

Report of the CAA's Draft Decision on the Post Implementation Review of London Gatwick's Airspace Change Proposal – Runway 26 Route 4 RNAV-1 Standard Instrument Departure Procedures

CAP 1872

Published by the Civil Aviation Authority, 2020

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Glossary

This document refers to a number of terms and descriptions of airspace that are described in as simple terms as possible as follows; although they are not all the subject of this decision, they provide useful context.

SID: Standard Instrument Departure - published flight procedures followed by aircraft on an Instrument Flight Rules (**IFR**) flight plan immediately after take-off.

Noise Preferential Route: A Noise Preferential Route (NPR) is a path for aircraft to take until they reach a specific release altitude. Once an aircraft reaches the NPR release altitude, Air Traffic Control (ATC) can instruct the aircraft to turn onto a more direct heading to its destination, this is called vectoring, which, may take the aircraft outside the NPR corridor (normally defined as a swathe for track keeping monitoring purposes). There may be occasions where it is necessary for safety reasons (e.g. to avoid severe weather conditions) for ATC to vector aircraft off NPRs below the release altitude.

PBN: Performance Based Navigation - a system of navigation more reliant on airborne technologies, utilising area navigation and global navigation satellite systems.

Area Navigation (RNAV): Area navigation is a method of navigation which permits aircraft operation on a desired flight path without constraints of ground-based navigation aids. Area navigation is an enabler for Performance-based navigation (PBN), which is defined as a type of area navigation (RNAV) in which the navigation performance requirements are prescribed in navigation specifications.

RNAV SID: A SID utilising PBN to fly the aircraft. A pilot will rely on satellite navigation (similar to GPS) to automatically guide an aircraft along a route. Due to the use of highly accurate PBN, this will produce more consistent track over the ground.

2013 RNAV SID: The RNAV SID introduced by an airspace change proposal (ACP) from Gatwick Airport in 2012 and published in the UK Aeronautical Information Publication (AIP) for use from 14 November 2013 intended to be a replication of the conventional SID. A visual representation of this route is at [Annex C](#). This conventional SID route was in place between 30 November 2012 and 19 July 2017.

2016 RNAV SID: The RNAV SID that was required by the Post-Implementation Review as a better replication of the conventional SID. A visual representation of this route is at [Annex D](#). The Route 4 RNAV-1 SIDs were implemented on 26 May 2016 and have remained in use since then. It is this route, and only this route, that is

the subject of this decision. It's AIP designation is LAM2X/BIG2X/FRANE1X/ADMAG2X.

Conventional SID: A SID described with reference to specific fixes predicated on a ground based navigation aid that a pilot will use to manually fly the aircraft along the route. For example, in the case of Route 4 fly "straight ahead until I-WW D 2.3 then turn right to intercept the Detling VOR radial" by a certain distance. Because of the nature of the instructions and handling characteristics of aircraft, aircraft will not all follow the exact same path over ground.

2012 Conventional SID: The conventional departure route from Gatwick Airport taking off in a westerly direction and turning to the right 180 degrees and following an easterly track approximately 800 metres north of the centreline of the NPR. A visual representation of this route is at [Annex E](#). This route, or routes, that followed the same track over the ground were in place at the time of the original airspace change proposal submission - 30 November 2012 - and until a revision on 20 July 2017.

2017 Conventional SID: A conventional departure route from Gatwick Airport taking off in a westerly direction and turning to the right 180 degrees and following an easterly track that followed the centreline of the NPR. A visual representation of this route is at [Annex F](#). This route was in place between 20 July 2017 and 11 September 2019.

2019 Conventional SID: A conventional departure route from Gatwick Airport that follows the same path over ground as the 2012 Conventional SID and routes via position ACORN. This SID was implemented on 12 September 2019. A visual representation of this route is at [Annex G](#).

Scope

1. This decision contains an assessment by the CAA as to whether the 2016 RNAV-1 SID implemented on 26 May 2016 has achieved, to an acceptable standard, its original stated aim. That is, whether the extant 'temporary' RNAV-1 SID (LAM 2X, BIG 2X, FRANE 1X¹, ADMAG 2X²) is a satisfactory replication of the conventional SIDs (as available from 12 September 2019).
2. This decision relates only to the 2016 RNAV-1 SID and does not affect the conventional SIDs on that route.
3. The decision brings to a close the Airspace Change Process brought by Gatwick Airport on 30 November 2012 to introduce the RNAV-1 SID on Route 4.

Background

4. The CAA's former airspace change process is a seven-stage process that is set out in detail in CAP 725³. Under this process, in 2012 London Gatwick Airport Limited (GAL) submitted proposals to the CAA to implement new RNAV-1⁴ Standard Instrument Departure (SID) procedures. The purpose of the proposal was to replicate and eventually replace the standard instrument departure routes (SIDs) from Gatwick Airport with more accurately defined routes, utilising the improved navigational capabilities of modern aircraft (Precision Area Navigation: P-RNAV).

¹ The FRANE1X is a truncated (i.e. shortened) version of the original CLACTON SID.

² The ADMAG2X is a truncated (i.e. shortened) version of the original DOVER SID.

³ Whilst the CAP725 airspace change process has been replaced by the revised CAP1616 process, this decision brings a conclusion to the Route 4 airspace change conducted under CAP 725.

⁴ Performance-based navigation (of which RNAV-1 is a type) is satellite aviation guidance; in comparison to ground-based navigation aids (such as those used by conventional SIDs) performance based navigational technology will allow aircraft to fly much more accurate and flexible tracks. Satellite guidance will also allow the UK's complicated and busy airspace to be redesigned, increasing capacity and efficiency while maintaining or enhancing safety performance. A route structure optimised for satellite guidance with aircraft flying a pre-programmed trajectory will also reduce the need for tactical intervention by air traffic controllers to instruct pilots to change direction, bringing down the cost of air traffic control, and optimise the climb and departure profiles of aircraft (which is the most expeditious routing of aircraft so far as airlines are concerned, and which also burns the least fuel and overall causes the least noise).

5. It should be noted that, although both Conventional and RNAV SIDs were in place from the time the ACP was approved and implemented in 2013, the vast majority (over 99%) of aircraft utilise the RNAV Routes and very few aircraft now fly Route 4 using conventional navigation.
6. The airspace change was approved by the CAA on 14 August 2013 for implementation on 14 November 2013. As required under CAP 725, a Post Implementation Review (PIR) was conducted after a period of operation, the results of which were published on 11 November 2015 in [CAP1346](#). An outcome of that PIR required a modification to the Route 4 RNAV-1 SIDs:

“The CAA requires modifications to the design of the RNAV-1 SID on this route to achieve an initial turn that is closer to the existing nominal track of the existing conventional SID and, if successful, we consider this will also have the effect of bringing the mean track of the final north-easterly leg of the traffic on the SID further south, further away from communities such as Leigh, Reigate and Redhill, that is more in line with where we expected traffic to be and as was the case prior to the introduction of the RNAV-1 SIDs”⁵

7. Following that modification, the CAA would review the RNAV-1 SID and make a determination as to whether it had achieved, to an acceptable standard, its original stated aim:

“If an acceptable modified design is submitted and once it has been implemented and operated for six months the CAA will conduct a further assessment as part of this PIR. At its conclusion, if the CAA is of the view that the modified RNAV-1 design has not achieved, to an acceptable standard, its original stated aim, then that RNAV-1 SID route will not be confirmed and will be de-notified by the CAA, i.e. removed from the AIP. That will be the end of the airspace change process commenced by Gatwick’s airspace change request dated 30 November 2012 (as amended 9 January 2013) in respect of the Route 4 SIDs.

If that occurs, unless and until a revised RNAV-1 SID design (put forward by Gatwick under a new airspace change proposal process) is

⁵ CAP1346 at 9.50