

ANNEX K TO PIR REPORT DATED APRIL 2017

Detailed data obtained by GAL from airlines and CAA assessment of data.

June 2016 DATA

Airline A responded that the easterly ground track is further south than in the previous SID and that the coded waypoint had moved further downwind, making in their view the SID difficult to comply with. While it is also stated by the airlines that a speed of 220Kts is a typical clean speed for short and medium operations, the PIR data showed evidence that where NPR swathe deviations occurred to the west and north that speeds well in excess of 220Kts could be seen. This appeared to suggest that many airlines did not have their flight crew intervene and manage the speed during the turn when tailwind components were a major factor in the aircraft ground speed being well in excess of 220Kts, in many cases speeds of 260kts were seen.

Airline B was contacted by GAL to explain some deviations on the 17 and 20th June, but there is no evidence to show if a response was received by GAL.

Airline C was contacted by GAL to explain the deviations to the North West of the turn by most of their aircraft. Some aircraft were cutting the corner on the inside of the NPR and this was explained where some crews reduced the speed to 190kts. The deviations by this airline appeared to be explained by the way the on board flight management system (FMS) was executing the turn and less to do with the wind experienced at the time. The airline made a commitment to work with GAL to devise a plan as to instruct their crews on how best to manage the track adherence of the SID.

July Data

Airline A continue to feel that the issues relate to the SID design where the tighter turn makes it difficult for crews to comply with the SID. The evidence suggests that the speed in the turns when deviations occur is in excess of the maximum speed 220KIAS for the SID design.

Airline D acknowledged that the deviation from the NPR swathes was due to south westerly and picking up a tailwind in the turn north prior to intercepting the easterly track.

Airline E stated that they do not have a defined standard operating procedure (SOP) to ensure track adherence within the NPR swathes. The evidence collected from the PIR Data shows that the flight tracks are deviating from the NPR on the inside of the NPR swathe. The groundspeed of the aircraft can be seen to be in the region of 150kts which is not what is expected of any aircraft flying this SID. Further work is required by GAL to ensure track compliance by this airline.

August 2016 Data

The daily track dispersions plots of 19, 20 & 24 Aug showed that while small numbers flew the SID (max 173) a large percentage (approx 30 to 50%) deviated to the north west of the NPR which is consistent with the wind being from the south west on these days. It should be noted that some aircraft cut the corner on the inside of the NPR swathe to route to KKE09 in the same weather conditions. It is not clear if the airlines/operators were contacted by GAL to explain the deviations, no airline comments were provided by GAL to the CAA. .

September 2016 Data

3 airlines (Airlines F, G & H) were asked by GAL to explain deviations that had occurred.

Airline F had experience of coding issues of the SID by their respective coding provider. When the track adherence was raised by GAL the issues were investigated by the airline and subsequent changes in the coding rectified the issue and track adherence has been corrected.

Airline G explained their deviation was due to “some nav problems” and requested radar vectors.

Airline H airline explained their deviations were due to an issue with the autopilot on departure and subsequently taking an ATC instruction that was not meant for them. Further ATC radar vectors corrected the issue as the aircraft continued on heading with further climb.

These airlines all appeared to have some technical issues that did not directly relate to the design of the SID. These issues have not been highlighted in the subsequent months of data monitoring.

October 2016 Data

Airline J was contacted by GAL to explain deviations to the north of the first turn where the aircraft went outside of the NPR swathe. While there was correspondence in relation to the deviations, where some “simple analysis” was completed which explained which navigation modes were used to fly the SID was undertaken by the airline, but there was no explanation given to explain why the deviations occurred. There was no further correspondence to suggest whether there was a plan to improve track adherence or not.

Airline K was contacted by GAL to explain deviations to the east of the first turn where the aircraft went outside of the NPR swathe. There was correspondence in relation to the deviations, and they have advised their crews on how to better fly the SID and have also requested the aircraft manufacturer for advice on how they may improve the track adherence. They believed that this deviation was most probably related to the wind conditions on departure.

The interesting issue here is that on the 18th Oct 2016 both of these airlines had deviations but one deviated to the north of the NPR swathe while the other to the east of the NPR swathe.

November 2016 Data

The November daily track plots (Nov 12, 17, 21 & 22) showed quite a lot of deviations to the north of the NPR swathe. There was evidence provided from GAL as to which airlines were responsible for the deviations but there was no evidence that these airlines were asked to explain the occurrences. The airline feedback from one airline for track deviations on the 6th Nov where the track was to the outer edge of the NPR swathe was due to the execution of the SID by the FMS and a light south westerly wind was also a contributory factor. A suggestion of including south to south westerly winds information above a certain threshold in the ATIS should be considered to raise awareness of the track adherence issue to crews. We have determined there is merit in this suggestion, and are therefore recommending that GAL consider adopting this practice to raise awareness to departing crews.

Airbus A380

This airline permits its A380 flight crews to apply either of two different Noise Abatement Departure Procedure profiles. One of these departure procedures results in a low speed on

departure and the aircraft turning very tightly to head to intercept the downwind track and consequently cutting the inside corner of the NPR.

GAL has engaged with this airline to determine why different profiles are being flown and this work is ongoing. Flight tracks provided by GAL have shown that when the A380 is flown on the departure turn to intercept the easterly track to KKE09 at groundspeeds above 170/180kts then the resulting tracks were shown to be inside the NPR swathes. Further work is required by GAL to ensure that the SOPs employed by this airline will consistently ensure that the track adherence is towards the centre of the NPR swathe.

This issue is highlighted in Figure 1.

Figure 1

