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

FIFTH MEETING

Montréal, 7 to 11 November 2011

Agenda Item 3  AIM information and data assembly, exchange and promulgation
3.6: Charting

WORK SCHEDULE FOR THE AD-HOC GROUP ON AERONAUTICAL CHARTING

(Presented by the Rapporteur of the Ad-Hoc Group on Aeronautical Charting)

SUMMARY

This study note summarises a draft work schedule for the Ad-Hoc Group on Aeronautical Charting for the advancement of Annex 4 — *Aeronautical Charts, Aeronautical Chart Manual* (Doc 8697) and harmonisation of the two with other ICAO documents. The schedule is related to the Roadmap from AIS to AIM until 2016. Major input for this work is provided by the IFPP. Action by the AIS-AIMSG is at paragraph 4.

1.  INTRODUCTION

1.1  The Terms of Reference of the AIS-AIMSG state, inter alia, that the outcomes of the AIS-AIMSG are amendments to the Annex 4 — *Aeronautical Charts*, and to the *Aeronautical Chart Manual* (Doc 8697). According to the Roadmap from AIS to AIM these amendments are Amendment No. 56, 57, and 58 to Annex 4. The Ad-Hoc Group on Aeronautical Charting relates the Amendments 4, 5, and 6 to Doc 8126 to those amendments of Annex 4 accordingly. This is necessary to have a clear relationship of the contents between the two documents.

1.2  In addition to that the AIS-AIMSG Work Programme, as reflected in the Summary of Discussion (SoD) from the AIS-AIMSG/4 Meeting¹, foresees that the *Aeronautical Chart Manual* (Doc 8697) shall be updated in Q2/2012.

1.3  As new Rapporteur of the Ad-Hoc Group on Aeronautical Charting I discussed the future work between 29 August and 6 October 2011 with members of the AIS-AIMSG, members of

---

¹ 23 – 27 May 2011, Bordeaux

(21 pages)
the Ad-Group on AIM Development, members of the CANSO AIMWG, members and advisers of the IFPP and IFPP/IWG, as well as the ICAO Secretariat, AIM/MET Section. Discussions took place with current (confirmed) members of the Ad-Hoc Group on Aeronautical Charting and potential members which have still the intention to join.

1.4 These discussions result in this Draft Work Schedule for the Ad-Hoc Group on Aeronautical Charting as presented in Section 3 below.

1.5 The work of the Ad-Hoc Group on Aeronautical Charting is related to the following ICAO Strategic Objectives:\(^2\):

   a) (A) Safety:
      - (2) Performance Based Navigation,

   b) (C) Environmental Protection and Sustainable Development of Air Transport:
      - (31) Digital Aeronautical Information.

1.6 The work of the Ad-Hoc Group on Aeronautical Charting is currently related to the following Aviation Systems Block Upgrades\(^3\):

   - B0-30 - Service Improvement through Digital Aeronautical Information Management.

2. DISCUSSION

2.1 Annex 4—Aeronautical Charts exists currently with Amendment No. 56 as 11th Edition (July 2009). The Aeronautical Chart Manual (Doc 8697) is currently available as 2nd Edition (1987) up to and including Amendment No. 3 which is dated 26.05.2006. Therefore, as a first step, the harmonisation of Doc 8697 with Annex 4 is needed.

2.2 Major input for further Amendment 57 to Annex 4 and Amendment No. 5 to Doc 8697 will come from the IFPP/IWG and is normally made readily available by them. Attendance in the IFPP/IWG by the Secretariat, AIM Section, and by the Rapporteur of the Ad-Hoc Group on Aeronautical Charting will ensure proper interfacing between the groups. In cases where IFPP/IWG has not developed guidance material for Doc 8697, the Ad-Hoc Group on Aeronautical Charting will do that. The IWG will be included in final proofreading, as necessary. Note: Proofreading and finalisation is Secretariats responsibility, however, in particular cases it will be advisable to have additional proofreading as procedures and charts are closely interlinked as long a charts still exist. The meeting dates for IFPP/IWG are provided in Attachment A to this Study Note for information.

2.3 Amendment material from IFPP/9 for Amendment 57 to Annex 4 is presented by the Secretariat in a separate Study Note. ICAO Aeronautical Chart Samples (Donlon) for IAC GNSS SBAS, IAC GNSS GLS (GBAS), IAC GNSS Copter (PinS), and SID GNSS Copter (PinS) are presented by the Rapporteur of the Ad-Hoc Group on Aeronautical Charting in a separate Information Paper as example.

2.4 Consistency checks between Annex 4, Doc 8697 Amendments and other ICAO documents need to be carried out for each amendment. The following documents need to be taken into account to harmonize contents (requirements) and wording:

   a) PANS Aircraft Operations (Doc 8168-OPS/611):

\(^2\) Electronic Bulletin EB 2010/54 of 10 December 2010
\(^3\) GANIS Working Document 12.8.2011
a) Volume I Flight Procedures,


2.5 In addition to this, the Action Item Agreed 4/16 exists, which relates to the AIS-AIMSG/4-SN/8 “ICAO AC 1:500.000”. This will be included in Annex 4 Amendment 57 and Doc 8697 Amendment 5, both for the date of applicability November 2013. These changes will be directly distributed to the Secretariat by the Ad-Hoc Group for Aeronautical Charting as foreseen in this Action Item Agreed 4/16.

2.6 Further, “cross step topic” discussions are planned:

a) Electronic vs. digital charting, clarification of terminology.

b) Data derived charting or not. Usage of AIXM terminology for relations between database and charts?

c) Review of all Annex 4 Charts whether they are still required/needed at the end of the transition from AIS to AIM. This includes discussion and documentation why currently specific charts exist and the question do they need further to exist in the digital or electronic environment or can they be cancelled, with other words can they be deleted from the SARPs in Annex 4. To initiate this discussion a separate Study Note is presented by the Rapporteur of the Ad-Hoc Group on Aeronautical Charting.

d) Review of all Annex 4 Chart Types.

e) Eventually descriptions for usage of GIS in the Aeronautical Chart Manual, as far as necessary. This is probably mostly related to obstacle and terrain management. There are two components (1) data storage and (2) visualisation. What needs to go in Annex 4?

f) Symbols for electronic charts based on SAE G10 developed Document 5289A, taking the copyright issues into account. Is symbolisation not application and use case driven? Does this really need to go into an Annex? Harmonisation and standardisation of visualisation of data across one application or use case world wide can also be standardised by non ICAO bodies. Is it not more a human factors activities, rather then an Annex activity?

g) Existence of Aerodrome Mapping Databases (AMDBs) and possible usage as basis for aerodrome and heliport charts and aircraft position charts. AMDB exist as data.

h) Harmonisation of units of measurement on charts or keep the current Annex 4 SARPs (ft/m, FL/m STD, …).

i) Others to be added.

3. NEXT STEPS – DRAFT WORK SCHEDULE

3.1 As mentioned Section 1.1 above the work schedule shall be related to Amendments. The term “Step” was chosen to name the period between two amendments. A graphical presentation of the Work Schedule and the Steps in relation to the Amendments are shown in Attachment B to this Study Note.
3.2  **STEP 0 – Consolidation – A4 Amd 56, Doc 8697 Amd 4**

3.2.1  This is the step where Doc 8697 will be brought up-to-date as a basis for further enhancement. The following objectives shall be reached.

3.2.2  The Doc 8697 will be reviewed whether the structure shall be slightly adapted. Superfluous text/depictions shall be deleted.

3.2.3  The layout will be according to the current ICAO standard.

3.2.4  The Secretariat provides an editable version of Doc 8697 as of 26.05.2006 (2nd Edition, 1987, up to and including Amendment No. 3).

3.2.5  This is Amendment 4 to the *Aeronautical Chart Manual* (Doc 8697).

3.2.6  Doc 8697 will be brought in-line with the Amendment No. 56 of Annex 4.

3.2.7  Guidance Material text and depictions in Doc 8697 will be enhanced.

3.2.8  The available electronic Donlon Charts will be included in Doc 8697.

3.2.9  Unified procedure for hand amendments will be added.

3.2.10  Marking principles of latest changes in charts will be added..

3.3  **Step 1 – PBN – A4 Amd 57, Doc 8697 Amd 5**

3.3.1  This is the step where Doc 8697 will be updated mainly based on the input by IFPP. The following objectives shall be reached.

3.3.2  Inclusion of RNAV/RNP procedure charts (fix wing and helicopters from IFPP), into Amendment 57 to Annex 4.

3.3.3  Electronic charting (Terrain and Obstacle Chart ICAO Electronic), cf. Annex 4 Chapter 5, becomes applicable on 12th November 2015, gets further detailed description.


3.3.5  Review of Chapter 20 “Electronic Aeronautical Chart Display – ICAO”.

3.3.6  Development of Amendment 57 to Annex 4.

3.3.7  Guidance Material for inclusion into Amendment 5 to Doc 8697. Note: Major input from IFPP (after ANC endorsement) is expected in this step. The new PBN/RNAV charts fix wing and helicopter are available as ICAO Donlon charts from IFPP/IWG. ICAO Aeronautical Chart Samples (Donlon) for IAC GNSS SBAS, IAC GNSS GLS (GBAS), IAC GNSS Copter (PinS), and SID GNSS Copter (PinS) are presented in a separate Information Paper as example.

3.3.8  Other inputs like the AC 1:500.000 harmonised will be incorporated (Annex 4, Chapter 17).
3.4 **Step 2 – Data Sets – A4 Amd 58, Doc 8697 Amd 6**

3.4.1 This is the step in which Annex 4 will be fully transformed by Amendment 58 to SARPs which are needed in an environment where finally ALL aeronautical data, obstacle data, and terrain data are provided in form of data sets. This means that chart contents is available as data, provided that the data sets can represent all data which are visualised on charts. Doc 8697 will be updated accordingly as Amendment 6.

3.4.2 This Step raises the question of data derived charting (digital charting?), charts are visualisation of data “only”, a chart needs not any more to be the data supply/provision, for cases where data sets are provided according to Annex 15, Chapter 10 and others. Note: Annex 15 contains only the term data set in Chapter 10 for Obstacle and Terrain at the moment. The term “aeronautical data” set needs probably to be introduced. This is in relation to an exchange model like AIXM.

3.4.3 This Step will initially address the question: (1) do we need (electronic) charts when data sets are available? Do we need data derived charting? If yes, why? Do we need (electronic) charts in addition to data sets just as visualisation and for information only?

3.4.4 Annex 15 Amendment 38 is expected to address set sets and data provisions for the final transition from AIS to AIM. In this relation the question arises shall be SARPs for Applications like AIP or PIB described in Annex 15 or is Annex 4 not better suited to address Products, Applications and Services. If yes, the name of Annex 4 would need to be changed. All this will be discussed in this Step before the rewording or new writing of Amendment 58 to Annex 4 and the Amendment 6 to Doc 8697 will start.

4. **ACTION BY THE AIS-AIMSG**

4.1 The AIS-AIMSG is invited to:

a) review the draft work schedule;

b) provide input/changes; and

c) agree on a way forward by an appropriate Action Item Agreed.
ATTACHMENT A

MEETING SCHEDULES AIS-AIMSG, IFPP, and IWG

Known Meeting Schedule

- AIS-AIMSG
  23 - 24.09.11
  Montreal

- IFPP/WG/5
  3 - 7.10.11
  Montreal

- IFPP/WG/11
  26 - 30.03.12
  Dublin

- IFPP/WG/12
  24 - 28.09.12
  Montreal

- IWG
  29 - 30.09.11
  Montreal

- IWG
  30.03.12
  Phoenix

- IWG
  19 - 23.03.12
  Dublin

- IWG
  17 - 21.09.12
  Montreal

- AIS-AIMSG (1)
  7 - 11.11.11
  Montreal

- AIS-AIMSG (2)
  21 - 26.05.12
  Montreal

- 2011 - 2012

---
ATTACHMENT B

WORK SCHEDULE - STEPS

Step 1 – A4 Amd 56, Doc 8697 Amd 4, current applicable, except Annex 4, Chapter 5 which applicable Nov 2015

Step 2 - A4 Amd 57, Doc 8697 Amd 5, applicable Nov 2013

Step 2 - A4 Amd 58, Doc 8697 Amd 6 applicable Nov 2016

--- END ---