INTERNATIONAL CIVIL AVIATION ORGANIZATION

Seamless ATM Implementation Guidance

DRAFT Version 4.0

Contents

List of tables

List of figures

Note: Tables 4 and 5 are available as Excel spreadsheet for ease of use.

Introduction

1.1 The Seamless ATM plan suggests a number of implementing actions. **Table 1** indicates the reference code used to track the large number of separate planning elements, whether the elements affect the aerodrome, terminal or en-route phases (or a combination of these), and the cross reference to the Aviation System Block Upgrade (ASBU) or Regional traceability.

ATM Seamless Plan Reference	Aerodrome	Terminal	En-route	Specification title	ASBU traceability Block 0
10	√			Apron Management	Regional
20	√	√		ATM-Aerodrome Coordination	Regional
30	√			Aerodrome capacity	Regional
40	√			Safety and Efficiency of Surface Operations	B0-SURF
50	√	√		Arrival Manager/Departure Management (AMAN/DMAN)	B0-RSEQ
60		√	√	ATC Sector Capacity	Regional
70	√			Airport Collaborative Decision-Making (ACDM)	B0-ACDM
80		√	√	Air Traffic Flow Management/Collaborative Decision-Making (ATFM/CDM)	B0-NOPS
90		√		Continuous Descent Operations (CDO)	B0-CDO
100		√		Continuous Climb Operations (CCO)	B0-CCO
110		√		Performance-based Navigation (PBN) Approach	B0-APTA
120		√		Standard Instrument Departures/Standard Terminal Arrivals (SID/STAR)	B0-APTA
130		√		Performance-based Navigation (PBN) Visual and Arrival Procedures	Regional
140			√	Performance-based Navigation (PBN) Routes	B0-FRTO
150			√	Performance-based Navigation (PBN) Airspace	Regional
160		√	√	Safety Nets	B0-SNET
170		√	√	Airborne Safety Systems	B0-ACAS
180		√	√	ADS-B OUT	B0-ASUR
190			√	Airspace classification	Regional
200			√	Flight Level Orientation Scheme (FLOS)	Regional
210			√	Flight Level Allocation Schemes (FLAS)	Regional

ATM Seamless Plan Reference	Aerodrome	Terminal	En-route	Specification title	ASBU traceability Block 0
220		√	√	ATS Inter-facility Data-link Communications (AIDC)	B0-FICE
230	√	√	√	Automated Transfer of Control in an ATSU	Regional
240		√	√	ATS Surveillance data sharing	Regional
250	√	√	√	ATM systems enabling optimal PBN/ATC operations	B0-APTA
260	√	√	√	ATC Horizontal separation	Regional
270	√	√	√	Multi-sensor integrated surveillance (ADS-B, MLAT, radar)	B0-ASUR
280		√	√	ADS-C, CPDLC	B0-TBO
290	√	√	√	UPR and DARP	B0-TBO
300	√	√	√	Aeronautical Meteorology	B0-DATM
310	√	√	√	Meteorological Information	B0-AMET
320	√	√	√	ATM Managers' Performance	Regional
330	√	√	√	ATC simulators performance	B0-FRTO
340	√	√	√	Safety assessment of changes	B0-FRTO
350	√	√	√	ATM Operators' performance	B0-FRTO
360		√	√	Civil Military use of SUA	B0-FRTO
370		√	√	Strategic Civil Military coordination	B0-FRTO
380		√	√	Tactical Civil Military coordination	B0-FRTO
390	√	√	√	Civil Military system integration	B0-FRTO
400	√	√	√	Civil Military navaids joint provision	B0-FRTO
410	√	√	√	Civil Military common training	B0-FRTO
420	√	√	√	Civil Military common procedures	B0-FRTO

Table 1: List of Seamless ATM Plan specifications

Preparing the projects

1.2 At the State level, the implementation of each element should be structured as a project, divided into a number of stages and major tasks/actions, and coordinated with the other projects at the regional level when needed. **Table** (**Appendix A**), provides full traceability to the ASBU framework for ease of reference.

1.3 In order to share a common vocabulary and give some related regional guidelines, it is considered necessary to utilise a formal step by step planning system.

1.4 The table at the bottom left of **Figure A** provides a simple way of indicating the 'customised' actions that may be necessary for each project to be implemented effectively. Note that there are several blank spaces, which have in this case have been recommended as unnecessary for this particular element. This should not preclude a State from adding extra steps if this is deemed necessary.

Stage Number	Action A	Action B	Action C	Action D	Action E	Action F
1. PROJECT PLANNING	Identify the problem or improvement required	Assess applicability to operating environment and State regulations	Gather and review data related to the desired change	-	**Start the project, determine project budget and milestones**	-
2. DESIGN	-	-	-	-	-	-
3. SAFETY	Form safety teams or engage relevant safety experts	Assess operational strengths and weaknesses, opportunities, and threats (SWOT)	Develop the safety case	-		
4. COMMUNICATION	Consult with key stakeholders	Coordinate Regionally and bilaterally	Conduct formal promulgation/ notification	Advertise and brief about the change		
5. TRAINING	Develop simulations and procedures	Source relevant training experts	Conduct simulation and relevant training	Assess competency and authorise		
6. IMPLEMENTATION	-	-	-	-		
7. POST - IMPLEMENTATION	-	-				

	A	B	C	D	E	F
1	√	√	√	-	**√**	-
2	-	-	-	-	-	-
3	√	√	√	-		
4	√	√	√	√		
5	√	√	√	√		
6	-	-	-	-		
7	-	-				

Figure A: Mapping between a Planning Grid and the Implementation Guidance Matrix

1.5 **Figure B** provides the meaning of the signs used in the Implementation Guidance Matrix, to indicate if the considered action item is applicable or not, and if it is related to a key milestone or not.

	A	B	C	D	E	F
1	√	√	√	-	**√**	-
2	-	-	-	-	-	-
3	√	√	-	-		
4	√	√	√	-		
5	√	-	-	-		
6	-	-	√	**√**		
7	-	-				

Value	Meaning
√	applicable, Key milestone
√	applicable
-	not applicable for the considered item
	never applicable

Figure B: Meaning of the signs used in an implementation matrix

1.6 Most importantly, States need to ensure they have the right preliminary assessment to determine if any particular elements are applicable to them. For many States, there will be cost or other resource implications, so there may need to be a degree of economic evaluation before deciding to go ahead with any particular implementation.

1.7 None of the project steps were compulsory for any particular element, but should be taken as a guide to optimal implementation change management. The steps may also be taken in any particular order or done concurrently (i.e.: at the same time) if necessary. States need to determine the best change management fit for their individual circumstances. In this regard, the implementation guidance is provided as a starting resource for those States that find this beneficial, but is not intended to replace change management processes already in place if these are appropriate and robust. States should refer to the Safety Management Manual (Doc 9859) for an overview of optimal change management processes.

1.8 The five steps outlined in bold in **Table 2** are key milestones. Three of the milestones are considered to be essential for reporting in terms of the Regional Seamless ATM Reporting Form, and are indicated by an outline in solid red border. These are:

a. Prepare and apply for regulatory approval or certification

b. Conduct operational trials and testing

c. Implement and monitor

1.9 The Regional Seamless ATM Reporting Form needs a consistent approach from States, as the implementation data needs to be comparable between States, and it is also part of a larger global reporting system.

1.10 **Table 2** provides the complete Implementation Guidance Matrix. An example of an implementation process might be Seamless ATM element 60: C*apacity Assessment*, which might require only 1(a, b, c, e), 3(a, b, c), 4(a, b, c, d), and 5(a, b, c, d), while 1(e) was a key milestone.

1.11 **Table 3** entitled 'Recommended Implementation Actions and Guidance' are provided as early planning assistance for States and is in draft form. If utilising the material, States should exercise caution due to its status, and provide feedback to the Regional Office on possible improvements that can be incorporated through 2013.

1.12 **Attachment A** is a traceability matrix between the Seamless ATM Plan Version 1.0 elements and the ASBU modules.

1.13 A State Seamless ATM Implementation Plan Template is provided as **Attachment B**. The State Seamless ATM Implementation Plan is primarily intended for internal use within the State concerned, to aid its own planning. However the document may be useful on occasions for regional planning, although the Regional Seamless ATM Reporting Form is the primary source of information for ICAO.

1.14 The State Seamless ATM Implementation Plan Template format is not mandatory and States may choose to use their own planning documents instead of the template. Similar to the Recommended Implementation Actions and Guidance in Table 3, States may choose to add or delete elements, or steps of any element's implementation plan to suit its own needs.

Stage Number	Action A	Action B	Action C	Action D	Action E	Action F
1. PROJECT PLANNING	Identify the problem or improvement required	Assess applicability to operating environment and State regulations	Gather and review data related to the desired change	Assess economic feasibility and cost/benefit	Start the project, determine project budget and milestones	Plan tendering and maintenance contract process
2. DESIGN	Determine initial design of the desired change, including alternatives	Determine Key Performance Indicators and/or success criteria	Design backup and transition procedures/ steps, including reversion	Determine maintenance considerations	Refine and agree on final design	Define system validation and verification (FAT, SAT)
3. SAFETY	Form safety teams or engage relevant safety experts	Assess operational strengths and weaknesses, opportunities, and threats (SWOT)	Develop the safety case	**Prepare and apply for regulatory approval or certification**		
4. COMMUNICATION	Consult with key stakeholders	Coordinate Regionally and bilaterally	Conduct formal promulgation/ notification	Advertise and brief about the change		
5. TRAINING	Develop simulations and procedures	Source relevant training experts	Conduct simulation and relevant training	Assess competency and authorise		
6. IMPLEMENTATION	**Conduct operational trials and testing**	Assess stability and performance	Make a Go/No-Go decision	**Implement and monitor**		
7. POST - IMPLEMENTATION	Develop review -Lessons learnt -KPI achievement -Report	Monitor medium and long term performance and safety				

Table 2: Implementation Guidance Matrix

Recommended Implementation Actions and Guidance

No	Element	Phase I (expected implementation by 12 November 2015)	Phase II (expected implementation by 08 November 2018)	Implementation actions (Refers to Table , implementation matrix)	Main impacts / Main requirements and guidance references
10	**Apron Management REGIONAL**	7.1.a All high density aerodromes should provide an appropriate apron management service in order to regulate entry of aircraft into and coordinate exit of aircraft from the apron		A B C D E F 1 √ √ √ √ **√** √ 2 √ √ √ √ √ √ 3 √ √ √ **√** 4 √ √ √ √ 5 √ √ √ √ 6 **√** √ √ **√** 7 √ **√**	**Main impacts** • People: Airport development and maintenance planners, Airport Operators, ANSP Capacity and safety Managers and procedure designers
20	**ATM (Airport) Coordination - REGIONAL**	7.1.b All high density should have appropriate ATM coordination (including meetings and agreements) related to: • airport development and maintenance planning; • coordination with local authorities regarding environmental, noise abatement, and obstacles; • ATM/PBN procedures affecting the aerodrome		A B C D E F 1 √ √ √ - **√** - 2 √ √ - - - - 3 √ √ - - 4 √ √ √ √ 5 √ - - - 6 - - √ **√** 7 - -	**Main impacts** • People: Airport development and maintenance planners, Airport Operators, ANSP Capacity and safety Managers and procedure designers, Airspace users
30	**Aerodrome capacity - REGIONAL**	7.1.c All high density aerodromes (100,000 scheduled movements per annum or more) should conduct regular airport capacity analysis, which includes a detailed assessment of passenger, airport gate, apron, taxiway and runway capacity	7.13 All high density aerodromes should have a declared airport terminal and runway capacity based on a capacity and efficiency analysis, to ensure the maximum possible efficiency of aircraft and passenger movement.	A B C D E F 1 √ √ √ - **√** - 2 - - - - - - 3 √ √ - - 4 √ √ √ - 5 √ - - - 6 - - √ **√** 7 - -	**Main impacts** People: Airport development and maintenance planners, Airport Operators, ANSP Capacity and safety Managers and procedure designers, Airspace users

<table>
<tr>
<td>40</td>
<td>Safety and Efficiency of Surface Operations (A-SMGCS Level 1-2) (B0-SURF)</td>
<td>7.1.d All high density aerodromes (100,000 scheduled movements per annum or
more) should provide electronic surface movement guidance and control.</td>
<td></td>
<td>
<table>
<tr><th></th><th>A</th><th>B</th><th>C</th><th>D</th><th>E</th><th>F</th></tr>
<tr><td>1</td><td>√</td><td>√</td><td>√</td><td>√</td><td>√</td><td>√</td></tr>
<tr><td>2</td><td>√</td><td>√</td><td>√</td><td>√</td><td>√</td><td>√</td></tr>
<tr><td>3</td><td>√</td><td>√</td><td>√</td><td>√</td><td></td><td></td></tr>
<tr><td>4</td><td>√</td><td>√</td><td>√</td><td>√</td><td></td><td></td></tr>
<tr><td>5</td><td>√</td><td>√</td><td>√</td><td>√</td><td></td><td></td></tr>
<tr><td>6</td><td>√</td><td>√</td><td>√</td><td>√</td><td></td><td></td></tr>
<tr><td>7</td><td>√</td><td>√</td><td></td><td></td><td></td><td></td></tr>
</table>
</td>
<td>Main impacts
• People: ATCO, ATSEP
• Procedures: ANSP (configuration and use of A-SMGCS), Airport Operators
• Systems: Avionics, Vehicles, ANSP Ground System
Main requirements/guidance
• ICAO Annex 14, Volume I, Chapter 9
• ICAO Annex 11
• ICAO Doc 4444
• ICAO Doc 9476 SMGCS Manual
• ICAO Doc 9830 A-SMGCS Manual
• Eurocae ED-87B MASPS for SMGCS
• Eurocae ED-116 MOPS for Surface Movement Radar Sensor Systems for Use in A-SMGCS
• Eurocae ED-117 MOPS for Mode S Multilateration Systems for Use in A-SMGCS
• Eurocae ED-128 Guidelines for Surveillance Data Fusion in Advanced Surface Movement Guidance and Control Systems (A-SMGCS) Levels 1 and 2

Note: The provision of A-SMGCS should be subject to economic analysis</td>
</tr>
<tr>
<td>50</td>
<td>Arrival Manager/ Departure Management (B0-RSEQ)</td>
<td>7.25 All high density aerodromes should have AMAN/DMAN facilities.</td>
<td>7.45 All AMAN systems should take into account airport gates for runway selection and other aircraft departures from adjacent gates that may affect arriving aircraft</td>
<td>
<table>
<tr><th></th><th>A</th><th>B</th><th>C</th><th>D</th><th>E</th><th>F</th></tr>
<tr><td>1</td><td>√</td><td>√</td><td>√</td><td>√</td><td>√</td><td>√</td></tr>
<tr><td>2</td><td>√</td><td>√</td><td>√</td><td>√</td><td>√</td><td>√</td></tr>
<tr><td>3</td><td>√</td><td>√</td><td>√</td><td>√</td><td></td><td></td></tr>
<tr><td>4</td><td>√</td><td>-</td><td>√</td><td>√</td><td></td><td></td></tr>
<tr><td>5</td><td>√</td><td>√</td><td>√</td><td>√</td><td></td><td></td></tr>
<tr><td>6</td><td>√</td><td>√</td><td>√</td><td>√</td><td></td><td></td></tr>
<tr><td>7</td><td>√</td><td>√</td><td></td><td></td><td></td><td></td></tr>
</table>
</td>
<td>Main impacts
• People: ATCO, ATSEP
• Procedures: ANSP (configuration and use of AMAN/DMAN)
• Systems: ANSP Ground System, Avionics
Main requirements/guidance
• ICAO Annex 10, Volume II
• ICAO Doc 9705
Note: Refer to Airport CDM and: Coordination of ANSP ground systems for extension of AMAN horizon</td>
</tr>
</table>

<table>
<tr>
<td>60</td>
<td>ATC Sector Capacity
-
REGIONAL</td>
<td>7.50 To ensure the safety and efficiency of aircraft operations, a nominal aircraft capacity figure based on a scientific capacity study and safety assessment should be available for all enroute ATC sectors</td>
<td>7.44 All terminal ATC Sectors should have a nominal aircraft capacity figure based on a scientific capacity study and safety assessment, to ensure safe and efficient aircraft operations.</td>
<td>
<table>
<tr><th></th><th>A</th><th>B</th><th>C</th><th>D</th><th>E</th><th>F</th></tr>
<tr><td>1</td><td>√</td><td>√</td><td>√</td><td>-</td><td>√</td><td>-</td></tr>
<tr><td>2</td><td>-</td><td>-</td><td>-</td><td>-</td><td>-</td><td>-</td></tr>
<tr><td>3</td><td>√</td><td>√</td><td>√</td><td>-</td><td></td><td></td></tr>
<tr><td>4</td><td>√</td><td>√</td><td>√</td><td>√</td><td></td><td></td></tr>
<tr><td>5</td><td>√</td><td>√</td><td>√</td><td>√</td><td></td><td></td></tr>
<tr><td>6</td><td>-</td><td>-</td><td>-</td><td>-</td><td></td><td></td></tr>
<tr><td>7</td><td>-</td><td>-</td><td></td><td></td><td></td><td></td></tr>
</table>
</td>
<td>Main impacts
• People: ANSP Capacity and safety Managers</td>
</tr>
<tr>
<td>70</td>
<td>Airport Collaborative Decision-Making (B0-ACDM)</td>
<td>7.2 All high density aerodromes should operate an A-CDM system serving the MTF and
busiest city pairs, with priority implementation for the busiest Asia/Pacific aerodromes (ASBU Priority 2).</td>
<td></td>
<td>
<table>
<tr><th></th><th>A</th><th>B</th><th>C</th><th>D</th><th>E</th><th>F</th></tr>
<tr><td>1</td><td>√</td><td>√</td><td>√</td><td>√</td><td>√</td><td>√</td></tr>
<tr><td>2</td><td>√</td><td>√</td><td>√</td><td>√</td><td>√</td><td>√</td></tr>
<tr><td>3</td><td>√</td><td>√</td><td>√</td><td>√</td><td></td><td></td></tr>
<tr><td>4</td><td>√</td><td>√</td><td>√</td><td>√</td><td></td><td></td></tr>
<tr><td>5</td><td>√</td><td>√</td><td>√</td><td>√</td><td></td><td></td></tr>
<tr><td>6</td><td>√</td><td>√</td><td>√</td><td>√</td><td></td><td></td></tr>
<tr><td>7</td><td>√</td><td>√</td><td></td><td></td><td></td><td></td></tr>
</table>
</td>
<td>Main impacts
• People: ANSP and airport managers (as part of CDM), airport designers, ATCO, Flight crew
• Procedures: ANSP, Airport Operators, Airspace users
• Systems: Avionics, ANSP and Airport Ground Systems, Vehicles
Main requirements/guidance
• ICAO Doc 4444
• ICAO CDM Manual
• ICAO Doc 9868 (PANS training)
• US TBFM and EUROCONTROL A-CDM
• Eurocae ED-141 Minimum technical specifications for airport collaborative decision making (airport-CDM) systems</td>
</tr>
<tr>
<td>80</td>
<td>Air Traffic Flow Management
/
Collaborative Decision-Making (B0-NOPS)</td>
<td>7.27 High density FIRs supporting the busiest Asia/Pacific traffic flows and high density aerodromes should implement ATFM incorporating CDM to enhance capacity, using bi-lateral and multi-lateral agreements.</td>
<td>7.47 All FIRs supporting Major Traffic Flows should implement ATFM incorporating CDM to enhance capacity, using bi-lateral and multi-lateral agreements.</td>
<td>
<table>
<tr><th></th><th>A</th><th>B</th><th>C</th><th>D</th><th>E</th><th>F</th></tr>
<tr><td>1</td><td>√</td><td>√</td><td>√</td><td>√</td><td>√</td><td>√</td></tr>
<tr><td>2</td><td>√</td><td>√</td><td>√</td><td>√</td><td>√</td><td>√</td></tr>
<tr><td>3</td><td>√</td><td>-</td><td>√</td><td>√</td><td></td><td></td></tr>
<tr><td>4</td><td>√</td><td>√</td><td>√</td><td>√</td><td></td><td></td></tr>
<tr><td>5</td><td>√</td><td>√</td><td>√</td><td>√</td><td></td><td></td></tr>
<tr><td>6</td><td>√</td><td>√</td><td>√</td><td>√</td><td></td><td></td></tr>
<tr><td>7</td><td>√</td><td>√</td><td></td><td></td><td></td><td></td></tr>
</table>
</td>
<td>Main impacts
• People: Flow Managers, ATCO, Dispatchers
• Procedures: ANSP
• Systems: ANSP Ground Systems
Main requirements/guidance
• ICAO Manual on ATFM available in draft version.
• US/Europe experience enough to help initiate applications in other regions
• New procedures required to link much closer ATFM with ATS in case of using miles-in-trail or AMAN or DMAN</td>
</tr>
</table>

90	**Continuous Descent Operations (B0-CDO)**	7.3 CDO operations should be considered for implementation at all high density international aerodromes after analysis, based on a performance-based approach.			A	B	C	D	E	F	**Main impacts** • People: Airspace designers, ANSP procedures designers, Flight Procedures designers, Flight crew, ATCO • Procedures: ANSP, Airspace users • Systems: Avionics, Ground Systems, Navaid infrastructure **Main requirements/guidance** • ICAO Continuous Descent Operations (CDO) Manual (Doc 9931) • ICAO Performance Based Navigation Manual (ICAO Doc 9613) • ICAO PBN operational approval guidance material • ICAO Doc 9868 (PANS training) Note: Since RNP AR Approaches require significant training, ANSPs should work closely with airspace users to determine where RNP AR approaches are to be implemented.
				1	√	√	√	√	**√**	-	
				2	√	√	√	-	√	-	
				3	√	√	√	**√**			
				4	√	√	√	√			
				5	√	√	√	√			
				6	**√**	√	√	**√**			
				7	√	**√**					
100	**Continuous Climb Operations (B0-CCO)**	7.3 CCO operations should be considered for implementation at all high density international aerodromes after analysis, based on a performance-based approach.			A	B	C	D	E	F	**Main impacts** • People: Airspace designers, ANSP procedures designers, Flight Procedures designers, Flight crew, ATCO • Procedures: ANSP, Airspace users • Systems: Avionics, Ground Systems, Navaid infrastructure **Main requirements/guidance** • ICAO Continuous Descent Operations (CDO) Manual (Doc 9931) • ICAO Performance Based Navigation Manual (ICAO Doc 9613) • ICAO PBN operational approval guidance material • ICAO Doc 9868 (PANS training) Note: Since RNP AR Approaches require significant training, ANSPs should work closely with airspace users to determine where RNP AR approaches are to be implemented.
				1	√	√	√	√	**√**	-	
				2	√	√	√	-	√	-	
				3	√	√	√	**√**			
				4	√	√	√	√			
				5	√	√	√	√			
				6	**√**	√	√	**√**			
				7	√	**√**					

<table>
<tr>
<td>110</td>
<td>Performance -based Navigation (PBN) (B0-APTA)</td>
<td>7.5 Where practicable, all high density aerodromes with instrument runways serving aeroplanes should have approaches with vertical guidance (APV). should have:
a) precision approaches; or
b) approaches with vertical guidance (APV), either RNP APCH with Barometric Vertical Navigation (Baro–VNAV) or augmented GNSS (SBAS or GBAS; or
c) when an APV was not practical, straight-in RNP APCH with Lateral Navigation (LNAV)</td>
<td>7.14 RNP 0.3 arrival/departure, approach and/or en-route transiting procedures should be considered at high density aerodromes with rotary wing operations.

7.16 Where practicable, all aerodromes with instrument runways serving aeroplanes should have (ASBU Priority 2):
a) precision approaches; or
b) APV, either RNP APCH with Barometric Vertical Navigation (Baro–VNAV) or augmented GNSS (SBAS or GBAS); or
c) when an APV is not practical, straight-in RNP APCH with LNAV</td>
<td>
<table>
<tr><th></th><th>A</th><th>B</th><th>C</th><th>D</th><th>E</th><th>F</th></tr>
<tr><td>1</td><td>√</td><td>√</td><td>√</td><td>√</td><td>√</td><td>-</td></tr>
<tr><td>2</td><td>√</td><td>√</td><td>√</td><td>-</td><td>√</td><td>-</td></tr>
<tr><td>3</td><td>√</td><td>√</td><td>√</td><td>√</td><td></td><td></td></tr>
<tr><td>4</td><td>√</td><td>√</td><td>√</td><td>√</td><td></td><td></td></tr>
<tr><td>5</td><td>√</td><td>√</td><td>√</td><td>√</td><td></td><td></td></tr>
<tr><td>6</td><td>√</td><td>√</td><td>√</td><td>√</td><td></td><td></td></tr>
<tr><td>7</td><td>√</td><td>-</td><td></td><td></td><td></td><td></td></tr>
</table>
</td>
<td>
Main impacts
• People: Airspace designers, ANSP procedures designers, Flight Procedures designers, Flight crew, ATCO
• Procedures: ANSP, Airspace users
• Systems: Avionics, ANSP Ground Systems, SBAS and GBAS infrastructure
Main requirements/guidance
• ICAO Annex 11
• ICAO Annex 10
• ICAO PANS-OPS Volume 1
• ICAO PBN Manual
• ICAO GNSS Manual
• ICAO Manual on Testing of Radio Navigation Aids (Doc 8071), Volume II
• ICAO Quality Assurance Manual for Flight Procedure Design (Doc 9906)
• ICAO Doc 9868 (PANS training)
Notes:
• the APAC PBN Plan Version 3 required RNP APCH (with Baro-VNAV) for 30% of instrument runways by 2010 and 50% by 2012 (priority should be given to airports with operational benefits); and RNP APCH with Baro-VNAV or APV in 100% of instrument runways by 2016.
• For avionics consider Basic IFR Avionics (TSO C129 with RAIM), Basic IFR GNSS receivers with Baro VNAV, SBAS avionics (TSO C145/146), GBAS receivers (TSO C161/162)
</td>
</tr>
</table>

<table>
<tr>
<td>120</td>
<td>Standard Instrument Departures/ Standard Terminal Arrivals (B0-APTA)</td>
<td>7.4 All international high density aerodromes should have RNAV 1 (ATS surveillance environment) or RNP 1 (ATS surveillance and non-ATS surveillance environments) SID/STAR.</td>
<td>7.15 All international aerodromes should have RNAV 1 (ATS surveillance environment) or RNP 1 (ATS surveillance and non-ATS surveillance environments) SID/STAR.</td>
<td>
<table>
<tr><th></th><th>A</th><th>B</th><th>C</th><th>D</th><th>E</th><th>F</th></tr>
<tr><td>1</td><td>√</td><td>√</td><td>√</td><td>-</td><td>√</td><td>-</td></tr>
<tr><td>2</td><td>√</td><td>√</td><td>√</td><td>-</td><td>√</td><td>-</td></tr>
<tr><td>3</td><td>√</td><td>√</td><td>√</td><td>√</td><td></td><td></td></tr>
<tr><td>4</td><td>√</td><td>√</td><td>√</td><td>√</td><td></td><td></td></tr>
<tr><td>5</td><td>√</td><td>√</td><td>√</td><td>√</td><td></td><td></td></tr>
<tr><td>6</td><td>√</td><td>√</td><td>√</td><td>√</td><td></td><td></td></tr>
<tr><td>7</td><td>√</td><td>-</td><td></td><td></td><td></td><td></td></tr>
</table>
</td>
<td>
Main impacts

People: Airspace designers, ANSP procedures designers, Flight Procedures designers, Flight crew, ATCO
Procedures: ANSP, Airspace users
Systems: Avionics, ANSP Ground Systems, SBAS and GBAS infrastructure

Main requirements/guidance

ICAO Annex 11
ICAO Annex 10
ICAO PANS-OPS Volume 1
ICAO PBN Manual
ICAO GNSS Manual
ICAO Manual on Testing of Radio Navigation Aids (Doc 8071), Volume II
ICAO Quality Assurance Manual for Flight Procedure Design (Doc 9906)
ICAO Doc 9868 (PANS training)

Note: the Asia/Pacific PBN Plan Version 3 required RNAV 1 SID/STAR for 50% of international airports by 2010 and 75% by 2012 (priority should be given to airports with RNP Approach); and RNAV 1 or RNP 1 SID/STAR for 100% of international airports and 70% of busy domestic airports where there are operational benefits by 2016.
</td>
</tr>
<tr>
<td>130</td>
<td>Performance -based Navigation (PBN) Visual and Arrival Procedures - REGIONAL</td>
<td></td>
<td>7.19 PBN procedures that overlay visual arrival and departure procedures should be established where this provided an operational advantage.</td>
<td>
<table>
<tr><th></th><th>A</th><th>B</th><th>C</th><th>D</th><th>E</th><th>F</th></tr>
<tr><td>1</td><td>√</td><td>√</td><td>√</td><td>√</td><td>√</td><td>-</td></tr>
<tr><td>2</td><td>√</td><td>√</td><td>√</td><td>-</td><td>√</td><td>-</td></tr>
<tr><td>3</td><td>√</td><td>√</td><td>√</td><td>√</td><td></td><td></td></tr>
<tr><td>4</td><td>√</td><td>√</td><td>√</td><td>√</td><td></td><td></td></tr>
<tr><td>5</td><td>√</td><td>√</td><td>√</td><td>√</td><td></td><td></td></tr>
<tr><td>6</td><td>√</td><td>√</td><td>√</td><td>√</td><td></td><td></td></tr>
<tr><td>7</td><td>√</td><td>-</td><td></td><td></td><td></td><td></td></tr>
</table>
</td>
<td>
Main impacts

People: Airspace designers, ANSP procedures designers, Flight Procedures designers, Flight crew, ATCO
Procedures: ANSP, Airspace users
Systems: Avionics, ANSP Ground Systems, SBAS and GBAS infrastructure

Main requirements/guidance

ICAO Annex 11
ICAO Annex 10
ICAO PANS-OPS Volume 1
ICAO PBN Manual
ICAO GNSS Manual
ICAO Manual on Testing of Radio Navigation Aids (Doc 8071), Volume II
ICAO Quality Assurance Manual for Flight Procedure Design (Doc 9906)
ICAO Doc 9868 (PANS training)

</td>
</tr>
</table>

<table>
<tr>
<td>140</td>
<td>Performance -based Navigation (PBN) Routes (B0-FRTO)</td>
<td>7.9 All ATS routes should be designated with a navigation performance specification to define the CNS/ATM operational environment. The ATS route navigation performance specification selected should be the least stringent needed to support the intended operation. When obstacle clearance or ATC separation requirements demand, a more stringent navigation specification may be selected. ATS routes should be established in accordance with the following PBN specifications:
• Category R airspace – RNP 4, RNP 10 (RNAV 10) (other acceptable navigation specifications – RNP 2 oceanic); and
• Category S airspace – RNP 2 or RNAV 2 (other acceptable navigation specifications – RNAV 5).</td>
<td>7.22 All en-route controlled airspace should be designated as being exclusive PBN airspace with mandatory carriage of GNSS utilising RNP navigation specifications, except for State aircraft. Such implementation mandates should be harmonised with adjacent airspace. ATS routes
should be established in accordance with the following PBN specification:
• Category R and S airspace – RNP 2
.</td>
<td>
<table>
<tr><th></th><th>A</th><th>B</th><th>C</th><th>D</th><th>E</th><th>F</th></tr>
<tr><td>1</td><td>√</td><td>√</td><td>√</td><td>√</td><td>√</td><td>-</td></tr>
<tr><td>2</td><td>√</td><td>-</td><td>√</td><td>-</td><td>√</td><td>-</td></tr>
<tr><td>3</td><td>√</td><td>√</td><td>√</td><td>√</td><td></td><td></td></tr>
<tr><td>4</td><td>√</td><td>√</td><td>√</td><td>√</td><td></td><td></td></tr>
<tr><td>5</td><td>√</td><td>√</td><td>√</td><td>√</td><td></td><td></td></tr>
<tr><td>6</td><td>√</td><td>√</td><td>√</td><td>√</td><td></td><td></td></tr>
<tr><td>7</td><td>√</td><td>-</td><td></td><td></td><td></td><td></td></tr>
</table>
</td>
<td>Main impacts
• People: Flight crew, ATCO, Airspace Planners, Airspace users
• Procedures: ANSP (letters of agreement, airspace, AIP/AIC), Airspace users
• Systems: Avionics (Flight following/monitoring), ANSP Ground Systems (support of Flexible Routing)
Main requirements/guidance
• ICAO Annex 11
• ICAO Annex 10
• ICAO PANS-OPS Volume 1
• ICAO PBN Manual
• ICAO GNSS Manual
• ICAO Manual on Testing of Radio Navigation Aids (Doc 8071), Volume II
• ICAO Quality Assurance Manual for Flight Procedure Design (Doc 9906)
• ICAO Doc 9868 (PANS training)

Note: The possibility of a regional mandate of PBN should be considered</td>
</tr>
<tr>
<td>150</td>
<td>Performance -based Navigation (PBN) airspace - REGIONAL</td>
<td>7.8 All Category R and S upper controlled airspace, and Category T airspace supporting high density aerodromes should be designated as non-exclusive or exclusive PBN airspace as appropriate. This is to allow operational priority for PBN approved aircraft, harmonised specifications and to take
into account off-track events such as weather deviations, with priority implementation for high density FIRs.</td>
<td></td>
<td>
<table>
<tr><th></th><th>A</th><th>B</th><th>C</th><th>D</th><th>E</th><th>F</th></tr>
<tr><td>1</td><td>√</td><td>√</td><td>√</td><td>√</td><td>√</td><td>-</td></tr>
<tr><td>2</td><td>√</td><td>√</td><td>√</td><td>-</td><td>-</td><td>-</td></tr>
<tr><td>3</td><td>√</td><td>√</td><td>√</td><td>√</td><td></td><td></td></tr>
<tr><td>4</td><td>√</td><td>√</td><td>√</td><td>√</td><td></td><td></td></tr>
<tr><td>5</td><td>-</td><td>-</td><td>√</td><td>√</td><td></td><td></td></tr>
<tr><td>6</td><td>√</td><td>-</td><td>√</td><td>√</td><td></td><td></td></tr>
<tr><td>7</td><td>√</td><td>-</td><td></td><td></td><td></td><td></td></tr>
</table>
</td>
<td>Main impacts
• People: Flight crew, Airspace users, Civil aviation authorities, ANSP
• Procedures: ANSP
• Systems: Avionics, ANSP Ground Systems
Main requirements/guidance
• ICAO Annex 11
• ICAO Annex 2</td>
</tr>
<tr>
<td>160</td>
<td>Safety Nets (B0-SNET)</td>
<td></td>
<td>7.54 ATS surveillance systems should enable STCA, APW and MSAW.
Route Adherence Monitoring (RAM) should be utilised when monitoring PBN route separations. Cleared Level Adherence Monitoring (CLAM) should be utilised to monitor RVSM airspace

7.52 ATM systems providing services within <u>Category R</u> airspace should enable appropriate ATC capabilities including CPAR, which is a key enabler for UPR and DARP operations.</td>
<td>
<table>
<tr><th></th><th>A</th><th>B</th><th>C</th><th>D</th><th>E</th><th>F</th></tr>
<tr><td>1</td><td>√</td><td>√</td><td>√</td><td>√</td><td>√</td><td>√</td></tr>
<tr><td>2</td><td>√</td><td>√</td><td>√</td><td>√</td><td>√</td><td>√</td></tr>
<tr><td>3</td><td>√</td><td>√</td><td>√</td><td>√</td><td></td><td></td></tr>
<tr><td>4</td><td>√</td><td>√</td><td>√</td><td>√</td><td></td><td></td></tr>
<tr><td>5</td><td>√</td><td>√</td><td>√</td><td>√</td><td></td><td></td></tr>
<tr><td>6</td><td>√</td><td>√</td><td>√</td><td>√</td><td></td><td></td></tr>
<tr><td>7</td><td>√</td><td>√</td><td></td><td></td><td></td><td></td></tr>
</table>
</td>
<td>Main impacts
• People: ATCO, ATSEP
• Procedures: ANSP (configuration and use of safety nets/monitoring aids, recovery techniques)
• Systems: Avionics (support of cooperative surveillance using Mode C/S transponder or ADS-B OUT), ANSP Ground Systems
Main requirements/guidance
• ICAO Doc 4444
• Gold Edition 1 and draft Edition 2 documents For RAM and CLAM, UPR and DARP in CPDLC/ADS-C/WPR serviced airspaces</td>
</tr>
</table>

<table>
<tr>
<td>170</td>
<td>Airborne Safety Systems - REGIONAL</td>
<td>7.7 All Category R and S upper controlled airspace, and Category T airspace supporting high density aerodromes should require the mandatory carriage of an operable mode S transponder within airspace where Mode S radar services are provided, ACAS and Terrain Awareness Warning Systems (TAWS), unless approved by ATC.</td>
<td>7.21 All Category R and S upper controlled airspace, and Category T airspace should require the mandatory carriage of an operable mode S transponder within airspace where Mode S radar services are provided, ACAS and Terrain Awareness Warning Systems (TAWS), unless approved by ATC.</td>
<td>
<table>
<tr><th></th><th>A</th><th>B</th><th>C</th><th>D</th><th>E</th><th>F</th></tr>
<tr><td>1</td><td>√</td><td>√</td><td>√</td><td>√</td><td>√</td><td>-</td></tr>
<tr><td>2</td><td>√</td><td>√</td><td>√</td><td>-</td><td>-</td><td>-</td></tr>
<tr><td>3</td><td>√</td><td>√</td><td>√</td><td>√</td><td></td><td></td></tr>
<tr><td>4</td><td>√</td><td>√</td><td>√</td><td>√</td><td></td><td></td></tr>
<tr><td>5</td><td>-</td><td>-</td><td>√</td><td>√</td><td></td><td></td></tr>
<tr><td>6</td><td>√</td><td>-</td><td>√</td><td>√</td><td></td><td></td></tr>
<tr><td>7</td><td>√</td><td>-</td><td></td><td></td><td></td><td></td></tr>
</table>
</td>
<td>
Main impacts
• People: Flight crew, Airspace users, Civil aviation authorities
• Procedures: Airspace users
• Systems: Avionics
Main requirements/guidance
• ICAO Annex 11
• ICAO Annex 10
• ICAO Doc 9863 Airborne Collision Avoidance System (ACAS) Manual
• Eurocae ED-143 Change 1
</td>
</tr>
<tr>
<td>180</td>
<td>ADS-B OUT (B0-ASUR)</td>
<td>7.6 All Category S upper controlled airspace and Category T airspace supporting high density aerodromes should be designated as non-exclusive or exclusive as appropriate ADS-B airspace requiring operation of ADS-B using 1090ES with DO-260/260A and 260B capability, with priority implementation for the following high density FIRs</td>
<td>7.23 All Category S upper controlled airspace and Category T airspace should be designated as non-exclusive or exclusive as appropriate ADS-B airspace requiring operation of ADS-B using 1090ES with DO-260/260A and 260B capability.

7.24 In areas where ADS-B based separation service was provided, the mandatory carriage of ADS-B OUT using 1090ES with DO260/60A and 260B should be prescribed.</td>
<td>
<table>
<tr><th></th><th>A</th><th>B</th><th>C</th><th>D</th><th>E</th><th>F</th></tr>
<tr><td>1</td><td>√</td><td>√</td><td>√</td><td>√</td><td>√</td><td>-</td></tr>
<tr><td>2</td><td>√</td><td>-</td><td>√</td><td>-</td><td>-</td><td>-</td></tr>
<tr><td>3</td><td>√</td><td>√</td><td>√</td><td>√</td><td></td><td></td></tr>
<tr><td>4</td><td>√</td><td>√</td><td>√</td><td>√</td><td></td><td></td></tr>
<tr><td>5</td><td>-</td><td>-</td><td>√</td><td>√</td><td></td><td></td></tr>
<tr><td>6</td><td>√</td><td>√</td><td>√</td><td>√</td><td></td><td></td></tr>
<tr><td>7</td><td>√</td><td>-</td><td></td><td></td><td></td><td></td></tr>
</table>
</td>
<td>
Main impacts
• People: Flight crew (use of AIRB - basic airborne situational awareness during flight operations- & VSA - visual separation on approach - applications), ATCO, ATSEP
• Procedures: ANSP (configuration and use of ADS-B traffic display)
• Systems: Avionics (ADS-B OUT), ANSP Ground Systems (Implementation of ADS-B and integration with ATC automation) and infrastructure
Main requirements/guidance:
• ICAO Annex 11
• ICAO Annex 2
• ICAO draft ADS-B Implementation Guidance Document
• ICAO Doc 9868 (PANS training)
• ADS-B OUT: AMC2024, RTCA/ Eurocae DO-260A/DO-260B -ED102A
Notes:
• Particular attention should be given to the training of General Aviation Flight crews regarding appropriate use of AIRB & VAS application
• Approval Plans: Operational Approval Guidance/Criteria may be needed based on regional application for ATSA
• Procedure for use of ADS-B traffic display being proposed for inclusion in PAN-OPS (Doc 8168) for applicability in Nov. 2013
</td>
</tr>
</table>

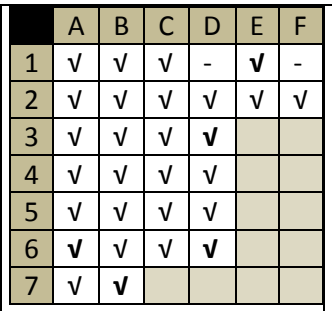
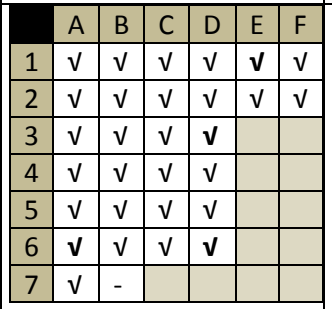
190	**Airspace classification - REGIONAL**	7.28 Harmonization of upper airspace classification should be as follows: a) Category R controlled airspace– Class A; and b) Category S controlled airspace– Class A, or if there are high level general aviation or military VFR operations: Class B or C.		<table><tr><th></th><th>A</th><th>B</th><th>C</th><th>D</th><th>E</th><th>F</th></tr><tr><td>1</td><td>√</td><td>√</td><td>√</td><td>-</td><td>**√**</td><td>-</td></tr><tr><td>2</td><td>√</td><td>-</td><td>-</td><td>-</td><td>√</td><td>-</td></tr><tr><td>3</td><td>√</td><td>-</td><td>√</td><td>**√**</td><td></td><td></td></tr><tr><td>4</td><td>√</td><td>√</td><td>√</td><td>√</td><td></td><td></td></tr><tr><td>5</td><td>-</td><td>-</td><td>√</td><td>√</td><td></td><td></td></tr><tr><td>6</td><td>-</td><td>-</td><td>√</td><td>**√**</td><td></td><td></td></tr><tr><td>7</td><td>√</td><td>-</td><td></td><td></td><td></td><td></td></tr></table>	**Main impacts** • People: Flight crew, Airspace users, Civil aviation authorities, ANSP • Procedures: ANSP • Systems: Avionics, ANSP Ground Systems **Main requirements/guidance** • ICAO Annex 11 • ICAO Annex 2
200	**Flight Level Orientation Schemes (FLOS) - REGIONAL**	7.10 The ICAO Table of Cruising Levels based on feet as contained in Appendix 3a to Annex 2 should be used.		<table><tr><th></th><th>A</th><th>B</th><th>C</th><th>D</th><th>E</th><th>F</th></tr><tr><td>1</td><td>√</td><td>√</td><td>√</td><td>√</td><td>**√**</td><td>-</td></tr><tr><td>2</td><td>√</td><td>√</td><td>-</td><td>-</td><td>-</td><td>-</td></tr><tr><td>3</td><td>√</td><td>√</td><td>√</td><td>-</td><td></td><td></td></tr><tr><td>4</td><td>√</td><td>√</td><td>√</td><td>**√**</td><td></td><td></td></tr><tr><td>5</td><td>-</td><td>-</td><td>√</td><td>-</td><td></td><td></td></tr><tr><td>6</td><td>-</td><td>-</td><td>√</td><td>-</td><td></td><td></td></tr><tr><td>7</td><td>√</td><td>-</td><td></td><td></td><td></td><td></td></tr></table>	**Main impacts** • People: Flight crew, Airspace users, Civil aviation authorities, ANSP • Procedures: ANSP • Systems: Avionics, ANSP Ground Systems **Main requirements/guidance** • ICAO Annex 11 • ICAO Annex 2
210	**Flight Level Allocation Schemes (FLAS) - REGIONAL**	7.36 Priority for FLAS level allocations should be given to higher density ATS routes over lower density ATS routes. FLAS should comply with Annex 2, Appendix 3a unless part of an OTS. FLAS other than OTS should only be utilised for safety and efficiency reasons within R and S airspace. 7.40 Where a minimum aircraft equipage is specified, any aircraft that does not meet specified equipage requirements should receive a lower priority, except as prescribed (such as for State aircraft). States should require State aircraft to comply with equipage requirements as far as practicable.		<table><tr><th></th><th>A</th><th>B</th><th>C</th><th>D</th><th>E</th><th>F</th></tr><tr><td>1</td><td>√</td><td>√</td><td>√</td><td>√</td><td>**√**</td><td>-</td></tr><tr><td>2</td><td>√</td><td>√</td><td>-</td><td>-</td><td>-</td><td>-</td></tr><tr><td>3</td><td>√</td><td>√</td><td>√</td><td>-</td><td></td><td></td></tr><tr><td>4</td><td>√</td><td>√</td><td>√</td><td>√</td><td></td><td></td></tr><tr><td>5</td><td>√</td><td>√</td><td>√</td><td>√</td><td></td><td></td></tr><tr><td>6</td><td>-</td><td>-</td><td>√</td><td>**√**</td><td></td><td></td></tr><tr><td>7</td><td>√</td><td>**√**</td><td></td><td></td><td></td><td></td></tr></table>	**Main impacts** • People: Flight crew, Airspace users, Civil aviation authorities, ANSP • Procedures: ANSP • Systems: Avionics, ANSP Ground Systems **Main requirements/guidance** • ICAO Annex 11 • ICAO Annex 2, Appendix 3a

220	**ATS Inter-facility Data-link Communications (AIDC) (B0-FICE)**	7.35 ATM systems should enable AIDC (version 3 or later) between ATC units where transfers of control are conducted (ASBU Priority 1). As a minimum, the following AIDC messages types should be implemented: • Advanced Boundary Information (ABI); • Coordinate Estimate (EST); • Acceptance (ACP); • TOC; and • Assumption of Control (AOC)			A	B	C	D	E	F	**Main impacts** • People: ATCO, ATSEP • Procedures: ANSP (configuration and use of automatic coordinations) • Systems: ANSP Ground Systems, ground/ground communications infrastructure **Main requirements/guidance** • ICAO Annex 10 • ICAO Doc 4444 • APAC/NAT AIDC ICD
				1	√	√	√	√	**√**	√		
				2	√	√	√	√	√	√		
				3	√	-	√	**√**				
				4	√	√	√	√				
				5	√	√	√	√				
				6	**√**	√	√	**√**				
				7	√	-						
230	**Automated Transfer of Control in an ATSU - REGIONAL**	7.29 Where practicable, all ATC Sectors within the same ATC unit with ATS surveillance capability should have automated hand-off procedures that allow the transfer of control of aircraft without the necessity for voice communications, unless an aircraft requires special handling.	7.46 Where practicable, all ATC Sectors with adjacent ATC Centres using ATS surveillance capability should have automated hand-off procedures that allow the transfer of control of aircraft without the necessity for voice communications, unless an aircraft requires special handling.		A	B	C	D	E	F	**Main impacts** • People: ATCO, ATSEP • Procedures: ANSP (configuration and use of automatic coordinations) • Systems: ANSP Ground Systems, ground/ground communications infrastructure **Main requirements/guidance** • ICAO Annex 10 • ICAO Doc 4444
				1	√	√	√	√	**√**	√		
				2	√	√	√	√	√	√		
				3	√	-	√	**√**				
				4	√	√	√	√				
				5	√	√	√	√				
				6	**√**	√	√	**√**				
				7	√	-						
240	**ATS Surveillance data sharing - REGIONAL**	7.34 Subject to appropriate filtering, ATS surveillance data, particularly from ADS-B, should be shared with neighbouring ATC units within high density FIRs. Direct speech circuits and appropriate handoff procedures should be implemented between controllers providing ATS surveillance in adjacent airspace.	7.48 Subject to appropriate filtering, ATS surveillance data, particularly from ADS-B, should be shared with all neighbouring ATC units.		A	B	C	D	E	F	**Main impacts** • People: ATSEP • Procedures: ANSP • Systems: ANSP Ground Systems, ground/ground communications infrastructure **Main requirements/guidance** • ICAO Annex 10 • ICAO ADS-B Implementation Guidance Document (AIGD)
				1	√	√	√	√	**√**	√		
				2	√	√	√	√	√	√		
				3	√	-	√	**√**				
				4	√	√	√	√				
				5	√	√	√	√				
				6	**√**	√	√	**√**				
				7	√	-						

<table>
<tr>
<td>250</td>
<td>ATM systems enabling optimal PBN operations (B0-APTA)</td>
<td>7.37 ATM systems, including communication and ATS surveillance systems and the performance of those systems, should support the capabilities of PBN navigation specifications and ATC separation standards applicable within the airspace concerned .</td>
<td>7.43 ATM system design (including ATS surveillance, ATS communication systems, ATC separation minimum, aircraft speed control and ATC training) should be planned and implemented to support optimal aerodrome capacity expectations for the runway(s) concerned.

7.53 Electronic flight progress strips should be utilised wherever practicable.</td>
<td>
<table>
<tr><th></th><th>A</th><th>B</th><th>C</th><th>D</th><th>E</th><th>F</th></tr>
<tr><td>1</td><td>√</td><td>√</td><td>√</td><td>√</td><td>√</td><td>√</td></tr>
<tr><td>2</td><td>√</td><td>√</td><td>√</td><td>√</td><td>√</td><td>√</td></tr>
<tr><td>3</td><td>√</td><td>√</td><td>√</td><td>√</td><td></td><td></td></tr>
<tr><td>4</td><td>√</td><td>√</td><td>√</td><td>√</td><td></td><td></td></tr>
<tr><td>5</td><td>√</td><td>√</td><td>√</td><td>√</td><td></td><td></td></tr>
<tr><td>6</td><td>√</td><td>√</td><td>√</td><td>√</td><td></td><td></td></tr>
<tr><td>7</td><td>√</td><td>√</td><td></td><td></td><td></td><td></td></tr>
</table>
</td>
<td>
Main impacts
• People: ATCO, ANSP system engineers and industry stakeholders
• Procedures: ANSP (design and maintenance of ATS systems)
• Systems: ANSP Ground Systems
Main requirements/guidance
• guidance on the performance of datalink communication and surveillance systems available in the Global Operational Data-link Document Ed.2
• Eurocae ED-109A for Software Integrity Assurance Considerations for CNS/ATM Systems
• Eurocae ED-153: Guidelines for ANS Software Safety Assurance

Notes:
• The efficacy, continuity and availability of ATM services should be supported by adherence with regional planning and guidance material regarding ATM automation and ATM contingency systems.
• The ATM systems should deal particularly with:
  ○ Flight plan provisions related to PBN,
  ○ Support of free routes (FDPS, conflict detection algorithm, and degraded cases)
  ○ Coordination and transfer on non-published points
  ○ Electronic dialogue
  ○ Level of safety assurance to be met by the system
</td>
</tr>
</table>

260	**ATC Horizontal separation - REGIONAL**	7.30 The delivery of CNS/ATM services should be based primarily on the CNS/ATM capability. All ATC units should authorise the use of the horizontal separation minima stated in ICAO Doc 4444 (PANS ATM), or as close to the separation minima as practicable, taking into account such factors as: a) the automation of the ATM system; b) the capability of the ATC communications system; c) the performance of the ATS surveillance system, including data-sharing or overlapping coverage at TOC points; and d) ensuring the competency of air traffic controllers to apply the full tactical capability of ATS surveillance systems.			**Main impacts** • People: ANSP: ATCO, ATSEP, and Flight crew • Procedures: ANSP, CAA • Systems: Avionics, ANSP Ground Systems (FDPS, conflict detection algorithm, and degraded cases) **Main requirements/guidance** • ICAO Annex 11 • ICAO Annex 2
270	**Multi-sensor integrated surveillance (ADS-B, MLAT, radar) (B0-ASUR)**	7.32 ADS-B (using 1090ES) or MLAT or radar surveillance systems should be used to provide coverage of all Category S-capable airspace as far as practicable. Data from ATS surveillance systems should be integrated into operational ATC aircraft situation displays (standalone displays of ATS surveillance data should not be used operationally).			**Main impacts** • People: Flight Flight crew, ATCO (separation provisions, information service, SAR based on ADS-B/MLAT/WAM), ATSEP • Procedures: Avionics, ANSP (ADS-B to ADS-B and ADS-B to radar separation and fused targets) • Systems: Avionics (ADS-B OUT), ANSP Ground Systems (fusion and display of MLAT/ADS-B data) and infrastructure **Main requirements/guidance** • ICAO PANS-ATM (Doc 4444) • ICAO Doc 9868 (PANS training) • WAM: Eurocae ED-142

280	**ADS-C, CPDLC**	7.33 Within Category R airspace, ADS-C surveillance and CPDLC should be enabled to support PBN-based separations, as well as UPR and DARP.		<table><tr><th></th><th>A</th><th>B</th><th>C</th><th>D</th><th>E</th><th>F</th></tr><tr><td>1</td><td>√</td><td>√</td><td>√</td><td>√</td><td>**√**</td><td>√</td></tr><tr><td>2</td><td>√</td><td>√</td><td>√</td><td>√</td><td>√</td><td>√</td></tr><tr><td>3</td><td>√</td><td>√</td><td>√</td><td>**√**</td><td></td><td></td></tr><tr><td>4</td><td>√</td><td>√</td><td>√</td><td>√</td><td></td><td></td></tr><tr><td>5</td><td>√</td><td>√</td><td>√</td><td>√</td><td></td><td></td></tr><tr><td>6</td><td>**√**</td><td>√</td><td>√</td><td>**√**</td><td></td><td></td></tr><tr><td>7</td><td>√</td><td>**√**</td><td></td><td></td><td></td><td></td></tr></table>	**Main impacts** • People: ATCO, ATSEP • Procedures: ANSP • Systems: Avionics, ANSP Ground Systems **Main requirements/guidance** • ICAO Doc 4444 • ICAO Manual of Air Traffic Services Data Link Applications (Doc 9694) • ICAO Manual on datalink performance • APAC communication and surveillance strategy • ICAO Doc 9925 - Manual on the Aeronautical Mobile Satellite (Route) Service Edition 1 • Global Operational Data Link Document (GOLD) Edition 1 and draft Edition 2 • RTCA DO-258A/Eurocae ED-100A, RTCA DO-306/Eurocae ED-122 Notes: • Provisions regarding Performance Based Communications and Surveillance including Post-Monitoring Analysis are to be found in Draft GOLD Ed. 2 • regarding regulatory requirements, it should be noted that new ICAO OPLINK and SASP Ops documentation is under development
290	**UPR and DARP**	7.33 Within Category R airspace, UPR and DARP should be enabled to support PBN-based separations		<table><tr><th></th><th>A</th><th>B</th><th>C</th><th>D</th><th>E</th><th>F</th></tr><tr><td>1</td><td>√</td><td>√</td><td>√</td><td>√</td><td>**√**</td><td>√</td></tr><tr><td>2</td><td>√</td><td>√</td><td>√</td><td>√</td><td>√</td><td>√</td></tr><tr><td>3</td><td>√</td><td>√</td><td>√</td><td>**√**</td><td></td><td></td></tr><tr><td>4</td><td>√</td><td>√</td><td>√</td><td>√</td><td></td><td></td></tr><tr><td>5</td><td>√</td><td>√</td><td>√</td><td>√</td><td></td><td></td></tr><tr><td>6</td><td>**√**</td><td>√</td><td>√</td><td>**√**</td><td></td><td></td></tr><tr><td>7</td><td>√</td><td>**√**</td><td></td><td></td><td></td><td></td></tr></table>	**Main impacts** • People: ATCO, ATSEP • Procedures: ANSP • Systems: Avionics, ANSP Ground Systems **Main requirements/guidance** • ICAO Doc 4444 • ICAO Manual of Air Traffic Services Data Link Applications (Doc 9694) • ICAO Manual on datalink performance • APAC communication and surveillance strategy • Global Operational Data Link Document (GOLD) Edition 1 and draft Edition 2 • RTCA DO-258A/Eurocae ED-100A, RTCA DO-306/Eurocae ED-122 Notes: • Provisions regarding Performance Based Communications and Surveillance including Post-Monitoring Analysis are to be found in Draft GOLD Ed. 2 regarding regulatory requirements, it should be noted that new ICAO OPLINK and SASP Ops documentation is under development

<table>
<tr>
<td>300</td>
<td>Aeronautical Meteorology

(B0-DATM)</td>
<td>7.38 ATM systems should be supported by digitally-based AIM systems (using Aeronautical
Information Exchange Model version 5.1 or later) through implementation of Phase 1 and 2 of the
AIS-AIM Roadmap in adherence with ICAO and regional AIM planning and guidance material</td>
<td>7.51 ATM systems should be supported by complete implementation of AIM Phase 3.</td>
<td>
<table>
<tr><th></th><th>A</th><th>B</th><th>C</th><th>D</th><th>E</th><th>F</th></tr>
<tr><td>1</td><td>√</td><td>√</td><td>√</td><td>√</td><td>√</td><td>√</td></tr>
<tr><td>2</td><td>√</td><td>√</td><td>√</td><td>√</td><td>√</td><td>√</td></tr>
<tr><td>3</td><td>√</td><td>-</td><td>√</td><td>√</td><td></td><td></td></tr>
<tr><td>4</td><td>√</td><td>√</td><td>√</td><td>√</td><td></td><td></td></tr>
<tr><td>5</td><td>√</td><td>√</td><td>√</td><td>√</td><td></td><td></td></tr>
<tr><td>6</td><td>√</td><td>√</td><td>√</td><td>√</td><td></td><td></td></tr>
<tr><td>7</td><td>√</td><td>-</td><td></td><td></td><td></td><td></td></tr>
</table>
</td>
<td>Main impacts
• People: AIS/AIM personnel, ATCO, ATSEP
• Procedures: ANSP (data users to retrieve information digitally), Airspace users (Electronic Flight Bag)
• Systems: ANSP Ground Systems (Automation of national XML aeronautical data, NOTAM and MET) and infrastructure
Main requirements/guidance
See B0-AMET
Note:
• Linked to B0-AMET</td>
</tr>
<tr>
<td>310</td>
<td>Meteorological Information (B0-AMET)</td>
<td>7.26 All high density aerodromes should provide meteorological forecasts, aerodrome warnings and alerts that support efficient terminal operations.

7.39 ATM systems should be supported by implementation of appropriate meteorological information reporting systems, providing, inter-alia, observations, forecasts, warnings and alerts, and also provide for information to meteorological authorities or offices where required.</td>
<td></td>
<td>
<table>
<tr><th></th><th>A</th><th>B</th><th>C</th><th>D</th><th>E</th><th>F</th></tr>
<tr><td>1</td><td>√</td><td>√</td><td>√</td><td>√</td><td>√</td><td>√</td></tr>
<tr><td>2</td><td>√</td><td>√</td><td>√</td><td>√</td><td>√</td><td>√</td></tr>
<tr><td>3</td><td>√</td><td>-</td><td>√</td><td>√</td><td></td><td></td></tr>
<tr><td>4</td><td>√</td><td>√</td><td>√</td><td>√</td><td></td><td></td></tr>
<tr><td>5</td><td>√</td><td>√</td><td>√</td><td>√</td><td></td><td></td></tr>
<tr><td>6</td><td>√</td><td>√</td><td>√</td><td>√</td><td></td><td></td></tr>
<tr><td>7</td><td>√</td><td>-</td><td></td><td></td><td></td><td></td></tr>
</table>
</td>
<td>Main impacts
• People: Airport operators, airspace users, MET services
• Procedures: ANSP, MET services, airspace users
• Systems: ANSP Ground Systems (including future integration of SWIM)
Main requirements/guidance
• ICAO Annex 3, including Amendment 76
• ICAO Manual of Aeronautical Meteorological Practices (Doc 8896)
• ICAO Manual on Coordination between Air Traffic Services, Aeronautical Information Services & Aeronautical Meteorological Services (Doc 9377)
• Handbook on the International Airways Volcano Watch – Operational Procedures and Contact List (Doc 9766)
• Manual on Low Level Wind Shear (Doc 9817)
• Manual on Volcanic Ash, Radioactive Material and Toxic Chemical Clouds (Doc 9691)
• ICAO meteorological information exchange (IWXXM) and ROBEX guidance
Note:
• Amendment 76 to Annex 3 applicable on 14 Nov. 2013
• Draft manual on the Digital Exchange of Aeronautical Meteorological Information will be available for future guidance
• Airspace users may use AOC data-link to send information to aircraft</td>
</tr>
</table>

<table>
<tr>
<td>320</td>
<td>ATM Managers' Performance - REGIONAL</td>
<td>7.41 The following should be established to support human performance in the delivery of a Seamless ATM service. The systems should consider all the elements of the SHEL Model (Software, Hardware, Environment and Liveware – humans), in accordance with the ICAO Human Factors DigestNo. 1 and related reference material:
a) human performance training for all ANSP managers, including:
• assessment and management of risks related to human capabilities and limitations;
• effective participation in a team and team management
• effective safety reporting systems;
• human factors in air safety investigation;
fatigue management approaches;</td>
<td>Prevention of fatigue systems should be established to support human performance in the delivery of a Seamless ATM service. The systems should be consistent with guidance within ICAO Doc 9966 FRMS – Fatigue Risk Management System.</td>
<td>
<table>
<tr><th></th><th>A</th><th>B</th><th>C</th><th>D</th><th>E</th><th>F</th></tr>
<tr><td>1</td><td>√</td><td>-</td><td>-</td><td>-</td><td>√</td><td>-</td></tr>
<tr><td>2</td><td>√</td><td>√</td><td>-</td><td>-</td><td>-</td><td>-</td></tr>
<tr><td>3</td><td>√</td><td>√</td><td>√</td><td>√</td><td></td><td></td></tr>
<tr><td>4</td><td>√</td><td>√</td><td>√</td><td>√</td><td></td><td></td></tr>
<tr><td>5</td><td>√</td><td>√</td><td>√</td><td>√</td><td></td><td></td></tr>
<tr><td>6</td><td>-</td><td>-</td><td>√</td><td>√</td><td></td><td></td></tr>
<tr><td>7</td><td>√</td><td>√</td><td></td><td></td><td></td><td></td></tr>
</table>
</td>
<td>Main impacts
• People: all ANSP staff, particularly: managers, operators, safety managers and teams
• Procedures: ANSP (initial/continuous training on human performance, reporting, operational team management)
• Systems: tool for safety reporting
Main requirements/guidance
• ICAO Annex 1 Personnel Licensing
• ICAO Circular 214 Fundamentals on Human Factors
• ICAO Circular 227 Training of Operational Personnel on Human Factors
• ICAO Circular 241 Human Factors in ATC
• ICAO Circular 249 Human Factors in CNS and ATM Systems
• ICAO Circular 318 Language Testing Criteria for Global Harmonization
• Circular 323 Guidelines for Aviation English Training Programmes
• ICAO Doc 9835 Manual on the Implementation of ICAO Language Proficiency Requirements
• ICAO Doc 9966 Fatigue Risk Management Systems
• ICAO Human Factors Digest No. 1
• For recording of data (for history and analysis purposes): ED-111 Functional specifications for CNS/ATM Recording</td>
</tr>
<tr>
<td>330</td>
<td>ATC simulators performance - REGIONAL</td>
<td>7.41 The following should be established to support human performance in the delivery of a Seamless ATM service. The systems should consider all the elements of the SHEL Model (Software, Hardware, Environment and Liveware – humans), in accordance with the ICAO Human Factors DigestNo. 1 and related reference material:
b) enhancement and improved application of ATC simulators;</td>
<td></td>
<td>
<table>
<tr><th></th><th>A</th><th>B</th><th>C</th><th>D</th><th>E</th><th>F</th></tr>
<tr><td>1</td><td>√</td><td>√</td><td>√</td><td>√</td><td>√</td><td>√</td></tr>
<tr><td>2</td><td>√</td><td>√</td><td>√</td><td>√</td><td>√</td><td>√</td></tr>
<tr><td>3</td><td>√</td><td>-</td><td>-</td><td>-</td><td></td><td></td></tr>
<tr><td>4</td><td>-</td><td>-</td><td>-</td><td>-</td><td></td><td></td></tr>
<tr><td>5</td><td>√</td><td>√</td><td>√</td><td>√</td><td></td><td></td></tr>
<tr><td>6</td><td>-</td><td>-</td><td>-</td><td>√</td><td></td><td></td></tr>
<tr><td>7</td><td>-</td><td>-</td><td></td><td></td><td></td><td></td></tr>
</table>
</td>
<td></td>
</tr>
</table>

<table>
<tr>
<td>340</td>
<td>Safety assessment of changes
-
REGIONAL</td>
<td>7.41 The following should be established to support human performance in the delivery of a Seamless ATM service. The systems should consider all the elements of the SHEL Model (Software, Hardware, Environment and Liveware – humans), in accordance with the ICAO Human Factors DigestNo. 1 and related reference material:
c) safety teams comprising multidisciplinary operational staff and managers which review safety performance and assess significant proposals for change to ATM systems;</td>
<td></td>
<td>
<table>
<tr><th></th><th>A</th><th>B</th><th>C</th><th>D</th><th>E</th><th>F</th></tr>
<tr><td>1</td><td>√</td><td>√</td><td>√</td><td>√</td><td>√</td><td>√</td></tr>
<tr><td>2</td><td>-</td><td>-</td><td>√</td><td>√</td><td>√</td><td>√</td></tr>
<tr><td>3</td><td>√</td><td>√</td><td>√</td><td>√</td><td></td><td></td></tr>
<tr><td>4</td><td>√</td><td>√</td><td>√</td><td>√</td><td></td><td></td></tr>
<tr><td>5</td><td>√</td><td>√</td><td>√</td><td>√</td><td></td><td></td></tr>
<tr><td>6</td><td>-</td><td>-</td><td>√</td><td>√</td><td></td><td></td></tr>
<tr><td>7</td><td>√</td><td>√</td><td></td><td></td><td></td><td></td></tr>
</table>
</td>
<td></td>
</tr>
<tr>
<td>350</td>
<td>ATM Operators' performance
-
REGIONAL</td>
<td>7.41 The following should be established to support human performance in the delivery of a Seamless ATM service. The systems should consider all the elements of the SHEL Model (Software, Hardware, Environment and Liveware – humans), in accordance with the ICAO Human Factors Digest No. 1 and related reference material:
d) human performance-based training and procedures for staff providing ATS,
including:
• the application of tactical, surveillance-based ATC separation;
• control techniques near minimum ATC separation;
• responses to ATM contingency operations and safety net alerts; and
• the importance of an effective safety reporting culture.</td>
<td></td>
<td>
<table>
<tr><th></th><th>A</th><th>B</th><th>C</th><th>D</th><th>E</th><th>F</th></tr>
<tr><td>1</td><td>√</td><td>√</td><td>√</td><td>√</td><td>√</td><td>√</td></tr>
<tr><td>2</td><td>√</td><td>√</td><td>√</td><td>√</td><td>√</td><td>√</td></tr>
<tr><td>3</td><td>√</td><td>√</td><td>√</td><td>√</td><td></td><td></td></tr>
<tr><td>4</td><td>√</td><td>√</td><td>√</td><td>√</td><td></td><td></td></tr>
<tr><td>5</td><td>√</td><td>√</td><td>√</td><td>√</td><td></td><td></td></tr>
<tr><td>6</td><td>√</td><td>√</td><td>√</td><td>√</td><td></td><td></td></tr>
<tr><td>7</td><td>√</td><td>√</td><td></td><td></td><td></td><td></td></tr>
</table>
</td>
<td></td>
</tr>
</table>

360	**Civil Military Use of SUA (B0-FRTO)**	7.11 SUA should only be established after due consideration of its effect on civil air traffic by the appropriate Airspace Authority to ensure it will used for the purpose that it is established; • used regularly; • as small as possible, including any internal buffers, required to contain the activity therein; • if applicable, operated in accordance with FUA principles; and • activated only when it is being utilised: SUA should be regularly reviewed to ensure the activities that affect the airspace, and size and timing of such activity are accurately reflected by the SUA type, dimensions, activation notice and duration of activation.		A B C D E F 1 √ √ √ √ **√** - 2 √ √ - - - - 3 √ √ √ **√** 4 √ √ √ √ 5 √ - - - 6 - - √ **√** 7 √ **√**	**Main impacts** • People: Airspace planners • Procedures: ANSP (Airspace Planning, letters of agreement) and MIL • Systems: ANSP ground systems, MIL ground systems **Main requirements/guidance material** • ICAO Circular 330 AN/189 Civil/Military Cooperation in ATM offers guidance & examples of civil/military cooperation
370	**Strategic Civil Military coordination (B0-FRTO)**	7.42 a) a national civil/military body should be formed to coordinate strategic civil-military activities (military training should be conducted in locations and/or at times that do not adversely affect civilian operations, particularly those associated with major aerodromes);		A B C D E F 1 √ √ √ √ **√** - 2 √ √ - - - - 3 √ √ - **-** 4 √ √ √ √ 5 √ √ √ √ 6 **√** - √ **√** 7 √ **√**	**Main impacts** • People: Airspace planners • Procedures: ANSP (Airspace Planning, letters of agreement) and MIL **Main requirements/guidance material** ICAO Circular 330 AN/189 Civil/Military Cooperation in ATM offers guidance & examples of civil/military cooperation
380	**Tactical Civil Military coordination (B0-FRTO)**	Formal civil-military liaison should take place for tactical responses by encouraging military participation at civil ATM meetings and within ATC Centres.		A B C D E F 1 √ √ √ √ **√** - 2 √ √ - - - - 3 √ √ - **-** 4 √ √ √ √ 5 √ √ √ √ 6 **√** - √ **√** 7 √ **√**	**Main impacts** • People: Airspace planners • Procedures: ANSP (Airspace Planning, letters of agreement) and MIL • Systems: ANSP ground systems, MIL ground systems **Main requirements/guidance material** ICAO Circular 330 AN/189 Civil/Military Cooperation in ATM offers guidance & examples of civil/military cooperation

390	**Civil Military system integration (B0-FRTO)**	Integration of civil and military ATM systems using joint procurement, and sharing of ATS surveillance data (especially from ADS-B systems) should be provided as far as practicable		A B C D E F 1 √ √ √ √ **√** √ 2 √ √ √ √ √ √ 3 √ √ √ **√** 4 √ √ √ √ 5 √ √ √ √ 6 **√** √ √ **√** 7 √ **√**	**Main impacts** • People: Airspace planners • Procedures: ANSP (Airspace Planning, letters of agreement) and MIL • Systems: ANSP ground systems, MIL ground systems **Main requirements/guidance material** ICAO Circular 330 AN/189 Civil/Military Cooperation in ATM offers guidance & examples of civil/military cooperation
400	**Civil Military navaids joint provision (B0-FRTO)**	Joint provision of civil/military navigation aids should be encouraged		A B C D E F 1 √ √ √ √ **√** √ 2 √ √ √ √ √ √ 3 √ √ √ **√** 4 √ √ √ √ 5 √ √ √ √ 6 **√** √ √ **√** 7 √ **√**	**Main impacts** • People: Airspace planners • Procedures: ANSP (Airspace Planning, letters of agreement) and MIL • Systems: ANSP ground systems, MIL ground systems **Main requirements/guidance material** ICAO Circular 330 AN/189 Civil/Military Cooperation in ATM offers guidance & examples of civil/military cooperation
410	**Civil Military common training (B0-FRTO)**	Common training should be conducted between civil and military ATM units in areas of common interest		A B C D E F 1 √ √ √ √ **√** √ 2 √ √ √ √ √ √ 3 √ √ √ **√** 4 √ √ √ √ 5 √ √ √ √ 6 **√** √ √ **√** 7 √ **√**	**Main impacts** • People: Airspace planners • Procedures: ANSP (Airspace Planning, letters of agreement) and MIL • Systems: ANSP ground systems, MIL ground systems **Main requirements/guidance material** ICAO Circular 330 AN/189 Civil/Military Cooperation in ATM offers guidance & examples of civil/military cooperation

420	**Civil Military common procedures (B0-FRTO)**	Civil and military ATM units should utilize common procedures as far as practicable			A	B	C	D	E	F	**Main impacts** • People: Airspace planners • Procedures: ANSP (Airspace Planning, letters of agreement) and MIL • Systems: ANSP ground systems, MIL ground systems **Main requirements/guidance material** ICAO Circular 330 AN/189 Civil/Military Cooperation in ATM offers guidance & examples of civil/military cooperation
				1	√	√	√	√	**√**	√	
				2	√	√	√	√	√	√	
				3	√	√	√	**√**			
				4	√	√	√	√			
				5	√	√	√	√			
				6	**√**	√	√	**√**			
				7	√	**√**					

Table 3: Implementation Actions and Guidance

Regional Reporting

2.1 Whilst guidance is provided for each and every action of the Seamless ATM Plan, only a very limited subset of actions needs a periodic implementation report from Asia/Pacific States at the regional level to keep all stakeholders coordinated.

2.2 Through the Regional Seamless ATM Reporting Form (**Table 4**), available as a spreadsheet in Excel format, States are invited to report issues encountered in relation to implementation. In this way, potential delays may be anticipated and managed. The three key milestones for reporting are underlined as follows:

- project (planning) start date;
- date of operational approval;
- start date of the operational trials;
- date of commissioning; and
- publication date of the first survey outcome.

2.3 The Regional Seamless ATM Reporting Form enables a formalised process for regional planning that can identify areas where greater support for States is required. In this regard, the scope of support and desired timeframe should be specified in the column “Remarks” of the Regional Seamless ATM Reporting Form.

2.4 The Regional Seamless ATM Reporting Form is used for collecting and analysing data from States from a global perspective. This allows planning that supports the Global Air Navigation Plan, and reporting of the overall progress of Asia/Pacific Seamless ATM implementation to appropriate bodies.

Regional Seamless ATM Reporting Form

State:

Date of report:

General comment (optional)

ATM seamless Plan reference		Regional/ ASBU reference	Date of Operation approval				Start of the operational trials				Date of commissioning				Need for ICAO's support	Remarks (e.g. project scope, FIRs or routes concerned by implementation, time and scope for ICAO's support, etc)	Issues encountered/expected
			Planned date		Date at which the milestone was reached		Planned date		Date at which the milestone was reached		Planned date		Date at which the milestone was reached				
10	Apron Management	Regional															
20	ATM-Aerodrome Coordination	Regional															
30	Aerodrome capacity	Regional															
40	Safety and Efficiency of Surface Operations	B0-SURF															
50	Arrival Manager/Departure Management (AMAN/DMAN)	B0-RSEQ															
60	ATC Sector Capacity	Regional															
70	Airport Collaborative Decision-Making (ACDM)	B0-ACDM															
80	Air Traffic Flow Management/Collaborative Decision-	B0-NOPS															
90	Continuous Descent Operations (CDO)	B0-CDO															
100	Continuous Climb Operations (CCO)	B0-CCO															
110	Performance-based Navigation (PBN) Approach	B0-APTA															
120	Standard Instrument Departures/Standard Terminal Arrivals (SID/STAR)	B0-APTA															
130	Performance-based Navigation (PBN) Visual and Arrival Procedures	Regional															
140	Performance-based Navigation (PBN) Routes	B0-FRTO															
150	Performance-based Navigation (PBN) Airspace	Regional															
160	Safety Nets	B0-SNET															
170	Airborne Safety Systems	B0-ACAS															
180	ADS-B OUT	B0-ASUR															
190	Airspace classification	Regional															
200	Flight Level Orientation Schemes (FLOS)	Regional															
210	Flight Level Allocation Schemes (FLAS)	Regional															
220	ATS Inter-facility Data-link Communications (AIDC)	B0-FICE															
230	Automated Transfer of Control in an ATSU	Regional															
240	ATS Surveillance data sharing	Regional															
250	ATM systems enabling optimal PBN operations	B0-APTA															
260	ATC Horizontal separation	Regional															
270	Multi-sensor integrated surveillance (ADS-B, MLAT, radar)	B0-ASUR															

Table 4: Regional Seamless ATM Reporting Form

Attachment A: Traceability Matrix

ATM Seamless Plan		Performance Improvement Area				ATM seamless plan				ASBU traceability			
Reference	Regional/ASBU	1- Airport Operations	2- Globally Interoperable Systems & Data	3- Optimum Capacity and Flexible Flights	4- Efficient Flight Path	Aerodrome	Terminal	En-route	Specification title	Module	ASBU - Module title	Regional Priority	Comment
10	Regional	√				√			Apron Management	-		1	Regional operational need
20	Regional	√				√	√		ATM-Aerodrome Coordination	-		1	Regional operational need
30	Regional	√				√			Aerodrome capacity	-		1	Regional operational need
40	ASBU	√				√			Safety and Efficiency of Surface Operations (A-SMGCS Level 1-2)	B0-SURF	Safety and Efficiency of Surface Operations (A-SMGCS Level 1-2)	3	
50	ASBU	√				√	√		Arrival Manager/Departure Management (AMAN/DMAN)	B0-RSEQ	Improve Traffic flow through Sequencing (AMAN/DMAN)	2	
60	Regional			√			√	√	ATC Sector Capacity	-		1	Regional operational need
70	ASBU	√				√			Airport Collaborative Decision-Making (ACDM)	B0-ACDM	Improved Airport Operations through Airport-CDM	2	
-	ASBU	√				√	√		-	B0-WAKE	Increased Runway Throughput through Optimized Wake Turbulence Separation	3	Not retained by APAC - No standard available
80	ASBU						√	√	Air Traffic Flow Management/Collaborative Decision-Making (ATFM/CDM)	B0-NOPS	Improved Flow Performance through Planning based on a Network-Wide view	1	
90	ASBU				√		√		Continuous Descent Operations (CDO)	B0-CDO	Improved Flexibility and Efficiency in Descent Profiles using Continuous Descent Operations (CDOs)	2	
100	ASBU				√		√		Continuous Climb Operations (CCO)	B0-CCO	Improved Flexibility and Efficiency Departure Profiles – Continuous Climb Operations (CCO)	2	
110	ASBU	√					√		Performance-based Navigation (PBN) Approach	B0-APTA	Optimization of Approach Procedures including vertical guidance	2	
120	ASBU	√					√		Standard Instrument Departures/Standard Terminal Arrivals (SID/STAR)	B0-APTA	Optimization of Approach Procedures including vertical guidance	2	
130	Regional				√		√		Performance-based Navigation (PBN) Visual and Arrival Procedures	-		1	Regional operational need
140	ASBU				√			√	Performance-based Navigation (PBN) Routes	B0-FRTO	Improved Operations through Enhanced En-Route Trajectories	1	
150	Regional				√			√	Performance-based Navigation (PBN) Airspace	-		1	Regional operational need
160	ASBU			√			√	√	Safety Nets	B0-SNET	Increased effectiveness of ground-based safety nets	2	
170	ASBU			√			√	√	Airborne Safety Systems	B0-ACAS	Airborne Collision Avoidance Systems (ACAS) Improvements	2	
-	ASBU			√				√	-	B0-OPFL	Improved Access to Optimum Flight Levels through Climb/Descent Procedures using ADS-B	3	Not retained by APAC - Limited value in airspace already using
180	ASBU			√			√	√	ADS-B OUT	B0-ASUR	Initial Capability for Ground Surveillance	1	
-	ASBU			√				√	-	B0-ASEP	Air Traffic Situational Awareness (ATSA)	2	Mainly an aircraft/crew related module: cockpit-based applications which do not require any support from the ground hence they can be used by any suitably equipped
190	Regional			√				√	Airspace classification	-	-	1	Regional operational need
200	Regional			√				√	Flight Level Orientation Scheme (FLOS)	-	-	1	Regional operational need
210	Regional			√				√	Flight Level Allocation Schemes (FLAS)	-	-	1	Regional operational need
220	ASBU		√				√	√	ATS Inter-facility Data-link Communications (AIDC)	B0-FICE	Increased Interoperability Efficiency & Capacity through Ground-Ground Integration	1	
230	Regional			√		√	√	√	Automated Transfer of Control in an ATSU	-		1	Regional operational need
240	Regional			√			√	√	ATS Surveillance data sharing	-		1	Regional operational need
250	ASBU			√		√	√	√	ATM systems enabling optimal PBN/ATC operations	B0-APTA	Optimization of Approach Procedures including vertical guidance	2	
260	Regional			√		√	√	√	ATC Horizontal separation	-		1	Regional operational need
270	ASBU			√		√	√	√	Multi-sensor integrated surveillance (ADS-B, MLAT, radar)	B0-ASUR	Initial Capability for Ground Surveillance	1	
280	ASBU				√		√	√	ADS-C, CPDLC	B0-TBO	Improved Safety and Efficiency through the initial application of Data Link En-Route	1	
290	ASBU				√	√	√	√	UPR and DARP	B0-TBO	Improved Safety and Efficiency through the initial application of Data Link En-Route	1	
300	ASBU		√			√	√	√	Aeronautical Meteorology	B0-DATM	Service Improvement through Digital Aeronautical Information Management	1	
310	ASBU		√			√	√	√	Meteorological Information	B0-AMET	Meteorological information supporting enhanced operational efficiency and safety	2	

ATM Seamless Plan		Performance Improvement Area				ATM seamless plan				ASBU traceability			
Reference	Regional/ASBU	1- Airport Operations	2- Globally Interoperable Systems & Data	3- Optimum Capacity and Flexible Flights	4- Efficient Flight Path	Aerodrome	Terminal	En-route	Specification title	Module	ASBU - Module title	Regional Priority	Comment
320	Regional			√		√	√	√	ATM Managers' Performance	-		1	Regional operational need
330	ASBU			√		√	√	√	ATC simulators performance	B0-FRTO	Improved Operations through Enhanced En-Route Trajectories	1	
340	ASBU			√		√	√	√	Safety assessment of changes	B0-FRTO	Improved Operations through Enhanced En-Route Trajectories	1	
350	ASBU			√		√	√	√	ATM Operators' performance	B0-FRTO	Improved Operations through Enhanced En-Route Trajectories	1	
360	ASBU			√			√	√	Civil Military use of SUA	B0-FRTO	Improved Operations through Enhanced En-Route Trajectories	1	
370	ASBU			√			√	√	Strategic Civil Military coordination	B0-FRTO	Improved Operations through Enhanced En-Route Trajectories	1	
380	ASBU			√			√	√	Tactical Civil Military coordination	B0-FRTO	Improved Operations through Enhanced En-Route Trajectories	1	
390	ASBU			√		√	√	√	Civil Military system integration	B0-FRTO	Improved Operations through Enhanced En-Route Trajectories	1	
400	ASBU			√		√	√	√	Civil Military Navaids joint provision	B0-FRTO	Improved Operations through Enhanced En-Route Trajectories	1	
410	ASBU			√		√	√	√	Civil Military common training	B0-FRTO	Improved Operations through Enhanced En-Route Trajectories	1	
420	ASBU			√		√	√	√	Civil Military common procedures	B0-FRTO	Improved Operations through Enhanced En-Route Trajectories	1	
-	ASBU	√				√				B1-APTA	Optimised Airport Accessibility	Not yet assessed	Will be assessed through a regional gap analysis in a future revision of the ATM seamless plan
-	ASBU	√				√				B1-WAKE	Increased Runway Throughput through Dynamic Wake Turbulence Separation	Not yet assessed	Will be assessed through a regional gap analysis in a future revision of the ATM seamless plan
-	ASBU	√				√				B1-RSEQ	Improved Airport operations through Departure, Surface and Arrival Management	Not yet assessed	Will be assessed through a regional gap analysis in a future revision of the ATM seamless plan
-	ASBU	√				√				B1-SURF	Enhanced Safety and Efficiency of Surface Operations – SURF, SURF-IA and Enhanced Vision Systems (EVS)	Not yet assessed	Will be assessed through a regional gap analysis in a future revision of the ATM seamless plan
-	ASBU	√				√				B1-ACDM	Optimized Airport Operations through A-CDM Total Airport Management	Not yet assessed	Will be assessed through a regional gap analysis in a future revision of the ATM seamless plan
-	ASBU	√				√				B1-RATS	Remotely Operated Aerodrome Control	Not yet assessed	Will be assessed through a regional gap analysis in a future revision of the ATM seamless plan
-	ASBU		√			√				B1-FICE	Increased Interoperability, Efficiency and Capacity through Flight and Flow Information for a Collaborative Environment Step-1 (FF-ICE/1) application before Departure	Not yet assessed	Will be assessed through a regional gap analysis in a future revision of the ATM seamless plan
-	ASBU		√			√	√	√		B1-DATM	Service Improvement through Integration of all Digital ATM Information	Not yet assessed	Will be assessed through a regional gap analysis in a future revision of the ATM seamless plan
-	ASBU		√			√	√	√		B1-SWIM	Performance Improvement through the application of System-Wide Information Management (SWIM)	Not yet assessed	Will be assessed through a regional gap analysis in a future revision of the ATM seamless plan
-	ASBU		√			√	√	√		B1-AMET	Enhanced Operational Decisions through Integrated Meteorological Information (Planning and Near-term Service)	Not yet assessed	Will be assessed through a regional gap analysis in a future revision of the ATM seamless plan
-	ASBU			√				√		B1-FRTO	Improved Operations through Optimized ATS Routing	Not yet assessed	Will be assessed through a regional gap analysis in a future revision of the ATM seamless plan
-	ASBU			√		√	√	√		B1-NOPS	Enhanced Flow Performance through Network Operational Planning	Not yet assessed	Will be assessed through a regional gap analysis in a future revision of the ATM seamless plan
-	ASBU			√		√	√			B1-ASEP	Increased Capacity and Efficiency through Interval Management	Not yet assessed	Will be assessed through a regional gap analysis in a future revision of the ATM seamless plan

ATM Seamless Plan		Performance Improvement Area				ATM seamless plan				ASBU traceability			
Reference	Regional/ASBU	1- Airport Operations	2- Globally Interoperable Systems & Data	3- Optimum Capacity and Flexible Flights	4- Efficient Flight Path	Aerodrome	Terminal	En-route	Specification title	Module	ASBU - Module title	Regional Priority	Comment
-	ASBU			√			√			B1-SNET	Ground-based Safety Nets on Approach	Not yet assessed	Will be assessed through a regional gap analysis in a future revision of the ATM seamless plan
-	ASBU				√					B1-CDO	Improved Flexibility and Efficiency in Descent Profiles (CDO) using VNAV	Not yet assessed	Will be assessed through a regional gap analysis in a future revision of the ATM seamless plan
-	ASBU				√					B1-TBO	Improved Traffic synchronization and Initial Trajectory-Based Operation	Not yet assessed	Will be assessed through a regional gap analysis in a future revision of the ATM seamless plan
-	ASBU				√					B1-RPAS	Initial Integration of Remotely Piloted Aircraft (RPA) into Non-Segregated Airspace	Not yet assessed	Will be assessed through a regional gap analysis in a future revision of the ATM seamless plan
-	ASBU	√				√	√			B2-WAKE	Advanced Wake Turbulence Separation (Time-based)	Not yet assessed	Will be assessed through a regional gap analysis in a future revision of the ATM seamless plan
-	ASBU	√				√	√	√		B2-RSEQ	Linked Arrival Management and Departure Management (AMAN/DMAN)	Not yet assessed	Will be assessed through a regional gap analysis in a future revision of the ATM seamless plan
-	ASBU	√								B2-SURF	Optimized Surface Routing and Safety Benefits (A-SMGCS Level 3-4 and SVS)	Not yet assessed	Will be assessed through a regional gap analysis in a future revision of the ATM seamless plan
-	ASBU		√			√	√	√		B2-FICE	Improved Coordination through Multicenter Ground-Ground Integration (FF-ICE/1 & Flight Object, SWIM)	Not yet assessed	Will be assessed through a regional gap analysis in a future revision of the ATM seamless plan
-	ASBU		√			√	√	√		B2-SWIM	Enabling Airborne Participation in collaborative ATM through SWIM	Not yet assessed	Will be assessed through a regional gap analysis in a future revision of the ATM seamless plan
-	ASBU			√				√		B3-FRTO	Traffic Complexity Management	Not yet assessed	Will be assessed through a regional gap analysis in a future revision of the ATM seamless plan
-	ASBU			√		√	√	√		B2-NOPS	Increased user involvement in the dynamic utilization of the network	Not yet assessed	Will be assessed through a regional gap analysis in a future revision of the ATM seamless plan
-	ASBU			√				√		B2-ASEP	Airborne Separation (ASEP)	Not yet assessed	Will be assessed through a regional gap analysis in a future revision of the ATM seamless plan
-	ASBU			√				√		B2-ACAS	New Collision Avoidance System	Not yet assessed	Will be assessed through a regional gap analysis in a future revision of the ATM seamless plan
-	ASBU				√		√			B2-CDO	Improved Flexibility and Efficiency in Descent Profiles (CDOs) using VNAV, required speed and time at arrival	Not yet assessed	Will be assessed through a regional gap analysis in a future revision of the ATM seamless plan
-	ASBU				√					B2-RPAS	Remotely Piloted Aircraft (RPA) Integration in Traffic	Not yet assessed	Will be assessed through a regional gap analysis in a future revision of the ATM seamless plan
-	ASBU	√				√	√	√		B3-RSEQ	Integration AMAN/DMAN/SMAN	Not yet assessed	Will be assessed through a regional gap analysis in a future revision of the ATM seamless plan
-	ASBU		√			√	√	√		B3-FICE	Improved Operational Performance through the introduction of Full FF-ICE	Not yet assessed	Will be assessed through a regional gap analysis in a future revision of the ATM seamless plan
-	ASBU		√			√	√	√		B3-AMET	Enhanced Operational Decisions through Integrated Meteorological Information (Near-term and Immediate Service)	Not yet assessed	Will be assessed through a regional gap analysis in a future revision of the ATM seamless plan
-	ASBU			√		√	√	√		B3-NOPS	Traffic Complexity Management	Not yet assessed	Will be assessed through a regional gap analysis in a future revision of the ATM seamless plan
-	ASBU			√				√		B3-ATSA	Airborne Self-Separation (SSEP)	Not yet assessed	Will be assessed through a regional gap analysis in a future revision of the ATM seamless plan
-	ASBU				√	√	√	√		B3-TBO	Full 4D Trajectory-based Operations	Not yet assessed	Will be assessed through a regional gap analysis in a future revision of the ATM seamless plan
-	ASBU				√	√	√	√		B3-RPAS	Remotely Piloted Aircraft (RPA) Transparent Management	Not yet assessed	Will be assessed through a regional gap analysis in a future revision of the ATM seamless plan

Table 5: Traceability matrix between the ATM seamless plan v1.0 and the global ASBU framework

[State] Seamless ATM Implementation Plan

Template version 3.0

Contents

Plan Scope and Objective

1.1 Insert here information about the purpose of the State plan, what it covers, who it affects, why the plan is necessary, and what is expected to be achieved.

1.2 X

Background

2.1 The ICAO Asia/Pacific Seamless ATM Planning Group (APSAPG) developed the Asia/Pacific Seamless ATM Plan V1.0, which was approved by the Twenty Fourth Meeting of the ICAO Asia/Pacific Air Navigation Planning and Implementation Regional Group (APANPIRG/24).

2.2 X

Seamless Planning Elements

[10] Aerodrome Capacity - (REGIONAL)

[Phase I] [Phase II]

Project Planning

1A: Problem or Improvement Required

3.1 X

1B: Applicability to the Operating Environment and State Regulations

3.2 X

1C: Gathering and Reviewing Data Related to the Desired Change

3.3 X

*1E: Starting the Project – Determining the Budget and Milestones (**Reporting Action**)*

3.4 X

Safety

3A: Forming Safety Teams/Engaging Safety Experts

3.5 X

3B: Strengths, Weaknesses, Opportunities and Threats Analysis

3.6 X

Communication

4A: Key Stakeholder Consultation

3.7 X

4B: Regional and Bilateral Coordination

3.8 X

4C: Formal Promulgation and Notification

3.9 X

	Training	
	5A: Developing Simulations and Procedures	
3.10	X	
	Implementation	
	6C: Go/No-Go Decision	
3.11	X	
	*6D: Implementation and Monitoring (**Reporting Action**)*	
3.12	X	

[20] Apron Management - (REGIONAL)

[Phase I]

Project Planning

1A: Problem or Improvement Required

3.13 X

1B: Applicability to the Operating Environment and State Regulations

3.14 X

1C: Gathering and Reviewing Data Related to the Desired Change

3.15 X

1D: Economic Feasibility and Cost-Benefit

3.16 X

*1E: Starting the Project – Determining the Budget and Milestones (**Reporting Action**)*

3.17 X

1F: Plan Tendering and Maintenance Contracting

3.18 X

Design

2A: Determination of Initial Design, Including Alternatives

3.19 X

2B: Determination of Key Performance Indicators and/or Success Criteria

3.20 X

2C: Designing Backup and Transition Procedures, Including Reversion

3.21 X

2D: Determining Maintenance Considerations

3.22 X

2E: Refining and Agreeing the Final Design

3.23 X

2F: Define System Validation and Verification (FAT, SAT)

3.24 X

Safety

3A: Forming Safety Teams/Engaging Safety Experts

3.25 X

3B: Strengths, Weaknesses, Opportunities and Threats Analysis

3.26 X

3C: Developing the Safety Case

3.27 X

*3D: Preparing and Applying for Regulatory Approval or Certification(**Reporting Action**)*

3.28 X

Communication

4A: Key Stakeholder Consultation

3.29 X

4B: Regional and Bilateral Coordination

3.30 X

4C: Formal Promulgation and Notification

3.31 X

4D: Change Advertising and Briefing

3.32 X

Training

5A: Developing Simulations and Procedures

3.33 X

	5B: Sourcing Relevant Training Experts
3.34	X
	5C: Conducting Simulation and Relevant Training
3.35	X
	5D: Assessing Personnel Competency and Personnel Authorisations
3.36	X
	Implementation
	*6A: Conducting Operational Trials and Testing (**Reporting Action**)*
3.37	X
	6B: Assessing Stability and Performance
3.38	X
	6C: Go/No-Go Decision
3.39	X
	*6D: Implementation and Monitoring (**Reporting Action**)*
3.40	X
	Post Implementation
	7A: Develop Review (Lessons Learnt, KPI Achievement, Reporting)
3.41	X
	*7B: Monitoring Medium and Long Term Performance and Safety (**Reporting Action**)*
3.42	X

[30] ATM-Aerodrome Coordination - (REGIONAL)

[Phase I]

Project Planning

1A: Problem or Improvement Required

3.43 X

1B: Applicability to the Operating Environment and State Regulations

3.44 X

1C: Gathering and Reviewing Data Related to the Desired Change

3.45 X

*1E: Starting the Project – Determining the Budget and Milestones (**Reporting Action**)*

3.46 X

Design

2A: Determination of Initial Design, Including Alternatives

3.47 X

2B: Determination of Key Performance Indicators and/or Success Criteria

3.48 X

Safety

3A: Forming Safety Teams/Engaging Safety Experts

3.49 X

3B: Strengths, Weaknesses, Opportunities and Threats Analysis

3.50 X

Communication

4A: Key Stakeholder Consultation

3.51 X

4B: Regional and Bilateral Coordination

3.52 X

4C: Formal Promulgation and Notification

3.53 X

4D: Change Advertising and Briefing

3.54 X

Training

5A: Developing Simulations and Procedures

3.55 X

Implementation

6C: Go/No-Go Decision

3.56 X

*6D: Implementation and Monitoring (**Reporting Action**)*

3.57 X

[40] Electronic Surface Movement Guidance and Control – (B0-SURF)

[Phase I]

Project Planning

1A: Problem or Improvement Required

3.58 X

1B: Applicability to the Operating Environment and State Regulations

3.59 X

1C: Gathering and Reviewing Data Related to the Desired Change

3.60 X

1D: Economic Feasibility and Cost-Benefit

3.61 X

*1E: Starting the Project – Determining the Budget and Milestones (**Reporting Action**)*

3.62 X

1F: Plan Tendering and Maintenance Contracting

3.63 X

Design

2A: Determination of Initial Design, Including Alternatives

3.64 X

2B: Determination of Key Performance Indicators and/or Success Criteria

3.65 X

2C: Designing Backup and Transition Procedures, Including Reversion

3.66 X

2D: Determining Maintenance Considerations

3.67 X

2E: Refining and Agreeing the Final Design

3.68 X

2F: Define System Validation and Verification (FAT, SAT)

3.69 X

Safety

3A: Forming Safety Teams/Engaging Safety Experts

3.70 X

3B: Strengths, Weaknesses, Opportunities and Threats Analysis

3.71 X

3C: Developing the Safety Case

3.72 X

*3D: Preparing and Applying for Regulatory Approval or Certification(**Reporting Action**)*

3.73 X

Communication

4A: Key Stakeholder Consultation

3.74 X

4B: Regional and Bilateral Coordination

3.75 X

4C: Formal Promulgation and Notification

3.76 X

4D: Change Advertising and Briefing

3.77 X

Training

5A: Developing Simulations and Procedures

3.78 X

	5B: Sourcing Relevant Training Experts
3.79	X
	5C: Conducting Simulation and Relevant Training
3.80	X
	5D: Assessing Personnel Competency and Personnel Authorisations
3.81	X
	Implementation
	*6A: Conducting Operational Trials and Testing (**Reporting Action**)*
3.82	X
	6B: Assessing Stability and Performance
3.83	X
	6C: Go/No-Go Decision
3.84	X
	*6D: Implementation and Monitoring (**Reporting Action**)*
3.85	X
	Post Implementation
	7A: Develop Review (Lessons Learnt, KPI Achievement, Reporting)
3.86	X
	*7B: Monitoring Medium and Long Term Performance and Safety (**Reporting Action**)*
3.87	X

[50] Arrival Manager/Departure Manager (AMAN/DMAN) – (B0-RSEQ)

[Phase I] [Phase II]

Project Planning

1A: Problem or Improvement Required

3.88 X

1B: Applicability to the Operating Environment and State Regulations

3.89 X

1C: Gathering and Reviewing Data Related to the Desired Change

3.90 X

1D: Economic Feasibility and Cost-Benefit

3.91 X

*1E: Starting the Project – Determining the Budget and Milestones (**Reporting Action**)*

3.92 X

1F: Plan Tendering and Maintenance Contracting

3.93 X

Design

2A: Determination of Initial Design, Including Alternatives

3.94 X

2B: Determination of Key Performance Indicators and/or Success Criteria

3.95 X

2C: Designing Backup and Transition Procedures, Including Reversion

3.96 X

2D: Determining Maintenance Considerations

3.97 X

2E: Refining and Agreeing the Final Design

3.98 X

2F: Define System Validation and Verification (FAT, SAT)

3.99 X

Safety

3A: Forming Safety Teams/Engaging Safety Experts

3.100 X

3B: Strengths, Weaknesses, Opportunities and Threats Analysis

3.101 X

3C: Developing the Safety Case

3.102 X

*3D: Preparing and Applying for Regulatory Approval or Certification(**Reporting Action**)*

3.103 X

Communication

4A: Key Stakeholder Consultation

3.104 X

4C: Formal Promulgation and Notification

3.105 X

4D: Change Advertising and Briefing

3.106 X

Training

5A: Developing Simulations and Procedures

3.107 X

5B: Sourcing Relevant Training Experts

3.108 X

5C: Conducting Simulation and Relevant Training

3.109 X

5D: Assessing Personnel Competency and Personnel Authorisations

3.110 X

Implementation

*6A: Conducting Operational Trials and Testing (**Reporting Action**)*

3.111 X

6B: Assessing Stability and Performance

3.112 X

6C: Go/No-Go Decision

3.113 X

*6D: Implementation and Monitoring (**Reporting Action**)*

3.114 X

Post Implementation

7A: Develop Review (Lessons Learnt, KPI Achievement, Reporting)

3.115 X

*7B: Monitoring Medium and Long Term Performance and Safety (**Reporting Action**)*

3.116 X

[60] ATC Sector Capacity - (REGIONAL)

[Phase I] [Phase II]

Project Planning

1A: Problem or Improvement Required

3.117 X

1B: Applicability to the Operating Environment and State Regulations

3.118 X

1C: Gathering and Reviewing Data Related to the Desired Change

3.119 X

*1E: Starting the Project – Determining the Budget and Milestones (**Reporting Action**)*

3.120 X

Safety

3A: Forming Safety Teams/Engaging Safety Experts

3.121 X

3B: Strengths, Weaknesses, Opportunities and Threats Analysis

3.122 X

3C: Developing the Safety Case

3.123 X

Communication

4A: Key Stakeholder Consultation

3.124 X

4B: Regional and Bilateral Coordination

3.125 X

4C: Formal Promulgation and Notification

3.126 X

4D: Change Advertising and Briefing

3.127 X

Training

5A: Developing Simulations and Procedures

3.128 X

5B: Sourcing Relevant Training Experts

3.129 X

5C: Conducting Simulation and Relevant Training

3.130 X

5D: Assessing Personnel Competency and Personnel Authorisations

3.131 X

[70] Airport/Collaborative Decision-Making (ACDM) – (B0-ACDM)

[Phase I]

Project Planning

1A: Problem or Improvement Required

3.132 X

1B: Applicability to the Operating Environment and State Regulations

3.133 X

1C: Gathering and Reviewing Data Related to the Desired Change

3.134 X

1D: Economic Feasibility and Cost-Benefit

3.135 X

*1E: Starting the Project – Determining the Budget and Milestones (**Reporting Action**)*

3.136 X

1F: Plan Tendering and Maintenance Contracting

3.137 X

Design

2A: Determination of Initial Design, Including Alternatives

3.138 X

2B: Determination of Key Performance Indicators and/or Success Criteria

3.139 X

2C: Designing Backup and Transition Procedures, Including Reversion

3.140 X

2D: Determining Maintenance Considerations

3.141 X

2E: Refining and Agreeing the Final Design

3.142 X

2F: Define System Validation and Verification (FAT, SAT)

3.143 X

Safety

3A: Forming Safety Teams/Engaging Safety Experts

3.144 X

3B: Strengths, Weaknesses, Opportunities and Threats Analysis

3.145 X

3C: Developing the Safety Case

3.146 X

*3D: Preparing and Applying for Regulatory Approval or Certification(**Reporting Action**)*

3.147 X

Communication

4A: Key Stakeholder Consultation

3.148 X

4B: Regional and Bilateral Coordination

3.149 X

4C: Formal Promulgation and Notification

3.150 X

4D: Change Advertising and Briefing

3.151 X

Training

5A: Developing Simulations and Procedures

3.152 X

5B: Sourcing Relevant Training Experts

3.153 X

5C: Conducting Simulation and Relevant Training

3.154 X

5D: Assessing Personnel Competency and Personnel Authorisations

3.155 X

Implementation

*6A: Conducting Operational Trials and Testing (**Reporting Action**)*

3.156 X

6B: Assessing Stability and Performance

3.157 X

6C: Go/No-Go Decision

3.158 X

*6D: Implementation and Monitoring (**Reporting Action**)*

3.159 X

Post Implementation

7A: Develop Review (Lessons Learnt, KPI Achievement, Reporting)

3.160 X

*7B: Monitoring Medium and Long Term Performance and Safety (**Reporting Action**)*

3.161 X

[80] Air Traffic Flow Management/Collaborative Decision-Making (ATFM/CDM) – (B0-NOPS)

[Phase I] [Phase II]

Project Planning

1A: Problem or Improvement Required

3.162 X

1B: Applicability to the Operating Environment and State Regulations

3.163 X

1C: Gathering and Reviewing Data Related to the Desired Change

3.164 X

1D: Economic Feasibility and Cost-Benefit

3.165 X

*1E: Starting the Project – Determining the Budget and Milestones (**Reporting Action**)*

3.166 X

1F: Plan Tendering and Maintenance Contracting

3.167 X

Design

2A: Determination of Initial Design, Including Alternatives

3.168 X

2B: Determination of Key Performance Indicators and/or Success Criteria

3.169 X

2C: Designing Backup and Transition Procedures, Including Reversion

3.170 X

2D: Determining Maintenance Considerations

3.171 X

2E: Refining and Agreeing the Final Design

3.172 X

2F: Define System Validation and Verification (FAT, SAT)

3.173 X

Safety

3A: Forming Safety Teams/Engaging Safety Experts

3.174 X

3C: Developing the Safety Case

3.175 X

*3D: Preparing and Applying for Regulatory Approval or Certification(**Reporting Action**)*

3.176 X

Communication

4A: Key Stakeholder Consultation

3.177 X

4B: Regional and Bilateral Coordination

3.178 X

4C: Formal Promulgation and Notification

3.179 X

4D: Change Advertising and Briefing

3.180 X

Training

5A: Developing Simulations and Procedures

3.181 X

5B: Sourcing Relevant Training Experts

3.182 X

5C: Conducting Simulation and Relevant Training

3.183 X

5D: Assessing Personnel Competency and Personnel Authorisations

3.184 X

Implementation

*6A: Conducting Operational Trials and Testing (**Reporting Action**)*

3.185 X

6B: Assessing Stability and Performance

3.186 X

6C: Go/No-Go Decision

3.187 X

*6D: Implementation and Monitoring (**Reporting Action**)*

3.188 X

Post Implementation

7A: Develop Review (Lessons Learnt, KPI Achievement, Reporting)

3.189 X

*7B: Monitoring Medium and Long Term Performance and Safety (**Reporting Action**)*

3.190 X

[90] Continuous Descent Operations (CDO) – (B0-CDO)

[Phase I]

Project Planning

1A: Problem or Improvement Required

3.191 X

1B: Applicability to the Operating Environment and State Regulations

3.192 X

1C: Gathering and Reviewing Data Related to the Desired Change

3.193 X

1D: Economic Feasibility and Cost-Benefit

3.194 X

*1E: Starting the Project – Determining the Budget and Milestones (**Reporting Action**)*

3.195 X

Design

2A: Determination of Initial Design, Including Alternatives

3.196 X

2B: Determination of Key Performance Indicators and/or Success Criteria

3.197 X

2C: Designing Backup and Transition Procedures, Including Reversion

3.198 X

2E: Refining and Agreeing the Final Design

3.199 X

Safety

3A: Forming Safety Teams/Engaging Safety Experts

3.200 X

3B: Strengths, Weaknesses, Opportunities and Threats Analysis

3.201 X

3C: Developing the Safety Case

3.202 X

*3D: Preparing and Applying for Regulatory Approval or Certification(**Reporting Action**)*

3.203 X

Communication

4A: Key Stakeholder Consultation

3.204 X

4B: Regional and Bilateral Coordination

3.205 X

4C: Formal Promulgation and Notification

3.206 X

4D: Change Advertising and Briefing

3.207 X

Training

5A: Developing Simulations and Procedures

3.208 X

5B: Sourcing Relevant Training Experts

3.209 X

5C: Conducting Simulation and Relevant Training

3.210 X

5D: Assessing Personnel Competency and Personnel Authorisations

3.211 X

		Implementation
		*6A: Conducting Operational Trials and Testing (**Reporting Action**)*
3.212	X	
		6B: Assessing Stability and Performance
3.213	X	
		6C: Go/No-Go Decision
3.214	X	
		*6D: Implementation and Monitoring (**Reporting Action**)*
3.215	X	
		Post Implementation
		7A: Develop Review (Lessons Learnt, KPI Achievement, Reporting)
3.216	X	
		*7B: Monitoring Medium and Long Term Performance and Safety (**Reporting Action**)*
3.217	X	

[100] Continuous Climb Operations (CCO) (B0-CCO)

[Phase I]

Project Planning

1A: Problem or Improvement Required

3.218 X

1B: Applicability to the Operating Environment and State Regulations

3.219 X

1C: Gathering and Reviewing Data Related to the Desired Change

3.220 X

1D: Economic Feasibility and Cost-Benefit

3.221 X

*1E: Starting the Project – Determining the Budget and Milestones (**Reporting Action**)*

3.222 X

Design

2A: Determination of Initial Design, Including Alternatives

3.223 X

2B: Determination of Key Performance Indicators and/or Success Criteria

3.224 X

2C: Designing Backup and Transition Procedures, Including Reversion

3.225 X

2E: Refining and Agreeing the Final Design

3.226 X

Safety

3A: Forming Safety Teams/Engaging Safety Experts

3.227 X

3B: Strengths, Weaknesses, Opportunities and Threats Analysis

3.228 X

3C: Developing the Safety Case

3.229 X

*3D: Preparing and Applying for Regulatory Approval or Certification(**Reporting Action**)*

3.230 X

Communication

4A: Key Stakeholder Consultation

3.231 X

4B: Regional and Bilateral Coordination

3.232 X

4C: Formal Promulgation and Notification

3.233 X

4D: Change Advertising and Briefing

3.234 X

Training

5A: Developing Simulations and Procedures

3.235 X

5B: Sourcing Relevant Training Experts

3.236 X

5C: Conducting Simulation and Relevant Training

3.237 X

5D: Assessing Personnel Competency and Personnel Authorisations

3.238 X

		Implementation
		*6A: Conducting Operational Trials and Testing (**Reporting Action**)*
3.239	X	
		6B: Assessing Stability and Performance
3.240	X	
		6C: Go/No-Go Decision
3.241	X	
		*6D: Implementation and Monitoring (**Reporting Action**)*
3.242	X	
		Post Implementation
		7A: Develop Review (Lessons Learnt, KPI Achievement, Reporting)
3.243	X	
		*7B: Monitoring Medium and Long Term Performance and Safety (**Reporting Action**)*
3.244	X	

[110] Performance-based Navigation (PBN) Approach – (B0-APTA)

[Phase I] [Phase II]

Project Planning

1A: Problem or Improvement Required

3.245 X

1B: Applicability to the Operating Environment and State Regulations

3.246 X

1C: Gathering and Reviewing Data Related to the Desired Change

3.247 X

*1E: Starting the Project – Determining the Budget and Milestones (**Reporting Action**)*

3.248 X

Design

2A: Determination of Initial Design, Including Alternatives

3.249 X

2B: Determination of Key Performance Indicators and/or Success Criteria

3.250 X

2C: Designing Backup and Transition Procedures, Including Reversion

3.251 X

2E: Refining and Agreeing the Final Design

3.252 X

Safety

3A: Forming Safety Teams/Engaging Safety Experts

3.253 X

3B: Strengths, Weaknesses, Opportunities and Threats Analysis

3.254 X

3C: Developing the Safety Case

3.255 X

*3D: Preparing and Applying for Regulatory Approval or Certification(**Reporting Action**)*

3.256 X

Communication

4A: Key Stakeholder Consultation

3.257 X

4B: Regional and Bilateral Coordination

3.258 X

4C: Formal Promulgation and Notification

3.259 X

4D: Change Advertising and Briefing

3.260 X

Training

5A: Developing Simulations and Procedures

3.261 X

5B: Sourcing Relevant Training Experts

3.262 X

5C: Conducting Simulation and Relevant Training

3.263 X

5D: Assessing Personnel Competency and Personnel Authorisations

3.264 X

Implementation

*6A: Conducting Operational Trials and Testing (**Reporting Action**)*

3.265 X

6B: Assessing Stability and Performance

3.266 X

6C: Go/No-Go Decision

3.267 X

*6D: Implementation and Monitoring (**Reporting Action**)*

3.268 X

Post Implementation

7A: Develop Review (Lessons Learnt, KPI Achievement, Reporting)

3.269 X

[120] Standard Instrument Departures/Standard Terminal Arrivals (SID/STAR) – (B0-APTA)

[Phase I] [Phase II]

Project Planning

1A: Problem or Improvement Required

3.270 X

1B: Applicability to the Operating Environment and State Regulations

3.271 X

1C: Gathering and Reviewing Data Related to the Desired Change

3.272 X

*1E: Starting the Project – Determining the Budget and Milestones (**Reporting Action**)*

3.273 X

Design

2A: Determination of Initial Design, Including Alternatives

3.274 X

2B: Determination of Key Performance Indicators and/or Success Criteria

3.275 X

2C: Designing Backup and Transition Procedures, Including Reversion

3.276 X

2E: Refining and Agreeing the Final Design

3.277 X

Safety

3A: Forming Safety Teams/Engaging Safety Experts

3.278 X

3B: Strengths, Weaknesses, Opportunities and Threats Analysis

3.279 X

3C: Developing the Safety Case

3.280 X

*3D: Preparing and Applying for Regulatory Approval or Certification(**Reporting Action**)*

3.281 X

Communication

4A: Key Stakeholder Consultation

3.282 X

4B: Regional and Bilateral Coordination

3.283 X

4C: Formal Promulgation and Notification

3.284 X

4D: Change Advertising and Briefing

3.285 X

Training

5A: Developing Simulations and Procedures

3.286 X

5B: Sourcing Relevant Training Experts

3.287 X

5C: Conducting Simulation and Relevant Training

3.288 X

5D: Assessing Personnel Competency and Personnel Authorisations

3.289 X

Implementation

*6A: Conducting Operational Trials and Testing (**Reporting Action**)*

3.290 X

6B: Assessing Stability and Performance

3.291 X

6C: Go/No-Go Decision

3.292 X

*6D: Implementation and Monitoring (**Reporting Action**)*

3.293 X

Post Implementation

7A: Develop Review (Lessons Learnt, KPI Achievement, Reporting)

3.294 X

[130] Performance-based Navigation (PBN) Visual and Arrival Procedures – (Regional)

[Phase I]

Project Planning

1A: Problem or Improvement Required

3.295 X

1B: Applicability to the Operating Environment and State Regulations

3.296 X

1C: Gathering and Reviewing Data Related to the Desired Change

3.297 X

1D: Economic Feasibility and Cost-Benefit

3.298 X

*1E: Starting the Project – Determining the Budget and Milestones (**Reporting Action**)*

3.299 X

Design

2A: Determination of Initial Design, Including Alternatives

3.300 X

2B: Determination of Key Performance Indicators and/or Success Criteria

3.301 X

2C: Designing Backup and Transition Procedures, Including Reversion

3.302 X

2E: Refining and Agreeing the Final Design

3.303 X

Safety

3A: Forming Safety Teams/Engaging Safety Experts

3.304 X

3B: Strengths, Weaknesses, Opportunities and Threats Analysis

3.305 X

3C: Developing the Safety Case

3.306 X

*3D: Preparing and Applying for Regulatory Approval or Certification(**Reporting Action**)*

3.307 X

Communication

4A: Key Stakeholder Consultation

3.308 X

4B: Regional and Bilateral Coordination

3.309 X

4C: Formal Promulgation and Notification

3.310 X

4D: Change Advertising and Briefing

3.311 X

Training

5A: Developing Simulations and Procedures

3.312 X

5B: Sourcing Relevant Training Experts

3.313 X

5C: Conducting Simulation and Relevant Training

3.314 X

5D: Assessing Personnel Competency and Personnel Authorisations

3.315 X

	Implementation
	*6A: Conducting Operational Trials and Testing (**Reporting Action**)*
3.316	X
	6B: Assessing Stability and Performance
3.317	X
	6C: Go/No-Go Decision
3.318	X
	*6D: Implementation and Monitoring (**Reporting Action**)*
3.319	X
	Post Implementation
	7A: Develop Review (Lessons Learnt, KPI Achievement, Reporting)
3.320	X

[140] Performance-based Navigation (PBN) Routes – (B0-FRTO)

[Phase II]

Project Planning

1A: Problem or Improvement Required

3.321 X

1B: Applicability to the Operating Environment and State Regulations

3.322 X

1C: Gathering and Reviewing Data Related to the Desired Change

3.323 X

1D: Economic Feasibility and Cost-Benefit

3.324 X

*1E: Starting the Project – Determining the Budget and Milestones (**Reporting Action**)*

3.325 X

Design

2A: Determination of Initial Design, Including Alternatives

3.326 X

2C: Designing Backup and Transition Procedures, Including Reversion

3.327 X

2E: Refining and Agreeing the Final Design

3.328 X

Safety

3A: Forming Safety Teams/Engaging Safety Experts

3.329 X

3B: Strengths, Weaknesses, Opportunities and Threats Analysis

3.330 X

3C: Developing the Safety Case

3.331 X

*3D: Preparing and Applying for Regulatory Approval or Certification(**Reporting Action**)*

3.332 X

Communication

4A: Key Stakeholder Consultation

3.333 X

4B: Regional and Bilateral Coordination

3.334 X

4C: Formal Promulgation and Notification

3.335 X

4D: Change Advertising and Briefing

3.336 X

Training

5A: Developing Simulations and Procedures

3.337 X

5B: Sourcing Relevant Training Experts

3.338 X

5C: Conducting Simulation and Relevant Training

3.339 X

5D: Assessing Personnel Competency and Personnel Authorisations

3.340 X

Implementation

*6A: Conducting Operational Trials and Testing (**Reporting Action**)*

3.341 X

6B: Assessing Stability and Performance

3.342 X

6C: Go/No-Go Decision

3.343 X

*6D: Implementation and Monitoring (**Reporting Action**)*

3.344 X

Post Implementation

7A: Develop Review (Lessons Learnt, KPI Achievement, Reporting)

3.345 X

[150] Safety Nets – (B0-SNET)

[Phase II]

Project Planning

1A: Problem or Improvement Required

3.346 X

1B: Applicability to the Operating Environment and State Regulations

3.347 X

1C: Gathering and Reviewing Data Related to the Desired Change

3.348 X

1D: Economic Feasibility and Cost-Benefit

3.349 X

*1E: Starting the Project – Determining the Budget and Milestones (**Reporting Action**)*

3.350 X

1F: Plan Tendering and Maintenance Contracting

3.351 X

Design

2A: Determination of Initial Design, Including Alternatives

3.352 X

2B: Determination of Key Performance Indicators and/or Success Criteria

3.353 X

2C: Designing Backup and Transition Procedures, Including Reversion

3.354 X

2D: Determining Maintenance Considerations

3.355 X

2E: Refining and Agreeing the Final Design

3.356 X

2F: Define System Validation and Verification (FAT, SAT)

3.357 X

Safety

3A: Forming Safety Teams/Engaging Safety Experts

3.358 X

3B: Strengths, Weaknesses, Opportunities and Threats Analysis

3.359 X

3C: Developing the Safety Case

3.360 X

3D: Preparing and Applying for Regulatory Approval or Certification (Reporting Action)

3.361 X

Communication

4A: Key Stakeholder Consultation

3.362 X

4B: Regional and Bilateral Coordination

3.363 X

4C: Formal Promulgation and Notification

3.364 X

4D: Change Advertising and Briefing

3.365 X

Training

5A: Developing Simulations and Procedures

3.366 X

5B: Sourcing Relevant Training Experts

3.367 X

5C: Conducting Simulation and Relevant Training

3.368 X

5D: Assessing Personnel Competency and Personnel Authorisations

3.369 X

Implementation

*6A: Conducting Operational Trials and Testing (**Reporting Action**)*

3.370 X

6B: Assessing Stability and Performance

3.371 X

6C: Go/No-Go Decision

3.372 X

*6D: Implementation and Monitoring (**Reporting Action**)*

3.373 X

Post Implementation

7A: Develop Review (Lessons Learnt, KPI Achievement, Reporting)

3.374 X

*7B: Monitoring Medium and Long Term Performance and Safety (**Reporting Action**)*

3.375 X

[160] Airborne Safety Systems – (B0-ACAS)

[Phase I] [Phase II]

Project Planning

1A: Problem or Improvement Required

3.376 X

1B: Applicability to the Operating Environment and State Regulations

3.377 X

1C: Gathering and Reviewing Data Related to the Desired Change

3.378 X

1D: Economic Feasibility and Cost-Benefit

3.379 X

*1E: Starting the Project – Determining the Budget and Milestones (**Reporting Action**)*

3.380 X

Design

2A: Determination of Initial Design, Including Alternatives

3.381 X

2B: Determination of Key Performance Indicators and/or Success Criteria

3.382 X

2C: Designing Backup and Transition Procedures, Including Reversion

3.383 X

Safety

3A: Forming Safety Teams/Engaging Safety Experts

3.384 X

3B: Strengths, Weaknesses, Opportunities and Threats Analysis

3.385 X

3C: Developing the Safety Case

3.386 X

3D: Preparing and Applying for Regulatory Approval or Certification (Reporting Action)

3.387 X

Communication

4A: Key Stakeholder Consultation

3.388 X

4B: Regional and Bilateral Coordination

3.389 X

4C: Formal Promulgation and Notification

3.390 X

4D: Change Advertising and Briefing

3.391 X

Training

5C: Conducting Simulation and Relevant Training

3.392 X

5D: Assessing Personnel Competency and Personnel Authorisations

3.393 X

Implementation

*6A: Conducting Operational Trials and Testing (**Reporting Action**)*

3.394 X

6C: Go/No-Go Decision

3.395 X

*6D: Implementation and Monitoring (**Reporting Action**)*

3.396 X

Post Implementation

7A: Develop Review (Lessons Learnt, KPI Achievement, Reporting)

3.397 X

[170] Performance-based Navigation (PBN) Airspace – (Regional)

[Phase I]

Project Planning

1A: Problem or Improvement Required

3.398 X

1B: Applicability to the Operating Environment and State Regulations

3.399 X

1C: Gathering and Reviewing Data Related to the Desired Change

3.400 X

1D: Economic Feasibility and Cost-Benefit

3.401 X

*1E: Starting the Project – Determining the Budget and Milestones (**Reporting Action**)*

3.402 X

Design

2A: Determination of Initial Design, Including Alternatives

3.403 X

2B: Determination of Key Performance Indicators and/or Success Criteria

3.404 X

2C: Designing Backup and Transition Procedures, Including Reversion

3.405 X

Safety

3A: Forming Safety Teams/Engaging Safety Experts

3.406 X

3B: Strengths, Weaknesses, Opportunities and Threats Analysis

3.407 X

3C: Developing the Safety Case

3.408 X

3D: Preparing and Applying for Regulatory Approval or Certification (Reporting Action)

3.409 X

Communication

4A: Key Stakeholder Consultation

3.410 X

4B: Regional and Bilateral Coordination

3.411 X

4C: Formal Promulgation and Notification

3.412 X

4D: Change Advertising and Briefing

3.413 X

Training

5C: Conducting Simulation and Relevant Training

3.414 X

5D: Assessing Personnel Competency and Personnel Authorisations

3.415 X

Implementation

*6A: Conducting Operational Trials and Testing (**Reporting Action**)*

3.416 X

6C: Go/No-Go Decision

3.417 X

*6D: Implementation and Monitoring (**Reporting Action**)*

3.418 X

Post Implementation

7A: Develop Review (Lessons Learnt, KPI Achievement, Reporting)

3.419 X

[180] Automatic Dependent Surveillance-Broadcast (ADS-B) OUT – (B0-ASEP)

[Phase I] [Phase II]

Project Planning

1A: Problem or Improvement Required

3.420 X

1B: Applicability to the Operating Environment and State Regulations

3.421 X

1C: Gathering and Reviewing Data Related to the Desired Change

3.422 X

1D: Economic Feasibility and Cost-Benefit

3.423 X

*1E: Starting the Project – Determining the Budget and Milestones (**Reporting Action**)*

3.424 X

Design

2A: Determination of Initial Design, Including Alternatives

3.425 X

2C: Designing Backup and Transition Procedures, Including Reversion

3.426 X

Safety

3A: Forming Safety Teams/Engaging Safety Experts

3.427 X

3B: Strengths, Weaknesses, Opportunities and Threats Analysis

3.428 X

3C: Developing the Safety Case

3.429 X

*3D: Preparing and Applying for Regulatory Approval or Certification (**Reporting Action**)*

3.430 X

Communication

4A: Key Stakeholder Consultation

3.431 X

4B: Regional and Bilateral Coordination

3.432 X

4C: Formal Promulgation and Notification

3.433 X

4D: Change Advertising and Briefing

3.434 X

Training

5C: Conducting Simulation and Relevant Training

3.435 X

5D: Assessing Personnel Competency and Personnel Authorisations

3.436 X

Implementation

*6A: Conducting Operational Trials and Testing (**Reporting Action**)*

3.437 X

6B: Assessing Stability and Performance

3.438 X

6C: Go/No-Go Decision

3.439 X

*6D: Implementation and Monitoring (**Reporting Action**)*

3.440	X	
		Post Implementation
		7A: Develop Review (Lessons Learnt, KPI Achievement, Reporting)
3.441	X	

[190] Airspace Classification – (Regional)

[Phase I]

Project Planning

1A: Problem or Improvement Required

3.442 X

1B: Applicability to the Operating Environment and State Regulations

3.443 X

1C: Gathering and Reviewing Data Related to the Desired Change

3.444 X

*1E: Starting the Project – Determining the Budget and Milestones (**Reporting Action**)*

3.445 X

Design

2A: Determination of Initial Design, Including Alternatives

3.446 X

2E: Refining and Agreeing the Final Design

3.447 X

Safety

3A: Forming Safety Teams/Engaging Safety Experts

3.448 X

3C: Developing the Safety Case

3.449 X

3D: Preparing and Applying for Regulatory Approval or Certification (Reporting Action)

3.450 X

Communication

4A: Key Stakeholder Consultation

3.451 X

4B: Regional and Bilateral Coordination

3.452 X

4C: Formal Promulgation and Notification

3.453 X

4D: Change Advertising and Briefing

3.454 X

Training

5C: Conducting Simulation and Relevant Training

3.455 X

5D: Assessing Personnel Competency and Personnel Authorisations

3.456 X

Implementation

6C: Go/No-Go Decision

3.457 X

*6D: Implementation and Monitoring (**Reporting Action**)*

3.458 X

Post Implementation

7A: Develop Review (Lessons Learnt, KPI Achievement, Reporting)

3.459 X

[200] Flight Level Orientation Scheme (FLOS) - (Regional)

[Phase I]

Project Planning

1A: Problem or Improvement Required

3.460 X

1B: Applicability to the Operating Environment and State Regulations

3.461 X

1C: Gathering and Reviewing Data Related to the Desired Change

3.462 X

1D: Economic Feasibility and Cost-Benefit

3.463 X

*1E: Starting the Project – Determining the Budget and Milestones (**Reporting Action**)*

3.464 X

Design

2A: Determination of Initial Design, Including Alternatives

3.465 X

2B: Determination of Key Performance Indicators and/or Success Criteria

3.466 X

Safety

3A: Forming Safety Teams/Engaging Safety Experts

3.467 X

3B: Strengths, Weaknesses, Opportunities and Threats Analysis

X

3C: Developing the Safety Case

3.468 X

3.469

Communication

4A: Key Stakeholder Consultation

3.470 X

4B: Regional and Bilateral Coordination

3.471 X

4C: Formal Promulgation and Notification

3.472 X

4D: Change Advertising and Briefing

3.473 X

Training

5C: Conducting Simulation and Relevant Training

3.474 X

Implementation

6C: Go/No-Go Decision

3.475 X

Post Implementation

7A: Develop Review (Lessons Learnt, KPI Achievement, Reporting)

3.476 X

[210] Flight Level Allocation Schemes (FLAS) - (Regional)

[Phase I]

Project Planning

1A: Problem or Improvement Required

3.477 X

1B: Applicability to the Operating Environment and State Regulations

3.478 X

1C: Gathering and Reviewing Data Related to the Desired Change

3.479 X

1D: Economic Feasibility and Cost-Benefit

3.480 X

*1E: Starting the Project – Determining the Budget and Milestones (**Reporting Action**)*

3.481 X

Design

2A: Determination of Initial Design, Including Alternatives

3.482 X

2B: Determination of Key Performance Indicators and/or Success Criteria

3.483 X

Safety

3A: Forming Safety Teams/Engaging Safety Experts

3.484 X

3B: Strengths, Weaknesses, Opportunities and Threats Analysis

3.485 X

3C: Developing the Safety Case

3.486 X

Communication

4A: Key Stakeholder Consultation

3.487 X

4B: Regional and Bilateral Coordination

3.488 X

4C: Formal Promulgation and Notification

3.489 X

4D: Change Advertising and Briefing

3.490 X

Training

5A: Developing Simulations and Procedures

3.491 X

5B: Sourcing Relevant Training Experts

3.492 X

5C: Conducting Simulation and Relevant Training

3.493 X

5D: Assessing Personnel Competency and Personnel Authorisations

3.494 X

Implementation

6C: Go/No-Go Decision

3.495 X

Post Implementation

7A: Develop Review (Lessons Learnt, KPI Achievement, Reporting)

3.496 X

*7B: Monitoring Medium and Long Term Performance and Safety (**Reporting Action**)*

3.497 X

[220] ATS Inter-facility Data-link Communications (AIDC) – (B0-FICE)

[Phase I] [Phase II]

Project Planning

1A: Problem or Improvement Required

3.498 X

1B: Applicability to the Operating Environment and State Regulations

3.499 X

1C: Gathering and Reviewing Data Related to the Desired Change

3.500 X

1D: Economic Feasibility and Cost-Benefit

3.501 X

*1E: Starting the Project – Determining the Budget and Milestones (**Reporting Action**)*

3.502 X

1F: Plan Tendering and Maintenance Contracting

3.503 X

Design

2A: Determination of Initial Design, Including Alternatives

3.504 X

2C: Designing Backup and Transition Procedures, Including Reversion

3.505 X

2D: Determining Maintenance Considerations

3.506 X

2E: Refining and Agreeing the Final Design

3.507 X

2F: Define System Validation and Verification (FAT, SAT)

3.508 X

Safety

3A: Forming Safety Teams/Engaging Safety Experts

3.509 X

3C: Developing the Safety Case

3.510 X

3D: Preparing and Applying for Regulatory Approval or Certification (Reporting Action)

3.511 X

Communication

4A: Key Stakeholder Consultation

3.512 X

4B: Regional and Bilateral Coordination

3.513 X

4C: Formal Promulgation and Notification

3.514 X

4D: Change Advertising and Briefing

3.515 X

Training

5A: Developing Simulations and Procedures

3.516 X

5B: Sourcing Relevant Training Experts

3.517 X

5C: Conducting Simulation and Relevant Training

3.518 X

5D: Assessing Personnel Competency and Personnel Authorisations

3.519 X

Implementation

*6A: Conducting Operational Trials and Testing (**Reporting Action**)*

3.520 X

6B: Assessing Stability and Performance

3.521 X

6C: Go/No-Go Decision

3.522 X

*6D: Implementation and Monitoring (**Reporting Action**)*

3.523 X

Post Implementation

7A: Develop Review (Lessons Learnt, KPI Achievement, Reporting)

3.524 X

[230] Automated Transfer of Control – (Regional)

[Phase I] [Phase II]

Project Planning

1A: Problem or Improvement Required

3.525 X

1B: Applicability to the Operating Environment and State Regulations

3.526 X

1C: Gathering and Reviewing Data Related to the Desired Change

3.527 X

1D: Economic Feasibility and Cost-Benefit

3.528 X

*1E: Starting the Project – Determining the Budget and Milestones (**Reporting Action**)*

3.529 X

1F: Plan Tendering and Maintenance Contracting

3.530 X

Design

2A: Determination of Initial Design, Including Alternatives

3.531 X

2B: Determination of Key Performance Indicators and/or Success Criteria

3.532 X

2C: Designing Backup and Transition Procedures, Including Reversion

3.533 X

2D: Determining Maintenance Considerations

3.534 X

2E: Refining and Agreeing the Final Design

3.535 X

2F: Define System Validation and Verification (FAT, SAT)

3.536 X

Safety

3A: Forming Safety Teams/Engaging Safety Experts

3.537 X

3C: Developing the Safety Case

3.538 X

3D: Preparing and Applying for Regulatory Approval or Certification (Reporting Action)

3.539 X

Communication

4A: Key Stakeholder Consultation

3.540 X

4B: Regional and Bilateral Coordination

3.541 X

4C: Formal Promulgation and Notification

3.542 X

4D: Change Advertising and Briefing

3.543 X

Training

5A: Developing Simulations and Procedures

3.544 X

5B: Sourcing Relevant Training Experts

3.545 X

5C: Conducting Simulation and Relevant Training

3.546 X

5D: Assessing Personnel Competency and Personnel Authorisations

3.547 X

Implementation

*6A: Conducting Operational Trials and Testing (**Reporting Action**)*

3.548 X

6B: Assessing Stability and Performance

3.549 X

6C: Go/No-Go Decision

3.550 X

*6D: Implementation and Monitoring (**Reporting Action**)*

3.551 X

Post Implementation

7A: Develop Review (Lessons Learnt, KPI Achievement, Reporting)

3.552 X

[240] ATS Surveillance Data Sharing – (Regional)

[Phase I] [Phase II]

Project Planning

1A: Problem or Improvement Required

3.553 X

1B: Applicability to the Operating Environment and State Regulations

3.554 X

1C: Gathering and Reviewing Data Related to the Desired Change

3.555 X

1D: Economic Feasibility and Cost-Benefit

3.556 X

*1E: Starting the Project – Determining the Budget and Milestones (**Reporting Action**)*

3.557 X

1F: Plan Tendering and Maintenance Contracting

3.558 X

Design

2A: Determination of Initial Design, Including Alternatives

3.559 X

2B: Determination of Key Performance Indicators and/or Success Criteria

3.560 X

2C: Designing Backup and Transition Procedures, Including Reversion

3.561 X

2D: Determining Maintenance Considerations

3.562 X

2E: Refining and Agreeing the Final Design

3.563 X

2F: Define System Validation and Verification (FAT, SAT)

3.564 X

Safety

3A: Forming Safety Teams/Engaging Safety Experts

3.565 X

3C: Developing the Safety Case

3.566 X

3D: Preparing and Applying for Regulatory Approval or Certification (Reporting Action)

3.567 X

Communication

4A: Key Stakeholder Consultation

3.568 X

4B: Regional and Bilateral Coordination

3.569 X

4C: Formal Promulgation and Notification

3.570 X

4D: Change Advertising and Briefing

3.571 X

Training

5A: Developing Simulations and Procedures

3.572 X

5B: Sourcing Relevant Training Experts

3.573 X

5C: Conducting Simulation and Relevant Training

3.574 X

5D: Assessing Personnel Competency and Personnel Authorisations

3.575 X

Implementation

*6A: Conducting Operational Trials and Testing (**Reporting Action**)*

3.576 X

6B: Assessing Stability and Performance

3.577 X

6C: Go/No-Go Decision

3.578 X

*6D: Implementation and Monitoring (**Reporting Action**)*

3.579 X

Post Implementation

7A: Develop Review (Lessons Learnt, KPI Achievement, Reporting)

3.580 X

[250] ATM systems enabling optimal PBN operations (B0-APTA)

[Phase I] [Phase II]

Project Planning

1A: Problem or Improvement Required

3.581 X

1B: Applicability to the Operating Environment and State Regulations

3.582 X

1C: Gathering and Reviewing Data Related to the Desired Change

3.583 X

1D: Economic Feasibility and Cost-Benefit

3.584 X

*1E: Starting the Project – Determining the Budget and Milestones (**Reporting Action**)*

3.585 X

1F: Plan Tendering and Maintenance Contracting

3.586 X

Design

2A: Determination of Initial Design, Including Alternatives

3.587 X

2B: Determination of Key Performance Indicators and/or Success Criteria

3.588 X

2C: Designing Backup and Transition Procedures, Including Reversion

3.589 X

2D: Determining Maintenance Considerations

3.590 X

2E: Refining and Agreeing the Final Design

3.591 X

2F: Define System Validation and Verification (FAT, SAT)

3.592 X

Safety

3A: Forming Safety Teams/Engaging Safety Experts

3.593 X

3B: Strengths, Weaknesses, Opportunities and Threats Analysis

3.594 X

3C: Developing the Safety Case

3.595 X

3D: Preparing and Applying for Regulatory Approval or Certification (Reporting Action)

3.596 X

Communication

4A: Key Stakeholder Consultation

3.597 X

4B: Regional and Bilateral Coordination

3.598 X

4C: Formal Promulgation and Notification

3.599 X

4D: Change Advertising and Briefing

3.600 X

Training

5A: Developing Simulations and Procedures

3.601 X

5B: Sourcing Relevant Training Experts

3.602 X

5C: Conducting Simulation and Relevant Training

3.603 X

5D: Assessing Personnel Competency and Personnel Authorisations

3.604 X

Implementation

*6A: Conducting Operational Trials and Testing (**Reporting Action**)*

3.605 X

6B: Assessing Stability and Performance

3.606 X

6C: Go/No-Go Decision

3.607 X

*6D: Implementation and Monitoring (**Reporting Action**)*

3.608 X

Post Implementation

7A: Develop Review (Lessons Learnt, KPI Achievement, Reporting)

3.609 X

*7B: Monitoring Medium and Long Term Performance and Safety (**Reporting Action**)*

3.610 X

[260] ATC Horizontal Separation – (Regional)

[Phase I] [Phase II]

Project Planning

1A: Problem or Improvement Required

3.611 X

1B: Applicability to the Operating Environment and State Regulations

3.612 X

1C: Gathering and Reviewing Data Related to the Desired Change

3.613 X

*1E: Starting the Project – Determining the Budget and Milestones (**Reporting Action**)*

3.614 X

Design

2A: Determination of Initial Design, Including Alternatives

3.615 X

2B: Determination of Key Performance Indicators and/or Success Criteria

3.616 X

2C: Designing Backup and Transition Procedures, Including Reversion

3.617 X

2D: Determining Maintenance Considerations

3.618 X

2E: Refining and Agreeing the Final Design

3.619 X

2F: Define System Validation and Verification (FAT, SAT)

3.620 X

	Safety
	3A: Forming Safety Teams/Engaging Safety Experts
3.621	X
	3B: Strengths, Weaknesses, Opportunities and Threats Analysis
3.622	X
	3C: Developing the Safety Case
3.623	X
	3D: Preparing and Applying for Regulatory Approval or Certification (Reporting Action)
3.624	X
	Communication
	4A: Key Stakeholder Consultation
3.625	X
	4B: Regional and Bilateral Coordination
3.626	X
	4C: Formal Promulgation and Notification
3.627	X
	4D: Change Advertising and Briefing
3.628	X
	Training
	5A: Developing Simulations and Procedures
3.629	X
	5B: Sourcing Relevant Training Experts
3.630	X
	5C: Conducting Simulation and Relevant Training
3.631	X

5D: Assessing Personnel Competency and Personnel Authorisations

3.632 X

Implementation

*6A: Conducting Operational Trials and Testing (**Reporting Action**)*

3.633 X

6B: Assessing Stability and Performance

3.634 X

6C: Go/No-Go Decision

3.635 X

*6D: Implementation and Monitoring (**Reporting Action**)*

3.636 X

Post Implementation

7A: Develop Review (Lessons Learnt, KPI Achievement, Reporting)

3.637 X

*7B: Monitoring Medium and Long Term Performance and Safety (**Reporting Action**)*

3.638 X

[270] Ground-based ADS-B/Multilateration (MLAT) – (B0-ASUR)

[Phase I]

Project Planning

1A: Problem or Improvement Required

3.639 X

1B: Applicability to the Operating Environment and State Regulations

3.640 X

1C: Gathering and Reviewing Data Related to the Desired Change

3.641 X

1D: Economic Feasibility and Cost-Benefit

3.642 X

*1E: Starting the Project – Determining the Budget and Milestones (**Reporting Action**)*

3.643 X

1F: Plan Tendering and Maintenance Contracting

3.644 X

Design

2A: Determination of Initial Design, Including Alternatives

3.645 X

2B: Determination of Key Performance Indicators and/or Success Criteria

3.646 X

2C: Designing Backup and Transition Procedures, Including Reversion

3.647 X

2D: Determining Maintenance Considerations

3.648 X

2E: Refining and Agreeing the Final Design

3.649 X

2F: Define System Validation and Verification (FAT, SAT)

3.650 X

Safety

3A: Forming Safety Teams/Engaging Safety Experts

3.651 X

3B: Strengths, Weaknesses, Opportunities and Threats Analysis

3.652 X

3C: Developing the Safety Case

3.653 X

3D: Preparing and Applying for Regulatory Approval or Certification (Reporting Action)

3.654 X

Communication

4A: Key Stakeholder Consultation

3.655 X

4B: Regional and Bilateral Coordination

3.656 X

4C: Formal Promulgation and Notification

3.657 X

4D: Change Advertising and Briefing

3.658 X

Training

5A: Developing Simulations and Procedures

3.659 X

5B: Sourcing Relevant Training Experts

3.660 X

5C: Conducting Simulation and Relevant Training

3.661 X

5D: Assessing Personnel Competency and Personnel Authorisations

3.662 X

Implementation

*6A: Conducting Operational Trials and Testing (**Reporting Action**)*

3.663 X

6B: Assessing Stability and Performance

3.664 X

6C: Go/No-Go Decision

3.665 X

*6D: Implementation and Monitoring (**Reporting Action**)*

3.666 X

Post Implementation

7A: Develop Review (Lessons Learnt, KPI Achievement, Reporting)

3.667 X

[280] Automatic Dependent Surveillance-Contract (ADS-C), User Preferred Routes (PR) and Dynamic Airborne Re-route Planning (DARP) – (B0-TBO)

[Phase I]

Project Planning

1A: Problem or Improvement Required

3.668 X

1B: Applicability to the Operating Environment and State Regulations

3.669 X

1C: Gathering and Reviewing Data Related to the Desired Change

3.670 X

1D: Economic Feasibility and Cost-Benefit

3.671 X

*1E: Starting the Project – Determining the Budget and Milestones (**Reporting Action**)*

3.672 X

1F: Plan Tendering and Maintenance Contracting

3.673 X

Design

2A: Determination of Initial Design, Including Alternatives

3.674 X

2B: Determination of Key Performance Indicators and/or Success Criteria

3.675 X

2C: Designing Backup and Transition Procedures, Including Reversion

3.676 X

2D: Determining Maintenance Considerations

3.677 X

2E: Refining and Agreeing the Final Design

3.678 X

2F: Define System Validation and Verification (FAT, SAT)

3.679 X

Safety

3A: Forming Safety Teams/Engaging Safety Experts

3.680 X

3B: Strengths, Weaknesses, Opportunities and Threats Analysis

3.681 X

3C: Developing the Safety Case

3.682 X

3D: Preparing and Applying for Regulatory Approval or Certification (Reporting Action)

3.683 X

Communication

4A: Key Stakeholder Consultation

3.684 X

4B: Regional and Bilateral Coordination

3.685 X

4C: Formal Promulgation and Notification

3.686 X

4D: Change Advertising and Briefing

3.687 X

Training

5A: Developing Simulations and Procedures

3.688 X

5B: Sourcing Relevant Training Experts

3.689 X

5C: Conducting Simulation and Relevant Training

3.690 X

5D: Assessing Personnel Competency and Personnel Authorisations

3.691 X

Implementation

*6A: Conducting Operational Trials and Testing (**Reporting Action**)*

3.692 X

6B: Assessing Stability and Performance

3.693 X

6C: Go/No-Go Decision

3.694 X

*6D: Implementation and Monitoring (**Reporting Action**)*

3.695 X

Post Implementation

7A: Develop Review (Lessons Learnt, KPI Achievement, Reporting)

3.696 X

*7B: Monitoring Medium and Long Term Performance and Safety (**Reporting Action**)*

3.697 X

[290] Aeronautical Information Management – (B0-DATM)

[Phase I] [Phase II]

Project Planning

1A: Problem or Improvement Required

3.698 X

1B: Applicability to the Operating Environment and State Regulations

3.699 X

1C: Gathering and Reviewing Data Related to the Desired Change

3.700 X

1D: Economic Feasibility and Cost-Benefit

3.701 X

*1E: Starting the Project – Determining the Budget and Milestones (**Reporting Action**)*

3.702 X

1F: Plan Tendering and Maintenance Contracting

3.703 X

Design

2A: Determination of Initial Design, Including Alternatives

3.704 X

2B: Determination of Key Performance Indicators and/or Success Criteria

3.705 X

2C: Designing Backup and Transition Procedures, Including Reversion

3.706 X

2D: Determining Maintenance Considerations

3.707 X

	2E: Refining and Agreeing the Final Design
3.708	X
	2F: Define System Validation and Verification (FAT, SAT)
3.709	X
	Safety
	3A: Forming Safety Teams/Engaging Safety Experts
3.710	X
	3C: Developing the Safety Case
3.711	X
	3D: Preparing and Applying for Regulatory Approval or Certification (Reporting Action)
3.712	X
	Communication
	4A: Key Stakeholder Consultation
3.713	X
	4B: Regional and Bilateral Coordination
3.714	X
	4C: Formal Promulgation and Notification
3.715	X
	4D: Change Advertising and Briefing
3.716	X
	Training
	5A: Developing Simulations and Procedures
3.717	X
	5B: Sourcing Relevant Training Experts
3.718	X

5C: Conducting Simulation and Relevant Training

3.719 X

5D: Assessing Personnel Competency and Personnel Authorisations

3.720 X

Implementation

*6A: Conducting Operational Trials and Testing (**Reporting Action**)*

3.721 X

6B: Assessing Stability and Performance

3.722 X

6C: Go/No-Go Decision

3.723 X

*6D: Implementation and Monitoring (**Reporting Action**)*

3.724 X

Post Implementation

7A: Develop Review (Lessons Learnt, KPI Achievement, Reporting)

3.725 X

[300] Meteorological Information – (B0-AMET)

[Phase I]

Project Planning

1A: Problem or Improvement Required

3.726 X

1B: Applicability to the Operating Environment and State Regulations

3.727 X

1C: Gathering and Reviewing Data Related to the Desired Change

3.728 X

1D: Economic Feasibility and Cost-Benefit

3.729 X

*1E: Starting the Project – Determining the Budget and Milestones (**Reporting Action**)*

3.730 X

1F: Plan Tendering and Maintenance Contracting

3.731 X

Design

2A: Determination of Initial Design, Including Alternatives

3.732 X

2B: Determination of Key Performance Indicators and/or Success Criteria

3.733 X

2C: Designing Backup and Transition Procedures, Including Reversion

3.734 X

2D: Determining Maintenance Considerations

3.735 X

2E: Refining and Agreeing the Final Design

3.736 X

2F: Define System Validation and Verification (FAT, SAT)

3.737 X

Safety

3A: Forming Safety Teams/Engaging Safety Experts

3.738 X

3C: Developing the Safety Case

3.739 X

3D: Preparing and Applying for Regulatory Approval or Certification (Reporting Action)

3.740 X

Communication

4A: Key Stakeholder Consultation

3.741 X

4B: Regional and Bilateral Coordination

3.742 X

4C: Formal Promulgation and Notification

3.743 X

4D: Change Advertising and Briefing

3.744 X

Training

5A: Developing Simulations and Procedures

3.745 X

5B: Sourcing Relevant Training Experts

3.746 X

5C: Conducting Simulation and Relevant Training

3.747 X

5D: Assessing Personnel Competency and Personnel Authorisations

3.748 X

Implementation

*6A: Conducting Operational Trials and Testing (**Reporting Action**)*

3.749 X

6B: Assessing Stability and Performance

3.750 X

6C: Go/No-Go Decision

3.751 X

*6D: Implementation and Monitoring (**Reporting Action**)*

3.752 X

Post Implementation

7A: Develop Review (Lessons Learnt, KPI Achievement, Reporting)

3.753 X

[310] Human Performance – (Regional)

[Phase I] [Phase II]

Project Planning

1A: Problem or Improvement Required

3.754 X

*1E: Starting the Project – Determining the Budget and Milestones (**Reporting Action**)*

3.755 X

Design

2A: Determination of Initial Design, Including Alternatives

3.756 X

2B: Determination of Key Performance Indicators and/or Success Criteria

3.757 X

Safety

3A: Forming Safety Teams/Engaging Safety Experts

3.758 X

3B: Strengths, Weaknesses, Opportunities and Threats Analysis

3.759 X

3C: Developing the Safety Case

3.760 X

3D: Preparing and Applying for Regulatory Approval or Certification (Reporting Action)

3.761 X

Communication

4A: Key Stakeholder Consultation

3.762 X

4B: Regional and Bilateral Coordination

3.763 X

4C: Formal Promulgation and Notification

3.764 X

4D: Change Advertising and Briefing

3.765 X

Training

5A: Developing Simulations and Procedures

3.766 X

5B: Sourcing Relevant Training Experts

3.767 X

5C: Conducting Simulation and Relevant Training

3.768 X

5D: Assessing Personnel Competency and Personnel Authorisations

3.769 X

Implementation

6C: Go/No-Go Decision

3.770 X

*6D: Implementation and Monitoring (**Reporting Action**)*

3.771 X

Post Implementation

7A: Develop Review (Lessons Learnt, KPI Achievement, Reporting)

3.772 X

*7B: Monitoring Medium and Long Term Performance and Safety (**Reporting Action**)*

3.773 X

[320] Civil/Military Cooperation – (B0-FRTO)

[Phase I]

Project Planning

1A: Problem or Improvement Required

3.774 X

1B: Applicability to the Operating Environment and State Regulations

3.775 X

1C: Gathering and Reviewing Data Related to the Desired Change

3.776 X

1D: Economic Feasibility and Cost-Benefit

3.777 X

*1E: Starting the Project – Determining the Budget and Milestones (**Reporting Action**)*

3.778 X

Design

2A: Determination of Initial Design, Including Alternatives

3.779 X

2B: Determination of Key Performance Indicators and/or Success Criteria

3.780 X

Safety

3A: Forming Safety Teams/Engaging Safety Experts

3.781 X

3B: Strengths, Weaknesses, Opportunities and Threats Analysis

3.782 X

3C: Developing the Safety Case

3.783 X

3D: Preparing and Applying for Regulatory Approval or Certification (Reporting Action)

3.784 X

Communication

4A: Key Stakeholder Consultation

3.785 X

4B: Regional and Bilateral Coordination

3.786 X

4C: Formal Promulgation and Notification

3.787 X

4D: Change Advertising and Briefing

3.788 X

Training

5A: Developing Simulations and Procedures

3.789 X

Implementation

6C: Go/No-Go Decision

3.790 X

*6D: Implementation and Monitoring (**Reporting Action**)*

3.791 X

Post Implementation

7A: Develop Review (Lessons Learnt, KPI Achievement, Reporting)

3.792 X

*7B: Monitoring Medium and Long Term Performance and Safety (**Reporting Action**)*

3.793 X

Appendixes

X

X

4.1 X