

SUBJECT : Pre-Departure Sequencing Description of Departure operational procedure for PARIS CHARLES DE GAULLE airport

1 Definitions

A-CDM (Airport-Collaborative Decision Making) is a calculation and management system for an off block predeparture sequence linked to CFMU. At CDG airport, A-CDM is called CPDS (Collaborative Predeparture Sequence).

SOBT (Scheduled Off Block Time) is that time relating to airport slot.

ED (Estimated Departure) is that target time set by airline itself as off-block departure time.

TOBT is translation by CPDS of ED.

TSAT (Target Start-up Approval Time) is off-block departure approved time, calculated by A-CDM system.

2 General Information

Airport-**CDM** is about partners (airport operators, aircraft operators/ground handlers and ATC) working together more efficiently and transparently in how they work and share data.

Airport-**CDM** is implemented in CDG airport environment through the introduction of the following operational procedures and automated processes relative to Collaborative PreDeparture Sequence (CPDS).

CPDS makes continuous calculation for best off-block departure sequence, providing for each flight an off-block departure time based on **TOBT**.

TOBT improves predictability during the turn-round process of aircraft. With Variable Taxi Time in place, the link between off-block time and take-off time becomes transparent to all partners, and a proper prediction of the take-off time can be communicated towards the network function represented by **CFMU**.

For each flight, the CPDS calculate a **TSAT**, providing an off-block sequence, for every situation where different bottlenecks occur enables Air Traffic Control to keep the traffic capacity maximally utilised.

CDG airport is connected with the **CFMU** for Collaborative Management of Flight Updates with the exchange of messages containing estimated departure times of flights, **and taken into account for slot allocation. In sequenced mode, the update of TOBT and/or EOBT is a benefit for airlines, each flight keeping is initial reference to be sequenced (or slotted) which is SOBT.**

Commissioning of Airport CDM Collaborative Pre-Departure Sequence on November 9th 2010.

3 SOBT and EOBT

SOBT serves as reference source to set flight priority when allocating position in off-block departure sequence.

Upon reception of flight plan, EOBT (Estimated Off-Block Time) and SOBT should be coherent: EOBT must be greater than SOBT, otherwise AOs must file a new flight plan.

4 TOBT

TOBT (Target Off-Block Time) is that target time set by airline itself as off-block departure time:

- airplane's doors closed
- boarding bridge removed
- push back available (if need be)
- airplane ready to taxi/push back upon clearance

TOBT is translation by CPDS of ED (Estimated Departure) transmitted by airline to ADP's information system (SARIA). It allows to inform PDS system of time before which departure is not feasible.

Failing this and with no notice from the AO, CPDS shall consider that the earliest departure time possible is SOBT

An ED is to be given by the AO as soon as it is aware of a flight delay in relation to SOBT scheduled time or of a variation (delay or improvement) of 5 minutes or more, of that target time, putting CDG in the addresses (CDGSJXH).

New ED shall be superior to current time and SOBT. Updating of ED is to be done not later than before last ED in force or before SOBT when no ED is available. There is no limitation on the number of EDs given for same flight.

The airline or handling agent is in charge of providing a flight ED.

ED is transmitted either through direct link between airline systems and ADP, or by MVT message through SITA network with allocation of delay code.

ED advising of delay due to ATC constraints shall not be sent to PDS system.

It is always a requirement, in sequenced or non sequenced mode, to update flight plans with a DLA message when EOBT is modified by more than 15 minutes. When the spread between TOBT and EOBT is higher than 15 minutes, an alarm is triggered by PDS system.

One must however underline the difference in processing of ED and that of flight plans : an ED can always be improved or delayed, whereas improvement of flight plan EOBT is no longer possible once DLA has been sent to CFMU. As a result, it is important that each airline define in-house its own procedure for flight plan updating according to ED.

Usual ICAO procedures for updating of flight plans remain the same: transmission of DLA message when TOBT/SOBT > [EOBT + 15 min]. AO is still required to:

- update flight plan by sending DLA to avoid FLS due to FAM process,
- deal with CTOT by updating TOBT (SWM messages should no longer be sent).

5 TSAT

TSAT is off-block departure approved time, calculated by system taking into account departure capacity available at airport, flight schedule, TOBT and CFMU slots. TSAT are arranged in sequence according to reference times of flights (SOBT).

TSAT is time aircraft is to leave block after receiving start-up and push-back or taxi clearance from ATC.

TSAT are calculated for all scheduled flights with departure taking place in the next 4 hours.

Aiming at the best possible off-block sequence, TSAT are calculated on a permanent basis and may therefore be improved or delayed at any time.

A flight may be put out of the sequence (blocked) if TSAT is not respected. When a flight gets blocked by PDS, its TSAT is no longer valid and it is no longer cleared for departure (on-screen TSAT is not updated). The only way to get sequenced again is to send an ED, which will provide:

- a new reference time in PDS based on time of the ED reception
- a new TOBT
- a new TSAT.

Conditions for flight blocking are as follows:

- Flight has not received departure clearance at TSAT
- Flight has not left parking stand after TSAT +5 min.
- Flight has been blocked manually at ATC's request for non-compliance with procedure
- Flight has been suspended by CFMU as a result, for example, of arrival aerodrome closure. (In this case the airline must send a DLA message)

As long as airline informs of an ED change before flight is blocked by PDS, flight shall keep its priority in the sequence based upon SOBT. If information arrives after, flight shall lose its priority and its new reference is the ED reception time.

6 Departure procedure with ATC in sequenced mode

6.1 Communicating TOBT and TSAT

TOBT and TSAT for all flights are accessible at the following:

- CDM's web site : <https://www.cdmcdg.net> (access on request to ADP)
- current professional TV monitor displays

- via PDS data flow for airlines and handlers with prior request (in this case, cost of use and visualization of PDS data is borne by applicant)
- DMAN (Departure Manager), specific interface for ATC, which enables controllers to make the procedure to be fully complied with.

Airline or handler shall make sure that TOBT is known by all stakeholders of aircraft turn-round at all times.

Any alteration to TSAT is to be communicated by airline or handler to flight crew (by physical contact, radio- or Data-link). Communication of TSAT to crew is to be handled with same priority as CFMU slot, which is taken into account in TSAT calculation.

Status of blocked flight and various alarms issued from PDS will also be accessible on CDM's web site.

6.2 Start-Up

Pilot shall contact *Clearance Delivery* or perform RCD (Request for Departure Clearance Downlink) to request **Departure Clearance** and **Start-up approval at TOBT – 10 min**. Pilot is believed to have estimate of its current TSAT when contacting *Clearance Delivery*.

Upon pilot's call/RCD at TOBT – 10 min, two options may arise in relation to flight's TSAT:

1. If TSAT = TOBT, Clearance Delivery issues departure clearance and start-up approval simultaneously via radio (or by Datalink in case of RCD)
2. If TSAT > TOBT, flight is put on hold : Clearance Delivery issues departure clearance with mention of allocated runway, SID and TSAT via radio (or by Datalink in case of RCD). **Pilot is to monitor frequency** from TOBT on, as TSAT can improve up to TOBT.

It is then **via radio only** that *Clearance Delivery* approves start-up, in minutes preceding TSAT.

It is implied that when controller issues start-up approval, this is issued for positive parking departure at TSAT.

Pilot shall not request start-up on *Clearance Delivery* again when he is put on hold as he would crowd frequency unnecessarily. If pilot is in doubt when keeping off *Clearance Delivery* frequency, he shall first contact his operations or his handler to know current TSAT and be aware of a possible downgraded TSAT. Calling *Clearance Delivery* again is permissible when current time is superior to TSAT.

If call takes place too early, *Clearance Delivery* will ask him to call again at TOBT – 10 min. In case of a RCD, no reply is to be expected before TOBT - 10 min.

If pilot calls or performs RCD too late (after TSAT), flight will be blocked by CPDS and clearance will be denied. Flight shall not be unblocked until new ED (TOBT) has been sent by airline.

6.3 Push-back

After gaining start-up approval, pilot shall contact frequency handling push-back from TSAT – 5 min while being ready for push-back / off-block departure. **This contact should allow push-back / off-block departure at TSAT.**

Push-back approval is valid for 1 minute. Push-back is therefore to begin promptly after approval. Flight lays open to being blocked by ATC and having to redo whole of departure procedure if rule is not observed.

If off-block departure did not occur at TSAT+ 5 min, flight will be blocked by PDS until transmission of new TOBT (ED).

All through departure procedure, if after 3 calls from controller, a flight on hold does not acknowledge or states it is not ready for start-up or push-back, this flight is blocked manually in PDS by controller. Flight is then to redo the whole departure procedure (transmission of new TOBT, Clearance Delivery call, etc...)

7 Departure Procedure in non sequenced mode

7.1 Communicating Off-Block Time

In case a technical or operational issue makes it impossible to use off-block sequence calculated by PDS, airport may be led to switch to non sequenced mode.

Alarm message is distributed via systems:

- on CDM web site : <https://www.cdmcdg.net>
- on existing professional TV monitor displays

In this case, TSAT display on CDM web site and TV monitor will be suspended.

- via CPDS data flow for airlines and handlers with prior request.
- on DMAN, specific interface for ATC

Off-block departure sequence is no longer in use, but a departure procedure of same type is still applied.

ED (TOBT) are still to be updated by airlines, as well as **EOBT for flight plans in relation to those ED**. ATC will calculate an off-block time, confirmed on frequency upon pilot's call at TOBT-10min. It is equal to:

- EOBT of flight plan for a non-regulated flight
- COBT (calculated off-block time = CTOT - CFMU taxiing time) for regulated flight.

7.2 Start-up in non sequenced mode

Pilot shall contact Clearance Delivery or perform RCD to request **Departure Clearance** and **Start-up approval** at TOBT – 10 min.

Upon pilot's call/RCD at TOBT – 10 min, two options may arise in relation to flight's ATC Off-Block Time:

- 1 If Off Block Time is close, Clearance Delivery issues departure clearance and start-up approval simultaneously via radio (or by Datalink in case of RCD)
- 2 If Off Block Time is remote, flight is put on hold : Clearance Delivery issues departure clearance with mention of allocated runway, SID via radio (or by Datalink in case of RCD). **Pilot is to monitor frequency** from TOBT on.

It is then **via radio only** that Clearance Delivery approves start-up

If call takes place too early, *Clearance Delivery* will ask him to call again at TOBT – 10 min. In case of a RCD, no reply is to be expected before TOBT-10 min.

The call or RCD has to ensure that departure will occur at EOBT +/- 15 min or before COBT + 15 min, otherwise flight will be blocked by ATC until flight plan is updated with transmission of DLA.

7.3 Push-back in non sequenced mode

After gaining start-up approval, pilot shall contact frequency handling push-back while being ready for push-back / off-block departure. **This contact should allow push-back / off-block departure at EOBT +/- 15 min or before COBT+15 min.**

Push-back approval is valid for one minute. Push-back is therefore to begin shortly after approval. Flight lays open to being blocked by ATC and having to redo the whole departure procedure if rule is not observed.

8 People to contact

Aéroports de Paris
 François-Xavier Rivoisy
 Tel : +33 (0)1 48 62 50 84
francois-xavier.rivoisy@adp.fr

Services de la Navigation Aérienne CDG
 Louis Hiribarren
 Tél : +33 (0)1 74 37 86 14
Louis.Hiribarren@aviation-civile.gouv.fr