



## INTERNATIONAL CIVIL AVIATION ORGANIZATION

**TWENTY NINTH MEETING OF THE ASIA/PACIFIC  
AIR NAVIGATION PLANNING AND IMPLEMENTATION  
REGIONAL GROUP (APANPIRG/29)**
*Bangkok, Thailand, 3 to 5 September 2018*
**Agenda Item 3: Performance Framework for Regional Air Navigation Planning and Implementation**
**3.4: CNS**
**GLOBAL HARMONIZATION OF THE DATACOM IMPLEMENTATION FOR  
REALIZATION OF TBO**
*(Presented by Japan)*
**SUMMARY**

This paper presents a fundamental solution for a problem on the proliferation of various DATACOM applications over different standards/specifications as FANS, pre-FANS and ATN/OSI in ATM operational context.

With proliferation of complex DATACOM standards/technical specifications, which has developed by ICAO and SMOs, it brings significant challenges of effective implementation for GANP, GASP and GATMOC under NCLB initiative.

The global technological harmonization activity led by US and EU and development of DATACOM/IPS Standardization Road Map would be essential to ensure the realization of future TBO infrastructure. This is due to the fact that reliable and resilient global DATACOM infrastructure is absolutely essential for realization of seamless/interoperable TBO in the future ATM community.

JCAB is confident that DATACOM/IPS is indispensable for a fundamental solution to existing fragmented DATACOM infrastructure.

*Strategic Objectives:*

**B: Air Navigation Capacity and Efficiency**—*Increase the capacity and improve the efficiency of the global aviation system*

**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 service 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, USA 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 December. 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 MEETING**

3.1 The Meeting is invited to:

- a) Urge States to recognize that GANP/ASBU will face to difficulty with the implementation in relation to the stakeholders if the standardization of IPS DATACOM could not achieved; and
- b) Urge States to encourage ICAO to develop a standardized roadmap through SMOs.

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