

Annex B5: RNAV-1/RNP-1 Deviation Analysis

Source

Compiled from NRTG ABP Relevant Action Submission (19 December 2024), Section 5.2 and Phase 3 EIS/EIAR analysis.

The 12km Deviation vs 1NM Total System Error

The 2007 EIS assumed a Noise Preferential Route (NPR) of straight-ahead departure on Runway 28R heading (278 degrees magnetic) for 5 nautical miles to 3,000ft before any turns. Under RNAV-1 navigation standards (the minimum standard for SID design), the Total System Error (TSE) is 1 nautical mile (1.852km). Any departure track within 1NM of the centreline is within normal navigational tolerance.

The actual SID implemented when North Runway opened in August 2022 directs aircraft to turn at 650ft (approximately 400ft AGL) to a heading of 308 degrees, a 30-degree deviation from the NPR. Approximately 55% of departures then turn again at waypoint DW128 to heading 004 degrees, producing a total deviation of 86 degrees from the NPR.

At the point where the SID track diverges maximally from the NPR (over Ratoath and East Meath), the lateral offset between the flown track and the approved NPR centreline is approximately 12km.

The navigational tolerance under RNAV-1 is 1NM (1.852km). The actual deviation is 12km, approximately 6.5 times the total navigational tolerance. This is not navigational scatter; it is a fundamentally different route serving fundamentally different airspace geometry.

Significance for the Aarhus Communication

The deviation cannot be characterised as "indicative" variation or routine operational scatter. A 12km displacement from the approved NPR represents a wholly different departure route that was never subjected to:

- Environmental Impact Assessment under the EIS Directive (now codified as Directive 2011/92/EU)
- Public consultation under the Aarhus Convention
- Planning consent from An Bord Pleanála

The communities of Ratoath, Ashbourne, and surrounding East Meath were never notified, consulted, or given the opportunity to participate in any decision-making process regarding this route, which now overflies approximately 30,000 residents at altitudes as low as 400ft AGL.