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IMPLEMENTATION STATUS OF A37-11 AND APTA THREAD B0 & B1 IN MID



PBN SG/7 Virtual Meeting, 5 - 6 December 2022



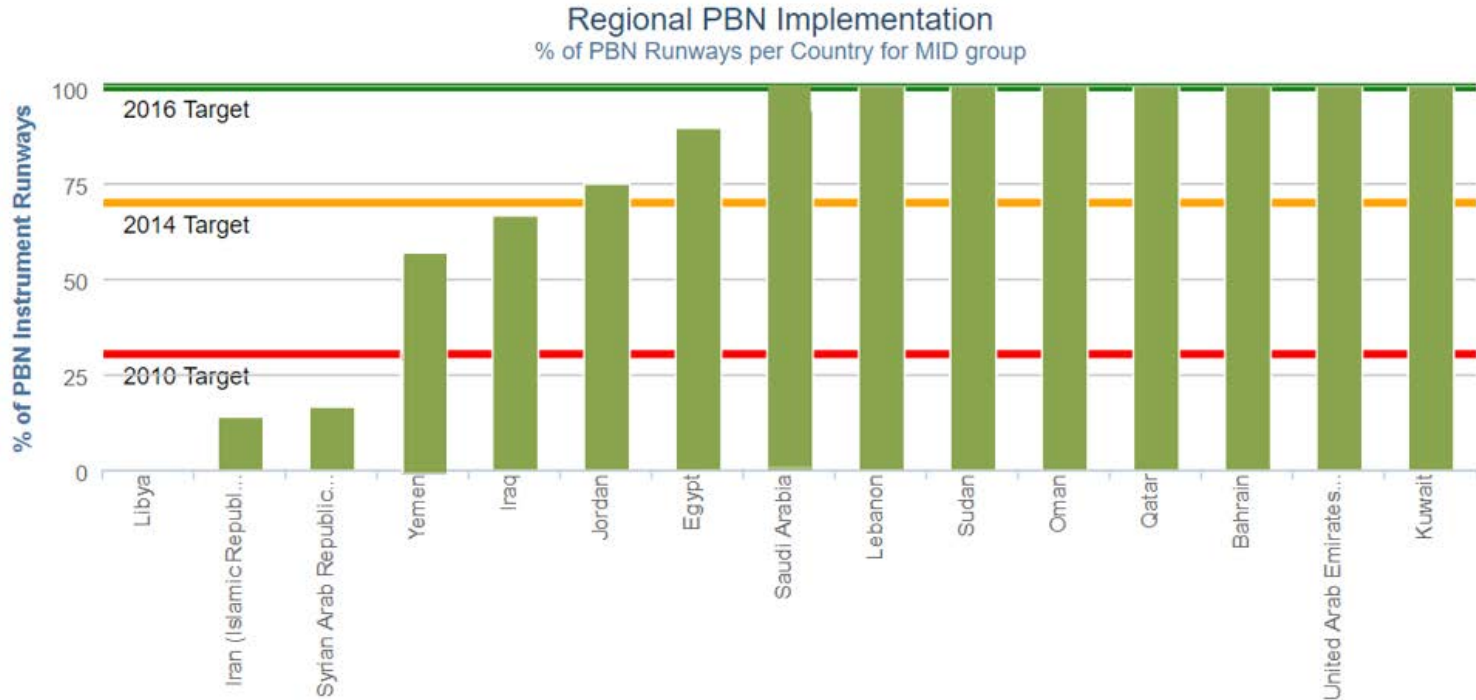


ICAO Assembly Resolution A37-11 - PBN Global Targets

- Approach procedures with vertical guidance (APV Baro-VNAV) including LNAV-only minima for all instrument runway ends by 2016.
- Straight-in LNAV only procedures as an exception to the above where there is:
 - no local altimeter setting; and
 - no aircraft equipped for APV with max certified mass of 5700kg or more



Percentage of States in MID meeting the resolution Targets





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| State | ▲ PBN Runways | ◆ Instrument Runways | ◆ PBN Runways (%) |
|----------------------------|---------------|----------------------|-------------------|
| Bahrain | 4 | 4 | 100 |
| Egypt | 34 | 38 | 89.5 |
| Iran (Islamic Republic of) | 3 | 21 | 14.3 |
| Iraq | 8 | 12 | 66.7 |
| Jordan | 6 | 8 | 75 |
| Kuwait | 4 | 4 | 100 |
| Lebanon | 4 | 4 | 100 |
| Libya | 0 | 8 | 0 |
| Oman | 4 | 4 | 100 |
| Qatar | 6 | 6 | 100 |
| Saudi Arabia | 18 | 18 | 100 |
| Sudan | 4 | 4 | 100 |
| Syrian Arab Republic | 1 | 6 | 16.7 |
| United Arab Emirates | 21 | 21 | 100 |
| Yemen | 8 | 14 | 57 |



ICAO Assembly Resolution A37-11 – National PBN Plan

All States to complete a national PBN implementation plan as a matter of urgency.





National PBN Plan Submissions from MID Region



■ Submitted ■ Updated ■ No Submission

| | |
|----------------------|----|
| Total States | 15 |
| Submitted | 7 |
| Updated | 1 |
| No Submission | 8 |



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APTA THREAD/ELEMENTS PRIORITY 1 (Block 0 & 1 IN THE MID REGION)

APTA-B0/1 PBN Approaches (with basic capabilities)

APTA-B0/2 PBN SID and STAR procedures (with basic capabilities)

APTA-B0/4 CDO (Basic)

APTA-B0/5 CCO (Basic)

APTA-B0/7 Performance based aerodrome operating minima – Advanced aircraft



APTA: priority 1 Elements, applicability, performance Indicators, supporting Metrics, and Targets

| Elements | Applicability | Performance Indicators/Supporting Metrics | Targets |
|--|---|---|-------------------|
| APTA B0/1 PBN Approaches (with basic capabilities) | 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% by Dec. 2017 |
| APTA B0/2 PBN SID and STAR procedures (with basic capabilities) | All RWYs Ends at International Aerodromes | Indicator: % of runway ends at international aerodromes provided with PBN SID and STAR (basic capabilities). Supporting Metric: Number of runways ends at international aerodromes provided with PBN SIDs and STAR (basic capabilities). | 70% by Dec 2022 |
| APTA B0/4 CDO (Basic) | OBBI, OIIE, OIKB, OIFM, OJAI, OLBA, OOMS, OTHH, OTBD, OEJN, OEMA, OEDF, OERK, HSSK, HSPN, OMAA, OMAL, OMAD, OMDW, OMDB, OMSJ, OMRK and OMFJ | Indicator: % of International Aerodromes/TMA with CDO implemented as required. Supporting Metric: Number of International Aerodromes/TMA with CDO implemented as required. | 100% Dec 2021 |

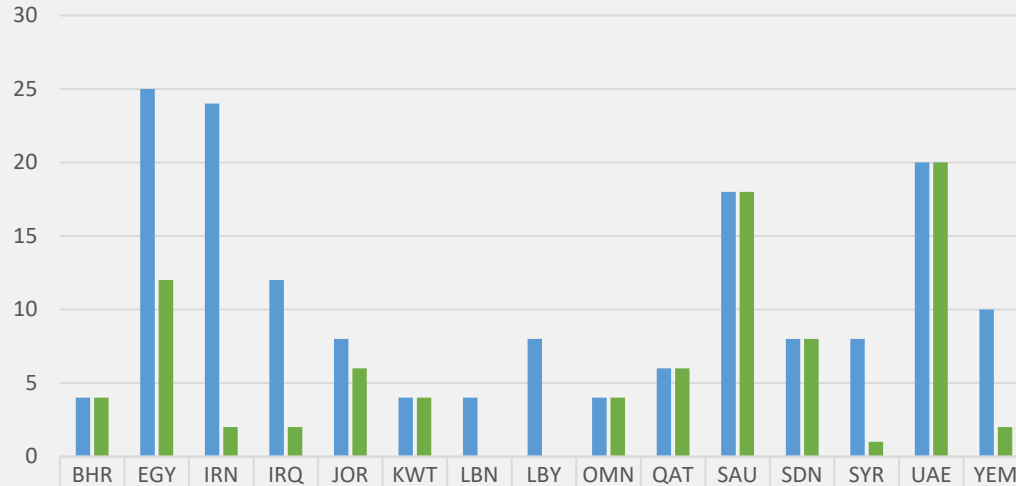


APTA: priority 1 Elements, applicability, performance Indicators, supporting Metrics, and Targets

| Elements | Applicability | Performance Indicators/Supporting Metrics | Targets |
|---|---|---|------------------|
| APTA B0/5 CCO (Basic) | OBBI, OIIE, OIKB, OIFM, OJAI, OLBA, OOMS, OTHH, OTBD, OEJN, OEMA, OEDF, OERK, HSSK, HSPN, OMAA, OMAL, OMAD, OMDW, OMDB, OMSJ, OMRK and OMFJ | Indicator: % of International Aerodromes/TMA with CDO implemented as required. Supporting Metric: Number of International Aerodromes/TMAs with CDO implemented as required. | 100% Dec 2021 |
| APTA B0/7 Performance based aerodrome operating minima – Advanced aircraft | All States | Indicator: % of States authorizing PB-OM for Air operators operating Advanced aircraft. Supporting Metric: Number of States authorizing PB-OM for Air Operators operating Advanced aircraft. | 50% Dec 2021 |



Implementation status of the APTA B0/1

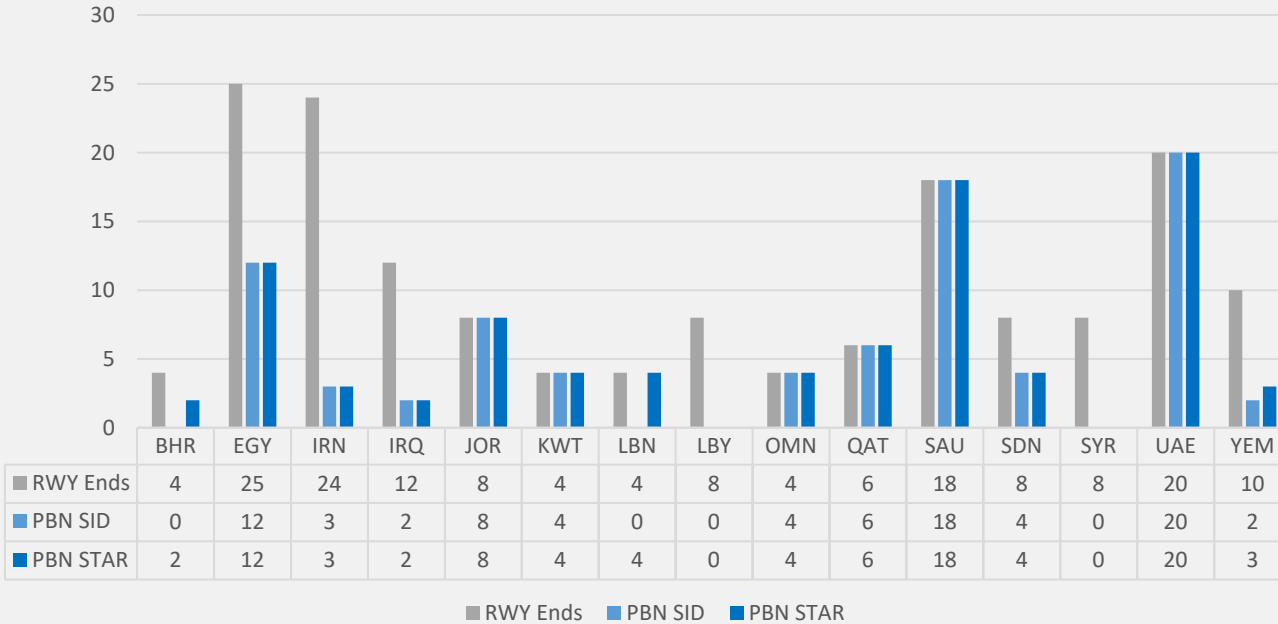


| | BHR | EGY | IRN | IRQ | JOR | KWT | LBN | LBY | OMN | QAT | SAU | SDN | SYR | UAE | YEM |
|----------------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| # of RWYs | 4 | 25 | 24 | 12 | 8 | 4 | 4 | 8 | 4 | 6 | 18 | 8 | 8 | 20 | 10 |
| #PBN LNAV/VNAV implemented | 4 | 12 | 2 | 2 | 6 | 4 | 0 | 0 | 4 | 6 | 18 | 8 | 1 | 20 | 2 |

■ # of RWYs ■ #PBN LNAV/VNAV implemented

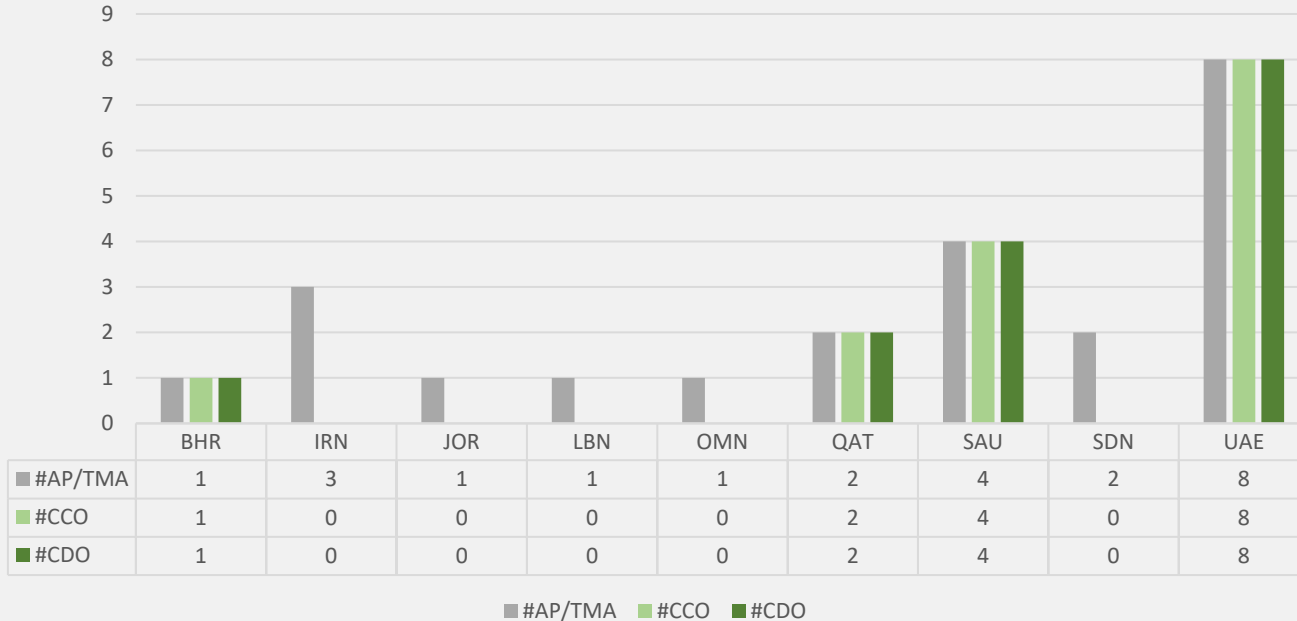


Implementation status of the APTA B0/2



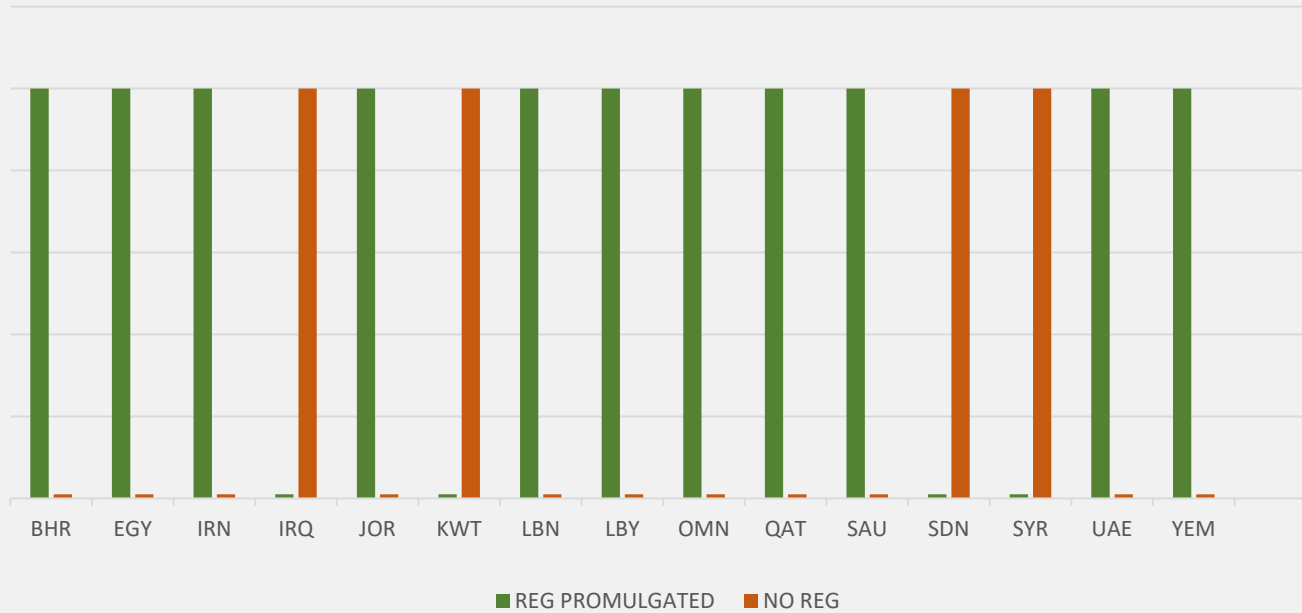


Implementation status of the APTA B0/4 & B0/5





Implementation status of the APTA B0/7





PBN implementation – Challenges in MID Region

- Some States are behind schedule in the implementation of the PBN;
- Investment to implement PBN projects or purchasing systems/tools;
- PBN Resources: Limited/scarce funding for Regulator/ANSP;
- Lack of training and qualified human resources :
 - Lack of airspace and procedure design training,
 - Lack of operational approval expertise to obtain proper operational approval and to oversee operators for PBN operations,
 - Lack of regulatory expertise to oversee the process leading to procedure publication.
- Attention and higher level of involvement in managerial levels in monitoring and planning the PBN implementation.

PBN implementation – Capacity Building and Assistance

- PBN's huge benefits are well recognized and is an important component of our regional priorities. However, the progress of PBN implementation in the MID Region has not been satisfactory and has failed to achieve the objectives set by the 37th ICAO Assembly Resolution in this regard.
- Therefore, as part of the NCLB, the ICAO MID Office will carry out a number of capacity-building and assistance activities to directly assist identified States to improve their rate of PBN implementation.
- The objective of the PBN assistance activities is to diagnose why the PBN implementation progress is slow, and provide specific guidance to the identified States to address the issues, in terms of planning and improvement of practices in PBN Design, operational approval and continuous oversight.



PBN implementation – Capacity Building and Assistance

Based on the foregoing, the following Draft Conclusion is proposed:

That :

In the interest of ICAO's "No Country Left Behind" initiative, ICAO MID office should carry out PBN capacity-building and assistance activities, including PBN national workshop to provide specific guidance to the identified States to address the issues, in terms of planning and improvement of practices in PBN Design, operational approval and continuous oversight.



Action by the meeting

- note the information provided in this presentation;
- review and update, as necessary, the status of PBN implementation, at Appendix A;
- urge States to expedite implementation of PBN to achieve targets of the MID Air Navigation Strategy; and
- endorse the proposed Draft Conclusion.



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THANK YOU!

MID REGION PBN IMPLEMENTATION STATUS

Updated on 01st December 2022

| | | |
|---------------|--|--------------------|
| Legend | | Not implemented |
| | | Not feasible |
| | | Not applicable |
| | | Data not available |
| | | Implemented |

| State | Airport | RWY ends | LNAV | LNAV/ VNAV | RNAV SID | RNAV STAR | CDO | CCO | PB-AOM |
|---------|---------|----------|------|---------------|-------------|--------------|-----|-----|--------|
| Bahrain | OBBI | RWY 12R | | | | | | | |
| | | RWY 12L | | | | | | | |
| | | RWY 30R | | | | | | | |
| | | RWY 30L | | | | | | | |
| Egypt | HEBA | RWY 14R | | | | | | | |
| | | RWY 32L | | | | | | | |
| | | RWY 32 | | | | | | | |
| | HESN | RWY 17 | | | | | | | |
| | | RWY 35 | | | | | | | |
| | HECA | RWY 05L | | | | | | | |
| | | RWY 23R | | | | | | | |
| | | RWY 05C | | | | | | | |
| | | RWY 23C | | | | | | | |
| | | RWY 05R | | | | | | | |
| | | RWY 23L | | | | | | | |
| | HEGN | RWY 16L | | | | | | | |
| | | RWY 34R | | | | | | | |
| RWY 16R | | | | | | | | | |

| State | Airport | RWY ends | LNAV | LNAV/ VNAV | RNAV SID | RNAV STAR | CDO | CCO | PB-AOM |
|---------|---------|----------|---------|---------------|-------------|--------------|-----|-----|--------|
| | HELX | RWY 34L | | | | | | | |
| | | RWY 02 | | | | | | | |
| | | RWY 20 | | | | | | | |
| | | RWY 02L | | | | | | | |
| | | RWY 20R | | | | | | | |
| | HEMA | RWY 15 | | | | | | | |
| | | RWY 33 | | | | | | | |
| | HESH | RWY 04L | | | | | | | |
| | | RWY 22R | | | | | | | |
| | | RWY 04R | | | | | | | |
| | | RWY 22L | | | | | | | |
| | Iran | OIKB | RWY 03R | | | | | | |
| RWY 21L | | | | | | | | | |
| OIFM | | RWY 08L | | | | | | | |
| | | RWY 26R | | | | | | | |
| | | RWY 08R | | | | | | | |
| | | RWY 26L | | | | | | | |
| OIMM | | RWY 13L | | | | | | | |
| | | RWY 31R | | | | | | | |
| | | RWY 13R | | | | | | | |
| | | RWY 31L | | | | | | | |
| OISS | | RWY 29L | | | | | | | |

| State | Airport | RWY ends | LNAV | LNAV/ VNAV | RNAV SID | RNAV STAR | CDO | CCO | PB-AOM |
|--------|---------|----------|--------|---------------|-------------|--------------|-----|-----|--------|
| | | RWY 29R | | | | | | | |
| | OITT | RWY 12L | | | | | | | |
| | | RWY 30R | | | | | | | |
| | OIIE | RWY 11L | | | | | | | |
| | | RWY 29R | | | | | | | |
| | OIII | RWY 11R | | | | | | | |
| | | RWY 29L | | | | | | | |
| | | RWY 11L | | | | | | | |
| | | RWY 29R | | | | | | | |
| | OIYY | RWY 13 | | | | | | | |
| | | RWY 31 | | | | | | | |
| | OIZH | RWY 17R | | | | | | | |
| | | RWY 35L | | | | | | | |
| | Iraq | ORNI | RWY 28 | | | | | | |
| RWY 10 | | | | | | | | | |
| ORBI | | RWY 15R | | | | | | | |
| | | RWY 33L | | | | | | | |
| | | RWY 15L | | | | | | | |
| | | RWY 33R | | | | | | | |
| ORMM | | RWY 32 | | | | | | | |
| | | RWY 14 | | | | | | | |
| ORER | | RWY 18 | | | | | | | |
| | | RWY 36 | | | | | | | |
| ORSU | RWY 31 | | | | | | | | |

Appendix A

| State | Airport | RWY ends | LNAV | LNAV/ VNAV | RNAV SID | RNAV STAR | CDO | CCO | PB-AOM |
|---------|---------|----------|-------|---------------|-------------|--------------|--------|--------|--------|
| | | RWY 13 | Green | Red | Red | Red | Orange | Orange | Grey |
| Jordan | OJAM | RWY 06 | Green | Green | Green | Green | Orange | Orange | Green |
| | | RWY 24 | Green | Green | Green | Green | Orange | Orange | |
| | OJAI | RWY 08R | Green | Green | Green | Green | Red | Red | |
| | | RWY 26L | Green | Green | Green | Green | Red | Red | |
| | | RWY 08L | Red | Red | Green | Green | Red | Red | |
| | | RWY 26R | Red | Red | Green | Green | Red | Red | |
| | OJAQ | RWY 01 | Green | Green | Green | Green | Orange | Orange | |
| | | RWY 19 | Green | Green | Green | Green | Orange | Orange | |
| Kuwait | OKBK | RWY 15R | Green | Green | Green | Green | Orange | Orange | Grey |
| | | RWY 33L | Green | Green | Green | Green | | | |
| | | RWY 15L | Green | Green | Green | Green | | | |
| | | RWY 33R | Green | Green | Green | Green | | | |
| Lebanon | OLBA | RWY 03 | Green | Red | Red | Green | Red | Red | Green |
| | | RWY 21 | Green | Red | Red | Green | Red | Red | |
| | | RWY 16 | Green | Red | Red | Green | Red | Red | |
| | | RWY 17 | Green | Red | Red | Green | Red | Red | |
| Libya | HLLB | RWY 15L | Red | Red | Red | Red | Orange | Orange | Green |
| | | RWY 33R | Red | Red | Red | Red | | | |
| | | RWY 15R | Red | Red | Red | Red | | | |
| | | RWY 33L | Red | Red | Red | Red | | | |

| State | Airport | RWY ends | LNAV | LNAV/ VNAV | RNAV SID | RNAV STAR | CDO | CCO | PB-AOM |
|--------------|---------|----------|------|---------------|-------------|--------------|-----|-----|--------|
| | HLLS | RWY 13 | | | | | | | |
| | | RWY 31 | | | | | | | |
| | HLLT | RWY 09 | | | | | | | |
| | | RWY 27 | | | | | | | |
| Oman | OOMS | RWY 08L | | | | | | | |
| | | RWY 26R | | | | | | | |
| | OOSA | RWY 07 | | | | | | | |
| | | RWY 25 | | | | | | | |
| Qatar | OTBD | RWY 15 | | | | | | | |
| | | RWY 33 | | | | | | | |
| | OTHH | RWY 16L | | | | | | | |
| | | RWY 34R | | | | | | | |
| | | RWY 16R | | | | | | | |
| | | RWY 34L | | | | | | | |
| Saudi Arabia | OEDF | RWY 16L | | | | | | | |
| | | RWY 34R | | | | | | | |
| | | RWY 16R | | | | | | | |
| | | RWY 34L | | | | | | | |
| | OEJN | RWY 16R | | | | | | | |
| | | RWY 34L | | | | | | | |
| | | RWY 16C | | | | | | | |
| | | RWY 34C | | | | | | | |

Appendix A

| State | Airport | RWY ends | LNAV | LNAV/ VNAV | RNAV SID | RNAV STAR | CDO | CCO | PB-AOM |
|-------|---------|----------|------|---------------|-------------|--------------|-----|-----|--------|
| | | RWY 16L | | | | | | | |
| | | RWY 34R | | | | | | | |
| | OEMA | RWY 17 | | | | | | | |
| | | RWY 35 | | | | | | | |
| | | RWY 18 | | | | | | | |
| | | RWY 36 | | | | | | | |
| | OERK | RWY 15L | | | | | | | |
| | | RWY 33R | | | | | | | |
| | | RWY 15R | | | | | | | |
| | | RWY 33L | | | | | | | |
| Sudan | HSOB | RWY 01 | | | | | | | |
| | | RWY 19 | | | | | | | |
| | HSSK | RWY 18 | | | | | | | |
| | | RWY 36 | | | | | | | |
| | HSNN | RWY 04 | | | | | | | |
| | | RWY 22 | | | | | | | |
| | HSPN | RWY 16 | | | | | | | |
| | | RWY 34 | | | | | | | |
| Syria | OSAP | RWY 09 | | | | | | | |
| | | RWY 27 | | | | | | | |
| | OSDI | RWY 05L | | | | | | | |
| | | RWY 23R | | | | | | | |
| | | RWY 05R | | | | | | | |

| State | Airport | RWY ends | LNAV | LNAV/ VNAV | RNAV SID | RNAV STAR | CDO | CCO | PB-AOM | |
|-------|---------|----------|------|---------------|-------------|--------------|-----|-----|--------|--|
| | OSLK | RWY 23L | | | | | | | | |
| | | RWY 17 | | | | | | | | |
| | | RWY 35 | | | | | | | | |
| UAE | OMAA | RWY 13 R | | | | | | | | |
| | | RWY 31 L | | | | | | | | |
| | | RWY 13 L | | | | | | | | |
| | | RWY 31 R | | | | | | | | |
| | OMAD | RWY 13 | | | | | | | | |
| | | RWY 31 | | | | | | | | |
| | OMAL | RWY 01 | | | | | | | | |
| | | RWY 19 | | | | | | | | |
| | OMDW | RWY 12 | | | | | | | | |
| | | RWY 30 | | | | | | | | |
| | | RWY 13 | | | | | | | | |
| | | RWY 31 | | | | | | | | |
| | OMDB | RWY 12L | | | | | | | | |
| | | RWY 30R | | | | | | | | |
| | | RWY 12R | | | | | | | | |
| | | RWY 30L | | | | | | | | |
| | OMFJ | RWY 11 | | | | | | | | |
| | | RWY 29 | | | | | | | | |
| | OMRK | RWY 16 | | | | | | | | |
| | | RWY 34 | | | | | | | | |

| State | Airport | RWY ends | LNAV | LNAV/ VNAV | RNAV SID | RNAV STAR | CDO | CCO | PB-AOM |
|-------|---------|----------|------|---------------|-------------|--------------|-----|-----|--------|
| | OMSJ | RWY 12 | | | | | | | |
| | | RWY 30 | | | | | | | |
| Yemen | OYAA | RWY 08 | | | | | | | |
| | | RWY 26 | | | | | | | |
| | OYHD | RWY 03 | | | | | | | |
| | | RWY 21 | | | | | | | |
| | OYRN | RWY 06 | | | | | | | |
| | | RWY 24 | | | | | | | |
| | OYSN | RWY 18 | | | | | | | |
| | | RWY 36 | | | | | | | |
| | OYTZ | RWY 01 | | | | | | | |
| | | RWY 19 | | | | | | | |

- END -