Guide for

A-CDM in CPH

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Copenhagen Airports CPH

CONTENTS

1. INTRODUCTION

The purpose of this document is to describe the A-CDM system and procedures at Copenhagen Airport. The document is to be understood and used by the different partners, such as ground handling agents and airline OCCs.

A-CDM is about partners - airport operators, aircraft operators (AO), ground handlers (GH), air traffic control (ATC) and the Network Manager Operations Control (NMOC) - working together more efficiently and more transparently by sharing data. It allows better decision making based on more accurate and timely information, with all airport partners having the same operational picture.

A-CDM is a concept which aims at improving operational efficiency at an airport by reducing delays, improving the predictability of events during the progress of a flight and optimizing the utilization of resources.

With A-CDM the network is served also with more accurate take-off information to derive ATFM slots. As more airports implement Airport CDM, the network will be able to effectively utilize available slots more efficiently and reduce the current buffer capacity.

The improved decision making by the A-CDM Partners is therefore facilitated by the sharing of accurate and timely information and by adapted operational procedures, automatic processes and user friendly tools.

This document contains a lot of abbreviations, see Appendix 1: Abbreviations for a full list.

Benefits for everyone

Service partners

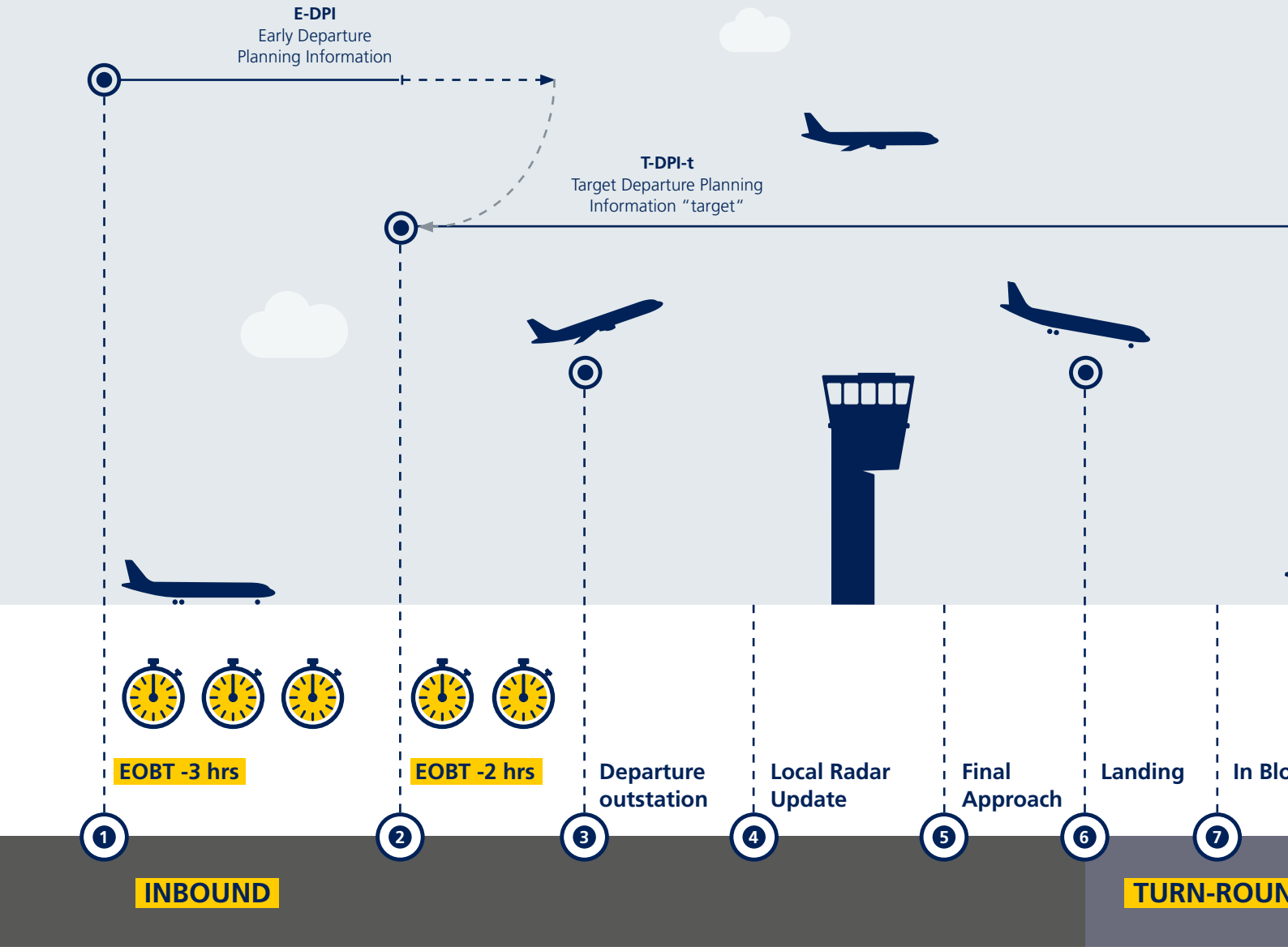
- More efficient resource planning
- Improved compliance with SLA's
- Better relationships with airlines

Airlines

- Reduced fuel burn and reduced NoX emissions
- Better on-time performance
- Better recovery of delays
- Improved customer service

Copenhagen Airport

- Better on-time performance
- Increased slot capacity
- Better service and quality with partners



1.1 Milestones

The A-CDM process defines a set of milestones in the aircraft turn-round process, allowing all A-CDM partners to identify possible deviations from schedule. The A-CDM system tracks the progress of the turn-round process according to these milestones.

→ Milestone 1
ATC Flight Plan Activated, EOBT present.
Definition
The ICAO flight plan is submitted to ATC. The A-CDM process is then initiated for this flight, and all available information is processed.
Timing
Normally this takes place 3 hours before EOBT, but in some cases it may be later. In other cases a repetitive flight plan (RFPL) has been submitted covering daily or weekly flights.

→ Milestone 2
EOBT -2 hours
Definition
At EOBT -2 hours most flights will be known in the A-CDM platform, including if they are regulated or not. All regulated flights receive a CTOT from Network Manager OC.
Timing
If the flight is regulated, a CTOT is issued at EOBT -2 hours

→ Milestone 3
Take off from outstation
Definition
The flight departs from the outstation
Timing
The information is available after the occurrence of the milestone. The information is received either via MVT or FUM depending on airline and origin.

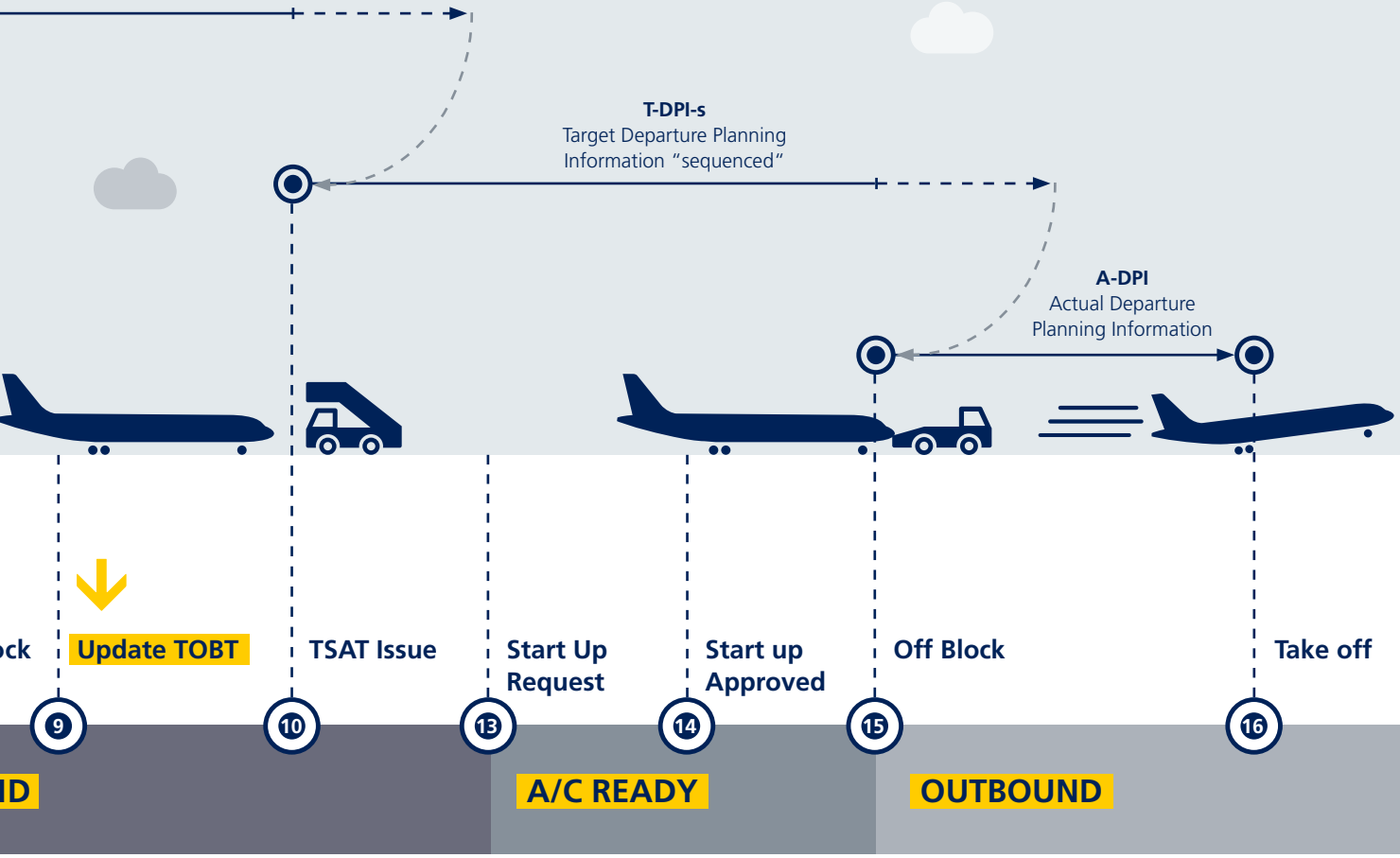
→ Milestone 4
Local radar update
Definition
The flight enters the FIR or the local airspace of CPH.
Timing
Dependent on the direction of the approach, this timing can differ. The information is received from ATC.

→ Milestone 5
Final Approach
Definition
The flight enters the final approach phase at the airport
Timing
This timing is received directly from ATC, when the flight is 8 miles from landing.

→ Milestone 6
Landed, ALDT present.
Definition
The time that the flight touches down on the runway.
Timing
The information is directly available after the occurrence of the milestone, and is received directly from ATC.

→ Milestone 7
In-Block, AIBT present.
Definition
The time that the aircraft arrives in block at a given stand.
Timing
This information is available as soon as information is received. The information comes from either DGS, ATC, ground radar or MVT.

Milestones and DPI Messages



→ **Milestone 8**
Ground handling start
Definition
The time that ground handling starts on a specific flight.
Timing
This timing is currently not used in CPH

→ **Milestone 9**
Update/Confirm TOBT, TOBT present.
Definition
The time which the AO/GH has to provide the most accurate TOBT, taking into account the operational situation.
Timing
This time can be produced automatically by the system, up to 70 minutes before EOBT. Or be inserted manually. Please see section 2 (TOBT) for further information.

→ **Milestone 10**
TSAT Issued, TSAT present.
Definition
The time when the sequence manager issues the TSAT
Timing
This time is produced at TOBT minus 30 minutes

→ **Milestone 11**
Boarding Start
Definition
The time when the passengers physically starts to go on board the aircraft.
Timing
This time is currently not used in CPH

→ **Milestone 12**
Aircraft Ready
Definition
The time when all doors are closed, boarding bridge removed, push back truck is connected, and aircraft is ready to leave the stand.
Timing
This time is currently not used in CPH

→ **Milestone 13**
Start Up Requested, ASRT present.
Definition
The time when the pilot contacts ATC to request start up
Timing
The information is directly available after the occurrence of the milestone, and is received directly from ATC.

→ **Milestone 14**
Start Up Approved, ASAT present.
Definition
The time when the aircraft receives its start up approval from ATC.
Timing
The information is directly available after the occurrence of the milestone, and is received directly from ATC.

→ **Milestone 15**
Off-Block, AOBT present.
Definition
The time the aircraft pushes back/ vacates the stand position.
Timing
This information is available as soon as information is received. The information comes from either DGS, ATC or MVT.

→ **Milestone 16**
Take Off, ATOT present.
Definition
The time that the aircraft takes off from the runway
Timing
The information is directly available after the occurrence of the milestone, and is received directly from ATC.

Active
Inactive

2. TARGET OFF-BLOCK TIME (TOBT)

2.1. What is TOBT?

The time that an Aircraft Operator (AO) or Ground Handler (GH) estimates that an aircraft will be ready, all doors closed, boarding bridge removed, push back vehicle available and ready to start up / push back immediately upon reception of clearance from the Tower.

TOBT Definition (EUROCONTROL, A-CDM Manual version 4)
TOBT = forecast of "aircraft ready"

2.2. Who is responsible for the TOBT input?

The ground handler (GH) is responsible for the input of and adherence to the TOBT. An incorrect TOBT leads to disadvantages for further sequencing and/or CTOT allocation. Therefore, the TOBT has to be adjusted as soon as possible when a partner realizes that the TOBT cannot be met.

2.3. The creation of the TOBT

The TOBT is created automatically by the A-CDM system 70 minutes before the EOBT from the ATC flight plan. Whenever possible the first TOBT generated by the system will be equal to the ATC flight plan EOBT. A manual input of TOBT is always accepted by the system, unless EOBT and TOBT deviates with more than 120 minutes. If a TOBT has been set manually the system will adjust the TOBT, all adjustments have to be made by a user.

2.3.1. Long term/overnight parking

For aircraft with no direct turn-round (for instance overnight stays), the TOBT is generated at EOBT-70 minutes or as soon as the departure is known.

2.4. TOBT input and adjustment

A manual TOBT update can be made at any time. There is no obligation to confirm an automatic TOBT if the latter is correct. In case of an TOBT update this has to be taken into account:

- The last TOBT update should be done no later than -5 minutes to the current TOBT, to protect a stable pre-departure sequence.

The following has to be taken into account for the input and/or adjustment of the TOBT:

- The TOBT can be adjusted as often as necessary until the TSAT has been issued.
- After the TSAT has been issued, the TOBT should preferably only be corrected 3 times to ensure a stable operation. It is possible to update more times but it is not recommended.
- The entered TOBT has to be at least 2 minutes later to the current point in time.
- New and old TOBT must differ by at least 3 minutes.
- New TOBT is not allowed to be earlier than 10 minutes or later than 15 minutes before EOBT (for such changes please see section 2.6).
- Do not update the TOBT if you already received start up request (ASRT) unless you will like to cancel the push back.

2.5. Effects of a TOBT update

Once a TSAT (Target Start-up Approval Time) is present in the A-CDM system, the consequences of TOBT updates are closely defined to avoid unnecessary delays or re-sequencing that could be perceived as unfair by the AO. In particular:

- New TOBT > Old TOBT: Will not trigger a new TSAT as long as new TOBT <= TSAT.
- New TOBT < Old TOBT: Will trigger a new TSAT only if the flight can use airport capacity without delaying another flight with this change.
- New TOBT > Old TSAT: Will trigger a new TSAT.

2.6. Deviations between TOBT and EOBT

The TOBT must be within the EOBT -10/+15 minutes to ensure consistency between the TOBT and the Flight Plan EOBT. In case the EOBT or TOBT is updated so that the tolerance of -10/+15 minutes is not met, the system will trigger an alert indicating that the TOBT is not in line with the current EOBT.

In that case the GH will have to align the TOBT with the EOBT, or the AO will have to file a Flight Plan Delay Message (DLA, CHG), setting a new EOBT aligned with the TOBT.

2.7. What happens if the flight is not ready at TOBT +/-5 min.?

If the Aircraft is not ready at TOBT +/-5 min, the TOBT has to be updated or deleted. The system will display an alert to inform that an action is needed.

2.7.1. TOBT deletion

TOBTs can be deleted by any user with permission to update the TOBT. If a TSAT has not been issued for the flight, deleting the TOBT will only have minor impact. If TOBT is deleted once TSAT has been issued, the flight will lose all the timings calculated by the Sequence Manager, and a C-DPI will be sent. This deletion will suspend the A-CDM process unless one of the events below occurs:

- New TOBT is manually entered into the system
- New EOBT and flight reaches EOBT-3h
- New EOBT and flight reaches EOBT-2h

2.8. Communication

The TOBT is communicated via the A-CDM portal and the Docking Guidance System at stand. The GH is responsible for communicating the initial TOBT as well as any updates made during the turn-round to the flight crew. In case of a new TSAT due to changes in the TOBT, the pilot has to follow the procedures in the AIP.

2.9. Calculated Take-Off Time (CTOT)

A CTOT may be issued by the Network Manager at EUROCONTROL in case they need to regulate the demand to match the airspace and/or airport capacity. Regulated flights (flights with CTOT) will usually take priority over unregulated flights when calculating TSATs in order to minimize the potential CTOT delay.

2.9.1. A-CDM effects on CTOT

If an updated TOBT/EOBT is before or equal to the TSAT, changes in the TOBT/EOBT will in general not affect the CTOT. Only new restrictions en-route or at destination could trigger the issuing of a new CTOT.

If a flight is not able to meet its CTOT the TOBT has to be updated which usually will require the AO to update the EOBT subsequently. Network Manager OC will, as CPH is a CDM airport, prioritize the flight over flights from non-CDM airports when issuing the updated CTOT.

2.9.2 Example of CTOT flight

If a flight is able to meet its CTOT the TOBT should not be changed as long as the flight will be ready at TOBT.

If a decision is made to delay the boarding or any other handling activity the TOBT should be updated to reflect when the flight will be ready.

Consider the following example:

1. SOBT / EOBT / TOBT: 10.00
2. CTOT: 11.30
3. Boarding is delayed to 10.30, flight will not be ready before 10.50.
4. EOBT should be updated by AO to 10.50.
5. TOBT should be updated by GH to 10.50.
6. Had the new TOBT been within EOBT +15 min, an EOBT update had not been necessary.

This will inform Network Manager that the flight will not be able to meet an improved CTOT before 10.50.

Had boarding not been delayed the EOBT and TOBT should have been kept at 10.00, and the flight would be eligible to any improvement in CTOT.

3. TARGET START-UP APPROVAL TIME (TSAT)

3.1. What is TSAT?

The Target Start-up Time is the time provided by ATC taking into account TOBT, CTOT and / or the traffic situation that an aircraft can expect start-up / push back approval.

TSAT Definition (EUROCONTROL, A-CDM Manual version 4)
TSAT = forecast of 'start-up approved'

3.2. Automatically generated TSAT

The TSAT is the timestamp calculated by the Sequence Manager at which start-up approval can be expected. The TSAT is calculated 30 minutes prior to the TOBT. The calculation of the TSAT is based on the following factors:

- TOBT
- CTOT in the case of regulated flights
- Operational capacity
- Special departure intervals (MDI)
- Variable taxi time
- Parking position/area
- Take-off runway
- Landing direction
- Aircraft de-icing

3.3. Communication

The TSAT is communicated to the handler via the A-CDM portal, to ATC via the Sequence Manager and to the pilot via ATC and via the Docking Guidance System.

3.4. Can a sequence be swapped?

AO/GH can swap flights directly in the system.

When requesting swap for a flight, a list of possible candidates for the swap is presented by the system.

There are 10 conditions that drive the swap procedure. If all requirements are fulfilled, the swap will be automatically approved. If only the first 9 requirements are fulfilled, the swap can be requested but must be approved or performed directly by ATC.

The conditions for swapping are:

1. Same TOBT-responsible unit (ground handler)
2. Both are not regulated (no CTOT)
3. Both have no MDI or both have the same MDI group
4. Both have not been swapped before
5. The STOT of the candidate earlier flight (earlier TSAT) is after the RTOT (TOBT+EXOT) of the later flight (current flight to be swapped)
6. Both have a TSAT that is at least 15 min after the actual time
7. They are not "frozen" by ATC (neither TSAT nor TTOT freeze)
8. They depart from the same "sequence" runway
9. Both have no de-icing or both have requested remote de-icing
10. They depart from the same runway

After the swap is performed, the STOTs of the two flights will be swapped and the TSATs will be recalculated accordingly. The swap of two flights will persist even after further recalculations of the sequence.

However, some scenarios will cause the swap to be undone:

1. A manual TOBT update for one of the flights
   - The flight with the manual update is sequenced according to the update
   - The other flight is sequenced according to its prior TOBT
2. An update to the de-icing request (flight requesting/ cancelling de-icing)
3. Earlier flight is now sequenced after the later flight due to a CTOT
   - The later flight will revert to its original TOBT
4. An update on the sequenced runway
5. MDI change:
   - The earlier flight is now sequenced after the later flight due to an MDI.
   - At least one of the two flights has an MDI cancelled (regardless of which MDI has been cancelled, for example if more than one MDI is set on a flight)
   - At least one of the two flights is included in a new MDI
   - At least one of the two flights has a modification of the SIDs included in the MDI (regardless of which MDI is updated, for example if more than one MDI is set on a flight)

For the MDI change scenarios the flight affected by the MDI update will be recalculated, whereas the other flight remains untouched.

As soon as one of the flights receives start-up approval, the swap will not be undone no matter the changes made to either flight.

4. TARGET TAKE-OFF TIME (TTOT)

4.1. What is TTOT?

The Target Take Off Time taking into account the TOBT/ TSAT plus the EXOT (taxi out time and de-icing time) if de-icing is requested.
Each TTOT on one runway is separated from other TTOT to represent vortex and/or SID separation between aircraft.

TTOT Definition (EUROCONTROL, A-CDM Manual version 4)
TTOT = expected take-off time

The TTOT is calculated automatically by the system in order to even out demand for runway capacity. Should a number of aircraft request runway capacity at the same time (TOBT + EXOT), the system will issue TSATs that are separated by a few minutes to ensure TTOTs are not clashing.

5. PUSH AND HOLD

The push and hold procedure at CPH will allow the departing flight to push back and hold at a dedicated waiting/drive through stand. When a flight is marked for push and hold, the A-CDM system will not send the A-DPI message. Withholding that message keeps the flight eligible for a CTOT improvement while awaiting the initial CTOT at the holding area. On all flights with CTOT that receives ASAT at TSAT -5 minutes or more, the system will automatically hold back the A-DPI, in order for the flight to be eligible to receive improvements to the CTOT.

6. DE-ICING PROCEDURE

In weather conditions where de-icing might be relevant, clearance delivery (119,9) shall be informed as early as possible whether de-icing is needed or not.

All de-icing in CPH is remote, and the de-icing timings will be added to the EXOT.

TSAT will be generated taking available de-icing resources into account, respecting CTOT and local handler agreements.

In case of queue for de-icing, TSAT will be adjusted to minimize total taxi time, but keeping de-icing platforms fully utilized.

In case of excessive queue, for one or several platforms, the system will assign platforms minimizing total delay, respecting CTOT.

Estimated de-icing time (EDIT), will be adjusted to fit the weather on the day.

Actual de-icing start (ACZT) and end times (AEZT), will be provided by the ground radar. CPH Traffic Operations will monitor discrepancies between EDIT and actual de-icing time (ADIT), and adjust EDIT accordingly.

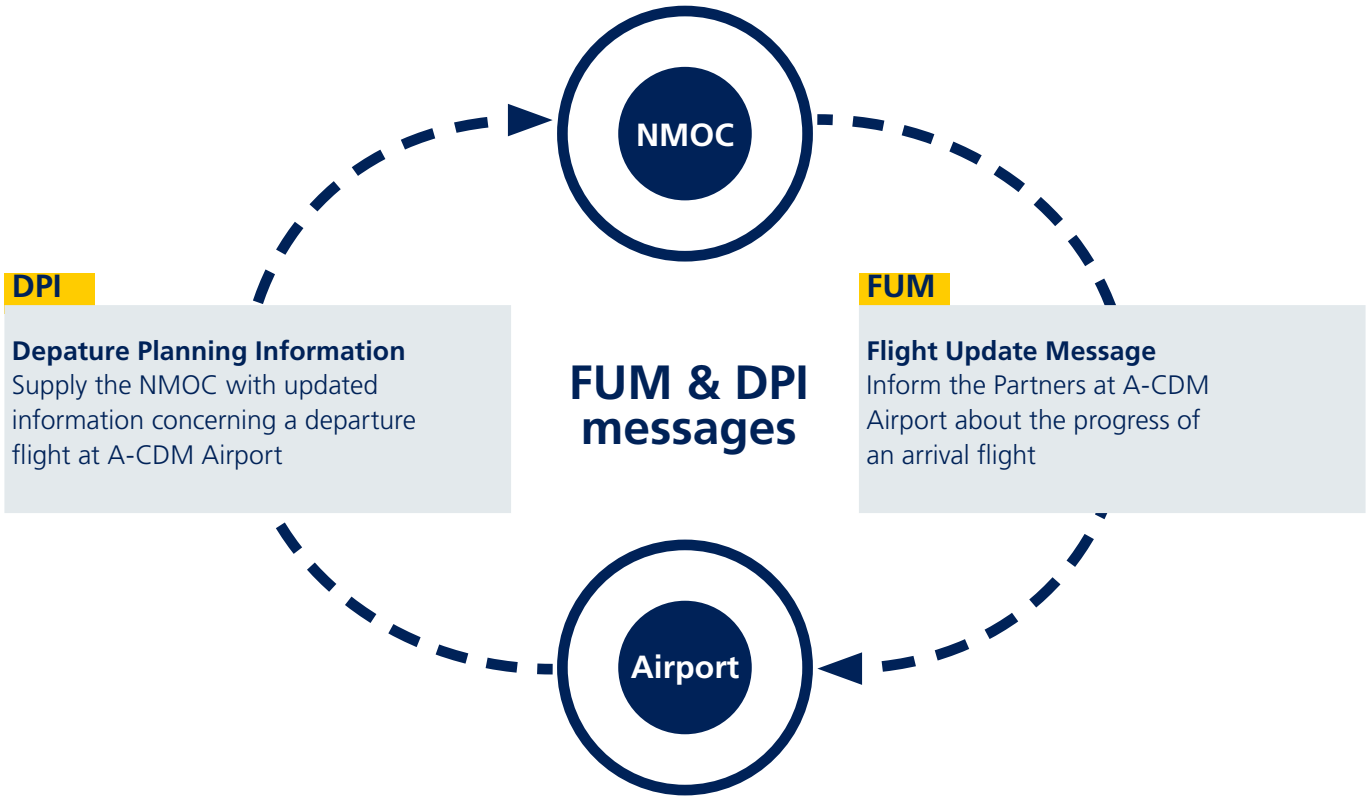
In case a flight with CTOT requests de-icing the system will try to accommodate this by moving other flights without CTOT if needed. This is done to try and meet the CTOT on the individual flight.

7. DATA EXCHANGE WITH THE NETWORK MANAGER OC (NMOC)

The data exchange with NMOC is done via the Departure Planning Information (DPI) messages. To ensure the best planned, best served concept NMOC need information regarding TTOT/TSAT. This information is exchanged via DPI messages.

- E-DPI (Early-DPI), Early DPI message is sent beginning 3 hours prior to EOBT and verifies the airport slot with the EOBT. If no airport slot exists, the E-DPI will not be sent and the A-CDM process will not be initiated.
- T-DPI-t (Target-DPI-target) is sent beginning 2 hours prior to EOBT. The data is based on the TOBT.
- T-DPI-s (Target-DPI-sequence) . The data is based on the TSAT.
  - For non-regulated flights the T-DPI-s is sent between TOBT–30 minutes and AOBT.
  - For regulated flight the T-DPI-s is sent at AOBT to keep the flight eligible for a CTOT improvement (similar to the previous 'REA' (ready) message).
- A-DPI (ATC-DPI) is sent at AOBT, and freezes the CTOT and flight plan updates. To keep the flight eligible for a CTOT improvement, please see section 4 – push & hold.
- C-DPI (Cancel-DPI) is sent when previously sent DPI's are no longer valid. The C-DPI triggers a Flight Suspension Message (FLS) by the Network Manager OC.

The above is a very overall description of the DPI messages. A detailed description can be found on the EUROCONTROL website (http://www.eurocontrol.int).



8. RETURN TO RAMP/STAND

If an aircraft e.g. for technical reasons/medical emergency has to return to a parking stand after AOBT, the return to stand procedure will be initiated by CPH Traffic Operations.

CPH Traffic Operations will delete the AOBT, which in turn will cause the system to delete the TOBT and TSAT and send a C-DPI. An alert will be shown in the system to make the user aware that the A-CDM process has been reset.

As soon as the new TOBT for the affected flight is known it should be updated in the A-CDM Portal by the responsible AO/GH. This will restart the A-CDM process and the T-DPI-t message will trigger a De-Suspension Message by the Network Manager OC.

If the aircraft does not return to a stand but instead rectifies the issue while on the taxiway, the aircraft will be manually sequenced by ATC if it can no longer achieve its Target Take off Time (TTOT). Only in case the aircraft returns to the stand, the AO/GH has to update the TOBT.

9. RETURN FROM AIRBORNE

Return from airborne follows the same procedure as before A-CDM was introduced:

- CPH Traffic Operations will create the return flight (arrival with R-suffix) as well as the departure that has returned (departure with R-suffix).
- Departure timings will be copied from the original departure to the departure with R-suffix, and be cleared from the original departure. This causes the A-CDM process to be reset (TOBT and TSAT deleted, C-DPI sent).
- The original departure will be re-used for resource allocation, display on passenger signs etc. no matter if the flight will operate or will be cancelled.
- Like in the case of a return to ramp/stand a new TOBT is required to restart the A-CDM process.

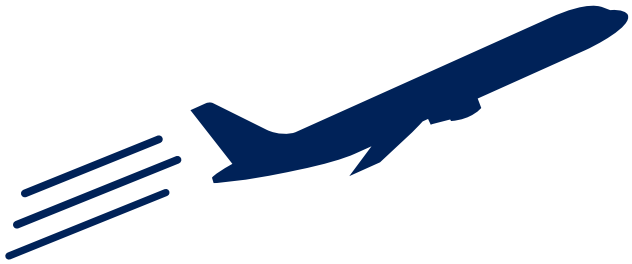
10. A-CDM IN ADVERSE CONDITIONS (IRR)

In case of adverse conditions (adverse weather conditions, strike, system outage etc.) where a drop in capacity is expected, CPH Traffic Operations will act as the A-CDM Coordinator.

Normal procedures are followed by ATC and CPH to establish the actual runway capacity, and ATC will input this capacity into the A-CDM system. The system will ensure that the runway capacity is not exceeded by spacing the TSATs generated accordingly.

Push and hold procedures will apply and be used as usual in case of irregularities.

AO/GH must keep TOBT updated with the best information available to ensure resources of all partners are utilized the best way possible.



11. ALERTS

The A-CDM system will generate alerts on flights to inform the user that the flight is not adhering to the A-CDM process, or that data is incorrect.

The following alerts will be available in the system.

Alert code	Description	Severity*	Triggered by	Data needed
CDM02	SOBT vs EOBT discrepancy	2	The initial EOBT falls outside the permitted SOBT window	→ SOBT, EOBT and Time parameter (configurable)
CDM03	Aircraft type discrepancy	2	The Airport Database and ATC Flight Plan have different aircraft types	→ Aircraft type from Flight Plan
CDM03a	Aircraft type discrepancy	2	The aircraft type of the inbound flight does not match the planned aircraft rotation	→ Aircraft type on both arrival and departure
CDM04	Registration discrepancy	2	The aircraft registration in the Airport Database is different from the registration in the ATC Flight Plan.	→ Registration from Flight Plan
CDM04a	Registration discrepancy	2	The registration of the inbound flight does not match the planned aircraft rotation	→ Registration on both arrival and departure
CDM07	EIBT+MTTT discrepancy with EOBT	3	The inbound flight's EIBT and MTTT is later than EOBT. This could affect the outbound leg	→ EIBT on arrival, MTTT on arrival leg. EOBT
CDM07a	EIBT+MTTT discrepancy with TOBT	3	The inbound flight's EIBT and MTTT is later than TOBT. This could affect the outbound leg	→ EIBT on arrival, MTTT on arrival leg. TOBT
CDM08	EOBT compliance alert	2	The TOBT is outside the EOBT tolerance window (-10/+15 minutes difference)	→ EOBT, TOBT and Time parameter (configurable)
CDM09	Boarding not started	2	Boarding has not started at the agreed time before TOBT. TOBT may not be achieved.	→ Actual Boarding Start, TOBT, Time parameter (configurable)
CDM10	TOBT deleted	1	The TOBT has been deleted manually	→ TOBT set, then deleted
CDM11	Flight not compliant with TOBT	2	The flight has not contacted ATC at TOBT (plus the locally agreed number of minutes)	→ TOBT, ASRT missing at TOBT+ Time parameter (configurable)
CDM12	Flight not compliant with TSAT	2	The flight has not requested start up at TSAT (plus the locally agreed number of minutes)	→ TSAT, ASAT missing at TSAT + Time parameter (configurable)
CDM14	Automatic TOBT generation not possible	1	The TOBT cannot be generated for a regulated flight, because TOBT+EXOT is later than the slot tolerance window (CTOT+10)	→ CTOT, ELDT, MTTT on arrival leg, EXIT to compute a TOBT

*The severity of the alert is given by numbers 1-3, where number 1 is the most severe.

12. APPENDICES

Appendix 1: Abbreviations

Acronym	Definition	Explanation
ACARS	Aircraft Communications Addressing and Reporting System	
ACGT	Actual Commence of Ground Handling Time	The time when ground handling on an aircraft starts, can be equal to AIBT (to be determined locally).
ACZT	Actual Commencement of De-Icing Time	The time when de-icing operations of an aircraft starts.
ADIT	Actual De-Icing Time	Calculated as AEZT - ACZT.
A-DPI	ATC Departure Planning Information Message	Departure message sent between AOBT and ATOT, notifying NMOC of the TTOT.
AEZT	Actual End of De-Icing Time	On-stand de-icing: The time when de-icing operations end. Remote de-icing: The time when the aircraft leaves the de-icing platform.
AGHT	Actual Ground Handling Time	The total duration of the ground handling of an aircraft. Calculated as AEGT - ACGT.
AIBT	Actual In Block Time	The time that an aircraft arrives in blocks. (Equivalent to Airline/Handler ATA - Actual Time of Arrival, ACARS = IN)
ALDT	Actual Landing Time	The time that an aircraft lands on a runway. (Equivalent to ATC ATA - Actual Time of Arrival = landing, ACARS = ON)
AO	Aircraft operator	A person, organisation or enterprise engaged in or offering to engage in an aircraft operation.
AOBT	Actual Off Block Time	Time the aircraft pushes back/vacates the parking position. (Equivalent to Airline/ Handlers ATD - Actual Time of Departure, ACARS = OUT)
ARDT	Actual Ready Time (for movement)	When the aircraft is ready for start-up/push back or taxi immediately after clearance delivery, meeting the requirements set by the TOBT definition.
ARZT	Actual Ready for De-icing Time	Time when the aircraft is ready to be de-iced.
ASAT	Actual Start-up Approval Time	Time that an aircraft receives its start-up clearance. Note: The moment the start-up approval is given can be in advance of the TSAT.
ASBT	Actual Start Boarding Time	Time passengers start entering the bridge, or the bus arrives at the remote position.
ASRT	Actual Start-up Request Time	Time the pilot requests start-up clearance.
ATC	Air Traffic Control	Service provided by ground-based controllers who direct aircraft on the ground and in the air. This is to separate, organise and expedite the flow of air traffic.
ATOT	Actual Take-off Time	Time that an aircraft takes off from the runway. (Equivalent to ATC ATD - Actual Time of Departure, ACARS = OFF)
ATTT	Actual Turnaround Time	Calculated as AOBT - AIBT
AXIT	Actual Taxi In Time	Calculated as AIBT - ALDT
AXOT	Actual Taxi Out Time	Calculated as ATOT - AOBT
CDM	Collaborative Decision Making	The CDM process allows all entities (AOs, GHs, ATC, TOC and NMOC) to use the same accurate and timely information, to create a common situational awareness. CDM improves the overall efficiency of operations, in particular the aircraft turnaround process.
C-DPI	Cancel Departure Planning Information Message	This message informs NMOC that the last DPI message is no longer valid.
CSA	Common Situational Awareness	See CDM.
CTOT	Calculated Take-off Time	Time calculated and issued by the appropriate NMOC, as a result of tactical slot allocation, at which a flight is expected to become airborne.
DCL	Departure Clearance (Data Link)	
DPI	Departure Planning Information Message	Message from the airport to NMOC. Also see A-DPI, C-DPI, E-DPI, T-DPI.
ECZT	Estimated Commencement of De-icing Time	The estimated time when de-icing operations on an aircraft are expected to start.
EDIT	Estimated De-icing Time	Calculated as EEZT - ECZT.
E-DPI	Early Departure Planning Information Message	The first DPI message that is sent from the CDM airport to NMOC, notifying the ETOT.
EEZT	Estimated End of De-icing Time	The estimated time when de-icing operations on an aircraft are expected to end.
EIBT	Estimated In-block Time	The estimated time that an aircraft will arrive in block. (Equivalent to airline/handler ETA - Estimated Time of Arrival)
ELDT	Estimated Landing Time	The estimated time that an aircraft will touch down on the runway. (Equivalent to ATC ETA - Estimated Time of Arrival = landing)
EOBT	Estimated Off-block Time	The estimated time at which the aircraft will start movement associated with departure (ICAO).
ERZT	Estimated Ready for De-icing Time	The estimated time when the aircraft is expected to be ready for de-icing operations.
ETOT	Estimated Take-off Time	The estimated take-off time, taking into account the EOBT plus EXOT.

Acronym	Definition	Explanation
ETTT	Estimated Turnaround Time	The time estimated by the AO/GH on the day of operation to turn round a flight, taking into account the operational constraints.
EXIT	Estimated Taxi-in Time	The estimated taxi time between landing and in block.
EXOT	Estimated Taxi-out Time	The estimated taxi time between off-block and take off. This estimate includes any delay buffer time at the holding point or remote de-icing prior to take off.
GH	Ground handler/handling agent	A company responsible for handling an aircraft during its turnaround.
MDI	Minimum Departure Interval	The minimum number of minutes of separation needed between departing flights using the same SID.
MTTT	Minimum Turnaround Time	The minimum turnaround time agreed with an AO/GH for a specified flight type or aircraft type.
PDPB	Pre De-icing Pad Buffer	A buffer used to maximise de-icing resources. It allows an aircraft to wait at the de-icing pad ahead of its scheduled de-icing slot, in case the preceding aircraft leaves the de-icing pad earlier than planned. PDPB can only be applied when TSAT>TOBT, as it is subtracted from TSAT.
RTOT	Requested Take-off Time	The earliest time that an aircraft could depart from the airport, without taking into account the runway capacity, de-icing capacity or other constraints. Calculated as TOBT + EXOT
RWY	Runway	
SCZT	Sequenced Commencement of De-icing Time	The time when de-icing operations of an aircraft starts.
SEZT	Sequenced End of De-icing Time	The time when de-icing operations on an aircraft ends.
SIBT	Scheduled In-block Time	The time that an aircraft is scheduled to arrive at its first parking position.
SID	Standard Instrument Departure	The published flight procedures followed by an aircraft on an instrument flight rules (IFR) flight plan immediately after takeoff from an airport.
SOBT	Scheduled Off-block Time	The time that an aircraft is scheduled to depart from its parking position.
STOT	Scheduled Take-off Time	The scheduled take-off time, taking into account the SOBT plus EXOT.
STW	Slot Tolerance Window	The window around the CTOT, during which time a regulated flight is allowed to take off.
STW Extension	Slot Tolerance Window Extension	An agreement with NMOC during adverse weather conditions, to allow a regulated flight to take off within an extended window.
T-DPI	Target Departure Planning Information Message	Departure message notifying NMOC of the TTOT.
TOBT	Target Off-block Time	The time that an AO/GH estimates an aircraft to be ready, all doors closed, boarding bridge removed, push back vehicle available and ready to start up/push back immediately upon reception of clearance from ATC.
TSAT	Target Start-up Approval Time	The time provided by ATC, taking into account TOBT, CTOT and/or the traffic situation, that an aircraft can expect to receive start up/ pushback approval. Note: ASAT can be given in advance of TSAT.
TT	Taxi Time	The taxi time between off-block and take off, that is sent to NMOC in DPI messages.
TTEX	Taxi Time Extension	Additional taxi-time taken on top of the EXOT, to take into account that taxi time will be longer, for example during fog conditions.
TTOT	Target Take-off Time	The target takeoff time, taking into account the TOBT/TSAT and the EXOT.

Appendix 2: Points of contact

General inquiries	a-cdm@cph.dk
CPH Traffic Operations	+45 3231 2470 131,400MHz
CFS Copenhagen Flight Services (GH)	131,500 MHz
Menzies Aviaton (GH)	131,785 MHz
Aviator (GH)	130,025 MHz
ASE Handling (GH)	131,925 MHz
SGH SAS Ground Handling (GH)	131,950 MHz
DHL	130,575 MHz
Spirit (SGH SAS Ground Handling)	131,950 MHz
WFS (Aviator)	130,025 MHz

Best Planned – Best Served

The right information → To the right people → At the right time

Copenhagen Airport A/S
Airside Operations

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Copenhagen Airports CPH