

**55th CONFERENCE OF
DIRECTORS GENERAL OF CIVIL AVIATION
ASIA AND PACIFIC REGIONS**

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AGENDA ITEM 4

AIR NAVIGATION

**GLOBAL HARMONIZATION OF THE DATACOM
IMPLEMENTATION FOR REALIZATION OF TBO**

Presented by Japan

INFORMATION PAPER

SUMMARY

This paper presents a leading-edge of DATACOM trend as a fundamental solution for a problem on the fragmented DATACOM applications over different standards and specifications as FANS, pre-FANS and ATN/OSI, which is not IPS compatible. Current situation appears no closer than seamless and interoperable network and besides, it is obviously a great challenge for effective implementation of GANP, GASP and GATMOC under NCLB initiative.

As recent trend of DATACOM, the global technological harmonization activity is leading by US and EU. On the other hand, the safety broadband IP service is progressing in AMS(R)S by Satellite Service Providers.

JCAB is confident that this trend may turn out to have been a truly fundamental solution for a problem on the fragmented DATACOM, and that a reliable and resilient global IP based DATACOM infrastructure is absolutely essential for realization of seamless and interoperable TBO in the future ATM community.

JCAB supports this significant trend with joining this harmonized activity and encourage to make a standardization road map for effective implementation of IP based network infrastructure.

Action: The Conference is invited to:

- a) Encourage ICAO, States SMOs and ATM community to support this global technological harmonization activity.

GLOBAL HARMONIZATION OF THE DATACOM IMPLEMENTATION FOR REALIZATION OF TBO

1. INTRODUCTION

1.1 With the proliferation of various DATACOM applications, which has developed by ICAO and SMOs, there are significant challenges for effective implementation of seamless/interoperable DATACOM infrastructure over ATM operational context. This situation also brings some difficulties for functional capabilities of DATACOM avionics equipage.

1.2 As keeping up on DATACOM technological harmonization activity, which has been conducted by the US and EU, JCAB will be joining there and enthusiastic over the possibilities of implementation for seamless and interoperable DATACOM/IPS infrastructure throughout all flight phase. Besides, given that the DATACOM/IPS Standardization Road Map would be essential to ensure the realization of future TBO infrastructure, ICAO and SMOs should strengthen collaborative activity under the treaty negotiated agreement, which were signed on the side-lines of the Second Global Air Navigation Industry Symposium (GANIS/2) in last Dec.

1.3 Global technological harmonization for implementation of DATACOM/IPS infrastructure with standardization cooperation between ICAO and SMOs would be bringing a fundamental solution for realization of TBO infrastructure.

2. DISCUSSION

2.1 Over the last two decade, existence of fragmented DATACOM context is obviously due to the fact that there is a lack of global technological harmonization. As already known, ICT/IPS would make a fundamental shift in communication technology, breaking away from old-fashioned aviation data-link technology brings a significant revolution for TBO infrastructure in ATM community.

2.2 ICAO standards A/G communication-medias, POA, VDLM2 (AOA), M3, M4, UAT, HF-DL and CLASSIC-AERO/SATCOM, are available to handle various old-fashion DATACOM applications as typified FANS, Pre-FANS and ATN/OSI. It is consequently bringing fragmented communication infrastructure with complex on board avionics equipage.

2.3 Focusing on the avionics equipage, there are many challenges in various security levels, QOS/COS levels and complex operation in the cockpit. It would be also forced to eat the cost of multi-stacks for avionics. Those challenges are caused by fragmented DATACOM infrastructure of each states/regions.

2.4 Moving on the perspective of public communication network technology, the IPS is obviously the global standard and most of mission critical system is operating over the IPS. Furthermore, maritime and land mobile communication service are also provided over IPS.

2.5 As latest Satellite Service Provider trend, IPS based broadband safety communication medium would be available over various new SATCOM services in a few years. Besides, some ground based high speed communication medium as typified AeroMACS would be able to support IPS basically.

2.6 Whereas some cabin communication services are supported by broadband IPS over the SATCOM service, cockpit communication is out of step with ICT even now. That means cockpit crew would be able to get a situational awareness through the cabin communication environment.

2.7 Considering that the affinity of SWIM/XML to IPS and realization of cockpit access to SWIM, existing legacy A/G links should support the IPS to integrate for future common core network infrastructure. Furthermore once an integrated IPS common core network would be realized, it is available an integrated safety voice and data communication application among ATM communities.

2.8 With lesson learned from the fragmented standardization and lack of harmonization in last two decade, US and EU launched technological harmonization activity for DATACOM implementation throughout all flight phase. This significant development shall be welcomed in all states and outcome of this will be beneficial for ATM community.

2.9 Besides, as a remarkable topic for standardization, ICAO and SMOs agreed for joint activity of standardization/specification, which were signed on the side-lines of the Second Global Air Navigation Industry Symposium (GANIS/2) in last Dec. This activity should cover the development of DATACOM Standardization Road Map, which would be essential to ensure the realization of future TBO infrastructure.

2.10 In order to recapture the global, seamless and interoperable DATACOM/IPS infrastructure, ICAO, SMOs, States, ANSPs and ATM industry should be strengthen collaboration to keep up with advanced ICT in ATM community.

3. ACTION BY THE CONFERENCE

3.1 The Conference is invited to:

- a) encourage ICAO, States, SMOs, ATM community to support the global technological harmonization activity for implementation of IP based DATACOM infrastructure.
- b) urge ICAO and SMOs to actively contribute development of DATACOM/IPS Standardization Road Map.

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