



FARNBOROUGH AIRPORT SUSTAINABILITY

Town and Country Planning Act Section 106/299A

Environment Report 2 July to December 2024

Farnborough Airport Ltd
Farnborough
Hampshire
GU14 6XA

1. INTRODUCTION

- 1.1 In compliance with the requirements of the agreement in place under Sections 106 and 299A of the Town and Country Planning Act 1990 between Farnborough Airport Limited (FAL) and Rushmoor Borough Council (RBC), FAL hereby submits a report for July to December 2024, detailing results of environmental monitoring as required by clauses 1.3, 2.8a, 2.8b and 3.4.

2 NOISE MONITORING

- 2.1 Two permanent noise monitoring terminals (NMTs) continuously operate at the sites of Tweseldown Racecourse and Farnborough College of Technology; approximately one mile from the airfield and beneath the typical arrival and departure flight path of Farnborough Airport.

The portable NMT is maintained/calibrated in preparation for ad-hoc monitoring in connection with procedural trials or in response to requests from groups or individuals in the surrounding community.

- 2.2 Correlated Noise data (dB(A) L_{eq16}) recorded by the fixed NMTs for “Aircraft”, “Community” and “Total” noise is tabulated in Appendix A. These values represent the average noise level over the time of the event or period of interest. It must be remembered that total noise is the addition of community noise and aircraft noise, and is a function of the logarithmic equation whereby:

$$L1 \text{ and } L2 = 10 \cdot \text{LOG}_{10}(10^{(L1/10)} + 10^{(L2/10)})$$

For example:

$$L1 = 57.5$$

$$L2 = 50.5$$

$$10 \cdot \text{LOG}_{10}(10^{(57.5/10)} + 10^{(50.5/10)})$$

$$\text{Total Noise} = 58.3\text{dB}$$

- 2.3 Tweseldown Racecourse events have the potential to influence values for “community” and “total” noise at the Tweseldown NMT. The following events took place at the racecourse during the reporting period:

- 6-7 July; & 13 July
- 12-13 October & 26 October

Values for “aircraft” noise remained relatively stable throughout the period of reporting. During the events mentioned above, one is able to detect the influence within the community noise report provided in Appendix A on those days.

- 2.4 All three operational NMTs were subject to calibration by an independent specialist on the 5th of April 2024.
- 2.5 Noise contours produced using the FAA’s Integrated Noise Model (INM 7.0d) for operations covering 2024 together with predicted contours for 2024 will be submitted to RBC in mid-February (2025) of the reporting year in accordance with the requirements of the Planning Agreement. The results of the modelling exercise undertaken are displayed in Table 1, along with those included within the Planning Agreement (Control Contours). The predicted noise contours were generated using movement data (flight tracks) from the study year, taking in to account the forecast growth for the year ahead (including predicted helicopter movements).
- 2.6 Contours relating to actual movements for January to June last year and predicted contours for July to December last year were supplied to RBC in mid August. Contours relating to actual movements for January to December last year together with predicted contours for the year ahead will be submitted to RBC in mid-February this year (2025).

Table 1: Most recent results of annual INM Noise Assessment

dB <small>L_{Aeq,16h}</small>	Control Contours <small>Predicted 20,000 (km²) movements (1997 mix)</small>	Amended Control Contour Areas <small>(km²) as per clause 12.1a of the S106 (29/10/2010)</small>	Predicted Contour Areas <small>2024 (km²)</small>	Actual Contours Area <small>2024 (km²)</small>	Predicted Contour Areas <small>2025 (km²)</small>
55	9.07	6.58	2.39	2.15	2.12
60	4.03	2.42	1.00	0.92	0.91
65	1.70	N/A	0.48	0.43	0.43

- 2.7 Use of the dB(A) L_{eq16} contour is internationally recognised as a means of noise measurement. A 66 dB(A) L_{eq16} indicates that the average level of noise during a 16-hour day is 66 dB(A).
- 2.8 The 55 dB(A) L_{eq16} contour, used in agreement with RBC, is below the level in the Aviation Policy Framework (March 2013) which the Government advises that it will continue to treat as the average level of daytime aircraft noise marking the approximate onset of significant community annoyance.
- 2.9 In accordance with the requirements of the Section 106 Agreement, INM 7.0d has been used to produce the noise contours. This version of the software allows helicopter movements to be integrated within the modelling process together with consideration of surrounding terrain.
- 2.10 Daily dB(A) L_{eq16} figures are provided in Appendix A.

3 AIRCRAFT MOVEMENTS

- 3.1 Table 2 displays a summary of aircraft movements for the reporting period by movement category.

Table 2: Movements summary by type

Category	Jul	Aug	Sep	Oct	Nov	Dec	Report Total
Business	2913	2478	2710	2437	2085	2093	14716
Helicopter	66	55	59	83	70	66	399
Subtotal <small>(Declared under planning obligations)</small>	2979	2533	2769	2520	2155	2159	15115
Military	9	7	10	23	12	2	63
Flying Club	63	84	42	45	14	10	258
Other	60	108	67	52	69	42	398
ADS	279	0	0	0	0	0	279
Total	3390	2732	2888	2640	2250	2213	16113

- 3.2 Tables 3 and 4 display a summary of movement percentages against the total for each month, by category for weekdays and weekends.

Table 3: Percentage movement summary by category for weekdays

	Jul	Aug	Sep	Oct	Nov	Dec
Business	63.6	61.2	66.4	69.9	70.6	68.4
Helicopter	1.6	1.5	1.7	2.6	2.7	2.4
Military	0.3	0.2	0.3	0.8	0.3	0.1
Flying Club	1.3	2.3	0.9	1.3	0.4	0.4
Other	1.3	3.4	1.9	1.7	2.4	1.5
ADS	7.0	0.0	0.0	0.0	0.0	0.0
TOTAL	75	69	71	76	76	73

Table 4: Percentage movement summary by category for weekends

	Jul	Aug	Sep	Oct	Nov	Dec
Business	22.4	29.5	27.4	22.4	22.1	26.2
Helicopter	0.4	0.5	0.3	0.5	0.4	0.5
Military	0.0	0.1	0.0	0.0	0.2	0.0
Flying Club	0.5	0.8	0.6	0.5	0.2	0.1
Other	0.5	0.5	0.4	0.3	0.7	0.4
ADS	1.3	0.0	0.0	0.0	0.0	0.0
TOTAL	25	31	29	24	24	27

- 3.3 Table 5 displays runway use data. Operations are divided into Arrivals and Departures on each runway and helicopter movements without use of the runway (Aerodrome).

Table 5: Runway in use (as percentages) by mode of operation

	Jul	Aug	Sep	Oct	Nov	Dec
06 Arrival	10	7	16	11	17	9
06 Departure	11	6	18	11	18	9
24 Arrival	39	43	33	39	32	40
24 Departure	39	43	32	38	31	41
Aerodrome (Heli)	1	1	1	1	2	2

- 3.4 Maximum Take-Off Weight (MTOW) is recorded for all operating aircraft. Table 6 displays MTOW data for aircraft operated during this reporting period reflected as a percentage of the overall movements in each month.

Table 6: Percentage of movements by MTOW against the monthly declared total

	Jul	Aug	Sep	Oct	Nov	Dec
Over 50t	4	5	4	3	3	2
50t or less	96	95	96	97	97	98

- 3.5 All civil aircraft using Farnborough Airport during the reporting period were compliant with the International Civil Aviation Organisation (ICAO) Chapter 4. All aircraft must provide certification of Noise Chapter prior to permission to operate being granted.
- 3.6 Helicopters, light aircraft and turbo-prop aircraft are not subject to the requirements of the ICAO noise certification scheme.

4 AIR QUALITY MONITORING

- 4.1 Thirteen nitrogen dioxide tubes and two Learian Streetbox monitors remain as previously reported.
- 4.2 Table 7 displays the standards accepted by the Government and recommended by the expert panel on air quality standards.

Table 7: Objectives included in regulations for purposes of local Air Quality Management

Pollutant	Air Quality Objective		Date to be achieved by and maintained thereafter
	Concentration	Measured as	
NO ₂	200µg/m ³ (105ppb) not to be exceeded more than 18 times a year	1 hour mean	1 st Jan 2010
NO ₂	40µg/m ³ (21ppb)	annual mean	1 st Jan 2010

^a Conversions of ppb and ppm to µg/m³ and mg/m³ at 20°C and 1013mb.

ppb = parts per billion µg/m³ = micrograms per cubic metre.

Source: https://uk-air.defra.gov.uk/assets/documents/Air_Quality_Objectives_Update.pdf

- 4.3 Air quality results consist of raw and manipulated data from diffusion tube laboratory analysis. Raw data from the Learian Streetbox Monitors consists of hourly mean NO₂ concentrations. This data is extensive over a six-month period and so is displayed as a monthly mean. This data is ratified by an external third party.
- 4.4 Passive and active NO₂ monitoring results are detailed in Figures 1 and 2 respectively.

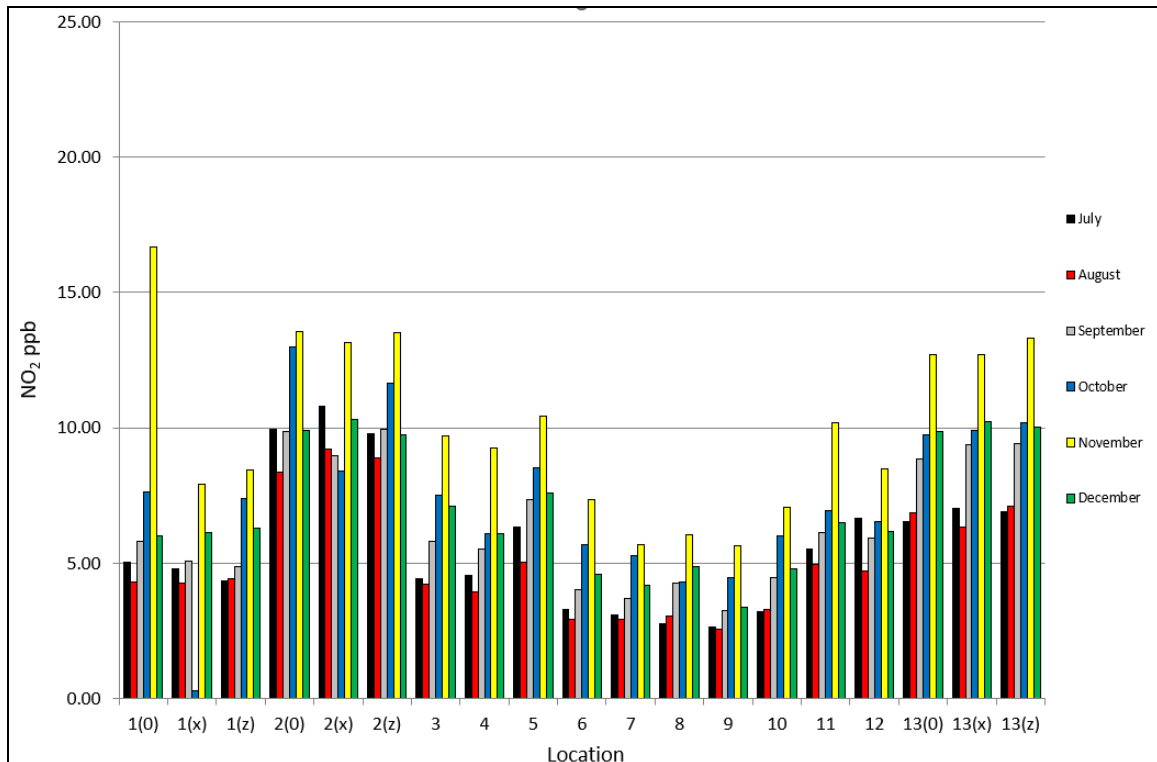


Figure 1: Passive NO₂ monitoring results, (ppb expressed as a monthly mean).
N.B. This data has not had a bias adjustment applied

- 4.5 The results taken from the diffusion tubes indicate that NO₂ levels around the airfield during the reporting period have achieved the stated objectives for UK Air Quality Management of NO₂. Locations 1-6 and 13 are located outside of the airport boundary whilst 7-12 are located within the airport. Locations 2 and 13 represent the highest concentrations of Nitrogen Dioxide which highlight the influence of road traffic on air quality in the local area.
- 4.6 Continuing trends in the results indicate terrestrial sources (vehicles) of NO₂ as the predominant source. The elevated levels consistently recorded for location 13 which is adjacent to the M3 motorway.

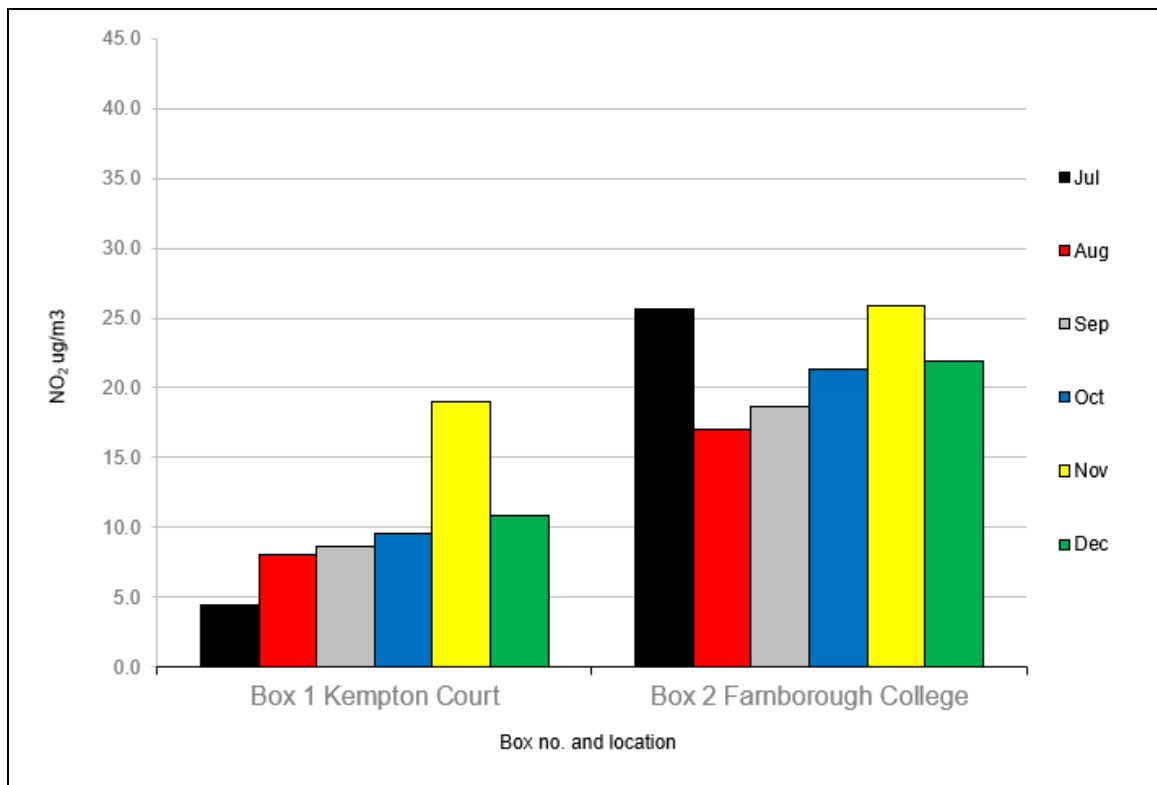


Figure 2: Active NO₂ monitoring results, (µg/m³ expressed as a monthly mean).

4.7 The active monitoring locations in Kempton Court and Farnborough College highlight the differences in a quiet suburban road with limited vehicular movements compared to that of an area with high volumes of vehicular movements.

5 CONCLUSION

- 5.1 Routine monitoring of noise, noise abatement compliance, air quality and aircraft movement numbers continues at the Airport. To date, all monitoring practices have been implemented in accordance with the requirements and the Town and Country Planning Act Section 106 Agreement.
- 5.2 All movements operated at the airport remain restricted to those permitted by the terms of the planning consent and the accompanying agreement.
- 5.3 Air quality data continues to indicate terrestrial sources of NO₂ as predominate. Nitrogen dioxide levels remain consistent with long term trends; typically elevated over the colder winter months, due to nitrate release from decomposition.
- 5.4 Activities at the airport remain within the specifications of the Section 106/299A agreement.

ENDS

Gareth Andrews
Sustainability Manager
Farnborough Airport

www.farnboroughairport.com

29/01/2025

Appendix A

Noise Report
Farnborough Airport

Aircraft Noise By Day of Month and NMT
 Start Date:01-Jul-2024
 End Date: 31-Dec-2024

Jul-24

NMT	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
2	51.2	50.6	49.4	51.8	50.4	53.9	51.0	52.4	51.1	51.5	49.8	52.9	52.1	51.0	53.0	57.4	59.9	51.8	50.6	49.7	52.6	62.5	62.4	52.0	55.1	66.8	56.8	55.8	51.8	51.9	52.9
3	57.5	55.5	56.3	57.1	57.4	57.5	57.1	56.7	56.4	58.0	56.6	58.1	55.7	56.9	60.5	67.4	61.4	57.7	59.5	58.6	58.4	79.1	64.4	63.6	56.7	66.5	56.6	55.1	57.4	57.6	57.3

Aug-24

NMT	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
2	54.0	49.4	49.2	49.1	49.3	50.2	47.1	47.1	49.5	48.8	50.2	52.5	48.4	47.7	47.5	50.6	50.7	47.7	50.8	47.6	49.1	46.9	50.4	49.7	51.0	47.8	50.5	49.4	49.4	52.7	54.8
3	56.7	55.7	54.4	54.0	57.0	55.9	53.8	56.9	55.7	55.4	55.3	55.1	55.7	56.8	56.8	54.1	53.5	54.1	57.4	54.6	55.2	57.5	55.3	55.9	56.9	56.6	56.7	56.1	55.0	57.0	56.6

Sep-24

NMT	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
2	52.7	49.8	50.0	51.6	53.9	48.9	50.9	50.2	51.9	49.5	50.1	49.6	52.2	48.0	50.3	52.3	50.9	53.7	53.9	52.3	50.9	51.7	47.7	49.4	49.2	50.6	53.4	48.0	51.7	49.5
3	58.2	57.9	57.5	55.0	55.4	56.4	52.9	57.4	55.0	56.5	56.2	54.9	53.5	53.7	56.5	57.9	56.4	56.1	56.0	56.7	56.8	58.0	56.8	55.9	57.6	57.0	56.2	53.5	57.7	57.2

Oct-24

NMT	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
2	48.9	53.1	53.0	52.2	48.9	48.3	51.1	49.4	49.8	52.4	50.8	48.7	52.6	53.9	52.9	50.1	48.7	52.7	52.7	48.3	50.3	49.3	51.4	48.8	49.7	48.8	51.1	45.4	50.0	49.4	52.7
3	56.8	55.9	55.4	56.2	53.7	58.2	57.3	55.0	55.6	56.8	55.3	53.1	54.7	57.2	57.8	57.4	56.1	57.8	56.0	57.8	55.7	55.7	56.4	55.5	56.6	54.1	54.2	56.1	55.4	56.3	55.1

Nov-24

NMT	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
2	49.6	51.9	51.8	51.1	49.2	47.9	52.1	51.2	50.3	49.9	52.0	52.5	51.1	51.9	49.6	47.6	46.6	49.9	51.4	49.0	50.7	48.7	46.6	50.6	49.4	49.7	50.4	51.8	46.6	48.9
3	54.7	53.1	57.7	55.5	56.7	55.5	55.7	54.7	52.4	54.6	54.6	51.9	55.8	55.7	55.5	54.0	53.7	55.8	57.4	55.7	56.6	54.0	53.3	56.9	55.4	53.9	55.1	54.4	55.3	55.0

Dec-24

NMT	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
2	52.4	49.9	49.5	48.6	50.7	51.0	56.2	54.0	54.1	54.0	52.1	52.1	53.5	48.5	51.2	50.9	50.5	51.1	50.6	50.2	52.6	54.0	49.4	43.5	0.0	0.0	48.4	50.5	45.8	43.5	41.9
3	56.4	55.6	56.2	56.1	57.6	55.6	52.9	53.0	53.1	55.2	56.0	57.4	57.6	53.1	53.3	54.7	58.6	56.0	55.9	56.2	56.5	55.3	53.5	51.7	0.0	0.0	56.6	55.5	53.6	52.3	52.3

Noise Report
Farnborough Airport

Community Noise By Day of Month and NMT

Start Date:01-Jul-2024

End Date: 31-Dec-2024

Jul-24

NMT	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
2	51.3	50.2	51.5	60.3	52.0	61.8	54.1	49.3	51.6	53.0	49.3	48.9	55.6	49.0	58.1	64.2	66.7	49.7	48.9	50.0	48.6	64.8	69.5	67.6	50.9	67.8	48.7	47.1	47.3	47.5	48.2
3	50.5	50.4	51.1	52.9	53.0	53.5	53.3	50.4	53.0	51.8	49.7	49.5	49.8	49.1	59.0	64.1	66.4	50.7	54.9	49.7	55.5	72.4	65.7	65.4	51.3	65.5	49.0	47.5	48.8	47.6	49.5

Aug-24

NMT	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
2	51.0	49.0	49.9	48.2	49.0	50.0	50.8	52.6	54.6	50.1	46.5	48.5	48.9	49.1	54.6	49.4	47.5	51.4	50.5	57.9	52.4	58.3	57.4	51.2	55.7	49.1	49.9	49.1	49.9	48.2	51.3
3	53.1	49.2	49.4	48.8	50.1	50.0	50.5	51.5	51.1	49.8	48.1	48.8	49.2	49.5	53.4	48.8	48.5	49.2	50.8	50.9	50.6	53.2	51.4	51.4	52.1	49.4	50.5	50.3	49.7	49.7	49.7

Sep-24

NMT	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
2	46.8	49.5	49.6	49.6	50.5	51.5	48.6	49.4	51.2	58.2	56.3	50.8	49.9	49.8	49.5	47.9	49.3	52.6	55.0	55.5	49.1	48.0	51.6	50.2	50.4	55.8	51.5	49.8	52.5	60.4
3	49.6	51.5	49.8	49.6	54.0	55.8	48.5	50.7	52.0	53.5	54.2	52.0	50.8	50.6	50.2	50.3	51.5	52.9	51.6	54.6	50.4	49.3	53.1	51.7	52.3	53.9	52.9	50.3	52.8	54.6

Oct-24

NMT	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
2	53.3	51.7	50.2	50.1	49.7	50.4	52.3	51.9	50.3	52.2	50.2	58.2	57.5	49.1	49.6	49.5	50.8	51.1	51.0	56.7	50.9	51.3	50.5	54.3	50.5	50.1	49.0	51.4	49.7	49.0	49.4
3	53.3	52.7	51.7	53.1	52.6	50.3	54.2	54.3	51.3	51.8	51.7	51.0	49.8	58.5	52.6	52.9	52.3	52.9	51.7	53.7	55.9	53.2	52.0	53.0	51.3	49.6	49.6	54.6	50.8	52.1	52.7

Nov-24

NMT	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
2	50.4	48.2	47.9	49.5	49.2	48.4	48.6	49.4	48.8	49.8	50.1	52.7	51.2	48.6	49.6	50.7	50.9	50.4	51.0	52.2	50.7	54.9	63.0	64.6	53.8	51.4	51.8	51.6	51.5	50.6
3	53.6	52.4	51.5	54.6	56.2	50.5	53.1	51.4	49.1	49.8	52.9	53.0	52.6	51.5	51.7	51.2	51.0	52.5	52.8	54.0	53.3	53.6	56.0	57.7	54.0	53.9	53.6	55.0	53.9	51.5

Dec-24

NMT	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
2	51.0	53.2	50.3	52.1	63.2	53.4	74.4	61.0	59.0	58.7	49.5	49.2	50.6	51.3	56.3	52.3	52.1	59.9	56.7	54.6	62.4	65.1	51.4	50.9	46.6	47.8	48.5	50.4	49.7	51.2	63.5
3	52.3	53.3	51.5	54.1	55.2	53.9	59.8	54.7	55.6	53.6	52.9	51.1	52.4	51.8	51.3	53.2	53.6	55.2	53.9	54.2	54.5	53.8	55.3	50.6	45.9	47.3	49.0	49.2	49.9	51.2	54.6

Noise Report
Farnborough Airport

Total Noise By Day of Month and NMT

Start Date:01-Jul-2024

End Date: 31-Dec-2024

Jul-24

NMT	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
2	54.3	53.4	53.6	60.5	54.2	62.0	55.7	54.1	54.4	55.3	52.6	54.4	56.7	53.1	59.3	65.1	67.4	53.9	52.9	52.8	54.1	66.8	70.2	67.6	56.4	70.3	57.4	56.4	53.2	53.2	54.2
3	58.3	56.7	57.5	58.5	58.8	59.0	58.7	57.6	58.1	59.0	57.5	58.7	56.7	57.6	62.9	69.0	67.6	58.5	60.8	59.2	60.2	79.9	68.2	67.6	57.9	69.1	57.3	55.8	58.0	58.1	58.0

Aug-24

NMT	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
2	55.7	52.2	52.6	51.7	52.1	53.1	52.4	53.7	55.7	52.5	51.8	53.9	51.7	51.5	55.3	53.0	52.4	52.9	53.6	58.1	54.0	58.4	58.0	53.5	56.8	51.5	53.2	52.3	52.7	54.0	56.4
3	58.2	56.6	55.6	55.2	57.8	57.0	55.5	58.0	57.0	56.5	56.0	56.1	56.6	57.6	58.4	55.3	54.7	55.3	58.3	56.2	56.5	58.9	56.8	57.2	58.0	57.4	57.7	57.2	56.2	57.8	57.4

Sep-24

NMT	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
2	53.7	52.6	52.9	53.7	55.6	53.4	52.9	52.8	54.6	58.6	57.1	53.3	54.2	52.0	52.9	53.7	53.2	56.2	57.4	57.2	53.1	53.2	53.1	52.8	52.8	56.8	55.5	52.0	55.1	60.4
3	58.8	58.8	58.2	56.2	57.8	59.1	54.3	58.3	56.8	58.3	58.3	56.7	55.4	55.5	57.5	58.6	57.6	57.8	57.4	58.8	57.7	58.6	58.4	57.3	58.7	58.7	57.9	55.2	58.9	59.1

Oct-24

NMT	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
2	54.5	55.4	54.8	54.2	52.3	52.5	54.7	53.8	53.1	55.3	53.5	58.3	58.3	55.1	54.6	52.8	52.9	55.0	55.0	57.0	53.6	53.4	54.0	55.3	53.2	52.5	53.2	52.3	52.9	52.2	54.4
3	58.4	57.6	57.0	57.9	56.2	58.9	59.1	57.6	57.0	58.0	56.9	55.2	55.9	60.8	59.0	58.8	57.7	59.0	57.4	59.2	58.8	57.7	57.8	57.5	57.8	55.5	55.5	58.4	56.7	57.7	57.1

Nov-24

NMT	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
2	53.0	53.5	53.3	53.4	52.2	51.2	53.7	53.4	52.6	52.8	54.2	55.6	54.2	53.6	52.6	52.4	52.3	53.2	54.2	53.8	53.7	55.7	62.5	64.3	55.1	53.6	54.2	54.6	52.7	52.8
3	57.2	55.8	58.6	58.1	59.5	56.7	57.6	56.4	54.1	55.9	56.8	55.5	57.5	57.1	57.1	55.9	55.6	57.5	58.7	57.9	58.3	56.8	57.9	60.3	57.8	56.9	57.5	57.7	57.7	56.6

Dec-24

NMT	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
2	54.8	54.8	52.9	53.7	63.2	55.3	73.3	61.6	60.1	59.8	54.0	53.9	55.3	53.2	57.4	54.7	54.4	60.1	57.4	55.9	62.6	65.1	53.5	51.6	46.6	47.8	51.5	53.5	51.2	51.9	63.3
3	57.8	57.6	57.5	58.3	59.6	57.9	60.5	57.0	57.5	57.5	57.7	58.3	58.7	55.6	55.5	57.1	59.8	58.7	58.0	58.4	58.6	57.6	57.5	54.2	45.9	47.3	57.3	56.4	55.2	54.8	56.6