



ICAO

*International Civil Aviation Organization*

**Twenty Sixth Meeting of the Communications/  
Navigation and Surveillance Sub-group (CNS SG/26) of  
APANPIRG**

Video Tele-Conference, 5 – 9 September 2022

- Agenda Item 9:** Review and updates
- 9.1 Seamless ANS Reporting Process including the ASBU regional performance dashboard/implementation plan
  - 9.3 National ANP and elements related to CNS

**REVIEW OF REGIONAL CNS REQUIREMENTS IN ICAO  
APAC e-ANP, SEAMLESS ANS PLAN AND NATIONAL AIR NAVIGATION PLAN (NANP)**

(Presented by the Secretariat)

**SUMMARY**

Further to last CNS SG/25 meeting, this paper summarizes States/Administrations on CNS requirements specified in ICAO APAC e-ANP and Seamless ANS Plan (Version 3.0, November 2019). The paper reminds States/Administrations to review the data affecting their administration and provide feedback to ICAO on the data's accuracy in requisite format to update the relevant CNS requirements.

**1. INTRODUCTION**

1.1 ICAO Secretariat has published WP/15 in CNS SG/25 summarizing the CNS requirements in ICAO APAC e-ANP, APAC Seamless ANS Plan Version 3.0 and NANP, and reminding States/Administrations to timely submit/update status as necessary.

1.2 The ICAO APAC e-ANP can be accessed at <http://www.icao.int/APAC/Pages/APAC-eANP.aspx> and the Asia/Pacific Seamless ANS Plan can be accessed at <https://www.icao.int/APAC/Documents/edocs/Asia%20Pacific%20Seamless%20ATM%20Plan%20V%203.0.pdf>

**2. DISCUSSION**

**2.1 Regional e-ANP and its CNS-related Requirements**

*e-ANP Volume I*

2.1.1 e-ANP Volume I Part III CNS constitutes the agreed regional requirements considered to be the minimum necessary for effective planning and implementation of CNS facilities and services in the Asia and Pacific Region and complements the provisions of ICAO SARPs related to CNS. It contains stable plan elements related to the assignment of responsibilities to States for the provision of CNS facilities and services within the ICAO Asia and Pacific Regions in accordance with Article 28 of the Convention on International Civil Aviation (Doc 7300) and mandatory requirements related to the

**Agenda Item 9.1**

05-09/09/22

CNS facilities and services to be implemented by States in accordance with regional air navigation agreements. *The amendments to e-ANP Volume I necessitates approval by the Council.*

*e-ANP Volume II*

2.1.2 e-ANP Volume II Part III CNS complements the provisions in ICAO SARPs and PANS related to CNS. It contains dynamic plan elements related to the assignment of responsibilities to States for the provision of CNS facilities and services within a specified area in accordance with Article 28 of the Convention on International Civil Aviation (Doc 7300) and the current to medium term mandatory requirements related to CNS facilities and services to be implemented by States in accordance with regional air navigation agreements involving the APANPIRG. Such agreement indicates a commitment on the part of the State(s) concerned to implement the requirement(s) specified. *The amendment of these elements does not require approval by the Council.*

2.1.3 e-ANP Volume II contains the General Regional Requirements and Specific Regional Requirements related to CNS from Member States. As such, *Member States are encouraged to review on the information contained in the following tables in e-ANP Volume II:*

**General Regional Requirements**

**TABLE CNS II-1** AERONAUTICAL FIXED TELECOMMUNICATIONS NETWORK  
(AFTN) PLAN

**TABLE CNS II-2** REQUIRED ATN INFRASTRUCTURE ROUTING PLAN

**TABLE CNS II-3** ATS DIRECT SPEECH CIRCUITS PLAN

**TABLE CNS II-4** HF NETWORK DESIGNATORS

**Specific Regional Requirements**

**TABLE CNS II-APAC-1** ATS INTER-FACILITY DATA COMMUNICATION (AIDC)  
IMPLEMENTATION PLAN

**TABLE CNS II-APAC-2** RADIO NAVIGATION AIDS

**TABLE CNS II-APAC-3** SURVEILLANCE

*Alignment between CNS and AOP Tables regarding newly-reported Aerodromes*

2.1.4 It was noticed that the information contained in e-ANP Volume I Table AOP I-1 – International Aerodromes Required in the Asia/Pacific Regions, and Volume II Table AOP II-1 – Requirements and Capacity Assessment in International Aerodromes in the Asia and Pacific Regions have been updated by various States. In this connection, the Table CNS II-APAC-2 Radio Navigation Aids, which contains the details of each runway in aerodromes, will need corresponding updates with inclusion of new aerodromes to reflect the latest status and align with tables aforementioned. States/Administrations should submit the updates through PfA process with relevant templates and documents available at <https://www.icao.int/APAC/Pages/APAC-eANP.aspx>.

*e-ANP Volume III*

2.1.5 e-ANP Volume III contains dynamic/flexible plan elements providing implementation planning guidance for air navigation systems and their modernization taking into consideration emerging programmes such as the ICAO Aviation System Block Upgrades (ASBUs) and associated technology roadmaps described in the Global Air Navigation Plan (GANP) (Doc 9750). The ANP Volume III would also include appropriate additional guidance, particularly with regard to implementation, to complement the material contained in the ANP Volumes I and II. *The amendment of Volume III would not require approval by the Council (approval of Part II is under the responsibility of the relevant PIRG).*

2.1.6 It should be noted that e-ANP Volume III should be used as a tool for monitoring and reporting the status of implementation of the elements planned, through the use of tables/databases

and/or references to online monitoring tools, as endorsed by APANPIRG. The status of implementation is updated on a regular basis as endorsed by APANPIRG. APAC Regional Objectives defined in former Seamless ATM Plan V2.0 were incorporated in the e-ANP Volume III and supporting documents within the APAC main planning table in accordance with the e-ANP template adopted by the Council in 2014. *Updating of e-ANP Vol III by incorporating latest requirements defined in Seamless ANS Plan V3.0 is in process.*

2.1.7 In general, Member States/Administrations are reminded to review and update all CNS facilities listed and CNS requirements specified in the e-ANP to verify that the information provided for their States/Administration is up-to-date and correct.

## **2.2 Seamless ANS Plan and its CNS-related Elements**

### *Updates on current status of Seamless ANS Plan*

2.2.1 The Asia/Pacific Seamless ANS Plan (formerly known as Seamless ATM Plan) defines goals and the means of meeting State planning objectives for a Regional Seamless ANS Performance Framework, with a focus on technological and human performance.

2.2.2 The version 1.0 of Asia/Pacific Seamless ATM Plan was adopted as APANPIRG Conclusion 24/54 *Asia/Pacific Seamless ATM Plan* in 2013. The ten regional priorities and targets was adopted through the Conclusion APANPIRG 25/2 - *APAC Regional Air Navigation Priorities and Target* in 2014. With reviews and updates in 2016 following the updates in GANP and ASBU framework implementation and referencing to the new Block 1 ASBU and new regional elements, the version 2.0 of the Plan adopted as APANPIRG Conclusion 27/16 *Asia/Pacific Seamless ATM Plan Update* in 2016.

2.2.3 To match the 6<sup>th</sup> Edition of GANP, APANPIRG/30 in 2019 reviewed and adopted the Asia/Pacific Seamless ANS Plan Version 3.0 as APANPIRG Conclusion 30/5 *Asia/Pacific Seamless ANS Plan*.

2.2.4 In the version 3.0 of the Plan, there are 16 Priority-1 Regional Seamless ANS Elements identified, an increase from 10 elements compared to version 2.0. Priority-1 items are critical upgrade assignment based on whether the implementation of an element could bring most benefit to the region or regional upgrade by States and is essential to achieve the service level required globally. These 16 Elements are listed as follows, with CNS-related element highlighted:

- a) Aeronautical Meteorology: AMET-B0/1 – 4;
- b) Aeronautical Information Management: DAIM-B1/1 – 6;**
- c) Airport CDM: ACDM-B0/1 – 2;
- d) ANSP human and simulator performance (Regional);
- e) ATS Inter-facility Datalink Communications: FICE-B0/1;**
- f) Ballistic launches/space re-entry management (Regional);
- g) Civil-Military Special Use Airspace (SUA) management (Regional);
- h) Civil-Military strategic and tactical coordination (Regional);
- i) Core data communications: VDL Mode O/A and AMHS COMI-B0/3, 7;**
- j) Direct and Free Route Operations: FRTO-B0/1 – 4;
- k) Enhanced SAR systems (Regional);
- l) Ground-based Surveillance: ASUR-B0/1 – 3;**
- m) Network Operations: NOPS-B0/1 – 5;

**Agenda Item 9.1**

05-09/09/22

- n) **Performance-based Navigation Approach Procedures: APTA-B0/1 – 2;**
- o) Runway Sequencing: RSEQ-B0/1 – 2; and
- p) **Safety Nets SNET-B0/1 – 4.**

2.2.5 Details of ASBU elements could be referred on GANP portal (<https://www4.icao.int/ganportal/ASBU>).

2.2.6 Other CNS-related priorities 2 & 3 Regional and Blocks 0 & 1 ASBU elements from the Plan are highlighted below for reference. Details of each item below could be referred to the corresponding PARS/PASL paragraphs stated in the Plan.

**Regional Seamless ANS Element**

Functional Category	Regional Seamless ANS Element	Priority
Operational	Aerodrome management and coordination (PARS 7.1)	2
	Optimization of runway capacity facilities (PARS 7.2)	3
	<b>ADS-B, SSR Mode S and PBN Airspace (PARS 7.8, 7.9, 7.10)</b>	<b>2</b>
	Flight Level Orientation Scheme (FLOS) (PARS 7.15)	2
	Civil-Military SUA management (PARS 7.16)	1
	Unmanned Aircraft Systems (PARS 7.17)	2
	Adjacent ATS sector coordination (PASL 7.24)	2
	Airspace classification (PASL 7.33)	2
	ATC horizontal separation (PASL 7.34)	2
	Flight Level Allocation Schemes (FLAS) (PASL 7.35)	2
	ATC sector capacity (PASL 7.37)	2
	<b>Electronic Flight Progress Strips (PASL 7.39)</b>	<b>2</b>
	Enhanced SAR systems (PASL 7.42)	1
	ANSP human and simulator performance (PASL 7.43)	1
	Civil-Military strategic and tactical coordination (PASL 7.44)	1
	Civil-Military common procedures and training (PASL 7.44)	2
Ballistic launches/space re-entry management (PASL 7.45)	1	
<b>CNS Technology and Services</b>	<b>ATS surveillance data sharing (PASL 7.28)</b>	<b>2</b>
	<b>Civil-Military integrated systems and facilities (PASL 7.44)</b>	<b>2</b>
	<b>Departure Clearance (DCL) (PASL 7.49)</b>	<b>2</b>

**Blocks 0 & 1 ASBU elements with APAC Priorities**

Functional Category	Element	Priority
Information	<b>AMET-B0/1 – 4:</b> Meteorological observations, forecast, warning, climatological and historical products, and dissemination (PASL 7.41)	1
	<b>AMET-B1/1 – 4:</b> Meteorological products supported by automated decision systems or aids using IWXXM (PASL 7.56)	2
	<b>DAIM-B1/1 – 6: Provision of quality-assured digital aeronautical data and information, including AIP, terrain and obstacle, aerodrome and instrument flight procedure data sets (PASL 7.40)</b>	1
	<b>DAIM-B1/7:</b> Provision of digital NOTAM improvements (PASL 7.55)	2

<sup>1</sup> Preferred Aerodrome/Airspace and Route Specifications (PARS) and Preferred ANS Service Levels (PASL) are the performance objectives developed by Asia/Pacific Seamless ATM Planning Group (APSAPG) to facilitate Seamless ANS operation in accordance with the expectations of The Manual on Global Performance of the Air Navigation System (ICAO Doc 9883) which provides guidance on implementing a performance-oriented ATM System, and The Manual on ATM System Requirements (ICAO Doc 9882) which contains eleven Key Performance Area (KPA) system expectations, as well as a number of general performance-oriented requirements.

	<b>FICE-B0/1: Automated basic AIDC (PASIL 7.26)</b>	<b>1</b>
Operational	<b>ACDM-B0/1-2: ACIS (PARS 7.3)</b>	1
	<b>ACDM-B1/1 – 2: Airport CDM Integration with ATM Network, AOP and APOC (PARS 7.18)</b>	2
	<b>APTA-B0/1 – 2: Basic PBN SID and STAR procedures, PBN non-precision approaches (PARS 7.4, 7.5, 7.10, 7.13, 7.14, 7.21)</b>	<b>1</b>
	<b>APTA-B0/3 and 6: SBAS/GBAS CAT I precision approach procedures, and PBN Helicopter PinS Operations (PARS 7.5, 7.6, 7.10, 7.14, 7.21)</b>	<b>3</b>
	<b>APTA-B0/4 – 5, 7 – 8: CDO (Basic) and CCO (Basic), and performance-based aerodrome operating minima for advanced/basic aircraft (PARS 7.14, 7.19, 7.21)</b>	2
	<b>APTA-B1/1 – 5: advanced capability PBN approaches, PBN SID and STAR procedures and performance-based aerodrome operating minima for advanced aircraft with SVGS, CDO and CCO (Advanced) (PARS 7.14, 7.21, 7.22, 7.23)</b>	<b>3</b>
	<b>CSEP-B1/1 – 4: basic airborne situational awareness AIRB and VSA, and performance-based horizontal separations (PARS 7.20)</b>	2
	<b>FRTO-B0/1 – 4: Direct routing, Airspace Planning and FUA, Flexible Routings, and basic conflict detection and conformance monitoring (PASIL 7.29, 7.31, 7.36)</b>	1
	<b>FRTO-B1/1 – 7: Free Route Airspace, RNP routes, Advanced FUA and Airspace Management (ASM), Dynamic Sectorisation, Enhanced Conflict Detection Tools and Conformance Monitoring, and Multi-Sector Planner Function (PASIL 7.29, 7.51)</b>	2
	<b>NOPS-B0/1 – 5: Initial integration of ASM with ATFM, Collaborative Network Flight Updates, Basic Network Operation Planning and Initial Airport/ATFM slots, A-CDM Network Interface and Dynamic Slot Allocation (PASIL 7.38)</b>	1
	<b>NOPS-B1/1 – 10: Short Term ATFM measures, Enhanced NOPS Planning, Enhanced integration of airport operations and NOPS planning, Enhanced Traffic Complexity Management, Full integration of ASM with ATFM, Initial Dynamic Airspace configurations, Enhanced ATFM slot swapping, Extended Arrival Management, ATFM Target Times and Collaborative Trajectory Options Programme (PASIL 7.52)</b>	2
	<b>OPFL-B0/1: ITP</b>	3
	<b>OPFL-B1/1: CDP</b>	3
	<b>RATS-B1/1 – Remotely Operated Aerodrome Air Traffic Services</b>	3
	<b>RSEQ-B0/1 – 2: Arrival and Departure Management (PASIL 7.32)</b>	1
	<b>RSEQ-B0/3 – Point merge</b>	3
Operational (Con'd)	<b>RSEQ-B1/1 – Extended arrival metering (PASIL 7.46)</b>	2
	<b>SNET-B0/1 – 4: STCA, MSAW, APW, APM (PASIL 7.31)</b>	<b>1</b>
	<b>SNET-B1/1 – 2: Enhanced STCA with aircraft parameters and in complex TMAs (PASIL 7.50)</b>	<b>2</b>
	<b>SURF-B0/1 – 3: Basic ATC surface operations tools, comprehensive situational awareness, situational awareness, alerting service (PASIL 7.47)</b>	<b>2</b>
	<b>SURF-B1/1 – 5: Advanced surface traffic management visual aids, pilot comprehensive awareness and runway alerting, enhanced ATC alerting, routing service to support ATC and EVS for taxiing (PASIL 7.48)</b>	<b>2</b>
	<b>TBO-B0/1: Introduction of time-based management within a flow centric approach (PASIL 7.52)</b>	2
<b>TBO-B1/1 – Initial Integration of time-based decision making processes (PASIL 7.52)</b>	2	
<b>CNS Technology</b>	<b>ASUR-B0/1 – 3: ADS-B, MLAT, SSR-DAPS (PARS 7.8, 7.11, PASIL 7.26, 7.28, 7.30)</b>	<b>1</b>

**Agenda Item 9.1**

05-09/09/22

and Services	ASUR-B1/1 – Reception of aircraft ADS-B signals from space (SB ADS-B) (PASIL 7.54)	2
	COMI-B0/1 – 2, 4 – 6: ACARS, ATN/OSI, VDL Mode 2 Basic, SATCOM Class C Data, HFDL (PASIL 7.54)	2
	COMI-B0/3, 7: VDL Mode O/A, AMHS (PASIL 7.25)	1
	COMI-B1/1 – 4: VDL Mode 2 Multi-Frequency, SATCOM Class B (SB-S) Voice and Data, ATN/IPS and AeroMACS Ground-Ground (PASIL 7.53)	2
	COMS-B0/1 – 2: CPDLC (FANS 1/A & ATN B1) for domestic and procedural airspace and ADS-C (FANS 1/A) for procedural airspace (PARS 7.14, PASL 7.29, 7.53)	2
	COMS-B1/1 – 3: PBCS approved CPDLC (FANS 1/A+), ADS-C and SATVOICE for domestic and procedural airspace (PARS 7.14, PASL 7.53)	2
	NAVS-B0/1 – 4: SBAS, GBAS, ABAS, MON (PARS 7.7)	2
	NAVS-B1/1: Extended GBAS	3

2.2.7 Given that the overall implementation progress of former Seamless ATM/Block 0 elements had been slow, the Asia/Pacific Seamless ANS Plan V3.0 proposed to place greater emphasis on ‘robust’ status National Air Navigation Plans (NANPs), developed by a whole-of-government approach, which was dependent on whether the NANP included the expected NANP Basic Planning Elements (BPEs) of the Regional Air Navigation Plan.

2.2.8 With regard to the APAC Seamless ANS Plan, it was noted that only very low progress was made by the region in meeting the targets set up, mainly, due to a lack of whole-of government planning and political will, and that to address this shortcoming the requirement for a NANP was included into the Vol II of the RANP. Another concern pointed out was that the actual progress of State implementation of the Global Air Navigation Plan (GANP) and Seamless ANS elements in 2020 could not be properly measured due to the lack of an updated reporting portal which in fact was expected to be delivered in 2019 by ICAO Headquarters. On this issue, the WG/SRP noted that ICAO Regional Office is currently working with the ICAO Headquarters to promote/develop a reporting mechanism that may serve as an interim process pending the full implementation of the expected globally coordinated reporting portal. Nevertheless, the WG/SRP believed that the timely completion of this long outstanding important globally coordinated reporting portal is necessary for the proper measure of the progress made by States.

2.2.9 Noting the GANP to be reviewed in coming 41<sup>st</sup> Assembly, subsequently the review of the Asia/Pacific Seamless ANS Plan will happen after the 41<sup>st</sup> Assembly to make sure the Plan follows the latest version of GANP, subject to the arrangement of ATM Section of the Regional Office.

### 2.3 National Air Navigation Plan

2.3.1 The Beijing Declaration of Asia Pacific Ministerial Conference on Civil Aviation formulated in February 2018 specified that *Ministers commit to implementation by 2022 of the Asia/Pacific Seamless Air Traffic Management (ATM) Plan to enhance ATM capacity and harmonization in the Region, including a focus on various aspects in air navigation services, including Air navigation in national planning frameworks such as National Development Plans (NDPs) supported by National Air Navigation Plans (NANP).*

2.3.2 Subsequently the Conclusion APANPIRG/30/5 was endorsed in November 2019 to urge APAC States to consider utilizing the Asia/Pacific Seamless ANS Plan to develop a National Air Navigation Plan (NANP) after considering the NANP Template in the Plan to enable timely implementation of applicable Seamless ANS elements. Furthermore, the detail requirement for States to establish and maintain a National Air Navigation Plan (NANP), that supports implementation of the Global Air Navigation Plan and regional air navigation planning, was also incorporated in the latest

version of *APAC e-ANP Volume II PART I – General Planning Aspects (GEN)*, under the section *Specific Regional Requirements*.

2.3.3 It was listed in the requirement of NANP to analyze all applicable ASBU and regional elements deemed to be applicable, including a statement of the State’s priorities for implementation and elements that are deemed to be not applicable, and how these were determined. All applicable ASBU and regional elements, as summarized in the Seamless ANS Plan Version 3.0, are also included in the NANP template aforementioned. As such, States/Administrations should refer to the NANP Template in the Seamless ANS Plan Version 3.0 and review its compliance and planning of their CNS-related elements and record in their NANP.

2.3.4 ICAO APAC Regional Office organized a NANP Seminar on 31 July 2020 to share know-hows and experience to help States/Administrations to develop their own NANP to fulfill the commitments in Beijing Declaration. Useful information could be found in the seminar’s webpage at <https://www.icao.int/APAC/Meetings/Pages/2020-NANP-Seminar.aspx>.

### **3. ACTION BY THE MEETING**

3.1 The meeting is invited to:

- a) note the information in this paper;
- b) remind States/Administrations to review details in mentioned CNS Tables, and submit PFA accordingly as discussed in paragraph 2.1.4 in this paper;
- c) remind States/Administrations to review/update all CNS related Tables in e-ANP;
- d) urge States/Administrations the need to formulate their NANP to comply with commitments to Beijing Declaration by 2022; and
- e) discuss any matters as appropriate.

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