



International Civil Aviation Organization

**FOURTEENTH MEETING OF THE
COMMUNICATIONS/NAVIGATION/SURVEILLANCE
AND METEOROLOGY SUB-GROUP OF
APANPIRG (CNS/MET SG/14)**



Jakarta, Indonesia, 19 – 22 July 2010

Agenda Item 5: Navigation

**2) review outcome of activities related to Testing and Calibration of
Navigation facilities**

**REPORT ON OUTCOME OF
SEMINAR ON TESTING OF NAVIGATION AND SURVEILLANCE FACILITIES
AND VALIDATION OF FLIGHT PROCEDURES**

(Presented by the Secretariat)

SUMMARY

Seminar on the Testing of Navigation and Surveillance Facilities and Validation of Flight Procedures was organized in the ICAO Asia/Pacific Office from 5 to 7 August 2009. Seminar was addressed by the leading global experts in the field. Recommendations developed by the Seminar were presented to the APANPIRG/20. This paper briefly reports on the outcome of the seminar and the actions taken on the report.

This paper relates to:

Strategic Objectives:

- A. Safety – Enhance global civil aviation safety
- D. Efficiency – Enhance the efficiency of aviation operations

Global Plan Initiatives:

- GPI – 5 RNAV and RNP (Performance Based Navigation)
- GPI – 9 Situational Awareness
- GPI – 21 Navigation

1. Introduction

1.1 In response to APANPIRG Conclusion 19/32, a Seminar on *Testing of Navigation and Surveillance Facilities and Validation of Flight Procedures*, was jointly organized by ICAO Asia/Pacific Regional Office and Aeronautical Radio of Thailand (AEROTHAI) in Bangkok from 5 to 7 August 2009. The Seminar was attended by 85 participants from 17 Administrations, ICASC, IFALPA and industry partners. Seminar discussed various issues related to the testing of navigation/surveillance facilities and validation of flight procedures.

2. Discussion

2.1 A seminar on *Testing of Navigation and Surveillance Facilities and Validation of Flight Procedures* was organized from 5 to 7 August 2009 in Bangkok. Following Agenda Items were taken up for discussion during the seminar:

- (1) Performance Based Navigation (PBN) procedures: Flight procedure validation, database design, integrity, distribution, in-flight data recording and data sharing
- (2) Ground and Air Calibration:
 - a. Ground maintenance of Conventional Navigation/Surveillance Systems: Evolution of maintenance techniques, remote maintenance, maintenance of records, protection areas (ILS);
 - b. Flight Inspection of Conventional Navigation Aids: evolution of flight calibration systems and techniques, data recording and maintenance;
 - c. Nav aids, SSR, Multilateration: performance monitoring and commissioning practices.
- (3) Change in ICAO Provision: New inclusions in Annex 10 and Doc 8071
- (4) Satellite based systems: Maintenance, calibration and flight validation of GNSS systems (GBAS & SBAS), performance monitoring and data recording for investigation.
- (5) Regulator's Perspective: Regulators' role in validation/testing of navigation and surveillance systems.
- (6) Any other business

2.2 Seminar was addressed by leading global experts in the field. In all 27 presentations were made and 2 Working Papers were presented to the Seminar. A visit to the Flight Calibration facilities of Aeronautical Radio of Thailand was organized during the seminar.

2.3 Recommendations made by the Seminar for the consideration of APANPIRG and the APANPIRG outcomes on the recommendations are provided as below:

- (1) That, APANPIRG carries out a study to assess whether there is a need to develop guidance material for flight inspection/validation of ADS-B ground stations noting that ICASC technical group concluded that flight inspection of ADS-B is currently limited to coverage.

After a brief discussion on the issue, APANPIRG, through its Decision 20/47 tasked the ADS-B SITF with the study to assess the need for developing guidance material for flight inspection/validation of ADS-B ground station.

(2) That, ICAO – Navigation System Panel (NSP)

- a. Consider developing guidance material on the use of DGPS as a position reference system for flight inspection

Through its Conclusion 20/48 (a), APANPIRG invited ICAO to carry out a study to assess the use of DGPS as a positioning reference system for flight inspection. The issue has since been taken up with ICAO HQ in October 2009. This issue was discussed in the ICAO Navigation Systems Panel (NSP) Working Group of the Whole Meeting held in Montreal from 17 to 28 May 2010 and the Conventional NavAids and Testing Sub-Group (CNTSG) meeting and it was decided that material on the use of GNSS for flight inspection will be considered in the next meeting of CNTSG scheduled in November 2010.

- b. Review those areas of possible misinterpretations in ICAO Doc 8071 such as the ones shown in the Appendix A to the Seminar summary report and provide necessary guidance on the interpretation of the ICAO requirements in order to avoid inconsistency of interpretations and to harmonize application of ICAO standards and recommended practices.

APANPIRG, through its Conclusion 20/48 (c) invited ICAO to review areas of possible misinterpretations in ICAO Doc 8071 such as the ones shown in **Appendix N** to the APANPIRG/20 Report on Agenda Item 3.4 and provide necessary guidance on the interpretation of the ICAO requirements in order to avoid inconsistency of interpretations and to harmonize application of ICAO Standards and Recommended Practices. Based on the Conclusion, the matter was taken up with ICAO HQ in October 2009. This issue was discussed in the above-mentioned NSP Working Group of the Whole Meeting and CNTSG meetings. NSP, while discussing the quoted possible misinterpretations, was of the view that for some of these observations, there was no scope for misinterpretation. For other cases, rectification action has already been taken but the amendments are yet to be published.

- c. Review information on flight validation as contained in ICAO Doc 8071 Vol. II when the new Doc 9906 Vol. V becomes operational.

Through its Conclusion 20/48(d), APANPIRG invited ICAO to review information on flight validation as contained in ICAO Doc 8071 Vol. II consequent to new Doc 9906 Vol. V becoming applicable. Following the prescribed procedure, the issue was taken up with ICAO HQ through an Issue Form in October 2009. On this issue, CNTSG in the NSP meeting held in May 2010 agreed and informed that the Group was working with the Secretariat to remove the overlap within the documents.

- 2) That, ICAO coordinate for developing a template for flight validation report for PBN IFFPs including RNP APCH procedures noting that ICASC is working on this to be included in the Flight Validation guidance manual (proposed Doc 9906 Vol. V). A sample template developed by Aerothai is available as Appendix B to the summary report of the seminar.

APANPIRG agreed with the recommendation and invited ICAO to develop templates for flight validation reports for PBN IFPPs including RNP APCH procedures. An Issue Form, based on the Conclusion adopted was raised with ICAO HQ in October 2009. CNTSG proposed that Flight Validation was to be removed from Doc 8071 and transferred to IFPP management. This proposal hence was considered appropriate for the IFPP.

3) That, States be urged to update the information in the Flight Inspection Catalogue and the new edition of the Catalogue be published by end of October 2009.

Through its Conclusion 20/49 (b), APANPIRG reminded the States to update information contained in the eighth edition of flight inspection catalogue. State Letter was issued requesting the States to update information provided in the flight inspection catalogue. Updated *Catalogue of Flight Inspection Units Asia and Pacific Regions* was published in October 2009 as the Ninth Edition.

4) That, States be reminded of the contents of State Letter of ILS maintenance procedure as contained in Appendix C to the Summary Report of the Seminar.

APANPIRG, through its Conclusion 20/49 (a) reminded the States about the contents of State Letter AN 7/5-01/52 dated 11 May 2001 on ILS maintenance procedures. A State Letter dated 5 November 2009 was issued to this effect.

5) That, States consider to upgrade their FIS to include the flight inspection requirements of GNSS, Interference, ADS-B, Multi-lateration etc. as necessary.

States were urged to consider upgrading their FIS to include the flight inspection requirements recommended through APANPIRG Conclusion 20/49 (c). State Letter dated 5 November 2009 was issued on the subject.

6) That, ICAO be invited to provide guidelines for selecting GP reference point for flight inspection.

APANPIRG agreed with the recommendation and adopted Conclusion 20/48 (b) on this issue. Through an Issue form, the issue was taken up with ICAO HQ in October 2009. This issue was taken up for discussion in the NSP meeting held in May 2010 and it was agreed that this is basically a measurement issue appropriate to Doc 8071 and it does not require any action within Annex 10. The issue is going to be discussed in the future NSP meetings.

2.4 In Conclusion, the participants while appreciating the format and coverage of the seminar, called upon ICAO to organize similar seminars in future to encourage exchange of information on the subjects of testing of navigation/surveillance systems and validation of procedures. The Seminar thanked the presenters and appreciated the arrangements made by ICAO and AEROTHAI, the host for the seminar.

3. Action required by the Meeting

3.1 The meeting is invited to note the recommendations made by the Seminar and the actions taken on those recommendations.
