International Civil Aviation Organization

The Sixth Meeting of the Aeronautical Information Services – Aeronautical Information Management Implementation Task Force (AAITF/6)

Bangkok, Thailand, 15 to 17 March 2011

Agenda Item 6: Review of Air Navigation Deficiencies in the AIS Field and Proposed Action

REVIEW OF DOC 9673 (Asia and Pacific Regions Air Navigation Plan)

(Presented by Japan)

SUMMARY

This paper is prepared to review Part Ⅷ of the Asia and Pacific Regions Air Navigation Plan (Doc 9673) and to discuss the need of further amendment for inclusion of material related to AIM.

1. INTRODUCTION

1.1 The Asia and Pacific Regions Air Navigation Plan (ANP, Doc 9673) details requirements of facilities, services and procedures for international air navigation within the Asia and Pacific regions. The ANP consists of two documents; the Basic ANP and Facilities and Services Implementation Document (FASID).

1.2 Part Ⅷ of the Basic ANP (Volume Ⅰ) , "Aeronautical information services (AIS) and aeronautical charts (MAP) contains basic planning principles, operational requirements and planning criteria, implementation guidelines and stable material related to Aeronautical Information Services and Charts (AIS/MAP) . It is composed of the following Sections:

- Introduction
- General procedures
- Organization of aeronautical information services
- Integrated aeronautical information package
- World Geodetic System — 1984 (WGS-84)
- Aeronautical charts
- Automation in AIS

1.3 Part Ⅷ of the FASID (Volume Ⅱ) sets forth the facilities, services and procedures required for international air navigation. The APAC FASID Part Ⅷ contains the following.

- Introduction
- Organization and provision of aeronautical information service and charts
- Table AIS 1 — Establishment of aerodrome AIS units
- Table AIS 2 — Aeronautical information services required at aerodromes
- Table AIS 3 — Designated international NOTAM offices (NOF) in the ASIA/PAC regions
- Chart AIS 1 — International NOTAM offices and area of responsibility
- Table AIS 4 — Availability of aeronautical information
- Table AIS 5 — WGS-84 requirements

- Table AIS 6 — Aeronautical chart requirements
- Table AIS 7 — Production responsibility for sheets of the World Aeronautical Chart — ICAO 1:1 000 000
- Chart AIS 2 — Sheet layout and production responsibility for World Aeronautical Chart — ICAO 1:1 000 000
- Table AIS 8 — Requirements of the Integrated Aeronautical Information Package

2. DISCUSSION

2.1 The APAC ANP contains materials necessary for AIS. However, some FASID tables have not been developed.

2.2 Taking into consideration the latest developments related to the transition from AIS to AIM, it seems that European region (EUR) ANP is being reviewed to develop necessary planning material related to AIM for inclusion in the EUR Basic ANP and FASID and an amendment proposal to the both Basic ANP and FASID will be delivered in 2011.

2.3 ANP is a tool for States to remind of their responsibilities and the planning of AIM. A discussion should be held to consider possible amendment of the APAC ANP.

3. ACTION BY THE MEETING

3.1 The meeting is invited to:

a) review the APAC ANP in **Attachment** to this paper; and

b) discuss the need of amendment of the APAC ANP.

……

Part VIII

AERONAUTICAL INFORMATION SERVICES AND CHARTS (AIS/MAP)

INTRODUCTION

1. This part of the Asia and Pacific (ASIA/PAC) Basic Air Navigation Plan contains elements of the existing planning system and introduces the basic planning principles, operational requirements and planning criteria related to aeronautical information services and charts (AIS/MAP) as developed for the ASIA/PAC regions.

2. As a complement to the Statement of Basic Operational Requirements and Planning Criteria (BORPC) set out in Part I, Part VIII constitutes the stable guidance material considered to be the minimum necessary for effective planning of AIS and MAP facilities and services in the ASIA/PAC regions. A detailed description/list of the facilities and/or services to be provided by States in order to fulfil the requirements of the plan is contained in the ASIA/PAC Facilities and Services Implementation Document (FASID). During the transition and pending full implementation of the future communications, navigation and surveillance/air traffic management (CNS/ATM) system, it is expected that the existing requirements would gradually be replaced by new CNS/ATM-related requirements. Subsequently, it is expected that some elements of the CNS/ATM system will be subject to amendment, as necessary, on the basis of experience gained in their implementation.

3. The Standards, Recommended Practices and Procedures to be applied and related guidance material are contained in:

a) Annex 4 — *Aeronautical Charts*;

b) Annex 11 — *Air Traffic Services*;

c) Annex 14 — *Aerodromes*, Volume I — *Aerodrome Design and Operations* and Volume II — *Heliports*;

d) Annex 15 — *Aeronautical Information Services*;

e) *Aeronautical Information Services Manual* (Doc 8126);

f) *Procedures for Air Navigation Services — ICAO Abbreviations and Codes* (PANS-ABC, Doc 8400);

g) *Aeronautical Chart Manual* (Doc 8697); and

h) *World Geodetic System — 1984 (WGS-84) Manual* (Doc 9674).

4. Background information of importance in the understanding and effective application of this part of the plan is contained in the *Report of the Third Asia/Pacific Regional Air Navigation Meeting* (Doc 9614, ASIA/PAC/3 (1993)).

5. A regional air navigation (RAN) meeting recommendation shown in brackets below a heading indicates the origin of all paragraphs following that heading. A RAN meeting recommendation shown in brackets below a paragraph indicates the origin of that particular paragraph.

GENERAL PROCEDURES

Introduction

6. The major objective of AIS is to ensure the flow of information necessary for the safety, regularity and efficiency of international civil aviation. To support the CNS/ATM systems, AIS/MAP should be directed towards the real-time provision of electronic aeronautical information/data that would ensure quality and integrity of the information provided.

7. In the CNS/ATM systems, the future users' requirement will be to access, on a global basis, quality aeronautical information by all users at all times. To achieve this high-level requirement, aeronautical information must be provided electronically, based on a commonly agreed and standardized data model. Strict quality assurance principles should be put in place in order to ensure that aeronautical data is of the required quality (accuracy, resolution and integrity), verified and validated before it is provided to the users. This will give users the required confidence in the quality of information that is critical to flight safety.

8. To support the CNS/ATM systems, the following basic AIS/MAP requirements should be satisfied in the future:

a) real-time provision and exchange of electronic aeronautical information/data, through a system that guarantees the quality and integrity of the information provided;

b) provision and exchange of aeronautical information/data through modern communications means, including data link, which would allow interrogation of aeronautical data-bases on the ground from the aircraft; and

c) harmonization of AIS and MET information/data to support combined automated pre-flight and in-flight briefing facilities.

Quality system

9. The AIS involved in the provision and maintenance of aeronautical data should be organized in such a manner that the quality system is introduced at all the functional stages of the aeronautical data process, from data origination to the distribution/provision of data. The quality system should be in conformity with the International Organization for Standardization (ISO) 9000 series of quality assurance standards and be certified by an approved organization.

Support for the AIS and MAP services

10. To enable the AIS/MAP to function efficiently and in accordance with the defined requirements, sufficient funds should be allocated by States in their budgets which will ensure that all the administrative and operational requirements of AIS/MAP are met, including the availability of sufficient and properly qualified personnel with all the required facilities, equipment and material.

11. The requirements for printing of AIS documentation, including charts, should be ascertained and given the highest priority. Where practicable, printing facilities should be placed under the direct control of the AIS headquarters.

12. Personnel working for AIS/MAP services should possess the skills and competence required to perform specific assigned functions. The required skills and competencies should be demonstrated by AIS and MAP personnel through initial and periodic assessments on which basis the corresponding certificate of competence equal to an AIS licence may be accorded.

13. AIS and MAP personnel should be accorded the status comparable to that assigned to technical personnel of other air navigation services.

Coordination between AIS and other technical services

14. Coordination/liaison on a permanent basis should be established between AIS/MAP and other technical services responsible for planning and operating air navigation facilities and services. At least one person from those services should be assigned and be responsible for maintaining continuous liaison with AIS/MAP and providing it with "raw" information as and when required.

15. Technical services responsible for origination of the raw aeronautical information should be acquainted with the requirements for promulgation and advance notification of changes that are operationally significant as established in Annexes 11 and 14 and other relevant ICAO documentation.

16. Appropriate AIS and MAP personnel should be included in the air navigation planning processes. This should ensure the timely preparation of appropriate AIS documentation and that the effective dates for changes to the air navigation system and procedures are satisfied.

Training of AIS and MAP personnel

17. Within the context of the quality system implemented, the AIS and MAP training programme should ensure that AIS and MAP personnel are appropriately trained according to the skills and competencies required to perform specific assigned functions.

18. AIS personnel should receive professional training commensurate with the most recent technological developments requiring high-level knowledge and skills. AIS personnel should have, as an essential part of their training, sufficient knowledge of aeronautical cartography to permit them to verify information that is published on charts. In addition, AIS personnel should possess a sufficient background in automation and knowledge of the English language as are necessary for the performance of their duties.

19. In addition to the conventional cartographic and geography training programme, knowledge of the following elements should also be taken into account when developing a training programme for MAP personnel:

a) hardware-scanners, plotters, computers, soft proofing devices (CRTs), image setters, and digital memory systems;

b) local area networks and worldwide area networks;

c) software — programming familiarity, flow chart usage and creation, operating systems, communication formats, digital code systems, and documentation skills; and

d) cartographic equipment and software operations skills (developed through "hands on" experience).

20. Periodic checks should be undertaken to ensure that AIS and MAP personnel continue to meet the required standards and if shortfalls in knowledge, skills or competence are detected, corrective measures should be taken.

ORGANIZATION OF AERONAUTICAL INFORMATION SERVICES

Aerodrome AIS units
(FASID Tables AIS 1, AIS 2 and AIS 4)

21. The aerodrome AIS units to be provided at international aerodromes listed in the Appendix to Part III are set out in Table AIS 1.

22. The aeronautical information to be made available at international aerodromes listed in the Appendix to Part III is set out in Table AIS 2.

23. The exchange of aeronautical information documentation and availability of such documentation from international aerodromes listed in the Appendix to Part III is set out in Table AIS 4.

24. AIS at aerodromes should be provided on a 24-hour basis, except as otherwise agreed between the AIS authority, the air traffic services (ATS) authority and the operators concerned. Agreed operational hours of the aerodrome AIS units and details of the service provided should be indicated in the Aeronautical Information Publication (AIP) in accordance with Annex 15.

25. English should be among the languages used in aeronautical information briefings and consultations.

26. The aerodrome AIS unit should provide full pre-flight information/briefing service to flight operations personnel and flight crews for the entire coverage zone. The coverage zone for pre-flight information service at each aerodrome AIS unit should be determined taking into account the final destination of aircraft departing from the aerodrome concerned. This should be done in consultation with aircraft operators and be reviewed from time to time and/or when the air traffic pattern is expected to change.

27. The aerodrome AIS units should be adequately staffed and properly equipped for the provision of effective pre-flight information service. Installation of systems for the automated processing (storage, retrieval and preparation) of pre-flight information bulletins (PIB) should be considered at an early stage.

28. Aerodrome AIS units that provide pre-flight information services should be established at locations conveniently accessible to flight operations personnel at the aerodromes, preferably on the ground floor (apron level) of aerodrome terminal buildings.

29. Arrangements should be made between the aerodrome AIS unit, airline operations personnel (including flight crews) and ATS for an effective cooperation, coordination and reporting of post-flight information on inadequacies in the status and operation of air navigation facilities. To ensure submission of post-flight reports to aerodrome AIS units without delay, arrangements should be made at aerodrome that a suitable post-flight report form, such as the one provided in Doc 8126, be made available to ATS, airline operations offices and aerodrome AIS units.

30. Tables AIS 1 and AIS 2 should be implemented as soon as possible.

International NOTAM offices
(FASID Table AIS 3)

31. The international NOTAM offices to be provided in the ASIA/PAC regions are set out in Table AIS 3.

32. International NOTAM offices should be adequately staffed and properly equipped for the provision of effective 24-hour service.

33. Table AIS 3 should be implemented as soon as possible.

INTEGRATED AERONAUTICAL INFORMATION PACKAGE

Aeronautical Information Publication (AIP)

34. States that have not yet done so should, as a matter of urgency, prepare and publish their AIP in the new, restructured format, either individually or collectively. The format is prescribed by Annex 15 and the guidance material is provided in Doc 8126.

35. Information contained in the AIP should be complete and thoroughly checked for correctness before it is provided to users. To ensure consistency throughout the AIP, changes to the AIP should be made in such a way that information on the same facility, service, procedure, etc. affecting one part be changed in the other part(s), if applicable.

36. The differences between the national regulations and practices and the corresponding Standards and Recommended Practices (SARPs) should be provided in the appropriate part of the AIP.

AIP Amendments

37. In view of the vital importance of the aeronautical information contained in the AIP to the safety of air navigation, information in the AIP should be kept up to date. This should be done by publishing AIP Amendments on specific publication dates or in accordance with a publication schedule based on regular intervals.

38. AIP Amendments should be issued at least once every six months.

39. The AIRAC AIP Amendment shall be used to promulgate operationally significant changes to the AIP.

AIP Supplements

40. Any temporary changes of long duration (three months or longer) affecting the contents of an AIP must be promulgated as AIP Supplements and a checklist of all AIP Supplements currently in force shall be issued at intervals of not more than one month.

41. Where applicable, aeronautical information of operational significance requiring substantive amendments to flight documentation (e.g. promulgation of new and/or revised instrument approach procedures) promulgated by an AIRAC AIP Supplement should be accompanied by charts or diagrams, as appropriate, to aid interpretation.

42. The AIRAC AIP Supplement shall be used to promulgate operationally significant temporary changes to the AIP.

43. Information in the AIP Supplement appropriate for inclusion in the AIP should be incorporated therein with a minimum of delay.

44. Information in the AIP Supplement that is still valid at the end of six months should be re-issued with a new number indicating clearly that the new Supplement is a replacement and that the information it contains remains unchanged from that previously issued.

45. To enable users of aeronautical information to keep records of current information, checklists of AIP Supplements in force should be provided regularly through the monthly printed summary of NOTAM.

Aeronautical Information Circulars (AIC)

46. AIS should establish contact with the relevant services providing AIS with raw aeronautical information to coordinate the preparation and production of Aeronautical Information Circulars (AIC) strictly in accordance with Chapter 7 of Annex 15 and Doc 8126.

47. Checklists of current AIC must be issued at least once a year, irrespective of the number of AIC in force.

Use and validity of NOTAM

48. States should ensure that:

a) aeronautical information to be distributed by NOTAM is originated strictly in accordance with the guidance for the completion of the NOTAM Format contained in Annex 15;

b) the duration of aeronautical information promulgated by NOTAM does not exceed three months and if the information is to remain valid after that period, an appropriate AIP Amendment or Supplement is issued;

c) strict compliance with the requirement to provide at least seven days' advance notice of the activation of established danger, restricted or prohibited areas and of activities requiring temporary airspace restrictions, other than for emergency operations, is observed;

d) a "trigger" NOTAM is originated whenever an AIRAC AIP Amendment or Supplement is published, giving a brief description of the contents, the effective date and the reference number of the AIP Amendment or Supplement. Such a NOTAM must come into force on the same effective date as the AIP Amendment or Supplement;

e) the monthly printed plain-language summary of NOTAM in force also contains information on the latest AIP Amendments, AIP Supplements and AIC issued, and that it is distributed to the recipients with a minimum of delay by the most expeditious means.

49. AIS should exercise the proper selectivity in the origination and distribution of NOTAM by use of the flight information service or, whenever possible, automatic terminal information service (ATIS), for distribution of information that is valid for only a few hours.

50. States capable of introducing a pre-determined distribution system for NOTAM are encouraged to do so.

51. NOTAM should be mainly used for promulgation of information of a temporary nature and of short duration. Temporary information promulgated by NOTAM should not remain in force longer than three months. In exceptional cases, if temporary information promulgated by NOTAM remains in force for longer than three months, a replacement NOTAM should be issued.

52. Use of the abbreviations WIE ("with immediate effect") and UFN ("until further notice") in the NOTAM Format under Items B and C respectively must be avoided and instead, a ten-figure group giving year, month, day, hours and minutes in UTC should be used when originating NOTAM. When information on timing is uncertain, a ten-figure date-time group should be followed by an EST to indicate the approximate duration of information.

AIRAC system

53. States that have not yet done so should implement the AIRAC system in accordance with the requirements of Annex 15 with a minimum of delay.

54. States should ensure that adequate coordination between AIS and other air navigation services exists to permit effective implementation of the AIRAC system.

55. Successful implementation of the AIRAC system depends directly on the level of coordination established among the relevant technical services and the AIS. To ensure a high level of coordination, States should prepare their national regulations so that they well define the duties and responsibilities of those technical services involved in the provision of raw AIRAC information to AIS for publication. The technical services involved should be familiar with the AIRAC system and comply with it in accordance with specifications provided in Annexes 11, 14, Volumes I and II, and 15.

56. A schedule of AIRAC publication dates should be issued which includes a list of latest dates for the receipt of the raw information to be promulgated by AIRAC, printed on the reverse side of the Aeronautical Information Promulgation Advice Form.

57. To ensure that aeronautical information of operational significance reaches users at least 28 days in advance of the AIRAC effective date, measures should be taken to ensure that:

a) information/data prepared in hard copy format is issued and distributed at least 56 days prior to the effective date; and

b) information/data provided in electronic format is distributed at least 35 days in advance of the effective date.

58. Changes to the information promulgated by the AIRAC system should be avoided by all means, especially during the period consisting of the first 28 days.

59. States should ensure that responsible AIS personnel participate in the State's administrative and technical meetings where aerodrome and air navigation planning systems are discussed, in order that:

a) adequate consideration can be given to the AIS production, publication and advance notice of material issued by those meetings; and

b) such AIS personnel take part in the determination of applicability of changes in air navigation facilities and procedures, taking into account the required advance notification and cut-off dates relevant to the AIRAC system.

WORLD GEODETIC SYSTEM — 1984 (WGS-84)

Introduction

60. In order to support implementation of the future CNS/ATM systems, States should make every effort to implement WGS-84 and provide geographical coordinates referenced to this system. A detailed description/list of the WGS-84 coordinate data to be provided by States in order to fulfill the requirements of the plan is contained in the FASID.

61. The SARPs to be applied in respect of WGS-84 are contained in:

a) Annex 11 and Annex 14, Volumes I and II, for accuracy of the field work (surveying); and

b) Annex 4 and Annex 15 for charting and publication resolution, respectively.

62. To assist States in the uniform implementation of the WGS-84-related SARPs, the guidance material on the provision of geographical coordinates referenced to the WGS-84 datum is provided in Doc 9674.

WGS-84 requirements
(FASID Table AIS 5)

63. Table AIS 5 sets out the requirements for geographical coordinates referenced to the WGS-84 datum at international aerodromes, in flight information regions, en-route and in terminal areas.

64. States that have not yet done so should make the necessary arrangements to develop a national WGS-84 implementation plan and such a plan should contain a timetable for implementation. When developing a national WGS-84 plan, States should establish a committee composed of personnel from the appropriate aeronautical and geographic/geodetic departments of the State. Such a committee should be tasked with the management of the WGS-84 implementation plan.

65. States in a position to do so should provide assistance in the implementation of WGS-84 to other States needing such assistance.

66. Before the geographical coordinates based on WGS-84 are published in the AIP and on charts, every effort must be made to validate and verify them.

67. States that have common boundary points should coordinate WGS-84 data for those points prior to publication of this information in their respective AIPs.

68. In order to ensure that quality (accuracy, resolution and integrity) and traceability requirements for the WGS-84-related geographical coordinate data are met, States must take measures to develop and introduce a quality system programme. This programme containing procedures, processes and resources should be in conformity with the International Organization for Standardization (ISO) 9000 series of quality assurance standards.

AERONAUTICAL CHARTS

Aeronautical charting programme
(FASID Table AIS 6)

69. States, individually or collectively, should include in their AIP, derived from their aeronautical chart production programmes, at least the following types of charts:

a) Aerodrome Obstacle Chart — ICAO Type A;

b) Aerodrome Obstacle Chart — ICAO Type C;

c) Precision Approach Terrain Chart — ICAO;

d) En-route Chart — ICAO;

e) Area Chart — ICAO;

f) Standard Departure Chart — Instrument (SID) — ICAO;

g) Standard Arrival Chart — Instrument (STAR) — ICAO;

h) Aerodrome/Heliport Chart — ICAO;

i) Instrument Approach Chart — ICAO;

j) Visual Approach Chart;

k) World Aeronautical Chart — ICAO 1:1 000 000.

Note.— In the production of Aerodrome Obstacle Charts — ICAO Type A, Aerodrome Obstacle Charts — ICAO Type C, Instrument Approach Charts — ICAO, Aerodrome/Heliport Charts — ICAO and Precision Approach Charts — ICAO, States shall take into account ICAO Annex 4 requirements and Table AOP 1.

70. The detailed aeronautical chart requirements are set out in Table AIS 6.

Production responsibility for sheets of the World Aeronautical Charts — ICAO 1:1 000 000
[ASIA/PAC/3, Rec. 13/19]
(FASID Table AIS 7)

71. States that have not yet produced the World Aeronautical Chart — ICAO 1:1 000 000, in accordance with the sheet distribution shown in Table AIS 7, should take the necessary measures to ensure the preparation of the sheets for which they are responsible, either through individual effort or with the collaboration of other States or specialized cartographic agencies.

72. The production responsibility for sheets of the World Aeronautical Chart — ICAO 1:1 000 000 are set out in Table AIS 7 and illustrated on Chart AIS 2.

73. Where the agency producing the charts is not under the control of the aviation administration, States should ensure good liaison between them, and accord the necessary priority in their national chart production programmes to the production of the required aeronautical charts.

Aeronautical chart production

74. States that have not yet produced the aeronautical charts specified hereunder should produce them as soon as possible.

a) Aerodrome Obstacle Chart — ICAO Type A;

b) Aerodrome Obstacle Chart — ICAO Type C;

c) Precision Approach Terrain Chart — ICAO;

d) En-route Chart — ICAO;

e) Instrument Approach Chart — ICAO;

f) Aerodrome/Heliport Chart — ICAO;

g) World Aeronautical Chart — ICAO 1:1 000 000.

75. When information on specific aeronautical charts is amended, all related charts affected by the changes should be amended and published.

76. State authorities should ensure that the appropriate topographical information is made available to the AIS/MAP so that requirements for the production of aero-nautical charts can be fulfilled.

AUTOMATION IN AIS

77. Automation in AIS should be introduced with the objective of improving the overall speed, accuracy, efficiency, and cost-effectiveness of AIS in the region.

78. AIS automation should offer a service to meet the individual requirements of the various categories of users. This goes beyond the provision of pre-processed data and the PIB types traditionally provided manually or by early automated systems. For reasons of cost-effectiveness, such a service should strike a balance between the degree of complexity of the system required and the sophistication of the products provided.

79. The development of automation within AIS should be based on an integrated ASIA/PAC regional automated AIS system concept, in order to obtain a general standardization of procedures, products and services to users and to avoid potential divergencies, incompatibilities and duplication of effort.

80. The implementation of such a system should permit a cost-effective evolution of the regional system, taking account of the present and future technical possibilities and should be governed by the following principles:

a) participating national automated AIS systems should closely cooperate in adopting the different elements that will make up the integrated ASIA/PAC regional automated AIS system, taking into account their current and planned degree of development;

b) States that have not yet done so should initially automate NOTAM service within their own AIS while taking into account the users' requirements;

c) certain national automated AIS systems should cooperate with other not-yet-automated AIS systems, carrying out agreed functions to improve the efficiency and the quality of processing of basic aeronautical information and of its distribution both within an agreed area of the system and externally;

d) optimum use should be made of available communication and public networks as well as of new communication technology for the distribution, exchange and retrieval of aeronautical information, particularly NOTAM;

e) the ICAO NOTAM Format containing the necessary qualifiers to facilitate the sorting and retrieval of NOTAM information in accordance with users' requirements should be used exclusively;

f) a system interrogation capability that takes account of the different categories of systems users should exist;

g) common "user friendly" query procedures for the interrogation of AIS or NOTAM databases should be used. These procedures should be in accordance with the different levels of user requirements;

h) States must establish quality systems and procedures which will ensure that the available aeronautical information is of appropriate quality (accuracy, resolution, integrity) and timeliness;

i) a State that decides not to automate its AIS may arrange, in the interest of improved efficiency, on the basis of bilateral or multilateral agreements between States or other non-governmental organizations, for the provision of automated services on its behalf. The arrangement must take into account the non-transferable responsibility of a State for the provision of aeronautical information as well as other technical and administrative aspects associated with such agreement.

81. The development of the integrated ASIA/PAC regional automated AIS system should take into account provisions of Annex 15 for the use of WGS-84, the adopted common geodetic reference system, when aeronautical geographical coordinates are provided.

Attachment

CONCEPT FOR AN INTEGRATED AUTOMATED AIS SYSTEM FOR THE ASIA/PAC REGIONS

SYSTEM CONFIGURATION

1. The system should be based on the facilities of participating States with the following structure:

a) national automated AIS systems of States providing national service;

b) multi-national automated AIS systems of States providing, on the basis of bilateral and multilateral agreements, service to other State(s) in addition to national service; and

c) non-automated AIS.

AREA TO BE SERVED

2. The system should have the potential capacity of holding aeronautical information to fulfil the operational requirements for AIS pre-flight briefing service for flights from point of origin to final destination.

SYSTEM SERVICE

3. The system overall should provide a service that is capable of satisfying the users' operational requirements, as detailed in 17 to 25 below.

National service

4. The primary role of a national automated AIS system should be to provide aeronautical information to users in a given State either in accordance with predetermined arrangements or by computer interrogation. A national automated AIS system should collect appropriate aeronautical information from national sources, process it, produce it in the form of a NOTAM, store it in the a national automated AIS system database and make it available within the State, the integrated regional system and worldwide in accordance with predetermined arrangements.

5. Conversely, the required aeronautical information relative to other States should be received in the NOTAM Format for direct input into the database or for further processing, if required, so that specific requirements for international aeronautical information can also be carried out by the national system.

6. The national automated AIS system should be able to provide service to users in another participating State that does not have an automated AIS system as well as any other State for which the service is provided in accordance with pre-arranged agreements. States not having an automated AIS system but participating in the regional system would have the option, resulting from bilateral agreement, to be linked with a national automated AIS system via an intelligent or non-intelligent remote terminal.

SYSTEM FUNCTIONS

7. A number of system functions should be performed at regional and national levels.

COMMUNICATION

8. The aeronautical fixed service should satisfy the communication requirements at an international level.

Optimum use should be made of available communication networks for the distribution, exchange and retrieval of aeronautical information, particularly NOTAM.

9. The selection of the means for the retrieval of data at a national level should be at the discretion of the individual State and should be largely dependent on the availability and cost of the various services, communication links available and user requirements.

SYSTEM RELIABILITY AND REDUNDANCY

10. The system configuration should assure adequate reliability and redundancy.

FALLBACK PROCEDURES

11. In the case of a system failure, the service within the related service area should be continued in accordance with the pre-arranged and established procedure for each service area, which should also cover the necessary communications arrangements.

RESPONSE TIME

12. With the features provided by the system, the use of modern computer techniques and means of communication, short response times should be assured.

PLANNING AND IMPLEMENTATION

13. The planning and implementation of the system should be guided and adjusted by considerations related to efficiency, cost-effectiveness and experience.

14. Relevant bilateral or multilateral agreements should aim at minimizing costs through work and equipment savings beneficial to all participants.

15. A planning and implementation regional group should coordinate the general development of the system and the activities required of States and should monitor the overall situation for the purpose of detecting in advance divergencies in developments that could lead to incompatibilities.

SYSTEM MANAGEMENT

16. The strategic operation of the system should be closely monitored by States to permit speedy reaction to problems encountered and to shortcomings identified. An appropriate form of system management should be developed by the planning and implementation regional group.

USER REQUIREMENTS IN AN AUTOMATED AIS SYSTEM

17. The latest pre-flight information bulletin (PIB) of the specific type needed (i.e. route, area or aerodrome) should be available.

18. Information on specific items for given areas required by flight planning services, air traffic services (ATS), AIS or other users, should be provided.

19. A list of NOTAM entered into the system after a specific date-time group, to facilitate briefing, should be obtainable.

20. Immediate notification capability of items of urgent operational significance should be provided.

TYPE OF INFORMATION TO BE PROVIDED

21. The system should provide NOTAM covering the area of service.

22. The system should additionally provide the following PIBs and lists:

a) route type bulletin containing NOTAM relevant to aerodrome of departure, the planned route based on flight information regions (FIRs) crossed, aerodrome of destination, and alternate aerodromes;

b) area type bulletin containing NOTAM relevant to FIR or State;

c) aerodrome type bulletin containing NOTAM concerning any aerodrome or group of aerodromes;

d) immediate notification items;

e) checklists of NOTAM by State, FIR and aerodrome; and

f) list of NOTAM for a specific period or NOTAM entered into the system after a specific date-time group.

23. The updating of PIBs should be covered by system products listed in 22 d), e) and f), or by request for a new PIB.

24. The system features described in 28 to 37 below should permit PIBs to be tailored to the needs of users and should provide flexible options for information content ranging from full system data coverage to data of urgent operational significance.

25. PIBs should be provided in a standard format and ascending sequence of information.

MULTI-ACCESS TERMINALS

26. AIS terminals should ultimately be capable of providing OPMET information relating to pre-flight bulletins.

27. AIS terminals should ultimately be capable of being used for the filing of a flight plan.

SYSTEM FEATURES

NOTAM

28. The NOTAM, in standard ICAO NOTAM Format, should constitute the basic data exchange source in the system.

29. The NOTAM should be prepared only once, at the entry into the system.

30. The system should provide for automatic exchange of the NOTAM between national automated AIS systems.

Common set of qualifiers (Item Q)

31. A common set of qualifiers, forming an integral part of the NOTAM Format (Item Q) should be used to assure compatibility in data exchange and to permit the production of standard system output products.

Decoded NOTAM text

32. The NOTAM text (Item E) of the NOTAM Format should be prepared by using the significations/uniform abbreviated phraseology assigned to the ICAO NOTAM Code, complemented by ICAO abbreviations, indicators, identifiers, designators, call signs, frequencies, figures and plain language.

NOTAM selection criteria

33. The NOTAM Code contained in the PANS-ABC (Doc 8400) is the most comprehensive description of information requiring NOTAM promulgation and should, therefore, constitute criteria for:

a) the storage and retrieval of information;

b) the decision as to whether a particular item is of operational significance;

c) the decision as to the relevance of particular items for various types of flight operations; and

d) the selection of items of operational significance that require immediate notification.

34. Consequently, the NOTAM Code should constitute the basis for the determination of the qualifiers for TRAFFIC, PURPOSE and SCOPE.

Geographical reference qualifier

35. Sufficient flexibility and tailoring of information for the first stage of automation in AIS is achieved by the use of the geographical reference qualifier. This qualifier consists of latitude and longitude to one minute resolution and referenced to the World Geodetic System — 1984 (WGS-84) geodetic datum accurate to one minute resolution, and a three-digit distance figure giving radius of influence in nautical miles.

36. The provision of more flexible and referred data retrievals can be satisfied by the application of a geographical reference system which may be required for the expansion of the overall system in order to meet future requirements. These requirements may derive from the introduction of RNAV operations, the expansion of automation within the ATS and users' systems.

37. Consequently, in the evolution of the regional system, the geographical reference system based on LAT/LONG coordinates of WGS-84 must be used as a standard.

SYSTEM QUERY PROCEDURES

38. The system should provide a common set of query procedures.

39. The common set of query procedures should make the best use of the database management system in use in order to give rapid response to simple and short requests.

40. The query procedures should also provide user-friendly access to the system without assistance of AIS personnel to obtain the required information.

PART VIII

AERONAUTICAL INFORMATION SERVICES (AIS) AND AERONAUTICAL CHARTS (MAP)

INTRODUCTION

1. The Standards, Recommended Practices and Procedures to be applied and related guidance material are as listed in paragraph 1.2, Part VIII - Aeronautical Information Services (AIS) and Aeronautical Charts (MAP) of the Asia and Pacific(ASIA/PAC) Basic Air Navigation Plan (ANP). The material in this part complements that contained in Part I of the ASIA/PAC Basic ANP (Statement of BORPC) and should be taken into consideration in the overall planning processes for the ASIA/PAC Regions.

2. This part contains a detailed description/list of the facilities and/or services to be provided to fulfil the basic requirements of the Plan and are as agreed between the provider and user States concerned. Such agreement indicates a commitment on the part of the State(s) concerned to implement the requirement(s) specified. This element of the FASID, in conjunction with the ASIA/PAC Basic ANP, is kept under constant review by the APANPIRG in accordance with its schedule of management, in consultation with user and provider States and with the assistance of the ICAO Asia and Pacific Office, Bangkok.

3. Guidance Material of Common Operating Procedures for the Asia/Pacific Region Automated AIS System (ASIA/PAC Document 005/1) is relevant to this part.

RESPONSIBILITY FOR THE PRODUCTION OF WORLD AERONAUTICAL CHARTS [FASID Chart AIS 1]

4. The Sheet Layout and Production Responsibility for World Aeronautical Charts - ICAO 1.1,000,000 for the Asia/Pacific Region is as follows (refer FASID Chart AIS 1):

Afghanistan	2336 2337 2430 2431 2442
Australia	3097 3098 3099 3103 3108 3109 3110 3111 3112 3164 3219 3220 3221 3222 3223 3229 3230 3231 3232 3233 3234 3235 3340 3341 3342 3343 3344 3345 3346 3351 3352 3353 3354 3355 3356 3357 3358 3359 3456 3457 3458 3459 3461 3462 3469 3470 3556
Bahrain	2547
Bangladesh	2557
China	2499 2613
India	2432 2439 2440 2551 2552 2553 2554 2558 2559 2560 2561 2673 2674 2675 2679 2681 2682 (with western sheet edge extended to meridian 71°E) 2795 (with western sheet edge extended to meridian 71°E) 2796 (excluding Sri Lanka) 2798 2801
Indonesia	2800 2862 2863 2864 2920 2921 2975 2976 2977 2978 2979 2980 2981 2982 2983 2984 2985 2986 3100 3101 3102
Iran, Islamic Republic of	2338 2339 2428 2429 2443 2444
Iraq	2427 2445
Israel	2426 (Israel and Cyprus only)
Japan	2281 2292 2378 2379 2387 2388 2389 2489 2491 2500 2502 2504
Lao People's Democratic Republic	2616* 2617**
Kuwait	2445***