



International Civil Aviation Organization

Sixth Meeting of CNS/MET Sub-Group of APANPIRG

Bangkok, Thailand, 15 – 19 July 2002

Agenda Item 16: Review the CNS and MET parts of ASIA/PAC Basic ANP and FASID

CNS PART OF ASIA/PAC BASIC ANP AND FASID

(Presented by the Secretariat)

SUMMARY

This paper presents the proposed amendments to the Regional Procedure contained in Part IV-CNS of ASIA/PAC Basic ANP/FASID for review by the meeting.

1. INTRODUCTION

1.1 The ASIA/PAC Basic Air Navigation Plan (ANP) and the ASIA/PAC Facilities and Services Implementation Document (FASID) have been approved by the President on behalf of ICAO Council on 11 August 2001.

1.2 In the list of Key Priorities in CNS/ATM Implementation, the need to incorporate CNS/ATM material in the Basic ANP and FASID has been identified. It should be noted that provision has already been made in the CNS Tables in the FASID to introduce elements of CNS /ATM systems in an evolutionary manner. The CNS/MET SG/5 meeting recognized the need to review the materials contained in Part IV CNS of the Basic ANP and Part IV CNS of the ASIA/PAC FASID to include CNS/ATM materials, where required.

1.3 In view of the amount of work involved it was not considered practical to conduct the review at the CNS/MET/SG/5 meeting. It was therefore agreed to establish a Working Group to undertake this task and complete it for presentation at the CNS/MET Sub-Group (CNS/MET/SG/6) meeting to be held in Bangkok from 15 to 19 July 2002. In view of the above, the CNS/MET/SG/5 had formulated the following decision:

Decision 5/24 - Establishment of ANP/FASID Review Working Group

A Working Group consisting of members from Australia, China, Hong Kong China, Japan, Singapore, Thailand and USA is established to review the Regional Procedures contained in Part IV of the Basic ANP and FASID with a view to include CNS/ATM related materials in CNS part. The review should take into account all relevant Conclusions of APANPIRG, the Global Air Navigation Plan for the CNS/ATM Systems and the ASIA/PAC Regional Plan for the New CNS/ATM Systems. The result should be presented to the next meeting of the Sub-Group in 2002.

2. DISCUSSION

2.1 The ANP/FASID Review Working Group Meeting was held in Mumbai on 7 April 2002. The meeting was attended by 21 participants from Australia, China, Hong Kong, India, Japan, Thailand and the United States. The Working Group reviewed the draft proposal presented by the Secretariat and comments provided by Japan. In light of the comments provided by Japan and other comments provided during the meeting, the Working Group prepared a draft for consideration by the CNS/MET/SG/6 which is provided in the Attachments 1 and 2.

2.2 The 4th meeting of ATN Transition Task Force (ATNTTF) held in Mumbai on 8-12 April 2002 reviewed the result of the Working Group Meeting. The meeting endorsed the proposed changes to be incorporated into Part IV of the Basic ANP and the introduction Part of the Part IV of FASID. Accordingly, the meeting formulated the following draft Conclusion.

Draft Conclusion 4/9- ATN related procedures for Basic ANP and FASID

That, the amendments proposed to the regional procedures contained in the Part IV-CNS of the ASIA/PAC Basic ANP and FASID relating to ATN materials provided in Appendix H and Appendix I, respectively be adopted and incorporated in the respective documents in accordance with the established procedure.

3. ACTION BY THE MEETING

3.1 The meeting is expected to review the Attachments and the draft Conclusion formulated by the ATN Transition Task Force. The meeting may also wish to consider dissolution of the working group considering that the further updating of the material will be done by the Secretariat, with assistance from the CNS/MET Sub-Group, if required.

PART IV COMMUNICATIONS, NAVIGATION AND SURVEILLANCE (CNS)

1. INTRODUCTION

1.1 This part of the Asia and Pacific Basic Air Navigation Plan (ANP) contains elements of the existing system and the basic planning principles, operational requirements and planning criteria related to Communications, Navigation and Surveillance (CNS) system and are considered to be minimum necessary for effective planning of CNS facilities and services in the ASIA/PAC region. A detailed description of the facilities and services to be provided by States in order to fulfill the requirements of the Basic ANP is contained in the ASIA/PAC Facilities and Services Implementation Document (FASID). During the transition and pending full implementation of the CNS/ATM system, it is expected that the existing requirements will gradually be replaced by new CNS/ATM system requirements. Furthermore, 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.

1.2 This Standards, Recommended Practices and Procedures to be applied are contained in:

- a) Annex 10 – *Aeronautical Telecommunications and*
- b) *Regional Supplementary Procedures – Communications* (MID/ASIA and PAC SUPPS, Part 2 of Doc. 7030)

1.3 Background information which is of importance in the understanding and effective application of the plan, is contained in the Report of the Third Asia/Pacific Regional Air Navigation Meeting (Doc. 9614, ASIA/PAC/3 (1993)) on Agenda Items 10, 11 and 12.

1.4 Relevant Recommendations and/or Conclusions of ASIA/PAC/3 RAN Meeting and Regional Planning Groups, where applicable, are shown within brackets to indicate the source.

2. COMMUNICATIONS

2.1 General

2.1.1 The plan and details of the operational requirements for communications are contained in the Tables CNS-1A, CNS-1B, CNS-1C, CNS-1D, CNS-1E and CNS-2 and associated Charts of Part IV of ASIA/PAC FASID.

2.2 The Aeronautical Fixed Service comprises:

- a) the Aeronautical Fixed Telecommunication Network (AFTN);
- b) Ground elements of the Aeronautical Telecommunication Network (ATN). The data communications sub-networks and associated systems supporting the ground-ground applications of the aeronautical telecommunication network (ATN), namely the ATS message handling services (ATS MHS) and ATS Inter-Facility Data Communication (AIDC);
- c) gateways that will allow inter-operation between AFTN and ATS MHS.
- d) ATS direct speech circuits; and
- e) Meteorological operational circuits, networks and broadcast systems.

2.2.1 Aeronautical Fixed Telecommunication Network (AFTN)

2.2.1.1 States should ensure that telecommunication agencies engaged in providing aeronautical circuits be impressed of the need for:

- a) high reliability terrestrial links connecting aeronautical facilities and common carrier terminals inclusive of priority restoration of service commensurate with the requirements of a safety service; and
- b) rapid restoration of circuits in the event of breakdown.

[ASIA/PAC/3, Conc. 10/1]

2.2.1.2 States operating AFTN circuits which do not function satisfactorily 97 per cent of the time during which the circuit is scheduled to be in operation, should exchange monthly circuit performance charts on the form provided in Appendix A of Agenda Item 10 of ICAO Doc. 9614, ASIA/PAC/3 (1993). Where a circuit consistently achieves 97 per cent reliability, the exchange of performance charts may cease. The circuit performance charts should be exchanged directly between the correspondent stations, with copies to the Administrations concerned and to the ICAO Regional Office. States should also identify the causes for inadequate circuit performance and take necessary remedial measures.

[ASIA/PAC/3, Con. 10/2]

2.2.1.3 States responsible for the operation of AFTN circuits which are not adequately meeting transit time requirements should record transit time statistics on the 23rd day of each third month (January, April, July and October) of each year, in accordance with the existing practices, for the AFTN circuits and terminals under their jurisdiction which do not meet the specified transit time criteria. The data recorded should be exchanged directly between the correspondent stations, with copies to Administration concerned and to the ICAO Regional Office.

[ASIA/PAC/3 Conc. 10/3]

2.2.1.4 States operating AFTN circuits should:

- a) record AFTN statistics in the form contained in Appendix B of Agenda Item 10 of ICAO Doc. 9614, ASIA/PAC (1993) from 23 to 25 April and October each year;
- b) exchange the circuit loading data for each circuit with each correspondent

station, provide a copy to ICAO Regional Office; and

- c) evaluate circuit loading and take appropriate remedial action when occupancy level exceeds permissible levels specified in the *Manual on the Planning and Engineering of the Aeronautical Fixed Telecommunications Network*, Doc. 8259-An/936)

[ASIA/PAC/3, Conc. 10/4]

2.2.1.5 States concerned should take positive measures to ensure system reliability and provide adequate management and supervision of facilities to eliminate system failure, and to ensure data integrity and timely delivery of messages.

[ASIA/PAC/3, Concl. 10/5]

2.2.1.6 The AFTN entry/exit points:

- a) between ASIA/PAC and AFI should be Brisbane and Mumbai;
- b) between ASIA/PAC and EUR should be Bangkok, Singapore and Tokyo;
- c) between ASIA/PAC and MID should be Karachi, Mumbai and Singapore;
- d) between ASIA/PAC and NAM should be Brisbane, Nadi and Tokyo;
- e) between ASIA/PAC and SAM should be Brisbane.

[APANPIRG/11 Conc. 11/6]

2.2.1.7 *Technical aspects of Aeronautical Fixed Telecommunications Network (AFTN) rationalization.*

2.2.1.7.1 The main trunk circuits interconnecting main AFTN communication centers should be provided by LTT facilities, operate at a modulation rate commensurate with operational requirement, and employ international alphabet number 5 (IA-5) and character-oriented data link control procedures – system category B, or bit-oriented data link control procedures as defined in Annex 10, Volume III, Part I, Chapter 8.

2.2.1.7.2 Also the tributary circuits interconnecting tributary AFTN communication centers with main AFTN communication centers, with other tributary AFTN communication centers, or with AFTN stations should be provided with LTT facilities where available and feasible, and preferably operate at a modulation rate commensurate with operational requirement and employ IA-5 code and procedures and an appropriate controlled circuit protocol.
[ASIA/PAC AFS RPG/3, Rec. 3/1]

2.2.1.8 To support data communication requirements and to provide needed data integrity and minimal transit time, the CCITT X.25 protocol should be used between AFTN COM Centres and Main Tributary COM Centres in the ASIA/PAC Region.
[APANPIRG/4, Conc. 4/27 and APANPIRG/7, Conc. 7/14]

2.2.1.9 States consider implementing digital communication networks or circuits in a co-ordinated manner in order to meet current and future Aeronautical Fixed Service (AFS) communication requirements for data/voice communications and to facilitate the introduction of ATN.
(APANPIRG Concl. 11/14)

2.2.2 ATN Infrastructure Transition and Implementation

2.2.2.1 The ATN Transition Plan outlines the requirements to increase bandwidth and upgrade protocols for those trunk circuits that will support main data flow of traffic in the ASIA/PAC region. The plan also provides target dates for implementation of Backbone Boundary Intermediate Systems (BBIS) and Boundary Intermediate System (BIS) in the ASIA/PAC region.
(APANPIRG, Concl. 12/14)

2.2.2.2 ATN development should be introduced in an evolutionary and cost-effective manner based on available ICAO SARPs materials and regional ATN technical and planning documents. The ATN infrastructure transition is expected to be implemented in three phases as follows:

- Phase 1, Upgrade of existing AFTN circuits where necessary to support the introduction of the ATN BBISs;
- Phase 2, Implementation of the ATN Regional BBISs; and
- Phase 3, Implementation of supporting ATN BISs.

2.2.3 ATS Direct Speech Circuits

2.2.3.1 ATS direct speech communications [ASIA/PAC/3, Conc. 5/21]

States concerned should assign a high priority to the establishment, in accordance with Annex 11, 3.6.1.1, of efficient direct-speech communications between ATS units serving adjacent areas in order to permit proper use of air-ground frequencies and further implementation of the air traffic control service.

2.2.3.2 Voice switching centers should be provided at the following locations:

- | | |
|-------------|------------------|
| 1) Auckland | 2) Bangkok |
| 3) Beijing | 4) Mumbai |
| 5) Calcutta | 6) Guangzhou |
| 7) Jakarta | 8) Karachi |
| 9) Lahore | 10) Kuala Lumpur |
| 11) Chennai | 12) Nadi |
| 13) Tokyo | 14) Brisbane |

[ASIA/PAC/3, Rec. 10/15]

2.2.3.3 Dissemination of World Area Forecast System (WAFS) products in the ASIA/PAC region will be accomplished by satellite broadcast.
[ASIA/PAC/3, Rec. 10/19]

2.2.4 ATS Inter-facility Data Communication (AIDC) Circuits

State consider implementing the ATN application ATS Interfacility Data Communication (AIDC) in order to enable the exchange of ATS messages for active flights related to flight notification, flight coordination, transfer of control, surveillance data and free (unstructured) text data.

2.3 Air/ground communications

2.3.1 *Aeronautical Mobile Service and Aeronautical Mobile Satellite Service*

2.3.2 *Frequency utilization list*

2.3.2.1 States in the ASIA/PAC region should co-ordinate, as necessary, with the ICAO Asia and Pacific Regional Office all radio frequency assignments for both national and international facilities in the 190-526.50 kHz, 108-117.975 MHz, 960-1215 MHz and 117.975-137 MHz bands. The ICAO Asia and Pacific Regional Office, based on the information provided for this purpose by States, will issue, frequency lists No. 1, 2 and 3 at periodic intervals.

[ASIA/PAC/3, Conc. 11/4, 11/15 and 12/9]

2.3.3 *HF en-route communications*

2.3.3.1 States should be urged to co-ordinate on a national basis with the appropriate interested authorities, a programme directed towards achieving the elimination of the interference currently being experienced on some of the frequencies allocated to the Aeronautical Mobile (R) Service in the Region. When reviewing methods for developing such a national programme, consideration should be given to the procedures in Article S15 of the ITU Radio Regulations.

2.3.3.2 In the case of an unidentified interfering station, States should notify the Regional Office concerned, utilizing the procedure and the Report Form* developed by the Fifth Session of the Communications Division (1954) updated by the Communications Divisional Meeting (1978), Doc. 9239, Agenda Item 5. However, in the case of persistent harmful interference to an aeronautical service which may affect safety, it should be immediately reported to ICAO, and to the ITU using the prescribed format, for appropriate action.

[ASIA/PAC/3, Concl. 11/6]

* The harmful Interference Report Form is provided in Attachment B to CNS part IV of FASID.

2.3.4 *Air-Ground elements of ATN*

2.3.4.1 With the implementation of the air-ground applications of ATN, it is important to ensure that

transit response times are kept to a minimum level so as not to affect the overall response time that it takes for traffic such as ADS reports and CPDLC messages to be delivered to their final destination. This also reflects the need to ensure that critical ground links within the Region are capable of handling this information efficiently.

2.3.4.2 One important factor with air-ground traffic is the generation of routing information caused by aircraft that will move between various ATN routing domains. As aircraft move through various coverage media and FIR boundaries the ATN Routing Backbone will be notified of the changing routing data for each mobile aircraft in the region. To allow this routing information to be propagated within the region will require a minimum number of backbone routers to be implemented which protect all other ATN routers from being inundated with routing information.

[ASIA/PAC ATN Transition Plan]

3. NAVIGATION

3.1 *General*

3.1.1 The plan and details of operational requirements for radio navigation aids are contained in the Table CNS-3 and associated of Part IV of ASIA/PAC FASID.

3.1.2 States should continue to provide ICAO with information on their flight inspection activities for inclusion in the ASIA/PAC Catalogue of Flight Inspection Units and circulation to States in the Regions and to the ASIA/PAC Air Navigation Planning and Implementation Regional Group (APANPIRG).

[ASIA/PAC/3, Conc. 12/8]

3.1.3 The development of the radio navigation aids plan, and its subsequent documentation in relevant air navigation plan (ANP) publications, defines the respective radio navigation aid requirements at each location without reference to discrete frequency assignments. The ICAO Regional Office will continue to maintain its frequency selection and co-ordination role, including the maintenance and promulgation of Frequency List Nos. 1 and 2 in a timely and periodic manner.

[ASIA/PAC/3, Conc. 12/9]

3.2 *Radio navigation aid requirements*

3.2.1 States which have not yet done so should install VHF omni directional radio range (VOR) supplemented by distance measuring equipment (DME) as the primary aid for en-route navigation and, except in specified circumstances, delete any parallel requirement for a non-directional radio beacon (NDB) from the air navigation plan. [ASIA/PAC/3, Rec. 5/22]

4. SURVEILLANCE

4.1 General

4.1.1 The plan and details of operational requirements for surveillance are contained in Table CNS 4 of ASIA/PAC FASID.

4.1.2 Surveillance systems for terminal and en-route air traffic control purposes should be installed, maintained and operated at those international aerodromes and en-route area control centers, whenever it is necessary to improve the safe and expeditious handling of air traffic and where the traffic density and associated complexity of operation, system delays, meteorological conditions and/or transition from oceanic to continental airspace would justify these installations. [ASIA/PAC/3, Rec. 5/28]

4.1.3 Where different systems are used for navigation and position determination within the same controlled airspace, the ground facilities involved should be colocated and/or oriented so as to provide compatible flight paths and to ensure, as far as practicable, a fully integrated air traffic control pattern. [ASIA/PAC, Rec. 7/14]

4.1.4 The Asia and Pacific region is characterized by use of:

- a) SSR Mode A, C and, in the near future, Mode S in some terminal and high density continental airspace;
- b) ADS in some parts of the region; and
- c) The diminishing use of primary radar.

4.1.5 Automatic Dependent Surveillance (ADS) is becoming available over the oceanic and continental

airspace of the Asia and Pacific regions. SSR (augmented as necessary with Mode S) will continue to be used in terminal areas and in some high-density airspace.

4.2 Automatic Dependent Surveillance (ADS)

4.2.1 Co-ordination of activities related to the implementation of ADS

4.2.1.1 The introduction of air-ground data links, together with sufficiently accurate and reliable aircraft navigation systems, present the opportunity to provide surveillance services in areas which lack such services in the present infrastructure, in particular oceanic areas and other areas where the current systems prove difficult, uneconomic, or even impossible, to implement. ADS is a function for use by ATS in which aircraft automatically transmit, via a data link, data derived from on-board navigation systems. As a minimum, the data should include the four-dimensional position. Additional data may be provided as appropriate. The ADS data would be used by the automated ATC system to present information to the controller. In addition to areas which are at present devoid of traffic position information other than pilot provided position reports, ADS will find beneficial application in other areas, including high-density areas, where ADS may serve as an adjunct and/or back-up for secondary surveillance radar and thereby reduce the need for primary radar. Also, in some circumstance, it may even substitute for secondary radar in the future. As with current surveillance systems, the full benefit of ADS requires supporting complementary two-way pilot-controller data and/or voice communication (voice for at least emergency and non-routine communication).

4.2.1.2 States should closely co-operate in the development of procedures for the implementation of ADS in the Region and participate to the extent possible in trials and demonstration related to the implementation of ADS. [ASIA/PAC/3, Conc. 14/21]

4.3 Secondary Surveillance Radar (SSR)

4.3.1 Implementation of surveillance systems

4.3.1.1. Implementation of surveillance systems should be pursued as an enhancement to air traffic

services where so required and the use of secondary surveillance radar (SSR) alone, in accordance with the *Regional Supplementary Procedures* (Doc. 7030), should be considered as a cost-effective alternative to primary surveillance radar.

[ASIA/PAC/3, Rec. 14/20]

PART IV COMMUNICATIONS, NAVIGATION AND SURVEILLANCE (CNS) SERVICES

INTRODUCTION

1. The standards, Recommended Practices and Procedures to be applied are listed in paragraph 1.2, Part IV – CNS of the ASIA/PAC Basic ANP. The material in this Part complements that contained in Part I – BORPC of the ASIA/PAC Basic ANP and should be taken into consideration in the overall planning process for the ASIA/PAC region.

2. This Part contains a detailed description/list of the facilities and/or services to be provided to fulfill 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. The element of the ASIA/PAC Facilities and Services Implementation Document (FASID), in conjunction with the ASIA/PAC Basic ANP, is kept under constant review by the Asia and Pacific Air Navigation Planning and Implementation Regional Group (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.

AERONAUTICAL FIXED SERVICE (AFS)

(FASID Tables CNS-1A, 1B, 1C, 1D and IE
Charts CNS-1, 2 and 3)

3. Table CNS-1A, 1B and Charts CNS-1, CNS-2 show the requirements and implementation status for AFTN circuits and ATN Router connection ~~plan~~. ATS message handling system (AMHS) and ATS inter-facility data communication (AIDC) routing plans in the ASIA/PAC region are show in Table CNS-1C and 1D. The requirement and implementation status of ATS direct speech circuits is shown in Table CNS-1E and Chart CNS-3

3.1 Inter-regional and intra-regional routing of AFTN messages is contained in the ASIA/PAC AFTN Routing Directory. ICAO Asia and Pacific Office continues to maintain its coordinating role for amendments to the Directory and publish updated editions. States are required to co-ordinate any change in the routing with the ICAO Asia and Pacific Office well in advance to allow sufficient time to examine the proposal and finalize required details.

3.2 The regional Interface Control Documents (ICDs) are published by the ICAO Asia and Pacific Office, as required, to ensure standardization of controlled circuit protocols used for AFTN and ATS direct speech circuit signaling system. The ICDs published are as follows:

- 1) Character Oriented Data Link control Procedures System Category-B (APANPIRG, Concl. 5/14);
- 2) X.25 protocol for AFTN (APANPIRG, Concl. 7/14);
- 3) PSS1 Signaling System for digital ATS speech circuit network (APANPIRG₂ Concl. 8/17; [and](#)
- 4) Radar Data Exchanges (APANPIRG₂ Concl. 9/17);

[5\) AMHS ICD;](#)

[6\) Router ICD.](#)

3.3 Aeronautical Telecommunication Network

3.3.1 [The Guidance Material for ATN Transition adopted by APANPIRG provides technical guidance for regional transition planning, primarily focusing on ATN initial ground-to-ground applications. \(APANPIRG, Concl. 10/11 and 11/18\)](#)

ATN Transition Plan

3.3.2 The ATN Transition Plan outlines the requirements to increase bandwidth and upgrade protocols for those trunk circuits that will support main data flow of traffic in the ASIA/PAC region. The plan also provides target dates for implementation of Backbone Boundary Intermediate Systems (BBIS) and Boundary Intermediate System (BIS) in the ASIA/PAC region. (APANPIRG, Concl. 12/14)

Regional ATN Planning Documents

3.3.3 The ASIA/PAC ATN ATS Message Handling System Addressing Plan; ATN Network Service Access Point (NSAP); NSAP Address Registration Form and ATN Routing Architecture Plan provide guidance to States. (APANPIRG, Concl. 12/13)

3.3.3.1 The ATN ATS Message Handling System Addressing Plan provides planning and technical guidance to States in the assignment and registration of addresses and names for transition of ground Aeronautical Fixed Telecommunication network (AFTN) services to the ATS Message Handling System (AMHS) within the ASIA/PAC region. The ASIA/PAC ATN AMHS Naming Plan aligns itself with the global AMHS naming scheme.

3.3.3.2 The ATN Network Service Access Point (NSAP) Addressing Plan and NSAP Address Registration Form provide guidance for States to assign regional NSAP addresses in a consistent manner within the ASIA/PAC region. Each field of the NSAP address is described with the recommended method of assigning value. This is important so that consistency in the use of NSAP addresses is obtained and efficiency in routing is maintained. Fields with purely local State matter are identified. ICAO ASIA/PAC Regional Office is the temporary allocation authority of the ADM field.

3.3.3.3 The regional ATN Routing Architecture is based upon the need for ground-ground infrastructure to eventually replace the existing AFTN infrastructure. For this reason, the routing architecture uses the existing AFTN infrastructure as a guideline for the positioning of ATN equipment. The ATN routing architecture is designed primarily

for the ground-ground environment. However, it is intended that the architecture will also be suitable as the routing architecture for the introduction of the air-ground communication requirements.

3.3.4 Until a formal registration authority is established within ICAO, the ICAO ASIA/PAC Regional Office will maintain a local register within the region for registering all Private Management Domains (PRMDs).

3.4 A Form for recording AFTN circuit loading statistics with the instruction for use of the Form, is provided in Attachment A (APANPIRG, Concl. 4/23)

**AERONAUTICAL MOBILE SERVICE (AMS)
AND AERONAUTICAL MOBILE SATELLITE
SERVICE (AMSS)**

(FASID Table CNS-2, Chart CNS-4)

4. Table CNS-2 shows the requirements and implementation status of aeronautical mobile services (AMS) and aeronautical mobile satellite service (AMSS) for HF VHF and satellite data links in the ASIA/PAC region. Chart CNS-4 shows radio telephony networks and the Appendix to Chart CNS-4 shows HF allotment areas and specific frequencies allocated to each network.

4.1 The ICAO Asia and Pacific Office continues to maintain its frequency selection and coordination role including the maintenance and promulgation of VHF frequency list (List No. 3) in the band 118 to 137 MHz, at appropriate periodic intervals. (ASIA/PAC/3 Concl. 11/4)

4.2 HF interference reporting Form specified in Conclusion 11/6 of ASIA/PAC/3RAN Meeting is provided in Attachment B.

4.3 A list of frequency designators to be included in HF air-ground communication log in accordance with provision of para 5.2.3.3 of Annex 10 Vol. II is provided in Attachment C.

AERONAUTICAL RADIO

NAVIGATION SERVICE

(FASID Table CNS-3, Charts CNS-5A, 5B,
6A and 6B)

5. Table CNS-3 lists, State-by-State in alphabetical order, requirements for ground based and satellite based radio navigation aids for various functions. Charts CNS-5A and CNS-5B provide locations where radio navigation aids are located in the Asia and Pacific regions, respectively. Chart CNS-6A and CNS-6B provide locations where radio navigation aids for final approach and landing functions are located in the Asia and Pacific regions, respectively.

5.1 The ICAO Asia and Pacific Office, continues to maintain its frequency selection and coordination role including maintenance and promulgation of frequencies in the bands 108 to 137 MHz and 960 –1215 MHz bands, assigned to national and international aeronautical radio navigation facilities. Updated Frequency Lists No. 1 and 2 of radio navigation aids are published at periodic intervals (ASIA/PAC/3, Concl. 11/5 and 12/9).

5.2 The detailed description of flight inspection units available in the ASIA/PAC region is contained in the Catalogue of Flight Inspection Units published by the ICAO Asia and Pacific Office.

SURVEILLANCE SERVICE
(FASID Table CNS-4)

6. Table CNS-4 contains information on the radar, facilities and ADS workstations that required for en-route and terminal surveillance in the ASIA/PAC region.
