



International Civil Aviation Organization

MID Air Navigation Plan Ad-hoc Working Group

Second Meeting (ANP WG/2)
(Cairo, Egypt, 16 - 18 December 2014)

Agenda Item 3: Development of the new MID Air Navigation Plan

MID eANP VOLUME III

(Presented by the Secretariat)

SUMMARY

This paper presents the MID eANP Volume III for review and update by the meeting.

Action by the meeting is at paragraph 3.

REFERENCES

- MIDANPIRG/14 Report
- MSG/4 Report

1. INTRODUCTION

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

2. DISCUSSION

2.1 The information contained in Volume III is related mainly to:

- Planning: objectives set, priorities and targets planned at regional or sub-regional levels;
- Implementation monitoring and reporting: monitoring of the progress of implementation towards targets planned. This information should be used as the basis for reporting purposes (i.e.: global and regional air navigation reports and performance dashboards); and/or
- Guidance: providing regional guidance material for the implementation of specific system/procedures in a harmonized manner.

2.2 The management of Volume III is the responsibility of the MIDANPIRG. Volume III should be used as a tool for monitoring and reporting the status of implementation of the elements planned here above, through the use of tables/databases and/or references to online monitoring tools, as endorsed by MIDANPIRG. The status of implementation is updated on a regular basis as endorsed by MIDANPIRG.

2.3 The information contained in Volume III would be related to implementation monitoring, planning and/or guidance. The structure of Volume III would be kept simple, consisting of:

- a) Part 0 – Introduction;
- b) Part I – General Planning Aspects (GEN); and
- c) Part II – Air Navigation System Implementation.

2.4 A table for inclusion in Part I of Volume III to define a minimum set of implementation indicator(s), based on the SMART criteria (specific, measurable, achievable, relevant and time bound), for each of the 18 ASBU Block 0 modules and to include other information as deemed necessary, for use in all regions. The details related to the monitoring of the ASBU modules, including the design of supporting enablers (tables/databases) has been left to the Regions/PIRGs.

2.5 The meeting may wish to recall that MSG/4 meeting endorsed the MID Air Navigation Strategy and noted that detailed information on the monitoring of certain ASBU modules will be included in Volume III of the MID eANP, including necessary supporting enablers (i.e.: tables, databases, etc.), in order to be used as planning tools for the measurement of the air navigation systems performance.

2.6 Based on the above, the meeting may wish to note that Volume III of the MID eANP, consolidated by the Secretariat based on the Council approved Template and inputs received from the different MIDANPIRG subsidiary bodies (AIM SG/1, ATM SG/1, CNS SG/6 and MET SG/5) is at **Appendix A**.

3. ACTION BY THE MEETING

3.1 The meeting is invited to review and update, as appropriate, the MID eANP Volume III at **Appendix A**.

APPENDIX A

MID AIR NAVIGATION PLAN

VOLUME III

DRAFT

MID AIR NAVIGATION PLAN

VOLUME III

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MID ANP, VOLUME III
PART 0 – INTRODUCTION

1. INTRODUCTION

1.1 The background to the publication of ANPs in three volumes is explained in the Introduction in Volume I. The procedure for amendment of Volume III is also described in Volume I. Volume III contains dynamic/flexible plan elements related to the implementation of the air navigation system and its modernization in line with the ICAO Aviation System Block Upgrades (ASBUs) and associated technology roadmaps described in the Global Air Navigation Plan (GANP).

1.2 The information contained in Volume III is related mainly to:

- Planning: objectives set, priorities and targets planned at regional or sub-regional levels;
- Implementation monitoring and reporting: monitoring of the progress of implementation towards targets planned. This information should be used as the basis for reporting purposes (i.e.: global and regional air navigation reports and performance dashboards); and/or
- Guidance: providing regional guidance material for the implementation of specific system/procedures in a harmonized manner.

1.3 The management of Volume III is the responsibility of the MIDANPIRG.

1.4 Volume III should be used as a tool for monitoring and reporting the status of implementation of the elements planned here above, through the use of tables/databases and/or references to online monitoring tools, as endorsed by MIDANPIRG. The status of implementation is updated on a regular basis as endorsed by MIDANPIRG.

2. AVIATION SYSTEM BLOCK UPGRADES (ASBUs), MODULES AND ROADMAPS

2.1. The ASBU Modules and Roadmaps form a key component to the GANP, noting that they will continue to evolve as more work is done on refining and updating their content and in subsequent development of related provisions, support material and training.

2.2. Although the GANP has a worldwide perspective, it is not intended that all Block Upgrade Modules are required to be applied in every State, sub-region and/or region. Many of the Block Upgrade Modules contained in the GANP are specialized packages that should be applied only where the specific operational requirement exists or corresponding benefits can be realistically projected. Accordingly, the Block Upgrade methodology establishes an important flexibility in the implementation of its various Modules depending on a region, sub-region and/or State's specific operational requirements. Guided by the GANP, ICAO MID regional, sub-regional and State planning should identify Modules which best provide the needed operational improvements.

MID ANP, VOLUME III
PART I - GENERAL PLANNING ASPECTS (GEN)

1. PLANNING METHODOLOGY

1.1 Guided by the GANP, the regional planning process starts by identifying the homogeneous ATM areas, major traffic flows and international aerodromes. An analysis of this data leads to the identification of opportunities for performance improvement. Modules from the Aviation System Block Upgrades (ASBUs) are evaluated to identify which of those modules best provide the needed operational improvements. Depending on the complexity of the module, additional planning steps may need to be undertaken including financing and training needs. Finally, regional plans would be developed for the deployment of modules by drawing on supporting technology requirements. This is an iterative planning process which may require repeating several steps until a final plan with specific regional targets is in place. This planning methodology requires full involvement of States, service providers, airspace users and other stakeholders, thus ensuring commitment by all for implementation.

1.2 Block 0 features Modules characterized by technologies and capabilities which have already been developed and implemented in many parts of the world today. It therefore features a near-term availability milestone, or Initial Operating Capability (IOC), of 2013 for high density based on regional, sub-regional and State operational need. Blocks 1 through 3 are characterized by both existing and projected performance area solutions, with availability milestones beginning in 2018, 2023 and 2028 respectively.

2. REVIEW AND EVALUATION OF AIR NAVIGATION PLANNING

2.1. The progress and effectiveness against the priorities set out in the regional air navigation plans should be annually reported, using a consistent reporting format, to ICAO.

2.2. Performance monitoring requires a measurement strategy. Data collection, processing, storage and reporting activities supporting the identified global/regional performance metrics are fundamental to the success of performance-based approaches.

2.3. The air navigation planning and implementation performance framework prescribes reporting, monitoring, analysis and review activities being conducted on a cyclical, annual basis. An Air Navigation Reporting Form (ANRF) reflecting selected key performance areas as defined in the Manual on Global Performance of the Air Navigation System (ICAO Doc 9883) has been developed for each ASBU Module. The ANRF is a customized tool which is recommended for the application of setting planning targets, monitoring implementation, and identifying challenges, measuring implementation/performance and reporting. If necessary, other reporting formats that provide more details may be used but should contain as a minimum the elements described in the ANRF template. A sample of the ANRF is provided in **Appendix A**. A sample Template of a planning table which may be used to show the elements planned in an ICAO region is provided in **Appendix B**.

3. REPORTING AND MONITORING RESULTS

3.1 Reporting and monitoring results will be analyzed by the PIRGs, States and ICAO Secretariat to steer the air navigation improvements, take corrective actions and review the allocated objectives, priorities and targets if needed. The results will also be used by ICAO and aviation partner stakeholders to develop the annual Global Air Navigation Report. The report results will provide an opportunity for the international civil aviation community to compare progress across different ICAO regions in the establishment of air navigation infrastructure and performance-based procedures.

3.2 The reports will also provide the ICAO Council with detailed annual results on the basis of which tactical adjustments will be made to the performance framework work programme, as well as triennial policy adjustments to the GANP and the Block Upgrade Modules.

3.3 **Table GEN III-1** contains a minimum set of Implementation Indicator(s) for each of the eighteen ASBU Block 0 Modules necessary for the monitoring of these Modules (if identified as a priority for implementation at regional or sub-regional level). These indicators are intended to enable comparison between ICAO Regions with respect to ASBU Block 0 Modules and will apply only to commonly selected ASBU Modules. All regions/PIRGs reserve the right to select the ASBU Modules relevant to their needs and to endorse additional indicators, as deemed necessary. No reporting is required for ASBU Block 0 Modules that have not been selected.

Note: The priority for implementation as well as the applicability area of each selected ASBU Block 0 Module is to be defined by the MIDANPIRG.

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TABLE GEN III-1 – IMPLEMENTATION INDICATOR(S) FOR EACH ASBU BLOCK 0 MODULE**Explanation of the Table**

- 1 Block 0 Module Code
 2 Block 0 Module Title
 3 High level Implementation Indicator
 4 Remarks

Module Code	Module Title	Implementation Indicator	Remarks
1	2	3	4
B0-APTA	Optimization of Approach Procedures including vertical guidance	% of international aerodromes having at least one runway end provided with APV Baro-VNAV or LPV procedures	
B0-WAKE	Increased Runway Throughput through Optimized Wake Turbulence Separation	% of applicable international aerodromes having implemented increased runway throughput through optimized wake turbulence separation	<ol style="list-style-type: none"> 1. Not to be considered for the first reporting cycles due to lack of maturity. 2. List of ADs to be established through regional air navigation agreement.
B0-RSEQ	Improve Traffic flow through Runway Sequencing (AMAN/DMAN)	% of applicable international aerodromes having implemented AMAN / DMAN	<ol style="list-style-type: none"> 1. Not to be considered for the first reporting cycles due to lack of maturity. 2. List of ADs to be established through regional air navigation agreement.
B0-SURF	Safety and Efficiency of Surface Operations (A-SMGCS Level 1-2)	% of applicable international aerodromes having implemented A-SMGCS Level 2	List of ADs to be established through regional air navigation agreement.
B0-ACDM	Improved Airport Operations through Airport-CDM	% of applicable international aerodromes having implemented improved airport operations through airport-CDM	List of ADs to be established through regional air navigation agreement.
B0-FICE	Increased Interoperability, Efficiency and Capacity through Ground-Ground Integration	% of FIRs within which all applicable ACCs have implemented at least one interface to use AIDC / OLDI with neighbouring ACCs	
B0-DATM	Service Improvement through Digital Aeronautical Information Management	<ul style="list-style-type: none"> - % of States having implemented an AIXM based AIS database - % of States having implemented QMS 	
B0-AMET	Meteorological information supporting enhanced operational efficiency and safety	<ul style="list-style-type: none"> - % of States having implemented SADIS / WIFS - % of States having implemented QMS 	

Module Code	Module Title	Implementation Indicator	Remarks
1	2	3	4
B0-FRTO	Improved Operations through Enhanced En-Route Trajectories	% of FIRs in which FUA is implemented	
B0-NOPS	Improved Flow Performance through Planning based on a Network-Wide view	% of FIRs within which all ACCs utilize ATFM systems	
B0-ASUR	Initial capability for ground surveillance	% of FIRs where ADS-B OUT and/or MLAT are implemented for the provision of surveillance services in identified areas.	1. Not to be considered for the first reporting cycles due to lack of maturity.
B0-ASEP	Air Traffic Situational Awareness (ATSA)	% of States having implemented air traffic situational awareness	1. Not to be considered for the first reporting cycles due to lack of maturity.
B0-OPFL	Improved access to optimum flight levels through climb/descent procedures using ADS-B	% of FIRs having implemented in-trail procedures	1. Not to be considered for the first reporting cycles due to lack of maturity.
B0-ACAS	ACAS Improvements	% of States requiring carriage of ACAS (with TCAS 7.1 evolution)	
B0-SNET	Increased Effectiveness of Ground-Based Safety Nets	% of States having implemented ground-based safety-nets (STCA, APW, MSAW, etc.)	
B0-CDO	Improved Flexibility and Efficiency in Descent Profiles (CDO)	- % of international aerodromes / TMA with PBN STAR implemented - % of international aerodromes/TMA where CDO is implemented	
B0-TBO	Improved Safety and Efficiency through the initial application of Data Link En-Route	% of FIRs utilising data link en-route in applicable airspace	
B0-CCO	Improved Flexibility and Efficiency Departure Profiles - Continuous Climb Operations (CCO)	- % of international aerodromes / TMA with PBN SID implemented - % of international aerodromes/TMA where CCO is implemented	

Appendix A

SAMPLE TEMPLATE

1. AIR NAVIGATION REPORT FORM (ANRF)

(This template demonstrates how ANRF to be used.

The data inserted here refers to ASBU B0-05/CDO as an example only)

Regional and National planning for ASBU Modules

2. REGIONAL/NATIONAL PERFORMANCE OBJECTIVE – B0-05/CDO: Improved Flexibility and Efficiency in Descent Profiles					
Performance Improvement Area 4: Efficient Flight Path – Through Trajectory-based Operations					
3. ASBU B0-05/CDO: Impact on Main Key Performance Areas (KPA)					
	Access & Equity	Capacity	Efficiency	Environment	Safety
Applicable	N	N	Y	Y	Y
4. ASBU B0-05/CDO: Planning Targets and Implementation Progress					
5. Elements			6. Targets and implementation progress (Ground and Air)		
1. CDO					
2. PBN STARs					
7. ASBU B0-05/CDO: Implementation Challenges					
Elements	Implementation Area				
	Ground system Implementation	Avionics Implementation	Procedures Availability	Operational Approvals	
1. CDO					
2. PBN STARs					
8. Performance Monitoring and Measurement 8A. ASBU B0-05/CDO: Implementation Monitoring					

Elements	Performance Indicators/Supporting Metrics
1. CDO	Indicator: Percentage of international aerodromes/TMAs with CDO implemented Supporting metric: Number of international aerodromes/TMAs with CDO implemented
2. PBN STARs	Indicator: Percentage of international aerodromes/TMAs with PBN STARs implemented Supporting metric: Number of international aerodromes/TMAs with PBN STARs implemented

8. Performance Monitoring and Measurement 8 B. ASBU B0-05/CDO: Performance Monitoring	
Key Performance Areas (Out of eleven KPAs, for the present until experienced gained, only five have been selected for reporting through ANRF)	Where applicable, indicate qualitative Benefits,
Access & Equity	Not applicable
Capacity	Not applicable
Efficiency	Cost savings through reduced fuel burn. Reduction in the number of required radio transmissions.
Environment	Reduced emissions as a result of reduced fuel burn
Safety	More consistent flight paths and stabilized approach paths. Reduction in the incidence of controlled flight into terrain (CFIT).
9. Identification of performance metrics: It is not necessary that every module contributes to all of the five KPAs. Consequently, a limited number of metrics per type of KPA, serving as an example to measure the module(s)' implementation benefits, without trying to apportion these benefits between module, have been identified on page 5. For the family of ASBU modules selected for air navigation implementation, States/Region to choose the applicable performance (benefit) metrics from the list available on page 5. This approach would facilitate States in collecting data for the chosen performance metrics. States/Region, however, could add new metrics for different KPAs based on maturity of the system and ability to collect relevant data.	

AIR NAVIGATION REPORT FORM HOW TO USE - EXPLANATORY NOTES

1. **Air Navigation Report Form (ANRF):** This form is nothing but the revised version of Performance Framework Form that was being used by Planning and Implementation Regional Groups (PIRGs)/States until now. The ANRF is a customized tool for Aviation System Block Upgrades (ASBU) Modules which is recommended for application for setting planning targets, monitoring implementation, identifying challenges, measuring implementation/performance and reporting. Also, the PIRGs and States could use this report format for any other air navigation improvement programmes such as Search and Rescue. If necessary, other reporting formats that provide more details may be used but should contain as a minimum the elements described in this ANRF template. The results will be analysed by ICAO and aviation partners and utilized in the Regional Performance Dashboards and the Annual Air Navigation Report. The conclusions from the Air Navigation Report will serve as the basis for future policy adjustments, aiding safety practicality, affordability and global harmonization, amongst other concerns.
2. **Regional/National Performance objective:** In the ASBU methodology, the performance objective will be the title of the ASBU module itself. Furthermore, indicate alongside corresponding Performance Improvement area (PIA).
3. **Impact on Main Key Performance Areas:** Key to the achievement of a globally interoperable ATM system is a clear statement of the expectations/benefits to the ATM community. The expectations/benefits are referred to eleven Key Performance Areas (KPAs) and are interrelated and cannot be considered in isolation since all are necessary for the achievement of the objectives established for the system as a whole. It should be noted that while safety is the highest priority, the eleven KPAs shown below are in alphabetical order as they would appear in English. They are access/equity; capacity; cost effectiveness; efficiency; environment; flexibility; global interoperability; participation of ATM community; predictability; safety; and security. However, out of these eleven KPAs, for the present, only five have been selected for reporting through ANRF, which are Access & Equity, Capacity, Efficiency, Environment and Safety. The KPAs applicable to respective ASBU module are to be identified by marking Y (Yes) or N (No). The impact assessment could be extended to more than five KPAs mentioned above if maturity of the national system allows and the process is available within the State to collect the data.
4. **Planning Targets and Implementation Progress:** This section indicates planning targets and status of progress in the implementation of different elements of the ASBU Module for both air and ground segments.
5. **Elements related to ASBU module:** Under this section list elements that are needed to implement the respective ASBU Module. Furthermore, should there be elements that are not reflected in the ASBU Module (example: In ASBU B0-80/ACDM, Aerodrome certification and data link applications D-VOLMET, D-ATIS, D-FIS are not included; Similarly in ASBU B0-30/DAIM, note that WGS-84 and eTOD are not included) but at the same time if they are closely linked to the module, ANRF should specify those elements. As a part of guidance to PIRGs/States, every Regional ANP will have the complete list of all 18 Modules of ASBU Block 0 along with corresponding elements, equipage required on the ground and in the air as well as metrics specific to both implementation and performance (benefits).
6. **Targets and implementation progress (Ground and Air):** Planned implementation date (month/year) and the current status/responsibility for each element are to be reported in this section. Please provide as much details as possible and should cover both avionics and ground systems. This ANRF being high level document, develop necessary detailed action plan separately for each element/equipage.

7. **Implementation challenges:** Any challenges/problems that are foreseen for the implementation of elements of the Module are to be reported in this section. The purpose of the section is to identify in advance any issues that will delay the implementation and if so, corrective action is to be initiated by the concerned person/entity. The four areas, under which implementation issues, if any, for the ASBU Module to be identified, are as follows:

- Ground System Implementation:
- Avionics Implementation:
- Procedures Availability:
- Operational Approvals:

Should be there no challenges to be resolved for the implementation of ASBU Module, indicate as “NIL”.

8. **Performance Monitoring and Measurement:** Performance monitoring and measurement is done through the collection of data for the supporting metrics. In other words, metrics are quantitative measure of system performance – how well the system is functioning. The metrics fulfil three functions. They form a basis for assessing and monitoring the provision of ATM services, they define what ATM services user value and they can provide common criteria for cost benefit analysis for air navigation systems development. The Metrics are of two types:

A. **Implementation Monitoring:** Under this section, the indicator supported by the data collected for the metric reflects the status of implementation of elements of the Module. For example- Percentage of international aerodromes with CDO implemented. This indicator requires data for the metric “number of international aerodromes with CDO”.

B. **Performance Monitoring:** The metric in this section allows to asses benefits accrued as a result of implementation of the module. The benefits or expectations, also known as Key Performance Areas (KPA), are interrelated and cannot be considered in isolation since all are necessary for the achievement of the objectives established for the system as a whole. It should be noted that while safety is the highest priority, the eleven KPAs shown below are in alphabetical order as they would appear in English. They are access/equity; capacity; cost effectiveness; efficiency; environment; flexibility; global interoperability; participation of ATM community; predictability; safety; and security. However, out of these eleven KPAs, for the present until experienced gained, only five have been selected for reporting through ANRF, which are Access & Equity, Capacity, Efficiency, Environment and Safety. Where applicable, mention qualitative benefits under this section.

9. **Identification of performance metrics:** It is not necessary that every module contributes to all of the five KPAs. Consequently, a limited number of metrics per type of KPA, serving as an example to measure the module(s)’ implementation benefits, without trying to apportion these benefits between module, have been identified on page 6. For the family of ASBU modules selected for air navigation implementation, States/Region to choose the applicable performance (benefit) metrics from the list available on page 6. This approach would facilitate States in collecting data for the chosen performance metrics. States/Region, however, could add new metrics for different KPAs based on maturity of the system and ability to collect relevant data.

MID ANP, VOLUME III

PART II – AIR NAVIGATION SYSTEM IMPLEMENTATION

1. INTRODUCTION

1.1 The planning and implementation of the ICAO Aviation System Block Upgrades (ASBUs) should be undertaken within the framework of the MIDANPIRG with the participation and support of all stakeholders, including regulatory personnel.

1.2 The ASBU Blocks and Modules adopted by the MID Region should be followed in accordance with the specific ASBU requirements to ensure global interoperability and harmonization of air traffic management. The MIDANPIRG should determine the ASBU Block Upgrade Modules, which best provide the needed operational improvements in the ICAO MID Region.

2. ICAO MID REGION AIR NAVIGATION OBJECTIVES, PRIORITIES AND TARGETS

2.1 In accordance with Recommendation 6/1 of the Twelfth Air Navigation Conference (AN-Conf/12), PIRGs are requested to establish priorities and targets for air navigation, in line with the ASBU methodology.

2.2 The achievement of the intended benefits along each routing or within each area of affinity is entirely dependent on the coordinated implementation of the required elements by all provider and user stakeholders concerned.

2.3 Considering that some of the block upgrade modules contained in the GANP are specialized packages that may be applied where specific operational requirements or corresponding benefits exist, States and PIRGs should clarify how each Block Upgrade module would fit into the national and regional plans.

2.4 As Block 0 modules in many cases provide the foundation for future development, all Block 0 modules should be assessed, as appropriate, for early implementation by States in accordance with their operational needs.

2.5 In establishing and updating the MID air navigation plan, the MIDANPIRG and States should give due consideration to the safety priorities set out in the Global Aviation Safety Plan (GASP) and MID Region safety strategy.

2.6 States in the MID Region through the MIDANPIRG should establish their own air navigation objectives, priorities and targets to meet their individual needs and circumstances in line with the global and regional air navigation objectives, priorities and targets.

3. MONITORING OF ASBU MODULES IMPLEMENTATION

3.1 The monitoring of air navigation performance and its enhancement should be carried out through identification of relevant air navigation Metrics and Indicators as well as the adoption and attainment of air navigation system Targets.

3.2 The monitoring of the regional implementation progress and performance metrics/indicators should be done for all elements planned by MIDANPIRG. The monitoring should allow global correlation of status and expectations, appreciation of benefits achieved for the airspace users, as well as corrective actions to be taken by the PIRG on implementation plans.

3.3 The MIDANPIRG should determine appropriate mechanisms and tools for the monitoring and the collection of necessary data at national and regional levels.

MID Region ASBU Block 0 Modules Prioritization and Monitoring

3.4 On the basis of operational requirements and taking into consideration the associated benefits, MID Region has prioritized the implementation of the Block “0” Modules, also agreed on the subsidiary bodies that will be monitoring and supporting the implementation of the modules as in Table below:

MID REGION ASBU BLOCK 0 MODULES PRIORITIZATION AND MONITORING

Module Code	Module Title	Priority	Monitoring		Remarks
			Main	Supporting	
Performance Improvement Areas (PIA) 1: Airport Operations					
B0-APTA	Optimization of Approach Procedures including vertical guidance	1	PBN SG	ATM SG, AIM SG, CNS SG	
B0-WAKE	Increased Runway Throughput through Optimized Wake Turbulence Separation	2			
B0-RSEQ	Improve Traffic flow through Runway Sequencing (AMAN/DMAN)	2			
B0-SURF	Safety and Efficiency of Surface Operations (A-SMGCS Level 1-2)	1	ANSIG	CNS SG	Coordination with RGS WG
B0-ACDM	Improved Airport Operations through Airport-CDM	1	ANSIG	CNS SG, AIM SG, ATM SG	Coordination with RGS WG
Performance Improvement Areas (PIA) 2 Globally Interoperable Systems and Data Through Globally Interoperable System Wide Information Management					
B0-FICE	Increased Interoperability, Efficiency and Capacity through Ground-Ground Integration	1	CNS SG	ATM SG	
B0-DATM	Service Improvement through Digital Aeronautical Information Management	1	AIM SG	-	
B0-AMET	Meteorological information supporting enhanced operational efficiency and safety	1	MET SG	-	
Performance Improvement Areas (PIA) 3 Optimum Capacity and Flexible Flights – Through Global Collaborative ATM					
B0-FRTO	Improved Operations through Enhanced En-	1	ATM SG		

	Route Trajectories				
B0-NOPS	Improved Flow Performance through Planning based on a Network-Wide view	1			
B0-ASUR	Initial capability for ground surveillance	2			
B0-ASEP	Air Traffic Situational Awareness (ATSA)	2			
B0-OPFL	Improved access to optimum flight levels through climb/descent procedures using ADS-B	2			
B0-ACAS	ACAS Improvements	1	CNS SG		
B0-SNET	Increased Effectiveness of Ground-Based Safety Nets	2			
Performance Improvement Areas (PIA) 4 Efficient Flight Path – Through Trajectory-based Operations					
B0-CDO	Improved Flexibility and Efficiency in Descent Profiles (CDO)	1	PBN SG		
B0-TBO	Improved Safety and Efficiency through the initial application of Data Link En-Route	1	ATM SG	CNS SG	
B0-CCO	Improved Flexibility and Efficiency Departure Profiles - Continuous Climb Operations (CCO)	1	PBN SG		

Note:

Priority 1: Modules that have the highest contribution to the improvement of air navigation safety and/or efficiency in the MID Region. These modules should be implemented where applicable and will be used for the purpose of regional air navigation monitoring and reporting for the period 2013-2014.

Priority 2: Modules recommended for implementation based on identified operational needs and benefits.

APPENDIX – ASBU BLOCK 0 MODULES APPLICABLE IN THE MID REGION

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B0 – APTA: Optimization of Approach Procedures including vertical guidance

Description and purpose

The use of performance-based navigation (PBN) and ground-based augmentation system (GBAS) landing system (GLS) procedures will enhance the reliability and predictability of approaches to runways, thus increasing safety, accessibility and efficiency. This is possible through the application of Basic global navigation satellite system (GNSS), Baro vertical navigation (VNAV), satellite-based augmentation system (SBAS) and GLS. The flexibility inherent in PBN approach design can be exploited to increase runway capacity.

Main performance impact:

KPA- 01 – Access and Equity	KPA-02 – Capacity	KPA-04 – Efficiency	KPA-05 – Environment	KPA-10 – Safety
Y	Y	Y	Y	Y

Applicability consideration:

This module is applicable to all instrument, and precision instrument runway ends, and to a limited extent, non-instrument runway ends.

B0 – APTA: Optimization of Approach Procedures including vertical guidance

Elements	Applicability	Performance Indicators/Supporting Metrics	Targets
States' PBN Implementation Plans	All	Indicator: % of States that provided updated PBN implementation Plan Supporting metric: Number of States that provided updated PBN implementation Plan	80 % by Dec. 2014 100% by Dec. 2015
LNAV	All RWYs Ends at International Aerodromes	Indicator: % of runway ends at international aerodromes with RNAV(GNSS) Approach Procedures (LNAV) Supporting metric: Number of runway ends at international aerodromes with RNAV (GNSS) Approach Procedures (LNAV)	All runway ends at Int'l Aerodromes, either as the primary approach or as a back-up for precision approaches by Dec. 2016
LNAV/VNAV	All RWYs ENDS at International Aerodromes	Indicator: % of runways ends at international aerodromes provided with Baro-VNAV approach procedures (LNAV/VNAV) Supporting metric: Number of runways ends at international aerodromes provided with Baro-VNAV approach procedures (LNAV/VNAV)	All runway ends at Int'l Aerodromes, either as the primary approach or as a back-up for precision approaches by Dec. 2017

B0 – CCO: Improved Flexibility and Efficiency Departure Profiles - Continuous Climb Operations (CCO)

Description and purpose

To implement continuous climb operations in conjunction with performance-based navigation (PBN) to provide opportunities to optimize throughput, improve flexibility, enable fuel-efficient climb profiles and increase capacity at congested terminal areas.

Main performance impact:

KPA- 01 – Access and Equity	KPA-02 – Capacity	KPA-04 – Efficiency	KPA-05 – Environment	KPA-10 – Safety
N/A	N/A	Y	Y	Y

Applicability consideration:

Regions, States or individual locations most in need of these improvements. For simplicity and implementation success, complexity can be divided into three tiers:

- a) least complex: regional/States/locations with some foundational PBN operational experience that could capitalize on near-term enhancements, which include integrating procedures and optimizing performance;
- b) more complex: regional/States/locations that may or may not possess PBN experience, but would benefit from introducing new or enhanced procedures. However, many of these locations may have environmental and operational challenges that will add to the complexities of procedure development and implementation; and
- c) most complex: regional/States/locations in this tier will be the most challenging and complex to introduce integrated and optimized PBN operations. Traffic volume and airspace constraints are added complexities that must be confronted. Operational changes to these areas can have a profound effect on the entire State, region or location.

B0 – CCO: Improved Flexibility and Efficiency Departure Profiles - Continuous Climb Operations (CCO)

<i>Elements</i>	<i>Applicability</i>	<i>Performance Indicators/Supporting Metrics</i>	<i>Targets</i>
PBN SIDs	in accordance with States’ implementation Plans	Indicator: % of International Aerodromes/TMA with PBN SID implemented as required. Supporting Metric: Number of International Aerodromes/ TMAs with PBN SID implemented as required.	100% by Dec. 2016 for the identified Aerodromes/TMAs 100% by Dec. 2018 for all the International Aerodromes/TMAs
International aerodromes/TMAs with CCO	in accordance with States’ implementation Plans	Indicator: % of International Aerodromes/TMA with CCO implemented as required. Supporting Metric: Number of International Aerodromes/TMAs with CCO implemented as required.	100% by Dec. 2018 for the identified Aerodromes/TMAs

B0 – CDO: Improved Flexibility and Efficiency in Descent Profiles (CDO)

Description and purpose

To use performance-based airspace and arrival procedures allowing aircraft to fly their optimum profile using continuous descent operations (CDOs). This will optimize throughput, allow fuel efficient descent profiles and increase capacity in terminal areas.

Main performance impact:

KPA- 01 – Access and Equity	KPA-02 – Capacity	KPA-04 – Efficiency	KPA-05 – Environment	KPA-10 – Safety
N	Y	Y	Y	Y

Applicability consideration:

Regions, States or individual locations most in need of these improvements. For simplicity and implementation success, complexity can be divided into three tiers:

- a) least complex – regional/States/locations with some foundational PBN operational experience that could capitalize on near term enhancements, which include integrating procedures and optimizing performance;
- b) more complex – regional/States/locations that may or may not possess PBN experience, but would benefit from introducing new or enhanced procedures. However, many of these locations may have environmental and operational challenges that will add to the complexities of procedure development and implementation; and
- c) most complex – regional/States/locations in this tier will be the most challenging and complex to introduce integrated and optimized PBN operations. Traffic volume and airspace constraints are added complexities that must be confronted. Operational changes to these areas can have a profound effect on the entire State, region or location.

B0 – CDO: Improved Flexibility and Efficiency in Descent Profiles (CDO)

<i>Elements</i>	<i>Applicability</i>	<i>Performance Indicators/Supporting Metrics</i>	<i>Targets</i>
PBN STARs	In accordance with States' implementation Plans	Indicator: % of International Aerodromes/TMA with PBN STAR implemented as required. Supporting Metric: Number of International Aerodromes/TMAs with PBN STAR implemented as required.	100% by Dec. 2016 for the identified Aerodromes/TMAs 100% by Dec. 2018 for all the International Aerodromes/TMAs
International aerodromes/TMAs with CDO	In accordance with States' implementation Plans	Indicator: % of International Aerodromes/TMA with CDO implemented as required. Supporting Metric: Number of International Aerodromes/TMAs with CDO implemented as required.	100% by Dec. 2018 for the identified Aerodromes/TMAs

B0 – APTA, CCO and CDO

Monitoring and Reporting (as July 2014)

BO-APTA: Optimization of Approach Procedures including vertical guidance

B0 – CCO: Improved Flexibility and Efficiency Departure Profiles - Continuous Climb Operations (CCO)

B0 – CDO: Improved Flexibility and Efficiency in Descent Profiles (CDO)

Int'l Aerodrome (Ref. MID ANP)	RWY	Conventional Approaches			APTA			CCO		CDO		Remarks
		Precision		VOR or NDB	PBN PLAN	LNAV	LNAV / VNAV	RNAV SID	CCO	RNAV STAR	CDO	
		ILS	CAT		Update date							
BAHRAIN												
OBBI	12L	ILS	I	VORDME		Y						SIDs and STARs withdrawn
	30R	ILS	I	VORDME		Y						SIDs and STARs withdrawn
Total	2	2		2	Y	2	0	0	0	0	0	
%		100		100		100	0	0	0	0	0	
EGYPT												
HEAX	4			VORDME		Y						
	18											
	22			VORDME		Y						
	36			VORDME								
HEBA	14											
	32	ILS	I			Y		Y				
HESN	17			VORDME		Y		Y		Y		
	35	ILS	I	VORDME		Y		Y		Y		
HEAT	13					Y		Y		Y		
	31	ILS	I	VORDME		Y		Y		Y		
HECA	05L	ILS	I	VORDME		Y						

Int'l Aerodrome (Ref. MID ANP)	RWY	Conventional Approaches			APTA			CCO		CDO		Remarks
		Precision		VOR or NDB	PBN PLAN	LNAV	LNAV / VNAV	RNAV SID	CCO	RNAV STAR	CDO	
		ILS	CAT		Update date							
	05C	ILS	II	VORDME		Y						
	05R	ILS	I									
	23L	ILS	I	VORDME								
	23C	ILS	II	VORDME		Y						
	23R	ILS	I	VORDME		Y						
HEAR	16											
	34			VORDME								
HEGN	16			VORDME		Y		Y		Y		
	34	ILS	I	VORDME		Y		Y		Y		
HELX	2	ILS	I	VORDME		Y		Y		Y		
	20	ILS	I	VORDME		Y		Y		Y		
HEMA	15			VORDME								
	33			VORDME								
HEPS	10			VORDME								
	28											
HEOW	1			NDB								
	19											
HESH	04L	ILS	I	VORDME		Y		Y		Y		
	04R			VORDME		Y		Y		Y		
	22L			VORDME		Y		Y		Y		
	22R			VORDME		Y		Y		Y		
HESC	17			NDB								
	35			NDB								

Int'l Aerodrome (Ref. MID ANP)	RWY	Conventional Approaches			APTA			CCO		CDO		Remarks
		Precision		VOR or NDB	PBN PLAN	LNAV	LNAV / VNAV	RNAV SID	CCO	RNAV STAR	CDO	
		ILS	CAT		Update date							
HETB	4	ILS	I	VORDME		Y		Y		Y		
	22			VORDME		Y		Y		Y		
HEAL	13			VORDME		Y						
	31			VORDME		Y						
HESG	15			VORDME								
	33			VORDME								
Total	40	14		32	Y	23	0	15	0	14	0	
%		35		80		58	0	38	0	35	0	
I.R. IRAN												
OIKB	03L											
	03R			VORDME / NDB								
	21L	ILS	I	VORDME / NDB								
	21R											
OIFM	08L			VORDME / NDB								
	08R			VORDME / NDB								
	26L			VORDME / NDB								
	26R	ILS	I	VORDME / NDB								
OIMM	13L			VORDME								
	13R			VORDME								
	31L			VORDME / NDB								

Int'l Aerodrome (Ref. MID ANP)	RWY	Conventional Approaches			APTA			CCO		CDO		Remarks
		Precision		VOR or NDB	PBN PLAN	LNAV	LNAV / VNAV	RNAV SID	CCO	RNAV STAR	CDO	
		ILS	CAT		Update date							
	31R	ILS	I	VORDME / NDB								
OISS	11L											
	11R											
	29L	ILS	I	VORDME / NDB								
	29R			VORDME / NDB								
OITT	12L											
	12R											
	30L	ILS	I	VORDME								
	30R	ILS	I	VORDME								
OIIE	11L	ILS	I	VORDME / NDB								
	11R			VORDME / NDB								
	29L			VORDME								
	29R	ILS	II	VORDME / NDB								
OIII	11L			VORDME								
	11R			VORDME								
	29L	ILS	I	VORDME								
	29R											
OIZH	17											
	35	ILS	I	VORDME								
Total	30	10		22	N	0	0	0	0	0	0	
%		33		73		0	0	0	0	0	0	

Int'l Aerodrome (Ref. MID ANP)	RWY	Conventional Approaches			APTA			CCO		CDO		Remarks
		Precision		VOR or NDB	PBN PLAN	LNAV	LNAV / VNAV	RNAV SID	CCO	RNAV STAR	CDO	
		ILS	CAT		Update date							
IRAQ												
ORBI	15L	ILS	I	VORDME								
	15R					Y						
	33L					Y						
	33R	ILS	I	VORDME								
ORMM	14			VORDME								
	32	ILS	I	VORDME								
ORER	18	ILS	II			Y				Y		
	36	ILS	I			Y				Y		
ORSU	13	ILS	I	VOR								
	31	ILS	I	VOR								
ORNI	10											
	28	ILS		VOR								
ORBМ												NO DATA
Total	12	8		7	N	4	0	0	0	2	0	
%		67		58		33	0	0	0	17	0	
JORDAN												
OJAM	6					Y	Y	Y		Y		
	24	ILS	I	VORDME / NDB		Y	Y	Y		Y		
OJAI	08L	ILS	I	NDB DME		Y	Y	Y		Y		
	08R			NDB DME		Y	Y	Y		Y		
	26L	ILS	II	VOR / NDB		Y	Y	Y		Y		

Int'l Aerodrome (Ref. MID ANP)	RWY	Conventional Approaches			APTA			CCO		CDO		Remarks
		Precision		VOR or NDB	PBN PLAN	LNAV	LNAV / VNAV	RNAV SID	CCO	RNAV STAR	CDO	
		ILS	CAT		Update date							
	26R	ILS	I	VORDME / NDB		Y	Y	Y		Y		
OJAQ	1	ILS	I	VORDME		Y	Y	Y		Y		
	19	N/A	N/A			Y	N/A	Y		Y		LNAV/VNAV not feasible
Total	8	6		6	Y	8	8	8	0	8	0	
%		75		75		100	100	100	0	100	0	
KUWAIT												
OKBK	15L	ILS	II			Y	Y	Y		Y		
	15R	ILS	II	VORDME		Y	Y	Y		Y		
	33L	ILS	II	VORDME		Y	Y	Y		Y		
	33R	ILS	II			Y	Y	Y		Y		
Total	4	4		2	Y	4	4	4	0	4	0	
%		100		50		100	100	100	0	100	0	
LEBANON												
OLBA	3	ILS	I	VORDME		Y				Y		
	16	ILS	I	VORDME		Y				Y		
	17	ILS	I	VORDME / NDB		Y				Y		
	21					Y				Y		
	34	N/A		N/A		N/A				N/A		Not used for landing
	35	N/A		N/A		N/A				N/A		Not used for landing
Total	6	5		5	N	6	0	0	0	6	0	
%		83		83		100	0	0	0	100	0	

Int'l Aerodrome (Ref. MID ANP)	RWY	Conventional Approaches			APTA			CCO		CDO		Remarks
		Precision		VOR or NDB	PBN PLAN	LNAV	LNAV / VNAV	RNAV SID	CCO	RNAV STAR	CDO	
		ILS	CAT		Update date							
LIBYA												
HLLB	15R			VORDME								VOR not flight checked
	15L			VORDME								VOR not flight checked
	33R			VORDME								VOR not flight checked
	33L	ILS	I	VORDME								ILS not flight checked
HLLS	13	ILS	I	VORDME								ILS not flight checked
	31			VORDME								VOR not flight checked
HLLT	9			VORDME								VOR not flight checked
	27	ILS	I	VORDME								ILS not flight checked
Total	8	3		8	N	0	0	0	0	0	0	
%		38		100		0	0	0	0	0	0	
OMAN												
OOMS	08R	ILS	I	VORDME								
	26L	ILS	I	VORDME								
OOSA	7			VORDME								
	25	ILS	I	VORDME								
Total	4	3		4	Y	0	0	0	0	0	0	
%		75		100		0	0	0	0	0	0	
QATAR												
OTBD	15	ILS	I	VORDME		Y	N/A	Y		Y		LNAV/VNAV not feasible
	33	ILS	II/III	VORDME/N DB		Y	Y	Y		Y		
OTHH	16L	ILS	I/II/III	VORDME		Y	Y	Y		Y		

Int'l Aerodrome (Ref. MID ANP)	RWY	Conventional Approaches			APTA			CCO		CDO		Remarks
		Precision		VOR or NDB	PBN PLAN	LNAV	LNAV / VNAV	RNAV SID	CCO	RNAV STAR	CDO	
		ILS	CAT		Update date							
	16R	ILS	I/II/III	VORDME		Y	Y	Y		Y		
	34L	ILS	I/II/III	VORDME		Y	Y	Y		Y		
	34R	ILS	I/II/III	VORDME		Y	Y	Y		Y		
Total	6	6		6	Y	6	6	6	0	6	0	
%		100		100		100	100	100	0	100	0	
SAUDI ARABIA												
OEDF	16L	ILS	II	VORDME								
	16R	ILS	II	VORDME								
	34L	ILS	II	VORDME								
	34R	ILS	II	VORDME								
OEJN	16L	ILS	I	VORDME		Y				Y		
	16C	ILS	II			Y				Y		
	16R	ILS	II			Y				Y		
	34L	ILS	II			Y				Y		
	34C	ILS	II	VORDME		Y				Y		
	34R	ILS	I	VORDME		Y				Y		
OEMA	17	ILS	I	VORDME		Y		Y		Y		
	18			VORDME		Y		Y		Y		
	35	ILS	I	VORDME		Y		Y		Y		
	36	ILS	I	VORDME		Y		Y		Y		
OERK	15L	ILS	I	VORDME								
	15R	ILS	I									
	33L	ILS	I									

Int'l Aerodrome (Ref. MID ANP)	RWY	Conventional Approaches			APTA			CCO		CDO		Remarks
		Precision		VOR or NDB	PBN PLAN	LNAV	LNAV / VNAV	RNAV SID	CCO	RNAV STAR	CDO	
		ILS	CAT		Update date							
	33R	ILS	I	VORDME								
Total	18	17		13	Y	10	0	4	0	10	0	
%		94		72		56	0	22	0	56	0	
SUDAN												
HSKA	2											Charts are Not Published
	20											
HSSS	18	ILS	I	VORDME		Y	Y					
	36	ILS	I	VORDME		Y	Y					
HSPN	17			VORDME / NDB		Y	Y					
	35	ILS	I	VORDME / NDB		Y	Y					
Total	6	3		4	Y	4	4	0	0	0	0	
%		50		67		67	67	0	0	0	0	
SYRIA												
OSAP	9			VORDME								
	27	ILS	II	VORDME / NDB								
OSLK	17	ILS	I	VORDME / NDB								
	35											
OSDI	05L			VOR								
	05R	ILS	II	VORDME / NDB								
	23L			VORDME / NDB DME								

Int'l Aerodrome (Ref. MID ANP)	RWY	Conventional Approaches			APTA			CCO		CDO		Remarks
		Precision		VOR or NDB	PBN PLAN	LNAV	LNAV / VNAV	RNAV SID	CCO	RNAV STAR	CDO	
		ILS	CAT		Update date							
	23R	ILS	II	VORDME		Y	Y					
Total	8	4		7	Y	1	1	0	0	0	0	
%		50		88		13	13	0	0	0	0	
UNITED ARAB EMIRATES												
OMAA	13L	ILS	II					Y		Y		
	13R	ILS	I	VOR				Y		Y		
	31L	ILS	II/III	VOR				Y		Y		
	31R	ILS	II					Y		Y		
OMAD	13			VORDME		Y				Y		
	31	ILS	I	VORDME		Y				Y		
OMAL	1	ILS	I	VOR								
	19			VOR								
OMDB	12L	ILS	I/II/III	VOR		Y	Y	Y		Y		
	12R	ILS	I/II/III	VOR		Y	Y	Y		Y		
	30L	ILS	I/II/III			Y	Y	Y		Y		
	30R	ILS	I/II/III	VOR		Y	Y	Y		Y		
OMDW	12	ILS	II/III			Y	Y	Y		Y		
	30	ILS	II/III			Y	Y	Y		Y		
OMFJ	11							Y				
	29	ILS	I	VOR				Y				
OMRK	16			VOR								
	34	ILS	I	VOR								
OMSJ	12	ILS	I			Y	Y	Y		Y		

Int'l Aerodrome (Ref. MID ANP)	RWY	Conventional Approaches		APTA			CCO		CDO		Remarks	
		Precision		VOR or NDB	PBN PLAN	LNAV	LNAV / VNAV	RNAV SID	CCO	RNAV STAR		CDO
		ILS	CAT		Update date							
	30	ILS	II			Y	Y	Y		Y		
Total	20	16		12	Y	10	8	14	0	14	0	
%		80		60		50	40	70	0	70	0	
YEMEN												
OYAA	8	ILS	I	VORDME								
	26			VORDME								
OYHD	3			VOR								
	21			VOR / NDB		Y				Y		
OYRN	6											
	24			VORDME								
OYSN	18	ILS	I	VORDME/NDB		Y	Y	Y		Y		
	36			VOR		Y	Y	Y		Y		
OYTZ												NO DATA
Total	8	2		7	Y	3	2	2	0	3	0	
%		25		88		38	25	25	0	38	0	

Results

Total	180	103		137	11	81	33	53	0	67	0	4 PBN APV + 103 ILS (107/180)
Percentage (%)		57		76	73	45	18	29	0	37	0	59% RWY Ends with Vertical Guidance

B0-SURF: Safety and Efficiency of Surface Operations (A-SMGCS Level 1-2)

Description and purpose

Basic A-SMGCS provides surveillance and alerting of movements of both aircraft and vehicles on the aerodrome thus improving runway/aerodrome safety. ADS-B information is used when available (ADS-B APT).

Main performance impact:

KPA- 01 – Access and Equity	KPA-02 – Capacity	KPA-04 – Efficiency	KPA-05 – Environment	KPA-10 – Safety
Y	Y	Y	Y	Y

Applicability consideration:

A-SMGCS is applicable to any aerodrome and all classes of aircraft/vehicles. Implementation is to be based on requirements stemming from individual aerodrome operational and cost-benefit assessments. ADS-B APT, when applied is an element of A-SMGCS, is designed to be applied at aerodromes with medium traffic complexity, having up to two active runways at a time and the runway width of minimum 45 m.

<i>B0-SURF: Safety and Efficiency of Surface Operations (A-SMGCS Level 1-2)</i>			
Elements	Applicability	Performance Indicators/Supporting Metrics	Targets
A-SMGCS Level 1*	OBBI, HECA, OIII, OKBK, OOMS, OTBD, OTHH, OEDF, OEJN, OERK, OMDB, OMAA, OMDW	Indicator: % of applicable international aerodromes having implemented A-SMGCS Level 1 Supporting Metric: Number of applicable international aerodromes having implemented A-SMGCS Level 1	70% by Dec. 2017
A-SMGCS Level 2*	OBBI, HECA, OIII, OKBK, OOMS, OTBD, OTHH, OEJN, OERK, OMDB, OMAA, OMDW	Indicator: % of applicable international aerodromes having implemented A-SMGCS Level 2 Supporting Metric: Number of applicable international aerodromes having implemented A-SMGCS Level 2	50% by Dec. 2017

*Reference: Eurocontrol Document – “Definition of A-SMGCS Implementation Levels, Edition 1.2, 2010”.

B0 – SURF: Safety and Efficiency of Surface Operations (A-SMGCS Level 1-2)
Monitoring and Reporting

Aerodrome	City	State	Level 1	Level 2	Remarks
<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>	<i>6</i>
OBBI	Bahrain	Bahrain-			
HECA	Cairo	Egypt-			
OIII	Tehran Mehrabad	Iran			
OKBK	Kuwait	Kuwait			
OOMS	Muscat	Oman			
OTBD	Doha Intr	Qatar			
OTHH	Doha Hamad Intr.	Qatar			
OEJN	Jeddah	Saudi Arabia			
OERK	Riyadh	Saudi Arabia			
OMAA	Abu Dhabi	UAE			
OMDB	Dubai	UAE			
OMDW	Dubai WTC	UAE			
Percentage of implementation		%%	

B0 – ACDM: Improved Airport Operations through Airport-CDM

Description and purpose

To implement collaborative applications that will allow the sharing of surface operations data among the different stakeholders on the airport. This will improve surface traffic management reducing delays on movement and manoeuvring areas and enhance safety, efficiency and situational awareness.

Main performance impact:

KPA- 01 – Access and Equity	KPA-02 – Capacity	KPA-04 – Efficiency	KPA-05 – Environment	KPA-10 – Safety
N	Y	Y	Y	N

Applicability consideration:

Local for equipped/capable fleets and already established airport surface infrastructure.

B0 – ACDM: Improved Airport Operations through Airport-CDM			
Elements	Applicability	Performance Indicators/Supporting Metrics	Targets
A-CDM	OBBI, HECA, OIII, OKBK, OOMS, OTBD, OTHH, OEJN, OERK, OMDB, OMAA, OMDW	Indicator: % of applicable international aerodromes having implemented improved airport operations through airport-CDM Supporting metric: Number of applicable international aerodromes having implemented improved airport operations through airport-CDM	40% by Dec. 2017

**B0 – ACDM: Improved Airport Operations through Airport-CDM
Monitoring and Reporting**

Aerodrome	City	State	Apron Management	ATM- Aerodrome Coordination	Declared terminal & runway capacity	Remarks
1	2	3	4	5	6	7
OBBI	Bahrain	Bahrain-				
HECA	Cairo	Egypt-				
OIII	Tehran Mehrabad	Iran				
OKBK	Kuwait	Kuwait				
OOMS	Muscat	Oman				
OTBD	Doha Intr	Qatar				
OTHH	Doha Hamad Intr.	Qatar				
OEJN	Jeddah	Saudi Arabia				
OERK	Riyadh	Saudi Arabia				
OMAA	Abu Dhabi	UAE				
OMDB	Dubai	UAE				
OMDW	Dubai WTC	UAE				
Percentage of implementation		%%%	

B0 – FICE: Increased Interoperability, Efficiency and Capacity through Ground-Ground Integration

Description and purpose

To improve coordination between air traffic service units (ATSUs) by using ATS Interfacility Data Communication (AIDC) defined by the ICAO *Manual of Air Traffic Services Data Link Applications* (Doc 9694). The transfer of communication in a data link environment improves the efficiency of this process particularly for oceanic ATSUs.

Main performance impact:

KPA- 01 – Access and Equity	KPA-02 – Capacity	KPA-04 – Efficiency	KPA-05 – Environment	KPA-10 – Safety
N	Y	Y	N	Y

Applicability consideration:

Applicable to at least two area control centres (ACCs) dealing with enroute and/or terminal control area (TMA) airspace. A greater number of consecutive participating ACCs will increase the benefits.

<i>B0 – FICE: Increased Interoperability, Efficiency and Capacity through Ground-Ground Integration</i>			
<i>Elements</i>	<i>Applicability</i>	<i>Performance Indicators/Supporting Metrics</i>	<i>Targets</i>
AMHS capability	<i>All States</i>	Indicator: % of States with AMHS capability Supporting metric: Number of States with AMHS capability	70% of States with AMHS capability by Dec. 2017
AMHS implementation /interconnection	<i>All States</i>	Indicator: % of States with AMHS implemented (interconnected with other States AMHS) Supporting metric: Number of States with AMHS implemented (interconnections with other States AMHS)	60% of States with AMHS interconnected by Dec. 2017
Implementation of AIDC/OLDI between adjacent ACCs	<i>All ACCs</i>	Indicator: % of FIRs within which all applicable ACCs have implemented at least one interface to use AIDC/OLDI with neighboring ACCs Supporting metric: Number of AIDC/OLDI interconnections implemented between adjacent ACCs	70% by Dec. 2017

B0 – FICE: Increased Interoperability, Efficiency and Capacity through Ground-Ground Integration
Monitoring and Reporting

State	AMHS Capability	AMHS Interconnection	AIDC/OLDI Capability	AIDC/OLDI Implementation	Remarks
1	2	3	4	5	6
Bahrain-	A	NO	A	NO	
Egypt-	A	O	A	O	
Iran	CS	NO	A	NO	
Iraq	CS	NO	NI	NI	
Jordan	A	O	A	NO	
Kuwait	CS	NO	A	NO	
Lebanon	A	NO	A	O	
Libya	A	NO	A	NO	
Oman	A	O	A	NO	
Qatar	A	O	A	O	
Saudi Arabia	A	O	A	O	
Sudan	A	NO	A	NO	
Syria	NI	NI	NI	NI	
UAE	A	O	A	O	
Yemen	NI	NI	NI	NI	
Percentage					

Legend:				
A <i>Available</i>	CS <i>Contract Signed</i>	NI <i>No Information</i>	NO <i>Not Operational</i>	O <i>Operational</i>

B0 – DATM: Service Improvement through Digital Aeronautical Information Management

Description and purpose

The initial introduction of digital processing and management of information, through aeronautical information service (AIS)/aeronautical information management (AIM) implementation, use of aeronautical information exchange model (AIXM), migration to electronic aeronautical information publication (AIP) and better quality and availability of data

Main performance impact:

KPA- 01 – Access and Equity	KPA-02 – Capacity	KPA-04 – Efficiency	KPA-05 – Environment	KPA-10 – Safety
N	N	Y	Y	Y

Applicability consideration:

Applicable at State level, with increased benefits as more States participate

<i>B0 – DATM: Service Improvement through Digital Aeronautical Information Management</i>			
Elements	Applicability	Performance Indicators/Supporting Metrics	Targets
1- National AIM Implementation Plan/Roadmap	<i>All States</i>	Indicator: % of States that have National AIM Implementation Plan/Roadmap Supporting Metric: Number of States that have National AIM Implementation Plan/Roadmap	80% by Dec. 2016 90% by Dec. 2018
2-AIXM	<i>All States</i>	Indicator: % of States that have implemented an AIXM-based AIS database Supporting Metric: Number of States that have implemented an AIXM-based AIS database	60% by Dec. 2015 80% by Dec. 2017 100% by Dec. 2019
3-eAIP	<i>All States</i>	Indicator: % of States that have implemented an IAID driven AIP Production (eAIP) Supporting Metric: Number of States that have implemented an IAID driven AIP Production (eAIP)	60% by Dec. 2016 80% by Dec. 2018 100% by Dec. 2020
4-QMS	<i>All States</i>	Indicator: % of States that have implemented QMS for AIS/AIM Supporting Metric: Number of States that have implemented QMS for AIS/AIM	70% by Dec. 2016 90% by Dec. 2018
5-WGS-84	<i>All States</i>	Indicator: % of States that have implemented WGS-84 for horizontal plan (ENR, Terminal, AD) Supporting Metric: Number of States that have implemented WGS-84 for horizontal plan (ENR, Terminal, AD)	Horizontal: 100% by Dec. 2017 Vertical: 90% by Dec. 2018

		<p>Indicator: % of States that have implemented WGS-84 Geoid Undulation</p> <p>Supporting Metric: Number of States that have implemented WGS-84 Geoid Undulation</p>	
6-eTOD	<i>All States</i>	<p>Indicator: % of States that have implemented required Terrain datasets</p> <p>Supporting Metric: Number of States that have implemented required Terrain datasets</p> <p>Indicator: % of States that have implemented required Obstacle datasets</p> <p>Supporting Metric: Number of States that have implemented required Obstacle datasets</p>	<p>Area 1 : Terrain: 50% by Dec. 2015, 70% by Dec. 2018</p> <p>Obstacles: 40% by Dec. 2015, 60% by Dec. 2018</p> <p>Area 4: Terrain: 50% by Dec. 2015, 100% by Dec. 2018</p> <p>Obstacles: 50% by Dec. 2015, 100% by Dec. 2018</p>
7-Digital NOTAM*	<i>All States</i>	<p>Indicator: % of States that have included the implementation of Digital NOTAM into their National Plan for the transition from AIS to AIM</p> <p>Supporting Metric: Number of States that have included the implementation of Digital NOTAM into their National Plan for the transition from AIS to AIM</p>	<p>80% by Dec. 2016</p> <p>90% by Dec. 2018</p>

B0 – DATM: Service Improvement through Digital Aeronautical Information Management Monitoring and Reporting

B0-DATM Enablers/Tables

In order to assist States in the planning for the transition from AIS to AIM in an expeditious manner, the following Tables, which provide more details than the standard ANRF, should be used:

- 1- **Table B0-DATM 3-1** sets out the requirements for the Provision of AIS/AIM products and services based on the Integrated Aeronautical Information Database (IAID). It reflects the transition from the current product centric AIS to data centric AIM. For the future digital environment it is important that the authoritative databases are clearly designated and such designation must be published for the users. This is achieved with the concept of the Integrated Aeronautical Information Database (IAID), a single access point for one or more authoritative databases (AIS, Terrain, Obstacles, AMDB, etc) for which the State is responsible. This Table will be used for the monitoring of the Key Performance Indicators (KPIs) related to elements Nr. 1 and 2 of the Module B0-DATM.
- 2- **Table B0-DATM 3-2** sets out the requirements for aeronautical data quality. It will be used for the monitoring of the Key Performance Indicators (KPIs) related to the element Nr. 3 of the Module B0-DATM.
- 3- **Table B0-DATM 3-3** sets out the requirements for the implementation of the World Geodetic System – 1984 (WGS-84). The requirement to use a common geodetic system remains essential to facilitate the exchange of data between different systems. The expression of all coordinates in the AIP and charts using WGS-84 is an important first step for the transition to AIM. This Table will be used for the monitoring of the Key Performance Indicators (KPIs) related to the element Nr. 4 of the Module B0-DATM.
- 4- **Table B0-DATM 3-4-1** sets out the requirements for the provision of Terrain and Obstacle data sets for Area 1 and Area 4. It will be used for the monitoring of the Key Performance Indicators (KPIs) related to the element Nr. 5 of the Module B0-DATM.
- 5- **Table B0-DATM 3-4-2** sets out the requirements for the provision of Terrain and Obstacle data sets for Area 2. It will be used for the monitoring of the Key Performance Indicators (KPIs) related to the element Nr. 5 of the Module B0-DATM.
- 6- **Table B0-DATM 3-4-3** sets out the requirements for the provision of Terrain and Obstacle data sets for Area 3 and implementation of Airport Mapping Databases (AMDB). It will be used for the monitoring of the Key Performance Indicators (KPIs) related to the element Nr. 5 of the Module B0-DATM.

Table B0-DATM 3-1

Provision of AIS/AIM products and services based on the Integrated Aeronautical Information Database (IAID)

EXPLANATION OF THE TABLE

Column:

- 1 Name of the State or territory for which the provision of AIS/AIM products and services based on the IAID is required.
- 2 Requirement for the implementation and designation of the authoritative IAID, shown by:
 - FI – Fully Implemented
 - PI – Partially Implemented
 - NI – Not Implemented

Note 1 – The IAID of a State is a single access point for one or more databases (AIS, Terrain, Obstacles, AMDB, etc). The minimum set of databases which should be integrated is defined in Annex 15.

Note 2 – Information providing detail of “PI” should be given in the Remarks column (the implemented components of the IAID).

Note 3 – The information related to the designation of the authoritative IAID should be published in the AIP (GEN 3.1)
- 3 Requirement for an IAID driven AIP production, shown by:
 - FC – Fully compliant (eAIP: Text, Tables and Charts)
 - PC – Partially compliant
 - NC – Not compliant

Note 4 – AIP production includes, production of AIP, AIP Amendments and AIP Supplements
- 4 Requirement for an IAID driven NOTAM production, shown by:
 - FC – Fully Compliant
 - NC – Not compliant
- 5 Requirement for an IAID driven SNOWTAM production, shown by:
 - FC – Fully Compliant
 - NC – Not compliant
- 6 Requirement for an IAID driven PIB production, shown by:
 - FC – Fully compliant
 - NC – Not compliant
- 7 Requirement for Charting systems to be interoperable with the IAID, shown by:
 - FC – Fully compliant
 - PC – Partially compliant
 - NC – Not compliant
- 8 Requirement for Procedure design systems to be interoperable with the IAID, shown by:
 - FI – Fully Implemented
 - PI – Partially Implemented
 - NI – Not Implemented

Note 5 — full implementation includes the use of the IAID for the design of the procedures and for the storage of the encoded procedures in the IAID

- 9 Requirement for ATS systems to be interoperable with the IAID, shown by:
FI – Fully Implemented
PI – Partially Implemented
NI – Not Implemented
- 10 Action Plan — short description of the State’s Action Plan with regard to the provision of AIM products and services based on the IAID, especially for items with a “PC”, “PI”, “NC” or “NI” status, including planned date(s) of full compliance, as appropriate.
- 11 Remarks — additional information, including detail of “PC”, “NC”, “PI” and “NI”, as appropriate.

DRAFT

TABLE B0-DATM-3-1**Provision of AIS/AIM products and services based on the Integrated Aeronautical Information Database (IAID)**

State	IAID	AIP	NOTAM	SNOWTAM	PIB	Charting	Procedure Design	ATS	Action Plan	Remarks
<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>	<i>6</i>	<i>7</i>	<i>8</i>	<i>9</i>	<i>10</i>	<i>11</i>
BAHARAIN										
EGYPT										
IRAN, ISLAMIC REPUBLIC OF										
IRAQ										
JORDAN										
KUWAIT										
LEBANON										
LIBYA										
OMAN										
QATAR										
SAUDI ARABIA										
SUDAN										
SYRIAN ARAB REPUBLIC										
UNITED ARAB EMIRATES										
YEMEN										

Table B0-DATM-3-2 Aeronautical Data Quality

EXPLANATION OF THE TABLE

Column:

- 1 Name of the State or territory.
 - 2 Compliance with the requirement for implementation of QMS for Aeronautical Information Services including safety and security objectives, shown by:
 - FC – Fully compliant
 - PC – Partially compliant
 - NC – Not compliant
 - 3 Compliance with the requirement for the establishment of formal arrangements with approved data originators concerning aeronautical data quality, shown by:
 - FC – Fully compliant
 - PC – Partially compliant
 - NC – Not compliant
 - 4 Implementation of digital data exchange with originators, shown by:
 - FI – Implemented
 - PI – Partially Implemented
 - NI – Not implemented
- Note 1 — Information providing detail of “PI” and “NI” should be given in the Remarks column (percentage of implementation).*
- 5 Compliance with the requirement for metadata, shown by:
 - FC – Fully compliant
 - PC – Partially compliant
 - NC – Not compliant
 - 6 Compliance with the requirements related to aeronautical data quality monitoring (accuracy, resolution, timeliness, completeness), shown by:
 - FC – Fully compliant
 - PC – Partially compliant
 - NC – Not compliant
 - 7 Compliance with the requirements related to aeronautical data integrity monitoring, shown by:
 - FC – Fully compliant
 - PC – Partially compliant
 - NC – Not compliant
 - 8 Compliance with the requirements related to the AIRAC adherence, shown by:
 - FC – Fully compliant
 - PC – Partially compliant
 - NC – Not compliant
 - 9 Action Plan — short description of the State’s Action Plan with regard to aeronautical data quality requirements implementation, especially for items with a “PC”, “PI”, “NC” or “NI” status, including planned date(s) of full compliance, as appropriate.
 - 10 Remarks — additional information, including detail of “PC”, “NC”, “PI” and “NI”, as appropriate.

TABLE B0-DATM-3-2
Aeronautical Data Quality

	QMS	Establishment of formal agreements	Digital data exchange with originators	Metadata	Data quality monitoring	Data integrity monitoring	AIRAC adherence	Action Plan	Remarks
State									
1	2	3	4	5	6	7	8	9	10
BAHARAIN	FC						FC		
EGYPT	FC						FC		
IRAN, ISLAMIC REPUBLIC OF	FC						FC		
IRAQ	NC						FC		
JORDAN	FC						FC		
KUWAIT	FC						FC		
LEBANON	NC						FC		
LIBYA	NC						NC		
OMAN	PC						FC		
QATAR	FC						FC		
SAUDI ARABIA	FC						FC		
SUDAN	NC						FC		
SYRIAN ARAB REPUBLIC	NC						NC		
UNITED ARAB EMIRATES	FC						FC		
YEMEN	NC						NC		

Table B0-DATM-3-3

World Geodetic System-1984 (WGS-84)

EXPLANATION OF THE TABLE

Column:

- 1 Name of the State or territory for which implementation of WGS-84 is required.
- 2 Compliance with the requirements for implementation of WGS-84 for FIR and Enroute points, shown by:
 - FC – Fully compliant
 - PC – Partially compliant
 - NC – Not compliant
- 3 Compliance with the requirements for implementation of WGS-84 for Terminal Areas (arrival, departure and instrument approach procedures), shown by:
 - FC – Fully compliant
 - PC – Partially compliant
 - NC – Not compliant
- 4 Compliance with the requirements for implementation of WGS-84 for Aerodrome, shown by:
 - FC – Fully compliant
 - PC – Partially compliant
 - NC – Not compliant
- 5 Compliance with the requirements for implementation of Geoid Undulation, shown by:
 - FC – Fully compliant
 - PC – Partially compliant
 - NC – Not compliant
- 6 Action Plan — short description of the State’s Action Plan with regard to WGS-84 implementation, especially for items with a “PC”, “PI”, “NC” or “NI” status, including planned date(s) of full compliance, as appropriate.
- 7 Remarks — additional information, including detail of “PC” and “NC”, as appropriate.

TABLE B0-DATM-3-3
World Geodetic System-1984 (WGS-84)

State	FIR/ENR	Terminal	AD	GUND	Action Plan	Remarks
1	2	3	4	5	6	7
BAHARAIN	FC	FC	FC	FC		
EGYPT	FC	FC	FC	FC		
IRAN, ISLAMIC REPUBLIC OF	FC	NC	FC	FC		
IRAQ	PC	PC	PC	NC		
JORDAN	FC	FC	FC	FC		
KUWAIT	FC	FC	FC	FC		
LEBANON	FC	FC	FC	NC		
LIBYA	PC	PC	NC	NC		
OMAN	FC	FC	FC	FC		
QATAR	FC	FC	FC	FC		
SAUDI ARABIA	FC	FC	FC	FC		
SUDAN	FC	FC	FC	FC		
SYRIAN ARAB REPUBLIC	FC	FC	FC	NC		
UNITED ARAB EMIRATES	FC	FC	FC	FC		
YEMEN	FC	FC	FC	FC		

Table B0-DATM-3-4-1

Provision of Terrain and Obstacle data sets for Areas 1 and 4

EXPLANATION OF THE TABLE

Column

- 1 Name of the State or territory for which Terrain and Obstacle data sets for Areas 1 and 4 are required.
- 2 Compliance with requirement for the provision of Terrain data sets for Area 1, shown by:
 - FC – Fully Compliant
 - PC – Partially Compliant
 - NC – Not Compliant
- 3 Compliance with requirement for the provision of Terrain data sets for Area 4, shown by:
 - FC – Fully Compliant
 - PC – Partially Compliant
 - NC – Not Compliant
- 4 Compliance with requirement for the provision of Obstacle data sets for Area 1, shown by:
 - FC – Fully Compliant
 - PC – Partially Compliant
 - NC – Not Compliant
- 5 Compliance with requirement for the provision of Obstacle data sets for Area 4, shown by:
 - FC – Fully Compliant
 - PC – Partially Compliant
 - NC – Not Compliant
- 6 Action plan — short description of the State’s Action Plan with regard to compliance with the requirements for provision of Terrain and Obstacle data sets for Areas 1 and 4, especially for items with a “PC” or “NC” status, including planned date(s) of full compliance, as appropriate.
- 7 Remarks— additional information, including detail of “PC” and “NC”, as appropriate.

TABLE B0-DATM-3-4-1**Provision of Terrain and Obstacle data sets for Areas 1 and 4**

State	Terrain data sets		Obstacle data sets		Action Plan	Remarks
	Area 1	Area 4	Area 1	Area 4		
1	2	3	4	5	6	7
BAHARAIN	FC	FC	FC	FC		
EGYPT	FC	FC	PC			
IRAN, ISLAMIC REPUBLIC OF	PC	NC	PC	NC		
IRAQ	NC	NC	NC	NC		
JORDAN	NC	NC	NC	NC		
KUWAIT	NC	NC	NC	NC		
LEBANON	NC	NC	NC	NC		
LIBYA	NC	NC	NC	NC		
OMAN	NC	NC	NC	NC		
QATAR	FC	FC	FC	FC		
SAUDI ARABIA	FC	FC	FC	FC		
SUDAN	NC	NC	NC	NC		
SYRIAN ARAB REPUBLIC	NC	NC	NC	NC		
UNITED ARAB EMIRATES	FC	FC	FC	FC		
YEMEN	NC	NC	NC	NC		

Table B0-DATM-3-4-2

Provision of Terrain and Obstacle data sets for Area 2

EXPLANATION OF THE TABLE

Column

- | | |
|---|--|
| 1 | Name of the State or territory for which Terrain and Obstacle data sets for Area 2 are required. |
| 2 | Compliance with requirement for the provision of Terrain data sets for Area 2a, shown by:
FC – Fully Compliant
PC – Partially Compliant
NC – Not Compliant |
| 3 | Compliance with requirement for the provision of Terrain data sets for Area 2b, shown by:
FI – Fully Implemented
PI – Partially Implemented
NI – Not implemented
N/A – Not Applicable |
| 4 | Compliance with requirement for the provision of Terrain data sets for Area 2c, shown by:
FI – Fully Implemented
PI – Partially Implemented
NI – Not Implemented
N/A – Not Applicable |
| 5 | Compliance with requirement for the provision of Terrain data sets for Area 2d, shown by:
FI – Fully Implemented
PI – Partially Implemented
NI – Not Implemented
N/A – Not Applicable |
| 6 | Compliance with requirement for the provision of Obstacle data sets for Area 2a, shown by:
FC – Fully Compliant
PC – Partially Compliant
NC – Not Compliant |
| 7 | Compliance with requirement for the provision of Obstacle data sets for Area 2b, shown by:
FI – Fully Implemented
PI – Partially Implemented
NI – Not implemented
N/A – Not Applicable |
| 8 | Compliance with requirement for the provision of Obstacle data sets for Area 2c, shown by:
FI – Fully Implemented |

PI – Partially Implemented
NI – Not Implemented
N/A – Not Applicable

- 9 Compliance with requirement for the provision of Obstacle data sets for Area 2d, shown by:
FI – Fully Implemented
PI – Partially Implemented
NI – Not Implemented
N/A – Not Applicable
- 10 Action plan — short description of the State’s Action Plan with regard to compliance with the requirements for provision of Terrain and Obstacle data sets for Area 2, especially for items with a “PC”, “PI”, “NC” or “NI” status.
- 11 Remarks— additional information, including detail of “PC”, “PI” and “NC”, “NI”, as appropriate.

DRAFT

TABLE B0-DATM-3-4-2

Provision of Terrain and Obstacle data sets for Area 2

State	Terrain data sets				Obstacle data sets				Action Plan	Remarks
	Area 2a	Area 2b	Area 2c	Area 2d	Area 2a	Area 2b	Area 2c	Area 2d		
1	2	3	4	5	6	7	8	9	10	11
BAHARAIN										
EGYPT										
IRAN, ISLAMIC REPUBLIC OF										
IRAQ										
JORDAN										
KUWAIT										
LEBANON										
LIBYA										
OMAN										
QATAR										
SAUDI ARABIA										
SUDAN										
SYRIAN ARAB REPUBLIC										
UNITED ARAB EMIRATES										
YEMEN										

Table B0-DATM-3-4-3
Provision of Terrain and Obstacle data sets for Area 3 and Airport Mapping
Databases (AMDB)

EXPLANATION OF THE TABLE

Column

- 1 Name of the State or territory for which Terrain and Obstacle data sets for Area 3 and AMDB are required.
- 2 Compliance with requirement for the provision of Terrain data sets for Area 3, shown by:
 - FI – Fully Implemented
 - PI – Partially Implemented
 - NI – Not Implemented
 - N/A – Not Applicable
- 3 Compliance with requirement for the provision of Obstacle data sets for Area 3, shown by:
 - FI – Fully Implemented
 - PI – Partially Implemented
 - NI – Not Implemented
 - N/A – Not Applicable
- 4 Implementation of AMDB, shown by:
 - FI – Fully Implemented
 - PI – Partially Implemented
 - NI – Not Implemented
 - N/A – Not Applicable
- 5 Action plan — short description of the State’s Action Plan with regard to compliance with the requirements for provision of Terrain and Obstacle data sets for Area 3 and AMDB implementation, especially for items with a “PC”, “PI”, “NC” or “NI” status.
- 6 Remarks— additional information, including detail of “PI” and “NI”, as appropriate.

TABLE B0-DATM-3-4**Provision of Terrain and Obstacle data sets for Area 3 and Airport Mapping Databases (AMDB)**

State	Terrain data sets (Area 3)	Obstacle data sets (Area 3)	AMDB	Action Plan	Remarks
1	2	3	4	5	6
BAHARAIN					
EGYPT					
IRAN, ISLAMIC REPUBLIC OF					
IRAQ					
JORDAN					
KUWAIT					
LEBANON					
LIBYA					
OMAN					
QATAR					
SAUDI ARABIA					
SUDAN					
SYRIAN ARAB REPUBLIC					
UNITED ARAB EMIRATES					
YEMEN					

B0 – AMET: Meteorological information supporting enhanced operational efficiency and safety

Description and purpose

Global, regional and local meteorological information:

- a) forecasts provided by world area forecast centres (WAFC), volcanic ash advisory centres (VAAC) and tropical cyclone advisory centres (TCAC);
- b) aerodrome warnings to give concise information of meteorological conditions that could adversely affect all aircraft at an aerodrome including wind shear; and
- c) SIGMETs to provide information on occurrence or expected occurrence of specific en-route weather phenomena which may affect the safety of aircraft operations and other operational meteorological (OPMET) information, including METAR/SPECI and TAF, to provide routine and special observations and forecasts of meteorological conditions occurring or expected to occur at the aerodrome.

This module includes elements which should be viewed as a subset of all available meteorological information that can be used to support enhanced operational efficiency and safety.

Main performance impact:

KPA- 01 – Access and Equity	KPA-02 – Capacity	KPA-04 – Efficiency	KPA-05 – Environment	KPA-10 – Safety
N	Y	Y	Y	Y

Applicability consideration:

Applicable to traffic flow planning, and to all aircraft operations in all domains and flight phases, regardless of level of aircraft equipage.

<i>B0 – AMET: Meteorological information supporting enhanced operational efficiency and safety</i>			
<i>Elements</i>	<i>Applicability</i>	<i>Performance Indicators/Supporting Metrics</i>	<i>Targets</i>
SADIS 2G and Secure SADIS FTP	<i>All States</i>	Indicator: % of States having implemented SADIS 2G satellite broadcast or Secure SADIS FTP service Supporting metric: number of States having implemented SADIS 2G satellite broadcast or Secure SADIS FTP service	90% by Dec. 2015 100% by Dec. 2017
QMS	<i>All States</i>	Indicator: % of States having implemented QMS for MET Supporting metric: number of States having implemented QMS for MET	60% by Dec. 2015 80% by Dec. 2017

B0 – AMET: Meteorological information supporting enhanced operational efficiency and safety
Monitoring and Reporting

Table B0-AMET 3-1

SADIS 2G and Secure SADIS FTP

EXPLANATION OF THE TABLE

Column

- 1 Name of the State
 2, 3 Status of implementation of SADIS 2G and/or Secure SADIS FTP, where:
 Y – Yes, implemented
 N – No, not implemented

State	Implementation	
	SADIS 2G	Secure SADIS FTP
1	2	3
BAHRAIN	Y	Y
EGYPT	Y	Y
IRAN (ISLAMIC REPUBLIC OF)	Y	N
IRAQ	Y	Y
JORDAN	N	Y
KUWAIT	Y	Y
LEBANON	N	N
LIBYA	Y	Y
OMAN	Y	Y
QATAR	Y	N
SAUDI ARABIA	Y	Y
SUDAN	N	N
SYRIAN ARAB REPUBLIC	Y	N
UNITED ARAB EMIRATES	Y	Y
YEMEN	Y	N

Table B0-AMET 3-2

Volcanic Ash Advisory Centers

EXPLANATION OF THE TABLE

Column

- 1 Name of the State responsible for the provision of a volcanic ash advisory centre (VAAC)
- 2 Name of the VAAC
Note: The name is extracted from the ICAO Location Indicators (Doc 7910) updated quarterly. If a State wishes to change the name appearing in Doc 7910 and this table, ICAO should be notified officially.
- 3 ICAO location indicator of the VAAC
- 4 Status of implementation of volcanic ash advisory information, where:
FC – Fully compliant
PC – Partially compliant
NC – Not compliant
- 5 Status of implementation of volcanic ash advisory information in graphical format, where:
FC – Fully compliant
PC – Partially compliant
NC – Not compliant

State	Volcanic Ash Advisory Centre (VAAC)	ICAO Location Indicator	Status of Implementation	
			VAA	VAG
1	2	3	4	5
FRANCE	Toulouse	LFPW	FC	FC

Table B0-AMET 3-3

Tropical Cyclone Advisory Centers

EXPLANATION OF THE TABLE

Column

- 1 Name of the State responsible for the provision of a tropical cyclone advisory centre (TCAC)
- 2 Name of the TCAC
Note: The name is extracted from the ICAO Location Indicators (Doc 7910) updated quarterly. If a State wishes to change the name appearing in Doc 7910 and this table, ICAO should be notified officially.
- 3 ICAO location indicator of the TCAC
- 4 Status of implementation of tropical cyclone advisory information, where:
FC – Fully compliant
PC – Partially compliant
NC – Not compliant
- 5 Status of implementation of tropical cyclone advisory information in graphical format, where:
FC – Fully compliant
PC – Partially compliant
NC – Not compliant

State	Tropical Cyclone Advisory Centre (TCAC)	ICAO Location Indicator	Status of Implementation	
			TCA	TCG
1	2	3	4	5
INDIA	New Delhi	VIDP	FC	FC

Table B0-AMET 3-4
Quality Management System

EXPLANATION OF THE TABLE

Column

- 1 Name of the State
 2, 3, 4, Status of implementation of Quality Management System of meteorological information –
 5 QMS: not started/ planning, ongoing/ partially implemented, Implemented/ISO 9001 Certified, Date of Certification.
 6 Action Plan
 7 Remarks

State	Not started/ planning	Ongoing/ partially implemented	Implemented/ ISO 9001 Certified			
			Status	Date of Certification		
1	2	3	4			
BAHARAIN			√	2008		
EGYPT			√	23 May 2012		
IRAN, ISLAMIC REPUBLIC OF		√			No Action Plan submitted by State	
IRAQ	√				No Action Plan submitted by State	
JORDAN			√	2 Apr 2014		
KUWAIT			√	23 Aug 2013		
LEBANON	√				No Action Plan submitted by State	
LIBYA	√				No Action Plan submitted by State	
OMAN		√			TBD	
QATAR			√	Dec 2011		
SAUDI ARABIA			√	Aug 2014		
SUDAN			√	5 June 2014		
SYRIAN ARAB REPUBLIC	√				No Action Plan submitted by State	
UNITED ARAB EMIRATES			√	19 Dec 2012		
YEMEN	√				No Action Plan submitted by State	

B0 – FRT0: Improved Operations through Enhanced En-Route Trajectories

Description and purpose

To allow the use of airspace which would otherwise be segregated (i.e. special use airspace) along with flexible routing adjusted for specific traffic patterns. This will allow greater routing possibilities, reducing potential congestion on trunk routes and busy crossing points, resulting in reduced flight length and fuel burn.

Main performance impact:

KPA- 01 – Access and Equity	KPA-02 – Capacity	KPA-04 – Efficiency	KPA-05 – Environment	KPA-10 – Safety
Y	Y	Y	Y	N/A

Applicability consideration:

Applicable to en-route and terminal airspace. Benefits can start locally. The larger the size of the concerned airspace the greater the benefits, in particular for flex track aspects. Benefits accrue to individual flights and flows. Application will naturally span over a long period as traffic develops. Its features can be introduced starting with the simplest ones.

<i>B0 – FRT0: Improved Operations through Enhanced En-Route Trajectories</i>			
<i>Elements</i>	<i>Applicability</i>	<i>Performance Indicators/Supporting Metrics</i>	<i>Targets</i>
Flexible use of airspace (FUA)	<i>All States</i>	Indicator: % of States that have implemented FUA Supporting metric*: number of States that have implemented FUA	40% by Dec. 2017
Flexible routing	<i>All States</i>	Indicator: % of required Routes that are not implemented due military restrictions (segregated areas) Supporting metric 1: total number of ATS Routes in the Mid Region Supporting metric 2*: number of required Routes that are not implemented due military restrictions (segregated areas)	60% by Dec. 2017

* *Implementation should be based on the published aeronautical information*

B0 – FRTO: Improved Operations through Enhanced Enroute Trajectories
Monitoring and Reporting

EXPLANATION OF THE TABLE

Column

- 1 Name of the State
- 2, Status of implementation of Flexible Use of Airspace (FUA). The Implementation should be based on the published aeronautical information,
- 3 Total Number of ATS Routes in the State.
- 4 Total number of required routes (through Regional Agreement) to be implemented through segregated areas
- 5 Number of routes that are NOT implemented in the State due military restrictions (segregated areas)
- 6 Remarks

Applicability State	FUA Implemented	Total number of ATS Routes	Total number of required routes to be implemented through segregated areas	Number of routes that are NOT implemented due military restrictions (segregated areas)	Remarks
1	2	3	4	5	6
Bahrain	Yes	50	5	0	example
Egypt	No	49	4	2	example
Iran	No	130	10	4	example
Iraq	No	55	6	4	example
Jordan	Yes	16	5	5	example
Lebanon	Yes				
Libya	No				
Kuwait	No				
Oman	No				
Qatar	Yes				
Saudi Arabia	Yes				
Sudan	Yes				
Syria	No				
Unite Arab Emirates	Yes				
Yemen	No				
Total for the Region	9	300	30	15	example
Percentage	60		10%	50%	example

B0 – NOPS: Improved Flow Performance through Planning based on a Network-Wide view

Description and purpose

Air Traffic Flow Management (ATFM) is used to manage the flow of traffic in a way that minimizes delay and maximizes the use of the entire airspace. ATFM can regulate traffic flows involving departure slots, smooth flows and manage rates of entry into airspace along traffic axes, manage arrival time at waypoints or Flight Information Region (FIR)/sector boundaries and re-route traffic to avoid saturated areas. ATFM may also be used to address system disruptions including crisis caused by human or natural phenomena.

Experience clearly shows the benefits related to managing flows consistently and collaboratively over an area of a sufficient geographical size to take into account sufficiently well the network effects. The concept for ATFM and demand and capacity balancing (DCB) should be further exploited wherever possible. System improvements are also about better procedures in these domains, and creating instruments to allow collaboration among the different actors.

Guidance on the implementation of ATFM service are provided in the ICAO Doc 9971– Manual on Collaborative Air Traffic Flow Management

Main performance impact:

KPA- 01 – Access and Equity	KPA-02 – Capacity	KPA-04 – Efficiency	KPA-05 – Environment	KPA-10 – Safety
Y	Y	Y	Y	N/A

Applicability consideration:

Applicable to en-route and terminal airspace. Benefits can start locally. The larger the size of the concerned airspace the greater the benefits. Application will naturally span over a long period as traffic develops.

<i>B0 – NOPS: Improved Flow Performance through Planning based on a Network-Wide view</i>			
<i>Elements</i>	<i>Applicability</i>	<i>Performance Indicators/Supporting Metrics</i>	<i>Targets</i>
ATFM Measures implemented in collaborative manner	<i>All States</i>	Indicator: % of States that have established a mechanism for the implementation of ATFM Measures based on collaborative decision Supporting metric: number of States that have established a mechanism for the implementation of ATFM Measures based on collaborative decision	100% by Dec. 2017

B0 – NOPS: Improved Flow Performance through Planning based on a Network-Wide view
Monitoring and Reporting

Column

- 1 Name of the State
- 2, Adjacent/corresponding States
- 3 ATFM Measures implemented by Sates in accordance with ICAO Doc 9971
- 4 States and Users with whom coordination is required for the implementation of ATFM Measures
- 5 ATS Units within FIR using ATFM Systems (Software).
- 6 Remarks

<i>B0 – NOPS: Improved Flow Performance through Planning based on a Network-Wide view</i>							
STATE	Corresponding States	ATFM Measures implemented	Required Coordination to ensure collaborative decision			ATS Units using ATFM System	Remarks
1	2	3	4			5	6
BAHRAIN	Iran, Kuwait, Qatar, Saudi Arabia and UAE	Miles in Trail	<input type="checkbox"/> QATAR	<input type="checkbox"/> UAE	<input type="checkbox"/> Users	Yes	
EGYPT	Greece, Cyprus, Jordan, Libya, Saudi Arabia and Sudan				<input type="checkbox"/> Users		
IRAN	Afghanistan, Armenia, Azerbaijan, Bahrain, Iraq, Kuwait, Oman, Pakistan, Turkey, Turkmenistan and UAE				<input type="checkbox"/> Users		
IRAQ	Iran, Jordan, Kuwait, Saudi Arabia, Syria and Turkey				<input type="checkbox"/> Users		
JORDAN	Egypt, Iraq, Israel, Saudi Arabia and Syria				<input type="checkbox"/> Users		

KUWAIT	Bahrain, Iran, Iraq and Saudi Arabia		<input type="checkbox"/> Users		
LEBANON	Cyprus and Syria		<input type="checkbox"/> Users		
LIBYA	Algeria, Chad, Egypt, Malta, Niger, Sudan and Tunis		<input type="checkbox"/> Users		
OMAN	Bahrain, India, Iran, Pakistan, Saudi Arabia, UAE and Yemen		<input type="checkbox"/> Users		
QATAR	Bahrain, Saudi Arabia and UAE		<input type="checkbox"/> Users		
SAUDI ARABIA	Bahrain, Egypt, Eritrea, Iraq, Jordan, Kuwait, Oman, Sudan, UAE and Yemen		<input type="checkbox"/> Users		
SUDAN	Central African, Chad, Egypt, Eritrea, Ethiopia, Libya, Saudi Arabia and South Sudan		<input type="checkbox"/> Users		
SYRIA	Cyprus, Iraq, Jordan, Lebanon and Turkey		<input type="checkbox"/> Users		
UAE	Bahrain, Iran, Oman, Qatar and Saudi Arabia		<input type="checkbox"/> Users		
YEMEN	Djibouti, Eritrea, Ethiopia, India, Oman, Saudi Arabia and Somalia		<input type="checkbox"/> Users		

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