



Airport CDM Munich

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## **AIRPORT COLLABORATIVE DECISION MAKING**



**AIRPORT CDM AT MUNICH AIRPORT**  
**Brief Description / Process Description**



## Airport CDM Munich

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### 1. General

#### 1.1. Purpose of the document

This document describes the Airport Collaborative Decision Making (CDM) procedure at Munich airport and is to be understood and used as a basis for the different partners, such as ground handling agents and Airline OCC.

Together with the publications about Airport CDM (Aeronautical Information Publication – AIP – Germany and the airport user regulations FBO), this document is to ensure that Airport CDM at Munich airport is handled in an optimal way in the interest of all partners.

This version becomes valid: 01.09.2016. This document, will replace all preceding versions.

#### 1.2. General definition and partners

Airport CDM is an operational overall process (concept/procedure) supporting an optimized turn-round process at Munich airport. It covers the period of time between the estimated off-block time (EOBT) -3h and take-off and is a coherent process from flight planning (ATC flight plan) to landing and the subsequent turn-round process on the ground before the next take-off.



Airport CDM at Munich airport is based on the European Airport CDM, the common specification (“Community Specification”) for A-CDM and the “German initiative on the harmonisation of Airport CDM“.



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## Airport CDM Munich

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### 1.3. Objectives of Airport CDM

Airport CDM aims at optimally utilising the available capacities and operational resources at Munich airport by increasing the efficiency of the individual steps of the turn-round process.

Airports can be integrated into the European ATM network through the exchange of reliable estimated arrival and departure times between Airport CDM and the Network Manager Operations Centre (NMOC).

Airport CDM optimises operational cooperation between the following partners:

- Airport operator
- Airlines
- Handling agents
- Ground handling agents
- Air navigation service provider
- European air traffic flow management (NMOC)

### 1.4. Coordination with the NMOC

Due to a fully automated data exchange with the Network Manager Operations Centre (NMOC), landing and take-off times can be forecasted in a timely and reliable manner and/or precisely calculated take-off times (CTOT) can be given, based on local target take-off times.

The following messages are used:

- Flight update message, FUM
- Early departure planning information message, E-DPI
- Target departure planning information message, T-DPI target
- Target departure planning information message, T-DPI sequenced
- ATC departure planning information message, A-DPI
- Cancel departure planning information message, C-DPI

The basic procedures for cooperation between the airlines and/or DFS and the NMOC remain the same.

Furthermore, all estimated departure times are automatically transmitted to the NMOC during the turn-round process. In the case of delays caused by the airlines, the common CTOT allocation mechanisms apply. These allocation mechanisms are confirmed and/or refined via DPI messages. The NMOC determines and allocates the CTOT on the basis of these estimated departure times (DPI).

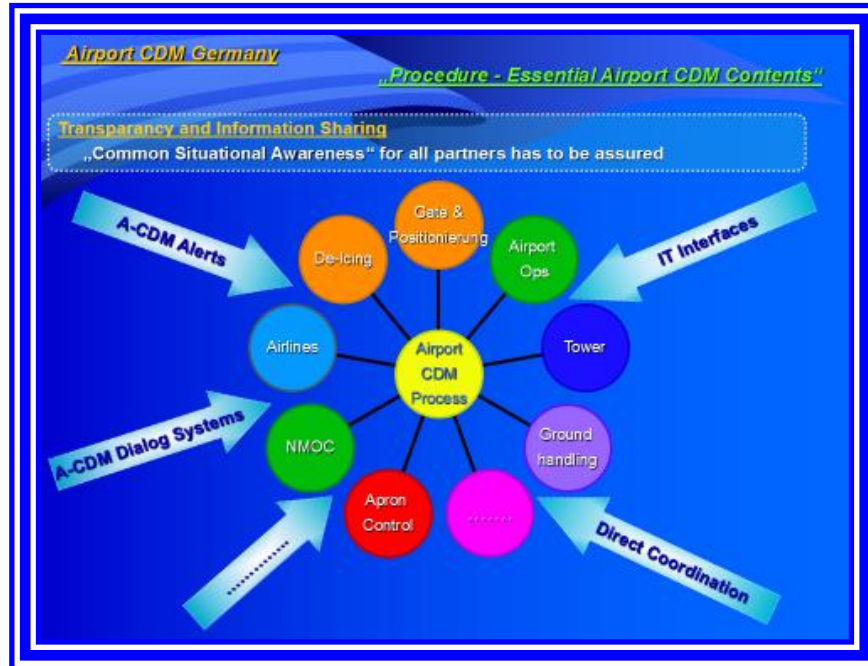
## Airport CDM Munich

### 1.5. Main characteristics of the procedure

The main characteristics of Airport CDM are:

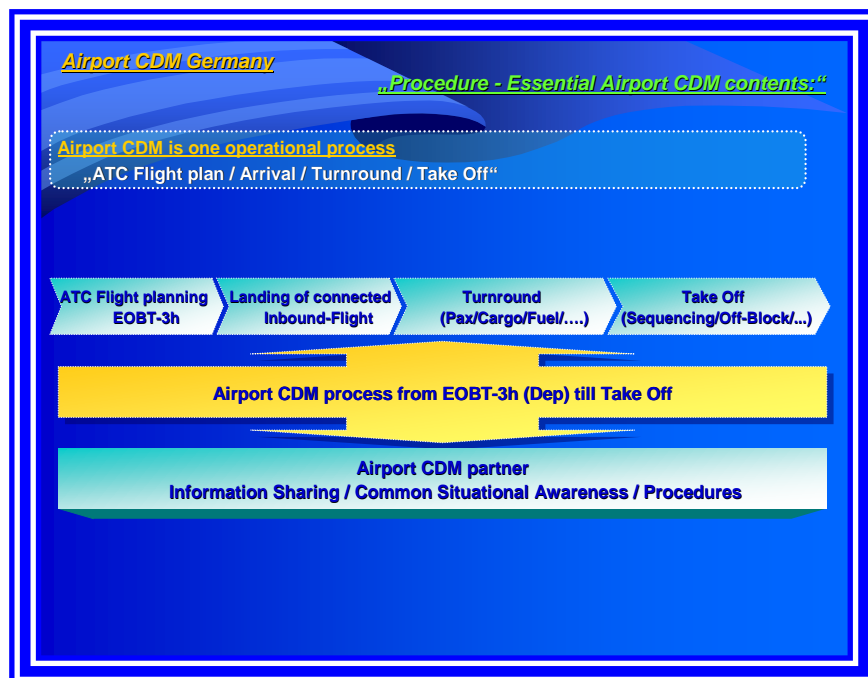
#### 1.5.1 Transparency of the process

Common situational awareness is guaranteed for all partners



#### 1.5.2 Airport CDM is a common operational process

ATC flight plan / landing / turn-round process / take-off



## Airport CDM Munich

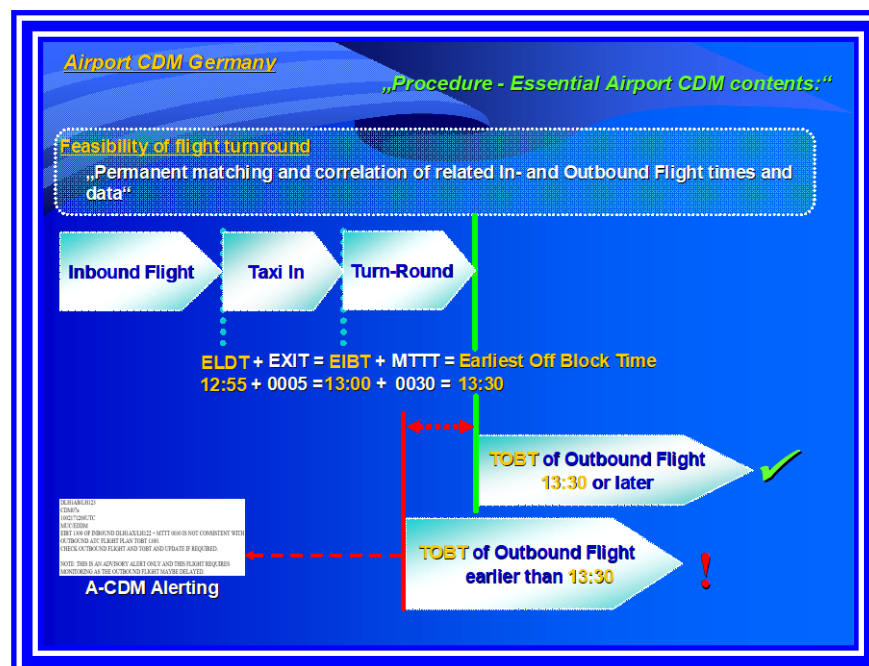
### 1.5.3 Combination of the day of operations and schedule planning

Comparison and adjustment of the ATC flight plan, airport slot and airport flight data



### 1.5.4 Feasibility of the turn-round process

Combination, check and adjustment of linked arrivals and departures

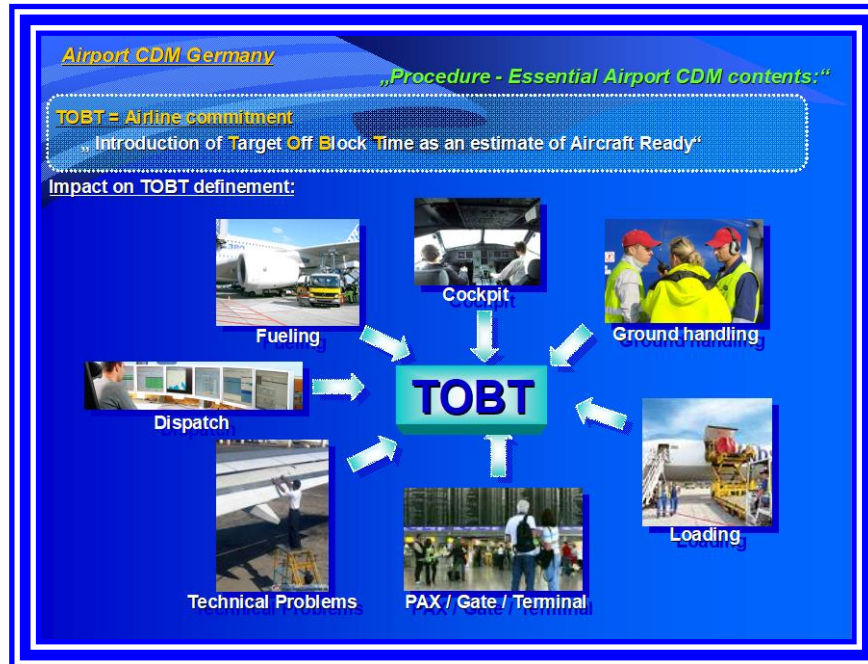




## Airport CDM Munich

### 1.5.5 Usage of Target off Block Time as the target time for „Aircraft Ready“

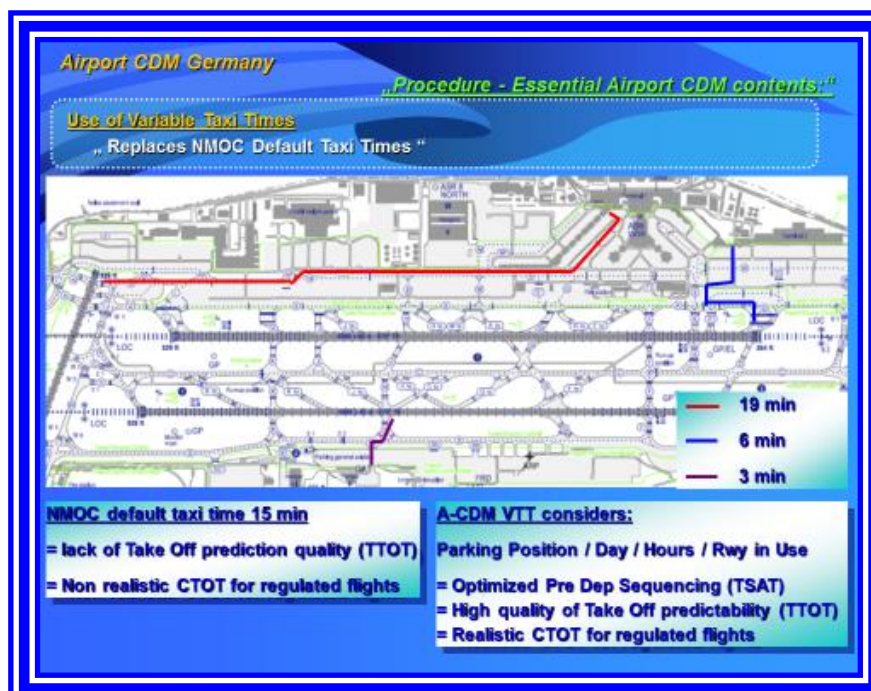
The TOBT is the essential contribution of the airline to the airport CDM process.  
TOBT= Airline commitment



### 1.5.6 Usage of the “Variable Taxi Times”

Calculation of all target times taking into account the parking position, runway in use and actual landing direction as well as the de-icing duration of remote de-icing:

EXOT = Estimated Taxi Out Time

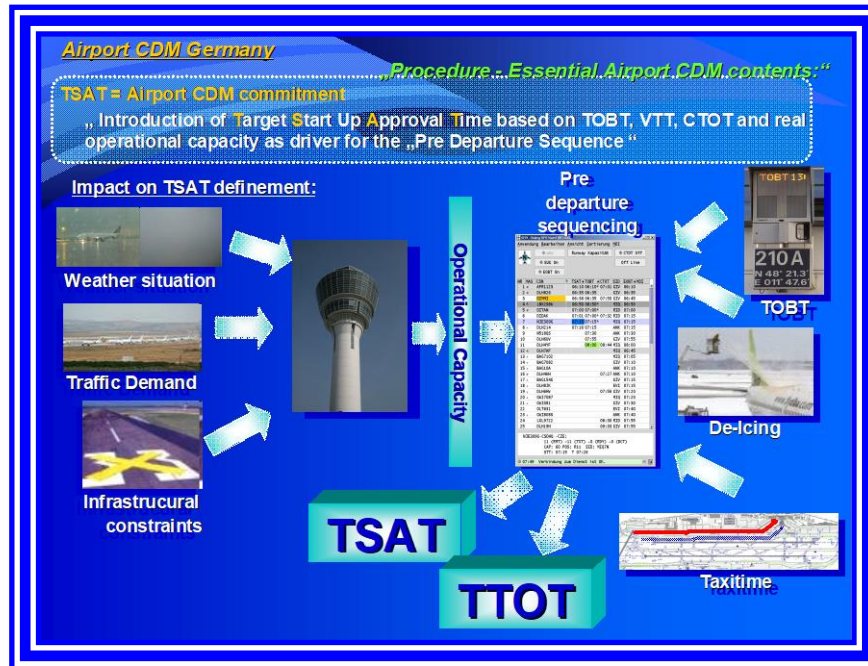


## Airport CDM Munich

### 1.5.7 Introduction of the „Target Start Up Approval Time“

The TSAT resulting from the TOBT, EXOT, CTOT (if regulated) and the actual operational capacity, provides the basis for the pre-departure sequence and the moment at which the start up approval can be expected.

TSAT = Airport CDM commitment



### 1.5.8 Procedure adherence

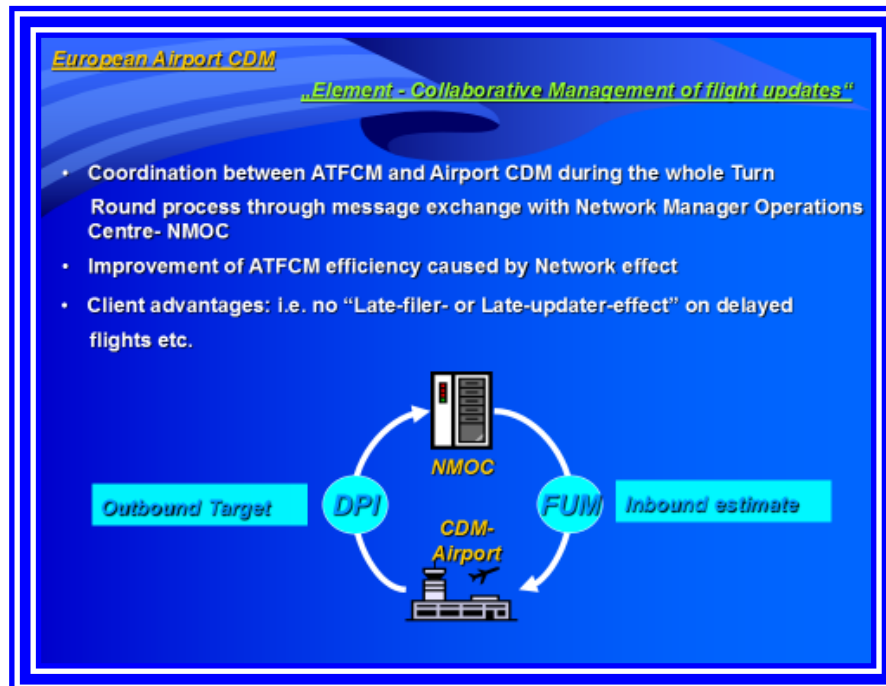
Start up approvals/push back clearances are issued taking into account the TOBT and TSAT.



## Airport CDM Munich

### 1.5.9 „Linking the airport into the network“

High-quality forecasts for inbound and outbound traffic by means of an automated data exchange with European ATFM (NMOC)

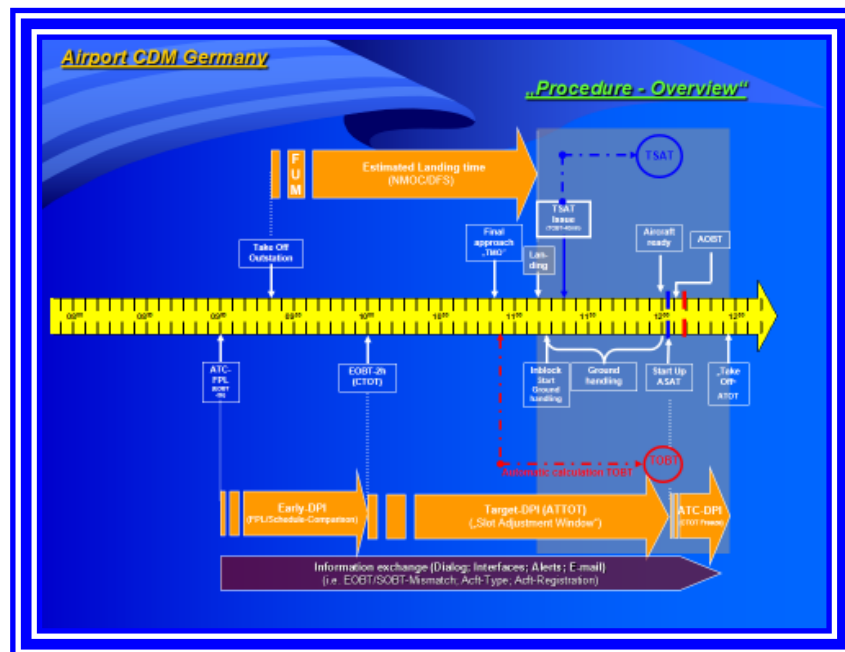


## Airport CDM Munich

### 2. Procedure

#### 2.1. Procedure overview

This chart depicts the scope of the Airport CDM procedure at Munich airport from the time of ATC flight plan activation (EOBT -3h) till take-off. The orange arrows depict the data transfer with the NMOC, the purple arrow shows the exchange of information via interfaces, dialogue systems, e-mail etc. with the relevant aircraft operator and/or handling agent with regard to potential adjustments which may become necessary.



The main aspects of the procedure are sub-divided and described as follows:

- **Correlation of flight information** – section 2.2
- **Target Off Block Time** – section 2.3
- **Target Start Up Approval Time** – section 2.4
- **Aircraft De-icing** – section 2.5
- **Start Up and Push Back** – section 2.6



## Airport CDM Munich

### 2.2. Correlation of flight information

The Airport CDM procedure begins with the transmission of the ATC flight plan to the Airport CDM Portal (airport operator data base).

The ATC flight plan will be correlated with the flight data submitted to the airport as well as with the airport slot (SOBT) included therein. In particular, the focus is on:

- linking inbound and outbound flights
- comparing the airport slot (SOBT) for the outbound flight with the EOBT of the ATC flight plan

This comparison is usually made at the EOBT -3h. If the ATC flight plan is filed at a later stage, the commencement of the Airport CDM procedure is postponed to this time.

#### 2.2.1. Airport Slot discrepancy

If the SOBT deviates from the estimated off-block time (EOBT), the contact person of the airline is advised by the A-CDM alerting to adjust the times accordingly.

#### 2.2.2. Airport slot missing

If no airport slot is available at the time of the expected conduct of the flight, the flight cannot be sequenced and thus not handled or conducted.

#### 2.2.3. Points of contact

The Munich traffic operation centre is in charge of the activities concerning the correlation of flight information:

FMG Traffic Operation Center

Tel.: +49-(0)89-975-21135

vvz@munich-airport.de

Combination of different flight Information  
ATC – Flightplan / Airport flight data information / Airport Slot

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## Airport CDM Munich

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### 2.2.4. Early DPI – data exchange with the NMOC

An early departure planning information message (E-DPI) is generated and transmitted to the NMOC for flight plans validated in accordance with the sections mentioned above (airport slot available).

Flights with an E-DPI are marked in the NMOC system as flights from a CDM airport and are then considered accordingly in further processing (e.g. optimised CTOT allocation in accordance with the local target times).

#### Example of an Early DPI

-TITLE DPI  
-DPISTATUS EARLY  
-ARCID XYZ1234  
-ADEP EDDM  
-ADES LTBA  
-EOBT 1825  
-EOBD 090105  
-TAXITIME 0019  
-TTOT 1844  
-SOBT 1825  
-SID CHIEM4S  
-ARCTYP A320  
-REG ABCDE  
-ORIGIN  
-NETWORKTYPE AFTN  
-FAC EDDMYDYE

Combination of different flight Information  
1. Early DPI toward NMOC

## Airport CDM Munich

### 2.2.5. Target-DPI - data exchange with the NMOC

As a rule, a T-DPI with the status "Target" is generated two hours before the EOBT for all flights for which an E-DPI has been generated. The T-DPI is transmitted to the NMOC in the same way as the E-DPI.

The T-DPI is used to transmit a Target Take-Off Time (TTOT) to the NMOC. The T-DPI opens a so-called "slot adjustment window" within which the CTOT is adjusted to the relevant reported TTOT in the best possible manner.

If the TTOT is changed by five minutes or more, if taxi times are adjusted by three minutes or more or if the departure route, aircraft type or registration is changed, a new T-DPI is generated and transmitted to the NMOC.

Example of a Target DPI:

-TITLE DPI  
-DPISTATUS TARGET  
-ARCID XYZ1234  
-ADEP EDDM  
-ADES LTBA  
-EOBT 1825  
-EOBD 090105  
-TAXITIME 0019  
-TTOT 1844  
-SID CHIEM4S  
-ARCTYP A320  
-REG ABCDE  
-ORIGIN  
-NETWORKTYPE AFTN  
-FAC EDDMYDYE

Combination of different flight Information  
1. Target DPI toward NMOC

## Airport CDM Munich

### 2.2.6. Flight Update Message (FUM) – data exchange with the NMOC

Flight update messages (FUM) are received for flights to Munich Airport (inbound). The following operational events trigger the transmission of an FUM:

- estimated landing time (ELDT) minus 3 hours
- modification of the ELDT by 5 minutes or more (parameter 5-15 minutes)
- changes to the ETFMS status, e.g. suspension of a flight.

The FUM provides an ELDT in advance which allows the system to compare the inbound with the outbound flight plan, i.e. the EIBT with the EOBT.

If the calculated EIBT is later than the EOBT of the linked outbound flight plan, the contact person of the airline is notified accordingly. It is expected that the relevant times (delay message - DLA) or the outbound flight plan (change of aircraft – CHG – or flight plan cancellation – CNL – and new flight plan) will be adjusted in a timely manner.

Furthermore, the ELDT of the FUM has significant effects on:

- optimum gate and position planning as well as further resources planning
- automatic TOBT generation
- further use of resources (e.g. ground handling).

### 2.2.7. Mögliche Airport CDM Alerts

Potential Airport CDM alerts concerning the combination of different flight information described in section 3.5 include:

<u>CDM01</u>	<u>No Airport Slot available, or Slot already correlated</u>
<u>CDM02</u>	<u>SOBT vs. EOBT discrepancy</u>
<u>CDM03</u>	<u>Aircraft Type discrepancy</u>
<u>CDM04</u>	<u>Registration discrepancy</u>
<u>CDM07</u>	<u>EIBT+MTTT Discrepancy with EOBT</u>
<u>CDM08</u>	<u>EOBT Compliance Alert</u>
<u>CDM13</u>	<u>No ATC Flight Plan Available</u>

Details on the Airport CDM alerts are given in section 3.50.





## Airport CDM Munich

### 2.3. Target Off Block Time (TOBT)

The TOBT is the time to be monitored and confirmed by the airline/handling agent at which the ground handling process is concluded, all aircraft doors are closed, all passenger boarding bridges have been removed from the aircraft and thus start up approval and push back/taxi clearance can be received.

All ground handling processes, except for push back and remote de-icing, are based on the TOBT. The TOBT is used as the optimum time for coordination.

TOBT = forecast of "Aircraft ready"

#### 2.3.1. Automatically generated TOBT

The TOBT for the linked outbound flight will be generated automatically 12 minutes prior landing, if the TOBT has not been entered manually before. The earliest time for a manual TOBT input is 90 minutes before EOBT

The earliest time for the publication of the automatically generated TOBT is 70 minutes before TOBT.

The Minimum Turn-round Time (MTTT) is applied when the TOBT is generated. The MTTT is a time which is stored in the airport database and depends on the airline, aircraft type and destination airport.

#### Important dependencies for the automatic initial TOBT generation:

- TOBT = EOBT                                if:  $EIBT + MTTT \leq EOBT$
- TOBT = EIBT + MTTT                    if:  $EIBT + MTTT > EOBT$
- TOBT for flights with a CTOT only:    if: TOBT + EXOT is before or  
inside the Slot Tolerance Window

If the TOBT is not automatically generated, it has to be entered by the person responsible for the TOBT as described in section 2.3.3.

For flights which are not subject to a direct turn-round and which do not park on their outgoing position, the TOBT will be generated automatically at the time of off-block from the preceding position or dependent on the EOBT.

**Target Off Block Time – TOBT  
Definition and automatic generation**

## Airport CDM Munich

### 2.3.2. Person responsible for the TOBT

Airlines have to ensure:

- the nomination of one person responsible for the TOBT
- the communication with the relevant airline OCC (ATC flight plan/person responsible for the EOBT) and
- the coordination of internal working procedures

The person responsible for the TOBT (generally the handling agent), the airline (for flights without handling agent) or the pilot-in-command (for general aviation flights without handling agent) is responsible for the correctness of and the adherence to the TOBT.

A wrong TOBT leads to disadvantages for further sequencing and/or CTOT allocation of regulated flights. Therefore, the TOBT has to be adjusted as early as possible.

### 2.3.3. TOBT input and adjustment

The following facts have 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 can only be corrected three times
- the fourth TOBT change can result in disadvantages for sequencing
- the entered TOBT has to be at least 5 minutes later than the actual time
- new and old TOBT must differ by at least 3 minutes
- the entered TOBT is not allowed to be earlier than 10 minutes before EOBT

As the TOBT is also the basis for further airport processes, adjustments of the TOBT (also if the process is completed more than 3 minutes in advance) are to be entered by the person responsible for the TOBT.

### 2.3.4. Deviations between TOBT and EOBT

If the TOBT deviates from the EOBT of the ATC flight plan by more than 15 minutes, the airline has to initiate an additional delay message (DLA, CHG). The new EOBT has to be based on the last TOBT.

## Airport CDM Munich

### 2.3.5. TOBT deletion

The TOBT has to be deleted, if the TOBT cannot be met and the new TOBT is still unknown (e.g. technical problems with the aircraft).

A flight without TOBT will not be sequenced and is therefore not allowed to depart.

If the TOBT is deleted, the TSAT is automatically deleted as well.

If a new TOBT is known and the process shall continue, the person responsible for the TOBT has to enter a new TOBT.

### 2.3.6. Cancel-DPI – Data exchange with the NMOC

As soon as the TOBT for a flight is deleted, a C-DPI message is transmitted to the NMOC. Thereupon the flight receives a flight suspension message (FLS) until a new DPI (triggered by a new TOBT input) is received.

-TITLE DPI  
-DPISTATUS CNL  
-ARCID XYZ1234  
-ADEP EDDM  
-EOBT 1825  
-EOBD 090105  
-REASON TOTUNKOWN  
-ADES LTBA  
-ORIGIN  
-NETWORKTYPE AFTN  
-FAC EDDMYDYE

### 2.3.7. TOBT in case of a change of aircraft

If the aircraft is changed, a change message (CHG - type/registration) has to be sent and the TOBT remains in effect and is allocated to the new aircraft.

Target Off Block Time – TOBT  
Deletion / Cancel DPI / Change of aircraft



## Airport CDM Munich

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### 2.3.8. TOBT reporting channels

The TOBT is reported or adjusted in one of the following ways:

- Sequence Planner
- internal system of the aircraft operator/ handling agent
- CSA München
- via phone by the airport traffic operation centre (+49-(0)89-975-21135)

#### For general aviation flights:

- at the GAT counter, (+49-(0)89-975-21498); hours of operation Mon–Sun 0540 – 2220] personally or via phone, outside hours of operation contact Airport traffic operation center (+49-(0)89-975-21135) via phone

**Target Off Block Time – TOBT  
Reporting channels**

## Airport CDM Munich

### 2.3.9. TOBT information at the electronic display on position

At the electronic display on position the TOBT (in local time) and the flight number will be shown in turn until TOBT is reached (starting from 40 min. before TOBT). As additional information the remaining minutes until reaching the TOBT will be indicated in the second line (starting from 20 min. before TOBT). One minute after the TOBT has been reached, the TSAT (in UTC) will be displayed.



Target Off Block Time – TOBT  
Display parking position and alerting

### 2.3.10. Potential Airport CDM Alerts

Potential Airport CDM alerts concerning the TOBT:

<u>CDM7a</u>	<u>EIBT+MTTT discrepancy with TOBT</u>
<u>CDM08</u>	<u>EOBT Compliance Alert</u>
<u>CDM10</u>	<u>TOBT Rejected or Deleted</u>
<u>CDM11</u>	<u>Flight not compliant with TOBT/TSAT</u>
<u>CDM14</u>	<u>Automatic TOBT Generation not possible</u>

Details on the Airport CDM alerts are given in section 05.

### 2.3.11. Actual Ready Time (ARDT)

As soon as the ground handling status has reached ARDT, this status has to be reported. Reports can be made through an auto detected condition of the aircraft or by manual input into the CSA.

## Airport CDM Munich

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### 2.4. Target Start Up Approval Time (TSAT)

The TSAT is the point of time calculated by the Airport CDM sequence planning system at which the start up approval can be expected.

The pre-departure sequence is based on the flights with a calculated TSAT.

#### 2.4.1. Publication of the TSAT

The TSAT is published 40 minutes prior to the valid TOBT.

After TSAT has been published, the TOBT can only be corrected another three times to ensure a stable sequence and CTOT allocation. As a rule, the TSAT remains in effect if the TOBT is changed, unless the new TOBT is later than the calculated TSAT.

The calculation of the TSAT is based on the following factors:

- TOBT
- CTOT (for regulated flights)
- Operational capacity at the airport
- Minimum Departure Intervall (MDI)
- Variable taxitime
- Parking position
- Runway in use
- Landing direction
- Aircraft de-icing (only remote-de-icing)

Target Start Up Approval Time – TSAT  
Definition and calculation

## Airport CDM Munich

### 2.4.2. TSAT reporting channels

The TSAT is acknowledged via the same reporting channels as the TOBT:

- Sequence Planner
- internal system of the airline operator/handling agent
- FMG information system (Universal Display Station (UDS))
- by telephone via the FMG traffic operation centre
- Common Situational Awareness (CSA) Tool

#### For general aviation flights:

- At the counter of the general aviation terminal, either in person or by telephone, outside the opening hours of the counter by telephone at the FMG traffic operation centre.
- FMG information system (Universal Display Station - UDS)
- Common Situational Awareness (CSA) Tool
- Sequence Planner

TSAT or changes of the TSAT will be reported by the person responsible for the TOBT to the flight crew/pilot.

**Target Start Up Approval Time – TSAT  
Reporting channels and changes**

## Airport CDM Munich

**2.4.3. Target-DPI „Sequenced“ – data exchange with the NMOC**

When the TSAT is generated, a T-DPI message with the status "Sequenced" is transmitted to the NMOC for unregulated flights (flights without a CTOT).

Flights, for which a T-DPI message with the status "sequenced" has been transmitted, have a particular status within the CFMU system.

The status "Target" (section 2.2.5) remains in effect for regulated flights. However, a T-DPI "Sequenced" can be manually generated by the control tower later on; otherwise the T-DPI Sequenced for regulated flights is issued at the actual start up time (ASAT).

The transmission of a "Ready" message is no longer required for regulated flights with the T-DPI "Sequenced" (an additional T-DPI can be generated manually if necessary).

The CTOT is adjusted to the local TTOT in the best possible manner.

If the TTOT is changed by five minutes or more, if taxi times are adjusted by three minutes or more or if the SID, aircraft type or registration is changed, a new T-DPI is generated and transmitted to the NMOC.

Example of the target DPI (status sequenced):

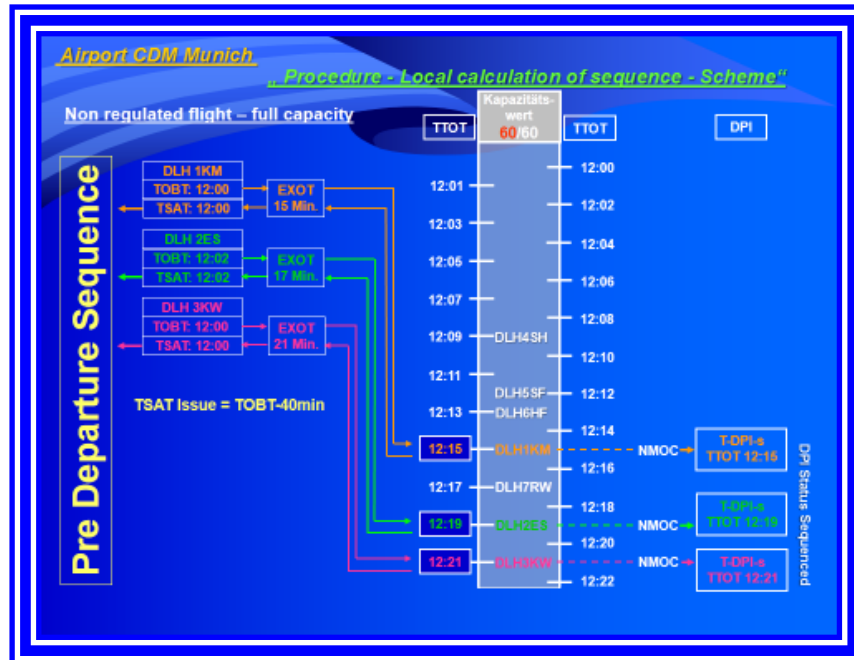
**-TITLE DPI**  
**-DPISTATUS SEQ**  
**-ARCID XYZ1234**  
**-ADEP EDDM**  
**-ADES LTBA**  
**-EOBT 1825**  
**-EOBD 090105**  
**-TAXITIME 0019**  
**-TTOT 1844**  
**-SID CHIEM4S**  
**-ARCTYP A320**  
**-REG ABCDE**  
**-ORIGIN**  
**-NETWORKTYPE AFTN**  
**-FAC EDDMYDYE**

Target Start Up Approval Time – TSAT  
Target DPI “Sequenced” towards NMOC



## Airport CDM Munich

### 2.4.4. Example of TSAT and DPI generation



Target Start Up Approval Time – TSAT  
Example of Pre Departure Sequencing / change / adverse situations / alerting

### 2.4.5. Changes within the sequence

After the TSAT has been calculated, flights within the area of responsibility of a person responsible for the TOBT can be switched. As there are special restrictions in connection with swapping flights, the possible flights to be swapped will be indicated in the CSA Tool. If one of the flights has a TSAT which is less than 15 min. in the future, the swap has to be confirmed and executed by DFS Tower.

### 2.4.6. TOBT and TSAT handling in extreme situations

If the TOBT and the TSAT deviate from each other by more than 90 minutes, the ground handling process has to be completed before the TOBT. This does not apply to passenger boarding. Passenger boarding has to be completed at TSAT -60 minutes at the latest.

### 2.4.7. Potential Airport CDM Alerts

Potential Airport CDM alerts concerning the TSAT include:

CDM11 Flight not compliant with TOBT/TSAT

Details on the Airport CDM alerts are given in section 3.5.

## Airport CDM Munich

**2.5. De-icing**

De-icing should be requested as early as possible.

**2.5.1. De-icing on position**

In the case of an apron de-icing, the aircraft has to be ready for de-icing at TOBT. It must have been de-iced at TSAT. Information on possible delays shall be obtained from MÜNCHEN DELIVERY before starting the de-icing procedure.

**2.5.2. Remote de-icing**

Aircraft de-icing times don't have to be considered for the calculation of the TOBT, because de-icing request, estimated de-icing time and de-icing capacity will be included in the calculation of the TSAT. In case of de-icing the DPI message to the NMOC will contain the additional status "De-Icing".

Example of a Target DPI „sequenced“ with de-icing status:

-TITLE DPI  
-DPISTATUS SEQ  
-ARCID XYZ1234  
-ADEP EDDM  
-ADES LTBA  
-EOBT 1825  
-EOBD 090105  
-TAXITIME 0019  
-TTOT 1844  
-SID CHIEM4S  
-ARCTYP A320  
-REG ABCDE  
-DEPSTATUS DEICING  
-ORIGIN  
-NETWORKTYPE AFTN  
-FAC EDDMYDYE

## Airport CDM Munich

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### 2.6. Start Up and Push Back

Start up (ASAT) and push back (AOBT) clearances are issued taking into account the TOBT and TSAT. The following rules shall apply:

- The aircraft has to be ready for start up and/or on-stand de-icing at TOBT.
- in principle the timeframe for start up approval and en-route clearance is TSAT +/- 5 minutes.
  - The pilot should request start up approval and en-route clearance TSAT +/- 5 minutes.
  - Clearance Delivery issues the start up approval and en-route clearance depending on TSAT and the current traffic situation.
- The push back/taxi clearance has to be requested not later than 5 minutes after the start up approval has been issued.
- In case of delays Clearance Delivery has to be informed. Otherwise the TOBT will be deleted and has to be re-entered.
- If there are any significant changes to the TSAT, the pilot will be informed accordingly by the airline/handling agent. In case of general aviation flights, this task will be performed by Clearance Delivery.

Start Up and Push Back

## Airport CDM Munich

### 2.6.1. Data link Clearance - DCL

The published procedures and the time parameters published in the AIP AD 2 EDDM continue to apply to data link departure clearances (DCL).

The TSAT is transmitted via CLD (departure clearance uplink message – issue of the start up approval and en-route clearance by Clearance Delivery).

**„Start Up approved TSAT <hh:mm>“**

The push back/taxi clearance has to be requested at TSAT +/-5 minutes.

Example:

Airport CDM Germany

„Datalink Departure Clearance“

DCL including Start Up approval and en route clearance	DCL only with en route clearance
QU QXSXMXS .MUCDFYA 110454 CLD AN D-AHEX/MA 767A - /MUCDFYA.DCL/CLD 0454 070311 EDDM PDC 001 HLF111 CLRD TO LPFR OFF 26L VIA AMPEG1S SQUAWK 3553 ADT MDI NEXT FREQ 121.775 AT IS D STARTUP APPROVED TSAT 05:00	QU QXSXMXS .MUCDFYA 110818 CLD AN D-ACPQ/MA 891A - /MUCDFYA.DCL/CLD 0818 070311 EDDM PDC 001 DLH06M CLRD TO LFBO OFF 08R VIA AMPEG1E SQUAWK 3545 ADT MDI NEXT FREQ 121.725 AT IS J STANDBY ON 121.725 FOR STARTUP TSAT 08:30

Start Up and Push Back  
Datalink Departure Clearance – DCL - / Remote Holding

### 2.6.2. Remote Holding

Remote holding can be requested via the TOBT reporting channels if the TOBT is at least 30 minutes before the CTOT.

## Airport CDM Munich

### 2.6.3. ATC-DPI (A-DPI) – data exchange with the NMOC

At the Actual Off-Block Time an A-DPI will be sent to NMOC. The “slot adjustment window” will be closed and the CTOT can no longer be changed automatically by the NMOC. For remote holding flights the A-DPI will not be sent until CTOT-10 minutes.

#### Example ATC DPI

-TITLE DPI  
-DPISTATUS ATC  
-ARCID XYZ1234  
-ADEP EDDM  
-ADES LTBA  
-EOBT 1825  
-EOBD 090105  
-TAXITIME 0019  
-TTOT 1844  
-SID CHIEM4S  
-ARCTYP A320  
-REG ABCDE  
-ORIGIN  
-NETWORTYPE AFTN  
-FAC EDDMYDYE

Start Up and Push Back  
1. ATC DPI towards NMOC

### 3. Common Situational Awareness / Information Sharing

Transparency for all partners involved is the basis for conducting the Airport CDM process. IT interfaces, dialogue systems, alert messages, data exchange with the NMOC, telephone coordination etc. ensure common situational awareness.

## Airport CDM Munich

### 3.1. Sequence Planner

Work with the Sequence Planner:

- Supervisor TWR (DFS)
- Clearance Delivery (DFS)
- Airport traffic operation center (FMG)

Example for view of the Sequence Planner:

The screenshot displays the Sequence Planner interface for RWY Cap. 15 and RWY Cap. 50 at 07:46 UTC. The interface shows two side-by-side tables of flight data. The left table is for RWY Cap. 15 and the right table is for RWY Cap. 50. Both tables have columns for No, FS, CSN, \* TSAT, TOBT, CTOT, SID, POS, and EORT. The data is sorted by TOBT. The interface also includes search filters, tabs for CAT I, TTEX, ICE/FOG, and TTOT, and a status bar at the bottom indicating 'No Flight selected' and 'Connection established'.

No	FS	CSN	* TSAT	TOBT	CTOT	SID	POS	EORT
4	* P	DAL131	07:40	07:40*		MERS12E	110	07:55
5	-	LOT30V	07:50	07:50*		BTBAG1E	262N	07:50
6	-	DLHGCJ	07:50	07:50*		TURBUSE	344N	07:50
7	* P	DLHGVV	07:56	07:55*		KIR011E	219B	07:55
8	* P	BER7346	07:58	07:55*		MERS12E	111B	07:55
9	* P	BER227G	07:58	07:55*		TURBUSE	105	07:55
10	> P	DLH6MF	08:06	07:55*		VAWOR2E	218	07:55
11	-	DLH66M	08:06	08:00*		MERS12E	346N	08:00
12	* P	DLH6HR	08:16	08:05*		KIR011E	322W	08:05
13	*	DLH736	08:16	08:10*		VAWOR2E	341N	08:10
14	* P	DLH742	08:16	08:10*		KIR011E	345N	08:10
15	o P	DLH6MK	08:26	08:15*		VAWOR2E	202B	08:15
16	o	DLH6RV	08:26	08:15*		KPT1P	347N	08:15
17	o	DLH63X	08:36	08:15*		KIR011E	348N	08:15
18	o P	DLHALT	08:36	08:15*		KPT2E	343N	08:15
19	o	DLA18B	08:36	08:15*		TURBUSE	342N	08:15
20	* P	DLH6DN	08:46	08:15*		KIR011E	255	08:15
21	* P	DLH68B	08:46	08:15*		KIR011E	205B	08:15
22	* P	DLH676	08:56	08:25*		TURBUSE	216	08:25
23	* P	SXD817	08:58	08:20*		VAWOR2E	151	08:20
24	P	GHT3818	08:58	08:25*		MERS12E	120	08:25
25	*	LOT368	09:06	08:25*		BTBAG1E	261N	08:25
26		OECH	08:30*			KPT1P	R10	08:30
27	* P	CFG512	08:30*			MERS12E	115A	08:30
28	P	SRL796	08:30*			BTBAG1E	109B	08:30
29	P	DLH5YA	08:35*			VAWOR2E	254	08:35
30	P	SMB1101	08:40*			KPT1P	232	08:40
31		NUE788C	08:55*			TURBUSE	R8	08:55
32	P	AFL2321				BTBAG1E	111A	09:00
33	P	TUI6682				VAWOR2E	153	09:10
34	P	CFG972				MERS12E	104	09:10

### 3.2. CSA München

The complete sequence can be monitored in a browser of the CSA München.

The CSA München is available at Munich airport (Ground Handling Agent) or remote (Airline OCC).

Depending on the access permission the user has the possibility to get detailed flight information to assigned flights, to put in or change TOBTs and to apply for remote holding or company priority.

AO/GH can request access to the CSA München free of cost.

## Airport CDM Munich

Example for view of CSA München:

Alert	Status	Flight	Callsign	REG	SOBT	EOBT	TOBT	TSAT	CTOT	POS	ICE	RWY	ARDT	Swap	Prio	RH
	P	LH 2016	DLH4EE	DACNU	10:50	10:50	10:50 (3)	10:50		234		26L	10:43			
		ABP 921	ABP921	OKVPI	11:00	11:00	11:00 (3)	11:00		803B		26L				
		NJE 928	NJE928G	CSPHE	11:00	11:00	11:00 (3)	11:00		804D		26L				
	* P	LH 452	DLH452	DAIXB	11:15	11:15	11:15 (3)	11:15		289B		26L				
		P PC 1020	PGT52U	TCCPH	11:20	11:20				330		26L				
		P LH 1812	DLH97X	DACNB	11:45	11:45	11:45			224A		26L				
		B2 900	BRU900	531PO	12:15	12:15				329		26L				
		P TU 745	TAR745	TSION	12:15	12:15				220B		26L				
		P SU 2323	AFL2323	VQBWR	12:35	12:35				217B		26L				
		P TK 7739	THY9RK	TCJFR	12:45	12:45				215A		26L				
		P EK 050	UAE50	AGEPC	13:30	13:30				222A		26L				
		PS 416	AUI6RL	UREME	13:45	13:45				344N		26L				

### 3.3. UDS page

UDS page 167 displays information on the Airport CDM procedure for all people involved. Important information (e.g. runway closures) is given in the bottom line.

Sequence	Flight	SOBT	TSAT	POS	ICE	Runway	Date	Time	Page number
08L/26R						08L/26R	05.02.05	05:34	167
* LH 5204	0800	0802	188E			08R/26L			
* OK 567	0750	0808	170E			08R/26L			
o KL 3980	0725	0815	904N			08R/26L			
o SW661	0730	0827	H10			08R/26L			
* LH 851	0800	0838	144			08R/26L			
* LH 569	0800	0845	204E			08R/26L			
o DIMEK	0800	0851	H11			08R/26L			
o CSNMR	0800	0857	R10			08R/26L			
o DIBDA	0800	0904	H11			08R/26L			
* LH 1047	0805	0905	104			08R/26L			
* DE 2188	0750	0914	113B			08R/26L			
* LH 838	0805	0926	102			08R/26L			
o LH 897	0805	0932	142			08R/26L			
* LH 1510	0805	0939	205E			08R/26L			
o LH 2121	0805	0945	204E			08R/26L			
LH 5950	0805	0950	175E			08R/26L			
* EAE 402	0815	182E				08R/26L			
* DL 2642	0830	904S				08R/26L			

The template is divided into a North (08L/26R) and South (08R/26L) runway. In the case of flights planned for remote holding, the TSAT information is displayed in reverse mode.

## Airport CDM Munich

### 3.4. Display system of the NMOC

Information on the Airport CDM data exchange with the NMOC can be obtained in the different display options via the available NMOC applications (HMI).

Access to the NMOC applications can be requested from Eurocontrol online:

[www.eurocontrol.int/cfm](http://www.eurocontrol.int/cfm)

#### 3.4.1. NMOC HMI flight list

The flight list contains information on:

- TTOT
- transmitted DPI type
- IFPS inconsistencies
- EOBT inconsistencies
- „Ready status“

**Airport CDM Germany**  
**„Eurocontrol CHMI – Flight list“**

AD EDDM D Flight List at 30-10:37 / ATFCM

TTC Type: Traffic Load | Where: Aerodrome | Is: EDDM | PMP: | AO: | CAC: | Dep: | Arr: |

Legend:  
 10:00e = Early DPI  
 10:00t = Target DPI Target  
 10:00s = Target DPI Sequenced  
 10:00a = ATC DPI  
 c = Cancel DPI (TTOT unknown)

IFPS Discrepancy in red (Acr Typ/Registration)

Ready status due to T-DPI s

FLIGHT	STA	ARCID	ATYP	ADSP	ADSR	D	T	APF	IOBT	E/C/UT	X	F	S	H	A/TTOT	DPI	REG	Y	STG		
10:254	EDL	EDL	A	370	09:40				10:19C	C	I					10:19A	N	SPR	LEVY30	Y	370
10:264	EDL	EDL	A	370	09:40				10:19C	C	I					10:19A	N	SPR	LEVY30	Y	370
10:264	EDL	EDL	A	370	09:55				10:21C	C	I					10:20A	N	SPR	LEVY30	Y	370
10:264	EDL	EDL	A	370	09:45				10:19C	C	I					10:19A	N	SPR	LEVY30	Y	370
10:264	EDL	EDL	A	360	09:40				10:20C	C	I					10:19A	N	SPR	LEVY30	Y	370
10:304	EDL	EDL	A	240	10:15				10:13E	C	I					10:13A	N	SPR	LEVY30	Y	370
10:314	EDL	EDL	A	240	10:10				10:13C	C	I					10:11A	N	SPR	LEVY30	Y	370
10:314	EDL	EDL	A	360	09:55				10:14C	C	I					10:13A	N	SPR	LEVY30	Y	370
10:334	EDL	EDL	A	360	10:20				10:16C	C	I					10:15A	N	SPR	LEVY30	Y	370
10:354	EDL	EDL	A	360	09:30				10:12C	C	I					10:11A	N	SPR	LEVY30	Y	370
10:364	EDL	EDL	A	360	10:00				10:14C	C	I					10:13A	N	SPR	LEVY30	Y	370
10:374	EDL	EDL	A	360	10:10				10:17E	N	I					10:16E	N	SPR	LEVY30	Y	370
10:384	EDL	EDL	A	410	10:10				10:19C	C	I					10:18A	N	SPR	LEVY30	Y	370
10:384	EDL	EDL	A	260	10:10				10:16E	N	I					10:15A	N	SPR	LEVY30	Y	370
10:394	EDL	EDL	A	360	10:25				10:19E	N	I					10:18E	N	SPR	LEVY30	Y	370
10:424	EDL	EDL	A	360	09:50				10:14C	C	I					10:13A	N	SPR	LEVY30	Y	370
10:464	EDL	EDL	A	360	10:00				10:14C	C	I					10:13A	N	SPR	LEVY30	Y	370
10:484	EDL	EDL	A	360	10:00				10:14C	C	I					10:13A	N	SPR	LEVY30	Y	370
10:544	EDL	EDL	A	360	10:00				10:14C	C	I					10:13A	N	SPR	LEVY30	Y	370
10:564	EDL	EDL	A	360	10:00				10:14C	C	I					10:13A	N	SPR	LEVY30	Y	370
11:02C	EDL	EDL	A	360	10:00				11:02C	N	R					11:01C	N	SPR	LEVY30	Y	370
11:09C	EDL	EDL	A	360	10:00				11:09C	N	R					11:08C	N	SPR	LEVY30	Y	370
11:11C	EDL	EDL	A	360	10:00				11:11C	N	R					11:10C	N	SPR	LEVY30	Y	370
11:144	EDL	EDL	A	360	10:00				11:144	N	R					11:134	N	SPR	LEVY30	Y	370
11:15C	EDL	EDL	A	360	10:00				11:15C	N	R					11:14C	N	SPR	LEVY30	Y	370
11:164	EDL	EDL	A	360	10:00				11:164	N	R					11:154	N	SPR	LEVY30	Y	370
11:174	EDL	EDL	A	360	10:00				11:174	N	R					11:164	N	SPR	LEVY30	Y	370
11:18C	EDL	EDL	A	360	10:00				11:18C	N	R					11:17C	N	SPR	LEVY30	Y	370
11:20C	EDL	EDL	A	360	10:00				11:20C	N	R					11:19C	N	SPR	LEVY30	Y	370
11:20E	EDL	EDL	A	360	10:00				11:20E	N	R					11:19E	N	SPR	LEVY30	Y	370



## Airport CDM Munich

### 3.4.2. NMOC HMI flight data

Details on the Airport CDM data exchange are given for selecting individual flights from "Flight Data" (directly or from the flight list).

**AC SDM258 Flight Data at 30-10:45 / ATFCM**

AO: SDM, Aircraft Type: A319, Registration Mark: D-BRSWY, CECPT: D-BRSWY  
 Initial RPL: 370, RVR

**Time**  
 Last EOBT: 30-10:10, Prop CTOT, Resp By, Flight Type: IFPL, Late Filer: N  
 ETOT: 10:23, EET: 137, ETA: 12:39, Exempt Flight: N, Late Updater: N  
 CTOT: 11:15, Taxi: 13, CTA: 13:31, RFI: Y, TIS: 5  
 ATOT, Actual Taxi: 13, ATA, REA: Y, TRS: 20

**Airport**  
 Status: Targeted, AO Target: TOT: 10:23, TW: [11:10, 11:25]  
 SID: EGGS, Aircraft Type: A319, Registration Mark: VQBAG (1)  
 No Slot Before: 10:2

**Route**  
 NO455F370 EG NN71 DOKEL UP733 KMI UN34 GOMED RB01 RUSNE UN99 B40S1110 B170 KE

**Regulation**  
 RLS Resp By, RRP Resp By, Slot To V, Regulation, FCM, Ref Location  
 EFT30, AS EFWPT  
 EFD30, AS EFWPT

Delay: 52

Flight Data query finished with success

### 3.4.3. NMOC HMI operational log

All exchanged (transmitted and received) messages can be retraced in the "operational log" option of selected flights.

**AC DAL903 Operational Log at 30-10:51 / ATFCM**

From: Thu 29 Jul 2010 00:00, To: 00:00  
 Until: Sat 31 Jul 2010 00:00

T	Message	Log Type
A	30-05:21:43	IN FFS
A	30-07:00:00	IN DFI
A	30-07:40:03	IN DFI
A	30-08:13:39	IN SWR
A	30-09:54:18	IN DFI
A	30-09:54:18	IN SID_INFO_CHANGE
A	30-09:54:18	IN SWR
A	30-10:09:07	IN DFI
A	30-10:20:07	IN DFI
A	30-10:20:25	IN FSA
A	30-10:25	IN NEW_PREDICTION
A	30-10:25	IN AIRBORNE_RESUL_CHANGE
A	30-10:31:56	IN DFI
A	30-10:31:56	IN REPORT_DISCARDED
A	30-10:31:41	IN FSA
A	30-10:33:02	IN NEW_PREDICTION
A	30-10:36:02	IN NEW_PREDICTION
A	30-10:39:02	IN NEW_PREDICTION

FACT\_ID: 002, Correspondent: EDDMYDVE @BAFR  
 RFS\_ID: 002, ORLOG\_ID:

Received from: EDDMYDVE (BAFTN, Est. Xmit at: 10/07/30 06:40:00. Message description: -TITLE DPI  
 -DTG: 0730 03 EARLY  
 -ARCD: DAL903  
 -ADFP: EDDM  
 -ADES: KIAD  
 -SOBT: 0940  
 -EBRD: 100730  
 -TAXI TIME: 0013  
 -TTOT: 0953  
 -SOBT: 0940  
 -SID: MIQSS  
 -ARCTYP: B772  
 -REG: N751DA  
 -ORIG: EDDMYDVE

Flight Operational Log query finished with success



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## Airport CDM Munich

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### 3.5. Airport CDM alerting

Due to European harmonisation/standardisation, Airport CDM alerts bear the same code all over Europe. A further harmonisation of the A-CDM alerts via the "Initiative on the German harmonisation of Airport CDM" takes place to reach a common alerting procedure all over Germany.

#### 3.5.1. Contact address and information

In order to receive Airport CDM alert messages, all airlines/handling agents have to provide a valid contact address (e-mail) for the FMG:

- **airport-cdm@munich-airport.de**
- **Tel. +49-(0)89-975-21160**

It is also possible to provide several contact addresses for one airline (e.g. referring to a specific alert), if necessary.

In order to ensure optimal process handling and sequencing, it is highly recommended to provide this address (or several addresses) as well as information on necessary changes.

This does not apply to general aviation flights without handling agents because the messages from the Airport CDM procedure are transmitted to the counter of the general aviation terminal (GAT).

#### 3.5.2. Airport CDM alert messages

##### **CDM01 "No Airport Slot available, or Slot already correlated"**

*DLH1AB/LH123*

*CDM01*

*1002171200UTC*

*MUC/EDDM*

*AIRPORT SLOT SOBT 1200 UTC NOT AVAILABLE OR SLOT ALREADY CORRELATED.*

*IMMEDIATE UPDATE OF ATC FLIGHT PLAN EOBT 1100 OR REQUEST NEW AIRPORT SLOT.*

*NOTE: THE AIRPORT CDM PROCESS WILL BE SUSPENDED UNTIL RECEPTION OF YOUR RECTIFICATION.*



## Airport CDM Munich

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### **CDM02**      **“SOBT vs. EOBT discrepancy”**

*DLH1AB/LH123*

*CDM02*

*1002171200UTC*

*MUC/EDDM*

*ATC FLIGHT PLAN EOBT 1200 IS NOT CONSISTENT WITH AIRPORT SLOT SOBT 1100 UTC.*

*IMMEDIATE UPDATE OF AIRPORT SLOT OR ATC FLIGHT PLAN EOBT NEEDED.*

### **CDM03**      **“Aircraft Type discrepancy”**

*DLH1AB/LH123*

*CDM03*

*1002171200UTC*

*MUC/EDDM*

*AIRCRAFT TYPE INCONSISTENCY BETWEEN ATC FLIGHT PLAN <ARCTYP> AND AIRPORT DATABASE <TYP>.*

*IMMEDIATE UPDATE OF ATC FLIGHT PLAN OR AIRPORT DATABASE NEEDED.*

### **CDM04**      **“Aircraft Registration discrepancy”**

*DLH1AB/LH123*

*CDM04*

*1002171200UTC*

*MUC/EDDM*

*AIRCRAFT REGISTRATION INCONSISTENCY BETWEEN ATC FLIGHT PLAN <REG> AND AIRPORT DATABASE <REG>.*

*IMMEDIATE UPDATE OF ATC FLIGHT PLAN OR AIRPORT DATABASE NEEDED.*

### **CDM05**      **“First Destination discrepancy”**

*DLH1AB/LH123*

*CDM05*

*1002171200UTC*

*MUC/EDDM*

*DESTINATION INCONSISTENCY BETWEEN ATC FLIGHT PLAN <ADES> AND AIRPORT DATABASE <DEST>.*



## Airport CDM Munich

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*IMMEDIATE UPDATE OF ATC FLIGHT PLAN OR AIRPORT DATABASE NEEDED.*

*PLEASE CLARIFY WITH AIRPORT TRAFFIC OPERATION CENTER TEL: +49-(0)89-975-21135.*

### **CDM07 “EIBT + MTTT discrepancy with EOBT”**

*DLH1AB/LH123*

*CDM07*

*1002171200UTC*

*MUC/EDDM*

*EIBT 1300 OF INBOUND DLH1AX/LH122 + MTTT 0030 IS NOT CONSISTENT WITH OUTBOUND ATC FLIGHT PLAN EOBT 1300.*

*CHECK OUTBOUND FLIGHT AND ATC FLIGHT PLAN AND UPDATE IF REQUIRED.*

*NOTE: THIS IS AN ADVISORY ALERT ONLY AND THIS FLIGHT REQUIRES MONITORING AS THE OUTBOUND FLIGHT MAYBE DELAYED.*

### **CDM07a “EIBT + MTTT discrepancy with TOBT”**

*DLH1AB/LH123*

*CDM07a*

*1002171200UTC*

*MUC/EDDM*

*EIBT 1300 OF INBOUND DLH1AX/LH122 + MTTT 0030 IS NOT CONSISTENT WITH OUTBOUND TOBT 1300.*

*CHECK OUTBOUND FLIGHT AND TOBT AND UPDATE IF REQUIRED.*

*NOTE: THIS IS AN ADVISORY ALERT ONLY AND THIS FLIGHT REQUIRES MONITORING AS THE OUTBOUND FLIGHT MAYBE DELAYED.*

### **CDM08 “EOBT Compliance Alert”**

*DLH1AB/LH123*

*CDM08*

*1002171200UTC*

*MUC/EDDM*

*RECEIVED TOBT 1300 IS OUT OF ATC FLIGHT PLAN EOBT 1230 TOLERANCE*

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## Airport CDM Munich

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*WINDOW. IMMEDIATE UPDATE OF ATC FLIGHT PLAN EOBT NEEDED.*

*NOTE: TOBT SHOULD NOT BE EARLIER THAN 10 MIN. BEFORE EOBT AND NOT LATER THAN 15 MINUTES AFTER EOBT.*

### **CDM09 “Boarding Not Started”**

*DLH1AB/LH123*

*CDM09*

*1002171200UTC*

*MUC/EDDM*

*AT TOBT 1300 - <MM\*> MINUTES BOARDING WAS NOT INITIATED.*

*UPDATE TOBT IF NEEDED.*

\* MM = Remote position: 20 min.

Terminal position: 10 min.

### **CDM10 “TOBT Rejected or Deleted”**

*DLH1AB/LH123*

*CDM10*

*1002171200UTC*

*MUC/EDDM*

*TOBT 1300 WAS REJECTED OR DELETED.*

*NEW TOBT REQUIRED.*

*NOTE: THE AIRPORT CDM PROCESS IS SUSPENDED UNTIL RECEPTION OF YOUR RECTIFICATION.*

### **CDM11 “Flight not compliant with TOBT/TSAT”**

*DLH1AB/LH123*

*CDM11*

*1002171200UTC*

*MUC/EDDM*

*FLIGHT NOT COMPLIANT WITH TOBT 1300/TSAT 1300. THIS FLIGHT WILL BE RE-SEQUENCED ON RECEIPT OF NEW TOBT.*

*NOTE: THE AIRPORT CDM PROCESS MAY BE SUSPENDED UNTIL*



## Airport CDM Munich

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*RECEPTION OF YOUR NEW TOBT.*

### **CDM13 “No ATC Flight Plan Available”**

*NO ARCID/LH123*

*CDM13*

*1002171200UTC*

*MUC/EDDM*

*THE ATC FLIGHT PLAN IS NOT AVAILABLE.*

*SUBMISSION OF NEW ATC FLIGHT PLAN NEEDED.*

*NOTE: ATC FPL <ARCID> HAS BEEN CANCELLED AND THE AIRPORT CDM PROCESS IS SUSPENDED.*

### **CDM14 “Automatic TOBT Generation not possible”**

*DLH1AB/LH123*

*CDM14*

*1002171200UTC*

*MUC/EDDM*

*THE TOBT COULD NOT BE AUTOMATICALLY GENERATED BECAUSE IT DOES NOT MATCH WITH THE ASSOCIATED CTOT 1330.*

*MANUAL INPUT OF TOBT REQUIRED.*

*NOTE: THE AIRPORT CDM PROCESS IS SUSPENDED UNTIL RECEPTION OF YOUR RECTIFICATION.*



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## Airport CDM Munich

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### 4. Publication

#### 4.1. Aeronautical Information Publication (AIP)

The Airport CDM procedure at Munich Airport is published in the German Aeronautical Information Publication, volume II, AD2-EDDM, AD 2.20 "Local Traffic Regulations".

#### 4.2. Airport User Regulations (FBO)

The Airport CDM procedure at Munich Airport will be published in the airport user regulations FBO, section 2.1.6.

### 5. Persons in charge of the process/points of contact

#### **For questions concerning the procedure:**

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#### **For questions concerning the IT:**

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