International Civil Aviation Organization

AIDC Review Task Force Meeting

Brisbane, Australia, 27-28 March 2003

Agenda Item 3: Develop an updated version of the Asia Pacific ICD for AIDC

Development by OPLINKP on AIDC

SUMMARY

This paper presents the latest development by OPLINK Panel on   AIDC for information.

(Presented by the Secretariat)

1.   Introduction

1.1   In relation to Decision 13/9 (AIDC Review Task Force) of APANPIRG/13, the Air Navigation Commission noted that the Operational Data Link Panel (OPLINKP) had already initiated the development of a comprehensive amendment to the PANS-ATM and the Manual of Air Traffic Services Data Link Applications (Doc9694) concerning ATS Interfaculty Data Communications (AIDC). This work includes review of the existing guidance contained in Doc 9694 and regional AIDC interface control documents (ICD), as well as an evaluation of the definition of the AIDC messages, their use and the data fields included within them. The amendment to the PANS-ATM would facilitate the amendment process at the regional ICD level.

2.   Discussion

2.1   The Joint latest Meeting of Working Group A and B of OPLINKP held in Brussels, Belgium from 19 to 28 February 2003 in its agenda item 3 further discussed this issue.

2.2   The extract from the Summary of Discussion and Conclusions of the meeting on this agenda item – Develop AIDC amendment proposal for the PANS-ATM, and associated guidance material to be contained in the Manual of Air Traffic Services Data Link Applications (Doc9694) is provided herewith in the attachment to this paper for reference by this meeting.

3.   Action by the Meeting

3.1   The meeting is invited to note the latest development regarding AIDC by OPLINKP while developing and updating Asia/Pacific ICD for AIDC.

Extract from the Summary of Discussions and Conclusions
of the
Joint Meeting of Working Groups A & B
Operational Data Link Panel (OPLINKP)

Brussels, Belgium, 19 to 28 February 2003

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6.   **Agenda Item 3:   Develop AIDC amendment proposal for the PANS-ATM, and associated guidance material to be contained in the** *Manual of Air Traffic Services Data Link Applications* **(Doc 9694)**

6.1   WP/4 presented a proposed amendment to the *Procedures for Air Navigation Services — Air Traffic Management* (PANS-ATM, Doc 4444) and the *Manual of Air Traffic Services Data Link Applications* (Doc 9694) concerning ATS interfacility data communications (AIDC). A substantial matrix of comments that had been received since the last meeting in Canberra was also proposed.

6.1.1   Discussion to a large extent concentrated on the structure of the material and the extent that States would easily comprehend the material in terms of what they were doing now and how they might transition to the new material. In this respect the working group recalled that AIDC was a data link application that permitted the coordination and transfer of control of flights between successive ATS units. It was intended to support automatic computer to computer message exchanges, facilitate existing coordination procedures and, at the same time support additional functionality that was foreseen. It was also intended to incorporate regional implementations as they now existed. While AIDC was considered a potential ATN-based data link application, its definition was also intended to provide some guidance to ATS providers on how existing networks could be used in the short to medium term (e.g. AFTN) and how future additional functionality could be added to the existing messages used. It was considered that this will be an important contribution towards ensuring interoperability.

6.1.2   The meeting, after reviewing the paper to the extent possible and setting a number of tasks, agreed to continue the work at the next meeting, noting that the Secretary would correspond with the WG/B AIDC Task Force members to further the work during the interim.

6.2   WP/5 presented a proposal for coordinating an assigned Mach Number via AIDC. Mach Number Technique (MNT) was an existing control method that was utilised by air traffic controllers in a non-radar environment in order to enable a reduced separation minimum to be applied. Additionally, ATC could occasionally apply speed control to ensure the maintenance of the separation minimum for aircraft that were operating at or close to the separation minimum. The current AIDC specifications, as defined in both the *Manual* and various regional AIDC Interfacility Control Documents (ICDs), did not provide for the coordination of assigned speeds in Notification or Coordination messages. Consequently, the working paper proposed a means that would allow for the coordination of assigned speed (normally Mach Number) in AIDC messages between two ATS units.

6.2.1   At the same time, WP/6 presented a method for coordinating the distance between two aircraft via AIDC. With the growing implementation of RNP type airspaces and their associated reduced (distance based) separation standards, the use of distance standards would likely increase. Examples of these RNP-based separation standards included RNP10 airspace (50 nautical miles (nm) longitudinal separation) and RNP4 airspace (30 nm longitudinal separation). The increase in use of these standards would, in turn, result in an increase in the amount of voice coordination between controllers who were using a distance-

based separation standard across an FIR boundary. This voice coordination currently required the transferring controller to advise the receiving controller of the distance between the aircraft. Without this information, the receiving controller would merely receive two coordination messages with boundary estimates, say eight minutes apart, at the same level. By necessity, the controller would be unable to accept the second aircraft under the conditions proposed. The proposed amended coordination message element contained both a distance, and the identification of the reference aircraft. This data would be sent in the AIDC messaging of the second (i.e. the following) aircraft of the pair. The distance annotated would be the current longitudinal distance between the aircraft, i.e. relative to a common point, rather than the actual distance between the aircraft when the two aircraft were on the same, but not identical tracks. If a number of separation standards were being employed (i.e. between Aircraft 1 and Aircraft 2, as well as between Aircraft 2 and Aircraft 3), the messaging for Aircraft 2 would contain the distance from Aircraft 1, and the messaging for Aircraft 3 would contain the distance from Aircraft 2. It was noted that there might be rare cases where two distance separation standards were being used to separate Aircraft 3 from two preceding aircraft. This unlikely scenario would still require voice coordination even if the amendment proposed was accepted.

6.2.2   After discussion, the joint working group agreed that an operational requirement did exist for this type of coordination and consequently agreed that the appropriate documents should be amended to modify the definition of *Boundary estimate data* to permit the incorporation of new (optional) message elements *Assigned speed* and/or *Separation distance* as follows:

   a)   amend the definition of *Boundary Estimate Data* in the AIDC Message Data Glossary in Chapter 4, Appendix A of the *Manual* to the following:

   Boundary estimate data. Specifies information related to the boundary crossing. The data consists of the following sequence of information:

   a) *Fix;*
   b) *Crossing time;* and
   c) *Crossing level.*

   Boundary estimate data may optionally include *Supplementary crossing data and condition*. *Boundary estimate data* may optionally include *Offset/deviation information* and/or *Assigned speed* and/or *Separation distance*.

   Note.— An example of boundary estimate data is in Field Type 14 a), b) and c) and optionally, elements d) and e) of the ICAO model flight plan, with ~~two~~ the following exceptions:

   a) Level *may, by regional air navigation agreement, allow for specification as a vertical range (block) as well as a single level in certain circumstances (see the variable* Level*);*

   b) Offset/deviation information *is not defined in the ICAO Model flight plan (see the variable* Offset/deviation information*);*

   c) Assigned speed *is not defined in the ICAO Model flight plan (see the variable* Assigned speed*);*

> *d)* Separation distance *is not defined in the ICAO Model flight plan (see the variable* Separation distance*)*

b) add the following definitions to the AIDC Message Data Glossary in Chapter 4, Appendix A of the *Manual*:

> ***Assigned speed.*** A sequence of *Speed restriction type* and *Speed.*
> ***Separation distance.*** A sequence of *Distance* and *Aircraft identification.*

c) add the following definition to the AIDC Message Data Glossary in Chapter 4, Appendix A of the *Manual*:

> ***Speed restriction type.*** Provides advice as to whether the cleared speed is the "notified speed or less", the "notified speed or greater", or exactly the notified speed. *Speed restriction type* consisted of one character as follows:
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> L   The notified speed or less
> G   The notified speed or greater
> E   Exactly the notified speed

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