International Civil Aviation Organization *English only*
CAR/SAM REGIONAL PLANNING IMPLEMENTATION GROUP (GREPECAS)
Second Meeting of the Communications, Navigation and Surveillance / Air Traffic Management Subgroup (CNS/ATM/SG/2)
(Mexico City, Mexico, 16 to 19 November 2010)

Agenda Item 2: Follow-up to the implementation status of the performance based navigation systems plans for the CAR and SAM Regions and to the latest amendments to the ATM and CNS related SARPS

FAA GBAS UPDATE

(Presented by the United States of America)

SUMMARY

The FAA is continuing to pursue research and development of GBAS technology and is supporting applicant request(s) for GBAS system design approval within the National Airspace (NAS). The FAA approved the Honeywell system design for the first US Category-I GBAS (Honeywell SLS-4000). This certification will allow private entities to procure and install this system for use throughout the U.S. National Airspace. Newark International Airport will be the first approved GBAS in the US for phased implementation of GBAS approach operations (initially VMC). R&D efforts continue to focus on the development and validation of proposed Annex 10 standards to support Category-III autoland operations.

1. BACKGROUND

1.1 The FAA identified GBAS as an "Enabler" for its Next Generation Air Transportation System (NextGen). The strategy for GBAS is to initially build a single frequency GBAS to provide Category-I service and improve this architecture to provide Category-III service. GBAS allows for increased flexibility in the Terminal Area by eliminating the capacity constraint due to ILS critical areas and allowing reduced aircraft separation in all weather conditions. Similarly, GBAS can enable improvements to the air traffic management system by providing high precision navigation with integrity in low visibility within the terminal area. This improved performance can be leveraged for continuous descent approaches and curved-segmented approaches in low visibility conditions. In September 2009 the FAA approved the Honeywell system design for the first US Category-I GBAS (Honeywell SLS-4000).

2. International Cooperation for GBAS Development

2.1 The FAA continues to support the international development and implementation of GBAS. The FAA has signed Memorandums of Cooperation (MOC) with Australia, Brazil, Spain, Germany, and Chile for GBAS development and implementation. A FAA developed GBAS prototype operates in Brazil to evaluate the effect of the southern hemisphere ionosphere effects on GBAS and to perform additional operational flight tests.

2.2 The FAA co-chairs with EUROCONTROL the International GBAS Working Group (IGWG). The goal of the IGWG is to provide a forum for the exchange of technical and operational topics and coordination of research and implementation activities that will help accelerate the implementation of GBAS capability worldwide. Over 60 participants representing international service providers, industry, airlines and aircraft manufacturers attended the last IGWG meeting held in Brussels at EUROCONTROL 1-3 June 2010. The next IGWG will take place in Osaka, Japan, February 22-25, 2011 sponsored by ENRI.

3. Category-I Services

3.1 The FAA's intention is to provide Category I or equivalent precision approach through the proliferation of Localizer Precision with Vertical Guidance (LPV) to support domestic precision approach operations. Where these procedures are unavailable or the financial investment is justified, Category-I GBAS can be privately procured and approved for use. The FAA currently has no plans to federally procure Category-I systems. Private (Non federal) system in Newark is in the process of operational approval by late 2010.

3.2 The FAA has entered into a Memorandum of Agreement (MOA) with the New York/New Jersey Port Authority and Continental airlines to develop GLS Category-I precision approach procedures and collect data to evaluate the possibility of new procedures supported by GBAS and enabling repeatable terminal procedures to improve efficiency. Current progress on the commissioning of the Newark facility has been inhibited by the existence of L1 interference. The ground station has operated in an appropriately safe manner and experiences marginal reduced system availability. Additional investigations of the interference are being conducted. The Newark GLS approach procedures have been flight checked and published. Continental Airlines will initially fly the GLS procedures under VMC conditions, a phased implementation and data collection phase is intended until GLS will be flown to Cat I minimums. A commissioning date is expected late 2010.

4. Category-III Services

4.1 The ICAO Navigation Systems Panel (NSP) has generated a baseline draft of Annex 10 standards to assist in Industry and Air Navigation Service Provider (ANSP) research and development activities. RTCA has published Minimum Operating Performance Standards (MOPS) DO-253C to compliment the ICAO standards and support avionics prototyping for near term validation.

4.2 As part of the FAA's NextGen initiative the FAA is continuing to research applications for extending capacity during low visibility conditions. The FAA plans develop GBAS ground equipment to validate the feasibility and safety of the new proposed ICAO standards, this includes a project to validate CAT III avionics interoperability. Prototype and analysis work is planned to begin in June 2010 through 2012 to support operational validation of the GAST D standards. These activities will contribute to a FAA final investment decision for GAST D in 2013.

5. CONCLUSIONS

5.1 The meeting is requested to note the material presented in this paper and consider its contribution to the implementation of a global satellite-based navigation system.

5.2 Attendees are invited to visit the FAA's GPS website at http://gps.faa.gov for up to date FAA GNSS program information.

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