



INTERNATIONAL CIVIL AVIATION ORGANIZATION
Western and Central Africa Office

THIRD MEETING OF THE AFI REGION AIM IMPLEMENTATION TASK FORCE

(Dakar, Senegal, 15 – 17 October 2014)

- Agenda Item 8:** Aeronautical Information and data assembly, exchange, and promulgation:
- a) NOTAM Proliferation in the AFI Region.
 - b) Change proposals to ICAO AIS Provisions on NOTAM Distribution.

(Presented by the Secretary)

SUMMARY

This Discussion Paper outlines some of the issues related to the current system of information dissemination by NOTAM

1. INTRODUCTION

1.1 The current system of information dissemination by NOTAM has been a fixture of aviation during all of its modern development. Nevertheless, a system developed to meet the same functions as a much older system is becoming challenged in meeting the needs of modern flight operations.

2. HISTORICAL OVERVIEW

2.1 The NOTAM system in use today was originally developed to meet the same function of the older Notice to Mariner. Since the primary mechanism to convey navigational information was by issuing charts, and since charts are usually updated on a periodic basis, it has been necessary to have a means of conveying changes to chart information as well as other information about relevant hazards in a way that could be made available between chart editions. This has evolved to the system today where the information is transmitted electronically and made available for retrieval prior to each flight.

2.2 ICAO specifications for NOTAM actually pre-date Annex 15. PANS-NOTAM was authorised by ICAO's precursor organization, PICAQ (provisional ICAO) in January 1947 which was in advance of ICAO establishment in April 1947. The PANS-NOTAM formed the basis for the PANS-AIS (1951) which in turn became the basis for Annex 15. For many years, the combination of charts issued in compliance with Annex 4, and NOTAM comprised the delivery mechanism for Aeronautical information.

2.3 Although NOTAM has been transmitted electronically, it remains in concept a bulletin board system. Information was formatted for transmittal on teletype and distributed to pre-arranged groups of addresses. The received information was printed out and sorted by relevance on "clipboards" and used by briefing officers or made directly available to pilots by the use of "self-

briefing displays”. Although it seems archaic by contemporary availability of electronic media, the issuance and delivery of NOTAM information continues to functionally remain the same.

3. SYSTEM ISSUES

3.1 Because of the lack of any other mechanism to uniformly distribute information to Flight operations and ATM personnel the NOTAM system has grown to provide a wide variety of information beyond changes to promulgated reference information (for the most part charts) and airspace hazards. This “information creep” has been exacerbated by an increase in air navigation infrastructure to be reported as well as an overall increase in demand on the ATM system. As a result the NOTAM system conveys a very wide range of operationally relevant information at ever increasing volumes. This information can be broken down into 3 principle categories:

- 1) changes to published information including advance information not yet published;
- 2) meta-information concerning elements of published information providing “status and condition” of ANS infrastructure; and
- 3) other information not published by other means.

3.2 The availability of the NOTAM system and the ease of using it as a means of information dissemination has allowed a considerable increase of information made available. This is the widely acknowledged “NOTAM proliferation” issue which, while not new, is reaching levels where safety is becoming compromised. The proliferation of NOTAM and the ability to parse relevant information from the large volumes of information disseminated has been posited as a factor in a few accident investigations.

3.3 There have been 2 principle mechanisms to mitigate the effect of large volumes of NOTAM information. The first is to control what is distributed. This has been accomplished by specifications that in addition to what must be disseminated by NOTAM, also specify what must not be disseminated. This has been bolstered by an increasing awareness of the importance of AIRAC compliance to encourage less “update” material. Notwithstanding, whether because of poor planning or poor coordination and communication between ANS actors and agencies, The NOTAM system continues to contain a significant amount of information that should otherwise be promulgated by AIRAC.

3.4 The second mitigation technique has been to improve the user’s ability to parse relevant information. An early method of doing this has been through the use of the “NOTAM selection code”. The NOTAM selection code is a method that allows NOTAM to be selected on the basis of code grouping that are machine readable. While this helps some operators immensely in filtering NOTAM information and assists in the preparation of PIB, the system still relies on a presupposition by the NOTAM system as to what NOTAMS will be of interest for specific users. Despite the use of the NSC, an air operator will still generate a considerable volume of NOTAM to digest for flights in denser or highly developed airspace. The advent of Digital NOTAM promises to provide a significant increase in the ability to filter information as well as improved mechanisms for information display.

4. NOTAM EVOLUTION

4.1 The current system of NOTAM is not sustainable for the long term in its current form and function at least for the following reasons:

- 1) The system has grown considerably over the original function of providing a “Notice to Airmen”. The evolving ATM system is increasingly integrated and requiring information management which meets the needs of all ATM actors and users;

- 2) The NOTAM system is still conceptually at least, a “bulletin board system”. Emerging information requirements demonstrate that there is a need to make information available which is “discoverable” as well as information that is directed to a specific recipient (addressable);
- 3) There are a multitude of information channels which must be integrated by the user to acquire awareness flight–critical conditions. Increasingly this is failing to take advantage of modern information management techniques and failing to provide optimum situational awareness;
- 4) A system designed for teletype distribution is not optimised for graphical display or integration with other information;
- 5) The NOTAM system will need to evolve under the emerging SWIM concepts; and
- 6) The current NOTAM system does not allow for critical updates to the FMS data.

5. SUMMARY AND CONCLUSION

5.1 While the ultimate evolution of the NOTAM system has been noted, the limitations of the current system should be taken into account as the ICAO AIS-AIM Study Group is considering the development of Annex 15 new chapters 5 and 6. In this connexion, the overall relationship of update frequency (AIRAC notification); role and application of the NOTAM selection code; promulgation of large datasets; role, function, and form of the AIP, future disposition of the Integrated Aeronautical Information Package (IAIP); and PIB/integrated briefing would be considered together in order to optimise the delivery of aeronautical information.

6. ACTION REQUIRED

- 6.1 The Meeting is invited to:
- a) note the information in this paper; and
 - b) consider the issues raised in the development of Annex 15 chapters 5 and 6 as well as the proposed PANS-AIM as presented in IP to DP/8 by Mr. Paul Bosman (*Chairperson of the ICAO AIS-AIM Study Group*).

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