AOP19 — Departure Management Synchronised with Pre-departure sequencing

Download Progress Report

Departure Management (DMAN) system is calculating and metering the departure flow to a chosen runway by managing Off-block-Times (via Start-up-Times), obtained from the turn-round process and from A-SMGCS services if available.

DMAN, synchronised with pre-departure sequencing, is a means to improve the departure flows at airports, ensuring flights to depart from the airport, leaving allocated parking stands in a more efficient and optimal order taking account of the available runway capacity and updated taxi-times.

DMAN automatically calculates in real-time and proposes a sequence of departures to be handled by ATC. DMAN integrated with electronic clearance input (ECI) system will instantly update the departure sequence based on A-CDM information and A-SMGCS system input if available.

Pre-departure sequencing is calculated based on Target Take Off Time (TTOT) and Taxi-times resulting in Target Start Approval Time (TSAT) for each flight, taking account of multiple constraints, such as configuration of taxiways and runways, environmental conditions, construction and maintenance on movement area etc. Pre-departure sequencing is also taking into account concerned Stakeholders operational preferences

By monitoring progress of aircraft turnaround processes based on adherence to Target Off-Block Times (TOBT), as well as the operational traffic situation on aprons, taxiways and runways, ATC can provide a TSAT which positions each aircraft in an efficient pre-departure sequence (off-block).

DMAN is an automated enabler delivering TTOT for departures on mixed mode runway and need close coordination/ integration with AMAN to deliver conflict free planning or sequencing.
Airport Stakeholders working according to the principles of A-CDM shall jointly establish pre-departure sequences, taking into account of agreed principles to be applied for specific circumstances such as but not limited to runway holding time, slot adherence, departure routes, airspace user preferences, night curfew, evacuation of stand/gate for arriving aircraft, adverse weather conditions including de-icing, actual taxi/runway capacity, local constraints.

Departure management synchronised with pre-departure sequencing reduces taxi times, increases Air Traffic Flow Management-Slot adherence (ATFM-Slot) and predictability of departure times. Departure management aims at maximising and optimising traffic flow on the chosen runway by setting up a sequence of departing traffic with optimised separations.

System requirements:
• Systems supporting A-CDM (including DMAN) shall be integrated supporting optimised pre-departure sequencing with appropriate information/data for airspace users (Target Off Block Time (TOBT)) and concerned airport stakeholders (contextual data feeding).
• DMAN systems shall elaborate and calculate a collaborative sequencing and provide both TSAT and TTOT, taking into account variable taxi times and shall be updated according to the actual aircraft take-off time (ATOT). DMAN system shall provide the controller with the list of TSAT and TTOT for the aircraft metering.
• An Electronic Clearance Input (ECI) system, shall be implemented, allowing the controller to input all clearances given to aircraft or vehicles into the ATC system. The system shall have appropriate interfaces with systems such as A-SMGCS with ref. Sub-AF 2.3 “Safety nets” ensuring the integration of the instructions given by the controller with complementary data such as flight plan, surveillance, routing, published routes and procedures.

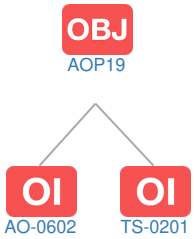
NOTE FOR MILITARY AUTHORITIES: It is the responsibility of each military authority to review this Objective IN ITS ENTIRETY and address each of the SLoAs that the military authority considers RELEVANT for itself. This has to be done on top and above of the review of "MIL" SLoAs which identify actions EXCLUSIVE to military authorities.

NOTE: The SLoAs listed in this document should be addressed to air navigation service providers as well as to airport operators. This is due to the fact that some airports operate their own ground control units for specific areas of responsibility at the airport. Airport operators providing air traffic control services qualify as ANSPs and are therefore covered by the ASP SLoAs. It is up to each implementer to check and select what is relevant to them, depending on local areas of responsibilities.

Edition	2022
Stakeholders	Air Navigation Service Provider / Airport Operator
Type	CP1
Scope	Airport
Status	Active

Context

Related Elements



Applicability Area(s) and Timescales

Applicability Area 1: See list of airports in MP Level 3 Implementation Plan - Annexes *((19 CP1 Airports))*

Applicability Area 2: See list of airports in MP Level 3 Implementation Plan - Annexes

Timescales	From	By	Applicable to
Initial Operational Capability	01-01-2021	-	Applicability Area 1
Full Operational Capability / Target Date	-	31-12-2022	Applicability Area 1

Links to ATM Master Plan Level 2

OI Operational Improvment Steps

Code	Title	IOC	FOC	Related Elements
AO-0602	Collaborative Pre-departure Sequencing	26-06-2010	26-06-2014	OI EN OBJ DS PCP ICAO
TS-0201	Basic Departure Management (Pre-departure Management)	31-12-2010	31-12-2014	SOL OI EN OBJ DS PCP

SOL Links to SESAR Solutions

Code	Title	Program	Related Elements
No record found			

PCP Links to PCP ATM Sub-Functionalities

Code	Title	Related Elements
No record found		

ICAO Block Modules: No associated data

References

Applicable legislation
Regulation (EU) No 2021/116 on the establishment of the Common Project One
Applicable ICAO Annexes and other references
None
Deployment Programme 2022
Family 2.1.1 - Departure Management Synchronised with Pre-departure sequencing
Operating Environments
-

Expected Performance Benefits

Safety	Provision of a more stable pre-departure sequence.
Capacity	Enhanced tactical runway scheduling. Reduced waiting and taxi times and runway delays.
Operational efficiency	Increased accuracy of taxi time-out predication and hence take-off time predictability, which in turn allows the aircraft to adhere to their target take-off time (TTOT).
Cost efficiency	-
Environment	Reduced waiting time at the runway holding point, which saves fuel and CO2 emissions and allows air navigation service efficiency.
Security	-

Stakeholder Lines of Action

Code	Title	From	By	Related Enablers
ASP01	Develop appropriate procedures for synchronisation of initial DMAN with pre-departure sequencing	01-01-2021	31-12-2022	
ASP02	Integrate upgraded DMAN system with ECI system	01-01-2021	31-12-2022	
ASP03	Integrate upgraded DMAN systems with A-CDM systems	01-01-2021	31-12-2022	
ASP04	Integrate DMAN with A-SMGCS	01-01-2021	31-12-2022	
ASP05	Safety Assessment	01-01-2021	31-12-2022	
ASP06	Training	01-01-2021	31-12-2022	
ASP07	Operational use	01-01-2021	31-12-2022	
APO01	Provide relevant additional data to A-CDM systems to feed DMAN synchronised with pre-departure sequencing	01-01-2021	31-12-2022	
APO02	Develop appropriate procedures for synchronisation of initial DMAN with pre-departure sequencing	01-01-2021	31-12-2022	
APO03	Integrate upgraded DMAN systems with A-CDM systems	01-01-2021	31-12-2022	
APO04	Integrate upgraded DMAN system with ECI system	01-01-2021	31-12-2022	
APO05	Integrate DMAN with A-SMGCS	01-01-2021	31-12-2022	
APO06	Safety assessment	01-01-2021	31-12-2022	
APO07	Training	01-01-2021	31-12-2022	
APO08	Operational use	01-01-2021	31-12-2022	

Supporting Material

Title	Related SLoAs
SDM - Standardisation and Regulation support to CP1 deployment 2021, Deliverable D1.1.1 07/2021 https://www.sesardeploymentmanager.eu/publications/deployment-programme	APO01, APO02, APO03, APO04, APO05, APO06, APO07, ASP01, ASP02, ASP03, ASP04, ASP05, ASP06

Consultation & Approval

Working Arrangement in charge	-
Outline description approved in	-
Latest objective review at expert level	-
Commitment Decision Body	-
Objective approved/endorsed in	-
Latest change to objective approved/endorsed in	-