International Civil Aviation Organization
CAR/SAM Regional Planning and Implementation Group (GREPECAS)

WORKING PAPER

ePPRC/05 — WP/08
18/04/23

GREPECAS Programmes and Projects Committee (PPRC) Fifth Virtual Meeting (ePPRC/05)
Online, 20 – 21 April 2023

Agenda Item 2: **Review of the Programmes and Projects of the CAR/SAM Planning and Implementation Regional Group (GREPECAS)**

2.3 Important aspects of the new version of the Global Air Navigation Plan

2.3.1 Progress of the implementation of the BBB in the Air Navigation Areas

EVALUATION OF THE BASIC BUILDING BLOCKS (BBB) AND THE ELEMENTS OF THE AVIATION SYSTEM BLOCK UPGRADE (ASBU) IN THE CAR/SAM REGIONS

(Presented by the Secretariat)

EXECUTIVE SUMMARY

This working paper provides information on the actions carried out by the NACC and SAM Regional Offices to support the States of both regions in the process of evaluating the level of regional implementation in Air Navigation Services (ANS) through the Basic Building Blocks (BBB) and the Aviation System Block Upgrade (ASBU) elements of the Global Air Navigation Plan (GANP), Seventh Edition.

Action:	Suggested actions are listed in numeral 4.
Strategic Objectives:	• Air Navigation Capacity and Efficiency • Economic Development of Air Transport • Environmental Protection
References:	• Twentieth Meeting of the CAR/SAM Regional Planning and Implementation Group (GREPECAS/20), Salvador, Brazil, 16 to 18 November 2022: https://www.icao.int/NACC/Pages/meetings-2022-grepecas20.aspx

1. Introduction

1.1 During the 41st Session of the ICAO Assembly held in October 2022, the Global Air Navigation Plan (GANP), Seventh Edition was approved and the importance of the global framework and regional and national plans to support ICAO's strategic objectives.

1.2 The GANP is the tool to develop and prioritize the technical and operational work of the ICAO programme; States, international organizations, industry and all interested parties need to use the GANP to plan and implement activities, set priorities, targets and indicators consistent with globally harmonized objectives, taking into account operational needs.

1.3 The BBBs outline the foundations of any robust air navigation system, identify the essential services that must be provided to international civil aviation in accordance with ICAO standards. These essential services are defined in the areas of Aerodromes (AGA), Air traffic management (ATM), Search and rescue (SAR), Meteorology and Aeronautical information management (AIM). In addition to essential services, the BBB framework identifies the end users of these services, as well as the assets (Communications, navigation and surveillance [CNS] infrastructure) required to deliver them.

1.4 The ICAO GANP ASBU methodology is a programmatic and flexible global approach that allows all Member States to enhance their air navigation capabilities based on their specific operational requirements.

2. Evaluation of the BBB and ASBU in the CAR/SAM Regions

2.1 Regional Strategy for the Evaluation of BBBs in the CAR Region

2.1.1 Considering that the BBBs are essential services and that their implementation represents the baseline for any operational improvement, the need to implement a regional strategy for the development of CAR States air navigation plans and the identification of the regional priorities was indicated, for which it is necessary to identify the status of implementation of ANS through the evaluation of the level of implementation of the BBBs.

2.1.2 The ICAO NACC Regional Office has developed a new guide document for the evaluation of these mandatory services, which is found in **Appendix A**; the document includes the essential elements to be evaluated by area, in addition to references to ICAO documentation, Protocol Questions (PQs) of the Universal Safety Oversight Audit Programme (USOAP) related to the implementation of these services.

2.1.3 Each area will use different evaluation strategies for each of the established services:

a) MET: Evaluation through a software tool, which will be carried out by the NACC/WG/MET/TF.
b) AGA: The data will be obtained from the work of the NACC/WG/AGA/TF through direct consultation with the States.
c) AIM: The information will be obtained through a direct survey of the States developed by the NACC/WG/AIM/TF.
d) SAR Implementation Support Task Force will define its strategy at its next annual meeting, which will take place from 6 to 8 June 2023 and will request States to submit the required information as soon as possible.
e) The NACC/WG/AO/TF Airspace Optimization Task Group will define its evaluation strategy and communicate it by 30 May 2023.

f) The CNS area will evaluate, according to the results provided in the previous items, the level of implementation of the CNS infrastructure necessary to provide all the previous services.

2.2 Regional Strategy for the Evaluation of ASBUs implemented in the CAR Region

2.2.1 The ICAO GANP ASBU methodology is a programmatic and flexible global approach that allows all Member States to enhance their air navigation capabilities based on their specific operational requirements.

2.2.2 The NACC Office has adopted the strategy of evaluating the level of regional implementation of ASBU elements that have their maturity status "ready to implement" according to the GANP, Seventh Edition. See **Appendix B**.

2.3 Regional Strategy for the Evaluation of BBBs in the SAM Region

2.3.1 With regards to the SAM Region, the evaluation of the implementation of the BBBs will begin to be carried out considering the information from the results of the USOAP programme, establishing a cross-reference between the air navigation protocol PQs and the BBBs.

2.3.2 Considering the development carried out by the NACC Office for the evaluation of these elements, it could be considered to use a similar methodology, with the tool developed by the NACC Office.

2.3.3 The identification of the level of implementation of the BBBs will support the SAM Office to identify priorities that require attention related to the BBBs.

2.4 Regional Strategy for the Evaluation of ASBUs implemented in the SAM Region

2.4.1 Regarding the evaluation of the ASBU implemented in the SAM Region, a strategy similar to that implemented by the NACC Office will be used, based on the level of implementation of the ASBU elements that have their maturity status. "ready to implement" according to the GANP, Seventh Edition.

3. Conclusions

3.1 It is important to emphasize that, with the evaluation of the BBBs, our regions will be able to:

a) identify regional deficiencies;
b) identify the status of regional implementation;
c) update the information on the services of the Electronic Air Navigation Plan, Volumes I and II;
d) support the execution of priority regional projects with information.

3.2 This information will support decision-making to carry out the pertinent actions requested through Conclusion GREPECAS/20/18 "Review of air navigation deficiency assessment processes", for which the CNS area is carrying out joint work with all areas of ANS.

3.3 It is necessary for the region to carry out an analysis of the implementation status of each ASBU element, which elements are currently operating, with their level of implementation and the operation of each of their enablers. This analysis must be done for each ASBU element.

3.4 It is also necessary to collect the data and results of the analysis to contribute to the regional analysis of the implementation of air navigation. The ASBU elements together with the BBB elements will provide the necessary data to define the state of the region in terms of air navigation.

3.5 With the identification of weak areas, the regional and State projects that should be prioritized will be identified, in addition to the short, medium, and long-term goals.

3.6 Finally, it is reported that both NACC and SAM Regional Offices are working jointly, sharing information and best practices for the benefit of CAR and SAM States.

4. Suggested actions

4.1 States are invited to:

a) take note of the information presented in this working paper;
b) support the activities led by the NACC and SAM Offices for the evaluation of the implementation of the BBBs and ASBU;
c) establish actions to reinforce the air navigation system, closing any gap identified in the evaluation of the implementation of the BBBs; and
d) any other action that applies.

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– Appendix B –

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ICAO NACC REGIONAL OFFICE

ASBU TASK FORCE (NACC/WG/ASBU)[1]

Introduction

The Basic Building Block (BBB) framework outlines the foundation of any robust air navigation system. It is nothing new but the identification of the essential services to be provided for international civil aviation in accordance with ICAO Standards. These essential services are defined in the areas of aerodromes, air traffic management, search and rescue, meteorology and information management. In addition to essential services, the BBB framework identifies the end users of these services as well as the assets (communications, navigation, and surveillance (CNS) infrastructure) that are necessary to provide them.

The BBB is considered an independent framework and not a block of the ASBU framework as they represent a baseline rather than an evolutionary step. This baseline is defined by essential services recognized by ICAO Member States as necessary for international civil aviation to develop in a safe and orderly manner. Once these essential services are provided, they constitute the baseline for any operational improvement.

The BBB framework will be updated every two years taking into account amendments to ICAO provisions. Although an initial draft of the BBB framework is presented online in the GANP Portal (https://www4.icao.int/ganpportal/BBB), the BBBs will be included in a web-based application in a format similar to the ASBU framework.

The present document contains a series of tables of the five-air navigation areas integrated in the basic building blocks, with the objective that the tables serve as

[1] Document created by the CNS area of the ICAO NACC Regional Office.

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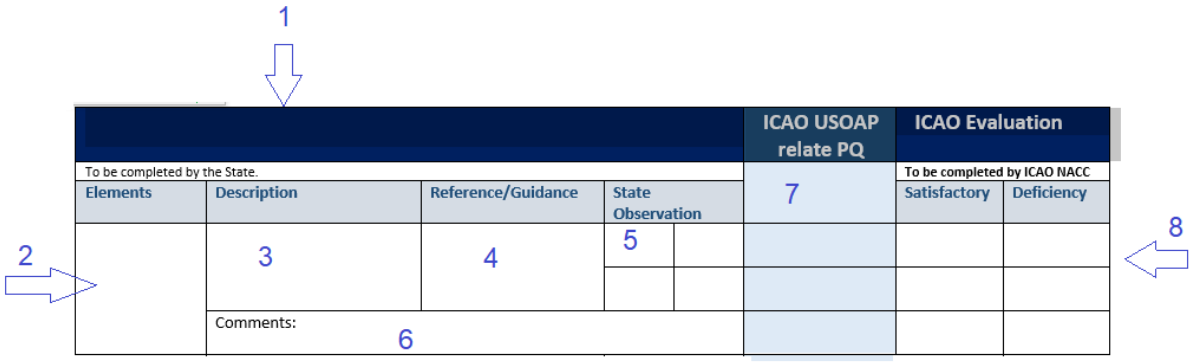
an evaluation of the implementation status of the services integrated therein and identify opportunities for improvement in each of the areas.

How to integrate the data in the table?



La tabla contiene 8 diferentes áreas:

1	2	3	4	5	6	7	8
Service are the elements to be evaluated according to the area of air navigation, which can be: – Meteorological services – Aeronautical information services – Search and rescue services – ATM services – Aerodrome operation services – CNS Infrastructure	Describe the element to be assessed	Guidance and information concerning the item to be assessed in accordance with the ICAO Annexes.	Provides information from the Annex and other ICAO guidance material regarding the service requirement to be assessed.	Evaluation criteria: – Yes: implemented and operational – NO: not implemented – N/A: not applicable – TBD: in process of implementation	Information to be provided by the State to certify the status of service implementation	Informative data	The last two columns will be the information completed by ICAO according to the evaluation of the information submitted by the State. Sat – Satisfactory: the State has correctly implemented the service. – Deficiency: It is a mandatory service that is not operating.

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Basic Building Block (BBB) Framework

MET BASIC ELEMENTS/REFERENCES ICAO SARPs

1. MET References

- Annex 3: Meteorological Service for International Air Navigation
- Doc 8896: Manual of Aeronautical Meteorological Practice
- Doc 9873: Manual on the Quality Management System for the Provision of Meteorological Service to International Air Navigation
- Doc 9837: Manual on Automatic Meteorological Observing Systems at Aerodromes
- Doc 10003: Manual on the Digital Exchange of Aeronautical Meteorological Information
- Doc 9817: Manual on Low-level Wind Shear
- Doc 9691: Manual on Volcanic Ash, Radioactive Material and Toxic Chemical Clouds
- Doc 9328: Manual of Runway Visual Range Observing and Reporting Practices
- Doc 9377: Manual on Coordination between Air Traffic Services, Aeronautical Information Services and Aeronautical Meteorological Services
- Doc 9766: Handbook on the International Airways Volcano Watch (IAVW) — Operational Procedures and Contact List

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1. Meteorological Services					ICAO USOAP relate PQ		ICAO Evaluation	
To be completed by the State.							To be completed by ICAO NACC	
Elements	Description	Reference /Guidance	State Observation		CE	PQ	Satisfactory	Deficiency
1.1 Flight Briefing Service	**Provide meteorological information for Flight Services.** See Annex 3, Appendix 8, to do review the BBB requirement. 1.1 Meteorological information shall be supplied to operators and flight crew members by one or more mechanisms as agreed between the meteorological authority and the operator concerned, and with the order shown below not implying priorities.	A3: Ch.:9; App.:8 Doc 8896, Doc 9873, Doc 10003	YES:	NO:	CE-6	7.412		
			N/A:	TBD:	CE-6	7.415		
	Provide Information how State provide Satisfactorily fulfilling this requirement **State comments:**				CE-6	7.459		

1.2 Meteorological Observation and Reports Service	Meteorological Office, Watch Office and other meteo services according with weather. See Annex 3, Chapter 3.4 Meteorological watch Offices: 3.4.1 A Contracting State, having accepted the responsibility for providing air traffic services within a flight information region (FIR) or a control area (CTA), shall establish, in accordance with regional air navigation agreement, one or more MWOs, or arrange for another Contracting State to do so. See Annex 3, APPENDIX 2. Technical specifications related to global systems, supporting centres and meteorological offices. See Annex 3, APPENDIX 3 Technical specifications related to meteorological observations and reports.	A3: Ch.:3,4; App.:2,3 Doc 8896, Doc 9873, Doc 9837, Doc 10003, Doc 9328, Doc 9377	YES:	NO:	CE-6	7.467		
			N/A:	TBD:	CE-7	7.465		
	Provide Information how State provide Satisfactorily fulfilling this requirement **State comments:**				CE-7	7.451		

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1.3 Aeronautical Meteorological Forecast Service	Meteorological Office, Watch Office and other meteo services according with weather. See Annex 3, CHAPTER 3. Global systems, supporting centres and meteorological offices. See Annex 3, CHAPTER 6. Forecasts. APPENDIX 2. Technical specifications related to global systems, supporting centres and meteorological offices. APPENDIX 5. Technical specifications related to forecasts	A3: Ch.:3,6; App.:2,5 Doc 8896, Doc 9873, Doc 10003, Doc 9377	YES:	NO:	CE-7	7.461		
			N/A:	TBD:	CE-7	7.463		
	Provide Information how State provide Satisfactorily fulfilling this requirement **State comments:**				CE-7	7.475		
1.4 Aeronautical Meteorological Warnings Service	Meteorological Office, Watch Office and other meteo services according with weather. See Annex 3 CHAPTER 8. Aeronautical climatological information. General provisions, climatological tables of aerodromes, data from meteorological observations.	A3: Ch.:7; App.:6 Doc 8896, Doc 9873, Doc 9817, Doc 9377	YES:	NO:	CE-7	7.476		
			N/A:	TBD:	CE-7	7.477		
	Provide Information how State provide Satisfactorily fulfilling this requirement **State comments:**							
1.5	SIGMET and AIRMET information, aerodrome warnings and wind shear warnings and alerts.	A3: Ch.:8; App.:7	YES:	NO:				

Aeronautical Climatological Information Service	See Annex 3 CHAPTER 7. SIGMET and AIRMET information, aerodrome warnings and wind shear warnings and alerts. APPENDIX 6. Technical specifications related to SIGMET and AIRMET information, aerodrome warnings and wind shear warnings and alerts	Doc 8896, Doc 9873	N/A:	TBD:			
	Provide Information how State provide Satisfactorily fulfilling this requirement **State comments:**						
1.6 SIGMET Service	Provide SIGMET Service. See Annex 3 CHAPTER 3. Global systems, supporting centres and meteorological offices. CHAPTER 7. SIGMET and AIRMET information, aerodrome warnings and wind shear warnings and alerts. APPENDIX 6. Technical specifications related to SIGMET and AIRMET information, aerodrome warnings and wind shear warnings and alerts APPENDIX 6-1 Specifications related to SIGMET information.	A3: Ch.:3,7; App.:6 Doc 8896, Doc 9873, Doc 10003, Doc 9377	YES:	NO:			
			N/A:	TBD:			
	Provide Information how State provide Satisfactorily fulfilling this requirement **State comments:**						

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1.7 AIRMET Service	Provide AIRMET Service See Annex 3 CHAPTER 3. Global systems, supporting centres and meteorological offices. CHAPTER 7. SIGMET and AIRMET information, aerodrome warnings and wind shear warnings and alerts. APPENDIX 6. Technical specifications related to SIGMET and AIRMET information, aerodrome warnings and wind shear warnings and alerts APPENDIX 6-2 Specifications related to AIRMET information.	A3: Ch.:3,7; App.:6 Doc 8896, Doc 9873, Doc 10003, Doc 9377	YES:	NO:			
			N/A:	TBD:			
	Provide Information how State provide Satisfactorily fulfilling this requirement **State comments:**						
1.8 GAMET Service	Provide GAMET service See Annex 3 CHAPTER 6. Forecasts APPENDIX 5. Technical specifications related to forecasts. Criteria related to TAF, Criteria related to trend Definitions of AIRMET information, long-range flight, GAMET area forecast, operations control and tropical cyclone; amendment of provisions for horizontal and key resolution to be used for gridded forecasts of winds and temperatures at altitude prepared by the world	A3: Ch.:6; App.:5 Doc 8896, Doc 9873, Doc 9377	YES:	NO:			
			N/A:	TBD:			

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	area forecast centres; issuance of special reports on temperature changes at aerodromes.						
	Provide Information how State provide Satisfactorily fulfilling this requirement **State comments:**						
1.9 AIREP	Provide AIREP service See Annex 3, CHAPTER 5. Aircraft observations and reports. APPENDIX 4. Technical specifications related to aircraft observations and reports APPENDIX 6. Technical specifications related to SIGMET and AIRMET information, aerodrome warnings and wind shear warnings and alerts *Note: - Details of the AIREP form is presented in the PANS-ATM (Doc. 4444).*	A3: Ch.:5; App.:4,6 Doc 8896, Doc 9873, Doc 9377	YES:	NO:			
			N/A:	TBD:			
	Provide Information how State provide Satisfactorily fulfilling this requirement **State comments:**						
1.10 WAFS Service	Provide WAFS Service See Annex 3 CHAPTER 3. Global systems, supporting centres and meteorological offices 3.1 World area forecast system The objective of the world area forecast system (WAFS) shall be to supply meteorological authorities and other users with global aeronautical meteorological en-route forecasts in digital	A3: Ch.:3; App.:2 Doc 8896, Doc 9873, Doc 10003	YES:	NO:			
			N/A:	TBD:			

	form. This objective shall be achieved through a comprehensive, integrated, worldwide and, as far as practicable, uniform system, and in a cost-effective manner, taking full advantage of evolving technologies. APPENDIX 2. Technical specifications related to global systems, supporting centres and meteorological offices.						
	Provide Information how State provide Satisfactorily fulfilling this requirement **State comments:**						
1.11 IAVW Service	Provide IAVW Service See Annex 3 CHAPTER 3. Global systems, supporting centres and meteorological offices APPENDIX 2. Technical specifications related to global systems, supporting centres and meteorological offices. Note: - IAVW relies on the cooperation of aviation and non-aviation operational units using information obtained from observation sources and networks provided by States. ICAO coordinates surveillance with the cooperation of other interested international organisations.	A3: Ch.:3; App.:2 Doc 8896, Doc 9873, Doc 10003, Doc 9691, Doc 9377, Doc 9766	YES: N/A:	NO: TBD:			
	Provide Information how State provide Satisfactorily fulfilling this requirement **State comments:**						
1.12 TCAC Service	Provide TCAC Service	A3: Ch.:3; App.:2	YES:	NO:			

	See Annex 3 CHAPTER 3. Global systems, supporting centres and meteorological offices APPENDIX 2. Technical specifications related to global systems, supporting centres and meteorological offices 3.7 Tropical cyclone advisory centres A Contracting State having accepted the responsibility for providing a tropical cyclone advisory centre (TCAC) shall arrange for that centre *(see Annex 3, point 3.7 in full).*	Doc 8896, Doc 9873, Doc 10003, Doc 9377	N/A:	TBD:			
	Provide Information how State provide Satisfactorily fulfilling this requirement **State comments:**						
1.13 RMM Service	Provide RMM Service See Annex 3 CHAPTER 3. Global systems, supporting centres and meteorological offices APPENDIX 2. Technical specifications related to global systems, supporting centres and meteorological offices	A3: Ch.:3; App.:2 Doc 8896, Doc 9873, Doc 9691, Doc 9377	YES:	NO:			
			N/A:	TBD:			
	Provide Information how State provide Satisfactorily fulfilling this requirement **State comments:**						

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Aeronautical Information Services (5 services)

AIS References

- Annex 15: Aeronautical Information Services
- Annex 4: Aeronautical Charts
- PANS-AIM (Doc 10066): Aeronautical Information Management
- PANS-OPS (Doc 8168): Aircraft Operations
- Doc 8126: Aeronautical Information Services Manual

2. Aeronautical Information Services					ICAO USOAP relate PQ		ICAO Evaluation	
To be completed by the State.							To be completed by ICAO NACC	
Elements	**Description**	**Reference/ Guidance**	**State Observation**		**CE**	**PQ**	**Satisfactory**	**Deficiency**
2.1 Aeronautical data Originators	Aeronautical data Originators See Annex 15, CHAPTER 3. Aeronautical information management Information management requirements, validation, verification, data quality, metadata, data protection, automation, quality management and human factors.	A15: Ch.:3	YES:	NO:	CE-6	7.288		
			N/A:	TBD:	CE-6	7.321		
	Provide Information how State provide Satisfactorily fulfilling this requirement **State comments:**				CE-6	7.291		

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2. 2 Aeronautical data Originators Aeronautical Information service	Pre-Flight Briefing Service NOTAM Service See Annex 15, CHAPTER 5. NOTAM Initiation, general specifications, distribution.	A15: Ch.:5 Doc 8126: Ch. 8	YES:	NO:	CE-7	7.303		
			N/A:	TBD:	CE-7	7.267		
	Provide Information how State provide Satisfactorily fulfilling this requirement **State comments:**				CE-7	7.311		
2.3 Aeronautical data Originators Aeronautical Information service	Cartographic Service Flight Operations See Annex 15, CHAPTER 5. NOTAM	A15: Ch.:5 Doc 8126: Specimen AIP and Doc 8697: all	YES:	NO:	CE-7	7.309		
			N/A:	TBD:	CE-7	7.363		
	Provide Information how State provide Satisfactorily fulfilling this requirement **State comments:**				CE-7	7.311		
2.4 Aeronautical data Originators Aeronautical Information service	Aeronautical Information Publication Service See Annex 15, CHAPTER 5. NOTAM	A15: Ch.:5 Doc 8126: Ch. 5 and its App., Specimen AIP	YES:	NO:				
			N/A:	TBD:				
	Provide Information how State provide Satisfactorily fulfilling this requirement **State comments:**							

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2.5 Aeronautical data Originators Aeronautical Information service	Post-Flight Briefing Service See Annex 15, CHAPTER 5. NOTAM	PANS-AIM: Ch.5 Doc 8126: Ch. 8	YES:	NO:			
			N/A:	TBD:			
	Provide Information how State provide Satisfactorily fulfilling this requirement **State comments:**						

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Search and Rescue services (9 services)

SAR References

- Annex 11: Air Traffic Services
- Annex 12: Search and Rescue
- PANS-ATM (Doc 4444): Air Traffic Management
- Doc 9731: IAMSAR Manual - International Aeronautical and Maritime Search and Rescue Manual

3. Search and Rescue Services					ICAO USOAP relate PQ		ICAO Evaluation	
To be completed by the State.							To be completed by ICAO NACC	
Elements	**Description**	**Reference/Guidance**	**State Observation**		**CE**	**PQ**	**Satisfactory**	**Deficiency**
3.1 Alert Service	Receive emergency notification See Annex 11, CHAPTER 2. General. CHAPTER 5. Alerting service Alerting service. A service provided to notify relevant agencies of aircraft in need of search and rescue assistance and to assist such agencies as appropriate.	A11: Ch.:2,5 PANS-ATM: Ch. 9.2 and Ch. 10.2 IAMSAR Vol 1	YES:	NO:	CE-6	7.481		
			N/A:	TBD:	CE-6	7.513		
	Provide Information how State provide Satisfactorily fulfilling this requirement				CE-6	7.517		

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	State comments:						
3.2 INCERFA Coordination	**INCERFA. The code word used to designate an uncertainty phase.** Coordination See Annex 12, CHAPTER 5. Operating procedures See complete chapter, emergency information, coordination centres, coordination, etc.	A12: Ch.:5	YES:	NO:	CE-6 7.525 CE-7 7.537		
			N/A:	TBD:			
	Provide Information how State provide Satisfactorily fulfilling this requirement **State comments:**				CE-7 7.529		
3.3 INCERFA Emergency Report	Evaluation-Emergency report See Annex 12, CHAPTER 5. Operating procedures See complete chapter, emergency information, coordination centres, coordination, etc.	A12: Ch.:5	YES:	NO:	CE-7 7.543 CE-7 7.545		
			N/A:	TBD:			
	Provide Information how State provide Satisfactorily fulfilling this requirement **State comments:**						
3.4 ALERFA		A12: Ch.:3,5 and A11: Ch.:5	YES:	NO:			

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Alert To Be Prepared	**ALERFA. The code word used to designate an alert phase**. Alert To Be Prepared See Annex 12, CHAPTER 3. Cooperation Mechanism to do a coordination CHAPTER 5. Operating procedures. Annex 11,	IAMSAR Vol 1 and IAMSAR Vol 2 Ch.:2,3	N/A:	TBD:			
	Provide Information how State provide Satisfactorily fulfilling this requirement **State comments:**						
3.5 ALERFA Design Search Plan	Design Search Plan See Annex 12, CHAPTER 3. Cooperation Indicate cooperation mechanics Annex 11, CHAPTER 5. Alerting service	A12: Ch.:3,5 and A11: Ch.:5 IAMSAR Vol 1 and IAMSAR Vol 2 Ch.:5,6,7,8,9	YES: N/A:	NO: TBD:			
	Provide Information how State provide Satisfactorily fulfilling this requirement **State comments:**						
3.6 DETRESFA Develop SAR Plan for Incident	**DETRESFA. The code word used to designate a distress phase.** Develop SAR Plan for Incident See Annex 12, CHAPTER 3. Cooperation Indicate cooperation mechanics	A12: Ch.:3,5 and A11: Ch.:5 IAMSAR Vol 1 and IAMSAR Vol 2 Ch.:5,6,7,8,9	YES: N/A:	NO: TBD:			

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	Annex 11, CHAPTER 5. Alerting service						
	Provide Information how State provide Satisfactorily fulfilling this requirement **State comments:**						
3.7 DETRESFA Implement SAR Plan for Incident Task	Implement SAR Plan for Incident Task See Annex 12, CHAPTER 3. Cooperation Indicate cooperation mechanics Annex 11, CHAPTER 5. Alerting service	A12: Ch.:3,5 and A11: Ch.:5 IAMSAR Vol 1 and IAMSAR Vol 2 Ch.:6,7,9	YES:	NO:			
			N/A:	TBD:			
	Provide Information how State provide Satisfactorily fulfilling this requirement **State comments:**						
3.8 DETRESFA Implement SAR Plan for Incident Request	Implement SAR Plan for Incident Request See Annex 12, CHAPTER 3. Cooperation Indicate cooperation mechanics Annex 11, CHAPTER 5. Alerting service	A12: Ch.:3,5 and A11: Ch.:5 IAMSAR Vol 1 and IAMSAR Vol 2 Ch.:6,7,9	YES:	NO:			
			N/A:	TBD:			
	Provide Information how State provide Satisfactorily fulfilling this requirement **State comments:**						
3.9 DETRESFA Implement SAR Plan for	Implement SAR Plan for Incident Notify See Annex 12, CHAPTER 3. Cooperation Indicate cooperation mechanics Annex 11, CHAPTER 5. Alerting service	A12: Ch.:3,5 and A11: Ch.:5 IAMSAR Vol 1 and IAMSAR Vol 2 Ch.:6,7,9	YES:	NO:			
			N/A:	TBD:			

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Incident Notify	Provide Information how State provide Satisfactorily fulfilling this requirement **State comments:**			

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Air Traffic Management services (20 services)

ATM References

- Annex 11: Air Traffic Services
- Annex 4: Aeronautical Charts
- PANS-ATM (Doc 4444): Air Traffic Management
- PANS-OPS (Doc 8168): Aircraft Operations

4. Air Traffic Management Services					ICAO USOAP relate PQ		ICAO Evaluation	
To be completed by the State.							To be completed by ICAO NACC	
Elements	**Description**	**Reference/ Guidance**	**State Observation**		**CE**	**PQ**	**Satisfactory**	**Deficiency**
4.1 ATM AIR TRAFFIC SERVICE AFIS (Alert Flight Information Service)	ALR See Annex 11, CHAPTER 2. General CHAPTER 5. Alerting service	A11: Ch.:2,5 PANS-ATM: Ch.:4,7,9,10	YES:	NO:	CE-6	7.075		
			N/A:	TBD:	CE-6	7.085		
	Provide Information how State provide Satisfactorily fulfilling this requirement **State comments:**				CE-7	7.109		

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4.2 AIR TRAFFIC SERVICE TWR	ATC GND CTTRL See Annex 11, CHAPTER 2. General CHAPTER 6. Air traffic services requirements for communications CHAPTER 7. Air traffic services requirements for information	A11: Ch.:2,6,7 PANS-ATM: Ch.:4,5,6,10,11	YES:	NO:	CE-6	7.110		
			N/A:	TBD:	CE-6	7.111		
	Provide Information how State provide Satisfactorily fulfilling this requirement **State comments:**				CE-6	7.121		
4.3 AIR TRAFFIC SERVICE TWR	ATC DEP CLR See Annex 11, CHAPTER 2. General CHAPTER 6. Air traffic services requirements for communications CHAPTER 7. Air traffic services requirements for information	A11: Ch.:2,6,7 PANS-ATM: Ch.:4,5,6,10,11	YES:	NO:	CE-6	7.131		
			N/A:	TBD:	CE-6	7.133		
	Provide Information how State provide Satisfactorily fulfilling this requirement **State comments:**				CE-6	7.153		
4.4 AIR TRAFFIC SERVICE TWR	ATC LDG CLR See Annex 11, CHAPTER 2. General CHAPTER 6. Air traffic services requirements for communications CHAPTER 7. Air traffic services requirements for information	A11: Ch.:2,6,7 PANS-ATM: Ch.:4,5,6,10,11	YES:	NO:	CE-6	7.151		
			N/A:	TBD:	CE-6	7.155		
	Provide Information how State provide Satisfactorily fulfilling this requirement **State comments:**				CE-6	7.158		

4.5 AIR TRAFFIC SERVICE TWR	ATC SEP See Annex 11, CHAPTER 2. General CHAPTER 6. Air traffic services requirements for communications CHAPTER 7. Air traffic services requirements for information	A11: Ch.:2,6,7 PANS-ATM: Ch.:4,5,6,10,11	YES:	NO:	CE-6 CE-6	7.159 7.162		
			N/A:	TBD:				
	Provide Information how State provide Satisfactorily fulfilling this requirement **State comments:**				CE-6	7.189		
4.6 AIR TRAFFIC SERVICE TWR	ATC COORD See Annex 11, CHAPTER 2. General CHAPTER 7. Air traffic services requirements for information	A11: Ch.:7 PANS-ATM: Ch.:6,10,11,16	YES:	NO:	CE-7	7.081		
			N/A:	TBD:	CE-7	7.087		
	Provide Information how State provide Satisfactorily fulfilling this requirement **State comments:**				CE-7	7.101		
4.7 AIR TRAFFIC SERVICE APP	ATC ARR CLR See Annex 11, CHAPTER 2. General CHAPTER 6. Air traffic services requirements for communications CHAPTER 7. Air traffic services requirements for information	A11: Ch.:2,6,7 PANS-ATM: Ch.:4,5,6	YES:	NO:	CE-7	7.117		
			N/A:	TBD:	CE-7	7.119		
	Provide Information how State provide Satisfactorily fulfilling this requirement				CE-7	7.135		

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	State comments:							
4.8 AIR TRAFFIC SERVICE APP	ATC APCH CLR See Annex 11, CHAPTER 2. General CHAPTER 6. Air traffic services requirements for communications CHAPTER 7. Air traffic services requirements for information	A11: Ch.:2,6,7 PANS-ATM: Ch.:4,5,6	YES:	NO:	CE-7	7.137		
			N/A:	TBD:	CE-7	7.139		
	Provide Information how State provide Satisfactorily fulfilling this requirement **State comments:**				CE-7	7.177		
4.9 AIR TRAFFIC SERVICE APP	ATC SEP See Annex 11, CHAPTER 2. General CHAPTER 6. Air traffic services requirements for communications CHAPTER 7. Air traffic services requirements for information	A11: Ch.:2,6,7 PANS-ATM: Ch.:4,5,6	YES:	NO:	CE-7	7.183		
			N/A:	TBD:	CE-7	7.185		
	Provide Information how State provide Satisfactorily fulfilling this requirement **State comments:**				CE-7	7.187		
4.10 AIR TRAFFIC SERVICE APP	ATC COORD See Annex 11, CHAPTER 2. General CHAPTER 7. Air traffic services requirements for information	A11: Ch.:7 PANS-ATM: Ch.:6,10,11,16	YES:	NO:	CE-7	7.195		
			N/A:	TBD:	CE-6	7.229		
	Provide Information how State provide Satisfactorily fulfilling this requirement				CE-6	7.253		

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	State comments:							
4.11 AIR TRAFFIC SERVICE ACC	ATC ENR CLR See Annex 11, CHAPTER 2. General CHAPTER 6. Air traffic services requirements for communications CHAPTER 7. Air traffic services requirements for information	A11: Ch.:2,6,7 PANS-ATM: Ch.:4,5	YES:	NO:	CE-6	7.247		
			N/A:	TBD:	CE-6	7.249		
	Provide Information how State provide Satisfactorily fulfilling this requirement **State comments:**				CE-7	7.234		
4.12 AIR TRAFFIC SERVICE ACC	ATC SEP See Annex 11, CHAPTER 2. General CHAPTER 6. Air traffic services requirements for communications CHAPTER 7. Air traffic services requirements for information	A11: Ch.:2,6,7 PANS-ATM: Ch.:4,5	YES:	NO:	CE-7	7.243		
			N/A:	TBD:	CE-7	7.255		
	Provide Information how State provide Satisfactorily fulfilling this requirement **State comments:**							
4.13 AIR TRAFFIC SERVICE ACC	ATC COORD See Annex 11, CHAPTER 2. General CHAPTER 6. Air traffic services requirements for communications CHAPTER 7. Air traffic services requirements for information	A11: Ch.:2,6,7 PANS-ATM: Ch.:6,10,11,16	YES:	NO:				
			N/A:	TBD:				

	Provide Information how State provide Satisfactorily fulfilling this requirement **State comments:**						
4.14 AIR TRAFFIC SERVICE ACC	Flight Information Service (FIS) Traffic Information See Annex 11, CHAPTER 2. General CHAPTER 4. Flight information service CHAPTER 6. Air traffic services requirements for communications CHAPTER 7. Air traffic services requirements for information	A11: Ch.:2,4,6,7 PANS-ATM: Ch.:4,7,9,10	YES:	NO:			
			N/A:	TBD:			
	Provide Information how State provide Satisfactorily fulfilling this requirement **State comments:**						
4.15 AIR TRAFFIC SERVICE ACC	Flight Information Service (FIS) MET information See Annex 11, CHAPTER 2. General CHAPTER 7. Air traffic services requirements for information	A11: Ch.:2,7 PANS-ATM: Ch.:6,10	YES:	NO:			
			N/A:	TBD:			
	Provide Information how State provide Satisfactorily fulfilling this requirement **State comments:**						
4.16 AIR TRAFFIC SERVICE	Flight Information Service (FIS) Operational information See Annex 11, CHAPTER 2. General CHAPTER 7. Air traffic services requirements for information	A11: Ch.:2,7 PANS-ATM: Ch.:6,10	YES:	NO:			
			N/A:	TBD:			

ACC FIS OPR INF							
	Provide Information how State provide Satisfactorily fulfilling this requirement **State comments:**						
4.17 AIR TRAFFIC SERVICE ACC	Flight Information Service (FIS) Coordination See Annex 11, CHAPTER 2. General CHAPTER 7. Air traffic services requirements for information	A11: Ch.:2,7 PANS-ATM: Ch.:6,10	YES:	NO:			
			N/A:	TBD:			
	Provide Information how State provide Satisfactorily fulfilling this requirement **State comments:**						
4.18 Airspace Management Procedure Design	Airspace Management Procedure Design See Annex 11, CHAPTER 2. General CHAPTER 6. Air traffic services requirements for communications Annex 4	A11: Ch.:2,6 and A4: Ch.: 1 PANS-OPS Vol. 2: Part I: Sec.: 2, Ch.: 4	YES:	NO:			
			N/A:	TBD:			
	Provide Information how State provide Satisfactorily fulfilling this requirement **State comments:**						
4.19	Airspace Management Route Structure		YES:	NO:			

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Airspace Management Route Structure	See Annex 11, CHAPTER 2. General CHAPTER 6. Air traffic services requirements for communications Annex 4	A11: Ch.:2,6 and A4: Ch.: 1 PANS-OPS Vol. 2: Part I: Sec.: 2, Ch.: 4	N/A:	TBD:			
	Provide Information how State provide Satisfactorily fulfilling this requirement **State comments:**						
4.20 Airspace Management Segment Airspace	Airspace Management Segment Airspace See Annex 11, CHAPTER 2. General CHAPTER 6. Air traffic services requirements for communications Annex 4	A11: Ch.:2,6 and A4: Ch.: 1 PANS-OPS Vol. 2: Part I: Sec.: 2, Ch.: 4	YES:	NO:			
			N/A:	TBD:			
	Provide Information how State provide Satisfactorily fulfilling this requirement **State comments:**						

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Aerodrome Operation Services (17 services)

AO References

- Annex 14: Aerodromes Volume I — Aerodrome Design and Operations
- Annex 10: Aeronautical Telecommunications Volume I — Radio Navigation Aids
- Doc 9157: Aerodromes Design Manual
- Doc 9184: Airport Planning Manual
- Doc 9137: Airport Services Manual
- Doc 9476: Manual of Surface Movement Guidance and Control Systems (SMGCS)
- Doc 9830: Advanced Surface Movement Guidance and Control Systems (A-SMGCS) Manual
- Doc 9870: Manual on the Prevention of Runway Incursions
- Doc 8071: Manual on Testing of Radio Navigation Aids
- Doc 9774: Manual on Certification of Aerodromes
- PANS-Aerodromes (Doc 9981): Aerodromes

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5. Aerodrome Operation Services Name of international aerodrome: (ICAO COD.)					ICAO USOAP relate PQ		ICAO Evaluation	
To be completed by the State.							**To be completed by ICAO NACC**	
Elements	**Description of Annexes:**	**Reference / Guidance**	**State Observation**		**CE**	**PQ**	**Sat.**	**Def.**
5.1 Runways	Annex 14 Vol 1. 2.3.2 For an aerodrome used by international civil aviation for non-precision approaches, the elevation and geoid undulation of each threshold, the elevation of the runway end and any significant high and low intermediate points along the runway shall be measured to the accuracy of one-half metre or foot and reported to the aeronautical information services authority. 2.3.3 For precision approach runway, the elevation and geoid undulation of the threshold, the elevation of the runway end and the highest elevation of the touchdown zone shall be measured to the accuracy of one-quarter metre or foot and reported to the aeronautical information services authority. 2.5.1 The following data shall be measured or described, as appropriate, for each facility provided on an aerodrome:	A14 Vol 1: Ch.: 2, 3 Doc 9157, Doc 9137: Part 2, Doc 9184: Part 1, Doc 9870, Doc 9774, Doc 9981: Part 1, 2	YES: N/A:	NO: TBD:	CE6 CE6 CE6 CE6 CE7	8.137 8.163 8.191 8.227 8.145 8.147		

	a) runway — true bearing to one-hundredth of a degree, designation number, length, width, displaced threshold location to the nearest metre or foot, slope, surface type, type of runway and, for a precision approach runway category I, the existence of an obstacle free zone when provided; b) strip, runway end safety area, stopway – length, width to the nearest metre or foot, surface type; and arresting system — location (which runway end) and description; f) clearway — length to the nearest metre or foot, ground profile; g) visual aids for approach procedures, marking and lighting of runways, taxiways and aprons, other visual guidance and control aids on taxiways and aprons, including taxi-holding positions and stopbars, and location and type of visual docking guidance systems; j) distances to the nearest metre or foot of localizer and glide path elements comprising an instrument landing system (ILS) or azimuth and elevation antenna of a microwave landing system (MLS) in relation to the associated runway extremities. 2.5.2 The geographical coordinates of each threshold shall be measured and reported to the aeronautical information services authority in degrees, minutes, seconds and hundredths of seconds. 2.6.1 The bearing strength of a pavement shall be determined. 2.6.2 The bearing strength of a pavement intended for aircraft of apron (ramp) mass greater than 5 700 kg shall be made available using the aircraft classification number-pavement classification number (ACN-PCN) method by reporting all of the following information: a) pavement classification number (PCN); b) pavement type for ACN-PCN determination;							

	c) subgrade strength category; d) maximum allowable tire pressure category or maximum allowable tire pressure value; and e) evaluation method. 2.6.3 The PCN reported shall indicate that aircraft with an aircraft classification number (ACN) equal to or less than the reported PCN can operate on the pavement subject to any limitation on the tire pressure or aircraft all-up mass for specified aircraft type(s). 2.6.4 The ACN of an aircraft shall be determined in accordance with the standard procedures associated with the ACN-PCN method. 2.6.5 For the purposes of determining the ACN, the behaviour of a pavement shall be classified as equivalent to a rigid or flexible construction. 2.6.6 Information on pavement type for ACN-PCN determination, subgrade strength category, maximum allowable tire pressure category and evaluation method shall be reported using the following codes: (see Annex 14). 2.8 Declared distances The following distances shall be calculated to the nearest metre or foot for a runway intended for use by international commercial air transport: a) take-off run available; b) take-off distance available; c) accelerate-stop distance available; and d) landing distance available. 2.9.1 Information on the condition of the movement area and the operational status of related facilities shall be provided to the							

	appropriate aeronautical information services units, and similar information of operational significance to the air traffic services units, to enable those units to provide the necessary information to arriving and departing aircraft. The information shall be kept up to date and changes in conditions reported without delay. 2.9.2 The condition of the movement area and the operational status of related facilities shall be monitored, and reports on matters of operational significance affecting aircraft and aerodrome operations shall be provided in order to take appropriate action, particularly in respect of the following: (see Annex 14) 2.9.3 As of 4 November 2021, to facilitate compliance with 2.9.1 and 2.9.2, the following inspections shall be carried out each day: a) for the movement area, at least once where the aerodrome reference code number is 1 or 2 and at least twice where the aerodrome reference code number is 3 or 4; and b) for the runway(s), inspections in addition to a) whenever the runway surface conditions may have changed significantly due to meteorological conditions. 2.9.4 As of 4 November 2021, personnel assessing and reporting runway surface conditions required in 2.9.2 and 2.9.5 shall be trained and competent to perform their duties. 2.9.5 The runway surface condition shall be assessed and reported through a runway condition code (RWYCC) and a description using the following terms: (see Annex 14). 2.9.6 Whenever an operational runway is contaminated, an assessment of the contaminant depth and coverage over each third of the runway shall be made and reported.							

	2.9.7 When friction measurements are used as part of the overall runway surface assessment on compacted snow- or ice-covered surfaces, the friction measuring device shall meet the standard set or agreed by the State. 2.9.9 Information that a runway or portion thereof is slippery wet shall be made available. 2.9.10 Notification shall be given to relevant aerodrome users when the friction level of a paved runway or portion thereof is less than the minimum friction level specified by the State in accordance with 10.2.3. 3.1.22 The surface of a runway shall be constructed without irregularities that would impair the runway surface friction characteristics or otherwise adversely affect the take-off or landing of an aeroplane. 3.1.23 A paved runway shall be so constructed or resurfaced as to provide surface friction characteristics at or above the minimum friction level set by the State. 3.3.1 Where the end of a runway is not served by a taxiway or a taxiway turnaround and where the code letter is D, E or F, a runway turn pad shall be provided to facilitate a 180-degree turn of aeroplanes. 3.3.6 The design of a runway turn pad shall be such that, when the cockpit of the aeroplane for which the turn pad is intended remains over the turn pad marking, the clearance distance between any wheel of the aeroplane landing gear and the edge of the turn pad shall be not less than that given by the following tabulation: (see table on pag 3-9 of Annex 14).							

	3.3.9 The surface of a runway turn pad shall not have surface irregularities that may cause damage to an aeroplane using the turn pad. 3.4.1 A runway and any associated stopways shall be included in a strip. 3.4.2 A strip shall extend before the threshold and beyond the end of the runway or stopway for a distance of at least: — 60 m where the code number is 2, 3 or 4; — 60 m where the code number is 1 and the runway is an instrument one; and — 30 m where the code number is 1 and the runway is a non-instrument one. 3.4.3 A strip including a precision approach runway shall, wherever practicable, extend laterally to a distance of at least: — 140 m where the code number is 3 or 4; and — 70 m where the code number is 1 or 2; on each side of the centre line of the runway and its extended centre line throughout the length of the strip. 3.4.7 No fixed object, other than visual aids required for air navigation or those required for aircraft safety purposes and which must be sited on the runway strip, and satisfying the relevant frangibility requirement in Chapter 5, shall be permitted on any part of a runway strip of a precision approach runway delineated by the lower edges of the inner transitional surfaces. No mobile object shall be permitted on this part of the runway strip during the use of the runway for landing or take-off.							

	3.4.10 The surface of that portion of a strip that abuts a runway, shoulder or stopway shall be flush with the surface of the runway, shoulder or stopway. 3.5.1 A runway end safety area shall be provided at each end of a runway strip where: — the code number is 3 or 4; and — the code number is 1 or 2 and the runway is an instrument one. 3.5.3 A runway end safety area shall extend from the end of a runway strip to a distance of at least 90 m where: — the code number is 3 or 4; and — the code number is 1 or 2 and the runway is an instrument one. If an arresting system is installed, the above length may be reduced, based on the design specification of the system, subject to acceptance by the State. 3.5.5 The width of a runway end safety area shall be at least twice that of the associated runway. 3.7.1 A stopway shall have the same width as the runway with which it is associated. 3.7.4 The surface of a paved stopway shall be so constructed or resurfaced as to provide surface friction characteristics at or above those of the associated runway.							
	Provide Information how State provide Satisfactorily fulfilling this requirement **State comments:**							

5.2 Taxiways	**Annex 14 Vol 1.** 2.5.1 The following data shall be measured or described, as appropriate, for each facility provided on an aerodrome: c) taxiway — designation, width, surface type; g) visual aids for approach procedures, marking and lighting of runways, taxiways and aprons, other visual guidance and control aids on taxiways and aprons, including taxi-holding positions and stopbars, and location and type of visual docking guidance systems; i) location and designation of standard taxi-routes; 2.5.3 The geographical coordinates of appropriate taxiway centre line points shall be measured and reported to the aeronautical information services authority in degrees, minutes, seconds and hundredths of seconds. 2.6.1 The bearing strength of a pavement shall be determined. 2.6.2 The bearing strength of a pavement intended for aircraft of apron (ramp) mass greater than 5 700 kg shall be made available using the aircraft classification number-pavement classification number (ACN-PCN) method by reporting all of the following information: a) pavement classification number (PCN); b) pavement type for ACN-PCN determination; c) subgrade strength category; d) maximum allowable tire pressure category or maximum allowable tire pressure value; and e) evaluation method. 2.6.3 The PCN reported shall indicate that aircraft with an aircraft classification number (ACN) equal to or less than the reported PCN can	A14 Vol 1: Ch.: 2, 3 Doc 9157, Doc 9137: Part 2, Doc 9184: Part 1, Doc 9870, Doc 9774, Doc 9981: Part 1, 2	YES: N/A:	NO: TBD:	CE6 -	8.227		

	operate on the pavement subject to any limitation on the tire pressure or aircraft all-up mass for specified aircraft type(s). 2.6.4 The ACN of an aircraft shall be determined in accordance with the standard procedures associated with the ACN-PCN method. 2.6.5 For the purposes of determining the ACN, the behaviour of a pavement shall be classified as equivalent to a rigid or flexible construction. 2.6.6 Information on pavement type for ACN-PCN determination, subgrade strength category, maximum allowable tire pressure category and evaluation method shall be reported using the following codes: (see Annex 14). 2.6.8 The bearing strength of a pavement intended for aircraft of apron (ramp) mass equal to or less than 5 700 kg shall be made available by reporting the following information: a) maximum allowable aircraft mass; and b) maximum allowable tire pressure. 2.9.1 Information on the condition of the movement area and the operational status of related facilities shall be provided to the appropriate aeronautical information services units, and similar information of operational significance to the air traffic services units, to enable those units to provide the necessary information to arriving and departing aircraft. The information shall be kept up to date and changes in conditions reported without delay. 2.9.2 The condition of the movement area and the operational status of related facilities shall be monitored, and reports on matters of operational significance affecting aircraft and aerodrome operations							

	shall be provided in order to take appropriate action, particularly in respect of the following: (see Annex 14) 2.9.3 As of 4 November 2021, to facilitate compliance with 2.9.1 and 2.9.2, the following inspections shall be carried out each day: a) for the movement area, at least once where the aerodrome reference code number is 1 or 2 and at least twice where the aerodrome reference code number is 3 or 4; 3.9.3 The design of a taxiway shall be such that, when the cockpit of the aeroplane for which the taxiway is intended remains over the taxiway centre line markings, the clearance distance between the outer main wheel of the aeroplane and the edge of the taxiway shall be not less than that given by the following tabulation: (see table pag 3-19 of Annex 14) 3.9.19 The width of that portion of a taxiway bridge capable of supporting aeroplanes, as measured perpendicularly to the taxiway centre line, shall not be less than the width of the graded area of the strip provided for that taxiway, unless a proven method of lateral restraint is provided which shall not be hazardous for aeroplanes for which the taxiway is intended. 3.11.1 A taxiway, other than an aircraft stand taxilane, shall be included in a strip. 3.12.2 A runway-holding position or positions shall be established: a) on the taxiway, at the intersection of a taxiway and a runway; and b) at an intersection of a runway with another runway when the former runway is part of a standard taxi-route. 3.12.3 A runway-holding position shall be established on a taxiway if the location or alignment of the taxiway is such that a taxiing aircraft							

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	or vehicle can infringe an obstacle limitation surface or interfere with the operation of radio navigation aids. 3.12.5 A road-holding position shall be established at an intersection of a road with a runway. 3.12.6 The distance between a holding bay, runway-holding position established at a taxiway/runway intersection or road-holding position and the centre line of a runway shall be in accordance with Table 3-2 and, in the case of a precision approach runway, such that a holding aircraft or vehicle will not interfere with the operation of radio navigation aids or penetrate the inner transitional surface. 3.12.9 The location of a runway-holding position established in accordance with 3.12.3 shall be such that a holding aircraft or vehicle will not infringe the obstacle free zone, approach surface, take-off climb surface or ILS/MLS critical/ sensitive area or interfere with the operation of radio navigation aids.							
	Provide Information how State provide Satisfactorily fulfilling this requirement **State comments:**							
5.3 Aerodrome Design and Certification - Aprons	**Annex 14 Vol 1.** 2.5.1 The following data shall be measured or described, as appropriate, for each facility provided on an aerodrome: d) apron — surface type, aircraft stands; g) visual aids for approach procedures, marking and lighting of runways, taxiways and aprons, other visual guidance and control aids	A14 Vol 1: Ch.: 2, 3 Doc 9157, Doc 9137: Part 2, Doc 9184:	YES: N/A:	NO: TBD:	CE6	8.227		

	on taxiways and aprons, including taxi-holding positions and stopbars, and location and type of visual docking guidance systems; 2.5.4 The geographical coordinates of each aircraft stand shall be measured and reported to the aeronautical information services authority in degrees, minutes, seconds and hundredths of seconds. 2.6.1 The bearing strength of a pavement shall be determined. 2.6.2 The bearing strength of a pavement intended for aircraft of apron (ramp) mass greater than 5 700 kg shall be made available using the aircraft classification number-pavement classification number (ACN-PCN) method by reporting all of the following information: a) pavement classification number (PCN); b) pavement type for ACN-PCN determination; c) subgrade strength category; d) maximum allowable tire pressure category or maximum allowable tire pressure value; and e) evaluation method. 2.6.3 The PCN reported shall indicate that aircraft with an aircraft classification number (ACN) equal to or less than the reported PCN can operate on the pavement subject to any limitation on the tire pressure or aircraft all-up mass for specified aircraft type(s). 2.6.4 The ACN of an aircraft shall be determined in accordance with the standard procedures associated with the ACN-PCN method. 2.6.5 For the purposes of determining the ACN, the behaviour of a pavement shall be classified as equivalent to a rigid or flexible construction. 2.6.6 Information on pavement type for ACN-PCN determination, subgrade strength category, maximum allowable tire pressure	Part 1, Doc 9774, Doc 9981: Part 1, 2						

	category and evaluation method shall be reported using the following codes: (see Annex 14). 2.6.8 The bearing strength of a pavement intended for aircraft of apron (ramp) mass equal to or less than 5 700 kg shall be made available by reporting the following information: a) maximum allowable aircraft mass; and b) maximum allowable tire pressure. 2.9.1 Information on the condition of the movement area and the operational status of related facilities shall be provided to the appropriate aeronautical information services units, and similar information of operational significance to the air traffic services units, to enable those units to provide the necessary information to arriving and departing aircraft. The information shall be kept up to date and changes in conditions reported without delay. 2.9.2 The condition of the movement area and the operational status of related facilities shall be monitored, and reports on matters of operational significance affecting aircraft and aerodrome operations shall be provided in order to take appropriate action, particularly in respect of the following: (see Annex 14) 2.9.3 As of 4 November 2021, to facilitate compliance with 2.9.1 and 2.9.2, the following inspections shall be carried out each day: a) for the movement area, at least once where the aerodrome reference code number is 1 or 2 and at least twice where the aerodrome reference code number is 3 or 4; 3.14.1 An isolated aircraft parking position shall be designated or the aerodrome control tower shall be advised of an area or areas suitable for the parking of an aircraft which is known or believed to be the							

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	subject of unlawful interference, or which for other reasons needs isolation from normal aerodrome activities.							
	Provide Information how State provide Satisfactorily fulfilling this requirement **State comments:**							
5.4 Aerodrome Design and Certification - Visual Aids	**Annex 14 Vol 1.** 2.5.1 The following data shall be measured or described, as appropriate, for each facility provided on an aerodrome: g) visual aids for approach procedures, marking and lighting of runways, taxiways and aprons, other visual guidance and control aids on taxiways and aprons, including taxi-holding positions and stopbars, and location and type of visual docking guidance systems; 2.12 Visual approach slope indicator systems The following information concerning a visual approach slope indicator system installation shall be made available: a) associated runway designation number; b) type of system according to 5.3.5.2. For an AT-VASIS, PAPI or APAPI installation, the side of the runway on which the lights are installed, i.e. left or right, shall be given; c) where the axis of the system is not parallel to the runway centre line, the angle of displacement and the direction of displacement, i.e. left or right, shall be indicated;	A14 Vol 1: Ch.: 2, 5, 6, 7 Doc 9157: Part 4, 5, 6, Doc 9184: Part 1, Doc 9476, Doc 9830, Doc 9870, Doc 9774, Doc 9981: Part 1	YES: N/A:	NO: TBD:	CE6 CE6 CE6 CE6 CE6 CE6 CE7 CE6 CE6	8.157 8.179 8.191 8.201 8.211 8.215 8.223 8.235 8.239		

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	d) nominal approach slope angle(s). For a T-VASIS or an AT-VASIS this shall be angle Θ according to the formula in Figure 5-18 and for a PAPI and an APAPI this shall be angle (B + C) ÷ 2 and (A + B) ÷ 2, respectively as in Figure 5-20; and e) minimum eye height(s) over the threshold of the on-slope signal(s). For a T-VASIS or an AT-VASIS this shall be the lowest height at which only the wing bar(s) are visible; however, the additional heights at which the wing bar(s) plus one, two or three fly-down light units come into view may also be reported if such information would be of benefit to aircraft using the approach. For a PAPI this shall be the setting angle of the third unit from the runway minus 2', i.e. angle B minus 2', and for an APAPI this shall be the setting angle of the unit farther from the runway minus 2', i.e. angle A minus 2'. 5.1 Indicators and signalling devices 5.1.1 Wind direction indicator 5.1.2 Landing direction indicator 5.1.3 Signalling lamp 5.1.4 Signal panels and signal area 5.2 Markings 5.2.1 General 5.2.2 Runway designation marking 5.2.3 Runway centre line marking 5.2.4 Threshold marking 5.2.5 Aiming point marking 5.2.6 Touchdown zone marking 5.2.7 Runway side stripe marking				CE6 CE6 CE7	8.245 8.259 8.279		

	5.2.8 Taxiway centre line marking 5.2.9 Runway turn pad marking 5.2.10 Runway-holding position marking 5.2.11 Intermediate holding position marking 5.2.12 VOR aerodrome checkpoint marking 5.2.13 Aircraft stand marking 5.2.14 Apron safety lines 5.2.15 Road-holding position marking 5.2.16 Mandatory instruction marking 5.2.17 Information marking 5.3 Lights 5.3.1 General 5.3.2 Emergency lighting 5.3.3 Aeronautical beacons 5.3.4 Approach lighting systems 5.3.5 Visual approach slope indicator systems 5.3.6 Circling guidance lights 5.3.7 Runway lead-in lighting systems 5.3.8 Runway threshold identification lights 5.3.9 Runway edge lights 5.3.10 Runway threshold and wing bar lights 5.3.11 Runway end lights 5.3.12 Runway centre line lights 5.3.13 Runway touchdown zone lights 5.3.14 Simple touchdown zone lights 5.3.15 Rapid exit taxiway indicator lights 5.3.16 Stopway lights							

	5.3.17 Taxiway centre line lights 5.3.18 Taxiway edge lights 5.3.19 Runway turn pad lights 5.3.20 Stop bars 5.3.21 Intermediate holding position lights 5.3.22 De-icing/anti-icing facility exit lights 5.3.23 Runway guard lights 5.3.24 Apron floodlighting 5.3.25 Visual docking guidance system 5.3.26 Advanced visual docking guidance system 5.3.27 Aircraft stand manoeuvring guidance lights 5.3.28 Road-holding position light 5.3.29 No-entry bar 5.3.30 Runway status lights 5.4 Signs 5.4.1 General 5.4.2 Mandatory instruction signs 5.4.3 Information signs 5.4.4 VOR aerodrome checkpoint sign 5.4.5 Aerodrome identification sign 5.4.6 Aircraft stand identification signs 5.4.7 Road-holding position sign 5.5 Markers 5.5.1 General 5.5.2 Unpaved runway edge markers 5.5.3 Stopway edge markers 5.5.4 Edge markers for snow-covered runways							

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	5.5.5 Taxiway edge markers 5.5.6 Taxiway centre line markers 5.5.7 Unpaved taxiway edge markers 5.5.8 Boundary markers 6.1 Objects to be marked and/or lighted 6.2 Marking and/or lighting of objects 7.1 Closed runways and taxiways, or parts thereof 7.2 Non-load-bearing surfaces 7.3 Pre-threshold area 7.4 Unserviceable areas							
	Comments:							
5.5 Aerodrome Design and Certification - Radio Navigation Aids	**<u>Annex 10 Vol 1: Ch 03.</u>** **3.1 Specification for ILS** 3.1.2 Basic requirements 3.1.3 VHF localizer and associated monitor 3.1.4 Interference immunity performance for ILS localizer receiving systems 3.1.5 UHF glide path equipment and associated monitor 3.1.6 Localizer and glide path frequency pairing 3.1.7 VHF marker beacons **3.2 Specification for precision approach radar system** **3.3 Specification for VHF omnidirectional radio range (VOR)** 3.3.1 General 3.3.2 Radio frequency 3.3.3 Polarization and pattern accuracy 3.3.4 Coverage	A10 Vol 1: Ch.: 3 Doc 9157: Part 6, Doc 8071, Doc 9774, Doc 9981: Part 1	YES: N/A:	NO: TBD:				

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	3.3.5 Modulations of navigation signals 3.3.6 Voice and identification 3.3.7 Monitoring 3.3.8 Interference immunity performance for VOR receiving systems **3.4 Specification for non-directional radio beacon (NDB)** 3.4.2 Coverage 3.4.3 Limitations in radiated power 3.4.4 Radio frequencies 3.4.5 Identification 3.4.6 Characteristics of emissions 3.4.8 Monitoring **3.5 Specification for UHF distance measuring equipment (DME)** 3.5.2 General 3.5.3 System characteristics 3.5.4 Detailed technical characteristics of transponder and associated monitor 3.5.5 Technical characteristics of interrogator **3.6 Specification for en-route VHF marker beacons (75 MHz)** **3.7 Requirements for the Global Navigation Satellite System (GNSS)** **3.9 System characteristics of airborne ADF receiving systems** **3.11 Microwave landing system (MLS) characteristics**							
	Comments:							
5.6 Aerodrome Design and Certificatio	**<u>Annex 14 Vol 1.</u>** 8.1 Electrical power supply systems for air navigation facilities 8.2 System design 8.3 Monitoring	A14 Vol 1: Ch.: 8 Doc 9157: Part 5, 6,	YES: N/A:	NO: TBD:	CE6	8.173		

n - Electrical Systems		Doc 9774, Doc 9981: Part 1			CE6 CE6 CE6 CE6 CE6 CE6	8.175 8.177 8.179 8.201 8.235 8.239		
	Provide Information how State provide Satisfactorily fulfilling this requirement **State comments:**							
5.7 Aerodrome Design and Certificatio	**Annex 14 Vol 1.** 1.5.1 Recommendation.— A master plan containing detailed plans for the development of aerodrome infrastructure should be established for aerodromes deemed relevant by States. 1.5.2 Recommendation.— The master plan should:	A14 Vol 1: Ch.: 1 Doc 9137: Part 9, Doc 9184:	YES: N/A:	NO: TBD:				

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n - Terminals	a) contain a schedule of priorities including a phased implementation plan; and b) be reviewed periodically to take into account current and future aerodrome traffic. 1.5.3 Recommendation.— Aerodrome stakeholders, particularly aircraft operators, should be consulted in order to facilitate the master planning process using a consultative and collaborative approach. 1.5.4 Architectural and infrastructure-related requirements for the optimum implementation of international civil aviation security measures shall be integrated into the design and construction of new facilities and alterations to existing facilities at an aerodrome.	Part 1, Doc 9774, Doc 9981: Part 1						
	Provide Information how State provide Satisfactorily fulfilling this requirement **State comments:**							
5.8 Aerodrome Design and Certification - Fencing	**Annex 14 Vol 1.** 9.10.1 A fence or other suitable barrier shall be provided on an aerodrome to prevent the entrance to the movement area of animals large enough to be a hazard to aircraft. 9.10.2 A fence or other suitable barrier shall be provided on an aerodrome to deter the inadvertent or premeditated access of an unauthorized person onto a non-public area of the aerodrome. 9.10.3 Suitable means of protection shall be provided to deter the inadvertent or premeditated access of unauthorized persons into ground installations and facilities essential for the safety of civil aviation located off the aerodrome.	A14 Vol 1: Ch.: 9 Doc 9157: Part 6, Doc 9774, Doc 9981: Part 1	YES: N/A:	NO: TBD:	CE6	8.133		

	9.10.4 The fence or barrier shall be located so as to separate the movement area and other facilities or zones on the aerodrome vital to the safe operation of aircraft from areas open to public access.							
	Provide Information how State provide Satisfactorily fulfilling this requirement **State comments:**							
5.9 Aerodrome Operation and Certification - Emergency Planning	**Annex 14 Vol 1.** 9.1.1 An aerodrome emergency plan shall be established at an aerodrome, commensurate with the aircraft operations and other activities conducted at the aerodrome. 9.1.2 The aerodrome emergency plan shall provide for the coordination of the actions to be taken in an emergency occurring at an aerodrome or in its vicinity. 9.1.3 The plan shall coordinate the response or participation of all existing agencies which, in the opinion of the appropriate authority, could be of assistance in responding to an emergency. 9.1.5 Recommendation.— The aerodrome emergency plan document should include at least the following: a) types of emergencies planned for; b) agencies involved in the plan; c) responsibility and role of each agency, the emergency operations centre and the command post, for each type of emergency; d) information on names and telephone numbers of offices or people to be contacted in the case of a particular emergency; and	A14 Vol 1: Ch.: 9 Doc 9137: Part 7, 8, Doc 9774, Doc 9981: Part 1	YES: N/A:	NO: TBD:	CE6 CE7 CE6 CE6 CE6	8.291 8.293 8.297 8.299 8.313		

	e) a grid map of the aerodrome and its immediate vicinity. 9.1.6 The plan shall observe human factors principles to ensure optimum response by all existing agencies participating in emergency operations. 9.1.7 Recommendation.— A fixed emergency operations centre and a mobile command post should be available for use during an emergency. 9.1.8 Recommendation.— The emergency operations centre should be a part of the aerodrome facilities and should be responsible for the overall coordination and general direction of the response to an emergency. 9.1.9 Recommendation.— The command post should be a facility capable of being moved rapidly to the site of an emergency, when required, and should undertake the local coordination of those agencies responding to the emergency. 9.1.10 Recommendation.— A person should be assigned to assume control of the emergency operations centre and, when appropriate, another person the command post. 9.1.11 Recommendation.— Adequate communication systems linking the command post and the emergency operations centre with each other and with the participating agencies should be provided in accordance with the plan and consistent with the particular requirements of the aerodrome. 9.1.12 The plan shall contain procedures for periodic testing of the adequacy of the plan and for reviewing the results in order to improve its effectiveness. 9.1.13 The plan shall be tested by conducting:							

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	a) a full-scale aerodrome emergency exercise at intervals not exceeding two years and partial emergency exercises in the intervening year to ensure that any deficiencies found during the full-scale aerodrome emergency exercise have been corrected; or b) a series of modular tests commencing in the first year and concluding in a full-scale aerodrome emergency exercise at intervals not exceeding three years; and reviewed thereafter, or after an actual emergency, so as to correct any deficiency found during such exercises or actual emergency. 9.1.14 The plan shall include the ready availability of, and coordination with, appropriate specialist rescue services to be able to respond to emergencies where an aerodrome is located close to water and/or swampy areas and where a significant portion of approach or departure operations takes place over these areas.							
	Provide Information how State provide Satisfactorily fulfilling this requirement **State comments:**							
5.10 Aerodrome Operation and Certification - Rescue	**Annex 14 Vol 1.** 2.11.1 Information concerning the level of protection provided at an aerodrome for aircraft rescue and firefighting purposes shall be made available. 2.11.3 Changes in the level of protection normally available at an aerodrome for rescue and firefighting shall be notified to the appropriate air traffic services units and aeronautical information	A14 Vol 1: Ch.: 2, 9 Doc 9137: Part 1, 8, Doc 9774, Doc 9981: Part 1	YES: N/A:	NO: TBD:	CE6 CE7 CE6 CE7 CE7	8.153 8.155 8.297 8.301 8.305		

and Firefighting	services units to enable those units to provide the necessary information to arriving and departing aircraft. When such a change has been corrected, the above units shall be advised accordingly. 9.2.1 Rescue and firefighting equipment and services shall be provided at an aerodrome when serving commercial air transport operations. 9.2.2 Where an aerodrome is located close to water/swampy areas, or difficult terrain, and where a significant portion of approach or departure operations takes place over these areas, specialist rescue services and firefighting equipment appropriate to the hazard and risk shall be available. 9.2.3 The level of protection provided at an aerodrome for rescue and firefighting shall be appropriate to the aerodrome category determined using the principles in 9.2.5 and 9.2.6, except that, where the number of movements of the aeroplanes in the highest category normally using the aerodrome is less than 700 in the busiest consecutive three months, the level of protection provided shall be not less than one category below the determined category. 9.2.4 Recommendation.— The level of protection provided at an aerodrome for rescue and firefighting should be equal to the aerodrome category determined using the principles in 9.2.5 and 9.2.6. 9.2.5 The aerodrome category shall be determined from Table 9-1 and shall be based on the longest aeroplanes normally using the aerodrome and their fuselage width. 9.2.6 If, after selecting the category appropriate to the longest aeroplane's overall length, that aeroplane's fuselage width is greater than the maximum width in Table 9-1, column 3, for that category,				CE7 CE6 CE7 CE7 CE7 CE7	8.307 8.309 8.311 8.315 8.317 8.319		

	then the category for that 8aeroplane shall actually be one category higher. 9.2.7 During anticipated periods of reduced activity, the level of protection available shall be no less than that needed for the highest category of aeroplane planned to use the aerodrome during that time irrespective of the number of movements. 9.2.11 The amounts of water for foam production and the complementary agents to be provided on the rescue and firefighting vehicles shall be in accordance with the aerodrome category determined under 9.2.3, 9.2.4, 9.2.5, 9.2.6 and Table 9-2, except that for aerodrome categories 1 and 2 up to 100 per cent of the water may be substituted with complementary agent. For the purpose of agent substitution, 1 kg of complementary agent shall be taken as equivalent to 1.0 L of water for production of a foam meeting performance level A. 9.2.12 At aerodromes where operations by aeroplanes larger than the average size in a given category are planned, the quantities of water shall be recalculated and the amount of water for foam production and the discharge rates for foam solution shall be increased accordingly. 9.2.13 The quantity of foam concentrates separately provided on vehicles for foam production shall be in proportion to the quantity of water provided and the foam concentrate selected. 9.2.17 The discharge rate of the foam solution shall not be less than the rates shown in Table 9-2. 9.2.18 The complementary agents shall comply with the appropriate specifications of the International Organization for Standardization (ISO).*							

	9.2.25 Recommendation.— Rescue equipment commensurate with the level of aircraft operations should be provided on the rescue and firefighting vehicle(s). 9.2.26 The operational objective of the rescue and firefighting service shall be to achieve a response time not exceeding three minutes to any point of each operational runway, in optimum visibility and surface conditions. 9.2.30 Any vehicles, other than the first responding vehicle(s), required to deliver the amounts of extinguishing agents specified in Table 9-2 shall ensure continuous agent application and shall arrive no more than four minutes from the initial call. 9.2.36 Recommendation.— All rescue and firefighting vehicles should normally be housed in a fire station. Satellite fire stations should be provided whenever the response time cannot be achieved from a single fire station. 9.2.37 Recommendation.— The fire station should be located so that the access for rescue and firefighting vehicles into the runway area is direct and clear, requiring a minimum number of turns. 9.2.38 Recommendation.— A discrete communication system should be provided linking a fire station with the control tower, any other fire station on the aerodrome and the rescue and firefighting vehicles. 9.2.39 Recommendation.— An alerting system for rescue and firefighting personnel, capable of being operated from that station, should be provided at a fire station, any other fire station on the aerodrome and the aerodrome control tower.							

	9.2.40 Recommendation.— The minimum number of rescue and firefighting vehicles provided at an aerodrome should be in accordance with the following tabulation: (see Annex 14) 9.2.41 All rescue and firefighting personnel shall be properly trained to perform their duties in an efficient manner and shall participate in live fire drills commensurate with the types of aircraft and type of rescue and firefighting equipment in use at the aerodrome, including pressure-fed fuel fires. 9.2.42 The rescue and firefighting personnel training programme shall include training in human performance, including team coordination. 9.2.45 All responding rescue and firefighting personnel shall be provided with protective clothing and respiratory equipment to enable them to perform their duties in an effective manner.							
	Provide Information how State provide Satisfactorily fulfilling this requirement **State comments:**							
5.11 Aerodrome Operation and Certification - Disable Aircraft Removal	**Annex 14 Vol 1.** 2.10.1 Recommendation.— *The telephone/telex number(s) of the office of the aerodrome coordinator of operations for the removal of an aircraft disabled on or adjacent to the movement area should be made available, on request, to aircraft operators.* 2.10.2 Recommendation.— *Information concerning the capability to remove an aircraft disabled on or adjacent to the movement area should be made available.*	A14 Vol 1: Ch.: 2, 9 Doc 9137: Part 5, 8, 9, Doc 9774, Doc 9981: Part 1	YES: N/A:	NO: TBD:	CE6 CE6	8.151 8.321		

	9.3.1 Recommendation.— A plan for the removal of an aircraft disabled on, or adjacent to, the movement area should be established for an aerodrome, and a coordinator designated to implement the plan, when necessary. 9.3.2 Recommendation.— The disabled aircraft removal plan should be based on the characteristics of the aircraft that may normally be expected to operate at the aerodrome, and include among other things: a) a list of equipment and personnel on, or in the vicinity of, the aerodrome which would be available for such purpose; and b) arrangements for the rapid receipt of aircraft recovery equipment kits available from other aerodromes.							
	Provide Information how State provide Satisfactorily fulfilling this requirement **State comments:**							
5.12 Aerodrome Operation and Certification - Wildlife Strike Hazard Reduction	**Annex 14 Vol 1.** 9.4.1 The wildlife strike hazard on, or in the vicinity of, an aerodrome shall be assessed through: a) the establishment of a national procedure for recording and reporting wildlife strikes to aircraft; b) the collection of information from aircraft operators, aerodrome personnel and other sources on the presence of wildlife on or around the aerodrome constituting a potential hazard to aircraft operations; and	A14 Vol 1: Ch.: 9 Doc 9137: Part 3, 8, Doc 9774, Doc 9981: Part 1	YES: N/A:	NO: TBD:	CE6	8.331		

	c) an ongoing evaluation of the wildlife hazard by competent personnel. 9.4.2 Wildlife strike reports shall be collected and forwarded to ICAO for inclusion in the ICAO Bird Strike Information System (IBIS) database. 9.4.3 Action shall be taken to decrease the risk to aircraft operations by adopting measures to minimize the likelihood of collisions between wildlife and aircraft. 9.4.4 The appropriate authority shall take action to eliminate or to prevent the establishment of garbage disposal dumps or any other source which may attract wildlife to the aerodrome, or its vicinity, unless an appropriate wildlife assessment indicates that they are unlikely to create conditions conducive to a wildlife hazard problem. Where the elimination of existing sites is not possible, the appropriate authority shall ensure that any risk to aircraft posed by these sites is assessed and reduced to as low as reasonably practicable. 9.4.5 Recommendation.— States should give due consideration to aviation safety concerns related to land developments in the vicinity of the aerodrome that may attract wildlife.							
	Provide Information how State provide Satisfactorily fulfilling this requirement **State comments:**							
5.13 Aerodrome Operation and	**Annex 14 Vol 1.** 2.9.1 Information on the condition of the movement area and the operational status of related facilities shall be provided to the appropriate aeronautical information services units, and similar	A14 Vol 1: Ch.: 2, 9 Doc 9137: Part 8,	YES: N/A:	NO: TBD:	CE6 CE6 CE7 CE7	8.087 8.111 8.113 8.115		

Certification - Operational Area Management	information of operational significance to the air traffic services units, to enable those units to provide the necessary information to arriving and departing aircraft. The information shall be kept up to date and changes in conditions reported without delay. 2.9.2 The condition of the movement area and the operational status of related facilities shall be monitored, and reports on matters of operational significance affecting aircraft and aerodrome operations shall be provided in order to take appropriate action, particularly in respect of the following: a) construction or maintenance work; b) rough or broken surfaces on a runway, a taxiway or an apron; c) water, snow, slush, ice, or frost on a runway, a taxiway or an apron; d) anti-icing or de-icing liquid chemicals or other contaminants on a runway, taxiway or apron; e) snow banks or drifts adjacent to a runway, a taxiway or an apron; f) other temporary hazards, including parked aircraft; g) failure or irregular operation of part or all of the aerodrome visual aids; and h) failure of the normal or secondary power supply. 2.9.3 To facilitate compliance with 2.9.1 and 2.9.2, the following inspections shall be carried out each day: a) for the movement area, at least once where the aerodrome reference code number is 1 or 2 and at least twice where the aerodrome reference code number is 3 or 4; and b) for the runway(s), inspections in addition to a) whenever the runway surface conditions may have changed significantly due to meteorological conditions.	Doc 9870, Doc 9774, Doc 9981: Part 1			CE6 CE7 CE6 CE6 CE7 CE6 CE6 CE6 CE6 CE6 CE6 CE6 CE6 CE7 CE6 CE6	8.133 8.143 8.144 8.145 8.147 8.157 8.179 8.209 8.215 8.221 8.225 8.287 8.341 8.345 8.347		

	2.9.4 Personnel assessing and reporting runway surface conditions required in 2.9.2 and 2.9.5 shall be trained and competent to perform their duties. 2.13.1 To ensure that aeronautical information services units obtain information to enable them to provide up-to-date pre-flight information and to meet the need for in-flight information, arrangements shall be made between aeronautical information services and aerodrome authorities responsible for aerodrome services to report to the responsible aeronautical information services unit, with a minimum of delay: a) information on the status of certification of aerodromes and aerodrome conditions (ref. 1.4, 2.9, 2.10, 2.11 and 2.12); b) the operational status of associated facilities, services and navigation aids within their area of responsibility; c) any other information considered to be of operational significance. 2.13.2 Before introducing changes to the air navigation system, due account shall be taken by the services responsible for such changes of the time needed by aeronautical information services for the preparation, production and issue of relevant material for promulgation. To ensure timely provision of the information to aeronautical information services, close coordination between those services concerned is therefore required. 2.13.3 Of a particular importance are changes to aeronautical information that affect charts and/or computer-based navigation systems which qualify to be notified by the aeronautical information regulation and control (AIRAC) system, as specified in Annex 15, Chapter 6. The predetermined, internationally agreed AIRAC effective							

	dates shall be observed by the responsible aerodrome services when submitting the raw information/data to aeronautical information services. 9.5.3 An apron management service shall be provided with radiotelephony communications facilities. 9.5.4 Where low visibility procedures are in effect, persons and vehicles operating on an apron shall be restricted to the essential minimum. 9.5.5 An emergency vehicle responding to an emergency shall be given priority over all other surface movement traffic. 9.5.6 A vehicle operating on an apron shall: a) give way to an emergency vehicle; an aircraft taxiing, about to taxi, or being pushed or towed; and b) give way to other vehicles in accordance with local regulations. 9.5.7 An aircraft stand shall be visually monitored to ensure that the recommended clearance distances are provided to an aircraft using the stand. 9.7.1 A vehicle shall be operated: a) on a manoeuvring area only as authorized by the aerodrome control tower; and b) on an apron only as authorized by the appropriate designated authority. 9.7.2 The driver of a vehicle on the movement area shall comply with all mandatory instructions conveyed by markings and signs unless otherwise authorized by: a) the aerodrome control tower when on the manoeuvring area; or b) the appropriate designated authority when on the apron.							

	9.7.3 The driver of a vehicle on the movement area shall comply with all mandatory instructions conveyed by lights. 9.7.4 The driver of a vehicle on the movement area shall be appropriately trained for the tasks to be performed and shall comply with the instructions issued by: a) the aerodrome control tower, when on the manoeuvring area; and b) the appropriate designated authority, when on the apron. 9.7.5 The driver of a radio-equipped vehicle shall establish satisfactory two-way radio communication with the aerodrome control tower before entering the manoeuvring area and with the appropriate designated authority before entering the apron. The driver shall maintain a continuous listening watch on the assigned frequency when on the movement area. 9.8.1 A surface movement guidance and control system (SMGCS) shall be provided at an aerodrome. 9.8.6 Where an SMGCS is provided by selective switching of stop bars and taxiway centre line lights, the following requirements shall be met: a) taxiway routes which are indicated by illuminated taxiway centre line lights shall be capable of being terminated by an illuminated stop bar; b) the control circuits shall be so arranged that when a stop bar located ahead of an aircraft is illuminated, the appropriate section of taxiway centre line lights beyond it is suppressed; and c) the taxiway centre line lights are activated ahead of an aircraft when the stop bar is suppressed. 9.9.1 Unless its function requires it to be there for air navigation or for aircraft safety purposes, no equipment or installation shall be:							

	a) on a runway strip, a runway end safety area, a taxiway strip or within the distances specified in Table 3-1, column 11, if it would endanger an aircraft; or b) on a clearway if it would endanger an aircraft in the air. 9.9.2 Any equipment or installation required for air navigation or for aircraft safety purposes which must be located: a) on that portion of a runway strip within: 1) 75 m of the runway centre line where the code number is 3 or 4; or 2) 45 m of the runway centre line where the code number is 1 or 2; or b) on a runway end safety area, a taxiway strip or within the distances specified in Table 3-1; or c) on a clearway and which would endanger an aircraft in the air; shall be frangible and mounted as low as possible. 9.9.4 Unless its function requires it to be there for air navigation or for aircraft safety purposes, no equipment or installation shall be located within 240 m from the end of the strip and within: a) 60 m of the extended centre line where the code number is 3 or 4; or b) 45 m of the extended centre line where the code number is 1 or 2; of a precision approach runway category I, II or III. 9.9.5 Any equipment or installation required for air navigation or for aircraft safety purposes which must be located on or near a strip of a precision approach runway category I, II or III and which: a) is situated within 240 m from the end of the strip and within: 1) 60 m of the extended runway centre line where the code number is 3 or 4; or							

	2) 45 m of the extended runway centre line where the code number is 1 or 2; or b) penetrates the inner approach surface, the inner transitional surface or the balked landing surface; shall be frangible and mounted as low as possible. 9.12 Autonomous runway incursion warning system 9.12.1 Where an ARIWS is installed at an aerodrome: a) it shall provide autonomous detection of a potential incursion or of the occupancy of an active runway and a direct warning to a flight crew or vehicle operator; b) it shall function and be controlled independently of any other visual system on the aerodrome; c) its visual aid components, i.e. lights, shall be designed to conform with the relevant specifications in 5.3; and d) failure of part or all of it shall not interfere with normal aerodrome operations. To this end, provision shall be made to allow the ATC unit to partially or entirely shut down the system. 9.12.2 Where an ARIWS is installed at an aerodrome, information on its characteristics and status shall be provided to the appropriate aeronautical information services for promulgation in the AIP with the description of the aerodrome surface movement guidance and control system and markings as specified in Annex 15.							
	Provide Information how State provide Satisfactorily fulfilling this requirement **State comments:**							
5.14	**Annex 14 Vol 1.**	A14 Vol 1: Ch.: 9	YES:	NO:	CE7	8.349		

Aerodrome Operation and Certification - Ground Servicing of Aircraft	9.6.1 Fire extinguishing equipment suitable for at least initial intervention in the event of a fuel fire and personnel trained in its use shall be readily available during the ground servicing of an aircraft, and there shall be a means of quickly summoning the rescue and firefighting service in the event of a fire or major fuel spill. 9.6.2 When aircraft refuelling operations take place while passengers are embarking, on board or disembarking, ground equipment shall be positioned so as to allow: a) the use of a sufficient number of exits for expeditious evacuation; and b) a ready escape route from each of the exits to be used in an emergency.	Ground Handling Manual (To be prepared)	N/A:	TBD:				
	Provide Information how State provide Satisfactorily fulfilling this requirement **State comments:**							
5.15 Aerodrome Operation and Certification - Control of Obstacles	**Annex 14 Vol 1.** 4.1 Obstacle limitation surfaces 4.2 Obstacle limitation requirements 4.3 Objects outside the obstacle limitation 4.4 Other objects 6.1 Objects to be marked and/or lighted 6.2 Marking and/or lighting of objects	A14 Vol 1: Ch.: 4, 6 Doc 9137: Part 6, Doc 9774, Doc 9981: Part 1	YES: N/A:	NO: TBD:	CE6 CE7 CE6 CE7 CE7 CE7 CE7 CE7	8.191 8.223 8.259 8.273 8.277 8.279 8.385 8.387		
	Provide Information how State provide Satisfactorily fulfilling this requirement **State comments:**							

International Civil Aviation Organization | Organisation de l'aviation civile internationale | Organización de Aviación Civil Internacional | Международная организация гражданской авиации | منظمة الطيران المدني الدولي | 国际民用航空组织

5.16 Aerodrome Operation and Certification - Aerodrome Maintenance	**Annex 14 Vol 1.** 10.1 General 10.2 Pavements 10.3 Removal of contaminants 10.4 Runway pavement overlays 10.5 Visual aids.	A14 Vol 1: Ch.: 10 Doc 9137: Part 2, 8, 9, Doc 9774, Doc 9981: Part 1	YES: N/A:	NO: TBD:	CE6 CE7 CE7 CE6 CE6 CE6 CE7 CE6 CE6	8.087 8.113 8.143 8.173 8.175 8.251 8.253 8.257 8.259 8.323		
	Provide Information how State provide Satisfactorily fulfilling this requirement **State comments:**							
5.17 Aerodrome Operation and Certification - Safety Management	**Annex 14 Vol 1.** 1.4.1 States shall certify aerodromes used for international operations in accordance with the specifications contained in this Annex as well as other relevant ICAO specifications through an appropriate regulatory framework. 1.4.3 The regulatory framework shall include the establishment of criteria and procedures for the certification of aerodromes. 1.4.4 As part of the certification process, States shall ensure that an aerodrome manual which will include all pertinent information on the aerodrome site, facilities, services, equipment, operating procedures, organization and management including a safety management system, is submitted by the applicant for approval/acceptance prior to granting the aerodrome certificate.	A14 Vol 1: Ch.: 1 Doc 9774, Doc 9981: Part 1, Doc 9870	YES: N/A:	NO: TBD:	CE6 CE6 CE6 CE6 CE7 CE6 CE6 CE7 CE6 CE7 CE6 CE7	8.085 8.091 8.093 8.111 8.143 8.144 8.145 8.147 8.153 8.155 8.163 8.171 8.204 8.223		

	1.7.1 When the aerodrome accommodates an aeroplane that exceeds the certificated characteristics of the aerodrome, the compatibility between the operation of the aeroplane and aerodrome infrastructure and operations shall be assessed and appropriate measures developed and implemented in order to maintain an acceptable level of safety during operations. 1.7.2 Information concerning alternative measures, operational procedures and operating restrictions implemented at an aerodrome arising from 1.7.1 shall be promulgated.				CE6 CE7 CE6 CE7 CE7	8.225 8.233 8.365 8.375 8.385		
	Provide Information how State provide Satisfactorily fulfilling this requirement **State comments:**							

ASBU ELEMENTS

Ready for implementation:	
Standarization:	
Validation:	
Concept:	
No define:	

ACAS (Airborne Collision Avoidance System)

B0	B1	B2	B3	B4
	ACAS-B1/1 ACAS Improvements Operational	ACAS-B2/1 New collision avoidance system Operational		
		ACAS-B2/2 New collision avoidance capability as part of an overall detect and avoid system for RPAS Operational		

ACDM (Airport Collaborative Decision Making)

B0	B1	B2	B3	B4
ACDM-B0/1 Airport CDM Information Sharing (ACIS) Operational		ACDM-B2/1 Airport Operations Plan (AOP) Operational	ACDM-B3/1 Full integration of ACDM and TAM in TBO Operational	
ACDM-B0/2 Integration with ATM Network function Operational		ACDM-B2/2 Airport Operations Centre (APOC) Operational		
		ACDM-B2/3 Total Airport Management (TAM) Operational		

AMET (Advanced Meteorological Information)

B0	B1	B2	B3	B4
AMET-B0/1 Meteorological observations products Information	AMET-B1/1 Meteorological observations information Information	AMET-B2/1 Meteorological observations information Information	AMET-B3/1 Meteorological observations information Information	AMET-B4/1 Meteorological observations information Information
AMET-B0/2 Meteorological forecast and warning products Information	AMET-B1/2 Meteorological forecast and warning information Information	AMET-B2/2 Meteorological forecast and warning information Information	AMET-B3/2 Meteorological forecast and warning information Information	AMET-B4/2 Meteorological forecast and warning information Information
AMET-B0/3 Climatological and historical meteorological products Information	AMET-B1/3 Climatological and historical meteorological information Information	AMET-B2/3 Climatological and historical meteorological information Information	AMET-B3/3 Climatological and historical meteorological information Information	AMET-B4/3 Climatological and historical meteorological information Information
AMET-B0/4 Dissemination of meteorological products Information	AMET-B1/4 Dissemination of meteorological information Information	AMET-B2/4 Meteorological information service in SWIM Information	AMET-B3/4 Meteorological information service in SWIM Information	AMET-B4/4 Meteorological information service in SWIM Information

APTA (Airport Accessibility)

B0	B1	B2	B3	B4
APTA-B0/1 PBN Approaches (with basic capabilities) Operational	APTA-B1/1 PBN Approaches (with advanced capabilities) Operational	APTA-B2/1 GBAS CAT II/III precision approach procedures Operational	APTA-B3/1 Parallel approaches without vertical guidance	
APTA-B0/2 PBN SID and STAR procedures (with basic capabilities) Operational	APTA-B1/2 PBN SID and STAR procedures (with advanced capabilities) Operational	APTA-B2/2 Simultaneous operations to parallel runways Operational	APTA-B3/2 Implementation of A-RNP to support non-complex simultaneous independent parallel approaches Operational	
APTA-B0/3 SBAS/GBAS CAT I precision approach procedures Operational		APTA-B2/3 PBN Helicopter Steep Approach Operations Operational		
APTA-B0/4 CDO (Basic) Operational	APTA-B1/4 CDO (Advanced) Operational	APTA-B2/4 Performance based aerodrome operating minima – Advanced aircraft with SVGS Operational		

ASBU ELEMENTS

Ready for implementation:	
Standarization:	
Validation:	
Concept:	
No define:	

APTA (Airport Accessibility)

B0	B1	B2	B3	B4
APTA-B0/5 CCO (Basic) Operational	APTA-B1/5 CCO (Advanced) Operational			
APTA-B0/6 PBN Helicopter Point in Space (PinS) Operations Operational				
APTA-B0/7 Performance based aerodrome operating minima – Advanced aircraft Operational				
APTA-B0/8 Performance based aerodrome operating minima – Basic aircraft				

ASUR (Alternative Surveillance)

B0	B1	B2	B3	B4
ASUR-B0/1 Automatic Dependent Surveillance – Broadcast (ADS-B) Technology	ASUR-B1/1 Reception of aircraft ADS-B signals from space (SB ADS-B) Technology	ASUR-B2/1 Evolution of ADS-B and Mode S Technology	ASUR-B3/1 New non-cooperative surveillance system for airborne aircraft (medium altitudes) Technology	ASUR-B4/1 Further evolution of ADS-B and MLAT Technology
ASUR-B0/2 Multilateration cooperative surveillance systems (MLAT) Technology		ASUR-B2/2 New community based surveillance system for airborne aircraft (low and higher airspace) Technology		
ASUR-B0/3 Cooperative Surveillance Radar Downlink of Aircraft Parameters (SSR-DAPS) Technology				

COMI (Communication infrastructure)

B0	B1	B2	B3	B4
COMI-B0/1 Aircraft Communication Addressing and Reporting System (ACARS) Technology		COMI-B2/1 Air-Ground ATN/IPS Technology	COMI-B3/1 VHF Data Link (VDL) Mode-2 Connectionless	
COMI-B0/2 Aeronautical Telecommunication Network/Open System Interconnection (ATN/OSI) Technology	COMI-B1/2 VHF Data Link (VDL) Mode 2 Multi-Frequency Technology	COMI-B2/2 Aeronautical Mobile Airport Communication System (AeroMACS) aircraft mobile connection Technology	COMI-B3/2 SATCOM Class A voice and data Technology	
COMI-B0/3 VHF Data Link (VDL) Mode 0/A Technology	OMI-B1/3 SATCOM Class B Voice and Data Technology	COMI-B2/3 Links meeting requirements for non-safety critical communication Technology	COMI-B3/3 L-band Digital Aeronautical Communication System (LDACS) Technology	
COMI-B0/4 VHF Data Link (VDL) Mode 2 Basic Technology	COMI-B1/4 Aeronautical Mobile Airport Communication System (AeroMACS) Ground-Ground Technology		COMI-B3/4 Links meeting requirements for safety critical communication Technology	
Satellite Communications (SATCOM) Class C Data Technology				
COMI-B0/6 High Frequency Data Link (HFDL) Technology				
COMI-B0/7 ATS Message Handling System (AMHS) Technology				

ASBU ELEMENTS

Ready for implementation:	
Standarization:	
Validation:	
Concept:	
No define:	

COMS (ATS Communication service)

B0	B1	B2	B3	B4
COMS-B0/1 CPDLC (FANS 1/A & ATN B1) for domestic and procedural airspace Technology	COMS-B1/1 PBCS approved CPDLC (FANS 1/A+) for domestic and procedural airspace Technology	COMS-B2/1 PBCS approved CPDLC (B2) for domestic and procedural airspace Technology	COMS-B3/1 Extended CPDLC (B2 incl. Adv-IM and dynamic RNP) for dense and complex airspace Technology	
COMS-B0/2 ADS-C (FANS 1/A) for procedural airspace Technology	COMS-B1/2 PBCS approved ADS-C (FANS 1/A+) for procedural airspace Technology	COMS-B2/2 PBCS Approved ADS-C (B2) for domestic and procedural airspace Technology	COMS-B3/2 Extended ADS-C (B2 incl. Adv-IM and dynamic RNP) for dense and complex airspace Technology	
	COMS-B1/3 SATVOICE (incl. routine communications) for procedural airspace Technology	COMS-B2/3 PBCS approved SATVOICE (incl. routine communications) for procedural airspace Technology		

CSEP (Cooperative Separation)

B0	B1	B2	B3	B4
	CSEP-B1/1 Basic airborne situational awareness during flight operations (AIRB) Operational	CSEP-B2/1 Interval Management (IM) Procedure Operational	CSEP-B3/1 Interval Management (IM) Procedure with complex geometries Operational	CSEP-B4/1 Airborne separation Operational
	CSEP-B1/2 Visual Separation on Approach (VSA) Operational	CSEP-B2/2 Cooperative separation at low altitudes Operational	CSEP-B3/2 Remain Well Clear (RWC) functionality for UAS/RPAS Operational	
	CSEP-B1/3 Performance Based Longitudinal Separation Minima Operational	CSEP-B2/3 Cooperative separation at higher airspace Operational		
	CSEP-B1/4 Performance Based Lateral Separation Minima Operational			

DAIM (Digital Aeronautical Information Management)

B0	B1	B2	B3	B4
		DAIM-B2/1 Dissemination of aeronautical information in a SWIM environment Information		
	DAIM-B1/2 Provision of digital Aeronautical Information Publication (AIP) data sets Information	DAIM-B2/2 Daily Airspace Management information to support flight and flow Information		
	DAIM-B1/3 Provision of digital terrain data sets Information	DAIM-B2/3 Aeronautical information to support higher airspace operations Information		
	DAIM-B1/4 Provision of digital obstacle data sets Information	DAIM-B2/4 Aeronautical information requirements tailored to UTM Information		
	DAIM-B1/5 Provision of digital aerodrome mapping data sets Information	DAIM-B2/5 NOTAM replacement Information		
	DAIM-B1/6 Provision of digital instrument flight procedure data sets Information			
	DAIM-B1/7 NOTAM improvements Information			

ASBU ELEMENTS

Ready for implementation:	
Standarization:	
Validation:	
Concept:	
No define:	

DATS (Digital Aerodrome Air Traffic Services)

B0	B1	B2	B3	B4
	DATS-B1/1 Remotely Operated Aerodrome Air Traffic Services Operational			

FICE (Flight and Flow Information for a Collaborative Environment (FF-ICE))

B0	B1	B2	B3	B4
FICE-B0/1 Automated basic inter facility data exchange (AIDC) Information		FICE-B2/1 Planning Service Information	FICE-B3/1 Flight information management services for enhanced trajectory operations Information	FICE-B4/1 Integrated flight information management system for end-to-end global flight planning Information
		FICE-B2/2 Filing Service Information		
		FICE-B2/3 Trial Service Information		
		FICE-B2/4 Flight Data Request Service Information		
		FICE-B2/5 Notification Service Information		
		FICE-B2/6 Publication Service Information		
		FICE-B2/7 Flight information management service for higher airspace operations Information		
		FICE-B2/8 Flight information management service for low-altitude operations Information		
		FICE-B2/9 Flight information management support for inflight re-planning Information		

FRTO (Improved operations through enhanced en-route trajectories)

B0	B1	B2	B3	B4
FRTO-B0/1 Direct routing (DCT) Operational	FRTO-B1/1 Free Route Airspace (FRA) Operational	FRTO-B2/1 Local components of integrated ATFM and ATC Planning function (INAP) Operational		
FRTO-B0/2 Airspace planning and Flexible Use of Airspace (FUA) Operational	FRTO-B1/2 Required Navigation Performance (RNP) routes Operational	FRTO-B2/2 Local components of Dynamic Airspace Configurations (DAC) Operational		
FRTO-B0/3 Pre-validated and coordinated ATS routes to support flight and flow Operational	FRTO-B1/3 Advanced Flexible Use of Airspace (FUA) and management of real time airspace data Operational	FRTO-B2/3 Large Scale Cross Border Free Route Airspace (FRA) Operational		
FRTO-B0/4 Basic conflict detection and conformance monitoring Operational	FRTO-B1/4 Dynamic sectorization Operational	FRTO-B2/4 Enhanced Conflict Resolution Tools Operational		

ASBU ELEMENTS

Ready for implementation:	
Standarization:	
Validation:	
Concept:	
No define:	

FRTO (Improved operations through enhanced en-route trajectories)

B0	B1	B2	B3	B4
	FRTO-B1/5 Enhanced Conflict Detection Tools and Conformance Monitoring Operational			
	FRTO-B1/6 Multi-Sector Planning Operational			
	FRTO-B1/7 Trajectory Options Set (TOS) Operational			

GADS (Global Aeronautical Distress and Safety System (GADSS))

B0	B1	B2	B3	B4
	GADS-B1/1 Aircraft Tracking Operational	GADS-B2/1 Location of an aircraft in Distress Operational		
	GADS-B1/2 Operational Control Directory Operational	GADS-B2/2 Distress tracking information management Operational		
		GADS-B2/4 Flight Data Recovery Operational		

NAVS (Navigation systems)

B0	B1	B2	B3	B4
NAVS-B0/1 Ground Based Augmentation Systems (GBAS) Technology	NAVS-B1/1 Extended GBAS Technology	NAVS-B2/1 Dual Frequency Multi Constellation (DF MC) GBAS Technology		
NAVS-B0/2 Satellite Based Augmentation Systems (SBAS) Technology		NAVS-B2/2 Dual Frequency Multi Constellation (DF MC) SBAS Technology		
NAVS-B0/3 Aircraft Based Augmentation Systems (ABAS) Technology		NAVS-B2/3 Dual Frequency Multi Constellation (DF MC) ABAS Technology		
NAVS-B0/4 Navigation Minimal Operating Networks (Nav. MON) Technology				

NOPS (Network Operations)

B0	B1	B2	B3	B4
NOPS-B0/1 Initial integration of collaborative airspace management with air traffic flow management Operational	NOPS-B1/1 Short Term ATFM measures Operational	NOPS-B2/1 Optimised ATM Network Services in the initial TBO context Operational		
NOPS-B0/2 Collaborative Network Flight Updates Operational	NOPS-B1/2 Enhanced Network Operations Planning Operational	NOPS-B2/2 Enhanced dynamic airspace configuration Operational		
NOPS-B0/3 Network Operation Planning basic features Operational	NOPS-B1/3 Enhanced integration of Airport operations planning with network operations planning Operational	NOPS-B2/3 Collaborative Network Operation Planning Operational		

ASBU ELEMENTS

Ready for implementation:	
Standarization:	
Validation:	
Concept:	
No define:	

NOPS (Network Operations)

B0	B1	B2	B3	B4
NOPS-B0/4 Initial Airport/ATFM slots and A-CDM Network Interface Operational	NOPS-B1/4 Dynamic Traffic Complexity Management Operational	NOPS-B2/4 Multi ATFM slot swapping and Airspace Users priorities Operational	NOPS-B3/1 ATM Network Services in full TBO context Operational	
NOPS-B0/5 Dynamic ATFM slot allocation Operational	NOPS-B1/5 Full integration of airspace management with air traffic flow management Operational	NOPS-B2/5 Further airport integration within Network Operation Planning Operational	NOPS-B3/2 Cooperative Network Operations Planning Operational	
	NOPS-B1/6 Initial Dynamic Airspace configurations Operational	NOPS-B2/6 ATFM adapted for cross-border Free Route Airspace (FRA) Operational	NOPS-B3/3 Innovative airspace architecture Operational	
	NOPS-B1/7 Enhanced ATFM slot swapping Operational	NOPS-B2/7 UTM Network operations Operational		
	NOPS-B1/8 Extended Arrival Management supported by the ATM Network function Operational	NOPS-B2/8 High upper airspace network operations Operational		
	NOPS-B1/9 Target Times for ATFM purposes Operational			
	NOPS-B1/10 Collaborative Trajectory Options Program (CTOP) Operational			

OPFL (Improved access to optimum flight levels in oceanic and remote airspace)

B0	B1	B2	B3	B4
OPFL-B0/1 In Trail Procedure (ITP) Operational	OPFL-B1/1 Climb and Descend Procedure (CDP) Operational	OPFL-B2/1 Separation minima using ATS surveillance systems where VHF voice communications are not available Operational	OPFL-B3/1 Helicopter RNP 0.3 Terminal and En-Route Operations Operational	
			OPFL-B3/2 Expansion of upper limit of the Reduced Vertical Separation Minima (RVSM) band of flight levels Operational	
			OPFL-B3/3 Target-to-target separations using Space-based ADS-B data Operational	

ASBU ELEMENTS

Ready for implementation:	
Standarization:	
Validation:	
Concept:	
No define:	

RSEQ (Improved traffic flow through runway sequencing)

B0	B1	B2	B3	B4
RSEQ-B0/1 Arrival Management Operational	RSEQ-B1/1 Extended arrival metering Operational	RSEQ-B2/1 Integration of arrival and departure management Operational		RSEQ-B4/1 Departure management in terminal airspace from multiple airports Operational
RSEQ-B0/2 Departure Management Operational			RSEQ-B3/2 Arrival management in terminal airspace with multiple airports Operational	RSEQ-B4/2 Extended arrival management supporting overlapping operations into multiple airports Operational
RSEQ-B0/3 Point merge Operational			RSEQ-B3/3 Increased utilization of runway capacity by improved real-time runway scheduling Operational	
			RSEQ-B3/4 Improved operator fleet management in runway sequencing Operational	

SNET (Ground-based Safety Nets)

B0	B1	B2	B3	B4
SNET-B0/1 Short Term Conflict Alert (STCA) Operational	SNET-B1/1 Enhanced STCA with aircraft parameters Operational			
SNET-B0/2 Minimum Safe Altitude Warning (MSAW) Operational	SNET-B1/2 Enhanced STCA in complex TMAs Operational			
SNET-B0/3 Area Proximity Warning (APW) Operational				
SNET-B0/4 Approach Path Monitoring (APM) Operational				

SURF (Surface operations)

B0	B1	B2	B3	B4
SURF-B0/1 Basic ATCO tools to manage traffic during ground operations Operational	SURF-B1/1 Advanced features using visual aids to support traffic management during ground operations Operational	URF-B2/1 Enhanced surface guidance for pilots and vehicle drivers Operational	SURF-B3/1 Optimization of surface traffic management in complex situations Operational	
SURF-B0/2 Comprehensive situational awareness of surface operations Operational	SURF-B1/2 Comprehensive pilot situational awareness on the airport surface Operational	URF-B2/2 Comprehensive vehicle driver situational awareness on the airport surface Operational		
SURF-B0/3 Initial ATCO alerting service for surface operations Operational	SURF-B1/3 Enhanced ATCO alerting service for surface operations Operational	SURF-B2/3 Conflict alerting for pilots for runway operations Operational		
	SURF-B1/4 Routing service to support ATCO surface operations management Operational			
	SURF-B1/5 Enhanced vision systems for taxi operations Operational			

ASBU ELEMENTS

Ready for implementation:	
Standarization:	
Validation:	
Concept:	
No define:	

SWIM (System Wide Information Management)

B0	B1	B2	B3	B4
		SWIM-B2/1 Information service provision Information	SWIM-B3/1 Air/Ground SWIM for safety critical information Information	
		SWIM-B2/2 Information service consumption Information		
		SWIM-B2/3 SWIM registry Information		
		SWIM-B2/4 Air/Ground SWIM for non-safety critical information Information		
		SWIM-B2/5 Global SWIM processes Information		

TBO (Trajectory-based operations)

B0	B1	B2	B3	B4
TBO-B0/1 Introduction of time-based management within a flow centric approach. Operational	TBO-B1/1 Initial Integration of time-based decision making processes Operational	TBO-B2/1 Pre-departure trajectory synchronization within a flight centric and network performance approach Operational	TBO-B3/1 Network based on-demand synchronization of trajectory based operations Operational	TBO-B4/1 Total airspace management performance system Operational
		TBO-B2/2 Extended time-based management across multiple FIRs for active flight synchronization Operational		

WAKE (Wake Turbulence Separation)

B0	B1	B2	B3	B4
		WAKE-B2/1 Wake turbulence separation minima based on 7 aircraft groups Operational	WAKE-B3/1 Dependent parallel approaches Operational	WAKE-B4/1 En-route Wake Encounter Ground based Prediction Operational
		WAKE-B2/2 Time based wake separation minima for final approach Operational	WAKE-B3/2 Independent segregated parallel operations Operational	WAKE-B4/2 En-Route Wake Encounter on-board flight management/mitigation Operational
			WAKE-B3/3 Wake turbulence separation minima based on leader/follower static pairs-wise Operational	
			WAKE-B3/4 Enhanced dependent parallel approaches Operational	
			WAKE-B3/5 Enhanced independent segregated parallel operations Operational	
			WAKE-B3/6 Time based wake separation minima for departure based on leader/follower static pair-wise Operational	
			WAKE-B3/7 Time based dependent parallel approaches Operational	
			WAKE-B3/8 Time based independent segregated parallel operations Operational	