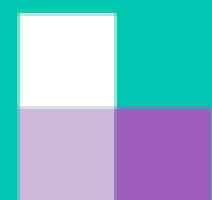
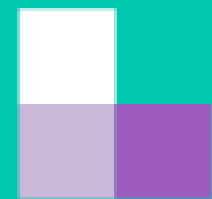


Community Noise Report

Dagnall

May – July 2019



London
Luton
Airport



Introduction

As part of the ongoing noise monitoring programme, London Luton Airport deployed a portable noise monitoring terminal in Dagnall.

The purpose of the monitoring programme is to understand the typical noise levels created in the local community, for Dagnall it specifically related to easterly arrivals.

The noise monitor was located in Dagnall between 7th May and 2nd July 2019.

The monitor's location was within the main easterly arrival corridor approximately 472m south of the route's centreline at an altitude of 453 feet above sea level.

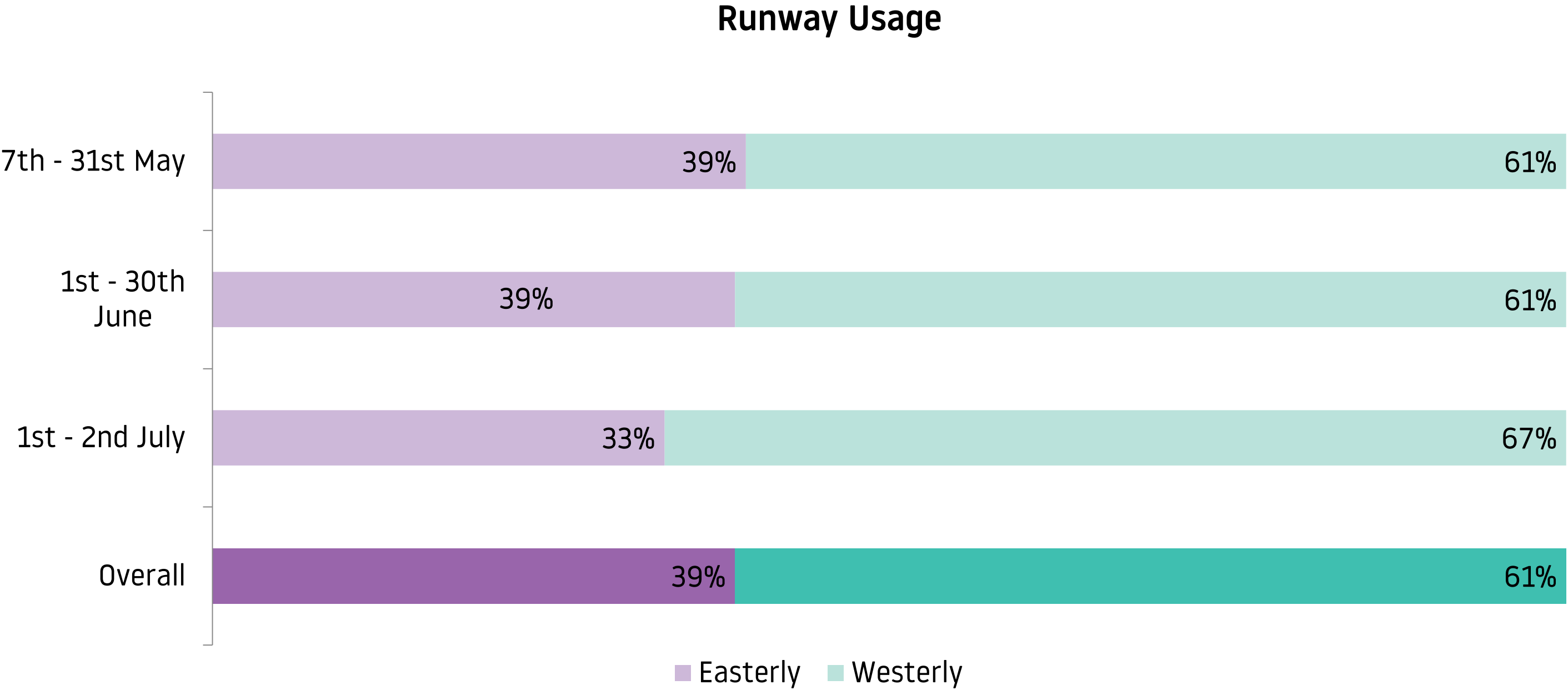
Aircraft noise and tracks recorded were extracted from LLA's noise and track-keeping system. This document evaluates the lateral and vertical positioning of aircraft near the monitor as well as the noise recorded at ground level.



LLA Operations During the Monitoring

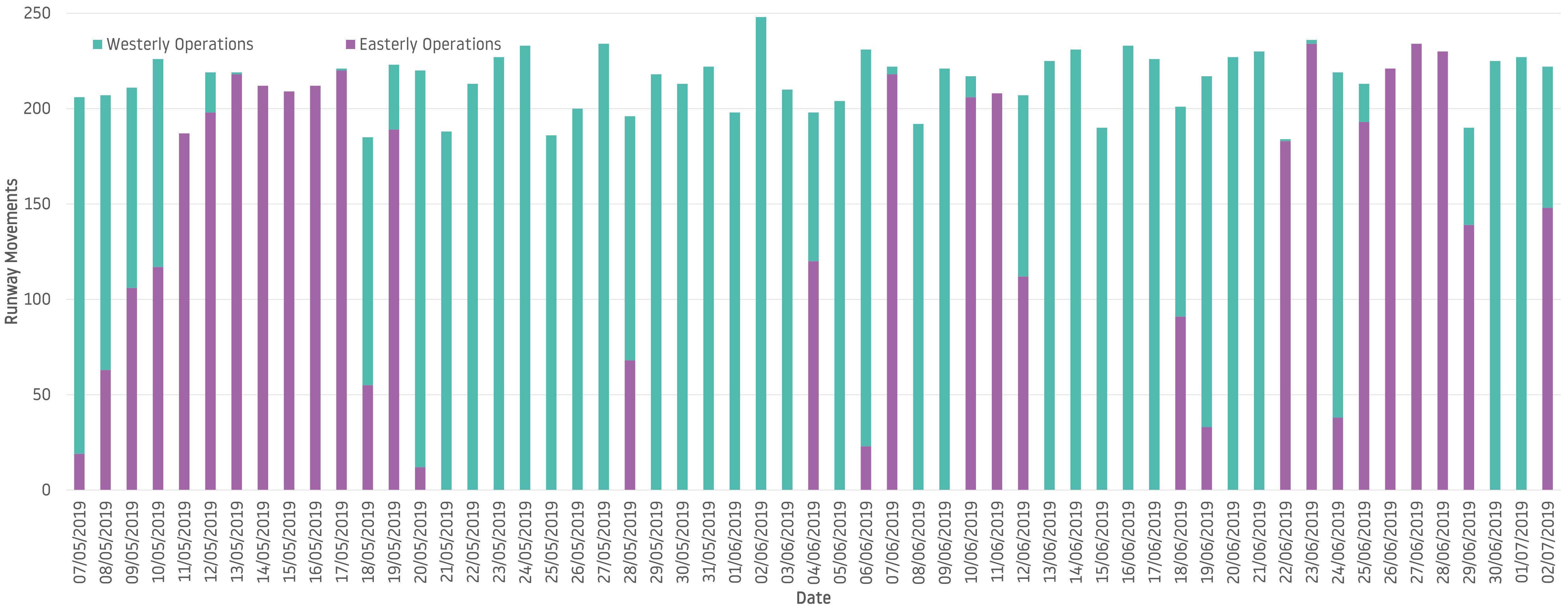
During the period of monitoring, the direction of operation was 39% Easterly and 61% Westerly. The 5 year average for this time of year is 41% Easterly vs 59% Westerly which demonstrates that residents in the area would have experienced decreased movements.

4,716 aircraft landed on the Runway 08 whilst the monitor was located in Dagnall.



Daily Movements During Monitoring Period

The chart below shows the number of daily arrivals that passed the noise monitor. Due to the location of Dagnall, all flights that landed on our Runway 08 whilst on easterly operations would have flown passed the monitor.
During the monitoring period there were 25 days of Westerly operations and therefore no flights passed near the monitor on these days.



Operations during the monitoring period

The graph below represents the average number of arrivals during the monitoring period. During the peak periods, local residents of Dagnall may notice more aircraft. Peak periods were at 0700-0800, 1200-1400, 1700-1900 and 2200-2359.

During the night period of 23:00 – 06:00 there was an average of 30 arrivals compared to 29 for the previous year showing a small increase in night time operations.



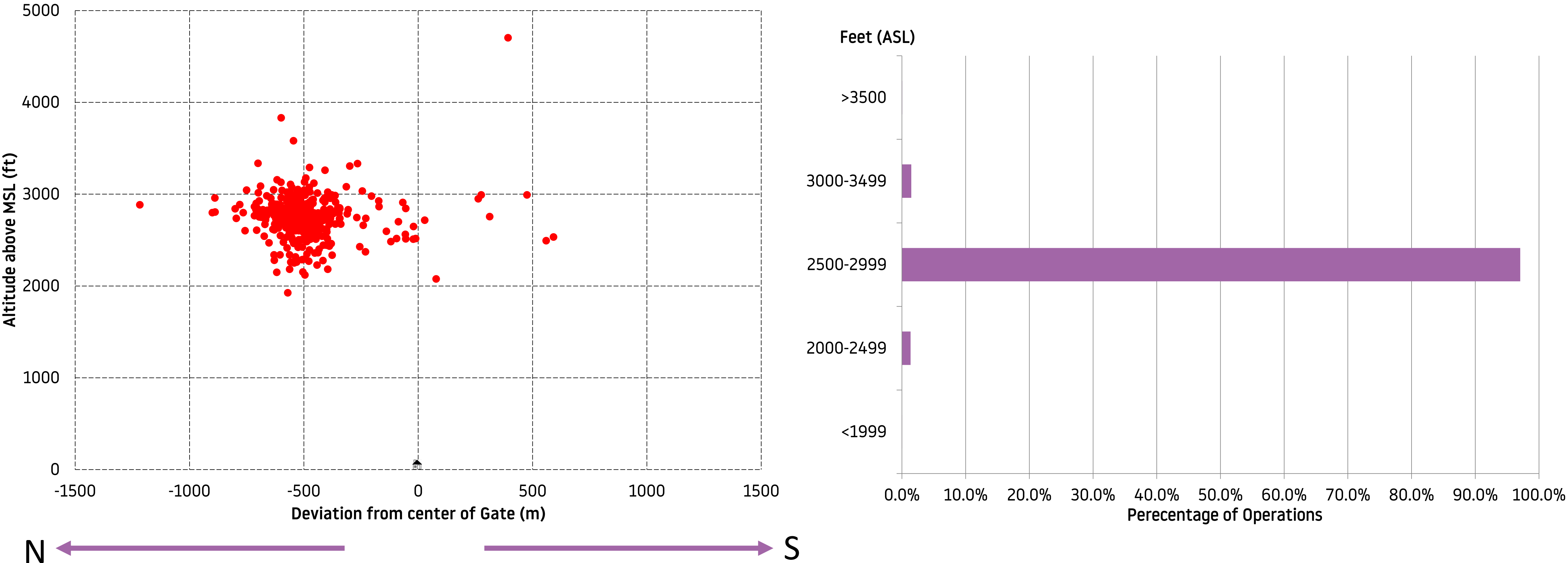
Aircraft Tracks During the Monitoring Period

The sample below shows the representative flight tracks that passed nearby the monitor during the monitoring period.



Altitude Analysis During Monitoring Period

Altitude analysis shows the vertical and lateral dispersion of aircraft 1.5km either side of the noise monitor. The chart below shows that 97% of flights were between 2,500-2,999 feet with small percentage of aircraft flew within 500 feet above and below this range. The average altitude of aircraft in this area was 2,739 feet above mean sea level.



How we analyse the Noise data

Following the noise monitoring period, we collate the data taken from our Noise and Track Keeping system and analyse the results. When analysing the results the first thing we do is ensure that there are no unusual noise events present which might not be caused by aircraft (i.e. vehicles or wildlife).

The weather also plays a big part in the data recorded and in periods of extreme weather the equipment can record noise incorrectly so during these weather conditions we exclude recordings from the analysis. i.e (very strong winds)

We are always looking at new ways to make our Noise Reports easier for the local communities to understand as well as including the right information. If you have any suggestions about how we can make these reports better, please don't hesitate to let us know.

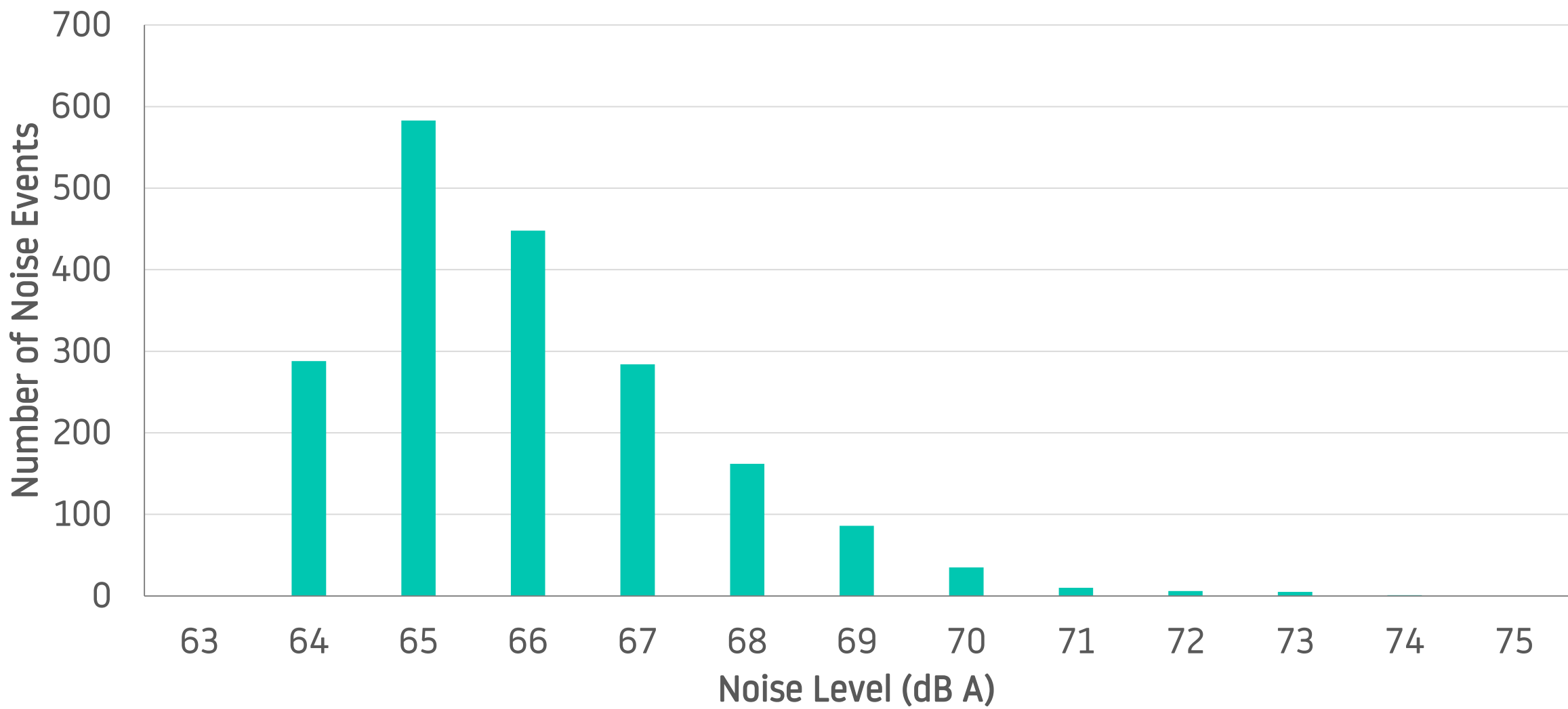
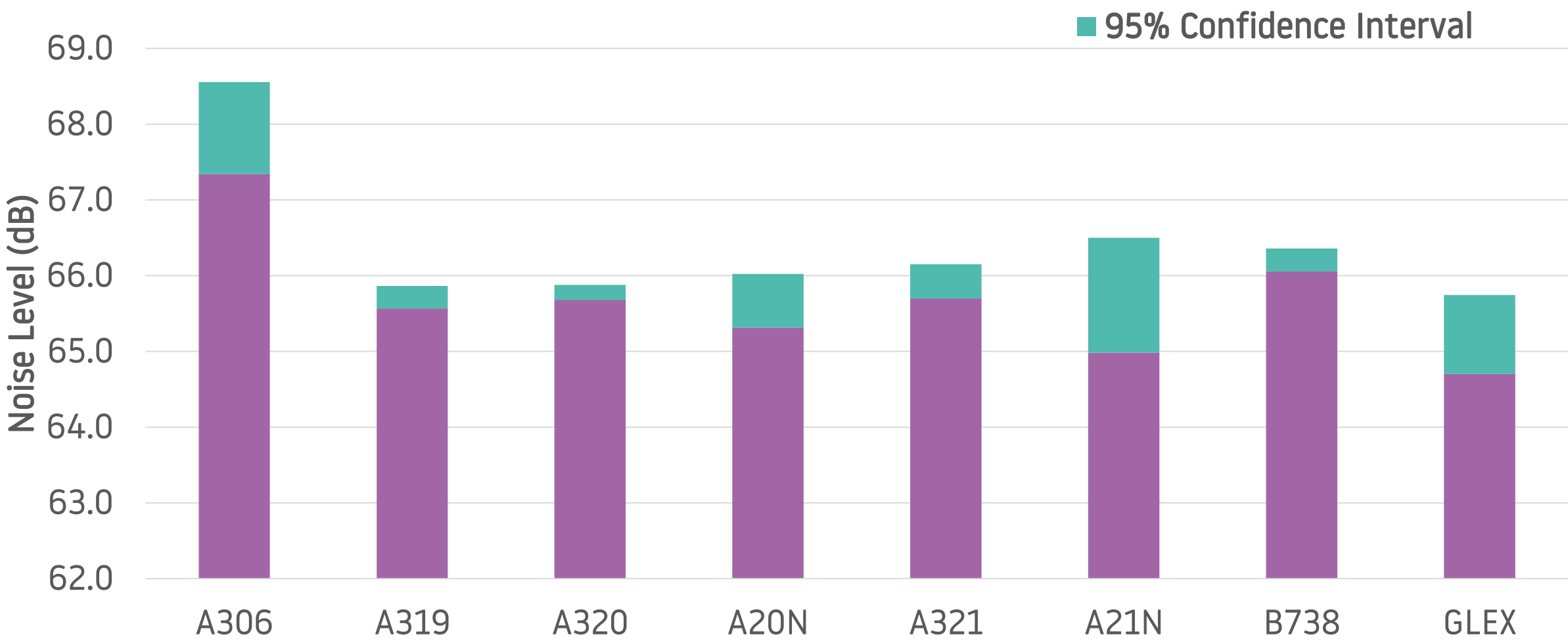
For the monitoring period in Dagnall the Noise Monitoring Terminal collected results for 1,914 aircraft. However, 2,802 aircraft did not register noise events as they were either too high or too quiet, 6 results were excluded for weather reasons as outlined above, which left 1,908 noise results to analyse which are shown in the next few pages

Noise Results During Monitoring Period

During the monitoring period, noise results were gathered from various aircraft types, the most popular aircraft types are shown in the table below*.

| Aircraft Type | Number of movements | Average Noise (dB) |
|-----------------------|---------------------|--------------------|
| A306 | 46 | 68.0 |
| A319 | 408 | 65.7 |
| A320 | 759 | 65.8 |
| A20N (A320 Neo) | 54 | 65.7 |
| A321 | 167 | 65.9 |
| A21N (A321 Neo) | 19 | 65.7 |
| B738 | 337 | 66.2 |
| GLEX (Global Express) | 21 | 65.2 |

The average noise in Dagnall is 66.0 dB, based on a sample size of 934. The table shows the average noise for each aircraft type and the green bar on the chart shows the uncertainty caused by the spread in readings and the sample size (95% confidence interval). From the results, the newer A320 NEO produced slightly less noise than the A320 CEO on arrivals. Although our other noise study found that the A321 NEO aircraft created significantly less noise than the A321 CEO on departures but this Dagnall noise study found that the A321 NEO sometimes produce more noise than the A321 CEO on arrivals, as shown by the green bar. That is due to the higher landing weight of the aircraft which means higher flap angle is needed to maintain a safe approach speed. That in turn increase the aerodynamic noise. Nevertheless, the average arrival noise of A321 NEO was slightly lower than the A321 CEO at Dagnall. From our Quarterly Report Q2 2019, the A321 NEO accounted for 1% of all air transport movements. The A306 was the noisiest aircraft type at Dagnall during the monitoring period.



*The noise results shown in the analysis are only for those aircraft types that recorded more than 20 events per aircraft. (A21N included for comparison)

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Conclusion

- During the monitoring period, the airport was using easterly operations for 39% of the time, this is less than the 5 year average of this time period, and therefore residents would have experienced less noise during this period than in recent years.
- The main aircraft types operating at the airport are A320 & A319 therefore the aircraft flying in the vicinity of Dagnall are in line with this.
- 3.8% of the noise events recorded were created by easyJet A320 NEO & A321 NEO aircraft, registering average noise events of 65.7 dB.
- The newer A320 NEO aircraft was slightly quieter than the A320 CEO aircraft on arrivals in Dagnall. On the other hand, this Dagnall noise study shows that the arrivals of A321 NEO aircraft sometimes create more noise than the A321 CEO aircraft, due to the higher landing weight of the aircraft which means higher flap angle is needed to maintain a safe approach speed. That in turn increase the aerodynamic noise. Nevertheless, the average arrival noise of A321 NEO aircraft was slightly lower than the A321 CEO aircraft at Dagnall. At London Luton Airport, this aircraft type accounted for 1% of all air transport movements in Q2 2019.
- The average altitude of aircraft in the area is 2,739 feet above sea level, and as Dagnall is already 453 feet above sea level, aircraft will typically be 2,286 feet above ground level in this area.
- Above Dagnall aircraft are typically between 2,500-2,999 feet, during the monitoring period this accounted for 97% of all aircraft. We also saw 1.6% of aircraft achieve altitudes above 3,000 feet.

Glossary of Terms

Easterly Operations: As aircraft take off and land into the wind, easterly operations refers to the time when the wind is blowing from the east and aircraft follow the arrival route from the direction of Dagnall.

SID: Standard instrument departure, is the published route that an aircraft must follow on departure.

Aircraft Movement: A single aircraft departing or arriving at the airport.

Gate Analysis: A 3km gate which is drawn across an area and will gather information about every aircraft passing through the gate area.

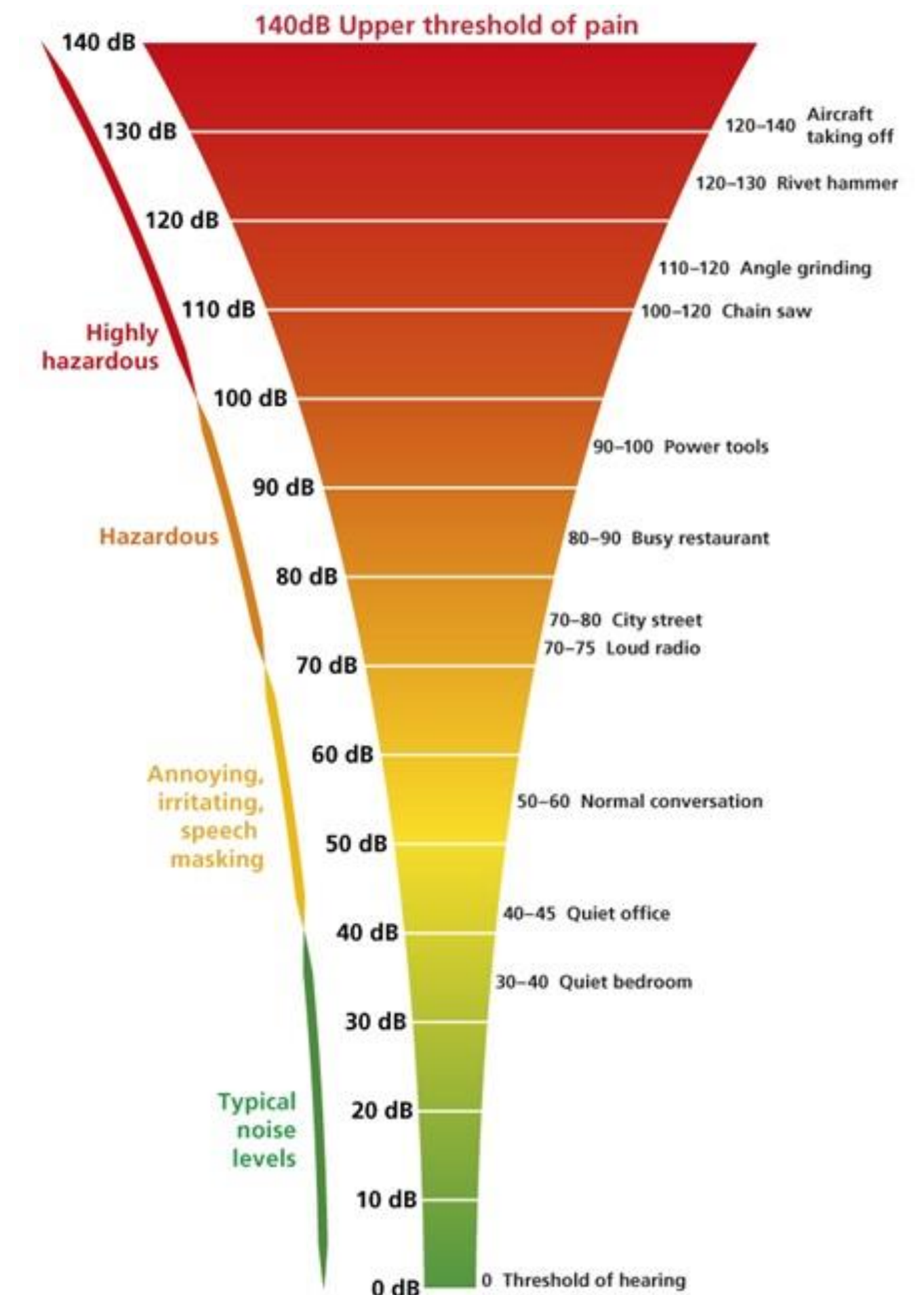
Noise Event: A single event is the period from when an aircraft approaches the monitor until when the aircraft is leaving the area.

Decibel (dB): The unit used to measure noise (typically 50-60dB is equivalent to a normal conversation level).

LasMax: A unit of measure and is the maximum noise level from a single aircraft passing over the noise monitor.

LAeq (16hr day): the average noise level during the day (a 16-hour day) during the summer period. The measure of noise is given in decibels (dB). This averaged decibel measurement 'LAeq', is the most common international measure of aircraft noise, it means 'equivalent continuous noise level'.

95% Confidence Interval: A range of values that you can be 95% certain contains the population mean.



Source: iosh.co.uk

