2001 Vertical Flight Policy Statement.