

Confidence Interval Method for Off-Slot Operations at AMS

Discipline: Slot Monitoring
Airports: Amsterdam Airport Schiphol (AMS)
Seasons: as of IATA season Northern Summer Season 2026 (as of S26)
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To: Coordination Committee Netherlands

Introduction

In meeting of the Coordination Committee Netherlands on 2 April 2026 was asked to ACNL an additional explanation of the methodology of Confidence Intervals for off-slot operations.

Purpose method

The purpose of the method is to distinguish between incidental deviations and structural operational patterns within a slot series. It provides an objective and evidence-based basis for determining when recurring deviations may warrant engagement with an airline under the slot monitoring and enforcement framework as of Summer 2026 (S26).

General explanation

The confidence interval method is intended to answer a straightforward operational question:
is a deviation from the allocated slot an isolated occurrence, or does it reflect a recurring pattern?

Rather than focusing on one individual flight, ACNL reviews the performance of the entire slot series (for example, a weekly flight operating on the same day and time).

This means that a single late or early operation will normally not, by itself, lead to intervention. Instead, ACNL examines whether the series as a whole shows a consistent tendency to operate outside the allocated slot time.

A confidence interval may be understood as a reliability range around the average deviation of the series. For example: one flight operating 35 minutes late may be caused by an incidental disruption; repeated operations that are consistently 20–30 minutes late suggest a structural scheduling or operational issue.

Once that threshold is reached, ACNL initiates a dialogue with the airline to understand the reasons for the discrepancy and to discuss possible corrective measures.

Technical explanation

For AMS, ACNL applies a 95% confidence interval around the mean deviation from the allocated slot time for a given slot series.

The deviation per flight is defined as: $d_i = t_{\text{actual},i} - t_{\text{slot}}$, where d_i = deviation in minutes. Positive values mean delayed operations and negative values early operations.

The confidence interval around the mean deviation is calculated as:

$$\bar{d} \pm 1.96 \times s / \sqrt{n}$$

where:

$\bar{d}$ = sample mean deviation

s = sample standard deviation

n = number of observed operations in the series

The use of a 95% confidence interval means that the calculated range gives a statistically robust indication of the likely true average deviation of the slot series.

Practical consequence

Meeting the confidence interval criterion does not automatically result in enforcement action.

The criterion serves as a monitoring trigger for ACNL to engage with the airline.

The subsequent dialogue focuses on operational causes, schedule realism, turnaround performance, airport or ATC constraints, and possible corrective scheduling measures.

In summary

The confidence interval methodology allows ACNL to identify recurring off-slot patterns on a statistically robust basis, while ensuring that isolated operational disruptions do not disproportionately influence monitoring outcomes.

More information available on ACNL's website: <https://slotcoordination.nl/coord-stt-coord-actual/>