



International Civil Aviation Organization

SIP/2012/ASBU/Dakar-WP/24E

Aviation System Block Upgrades

Module N° B0-86/PIA-3

Improved Access to Optimum Flight Levels through Climb/Descent Procedures using ADS-B

Workshop on preparations for ANConf/12 – ASBU methodology
(Dakar, 16-20 July 2012)

Module N° B0-86

Improved Access to Optimum Flight Levels through Climb/Descent Procedures using ADS-B



Summary

This ITP module enables an aircraft to reach a more satisfactory flight level for flight efficiency or to avoid turbulence for safety.

Main Performance Impact

KPA-02 Capacity, KPA -04 Efficiency and KPA-05 Environment.

Operating Environment/Phases of Flight

En-Route

Applicability Considerations

This can be applied to routes in procedural airspaces,

Global Concept Component(s)

CM, AUO, AOM

Global Plan Initiatives (GPI)

GPI-9, GPI-7

Pre-Requisites

NIL

Global Readiness Checklist

Status (ready now or estimated date).

Standards Readiness

√

Avionics Availability

√

Infrastructure Availability

√

Ground Automation Availability

√

Procedures Available

√

Operations Approvals

√



- ITP using ADS-B is in operational use and hence can be considered to be a baseline.

Module N° B0-86 – Change Brought by the Module



- The introduction of ITP and ADS-B based separation minima enable aircraft to climb or descend through the altitude of other aircraft when the requirements for procedural separation cannot be met

Module N° B0-86 – Intended Performance Operational Improvement



Capacity	Improvement in capacity on a given air route
Efficiency	Increased efficiency on oceanic and potentially continental en-route.
Environment	Reduced emissions
Safety	A reduction of possible injuries for cabin crew and passengers
CBA	To be determined

Module N° B0-86 – Necessary Procedures (Air & Ground)



- Procedures for ITP using ADS-B have been developed and a PANS-ATM Amendment is in progress.
- Additional information will be available in an ICAO circular – “Safety Assessment for the development of Separation Minima and Procedures for In-Trail Procedure (ITP) using Automatic Dependant Surveillance – Broadcast (ADS-B) Version 1.5.4”
- ITP requires the use of CPDLC as per PANS-ATM amendment for an applicability date of Nov 2013.

- **Avionics**

- The aircraft performing the in-trail procedure will require an ADS-B IN capability compliant with DO-312/ED-159 or DO-317A/ED-194. The other aircraft involved in the procedure will require an ADS-B OUT capability compliant with AMC 20-24/DO-260A/DO-260B/ED-102A, or DO-317A/ED-194.
- CPDLC compliant with DO-306 chg 1 / ED-122 chg 1 is required.

- **Ground Systems**

- It is recommended that conflict probe logics be adapted to ITP separation minimum.

Module N° B0-86 – Training and Qualification Requirements



- The flight crew needs to be trained and qualified to understand the limitations of the equipment and to ensure a correct usage of the In-Trail Procedure and supporting avionics.
- The controller needs to be trained and qualified to assume the tasks and to ensure a correct usage of the In-Trail Procedure and ground support tools.

Module N° B0-86 – Regulatory/standardization needs and Approval Plan (Air and Ground)



- Regulatory/Standardization
 - Use current published criteria
- Approval Plans
 - To Be Determined.
 - Operational Approval guidance/criteria may be needed based upon regional application for ATSA.

Module N° B0-86 – Reference Documents

- **Standards**
 - EUROCONTROL ATSAW Deployment Plan(draft)
 - EUROCAE ED-159 / RTCA DO-312 “Safety, Performance and Interoperability Requirements Document for the In-Trail Procedure in Oceanic Airspace (ATSA-ITP) Application”.
- **Procedures** - TBD
- **Guidance Material:** TBD
- **Approval Documents**
 - FAA AC 20-172a; and FAA TSO-C195a
 - FAA Memo; Interim Policy and Guidance Automatic Dependent Surveillance Broadcast (ADS-B) Aircraft Surveillance Systems Supporting Oceanic In-Trail Procedures (ITP). Dated: May 10, 2010;
 - DO-312/ED-159;
 - DO-317A/ED-194;
 - ICAO circular – “Safety Assessment for the development of Separation Minima and Procedures for In-Trail Procedure (ITP) using Automatic Dependant Surveillance – Broadcast (ADS-B) Version 1.5.4”.

Improved Access to Optimum Flight Levels through Climb/Descent Procedures using ADS-B

Benefits - Main Key Performance Areas (KPA)

KPAs	Access	Capacity	Efficiency	Environment	Safety
Applicable	N	Y	Y	Y	Y

Elements:

- ITP using ADS-B

To be reflected in ANRF

ICAO

Uniting Aviation on

Safety | Security | Environment