



International Civil Aviation Organization

**The Ninth Working Group Meeting of Aeronautical
Telecommunication Network (ATN) Implementation
Co-ordination Group of APANPIRG (ATNICG WG/9)**

25 – 26 January 2011, Bangkok, Thailand

**Agenda Item 3: Review Regional and Global Internet Protocol Suite (IPS)
Implementation Plan**

GLOBAL CNS TECHNOLOGY ROADMAP

(Presented by the Secretariat)

SUMMARY

Global CNS Technology Roadmap was proposed to the 37th Session of ICAO Assembly by ICAO Secretariat. The presentation highlighted various technological options which were being considered and confusion caused by similar sounding terms used for them. This paper highlights the proposals made in respect of ground-ground and air-ground communications in the Working Paper mentioned and proposes adoption of the suggested strategy for ground-ground and air-ground communication in the region.

1. INTRODUCTION

1.1 ICAO Secretariat, through its Working Paper 14 presented to the 37th Session of ICAO Assembly held in Montreal from 28 September to 8 October 2010, proposed 'A *Global CNS Technology Roadmap – A Tool to Aid Investment Decisions*'. The Roadmap proposes to assist States and other stakeholders with their implementation decisions.

2. DISCUSSION

2.1 While proposing a global CNS technology roadmap to the 37th Session of ICAO Assembly, ICAO Secretariat highlighted the existence of many CNS technologies with similar names yet with very different capabilities. These multiple options are causing confusion in the implementation. It was also pointed out that the operational benefits that can be achieved with the various technologies are not always clear.

2.2 ICAO Secretariat through the Working Paper proposed a roadmap, which differed from the others as it took into account the prospective capabilities of aircraft, the plans of airframe manufacturers as well as the implementation programmes of progressive ATS providers in different regions along with their operational benefits. The proposed roadmap also touched upon the recommended transition arrangements.

2.3 Working Paper 14 presented to the 37th Session of Assembly, under para 2.2 discussed technological options available and went on to record the chronological progression in the implementation of ATN. It was mentioned that ICAO initiated the development of Aeronautical Telecommunication Network (ATN) in late 1980s using the available technology at the time, known as open system interconnection (OSI). Although some elements of ATN were implemented, it was never globally deployed or offered in its final form by aircraft manufacturers.

2.4 In the mid – 1990s, IP became the global standard. ICAO recognized this and Amendment 83 to Annex 10 – *Aeronautical Telecommunications* was adopted, offering two technical options for the ATN: one using OSI and the other using IP. The paper claimed that ‘Today OSI based communications systems are becoming obsolete’.

2.5 It was mentioned that AMHS connectivity is being implemented by some States using OSI, while others are using IP. Complex gateways are available which convert between OSI and IP. The proposed roadmap would show how and when such solutions could be employed.

2.6 For air-ground communication, ICAO Standards exist for both OSI and the IP versions of VHF air-ground data-link communications. The paper reports that as on date, only OSI is used and avionics manufacturers have no plans to develop IP-based equipment in the near future.

2.7 Paper recommends ‘*States are encouraged to implement the ATN using IP wherever possible for ground-ground communications but not for air-ground communications. More complex gateways will be the interim solutions to link the mixed protocols of an IP-based ground infrastructure to an OSI-based air/ground infrastructure*’.

2.8 Meeting is invited to review above recommendation made in Working Paper 14 presented to the 37th Session of ICAO Assembly and consider developing a draft Conclusion (through ATNICG and CNS/MET SG of APANPIRG) for adoption by APANPIRG recommending a suitable strategy for adoption in the region. A suitable strategy is required to ensure harmonious global implementation of ground-ground and air-ground communication infrastructure.

3. ACTION REQUIRED BY THE MEETING

3.1 The meeting is invited to consider the recommendation made in para 2.8 and consider recommending following draft Conclusion for the consideration of ATNICG and CNS/MET SG.

Draft Conclusion 9/xx - Ground-ground and air – ground communication strategy

That, States are encouraged to implement ATN using IP, whenever possible for ground-ground communications and OSI (open system interconnection) for air-ground communication.

3.2 Meeting is also invited to review the regional ATN/AMHS implementation strategy to include the recommendations proposed above.
