



International Civil Aviation Organization

Eight Meeting of the Communications/Navigation/Surveillance and Meteorology Sub-Group (CNS/MET SG/8) of APANPIRG

Bangkok, Thailand, 12-16 July 2004

Agenda Item 5: Navigation Aids

- 2) review result of AN Conf/11 on Agenda Item 6

ACTIVITIES OF THE NAVIGATION SYSTEM PANEL

(Presented by Australia)

SUMMARY

This paper provides an overview of current activities of the Navigation Systems Panel and the information provide is aimed as assisting in regional planning activities.

1. INTRODUCTION

- 1.1 The Navigation Systems Panel (NSP) has been established to bring together the activities of the GNSS Panel and Testing of Radio Navaids Study Group. The NSP addresses GNSS and conventional navigation.
- 1.2 This paper presents an overview of activities from the NSP based on the progress achieved at the Working Group of the Whole (WGW) in St Petersburg during May and June this year. The outcomes of the Working Group meeting are yet to be considered by the Air Navigation Commission and therefore should be considered as preliminary information pending formal review.

2. ACTIVITIES

2.1 GNSS Modernisation

GLONASS – Information was provided on the definition of the signal to be broadcast on the L3 band by future GLONASS-K satellites. The full GLONASS-K constellation will have 24 satellites. The first satellite is planned to be launched in 2006. If all goes according to plans, the full constellation may be in place in 2011 (preliminary estimate). GLONASS-M satellites are being launched and it planned to have 8 GLONASS-M in orbit before transitioning to GLONASS-K satellites.

GPS – The United States informed the WGW of an opportunity to modernize the L1 signal to improve civil performance. It is technically possible to improve the signal without jeopardizing the current L1 civil uses assuring full backward compatibility. User feedback and suggested improvements were sought for consideration to be included in a modernization report to be completed by 31 July 2004.

2.2 GBAS

Work has been completed on the definition of the high level requirements for GBAS. The service level concept continues to be discussed with consideration of values for APV and categorised approach and landing guidance.

2.3 GRAS

Ground based Regional Augmentation System (GRAS) Part A and B SARPs were completed and reviewed by the WGW. Supporting guidance material was not fully complete and is expected to be finalized in October 2004. In the interim it is proposed to circulate the A and B SARPs to States for review.

2.4 SBAS

It was also noted that the combined use of L1 and L5 was particularly important to states developing SBAS in the equatorial region because of the difficult challenge posed by the ionosphere in this region. In this regard, it was pointed out that an ICAO standard will be developed for GPS L5. Dual-frequency positioning will be possible once GPS broadcasts the L5 signal.

2.5 MLS

A proposal to MLS SARPs sees the reduction of the service sector reduced to ± 4 degrees for long runways. This equates to current ILS service sectors and simplifies installation and testing requirements for MLS. Guidance for manoeuvring is not expected to be provided by the MLS.

2.6 DME

Wideband DME (DME-W) is proposed for deletion from SARPs.

The potential for interference between DME and GNSS L5 frequencies can be minimised by allocating both 'X' and 'Y' channels.

2.7 ILS – Marker Beacon

SARPs currently provide for the substitution of marker beacons by DME where it is impracticable to provide marker beacons. A change is proposed to allow the option of choice between marker beacons or DME.

2.8 Protection Dates

Protection dates were identified as source of misunderstanding. The protection dates published for conventional navigation aids are a statement of intent that no change in SARPs will require the replacement of installed equipment before the published date. This is often misinterpreted as a statement that a service must still be provided to the date. The intent of the Panel is remove protection dates from the Annex and to make a statement that no change in SARPs will require the replacement of currently installed equipment. Changes necessary for safety will override the protection statement.

2.9 Testing of Radio Navigation Aids

The third chapter of Volume 2 of the Manual of Testing of Radio Navigation Aids (DOC 8071) has been completed. This expands Volume 2 to cover general considerations, ABAS and SBAS testing of GNSS. Chapter 4 is still being prepared to describe GBAS testing. Testing requirements for GRAS have been added to the work program.

3. CONCLUSION

The meeting is invited to note the activities of Navigation Systems Panel and implications on regional planning.

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