

ELEVENTH AIR NAVIGATION CONFERENCE

Montreal, 22 September to 3 October 2003

Agenda Item 6 Aeronautical navigation : issues

STATUS OF THE UNITED STATES LOCAL AREA AUGMENTATION SYSTEM (LAAS)

(Presented by the United States)

SUMMARY

This information paper provides the status of the United States Federal Aviation Administration's (FAA) Local Area Augmentation System (LAAS) and describes plans for its near term and future operational capability.

1. OBJECTIVE

1.1 LAAS is the ground-based augmentation system (GBAS) developed by the United States to provide precision approach capability and precise position, velocity, and time (PVT) data in the terminal area.¹ The objective of LAAS is to provide for all categories of precision approach (PA) and landings and surface operations to suitably equipped aircraft.

2. PROGRAM STATUS

2.1 The initial implementation of LAAS ground facilities will support both Category I instrument approaches and the GBAS positioning service at selected airports. The FAA awarded a contract in April 2003 for the design, development and production of the LAAS ground facility. This effort is divided into two distinct phases. The initial phase will focus on the development and design verification. At the successful conclusion of this phase a number of ground facilities will be built and deployed at selected United States airports.

¹ The latter functionality is defined in GNSS SARPs as GBAS positioning service.

2.2 Research and development efforts advancing LAAS technology to support CAT II/III services is continuing. An evaluation of surface operations has also begun.

2.3 The development of terminal routings based on area navigation (RNAV) and required navigation performance (RNP) provides the potential for more efficient terminal operations and for multiple navigation services, including LAAS, to support the new routings. The LAAS data broadcast can be expanded to include terminal waypoint data to increase the flexibility of aircraft architectures capable of meeting the required performance. Efforts are under way to determine how to best support these applications using ground systems compliant with the existing, GBAS signal-in-space performance standards.

3. **PLANNED LAAS IOC**

3.1 LAAS IOC is expected by September 2006. After validating the system design, the FAA plans to install a number of ground systems at geographically diverse locations through out the United States National Airspace. These systems will support Category I PA and the GBAS Positioning Service. The FAA is currently coordinating with the aircraft operators to identify the procedures that will fully exploit the LAAS capabilities to improve airspace utilization and provide the lowest possible approach visibility minima.

4. **EVOLUTION OF LAAS**

4.1 The end state for LAAS is the provision of CAT II/III approach and landing service and most of the longer-term development efforts are aimed at achieving this goal. Near-term efforts are focused on achieving CAT III without the use of a second frequency in the airborne receiver. This will be followed by the incorporation of the benefits from GPS modernization, for example the additional frequency L5.

4.2 In addition, exploration of how LAAS can facilitate more efficient terminal area operations is expected to result in future LAAS applications such as guided departures, complex approach paths, guided missed approaches and surface movement guidance and control.

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