



Reduced Night Noise Trial

RNN Data Report 4

Reporting Period: *22 March – 18 April 2024*

10 May 2024



LONDON GATWICK

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Executive Summary

The RNN trial commenced 11 January 2024. In the fourth reporting period (22 Mar – 18 Apr) there were 26 trial nights with 66 trial participants out of 149 arrivals in trial times (44% participation). The number of PBN flights has increased as movements increase through busier seasonal periods.

Of the trial flights, there were 11 outliers, most of which were still within the trial thresholds. Analysis and engagement with airlines continues, which will help to understand the cause of each.

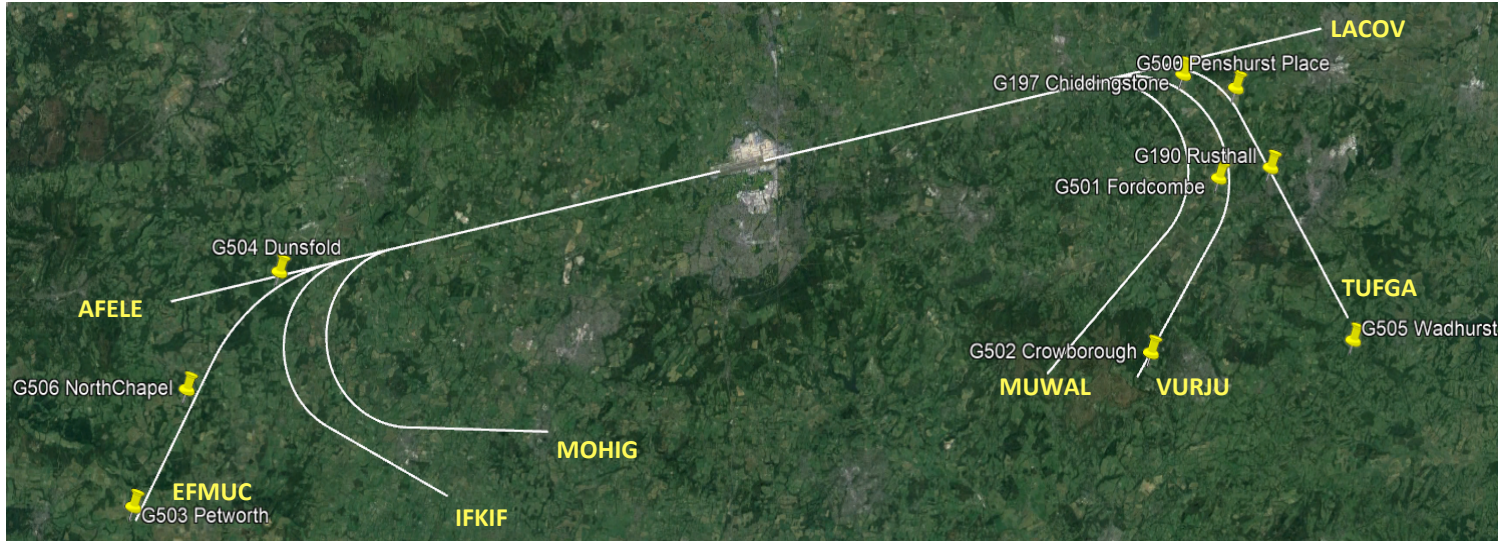
Table of Contents

1. Trial stats
2. Noise monitors
3. Data analysis
4. Feedback and complaints
5. Next steps

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 (22 Mar – 18 Apr 2024).
- The trial procedure was available (Southern runway operations) on 27 nights, however, 1 night was excluded from analysis due to Storm Kathleen with high winds impacting operations and NMT measurements, leaving **26 nights** in total.
- Over the trial nights, it was reported that **66 flights** successfully participated in the trial, resulting in a 44% trial participation rate.

Noise Monitor locations



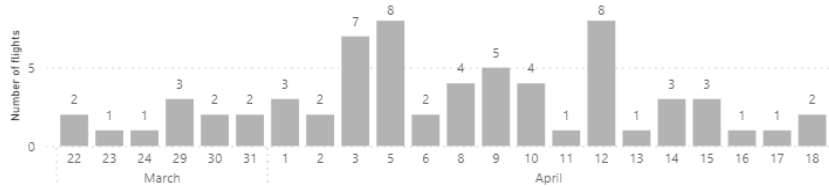
NMT distance to threshold
Wadhurst – 41 km
Rusthall - 32 km
Penshurst Place – 26 km
Crowborough – 40 km
Fordcombe – 31 km
Chiddingstone – 24 km
Petworth – 40 km
North Chapel – 33 km
Dunsfold – 25 km

- 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. In total, 5 outlier noise events were discarded on this basis in this reporting period.
- In some cases, the noise and track keeping system discards data if recordings contain sounds other than aircraft.
- There was an NMT outage due to UK clock change to BST 31/03/24 0100 – 0300 resulting in no recordings at this time.
- There is data missing from G503 Petworth between 13/04/2024 0605 to 17/04/2024 0700 as the analyser "power in" fuse blew.

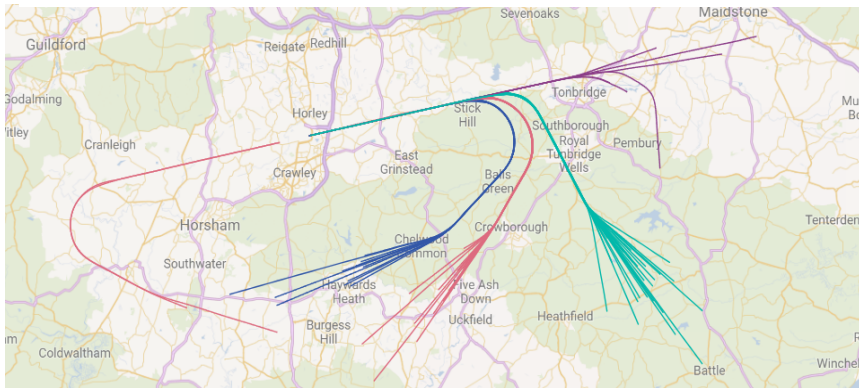
Data Analysis

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

- 66 flights participated in the trial.
- Total of 11 outliers.
- Majority of flights were westerly arrivals, with 2 easterly arrivals.
- Lateral track keeping of trial aircraft was good.
- 10 different aircraft types participated.
- NMTs are placed under TUGFA 1D, VURJU 1D and EFMUC 1A, therefore, there is noise data captured for 50 PBN arrivals.

	Westerly				Easterly			
Routes	LACOV 1D	MUWAL 1D	VURJU 1D	TUGFA 1D	AFELE 1A	EFMUC 1A	IFKIF 1A	MOHIG 1A
No. approaches	3	11	19	31	0	0	2	0
No. outliers	N/A	N/A	3	8	N/A	0	N/A	N/A

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	25328428	3654	3657	-3
Penshurst Place	TUFGA 1D	25310398	3651	3657	-6
Penshurst Place	TUFGA 1D	25321153	3645	3657	-12
Penshurst Place	TUFGA 1D	25324800	3631	3657	-26

Observations

- The recorded altitudes for **4 operation numbers** captured on TUGFA 1D were below the trial night outlier threshold and **are altitude outliers**.
- Outliers were recorded at 1 NMT – Penshurst Place.
- All other recorded altitudes on TUFGA 1D for this reporting period were higher than the trial night thresholds.

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)
Rusthall	TUFGA 1D	25286733	65.87	63.40	2.47
Rusthall	TUFGA 1D	25310378	67.37	63.40	3.97
Rusthall	TUFGA 1D	25310398	64.15	63.40	0.75
Penshurst Place	TUFGA 1D	25324800	66.74	64.00	2.74
Rusthall	TUFGA 1D	25324800	67.73	63.40	4.33
Wadhurst	TUFGA 1D	25324800	61.32	60.70	0.62
Penshurst Place	TUFGA 1D	25328428	71.71	64.00	7.71
Penshurst Place	TUFGA 1D	25335369	65.16	64.00	1.16
Rusthall	TUFGA 1D	25335369	65.00	63.40	1.60
Rusthall	TUFGA 1D	25349629	65.01	63.40	1.61

Observations

- There were 10 recorded noise events that exceeded NMT threshold values for 7 operation numbers on TUFGA 1D. Therefore, **7 operation numbers are noise outliers.**
- Outliers were recorded at 3 NMTs – Rusthall, Penshurst Place and Wadhurst.
- All other recorded noise events on TUFGA 1D for this reporting period were quieter than the trial night thresholds.
- Of the noise and altitude outliers on TUFGA 1D there are 8 unique operation numbers.

Data Analysis

VURJU 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)
Chiddingstone	VURJU 1D	25321142	64.70	64.60	0.10
Chiddingstone	VURJU 1D	25345885	64.90	64.60	0.30
Fordcombe	VURJU 1D	25335366	64.97	64.60	0.37
Chiddingstone	VURJU 1D	25335366	67.20	64.60	2.60

Noise Observations

- There were 4 recorded noise events that exceeded NMT threshold values for 3 operation numbers on VURJU 1D. Therefore, **3 operation numbers are noise outliers**.
- Outliers were recorded at 2 NMTs – Chiddingstone and Fordcombe.
- All other recorded noise events on VURJU 1D for this reporting period were quieter than the trial night thresholds.

VURJU 1D – Altitude

Altitude Observations

- All recorded altitudes were higher than the trial night outlier thresholds.
- There were **no altitude outliers** on VURJU 1D in reporting period 4.

Feedback and complaints

Workshop feedback

As part of the continued airline engagement of this trial, the following feedback has been gathered:

- Pilot behaviour is likely a factor in the trial, influenced by the time of night of the trial, familiarity of vectoring, airline culture towards CDA, training flights and crew experience level.
- It would be good to have trial information included in the London Gatwick ATIS. This action has been taken.

Other feedback

- No safety concerns have been raised by pilots or ATCOs.

Complaints

- Two complaints received through the Gatwick system were coincident with PBN trial aircraft. The complaint submitted by a frequent complainant was not an outlier aircraft, and the other was on the night of Storm Kathleen (removed from outlier analysis because storm conditions adversely impact operations).

Next steps

1. Continue pilot engagement.
2. Continue to record data and monitor trial progress.
3. Determine whether a statistically significant amount of data will be collected before the end of trial date.
4. Prepare the next trial progress report summarising data for the period 19 Apr – 16 May.