Reduced Night Noise Trial

RNN Data Report 7

Reporting Period: *14 June – 11 July 2024*

05 July 2024

LONDON GATWICK

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Executive Summary

The RNN trial commenced 11 January 2024. In the seventh reporting period (14 Jun – 11 Jul) there were 23 trial nights with 257 trial participants out of 487 arrivals during the trial period (53% participation). The number of PBN flights has increased as movements increase through busier seasonal periods.

Of the trial flights that overflew the three monitored routes (197 PBN arrivals), 5 were outliers (2 noise, 2 altitude, and 1 noise & altitude). Analysis and engagement with airlines continued through the reporting period to aid understanding of the possible causes.

No safety concerns were raised by pilots or ATCOs.

The trial concluded on 11 July. A summary report of trial findings, learnings and next steps will be prepared in the coming weeks.

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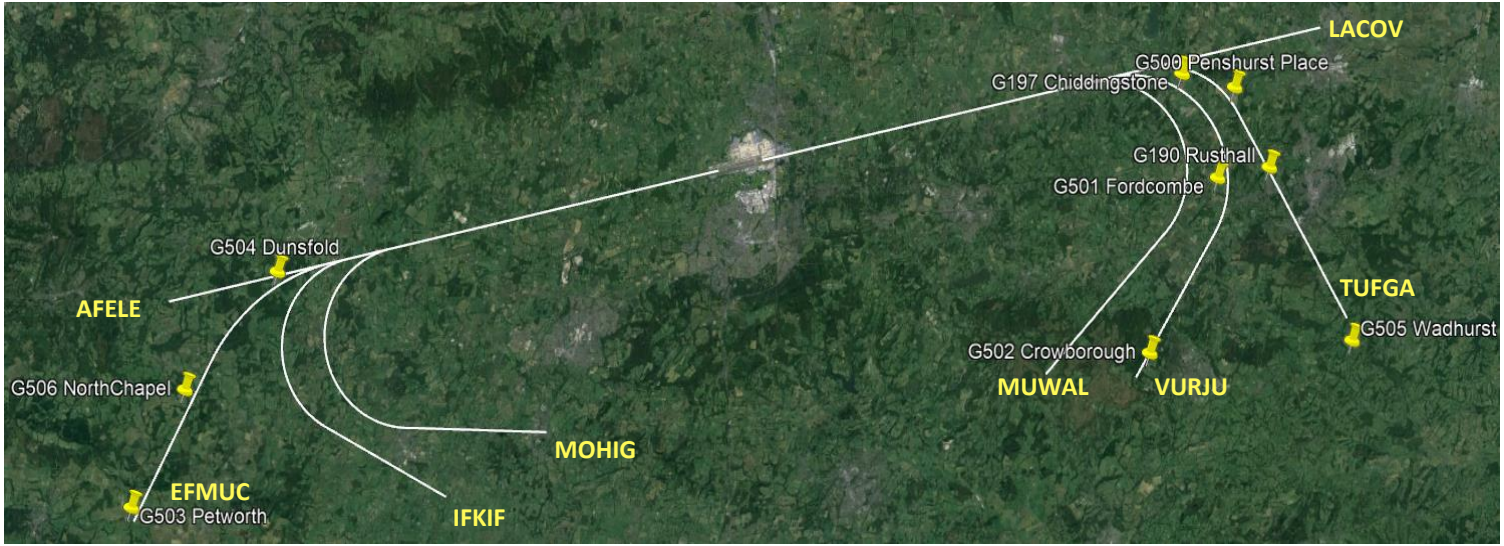
Trial Stats

- The RNN trial commenced on **11 Jan 2024**, running between the hours 0130-0500. The data presented within this report includes 4 weeks of the trial (14 Jun – 11 Jul 2024).
- The trial procedure was available (Southern runway operations) on 23 nights.
- Over the trial nights, it was reported that **257 flights** successfully participated in the trial, resulting in a 53% trial participation rate.
- Of the trial flights that overflew the three monitored routes (197 PBN arrivals), 5 were outliers (2 noise, 2 altitude, and 1 noise & altitude).

Noise Monitor locations



NMT distance to threshold

Wadhurst – 41 km

Rusthall - 32 km

Penshurst Place – 26 km

Crowborough – 40 km

Fordcombe – 31 km

Chiddingstone – 24 km

Petworth – 40 km

North Chapel – 33 km

Dunsfold – 25 km

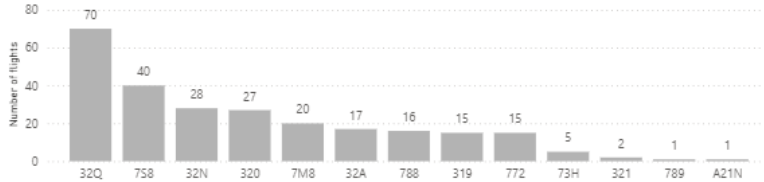
- The noise monitor terminals (NMTs) were placed under the routes that were expected to be most used.
- In total, 9 NMTs, with a noise threshold level of 50dB, were located under 3 trial routes.
- Lmax adjustments have been made to aircraft overflying the NMTs within the overflight cone. These adjustments are dependent on the distance from monitor and can be up to 3dB.
- Only NMTs within the overflight cone for an aircraft participating in the trial are included in the analysis. Noise data picked up by NMTs outside of the overflight cone is discarded.
- Any unusual noise events are assessed on a case-by-case basis and are discarded if the source is found to be non-aviation. There were 2 outlier noise events discarded on this basis in this reporting period.
- In some cases, the noise and track keeping (NTK) system discards data if recordings contain sounds other than aircraft.

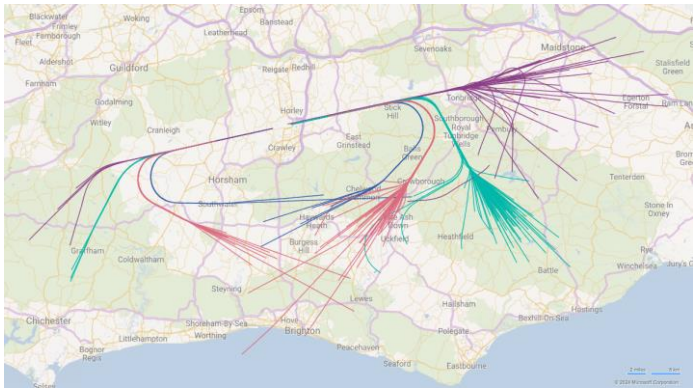
Data Analysis

Overview

Daily number of PBN flights

Aircraft types





Data definition

- Altitude is measured above aerodrome level (AAL)
- The noisiest 5 % of flights (based on baseline data) are above the noise outlier threshold
- The lowest 5 % of flights (based on baseline data) are below the altitude outlier threshold
- Threshold values are based on data in the equivalent baseline trial period (0130-0500)
- An outlier is a flight that exceeds either noise or altitude thresholds

- 257 flights participated in the trial.
- Total of 5 outliers (2 noise, 2 altitude, and 1 noise & altitude).
- There were 27 easterly arrivals and 230 westerly arrivals.
- Lateral track keeping of trial aircraft was good.
- 13 different aircraft types participated.
- NMTs are placed under TUFGA 1D, VURJU 1D and EFMUC 1A, therefore, there is noise data captured for 197 PBN arrivals.

	Westerly				Easterly			
Routes	LACOV 1D	MUWAL 1D	VURJU 1D	TUFGA 1D	AFELE 1A	EFMUC 1A	IFKIF 1A	MOHIG 1A
No. approaches	35	5	59	131	4	7	14	2
No. outliers	N/A	N/A	1	4	N/A	N/A	N/A	N/A

Data Analysis

TUFGA 1D – **Noise Outliers**

NMT noise events that exceed the outlier threshold

NMT name	Route	Operation Number*	Recorded Noise (dB)	Noise Threshold (dB)	Outlier Difference (dB)
Penshurst Place	TUFGA 1D	25629088	64.28	64.00	0.28
Rusthall	TUFGA 1D	25629088	64.68	63.40	1.28
Penshurst Place	TUFGA 1D	25693009	64.26	64.00	0.26

Observations

- There were 3 recorded noise events that exceeded NMT threshold values for 2 operation numbers on TUFGA 1D. Both aircraft exceeded the noise threshold at two different monitors.
- In total, **2 aircraft were noise outliers at TUFGA 1D** (1 of these was both a noise and altitude outlier).
- Outliers were recorded at 2 NMTs – Penshurst Place and Rusthall.
- All other recorded noise events on TUFGA 1D for this reporting period were quieter than the trial night thresholds.

* An operation number is a unique number assigned to each flight

Data Analysis

TUFGA 1D – **Altitude Outliers**

NMT altitude events that exceed the outlier threshold

NMT	Route	Operation Number*	Recorded Altitude (ft)	Altitude Threshold (ft)	Outlier Difference (ft)
Penshurst Place	TUFGA 1D	25629088	3651	3657	-6
Penshurst Place	TUFGA 1D	25629100	3618	3657	-39
Penshurst Place	TUFGA 1D	25722840	3402	3657	-255
Rusthall	TUFGA 1D	25722840	3667	3974	-307

Observations

- There were 4 altitude events that recorded a lower altitude reading than outlier thresholds on TUFGA 1D. In total, **3 aircraft were altitude outliers** (1 of these was both a noise and altitude outlier).
- The outliers were recorded at Penshurst Place and the Rusthall NMT's.
- All other recorded altitudes on TUFGA 1D for this reporting period were higher than the trial night thresholds.

* An operation number is a unique number assigned to each flight

Data Analysis

Outliers - VURJU

- There was 1 recorded noise event that exceeded NMT threshold values on VURJU 1D. In total, **1 aircraft was a noise outlier on VURJU.** The noise outlier was recorded at the Chiddingstone NMT.
- This aircraft did not exceed any altitude thresholds and there were no other altitude outliers detected on VURJU.
- All other recorded noise events on VURJU 1D for this reporting period were quieter than the trial night thresholds.

NMT noise events that exceed the outlier threshold

NMT name	Route	Operation Number*	Recorded Noise (dB)	Noise Threshold (dB)	Outlier Difference (dB)
Chiddingstone	VURJU 1D	25633546	64.70	64.60	0.10

Outliers - EFMUC

- There were no recorded noise events that exceeded NMT threshold values on EFMUC 1A.
- There were no altitude outliers detected on EFMUC.

* An operation number is a unique number assigned to each flight

Next steps

The trial concluded on 11 July 2024. The following activities will be undertaken:

1. Produce summary report of trial findings, learnings and next steps.
2. Arrange briefing to present final report.