



# Reduced Night Noise Trial

RNN Data Report 3

Reporting Period: *23 February – 21 March 2024*

12 April 2024



**LONDON GATWICK**

POWERED BY **VINCI** AIRPORTS   GLOBAL INFRASTRUCTURE PARTNERS

# Executive Summary

The RNN trial commenced 11 January 2024. In the third reporting period (23 Feb – 21 Mar) there were 26 trial nights of which 37/62 aircraft were participants (upward trend in participation to 60%), with 4 being outliers; these are being investigated.

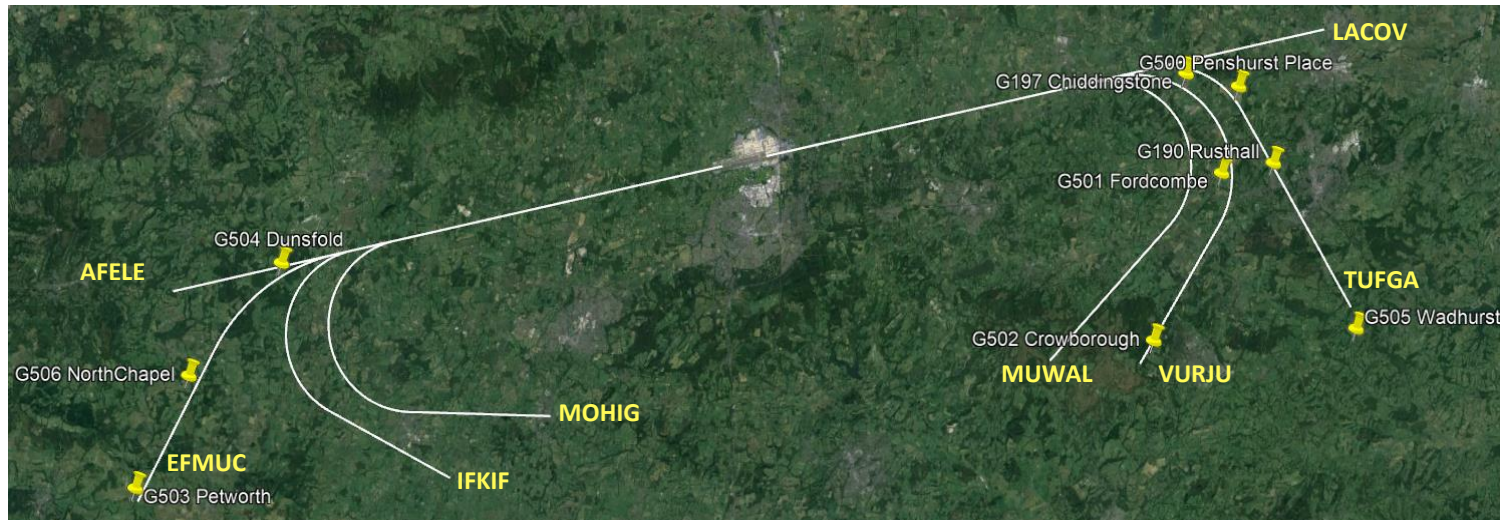
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# Trial Stats

- 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 (23 Feb – 21 Mar 2024).
- The trial procedure was available (Southern runway operations) on **26 nights** in total.
- Over the trial nights, it was reported that **37 flights** successfully participated in the trial, resulting in a 60% trial participation rate, up from a 41% participation rate in the second reporting period.
- Due to a runway works programme at Gatwick Airport in Q1 2024, available trial nights have been less frequent than expected; the trial therefore may need to be extended. This will be only to the extent that the minimum target data levels are captured to be statistically significant, and no longer.

# Noise Monitor locations



## NMT distance to threshold

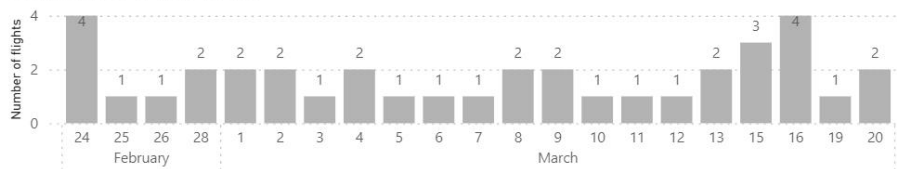
Wadhurst	41 km
Rusthall	32 km
Penshurst Place	26 km
Crowborough	40 km
Fordcombe	31 km
Chiddingstone	24 km
Petworth	40 km
North Chapel	33 km
Dunsfold	25 km

- 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, 2 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.

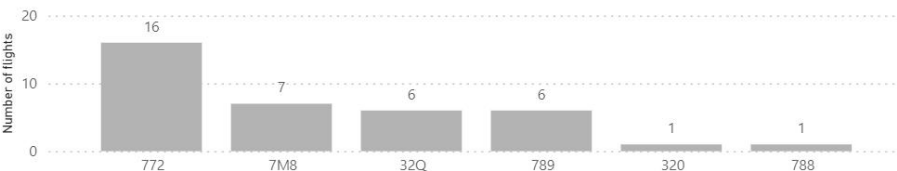
# Data Analysis

## Overview

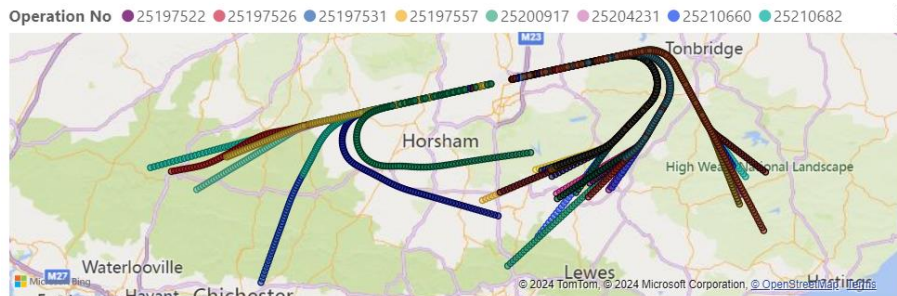
Daily number of PBN flights



Aircraft types



Trajectories



### 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)

- 37 flights participated in the trial.
- Total of 4 outliers.
- Majority of flights were westerly arrivals, with 9 easterly arrivals.
- Lateral track keeping of trial aircraft was good.
- 6 different aircraft types participated.
- NMTs are placed under TUFGA, VURJU and EFMUC, therefore, there is noise data captured for 19 PBN arrivals.

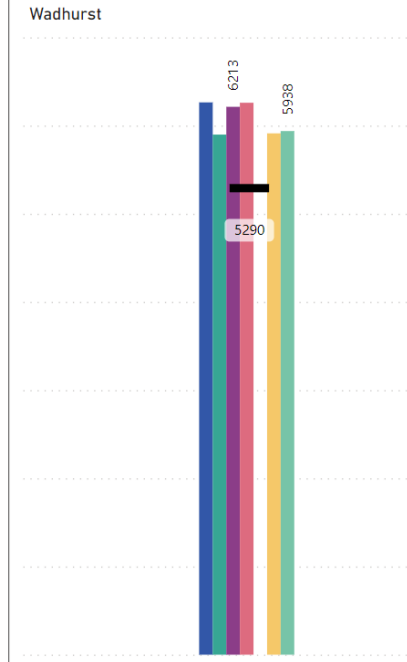
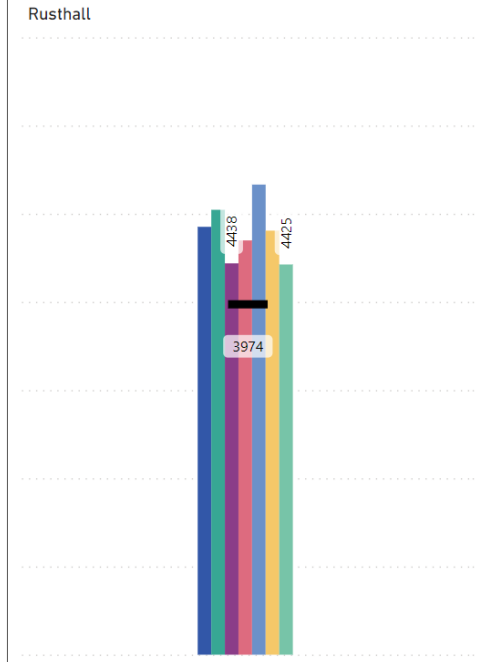
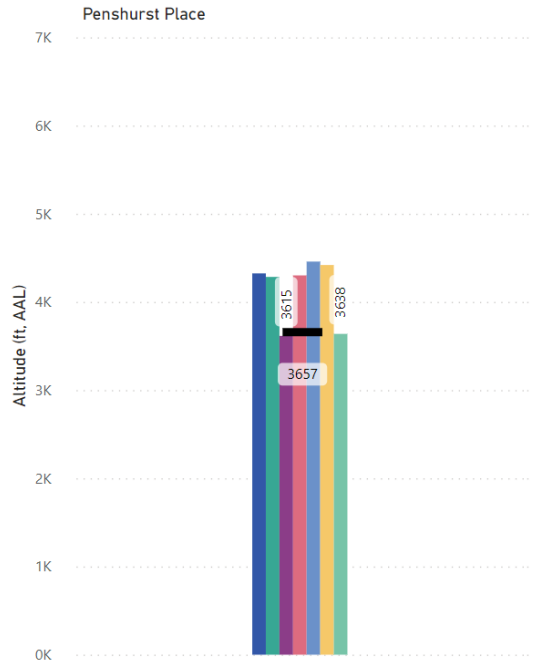
	Westerly				Easterly			
Routes	LACOV 1D	MUWAL 1D	VURJU 1D	TUFGA 1D	AFELE 1A	EFMUC 1A	IFKIF 1A	MOHIG 1A
No. approaches	0	11	10	7	5	2	1	1
No. outliers	0	0	1	2	0	1	0	0

# Data Analysis

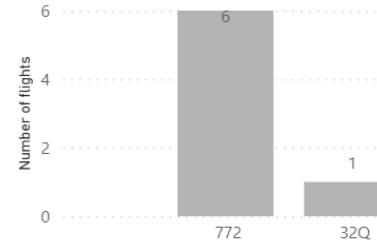
## TUFGA Route Altitude Analysis

### Altitude recordings and outlier thresholds

Operation Number ● 25210682 ● 25216642 ● 25226980 ● 25233308 ● 25263018 ● 25263043 ● 25279923 — Outlier Threshold (Trial Night, ft)



### Aircraft types



### Observations

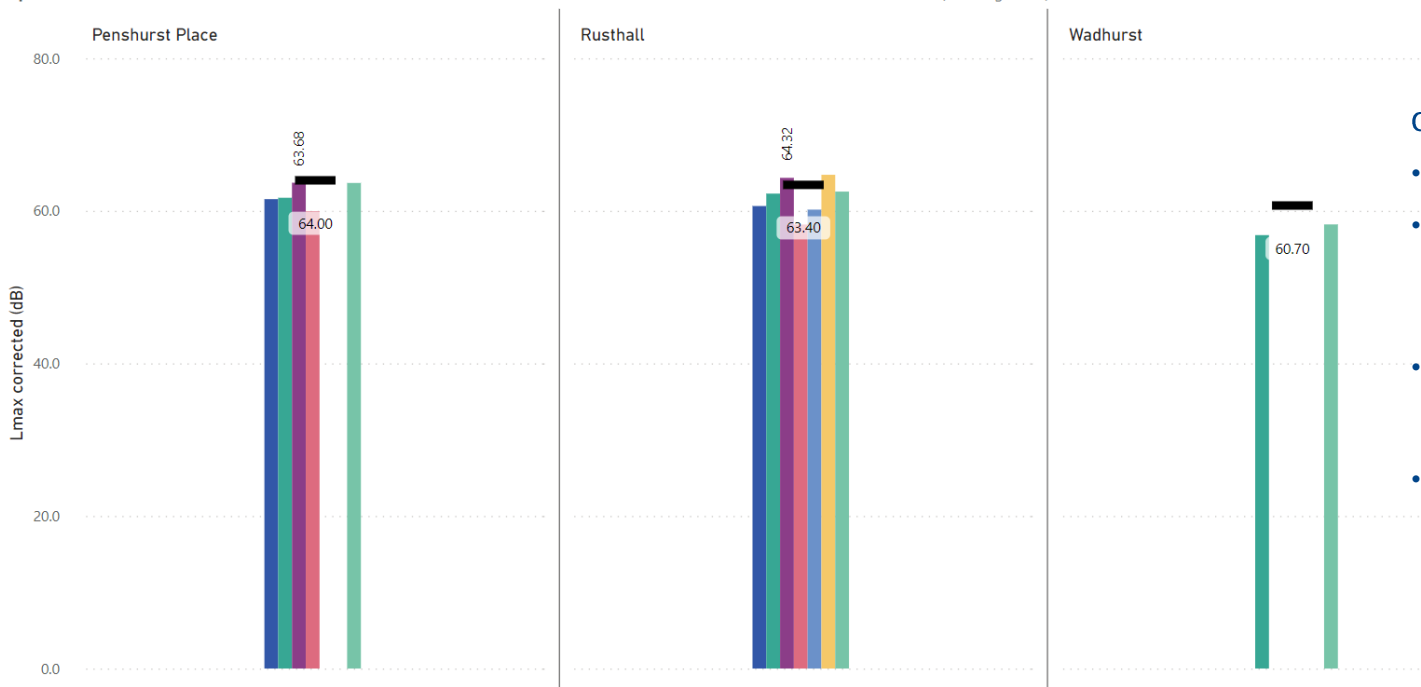
- 7 approaches on TUFGA 1D.
- The recorded altitudes for 25226980 and 25279923 are below the trial night outlier threshold at Penshurst Place and are altitude outliers.
- All other recorded altitudes on TUFGA 1D for this reporting period were above the thresholds.

# Data Analysis

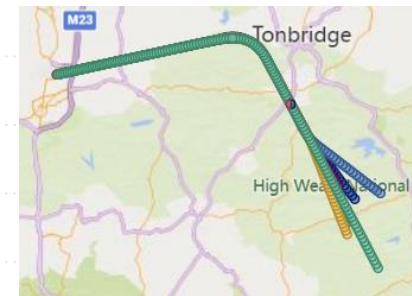
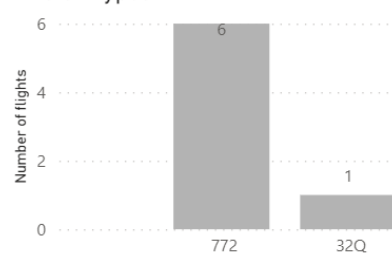
## TUFGA Route Noise Analysis

### Noise recordings and outlier thresholds

Operation Number ● 25210682 ● 25216642 ● 25226980 ● 25233308 ● 25263018 ● 25263043 ● 25279923 — Outlier Threshold (Trial Night, dB)



### Aircraft types



### Observations

- 7 approaches on TUFGA 1D.
- The recorded noise for op number 25226980 is 0.92dB louder than the trial night outlier threshold at Rusthall and is a noise outlier.
- Op number 25263043 exceeding the threshold at Rusthall is excluded due to not being a valid recording.
- All other flights are quieter than the trial night outlier threshold.



# Data Analysis

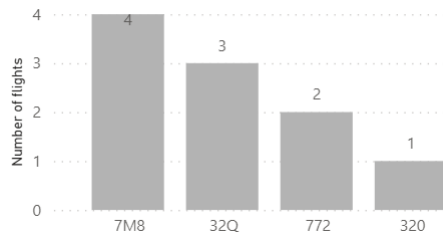
## VURJU Route Altitude Analysis

### Altitude recordings and outlier thresholds

Operation Number ● 25197522 ● 25197531 ● 25220040 ● 25223274 ● 25226975 ● 25250258 ● 25256451 ● 25266589 ● 25266605 ● 25279901 — Outlier Threshold (Trial Night, ft)



### Aircraft types



### Observations

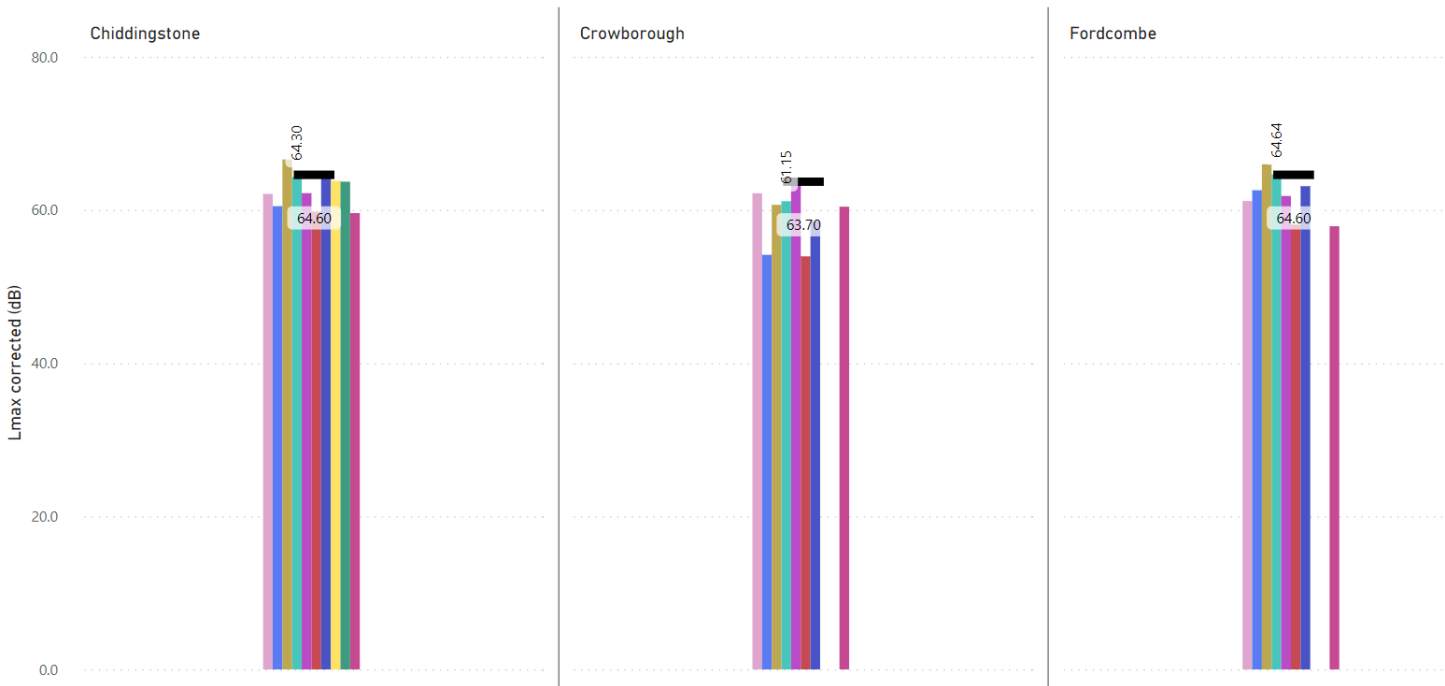
- 10 approaches on VURJU 1D.
- All recorded altitudes are at least 200ft above the trial night outlier thresholds.
- There are **no altitude outliers** on VURJU 1D for this reporting period.

# Data Analysis

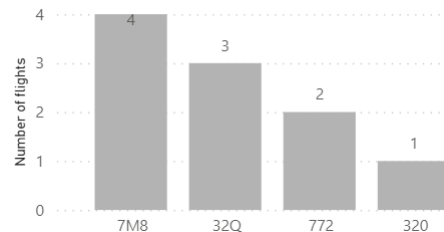
## VURJU Route Noise Analysis

### Noise recordings and outlier thresholds

Operation Number ● 25197522 ● 25197531 ● 25220040 ● 25223274 ● 25226975 ● 25250258 ● 25256451 ● 25266589 ● 25266605 ● 25279901 — Outlier Threshold (Trial Night, dB)



### Aircraft types



### Observations

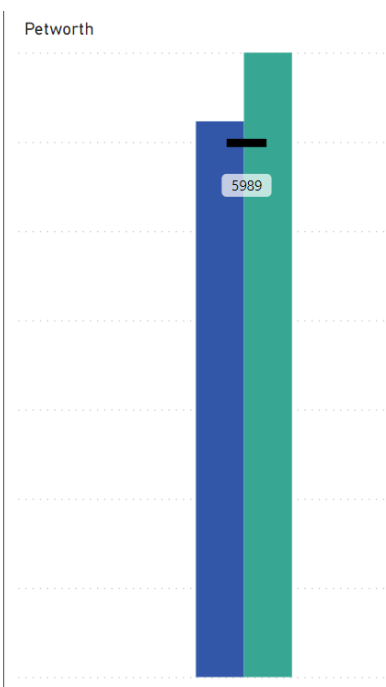
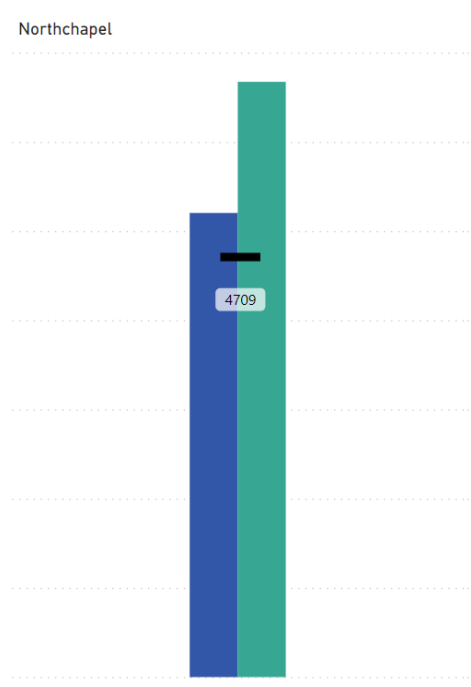
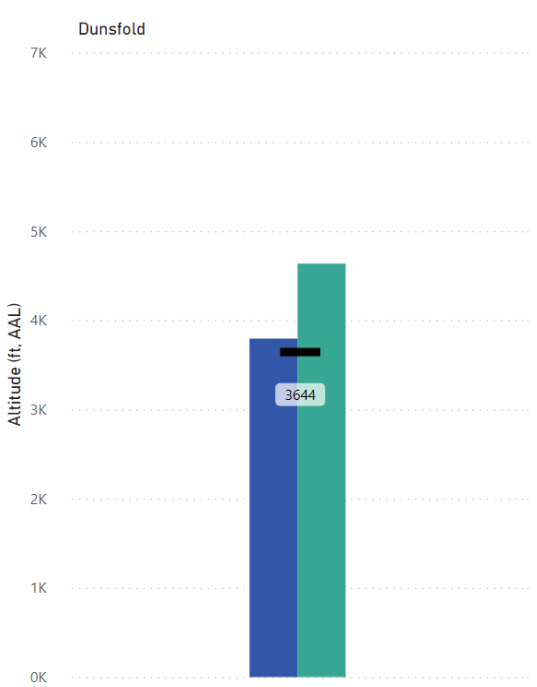
- 10 approaches on VURJU 1D.
- The recorded noise for op number 25223274 is 0.04dB louder than the trial night outlier threshold at Fordcombe and is a noise outlier.
- Recordings that exceed thresholds at Chiddingstone and Fordcombe for op number 25220040 are not valid.
- All other flights are quieter than the trial night outlier threshold.

# Data Analysis

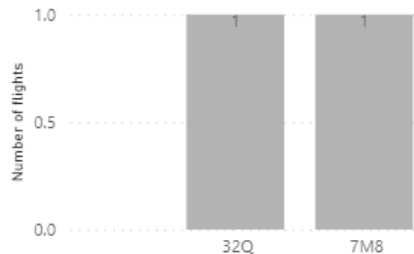
## EFMUC Route Altitude Analysis

### Altitude recordings and outlier thresholds

Operation Number ● 25239649 ● 25243398 — Outlier Threshold (Trial Night, ft)



### Aircraft types



### Observations

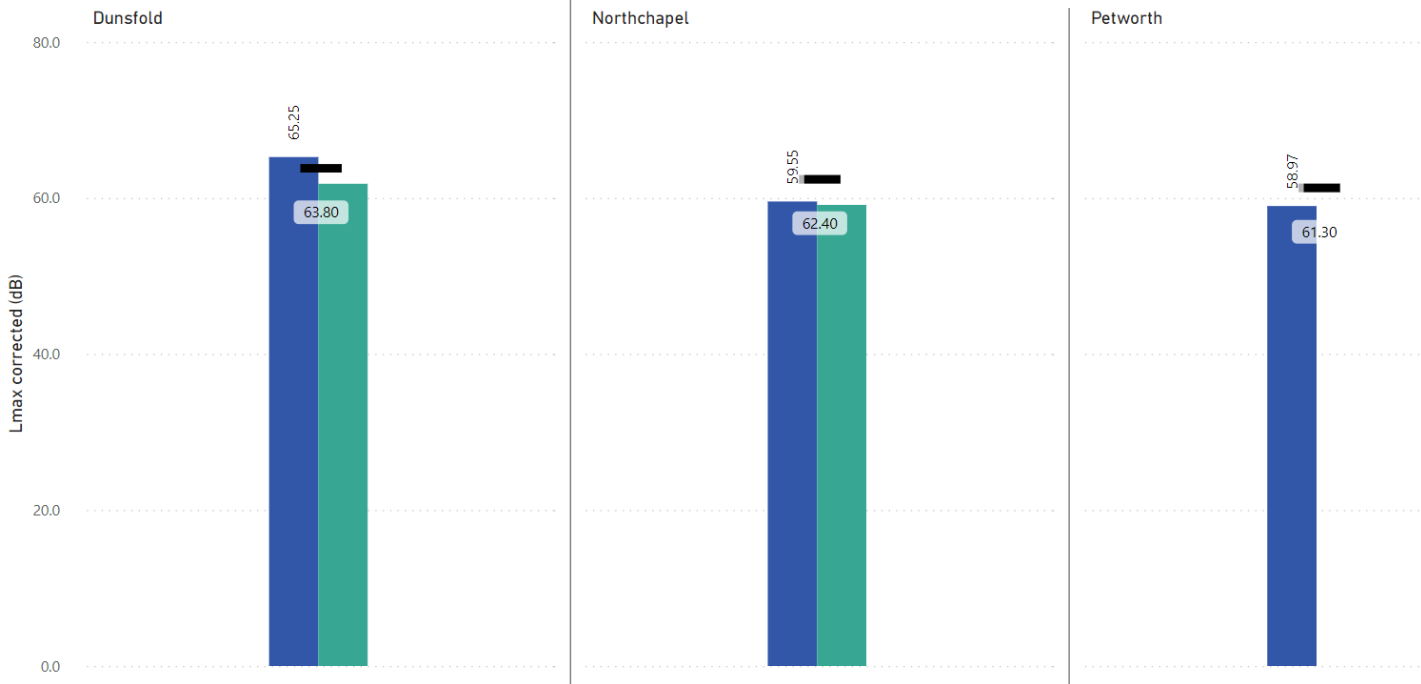
- 2 approaches on EFMUC.
- Altitude recordings captured on all 3 NMTs for each aircraft.
- All recorded altitudes are above the trial night outlier thresholds.
- There are **no altitude outliers** on EFMUC for this reporting period.

# Data Analysis

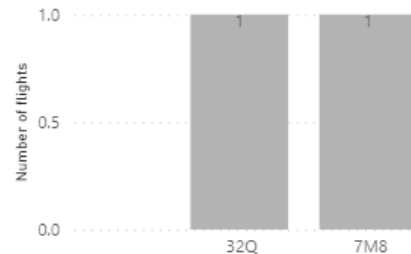
## EFMUC Route Noise Analysis

### Noise recordings and outlier thresholds

Operation Number ● 25239649 ● 25243398 — Outlier Threshold (Trial Night, dB)



### Aircraft types



### Observations

- 2 approaches on EFMUC.
- The recorded noise for op number 25239649 is 1.45dB louder than the trial night outlier threshold at Dunsfold.
- This aircraft is therefore a **noise outlier** when compared to the trial night threshold.
- All other recorded noise values are quieter than the trial night outlier thresholds.

# Next steps

1. Continue pilot engagement – to raise awareness and improve understanding of the trial.
2. Continue to record data and monitor trial progress.
3. Prepare the next trial progress report for publishing w/c 13 May 2024.