Appendix-H_On Change_Proposals to Annex 15 NOTAM Distribution

AERONAUTICAL INFORMATION SERVICES-AERONAUTICAL INFORMATION MANAGEMENT STUDY GROUP (AIS-AIMSG)

NINTH MEETING

Tokyo, 21 to 25 April 2014

Agenda Item 5: Information Services
5.1: Annex 15 Chapter 5 development
5.2: Development of Material for Inclusion in the PANS-AIM

CHANGE PROPOSALS TO ICAO AIS PROVISIONS ON NOTAM DISTRIBUTION

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SUMMARY

This study note identifies constraints in current ICAO SARPS related to NOTAM Distribution with regards to today's user requirements on NOTAM information for briefing purposes.

The study notes provides in Annex A proposals for changes to ICAO Annex 15 NOTAM Distribution and rationales for change, with the purpose to serve as input to the Study Group in the revision of Annex 15 and in the development of PANS-AIM.

The group is invited to review the study note and provide comments to the recommendations.

1. INTRODUCTION

1.1 Within the working arrangements of EUROCONTROL, FAA and the AIS-AIM Study Group discussions have been held on the global increase of issued NOTAM and the affects on distribution, numbering and series allocation and where consequential improvement areas to ICAO SARPS are detected.

1.2 This paper discusses identified constraints in current ICAO SARPS related to NOTAM distribution with regards to today's user requirements on availability of NOTAM for briefing purposes. It discusses the users' expectations on complete and consistent NOTAM information, which involves States data exchange obligations on NOTAM distribution, used language in the NOTAM and series management.

1.3 The global increase in NOTAM issuance is recognised as a factor to be considered in revising current AIS provisions on series allocation and organisation, including numbering. There is a need for ICAO SARPS to be updated with the capabilities of available and future communication means in mind, as well as the global developments towards a revised NOTAM system building on digital NOTAM.

1.4 The paper provides change proposals to ICAO Annex 15 NOTAM Distribution and extensive rationales for change, with the purpose to serve as input to the Study Group in its work on the revision of Annex 15 and development of PANS-AIM.

1.5 The content supports the Study Group's recognition at its sixth meeting (AIS-AIM-SG/6 SN2 May 2012 refers) that the emerging issue with the sequential numbering system used for NOTAM is required to be addressed, and provides input for further discussion.

2. DISCUSSION

2.1 As part of the work programme of AI Operations sub-group at EUROCONTROL, global trends of published NOTAM is acknowledged through the reports from the European AIS Database (EAD). Alongside the global increase of NOTAM issuance, the Sub-group has recognised constraints in current ICAO SARPS on NOTAM distribution, not sufficiently meeting today's requirements on availability of consistent aeronautical information.

2.2 Today's users of NOTAM expect in their briefing to access the information needed for the complete operation from one briefing location, including information for cross-border destinations regarded as domestic aerodromes or military aerodromes.

2.3 Flight crews are increasingly requiring NOTAM that are limited to domestic distribution or internationally only provided to neighbouring States. In order to retrieve the needed NOTAM, a special request to the originating State is required which can be a cumbersome and time consuming process. Reinforcement of ICAO SARPS is therefore proposed, to extend States data exchange obligations.

2.4 In this context, NOTAM information is also required to be available in a format and language which does not require translation of the information.

2.5 Worldwide, International NOTAM Offices (NOF) are following ICAO SARPS regarding NOTAM distribution in accordance with Annex 15 and the AIS Manual (Doc 8126).These rules are in need of revision to reflect the changed requirements on distributed information but also to reflect current and future communication means facilitating the data exchange.

2.6 The problem identified by FAA with the NOTAM number rollover when the limited number of 9999 messages per series and year is reached is also identified by AI Operations Sub-group, including the consequential splitting of NOTAM series.

2.7 A change proposal to Annex 15 to the current four digits in the NOTAM numbering is not provided in this paper. It provides however input for the Study Group to consider the minor system impact due to of an increase of digits in the NOTAM format compared to the procedural and possibly safety implication caused by a consequential series splitting.

2.8 In the analysis of issued world-wide NOTAM, the following areas are identified where a revision of current ICAO SARPS is proposed, addressing:

- The use of English and domestic language;
- NOTAM numbering and series management, addressing allocation of series and organisation;
- International distribution, addressing extensions of data exchange obligations;
- Appendix 4 (AIRAC), proposing changes to NOTAM series to be AIRAC worthy information.

2.9 The identified improvement areas and proposed changes to ICAO AIS provisions are developed with the view on future global developments for AIS envisaged by the ICAO 12th Air Navigation Conference, where focus on a revision of the current NOTAM system (building on digital NOTAM) was addressed, as well as the need for States to review NOTAM processes, guidance and oversight.

2.10 The AI Operations Sub-group's change proposals to Annex 15 NOTAM Distribution are provided as Annex A to this paper.

3. RECOMMENDATION

3.1 It is proposed that the Study Group review and consider the change proposals to Annex 15 NOTAM Distribution and rationales for change as provided in Annex A to this paper, as input to the revision of Annex 15 and in the development of PANS-AIM.

4. ACTION BY THE AIS-AIMSG

4.1 The members of the AIS-AIMSG is invited to:

a) discuss and comment the content of this Study Note;

b) consider the change proposals to Annex 15 on NOTAM Distribution as provided in Annex A to this paper, in the revision of ICAO AIS provisions and in the development of PANS-AIM.

Annex A

ICAO SARPS CHANGE PROPOSALS TO ANNEX 15 ON NOTAM DISTRIBUTION

~~Strike-out~~ = proposed deleted text

Greyed text = proposed new text/paragraph

5.2 General specification

5.2.2.1 ~~When NOTAM is selected for international distribution, English text shall be included for those parts expressed in plain language. All NO~~TAM shall be published in English language.

Note.— The ICAO NOTAM Code together with significations/uniform abbreviated phraseology, and ICAO Abbreviations are those contained in the PANS-ABC (Doc 8400).

5.2.2.2 If necessary for domestic users, NOTAM may additionally be published in national language.

~~5.2.5 The NOTAM originator shall allocate to each NOTAM a series identified by a letter and~~ a ~~four-digit number followed by a stroke and a two-digit number for the year. The four-digit number shall be consecutive and based on the calendar year.~~
~~Note.— Letters A to Z, with the exception of S and T, may be used to identify a NOTAM series.~~

Rationale for change
§ 5.2.2.1

Most international users do not speak the local language. It is therefore important to publish all NOTAM in English in order to avoid misunderstandings with respect to the NOTAM content.

Below are listed reasons for why English language is seen as appropriate for all NOTAM:

Deregulation

In many States, as a result of deregulation there are no distinct borders between international and domestic flights anymore. Airlines are often flying from an airport in country A to an airport in country B, and thereafter to a second airport in country B before returning to country A.

In addition, aircraft operators often receive permission to use national or military airports, whether English is accepted as language in use or not.

One-stop-shop for Aeronautical Information

Airspace users nowadays expect to be able to get their briefing in one place, wherever they are (including from home), in the same format without requiring translation of the information, and tailored to their needs. This also includes information on domestic aerodromes.

Interoperability

For many users in many areas of the world, English is already the main aviation language. Interoperability between AIS systems as well as assuring the same quality level for all the data available is improved when using a single language

Language skills

Most international users of NOTAM information (including processing units) do not speak the local language. Most airspace users are more familiar with aviation terms in English language rather than the local language.

Workload

It is acknowledged that publication in English language may lead to additional workload, be it at the NOTAM office, originator or regulator level. However, preference should be given to the overall benefits rather than the drawbacks. The workload may be reduced by providing templates for frequent NOTAM publications. It shall also be noted that staff at International NOTAM Offices is required to a have a certain knowledge in English to be able to produce English text in international NOTAM,

§ 5.2.2.2

If deemed necessary, the NOTAM series could also be published in national language. The organisation of the series should then for the sake of consistency, be organised so that the national language series are equivalent to the English language series.

§ 5.2.5

Paragraph moved to § 5.3.1.

5.3 NOTAM number and series allocation

~~5.2.5~~ 5.3.1 The NOTAM originator shall allocate to each NOTAM a series identified by a letter and a four-digit number followed by a stroke and a two-digit number for the year. The four digit number shall be consecutive and based on the calendar year.

Note.— Letters A to Z, with the exception of ~~S and~~ T, may be used to identify a NOTAM series.

5.3.2 All NOTAM shall be divided in series based on subject, traffic or location or a combination thereof, depending on end-user needs. NOTAM for aerodromes allowing international air traffic shall be published in international NOTAM series.

5.3.3 If NOTAM is published in both English and national language, the NOTAM series shall be organised so that the national language series are equivalents of the English language series in terms of content and numbering.

5.3.4 The content and geographical coverage of each NOTAM series shall be stated in detail in the AIP, GEN 3.

5.3.5 Series allocation shall be supervised and, if required, appropriate measures shall be taken to assure that no series reaches the maximum possible number of issued NOTAM before the end of a calendar year.

Rationale for change

§ 5.3.1

Although no concrete change to this paragraph is proposed, the following factors below are provided as rationale for considerations for a proposed change from four to six digits in the NOTAM number.

Statistics - global increase in NOTAM publication

In the period of 2000-2012 the amount of international NOTAM has increased by 202%. This is due to a number of different reasons, such as an increase in construction and maintenance work at airports and a motivation to keep the information updated regarding the real situation at all times. Further, taking into account liability considerations, increasing amount of airports offering GNSS approaches, a general increase in air traffic, more dynamic airspace and route management (e.g. FUA, conditional routes), increase in number of NOTAM regarding obstacles (e.g. wind turbines), it is expected that the increase in the amount of NOTAM will continue in the future. With the continuous increase the four-digit number will be a serious constraint.

Digital NOTAM

Digital NOTAM are temporary and permanent updates to static data. These NOTAM will have to follow strict publication rules - one subject - one NOTAM. Adding several subjects in one NOTAM is not foreseen and one event can therefore cause several NOTAM to be published. As the digital NOTAM concept is based on AIXM 5.1, all current AIS systems which are running on AIXM 3.3, AIXM 4.5 or ARINC will have to be replaced or significantly upgraded. Considering the cost to increase the NOTAM number from 4 to 5 (or 6) digits, vs. cost of new or upgraded system, the former will be microscopic compared to the total cost in the transition from AIS to AIM.

In modern databases all fields have a dynamic length, and it is relatively easy to change the length of the NOTAM number field from 4 to 5 to 6 digits.

It shall also be noted that even with the digital NOTAM there will still be a need to uniquely identify each and every NOTAM. The UUID will not be good enough for this purpose, as this alphanumeric code is not suited for checking NOTAM series consistency.

FAA

The Federal Aviation Administration has addressed the constraints on the current § 5.2.5, to state 5-digit NOTAM numbers instead of 4-digit. It is recommended to support this change, because it will simplify the NOTAM series system and reduce the number of series needed per State to reduce the potential for number rollover.

§ 5.3.1 Note

Series “S” removed from the Note, as it is obsolete. Since the start of EAD Operations, surface conditions are published either in SNOWTAM, or in the regular NOTAM series. No series SNOWTAM have ever been received.

§ 5.3.1

In terms of series splitting, Annex 15 currently only clarifies which series are allowed to be used and that a series has to be allocated. For a long time this may have been sufficient as most States made use only of one or two series; one for international purposes and one or more for national. More and more NOTAM offices find themselves in the situation that they have to use more series in order not to reach the maximum possible number of NOTAM issued per year and series.

The paragraph is intended to provide ideas and provide help on how the series could be organized without being constraining or limiting the States freedom. In general, it puts into words what is already done in practice. An example of subjects splitting would be "series W for navigation warnings", examples for location splitting are "by country (one series only)", "by FIR", "by a group of airports" etc.

§ 5.3.2

International NOTAM series: The publication in international series should not be limited to international aerodromes, as it does not reflect current practice. In fact, a large number of airports not officially designated as "international airports" are available for international flights on request or even by FPL filing only. There are also military airports where scheduled flights take place on regular basis. There are no distinct borders between international and national anymore. It is essential that the data of such airports is made available. Further details refer to rationale for § 5.4.3.1.

§ 5.3.3

NOTAM organisation if publishing also in national language is proposed in order to ensure consistency between English language series and national language series. Publishing text in two different languages bears a risk of issuing inconsistent (different) information. If a publication in a national language is also required, it has to be assured that the content is the same. To avoid duplication of information and allowing easier comparison, the numbers should be the same.

§ 5.3.4

Today, most States AIP contain general information only about the content of NOTAM series. In order to be able to subscribe to the series that are required, it is essential to know what exactly is published in each NOTAM series. Example: "for international distribution" is not specific enough. A processing unit/data provider needs to know the specifics, i.e. which airports and what data is hidden behind a series. With the details provided, a lot of clarification time can be saved in order to cater for clients' needs and the risk of missing data can be considerably reduced.

§ 5.3.5

<u>Potential risks of publishing more than 9999 NOTAM</u>

Reverting to the lowest "available" NOTAM number after reaching 9999 before the end of a calendar year jeopardizes safety considerably in a computer based environment. Processing systems keep track of incoming NOTAM and check the NOTAM sequence. In case of inconsistencies and/or missing messages the operators are alerted. If an originator in a NOTAM series reaches 9999 before the end of a calendar year and decides to revert back and reuse the first available number (which is already cancelled, replaced or expired) it means that:

a) Sequence checks have to be manually overruled or deactivated for this series;

b) Important system plausibility checks such as “lower number cannot cancel/replace higher number” have to be overruled or deactivated for this series, or

c) The NOTAM with the higher number have to manually be made non-valid;

d) High risk of not being able to process NOTAM after the rollback if the publishing NOF does not send out advance notification and/or recipients are not aware in due time of the imminent problem;

e) To overrule and/or deactivate system rules (where system administrators are required) is a safety risk, as publishing NOF accidentally might have cancelled or replaced an incorrect NOTAM, or - increased risk of missing NOTAM or other errors in databases due to deactivated system checks.

Mitigating measures (e.g. re-organization of NOTAM series) to prevent the need to re-use numbers can only be taken in due time if there is some kind of supervision in place.

~~5.3~~ 5.4 Distribution

~~5.3.1~~ 5.4.1 NOTAM shall be distributed on the basis of a request.

~~5.3.2~~ 5.4.2 NOTAM shall be prepared in conformity with the relevant provisions of the ICAO communication procedures.

~~5.3.2.1~~ 5.4.2.1 The AFS shall, whenever practicable, be employed for NOTAM distribution.

~~5.3.2.2 When a NOTAM exchanged as specified in 5.3.4 is sent by means other than the AFS,~~ a ~~six-digit date-time group indicating the date and time of NOTAM origination, and the identification of the originator shall be used, preceding the text.~~

~~5.3.3~~ 5.4.3 The Originating State shall select the NOTAM that are to be given reg~~ular~~ international distribution.

5.4.3.1 The Originating State shall upon request grant distribution of NOTAM series other than international ones.

~~5.3.3.1~~ 5.4.3.2 Recommendation.—Selective distribution lists should be used when practicable.

Note.— ~~These lists are intended to obviate superfluous distribution of information~~. Guidance material relating to this is contained in the Aeronautical Information Services Manual (Doc 8126).

~~5.3.4~~ 5.4.4 International exchange of NOTAM shall take place only as mutually agreed between the international NOTAM offices, and multinational NOTAM Processing Units concerned. The international exchange of ASHTAM (see 5.2.4), and NOTAM where States continue to use NOTAM for distribution of information on volcanic activity, shall include volcanic ash advisory centres and the centres designated by regional air navigation agreement for the operation of AFS satellite distribution systems (satellite distribution system for information relating to air

navigation (SADIS) and international satellite communications system (ISCS)), and shall take account of the requirements of long-range operations.

Note.—Arrangements may be made for direct exchange of SNOWTAM (see Appendix 2) between aerodromes/heliports.

~~5.3.4.1~~ 5.4.4.1 These exchanges of NOTAM between international NOTAM offices and multinational NOTAM Processing Units shall, as far as practicable, cover the needs of operations personnel including flight crew members ~~the airspace users. be limited to the requirements of the receiving States concerned by means of separate series providing for at least international and domestic flights.~~

~~5.3.4.2~~ 5.4.4.2 A predetermined distribution system for NOTAM transmitted on the AFS in accordance with Appendix 5 shall be used whenever possible, subject to the requirements of 5.3~~.4~~–5.4.4.

[redacted]

§ 5.3.2.2 is regarded obsolete and proposed to be deleted. In older times, AFTN (AFS) did not always work well all around the world and NOTAM were received via strange channels. The paragraph covered the minimum requirement. Nowadays other channels are likely, e.g. to exchange digital data.

§ 5.4.3.1 Extensions of data exchange obligation.

There is nowadays an increasingly high demand also for domestic as well as military NOTAM. As there is a clear safety impact, no request by a national or multinational AIM/AIS unit shall be denied for reception of any official aeronautical information. NOTAM distribution shall be defined to serve the airspace user's requirements, and shall therefore not be limited by the national administrations.

Airspace users' requirements have changed a lot during the past years. Users prefer one-stop-shops where they obtain all the data required in a harmonised and cost-efficient way, in the same format, via the same user interface, tailored to their needs and to get updates automatically directly to their personal mobile devices and in the aircraft. This often also includes information on domestic as well as military aerodromes. Most of these users carry out not only national flights but also international ones, and the other way round.

In many States there are no distinct borders between international and domestic flights anymore. Airlines are often flying from an airport in country A to an airport in country B, and thereafter to a second airport in country B before returning to country A.

Additionally, aircraft operators often receive permissions to use national or military airports on a regular basis and require NOTAM data for such airports to perform a safe flight.

There are also national carriers who do not use the national briefing system of that State but that of another one and complain if a national airport is not available in the system. One reason might be that the national provider is by ICAO obliged to make available only the IAIP for the first leg (area of coverage), whereas other data providers might offer better services not just with respect to the area of coverage.

Airspace users have limited time at disposal for the briefing. The most efficient way is for all purposes to use the same data provider rather than using different ones and, thus, having to cope with different system interfaces and different bulletin formats, different languages and different services coverage. Data from one provider will not offer automated data updates, the data from another provider provides such services with the result that a user would have to treat the data differently after retrieval. Much safer and more efficient is having the same standard for all the data.

Nowadays, data providers with large databases who want to cover clients' needs encounter the problem that when requesting e.g. national or military NOTAM series, the originating State rejects such requests which considerably jeopardizes safety. If there is just a single airport not available in a briefing, it is doubtful that the aircraft operator spends a lot of time on trying to obtain that data from the national NOF (provided the missing data was noticed). A number of countries already provide data for military aerodromes with civil users. These military aerodromes also publish an equivalent civil NOTAM in a dedicated series when issuing military NOTAM.

Communication capacity is becoming less an issue every year due to technological developments. Routing of AFTN messages is now done by the click of a computer mouse. Sending messages only takes seconds, while it could take several minutes (and sometimes hours) at the time the current SARPS were written. AHMS is being implemented, with practically unlimited message length and a lot more characters allowed - de-facto 'email standard' - as a result.

ICAO Annex 15 Appendix 4 (AIRAC)

1.11 Changes to NOTAM series

The proposal is to insert a paragraph (1.11).

Changes to NOTAM series may have substantial impact on systems and require sufficient advance notification It is essential to know what data is published in which series and channels in order to adjust systems and inform clients in due time.

Changes in series require analysis and require actions on the recipients' side such as:

- client information and analysis of impact;
- assess available distribution channels;
- subscribe to new series / cancel not required ones;
- opening series / withdrawal of series in databases and system and assure correct processing;
- consider allocation of additional processing staff to cope with increased workload on the date of the changeover (e.g. cancellation of NOTAM and republication in another series).

Neither NOTAM, services message, AIC nor AIP AMDT allow sufficient advance notification to assure appropriate impact analysis. This can only be assured via AIRAC AMDT. Therefore, changes affecting the provision of NOTAM (GEN 3.1.3) including area of coverage (GEN 3.1.2) must be listed in Annex 15 Appendix 4 AIRAC information.