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Performance Indicators, Targets and status of PBN Implementation

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PBN SG/3 (Cairo, Egypt, 11-13 February 2018)



- **B0-APTA**
 - Performance Indicators/Targets
 - Status
 - Dashboard
- **B0-CDO**
 - Performance Indicators/Targets
 - Status
 - Dashboard
- **B0-CCO**
 - Performance Indicators/Targets
 - Status
 - Dashboard
- Overall improvements 2017 vs 2016
- Actions by the meeting

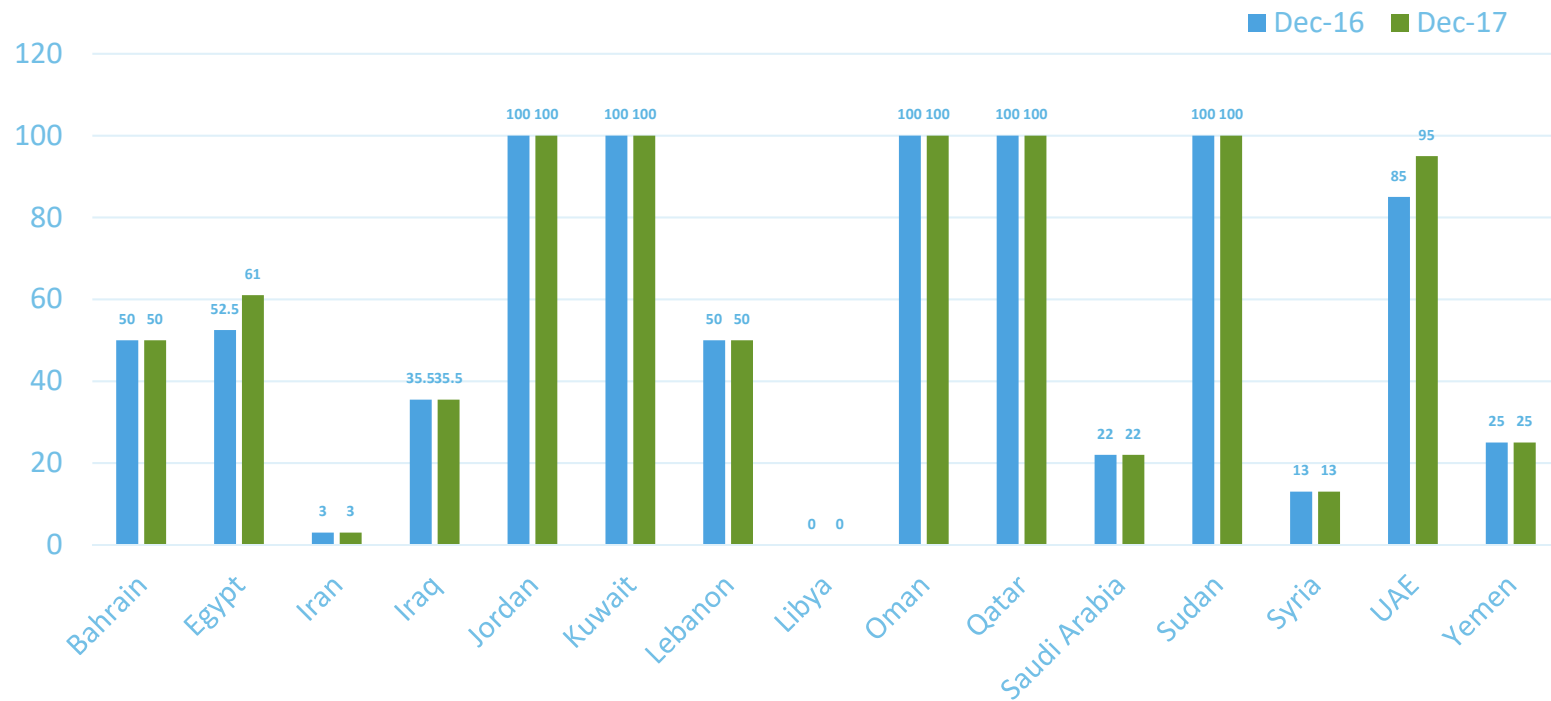
Appendix A: Detailed status of B0-APTA, CDO and CCO



B0 – APTA: Optimization of Approach Procedures including vertical guidance			
Elements	Applicability	Performance Indicators/Supporting Metrics	Targets
States' PBN Implementation Plans	All States	Indicator: % of States that provided updated PBN implementation Plan Supporting metric: Number of States that provided updated PBN implementation Plan	100% by Dec. 2018
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



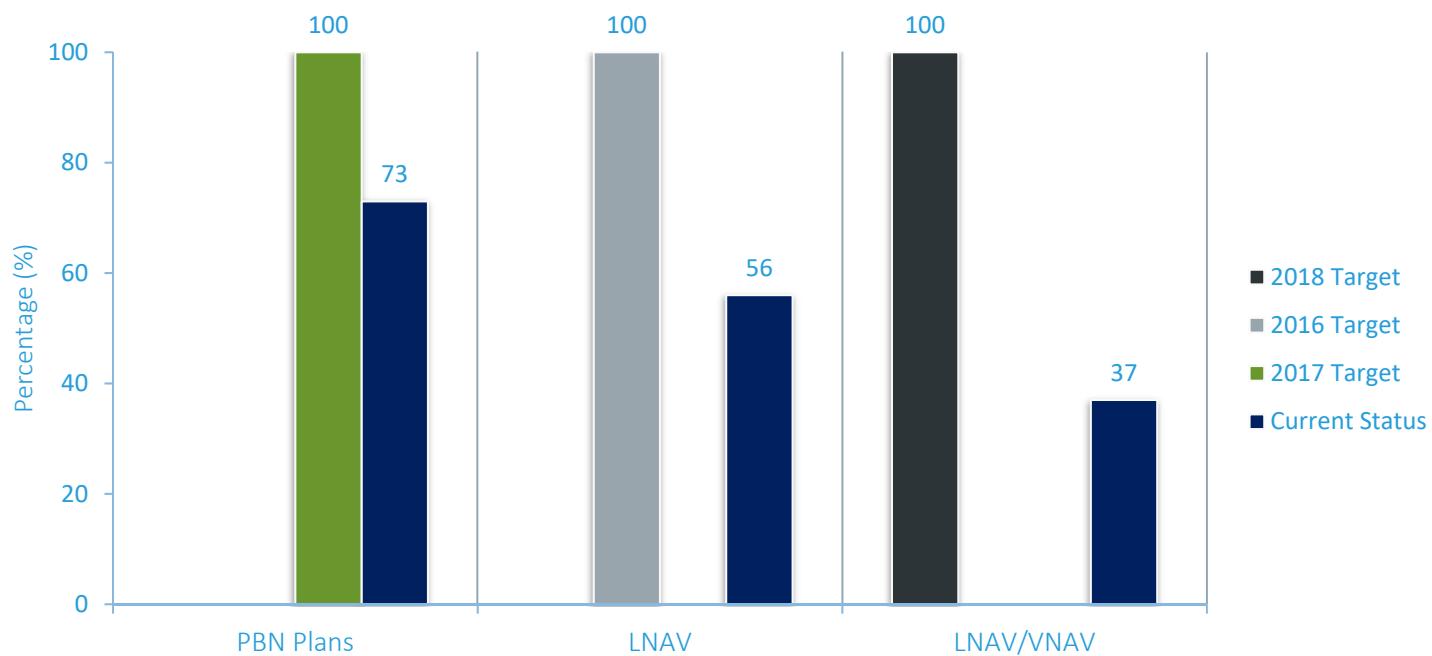
B0-APTA Status





B0-APTA Dashboard

B0-APTA Status of implementation in the MID Region

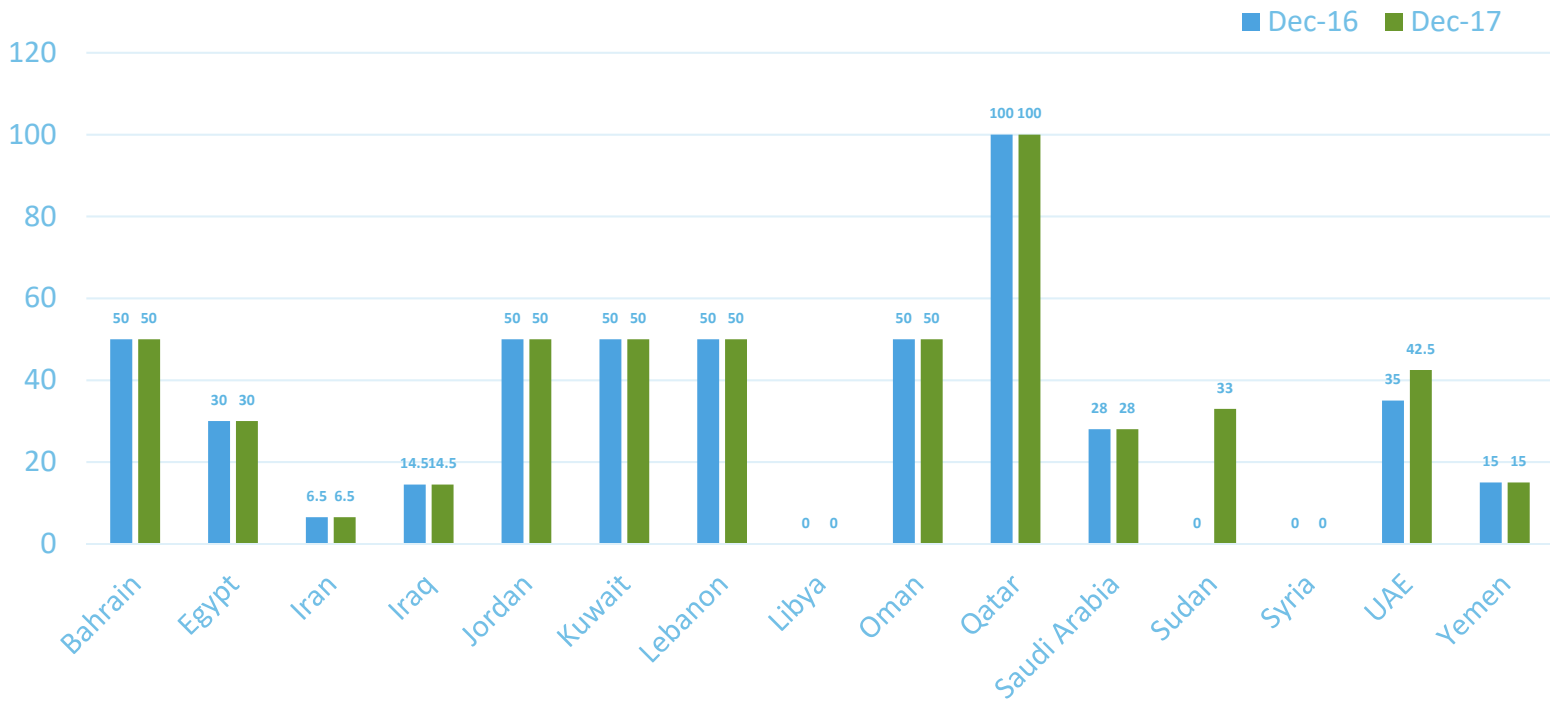




B0 – CDO: Improved Flexibility and Efficiency in Descent Profiles (CDO)			
Elements	Applicability	Performance Indicators/Supporting Metrics	Targets
PBN STARS	OBBI, HESN, HESH, HEMA, HEGN, HELX, OIIE, OISS, OIKB, OIMM, OIFM, ORER, ORNI, OJAM, OJAI, OJAQ, OKBK, OLBA, OOMS, OOSA, OTHH, OEJN, OEMA, OEDF,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



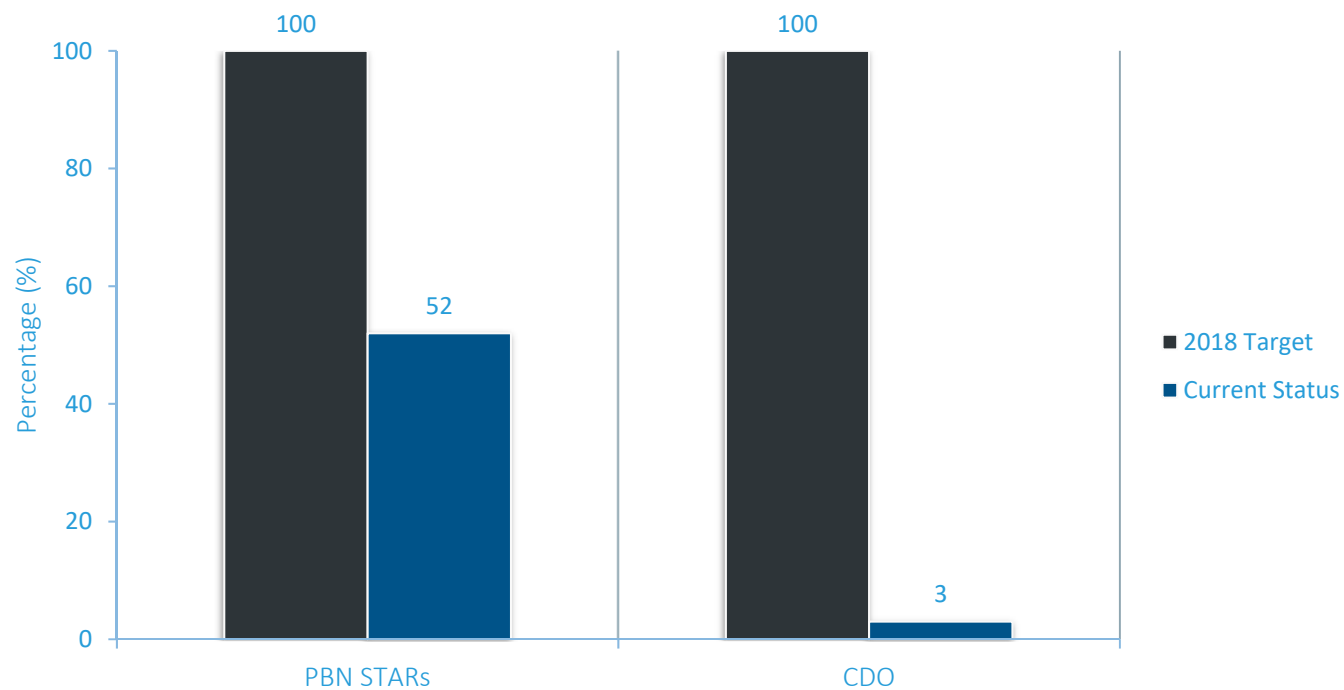
B0-CDO Status





B0-CDO Dashboard

B0-CDO Status of implementation in the MID Region

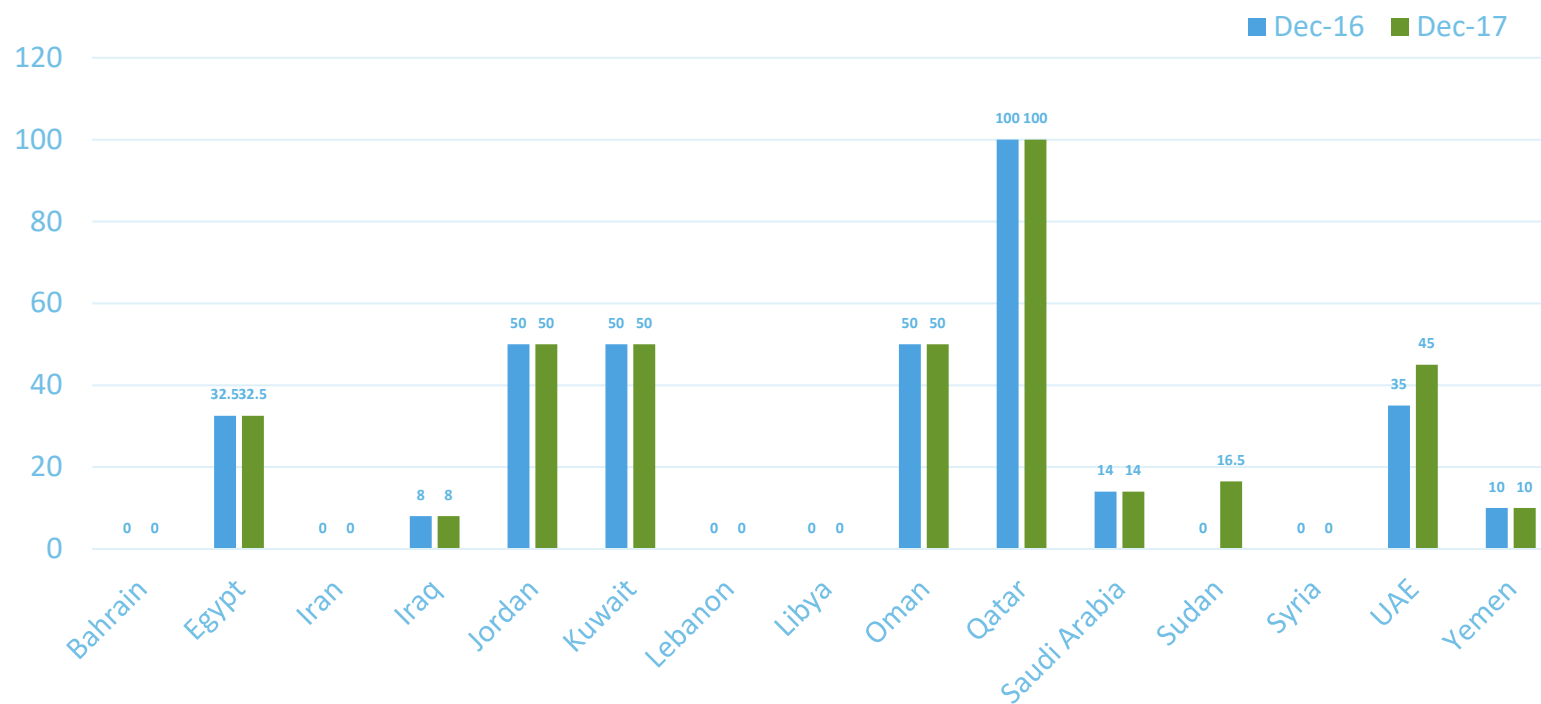




B0 – CCO: Improved Flexibility and Efficiency Departure Profiles - Continuous Climb Operations (CCO)			
Elements	Applicability	Performance Indicators/Supporting Metrics	Targets
PBN SIDs	OBBI, HESN, HESH, HEMA, HEGN, HELX, OIIE, OISS, OIKB, OIMM, OIFM, ORER, ORNI, OJAM, OJAI, OJAQ, OKBK, OLBA, OOMS, OOSA,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



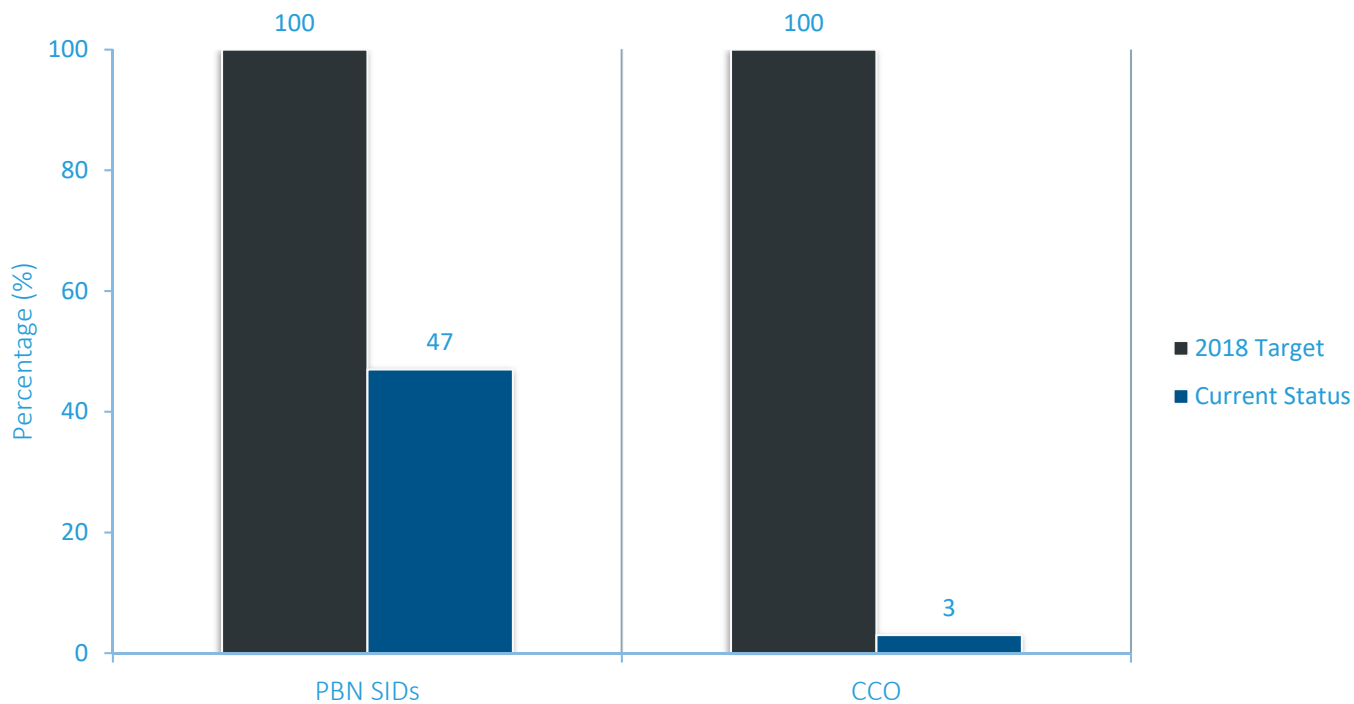
B0-CCO Status





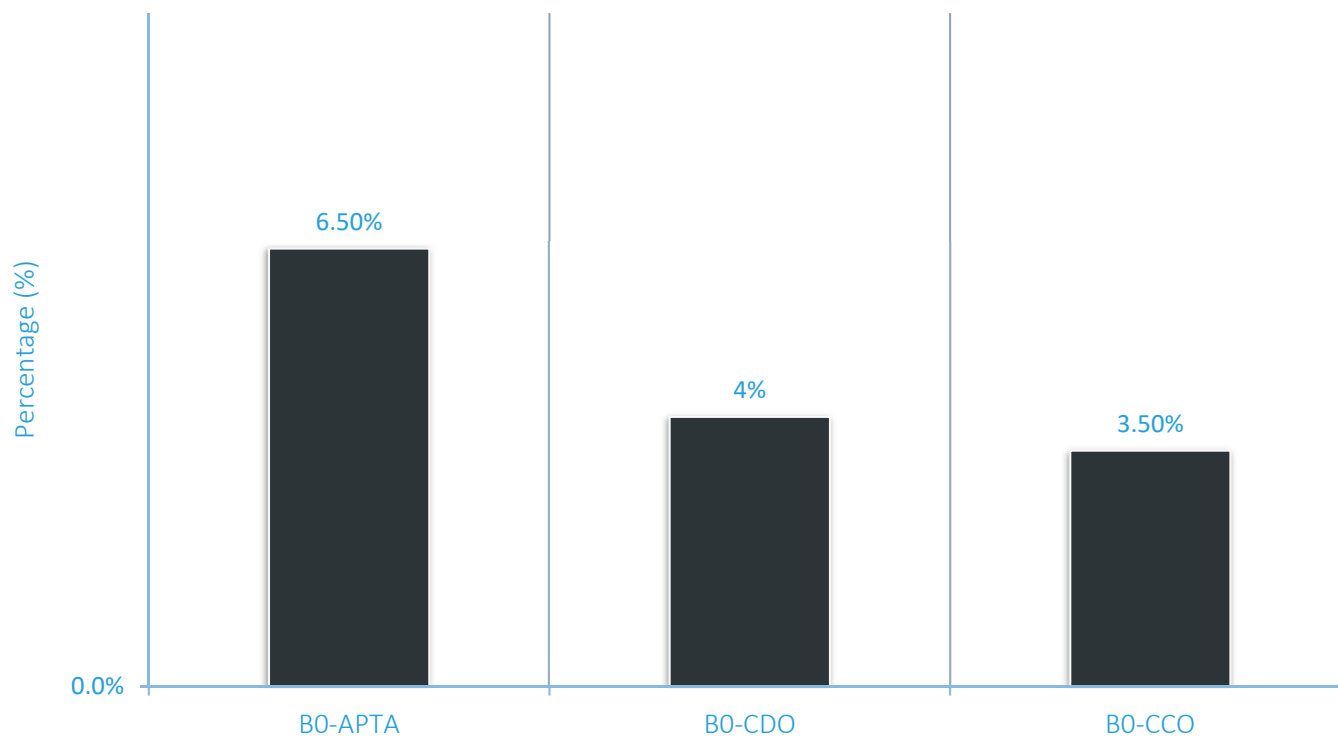
B0-CCO Dashboard

B0-CCO Status of implementation in the MID Region





Overall Improvement 2017 vs 2016





Action by the meeting

- note the information provided in this presentation;
- review and update, as necessary, the Elements, Performance Indicators and targets of B0-APTA, B0-CDO and B0-CCO;
- review and update, as necessary, the status of PBN implementation, at **Appendix A**; and
- urge States to expedite implementation of PBN to achieve targets of the MID Air Navigation Strategy.



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THANK YOU

MID REGION TMAs Procedures Implementation (ASBU B0-APTA, B0-CCO and B0-CDO)
(Status as of December 2017)

Int'l AD (Ref. MID ANP)	RWY	Conventional Approaches		APTA			CCO					CDO			Remarks		
		Precision		VOR or NDB	PBN PLAN Update date	LNAV	LNAV / VNAV	PBN RWY	RNA V SID	PER AD	CCO	PER AD	RNAV STAR	PER AD		CDO	PER AD
		xLS	CAT														
BAHRAIN																1	
OBBI	12L	ILS	I	VORDME		Y	Y					Y	Y				
	30R	ILS	I	VORDME		Y	Y					Y					
Total	2	2		2	Y	2	0	2	0	0	0	0	2	1	0	0	
%		100		100	Dec 2016	100	0	100	0	0	0	0	100	100	0	0	
EGYPT																7	
HEBA	14																
	32	ILS	I			Y	Y	Y	Y								
HESN	17			VORDME		Y	Y	Y	Y			Y	Y				
	35	ILS	I	VORDME		Y	Y	Y				Y					
HECA	05L	ILS	I	VORDME		Y	Y										
	05C	ILS	II	VORDME		Y	Y										
	05R	ILS	II														
	23L	ILS	II	VORDME													
	23C	ILS	II	VORDME		Y	Y										
	23R	ILS	I	VORDME		Y	Y										
HEGN	16L			VORDME		Y	Y	Y	✘	Y		✘	Y				
	16R			VORDME		Y	Y	Y									
	34L			VORDME		Y	Y	Y	Y			Y					
	34R	ILS	I	VORDME		Y	Y	Y	Y			Y					
HELX	2	ILS	I	VORDME		Y		Y	Y	Y		Y	Y				
	20	ILS	I	VORDME		Y		Y	Y			Y					
HEMA	15			VORDME		Y		Y	Y	Y		Y	Y				
	33			VORDME		Y		Y	Y			Y					
HESH	04L	ILS	I	VORDME		Y	Y	Y	Y	Y		Y	Y				
	04R			VORDME		Y	Y	Y	Y			Y					
	22L			VORDME		Y	Y	Y	Y			Y					
	22R			VORDME		Y	Y	Y	Y			Y					
Total	22	12		19	Y	19	8	19	14	6	0	0	13	5	0	0	
%		55		86	Nov 2016	86	36	86	64	86	0	0	59	71	0	0	

Int'l AD (Ref. MID ANP)	RWY	Conventional Approaches			APTA			CCO					CDO				Remarks
		Precision		VOR or NDB	PBN PLAN Update date	LNAV	LNAV / VNAV	PBN RWY	RNA V SID	PER AD	CCO	PER AD	RNAV STAR	PER AD	CDO	PER AD	
		xLS	CAT														
OIIE	11L	ILS	I	VORDME / NDB								Y	Y				
	11R			VORDME / NDB								Y					
	29L			VORDME								Y					
	29R	ILS	II	VORDME / NDB		Y	Y	Y				Y					
OIII	11L			VORDME													
	11R			VORDME													
	29L	ILS	I	VORDME													
	29R			VORDME													
OIZH	17																
	35	ILS	I	VORDME													
OIYY	13			VORDME													
	31			VORDME													
Total	32	10		27	Y	1	1	1	0	0	0	0	4	1	0	0	
%		31		84	Mar. 2016	3	3	3	0	0	0	0	13	11	0	0	
IRAQ																6	
ORBI	15L	ILS	I	VORDME													
	15R					Y		Y									
	33L					Y		Y									
	33R	ILS	I	VORDME													
ORMM	14			VORDME													
	32	ILS	I	VORDME													
ORER	18	ILS	II			Y		Y				Y	Y				
	36	ILS	I			Y		Y				Y					
ORSU	13	ILS	I	VOR		Y		Y									
	31	ILS	I	VOR		Y		Y									
ORNI	10	ILS	I	VOR		Y	Y	Y	Y	Y		Y	Y				
	28	ILS	I	VOR		Y	Y	Y	Y			Y					
ORBM	15																
	33															NO DATA	
Total	14	9		8	Y	8	2	8	2	1	0	0	4	2	0	0	
%		64		57		57	14	57	14	17	0	0	29	33	0	0	

Int'l AD (Ref. MID ANP)	RWY	Conventional Approaches			APTA			CCO					CDO				Remarks
		Precision		VOR or NDB	PBN PLAN Update date	LNAV	LNAV / VNAV	PBN RWY	RNA V SID	PER AD	CCO	PER AD	RNAV STAR	PER AD	CDO	PER AD	
		xLS	CAT														
JORDAN																	2
OJAM	6					Y	Y	Y	Y	Y			Y	Y			
	24	ILS	I	VORDME		Y	Y	Y	Y				Y				
OJAI	08L	ILS	I	NDB DME		Y	Y	Y	Y	Y			Y	Y			
	08R			NDB		Y	Y	Y	Y				Y				
	26L	ILS	II	VOR / NDB		Y	Y	Y	Y				Y				
	26R	ILS	I	VORDME		Y	Y	Y	Y				Y				
OJAJ	1	ILS	I	VORDME		Y	Y	Y	Y	Y			Y	Y			
	19	ILS	I			Y	N/A	Y	Y				Y				LNAV/VNAV not feasible
Total	8	6		6	Y	8	8	8	8	3	0	0	8	3	0	0	
%		75		75	July 2009	100	100	100	100	150	0	0	100	150	0	0	Plan needs update
KUWAIT																	1
OKBK	15L	ILS	II	VORDME		Y	Y	Y	Y	Y			Y	Y			
	15R	ILS	II	VORDME		Y	Y	Y	Y				Y				
	33L	ILS	II	VORDME		Y	Y	Y	Y				Y				
	33R	ILS	II	VORDME		Y	Y	Y	Y				Y				
Total	4	4		4	Y	4	4	4	4	1	0	0	4	1	0	0	
%		100		100	Mar. 2015	100	100	100	100	100	0	0	100	100	0	0	Plan needs update
LEBANON																	1
OLBA	3	ILS	I	VORDME		Y		Y		Y			Y	Y			
	16	ILS	I	VORDME		Y		Y					Y				
	17	ILS	I	VORDME /NDB		Y		Y					Y				
	21					Y		Y					Y				
	34	N/A		N/A													Not used for landing
	35	N/A		N/A													Not used for landing
Total	4	5		5	N	4	0	4	0	1	0	0	4	1	0	0	
%		125		125		100	0	100	0	100	0	0	100	100	0	0	

Int'l AD (Ref. MID ANP)	RWY	Conventional Approaches		APTA			CCO					CDO			Remarks		
		Precision		VOR or NDB	PBN PLAN Update date	LNAV	LNAV / VNAV	PBN RWY	RNA V SID	PER AD	CCO	PER AD	RNAV STAR	PER AD		CDO	PER AD
		xLS	CAT														
LIBYA																3	
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	0	0	0	0		
%		38		100		0	0	0	0	0	0	0	0	0	0		
OMAN																2	
OOMS	08L	ILS	I	VORDME		Y	Y	Y	Y	Y		Y	Y				
	26R	ILS	I	VORDME		Y	Y	Y	Y			Y					
OOSA	7	ILS	I	VORDME		Y	Y	Y	Y	Y		Y	Y				
	25	ILS	I	VORDME		Y	Y	Y	Y			Y					
Total	4	4		4	Y	4	4	4	4	2	0	0	4	2	0	0	
%		100		100	Feb. 2015	100	100	100	100	100	0	0	100	100	0	0	
QATAR																2	
OTBD	15	ILS	I	VORDME		Y	N/A	Y	Y	Y	Y	Y	Y	Y	Y	LNAV/VNAV not feasible	
	33	ILS	II/III	VORDME/ NDB		Y	Y	Y	Y		Y	Y		Y		CCO/CDO tactically	
OTHH	16L	ILS	I/II/II I	VORDME		Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	CCO/CDO tactically achieved	
	16R	ILS	I/II/II I	VORDME		Y	Y	Y	Y		Y	Y		Y		CCO/CDO tactically achieved	
	34L	ILS	I/II/II I	VORDME		Y	Y	Y	Y		Y	Y		Y		CCO/CDO tactically achieved	

Int'l AD (Ref. MID ANP)	RWY	Conventional Approaches			APTA			CCO					CDO				Remarks
		Precision		VOR or NDB	PBN PLAN Update date	LNAV	LNAV / VNAV	PBN RWY	RNA V SID	PER AD	CCO	PER AD	RNAV STAR	PER AD	CDO	PER AD	
		xLS	CAT														
SAUDI ARABIA																4	
OEDF	16L	ILS	II	VORDME													
	16R	ILS	II	VORDME													
	34L	ILS	II	VORDME													
	34R	ILS	II	VORDME													
OEJN	16L	ILS	I	VORDME		✘		✘		✘		✘	✘				
	16C	ILS	I									✘					
	16R	ILS	I	VORDME		✘		✘				✘					
	34L	ILS	I	VORDME		✘		✘				✘					
	34C	ILS	I	VORDME								✘					
	34R	ILS	I	VORDME		✘		✘				✘					
OEMA	17	ILS	I	VORDME		Y		Y	Y	Y		Y	Y				
	18			VORDME		Y		Y	Y			Y					
	35	ILS	I	VORDME		Y		Y	Y			Y					
	36	ILS	I	VORDME		Y		Y	Y			Y					
OERK	15L	ILS	I	VORDME													
	15R	ILS	I														
	33L	ILS	I														
	33R	ILS	I	VORDME													
Total	18	17		15	Y	8	0	8	5	2	0	0	10	2	0	0	
%		94		83	May 2012	44	0	44	28	50	0	0	56	50	0	0	Plan needs update

Int'l AD (Ref. MID ANP)	RWY	Conventional Approaches		APTA			CCO					CDO			Remarks		
		Precision		VOR or NDB	PBN PLAN Update date	LNAV	LNAV / VNAV	PBN RWY	RNA V SID	PER AD	CCO	PER AD	RNAV STAR	PER AD		CDO	PER AD
		xLS	CAT														
UNITED ARAB EMIRATES																8	
OMAA	13L	ILS	II			✘	✘	✘	Y	Y			Y	Y		RNP AR	
	13R	ILS	I	VOR		✘	✘	✘	Y				Y			RNP AR	
	31L	ILS	II/III	VOR		✘	✘	✘	Y				Y			RNP AR	
	31R	ILS	II			✘	✘	✘	Y				Y			RNP AR	
OMAD	13			VORDME		Y	✘	Y	Y	Y			Y	Y		RNP AR	
	31	ILS	I	VORDME		Y	✘	Y	Y				Y			RNP AR	
OMAL	1	ILS	I	VOR		Y	Y	Y									
	19			VOR		Y	Y	Y									
OMDB	12L	ILS	I/II/II I	VOR		Y	Y	Y	Y	Y			Y	Y			
	12R	ILS	I/II/II I	VOR		Y	Y	Y	Y				Y				
	30L	ILS	I/II/II I			Y	Y	Y	Y				Y				
	30R	ILS	I/II/II I	VOR		Y	Y	Y	Y				Y				
OMDW	12	ILS	II/III			Y	Y	Y	Y	Y			Y	Y			
	30	ILS	II/III			Y	Y	Y	Y				Y				
OMFJ	11								Y	Y				Y			
	29	ILS	I	VOR		Y	Y	Y	Y				Y				
OMRK	16			VOR		Y	Y	Y	Y	Y			Y	Y			
	34	ILS	I	VOR		Y	Y	Y	Y				Y				
OMSJ	12	ILS	I			Y	Y	Y	Y	Y			Y	Y		RNP AR	
	30	ILS	II			Y	Y	Y	Y				Y			RNP AR	
Total	20	16		12	Y	19	19	19	18	7	0	0	17	7	0	0	
%		80		60	Dec. 2015	95	95	95	90	88	0	0	85	88	0	0	

Int'l AD (Ref. MID ANP)	RWY	Conventional Approaches			APTA			CCO					CDO				Remarks
		Precision		VOR or NDB	PBN PLAN Update date	LNAV	LNAV / VNAV	PBN RWY	RNA V SID	PER AD	CCO	PER AD	RNAV STAR	PER AD	CDO	PER AD	
		xLS	CAT														
YEMEN																	5
OYAA	8	ILS	I	VORDME													
	26			VORDME													
OYHD	3			VOR									Y				
	21			VOR / NDB		Y		Y					Y				
OYRN	6																
	24			VORDME													
OYSN	18	ILS	I	VORDME/ NDB		Y	Y	Y	Y	Y			Y	Y			
	36			VOR		Y	Y	Y	Y				Y				
OYTZ	1																
	19																NO DATA
Total	10	2		7	Draft Plan	3	2	3	2	1	0	0	3	2	0	0	58
%		20		70	Jan. 2010	30	20	30	20	20	0	0	30	40	0	0	
Results					Plans			PBN		SID		CCO		STAR		CDO	
Total	166	103		134	11	93	61	93	65	27	6	2	81	30	6	2	13 PBN APV + 102 ILS (115/160)
Percentage (%)		62		81	73	56	37	56	39	47	4	3	18	52	4	3	72% RWY Ends with Vertical guidance
58	Aerodromes																

Note. 4 RNP AR Approach were implemented in OMAA, UAE.