**AIR NAVIGATION REPORT FORM (ANRF)**

**AFI Regional Planning for PBN related ASBU Modules**

**REGIONAL PERFORMANCE OBJECTIVE – B0-65/APTA: Optimization of Approach Procedures Including Vertical Guidance**

**Performance Improvement Area 1: Airport Operations**

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| ASBU Module | Elements | Impact on main KPA[[1]](#endnote-1) | | | | | Planning/  implementation progress | Implementation challenges | | | | Performance Monitoring and Measurement | | | | | |
| B0-65/APTA: Optimization of Approach Procedures Including Vertical Guidance |  |  | | | | |  |  | | | | Implementation  Monitoring | Performance  Monitoring | | | | |
|  | Access &Equity | Capacity | Efficiency | Environment | safety |  | Ground system implementation | avionics implementation | Procedures availability | Operational approvals |  | Access &Equity | Capacity | Efficiency | Environment | safety |
| APV with BaroVNAV | Y | Y | Y | Y | Y | Dec2016 | Nil | Insufficient number of equipped aircraft | Lack of Instrument Flight Procedure design expertise | Lack of regulatory expertise | **Indicator:** % of international aerodromes having instrument runways provided with APV BaroVNAV procedure implemented | Increased aerodrome accessibility | Increased airport and approach capacity | Reduced fuel burn due to lower minima  Fewer diversions, go-around, cancellations, delays | Reduced engine emissions due to reduced fuel | Increased safety through stabilized approach |
| APV with SBAS | Y | Y | Y | Y | Y | Dec 2018 | Network infrastructures | Cost of aircraft equipage | Lack of Instrument Flight Procedure design expertise | Lack of regulatory expertise | **Indicator:** % of international aerodromes having instrument runways provided with APV SBAS procedure implemented |
| APV with GBAS | Y | Y | Y | Y | Y | Dec 2018 | Nil | Nil | Lack of Instrument Flight Procedure design expertise | Lack of regulatory expertise | **Indicator:** % of international aerodromes having instrument runways provided with APV GBAS procedure implemented |

**REGIONAL PERFORMANCE OBJECTIVE – ASBU B0-10/FRTO: Improved Operations through Enhanced En-Route Trajectories**

**Performance Improvement Area3: Optimum Capacity and Flexible Flights – Through Global Collaborative ATM**

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| ASBU Module | Elements | Impact on main KPA | | | | | Planning/  implementation progress | Implementation challenges | | | | Performance Monitoring and Measurement | | | | | |
| **B0-10/FRTO:** Improved Operations through Enhanced En-Route Trajectories |  |  | | | | |  |  | | | | Implementation  Monitoring | Performance  Monitoring | | | | |
|  | Access &Equity | Capacity | Efficiency | Environment | safety |  | Ground system implementation | avionics implementation | Procedures availability | Operational approvals |  | Access &Equity | Capacity | Efficiency | Environment | safety |
| Airspace planning | Y | Y | Y | Y | Y | Dec2017 | Lack of systematic airspace org. & mgt.  Lack of AIDC  lack of WGS84 implementation | Limited number of aircraft equipped for PBN operations | Lack of expertise for ATCM operational procedures & safety assessments | Lack of regulatory expertise | **Indicator**: not assigned Indicator and metrics | Better access to airspace by a reduction of the permanently segregated volumes of airspace | Flexible routing reduces potential congestion on trunk routes and at busy crossing points. The flexible use of airspace gives greater possibilities to separate flights horizontally. PBN helps to reduce route spacing and aircraft separations. | Reduced flight times; reduced fuel burn; increased airspace capacity | Reduced emissions due to reduced fuel burn; ability to avoid noise sensitive areas due to precision operations and increased airspace capacity | Increased safety through: precision navigation, improved separation, reduction of CFIT risk |
| Flexible Use of Airspace | Y | Y | Y | Y | Y | Dec 2016 | Lack of CDM (with other airspace users | Nil | Lack of awareness of ICAO guidance on cooperation with military | Lack of regulatory expertise | **Indicator**: % of time segregated airspaces are available for civil operations in the State  **Supporting Metric:** Reduction of delays in time of civil flights. |
| Flexible Routing | Y | Y | Y | Y | Y | Dec 2015 | Lack of ADS-C/CPDLC facilitations | Insufficient number of equipped aircraft | Lack of LOAs and procedures | Lack of regulatory expertise | **Indicator**: % of PBN (RNP2;A-RNP)routes implemented  **Supporting Metric**:  KG of Fuel savings  Tons of CO2 reduction |

**REGIONAL PERFORMANCE OBJECTIVE – ASBU B0-20/CCO: Increased Flexibility and Efficiency Departure Profiles- Continuous Climb Operations (CCO)**

**Performance Improvement Area4: Efficient flight Path – Through Trajectory-based Operations**

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| ASBU Module | Elements | Impact on main KPA | | | | | Planning/  implementation progress | Implementation challenges | | | | Performance Monitoring and Measurement | | | | | |
| **B0-20/CCO:** Increased Flexibility and Efficiency Departure Profiles- Continuous Climb Operations (CCO) |  |  | | | | |  |  | | | | Implementation  Monitoring | Performance  Monitoring | | | | |
|  | Access &Equity | Capacity | Efficiency | Environment | safety |  | Ground system implementation | avionics implementation | Procedures availability | Operational approvals |  | Access &Equity | Capacity | Efficiency | Environment | safety |
| CCO implementation | N | Y | Y | Y | Y | Dec2017 | Nil | Nil | Lack of airspace design; Lack of Flight Procedure design expertise  Lack of ATM training and coordination with users | Lack of coordinated airspace operations to enable CCOs. | **Indicator:** Percentage of international aerodromes with CCO implemented  **Supporting metric:** Number of international airports with CCO implemented | Nil | Increased Terminal Airspace Capacity | Reduced fuel burn and efficient aircraft operating profiles. Reduction in number of required radio transmissions | Reduced engine emissions through reduce fuel burn | Improved safety through reduced ATC radio transmissions |
| PBN SIDs implementation | N | Y | Y | Y | Y | Dec 2017 | Airspace Design | Nil | Lack of airspace design; Lack of Flight Procedure design expertise;  Lack of ATM training . Lack of CDM | Lack of airspace design  Lack of flight procedure design expertise | **Indicator:** % of international aerodromes with PBN SIDs implemented  **Supporting metric:** Number of international airport with PBN SIDs implemented |

**REGIONAL PERFORMANCE OBJECTIVE – ASBU B0-05/CD0: Improved Flexibility and Efficiency in Descent Profiles (CDO)**

**Performance Improvement Area4: Efficient flight Path – Through Trajectory-based Operations**

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| ASBU Module | Elements | Impact on main KPA | | | | | Planning/  implementation progress | Implementation challenges | | | | Performance Monitoring and Measurement | | | | | |
| **B0-05/CD0:** Improved Flexibility and Efficiency in Descent Profiles (CDO) |  |  | | | | |  |  | | | | Implementation  Monitoring | Performance  Monitoring | | | | |
|  | Access &Equity | Capacity | Efficiency | Environment | safety |  | Ground system implementation | avionics implementation | Procedures availability | Operational approvals |  | Access &Equity | Capacity | Efficiency | Environment | safety |
| CDO implementation | N | Y | Y | Y | Y | Dec2017 | Nil | Nil | Lack of airspace design; Lack of Flight Procedure design expertise  Lack of ATM training and coordination with users | Lack of coordinated airspace operations to enable CDOs. | **Indicator:** % of international aerodromes/TMA with CDO implemented  **Supporting metric:** Number of international aerodromes/TMAs with CCO implemented | Nil | Increased Terminal Airspace Capacity | Reduced fuel burn and efficient aircraft operating profiles. Reduction in number of required radio transmissions .  Optimum deployment of high lift devices | Reduced engine emissions through reduce fuel burn.  Reduced noise due to low engine settings and less use of high lift devices | More consistent flight paths and stabilized approach paths. Reduction in the risk of controlled flight into terrain (CFIT )  Reduction in the number of conflicts. |
| PBN STARs implementation | N | Y | Y | Y | Y | Dec 2017 | TPDI  Airspace Design | Nil | Lack of airspace design; Lack of Flight Procedure design expertise;  Lack of ATM training. Lack of CDM | Lack of airspace design. Lack of CDM  Lack of flight procedure design expertise | **Indicator:** % of international aerodromes/TMAs with PBN STARs implemented  **Supporting metric:** Number of international aerodromes: TMAs with PBN STARs implemented |

1. KPA : Key Performance Area [↑](#endnote-ref-1)