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MIDANPIRG/17
& RASG-MID/7

Cairo, Egypt, 15-18 April 2019



Status of Air Navigation Indicators & Targets

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Seventeenth Meeting of the Middle East Air Navigation
Planning and Implementation Regional Group
Seventh Meeting of the Regional Aviation Safety Group

الاجتماع السابع عشر للمجموعة الإقليمية لتخطيط وتنفيذ الملاحة الجوية
في الشرق الأوسط
الاجتماع السابع للمجموعة الإقليمية لسلامة الطيران بالشرق الأوسط



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MID ASBU Block 0 Modules Prioritization

The MID Region Air Navigation Strategy includes 12 ASBU Block 0 Modules identified as priority for implementation in the MID Region

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.**

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



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Performance Improvement Areas (PIA)	Module	Priority	Module Name
PIA 1: Airport Operations	APTA	1	Optimization of Approach Procedures including vertical guidance
	WAKE	2	Increased Runway Throughput through Optimized Wake Turbulence Separation
	RSEQ	2	Improved Traffic Flow through Sequencing (AMAN/DMAN)
	SURF	1	Safety and Efficiency of Surface Operations (A-SMGCS Level 1-2)
	ACDM	1	Improved Airport Operations through Airport-CDM
PIA 2: Globally Interoperable Systems and Data - Through Globally Interoperable System Wide Information Management	FICE	1	Increased Interoperability, Efficiency and Capacity through Ground-Ground Integration
	DATM	1	Service Improvement through Digital Aeronautical Information Management
	AMET	1	Meteorological information supporting enhanced operational efficiency and safety
PIA 3: Optimum Capacity and Flexible Flights – Through Global Collaborative ATM	FRTO	1	Improved Operations through Enhanced En-Route Trajectories
	NOPS	1	Improved Flow Performance through Planning based on a Network-Wide view
	ASUR	2	Initial Capability for Ground Surveillance
	ASEP	2	Air Traffic Situational Awareness (ATSA)
	OPFL	2	Improved access to Optimum Flight Levels through Climb/Descent Procedures using ADS-B
	ACAS	1	ACAS Improvements
	SNET	1	Increased Effectiveness of Ground-based Safety Nets
PIA 4: Efficient Flight Path – Through Trajectory-based Operations	CDO	1	Improved Flexibility and Efficiency in Descent Profiles (CDO)
	TBO	2	Improved Safety and Efficiency through the initial application of Data Link En-Route
	CCO	1	Improved Flexibility and Efficiency Departure Profiles - Continuous Climb Operations (CCO)



Air Navigation Performance Targets

<i>B0 – APTA: Optimization of Approach Procedures including vertical guidance</i>				
Elements	Applicability	Performance Indicators/Supporting Metrics	Targets	Timelines
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)	100% (All runway ends at Int'l Aerodromes, either as the primary approach or as a back-up for precision approaches)	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)	100% (All runway ends at Int'l Aerodromes, either as the primary approach or as a back-up for precision approaches)	Dec. 2017



Air Navigation Performance Targets



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

Elements	Applicability	Performance Indicators/Supporting Metrics	Targets	Timelines
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%	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%	Dec. 2017

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



Air Navigation Performance Targets

<i>B0 – FICE: Increased Interoperability, Efficiency and Capacity through Ground-Ground Integration</i>				
Elements	Applicability	Performance Indicators/Supporting Metrics	Targets	Timelines
AMHS capability	All States	Indicator: % of States with AMHS capability Supporting metric: Number of States with AMHS capability	70%	Dec. 2017
AMHS implementation /interconnection	All States	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%	Dec. 2017
Implementation of AIDC/OLDI between adjacent ACCs	As per the AIDC/OLDI Applicability Table*	Indicator: % of priority 1 AIDC/OLDI Interconnection have been implemented Supporting metric: Number of AIDC/OLDI interconnections implemented between adjacent ACCs	70%	Dec. 2020

* Note – the required AIDC/OLDI connection is detailed in the MID eANP Volume II Part III



Air Navigation Performance Targets

B0 – CDO: Improved Flexibility and Efficiency in Descent Profiles (CDO)				
Elements	Applicability	Performance Indicators/Supporting Metrics	Targets	Timelines
PBN STARs	OBBI, HESN, HESH, HEMA, HEGN, HELX, OIIE, OISS, OIKB, OIMM, OIFM, ORER, ORNI, OJAM, OJAI, OJAQ, OKBK, OLBA, OOMS, OOSA, OTHH, OEJN, OEMA, OEDF, OERK, HSNN, HSOB, HSSS, HSPN, OMAA, OMAD, OMDB, OMDW, OMSJ	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% (for the identified Aerodromes/TMAs)	Dec. 2018
International aerodromes/TMAs with CDO	OBBI, HESH, HEMA, HEGN, OIIE, OIKB, OIFM, OJAI, OJAQ, OKBK, OLBA, OOMS, OTHH, OEJN, OEMA, OEDF, OERK, HSSS, HSPN, OMAA, OMDB, OMDW, OMSJ	Indicator: % of International Aerodromes/TMA with CDO implemented as required. Supporting Metric: Number of International Aerodromes/TMAs with CDO implemented as required.	100% (by for the identified Aerodromes/TMAs)	Dec. 2018



Monitoring Bodies

Module Code	Monitoring		Remarks
	Main	Supporting	
B0-APTA	PBN SG	ATM SG, AIM SG, CNS SG	
B0-SURF	ANSIG	CNS SG	Coordination with RGS WG
B0-ACDM	ANSIG	CNS SG, AIM SG, ATM SG	Coordination with RGS WG
B0-FICE	CNS SG	AIM SG, ATM SG	
B0-DATM	AIM SG		
B0-AMET	MET SG		
B0-FRTO	ATM SG		
B0-NOPS	ATM SG		
B0-ACAS	CNS SG		
B0-SNET	ATM SG		
B0-CDO	PBN SG		
B0-CCO	PBN SG		



MID AN Report - 2018

- **Section 1:** Introduction
- **Section 2:** Status of implementation of the priority 1 ASBU Block 0 Modules.
- **Section 3:** ASBU Block 0 implementation outlook for 2020
- **Section 4:** Environmental protection (*status of State's CO2 action plans and the operational improvements that had been/would be implemented in the MID Region*).
- **Section 5:** Success story related to the implementation of ASBU Block 0 Modules.
- **Section 6:** Conclusion

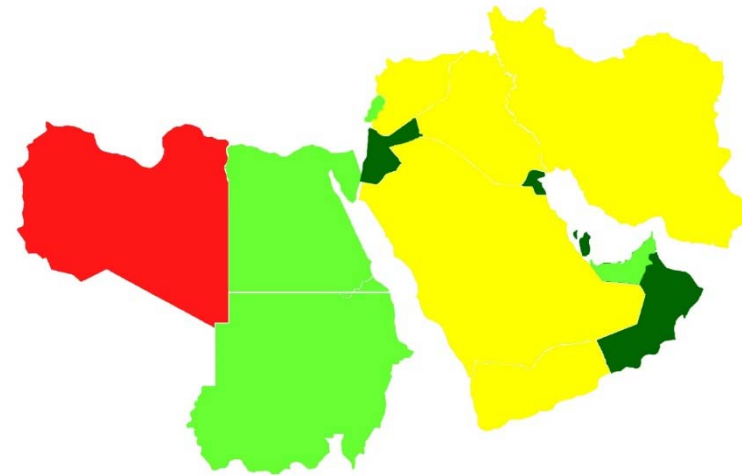
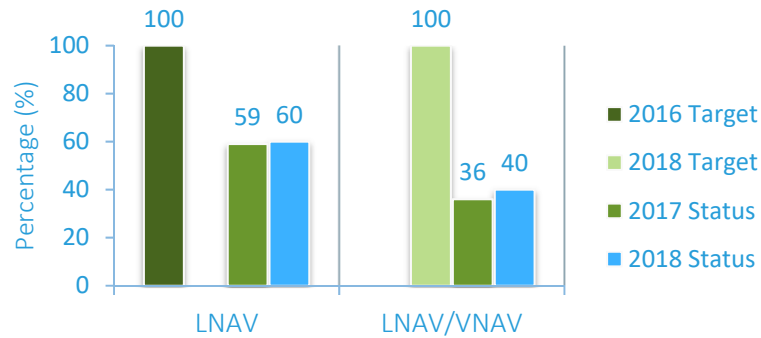
Appendix A provides detailed status of the implementation of Priority 1 Block 0 Modules and their associated Elements for the MID States.

Appendix B illustrates the detailed status of implementation of ASBU Block 0 Modules in the MID States by 2020.





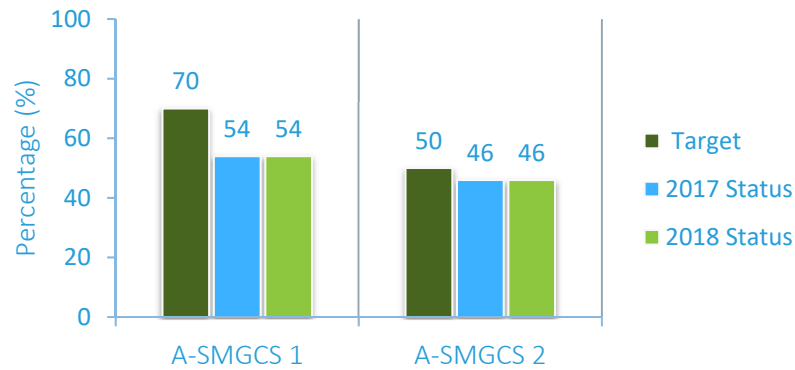
B0-APTA Status of implementation in the MID Region



Module	Elements	Bahrain	Egypt	Iran	Iraq	Jordan	Kuwait	Lebanon	Libya	Oman	Qatar	Saudi Arabia	Sudan	Syria	UAE	Yemen
		B0-APTA	LNAV	Dark Green	Dark Green	Yellow	Light Green	Dark Green	Dark Green	Dark Green	Red	Dark Green	Dark Green	Yellow	Dark Green	Yellow
	LNAV/VNAV	Dark Green	Light Green	Yellow	Yellow	Dark Green	Dark Green	Red	Red	Dark Green	Dark Green	Yellow	Yellow	Yellow	Light Green	Yellow



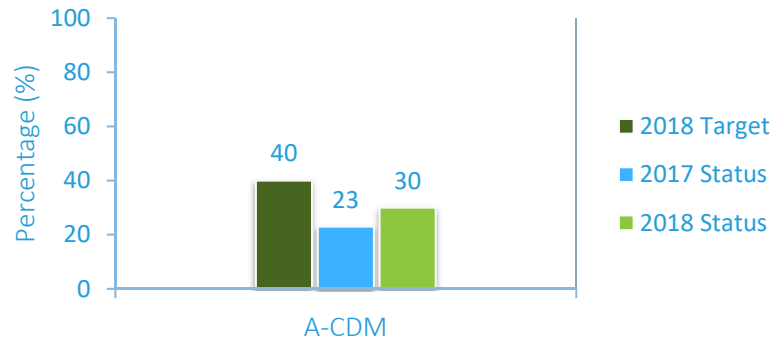
B0-SURF Status of implementation in the MID Region



Module	Elements	Bahrain	Egypt	Iran	Iraq	Jordan	Kuwait	Lebanon	Libya	Oman	Qatar	Saudi Arabia	Sudan	Syria	UAE	Yemen
B0-SURF	A-SMGCS Level 1	Completed	Completed	Not Started/Not Implemented	Not Applicable	Not Applicable	Not Started/Not Implemented	Not Applicable	Not Applicable	Not Started/Not Implemented	Completed	Not Started/Not Implemented	Not Applicable	Not Applicable	Completed	Not Applicable
	A-SMGCS Level 2	Completed	Completed	Not Started/Not Implemented	Not Applicable	Not Applicable	Not Started/Not Implemented	Not Applicable	Not Applicable	Not Started/Not Implemented	Completed	Not Started/Not Implemented	Not Applicable	Not Applicable	Partially Completed (80%+)	Not Applicable



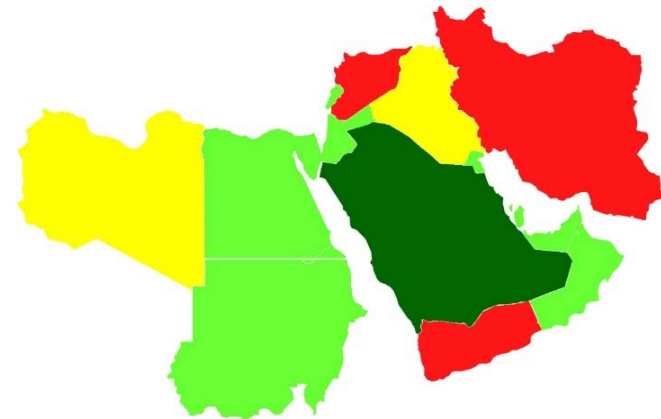
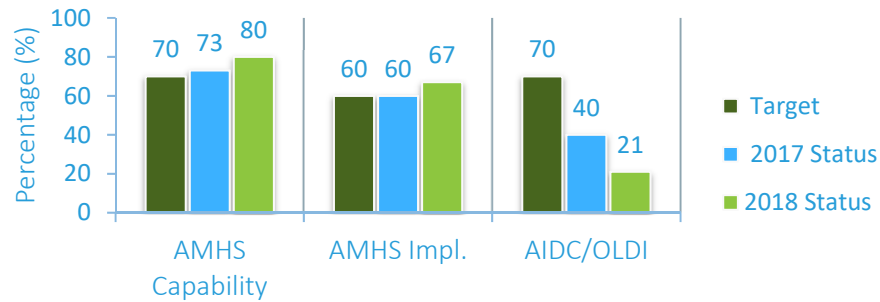
B0-ACDM Status of implementation in the MID Region



Module	Elements	Bahrain	Egypt	Iran	Iraq	Jordan	Kuwait	Lebanon	Libya	Oman	Qatar	Saudi Arabia	Sudan	Syria	UAE	Yemen
B0-ACDM	A-CDM	Green	Red	Red	Grey	Grey	Red	Grey	Grey	Red	Yellow	Red	Grey	Grey	Green	Grey



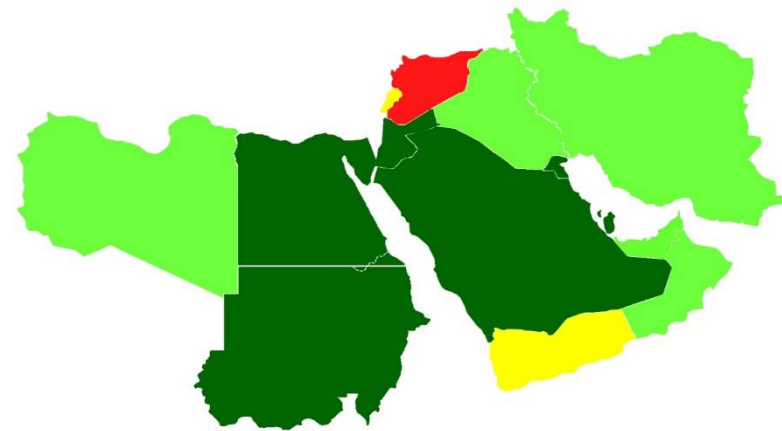
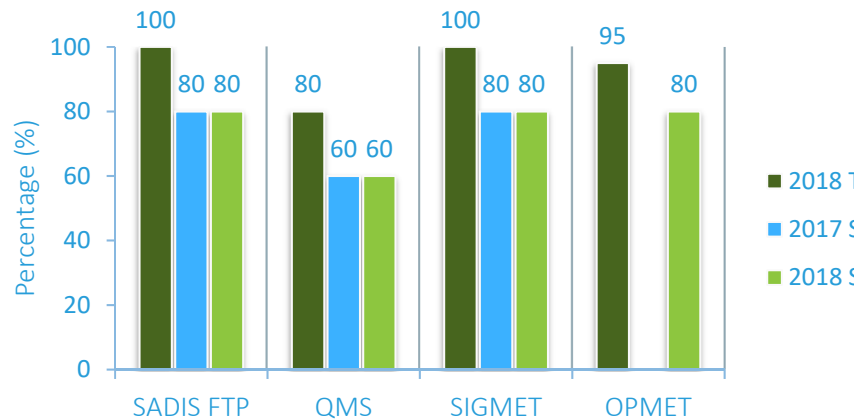
B0-FICE Status of implementation in the MID Region



Module	Elements	Bahrain	Egypt	Iran	Iraq	Jordan	Kuwait	Lebanon	Libya	Oman	Qatar	Saudi Arabia	Sudan	Syria	UAE	Yemen
B0-FICE	AMHS capability	Dark Green	Dark Green	Red	Dark Green	Dark Green	Dark Green	Dark Green	Dark Green	Dark Green	Dark Green	Dark Green	Dark Green	Red	Dark Green	Red
	AMHS impl. /interconnection	Dark Green	Dark Green	Red	Dark Green	Dark Green	Dark Green	Dark Green	Dark Green	Dark Green	Dark Green	Dark Green	Dark Green	Red	Dark Green	Dark Green
	Implementation of AIDC/OLDI between adjacent ACCs	Yellow	Yellow	Red	Red	Red	Red	Red	Red	Red	Yellow	Light Green	Yellow	Red	Light Green	Red



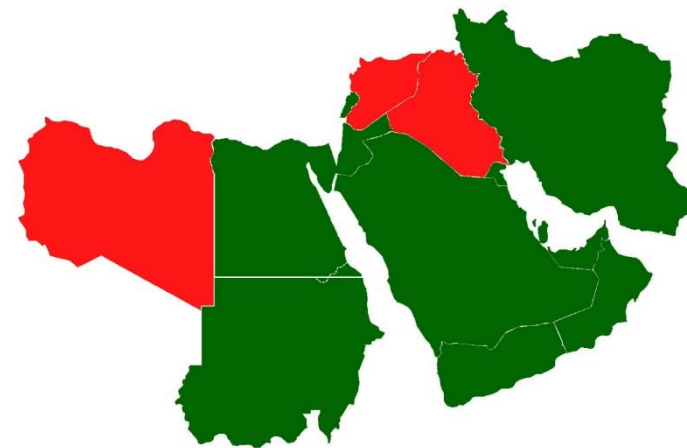
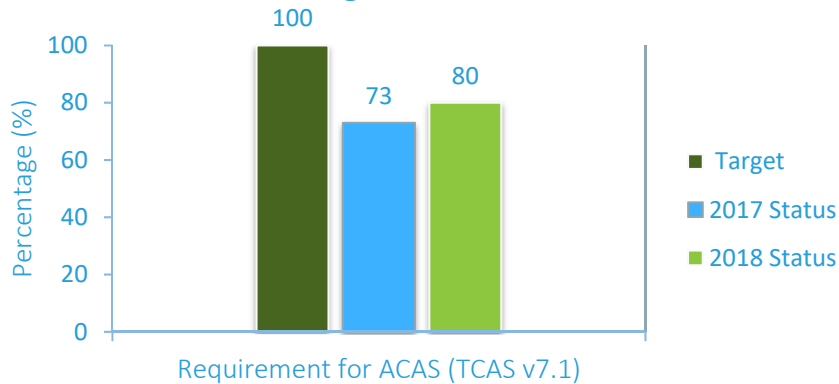
B0-AMET Status of implementation in the MID Region



Module	Elements	Bahrain	Egypt	Iran	Iraq	Jordan	Kuwait	Lebanon	Libya	Oman	Qatar	Saudi Arabia	Sudan	Syria	UAE	Yemen
B0-AMET	SADIS FTP	Dark Green	Dark Green	Red	Dark Green	Dark Green	Dark Green	Red	Dark Green	Dark Green	Dark Green	Dark Green	Dark Green	Red	Dark Green	Dark Green
	QMS	Dark Green	Dark Green	Dark Green	Red	Dark Green	Dark Green	Red	Dark Green	Red	Dark Green	Dark Green	Dark Green	Red	Dark Green	Red
	SIGMET	Dark Green	Dark Green	Dark Green	Dark Green	Dark Green	Dark Green	Dark Green	Light Green	Dark Green	Grey	Dark Green	Dark Green	Red	Light Green	Red
	OPMET	Dark Green	Dark Green	Dark Green	Dark Green	Dark Green	Dark Green	Dark Green	Red	Dark Green	Dark Green	Dark Green	Dark Green	Red	Dark Green	Red



B0-ACAS Status of implementation in the MID Region



Module	Elements	Bahrain	Egypt	Iran	Iraq	Jordan	Kuwait	Lebanon	Libya	Oman	Qatar	Saudi Arabia	Sudan	Syria	UAE	Yemen
B0-ACAS	ACAS (TCAS V7.1)	Green	Green	Green	Red	Green	Green	Green	Red	Green	Green	Green	Green	Red	Green	Green



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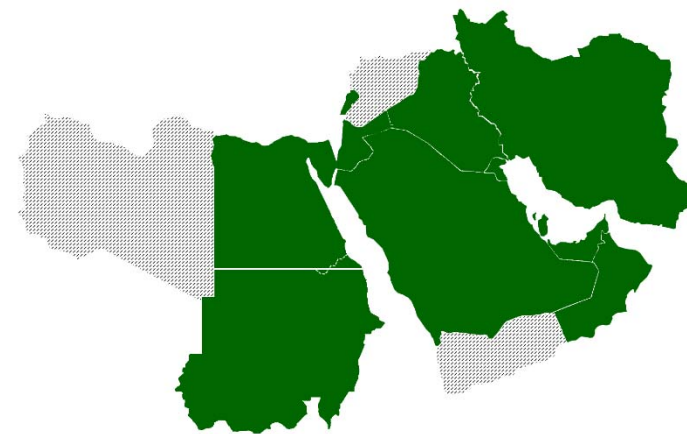
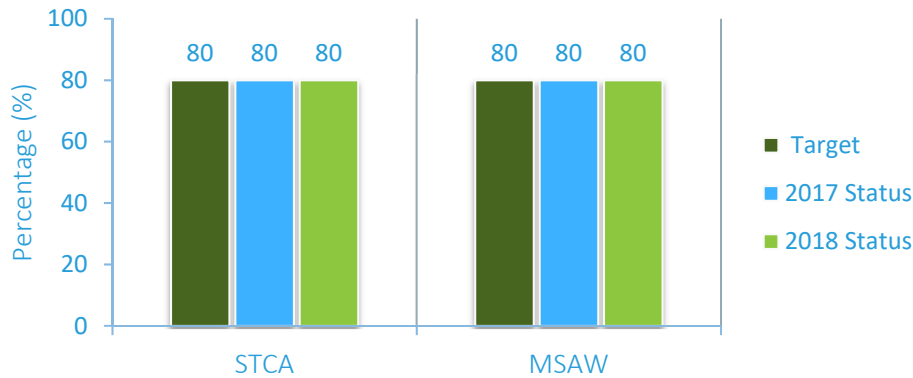


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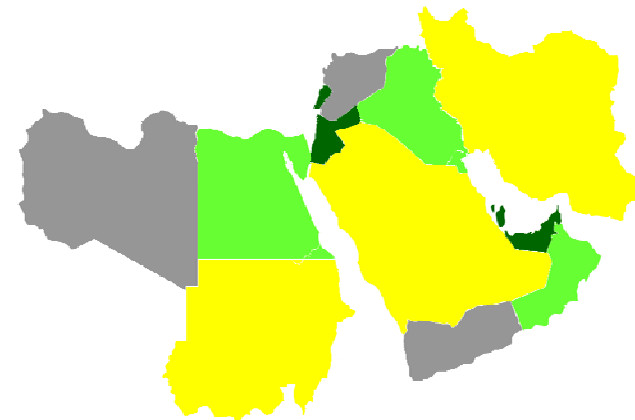
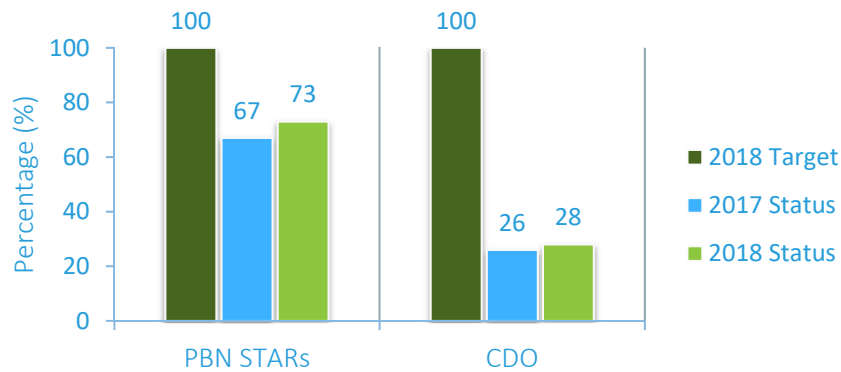
BO-SNET Status of implementation in the MID Region



Module	Elements	Bahrain	Egypt	Iran	Iraq	Jordan	Kuwait	Lebanon	Libya	Oman	Qatar	Saudi Arabia	Sudan	Syria	UAE	Yemen
		BO-SNET	Short-term conflict alert (STCA)	Green	Green	Green	Green	Green	Green	Green	Hatched	Green	Green	Green	Green	Hatched
Minimum safe altitude warning (MSAW)	Green		Green	Green	Green	Green	Green	Green	Hatched	Green	Green	Green	Green	Hatched	Green	Hatched



B0-CDO Status of implementation in the MID Region



Module	Elements	Bahrain	Egypt	Iran	Iraq	Jordan	Kuwait	Lebanon	Libya	Oman	Qatar	Saudi Arabia	Sudan	Syria	UAE	Yemen
B0-CDO	PBN STARS	Dark Green	Dark Green	Yellow	Light Green	Dark Green	Dark Green	Dark Green	Grey	Dark Green	Dark Green	Light Green	Yellow	Grey	Dark Green	Grey
	International aerodromes/TMAs with CDO	Dark Green	Red	Red	Grey	Dark Green	Red	Dark Green	Grey	Red	Dark Green	Red	Red	Grey	Dark Green	Grey



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State	APTA		SURF			ACDM	FICE			DATM								AMET				ACAS	SNET		CDO		CCO											
	LNWV	LNWV/NAV	TOTAL	A-SMGCS1	A-SMGCS2	TOTAL	TOTAL	AMHS Cap	AMHS Imp.	AMHS/OLDI	TOTAL	AWM	601P	OMS	WGS-84 H	WGS-84 V	area 1 T	area 1 O	area 4 T	area 4 O	TOTAL	SADIS FTP	OMS	SIGMET	OPMET	TOTAL	TOTAL	STCA	MSAW	TOTAL	PBN STABs	CDO	TOTAL	PBN SIDs	CCO	TOTAL		
Bahrain																																						
Egypt																																						
Iran																																						
Iraq																																						
Jordan																																						
Kuwait																																						
Lebanon																																						
Libya																																						
Oman																																						
Qatar																																						
Saudi Arabia																																						
Sudan																																						
Syria																																						
UAE																																						

Detailed Status of Block 0 Modules



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Module	Status of implementation December 2016 (approximate rate)	Status of implementation December 2017 (approximate rate)	Projected Status of implementation by 2020+ (approximate rate)
B0-APTA	44%	52%	96%
B0-WAKE	(Priority 2)	(Priority 2)	71%
B0-RSEQ	(Priority 2)	(Priority 2)	55%
B0-SURF	48%	50%	67%
B0-ACDM	0%	23%	50%
B0-FICE	56%	58%	83%
B0-DATM	62%	63%	87%
B0-AMET	67%	73%	92%
B0-FRTO	43%	45%	71%
B0-NOPS	(Priority 2)	(Priority 2)	46%
B0-ASUR	(Priority 2)	(Priority 2)	70%
B0-ASEP	(Priority 2)	(Priority 2)	69%
B0-OPFL	(Priority 2)	(Priority 2)	60%
B0-ACAS	73%	73%	100%
B0-SNET	(Priority 2)	80%	100%
B0-CDO	34%	47%	67%
B0-TBO	(Priority 2)	(Priority 2)	44%
B0-CCO	28%	36%	63%

Outlook for 2020



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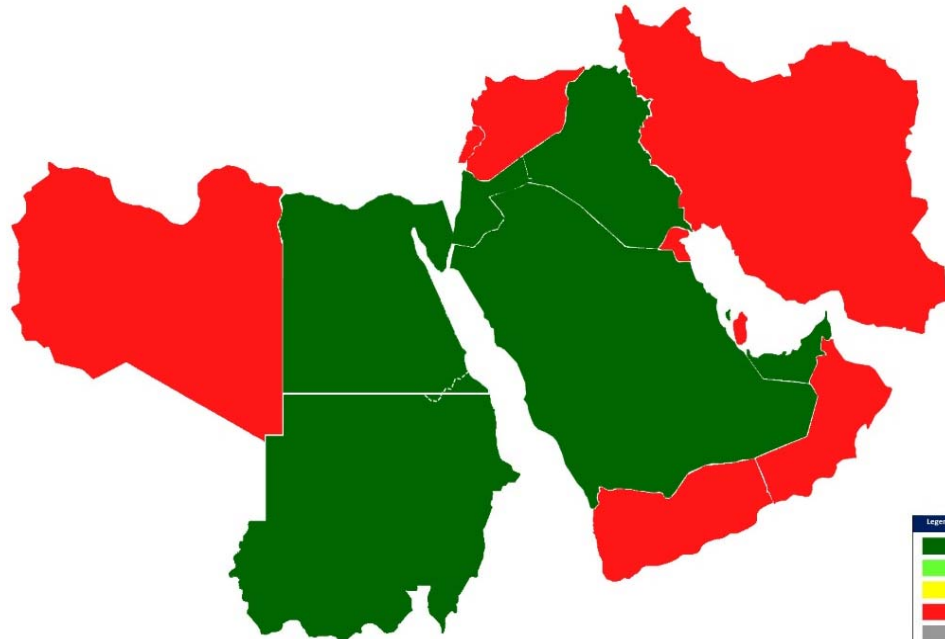
State	B0-APTA	B0-WAKE	B0-RSEQ	B0-SURF	B0-ACDM	B0-FICE	B0-DATM	B0-AMET	B0-FRTO	B0-NOPS	B0-ASUR	B0-ASEP	B0-OPFL	B0-ACAS	B0-SNET	B0-CDO	B0-TBO	B0-CCO
Bahrain	Green	Grey	Yellow	Green	Yellow	Green	Green	Green	Yellow	Yellow	Green	Yellow	Grey	Green	Green	Green	Yellow	Green
Egypt	Green	Green	Grey	Green	Yellow	Green	Green	Green	Green	Green	Green	Grey	Grey	Green	Green	Yellow	Grey	Yellow
Iran	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Grey	Green
Iraq	Yellow	Grey	Grey	Grey	Red	Green	Green	Yellow	Yellow	Red	Red	Red	Grey	Green	Green	Red	Red	Red
Jordan	Green	Grey	Red	Red	Yellow	Yellow	Yellow	Green	Red	Red	Green	Grey	Green	Green	Green	Yellow	Red	Yellow
Kuwait	Green	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow	Green	Yellow	Yellow	Yellow	Yellow	Yellow	Green	Yellow	Yellow	Yellow	Yellow
Lebanon	Green	Grey	Red	Grey	Yellow	Yellow	Green	Yellow	Yellow	Red	Red	Green	Red	Green	Green	Yellow	Yellow	Red
Libya	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey
Oman	Green	Green	Green	Yellow	Yellow	Green	Green	Green	Green	Green	Yellow	Green	Grey	Green	Green	Yellow	Grey	Yellow
Qatar	Green	Red	Green	Green	Green	Green	Green	Green	Green	Yellow	Green	Grey	Grey	Green	Green	Green	Yellow	Green
Saudi Arabia	Green	Grey	Yellow	Yellow	Yellow	Green	Green	Green	Green	Grey	Green	Green	Green	Green	Green	Green	Green	Green
Sudan	Green	Yellow	Yellow	Grey	Yellow	Yellow	Yellow	Green	Yellow	Yellow	Yellow	Yellow	Yellow	Green	Yellow	Yellow	Yellow	Yellow
Syria	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey
UAE	Green	Green	Yellow	Yellow	Yellow	Green	Green	Green	Green	Yellow	Green	Grey	Grey	Green	Green	Green	Yellow	Green
Yemen	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Green	Grey	Grey	Grey	Grey

Outlook for 2020



Environmental Protection

States' Action Plans on CO2 Emissions Reduction



State	Action Plans
Bahrain	June 2015
Egypt	July 2016
Iran	-
Iraq	June 2012
Jordan	September 2013
Kuwait	-
Lebanon	-
Libya	-
Oman	-
Qatar	-
Saudi Arabia	April 2018
Sudan	January 2015
Syria	-
UAE	June 2012 (update May 2018)
Yemen	-

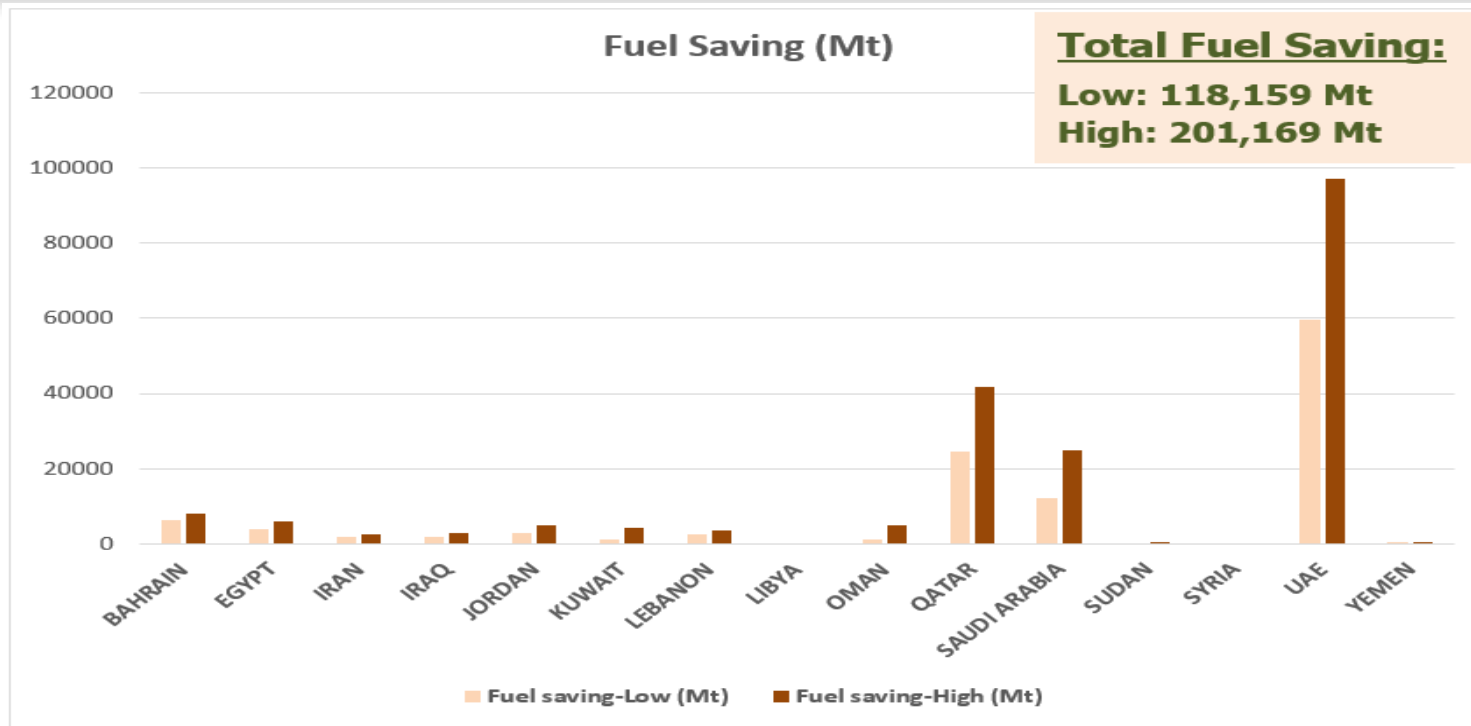


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The estimation has shown a **total of 109,915 to 188,528 Mt** of fuel saving in the MID Region, as a result of the implementation of the selected Block 0 Modules (APTA, CDO and CCO)



Conclusion

- The progress for the implementation of some priority 1 Block 0 Modules in the MID Region has been **very good**; such as **B0-ACAS**, **B0-AMET** and **B0-DATM**. Nevertheless, some States are still facing challenges to implement the majority of the Block 0 Modules.
- The progress for the implementation of **B0-ACDM**, **B0-CDO** and **B0-CCO** is far below expectation.
- The status of implementation of the ASBU Block 0 Modules also shows that Bahrain, Egypt, Jordan, Lebanon, Qatar, Saudi Arabia and UAE made a good progress in the implementation of the priority 1 ASBU Block 0 Modules
- Looking into the States' plans for 2020 (outlook), the focus/priority of States is to complete the implementation of **B0-APTA**, **B0-FICE**, **B0-DATM**, **B0-AMET**, **B0-CCO** and **B0-CDO**.



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THANK YOU