

Noise Monitoring Report

July - December

2023

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Executive Summary

This noise monitoring report is drafted for the period July - December 2023. This report consists of three parts: introduction to this report, general statistics related to the operations at Dublin Airport, and noise monitoring statistics per noise terminal. This executive summary briefly lists numbers related to the noise performance of Dublin Airport, these can be found in Table 1 and Table 2. In Table 1 the number of events from noise monitoring terminals (NMTs) which are directly overflowed are listed. These events are correlated aircraft noise events, they are coupled with a specific arriving or departing aircraft overflying the NMT. Table 2 shows in summary the average measured noise levels for the second half of 2023 for all operational NMTs. As one may expect, NMTs frequently overflowed (NMTs 1, 2, and 20) measure higher noise levels which are attributed to aircraft, in comparison to the other NMTs.



Figure 1: Runway Layout Dublin Airport

NMT	Number of correlated aircraft noise events			
	Description	Arrivals	Departures	Total
1	Arrivals Runway 10R, Departures Runway 28L	3,213	7,034	10,247
2	Arrivals Runway 28L, Departures Runway 10R	45,567	10,300	55,867
5	Arrivals Runway 16, Departures Runway 34	31	2	33
6	Arrivals Runway 34, Departures Runway 16	1	23	24
7	Arrivals Runway 10L, Departure Runway 28R	0	2	2
8	Arrival Runway 10L, Departure Runway 28R	13	0	13
10	Arrival Runway 10L, Departure Runway 28R	504	31,810	32,314
20	Arrivals Runway 28L, Departures Runway 10R	48,053	8,079	56,132

Table 1: Correlated aircraft noise events

NMT	Daytime noise level, LAeq, 16 h[dB]		Nighttime noise level, LAeq, 8 h[dB]	
	Total	Aircraft	Total	Aircraft
1	58.2	52.0	59.2	57.8
2	62.2	60.9	58.4	57.0
3	62.2	58.0	56.1	46.1
4	56.7	46.6	53.7	44.1
5	62.6	35.8	66.0	25.6
6	59.7	33.9	56.5	22.9
7	75.1	22.3	70.1	20.4
8	55.9	28.3	51.3	32.0
10	63.9	60.4	59.2	56.2
20	63.6	59.7	59.2	55.4

Table 2: Average measured noise levels

Introduction

This half yearly, commissioned by Dublin Airport, presents a summary of the noise performance near Dublin Airport, for the period from July 1st to December 31st 2023.

To monitor aircraft noise levels and flight tracks near Dublin Airport, a Noise and Flight Track Monitoring System (NFTMS) is in place. This system, by Envirosuite, is composed of a feed from Air Traffic Control radar to capture the aircraft, and a series of Noise Monitoring Terminals (NMTs) which are installed in the area around the airport. In total, seven NMTs are in place:

- Bay Lane: (NMT 1: monitoring runway 28L departures and runway 10R arrivals)
- St. Doolaghs: (NMT 2: monitoring runway 10R departures and runway 28L arrivals)
- Bishopswood: (NMT 3: monitoring local area)
- Feltrim: (NMT 4: monitoring local area)
- Balcultry: (NMT 5: monitoring runway 34 departures and runway 16 arrivals)
- Artane: (NMT 6: monitoring runway 16 departures and runway 34 arrivals)
- County Hall: (NMT 7: monitoring runway 10L arrivals and runway 28R departures)
- Malahide Demesne: (NMT 8: monitoring runway 10L arrivals and runway 28R departures)
- St. Margaret's National School: (NMT 10: monitoring runway 10L arrivals and runway 28R departures)
- Oscar Pappa: (NMT 20: monitoring runway 10R departures and runway 28L arrivals)

This report presents the results of the measurements in the period from the start of July to the end of December 2023 for all NMT locations. The NMT locations are shown in Figure 2. General statistics of flight operations of Dublin Airport in the second half of 2023 are provided in the General Statistics section. Results specific to the measurements obtained at the various monitoring stations are presented in the Noise Monitoring Statistics section.

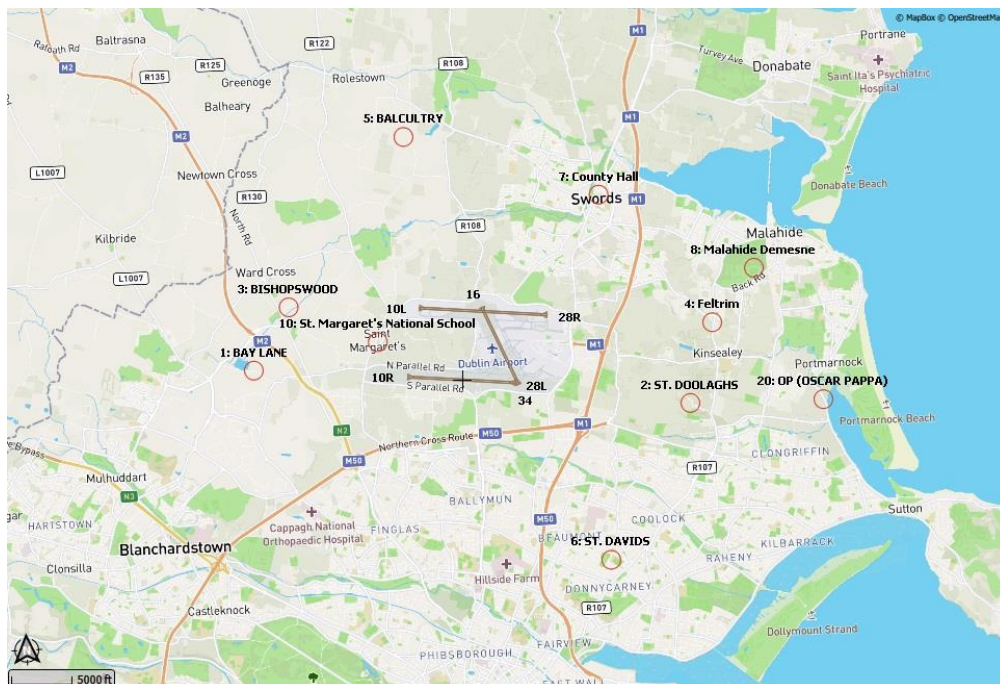


Figure 2: Noise Monitoring Terminal locations

General Statistics

Traffic

In the second half of 2023, Dublin Airport handled a total of 125,762 flights and 17,003,741 passengers. This is an increase of 20% in traffic and an increase of 5% in passenger numbers compared to the same period in 2022. Note that the number of movements includes both departures and arrivals. Figure 3, gives an hourly distribution of the movements for the second half of 2023, compared to the hourly distribution of the same period in 2022.

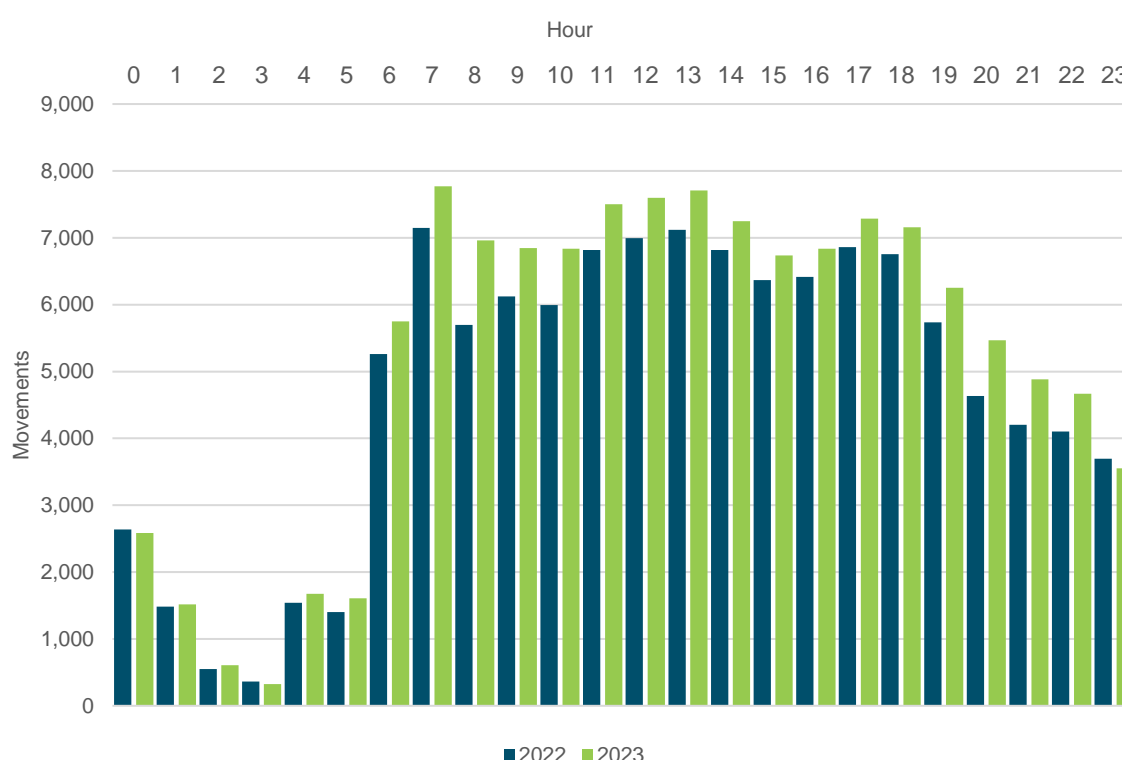


Figure 3: Hourly distribution of movements from July - December 2022 vs 2023

A wide variety of aircraft operate from Dublin Airport ranging from turboprop aircraft such as the ATR and Dash-8 to wide body jets like Boeing 777. However, majority of movements were performed using medium sized jets, with the Boeing 737 and Airbus A320 series aircraft accounting for more than 61% of the total. Figure 4 provides a more detailed overview of aircraft types. The aircraft types are divided into the categories: A/B and C/D. Table 3 on the next page list typical aircraft types belonging to these categories.

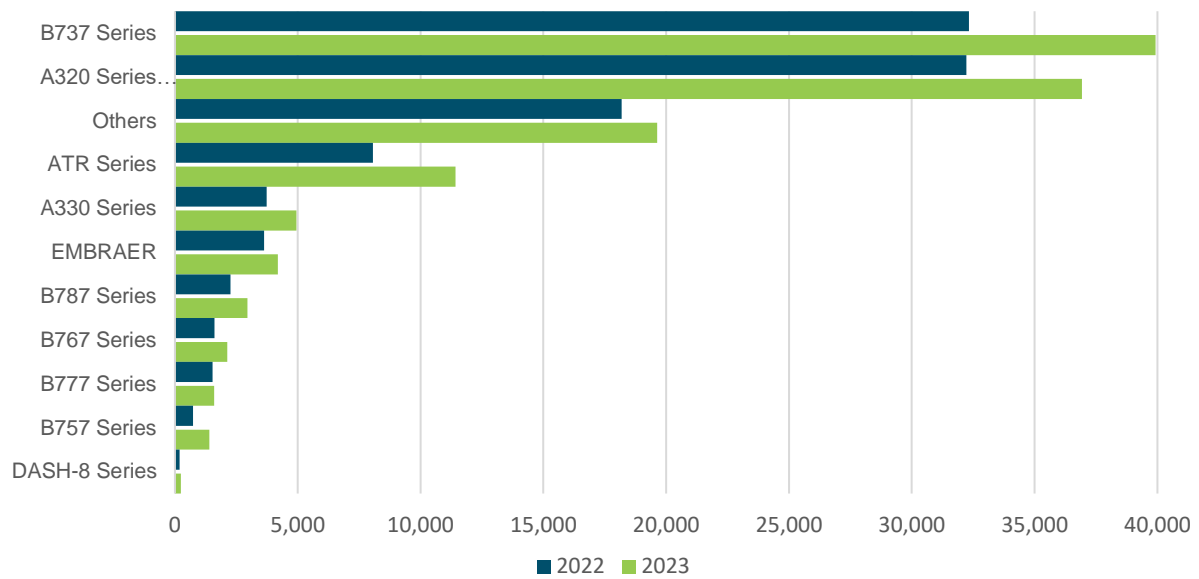


Figure 4: Aircraft type distribution July – December 2022 vs 2023

Aircraft category	Aircraft type:
A/B	Propellor aircraft
	Turboprop aircraft
	Whisper jets (aircraft like BAe-146 and Avro-Jet)
	Mostly small general aviation aircraft powered by piston engines
C/D	Airbus
	Boeing
	Bombardier Canadair Regional Jet (CRJ) - Series
	Business jets
	Embraer

Table 3: Aircraft type classification

Track Adherence

There are eight environmental corridors at Dublin airport. While during the second half of 2022 just over 98% of category C/D aircraft stayed within these corridors, the second half of 2023 saw just over 92% of category C/D aircraft stayed within these corridors. Category A/B aircraft may operate outside these.

Runway use and weather

Figure 5 shows that Runway 28L/R, the runway for aircraft landing and departing in the westerly direction, handled 46% of all movements in the period July to December 2023 versus 45% in 2022. Runway 10L/R, the runway for aircraft landing and departing in the easterly direction, was 6.4% of the movements in the period July to December 2023 versus 6.9% in 2022. The remaining percentage of the movements in 2022 and 2023 took place on the cross runway 16/34.

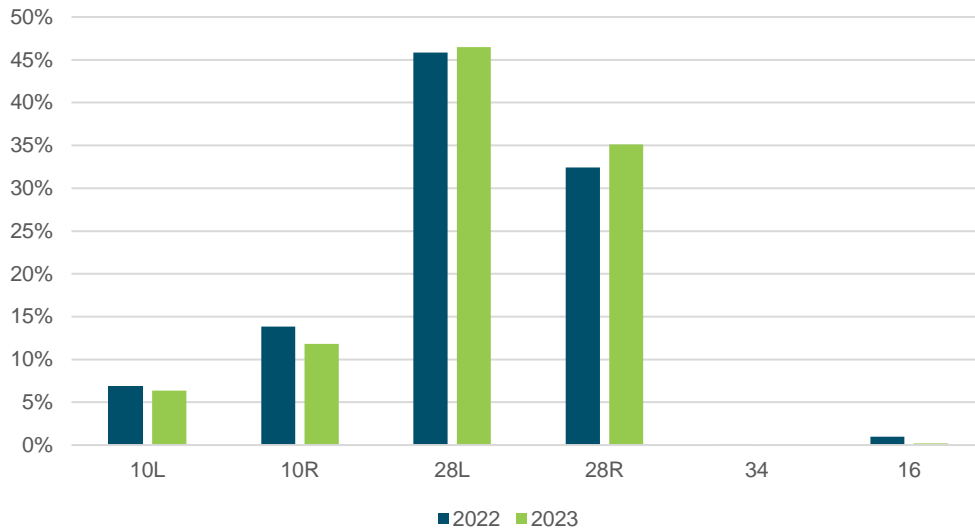


Figure 5: Runway usage, July – December 2022 vs 2023

Overflying height analysis

The measured sound levels depend on the height at which the NMT is overflown. Generally, higher overflying altitudes result in lower recorded sound levels. For NMT's, which are directly overflown, the average overflying height is shown in Table 4 below for the second half of 2022 and 2023. In which A and D stand for arrivals and departures respectively.

NMTs	Height (ft)			
	2022		2023	
	A	D	A	D
NMT1	670	2,284	706	2,359
NMT2	851	2,414	858	2,433
NMT3	617	2,180	599	2,082
NMT4	998	2,707	1,004	2,704
NMT5	860	2,887	851	2,929
NMT6	1,049	2,656	2,043	2,360
NMT7	2,866	3,261	2,846	3,898
NMT8	1,390	2,973	1,211	2,910
NMT10	244	1,069	255	1,141
NMT20	1,513	3,453	1,547	3,322

Table 4: Average overflight height

Busiest day flight tracks

The images below are screenshots of tracks from ANOMS NFTMS system. The images show arrival (red) and departure (green) tracks for the busiest day in each month of the second half split into traffic flowing easterly runway 10L/10R and westerly runway 28L/28R.

July 2023 Easterly operations

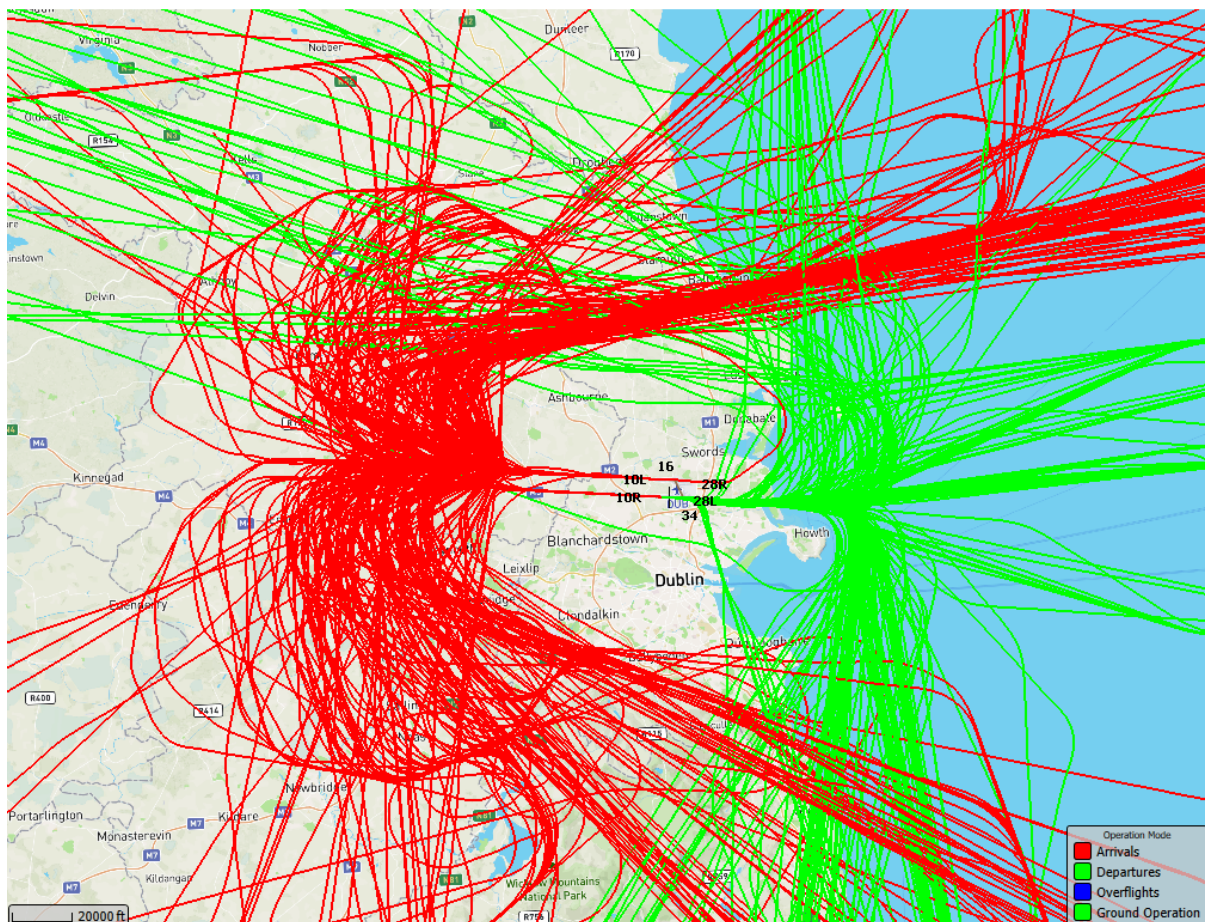


Figure 6: 664 Easterly operations on 7th July 2023

July 2023 Westerly operations

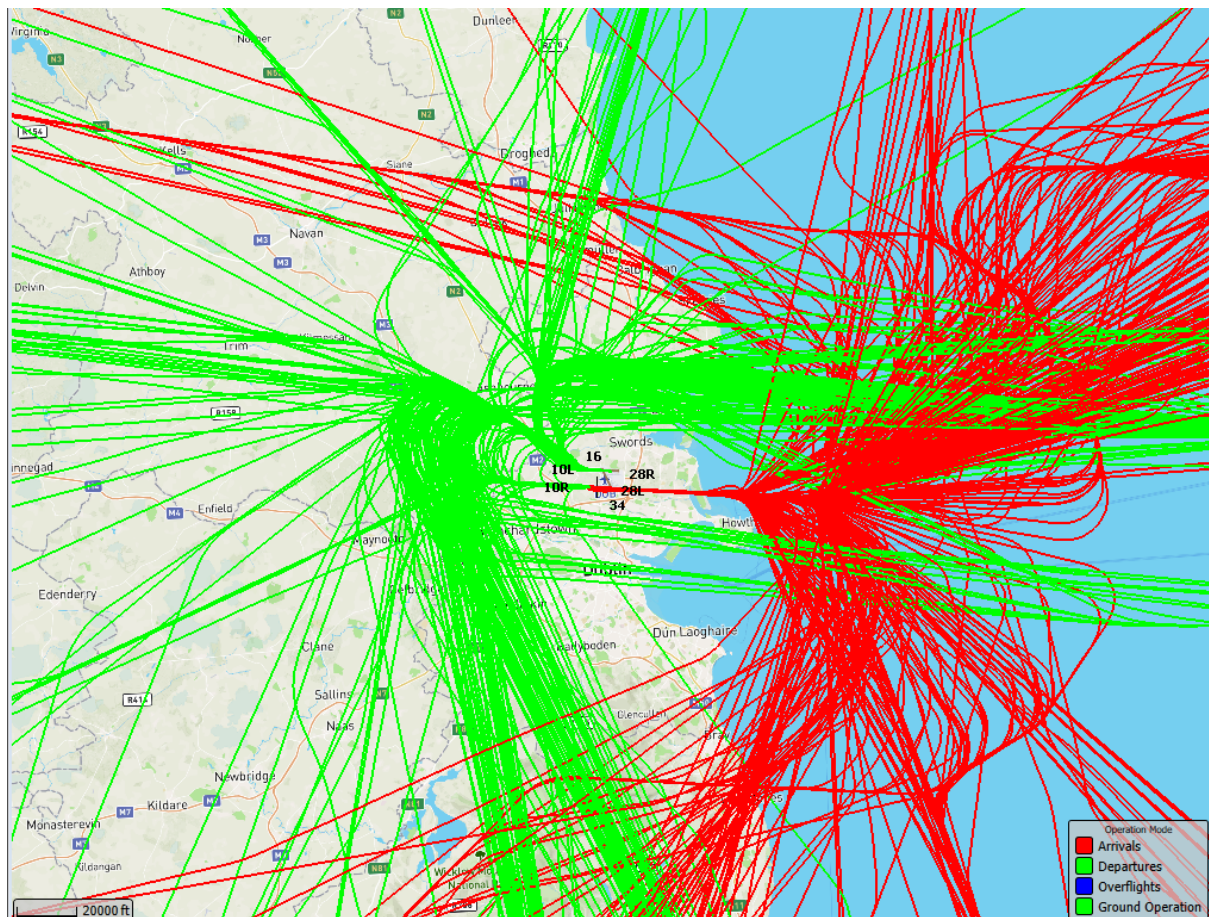


Figure 7: 769 Westerly operation on 19th July 2023

August 2023 Easterly operations

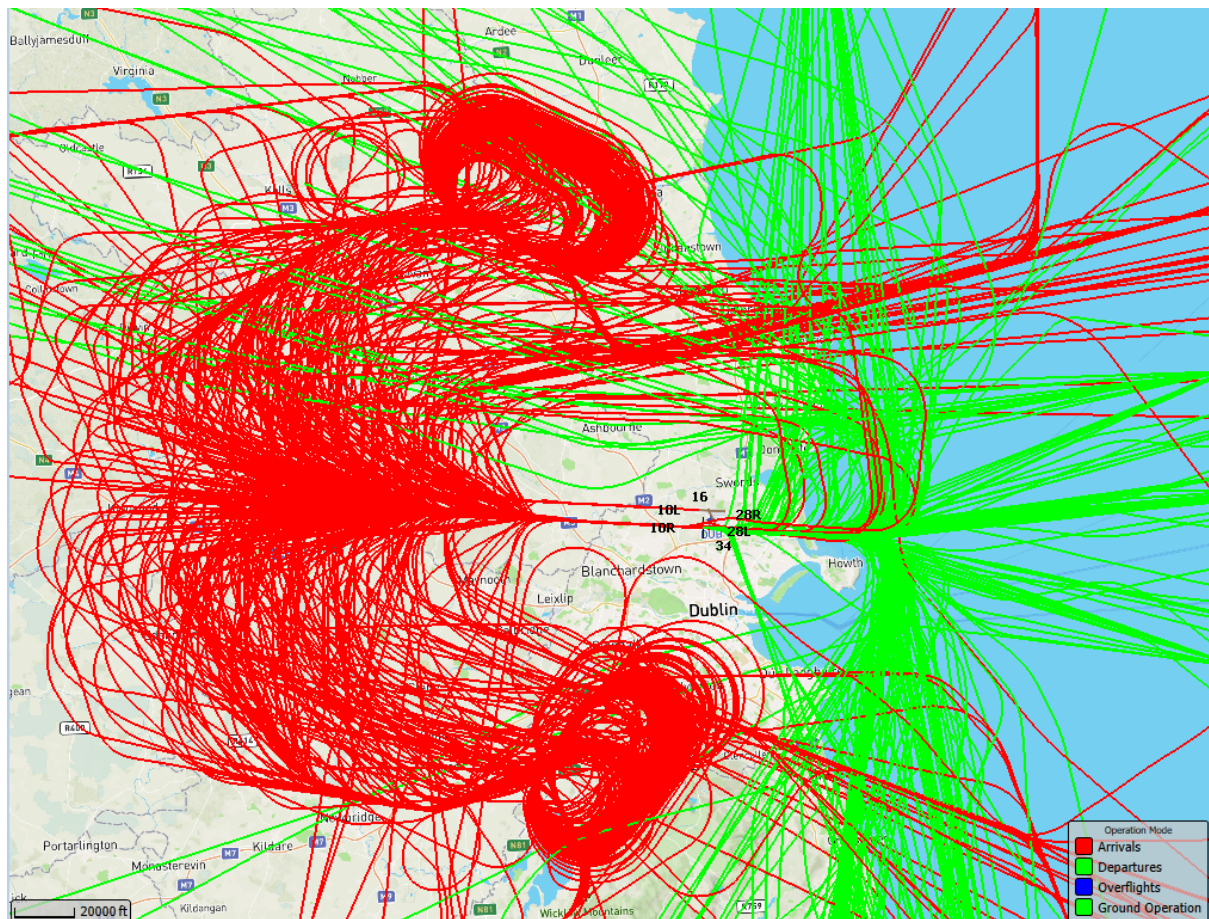


Figure 8: 734 Easterly operations on 18th August 2023

August 2023 Westerly operations

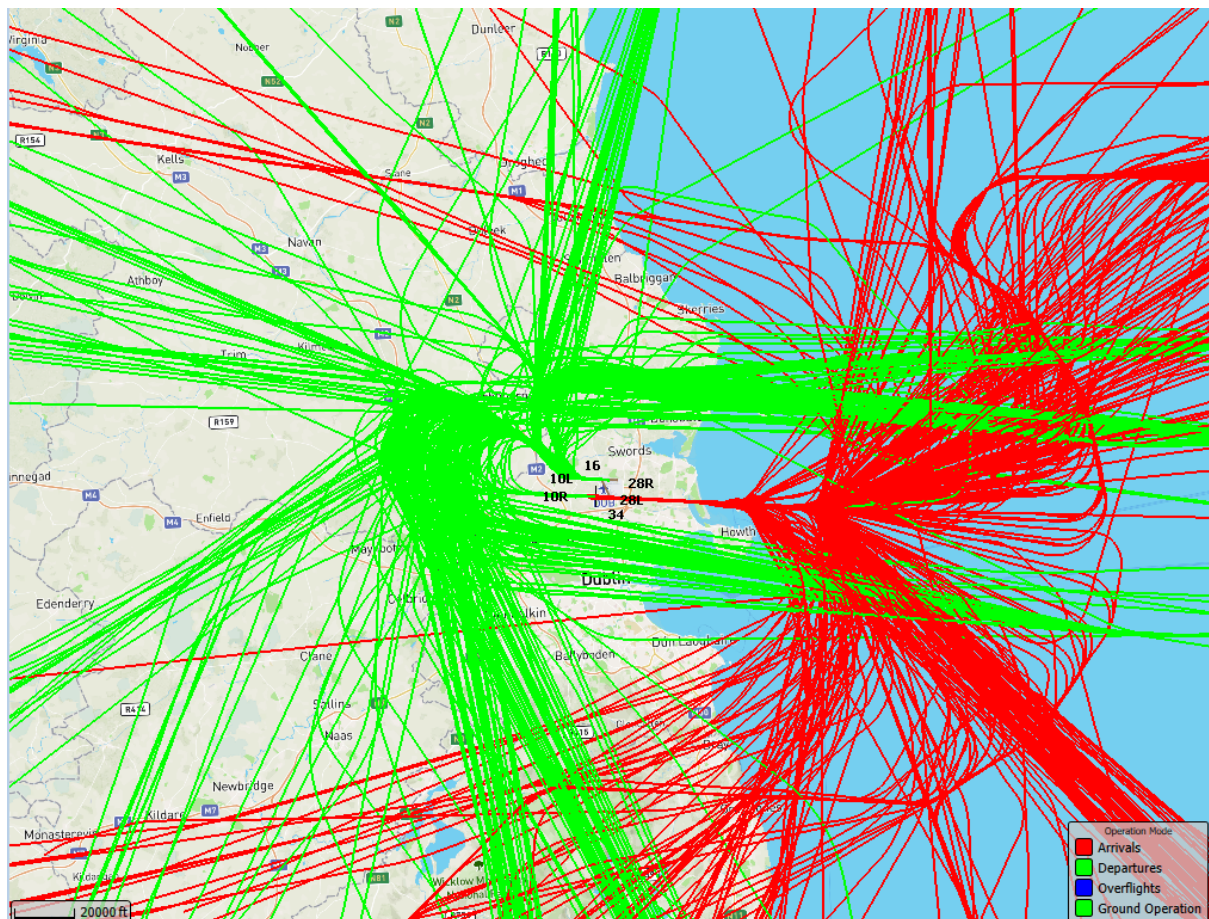


Figure 9: 770 Westerly operations on 27th August 2023

September 2023 Easterly operations

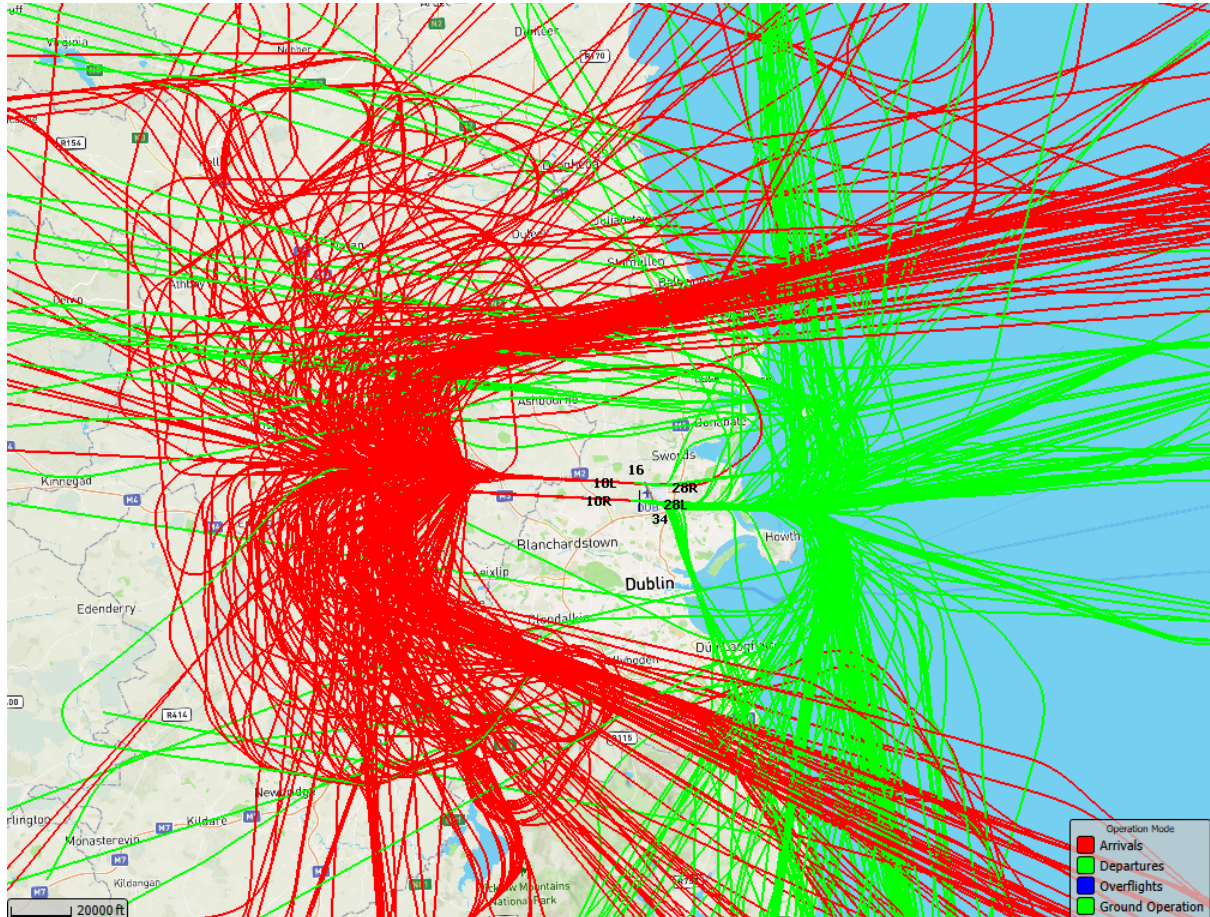


Figure 10: 778 Easterly operations on 7th September 2023

September 2023 Westerly operations

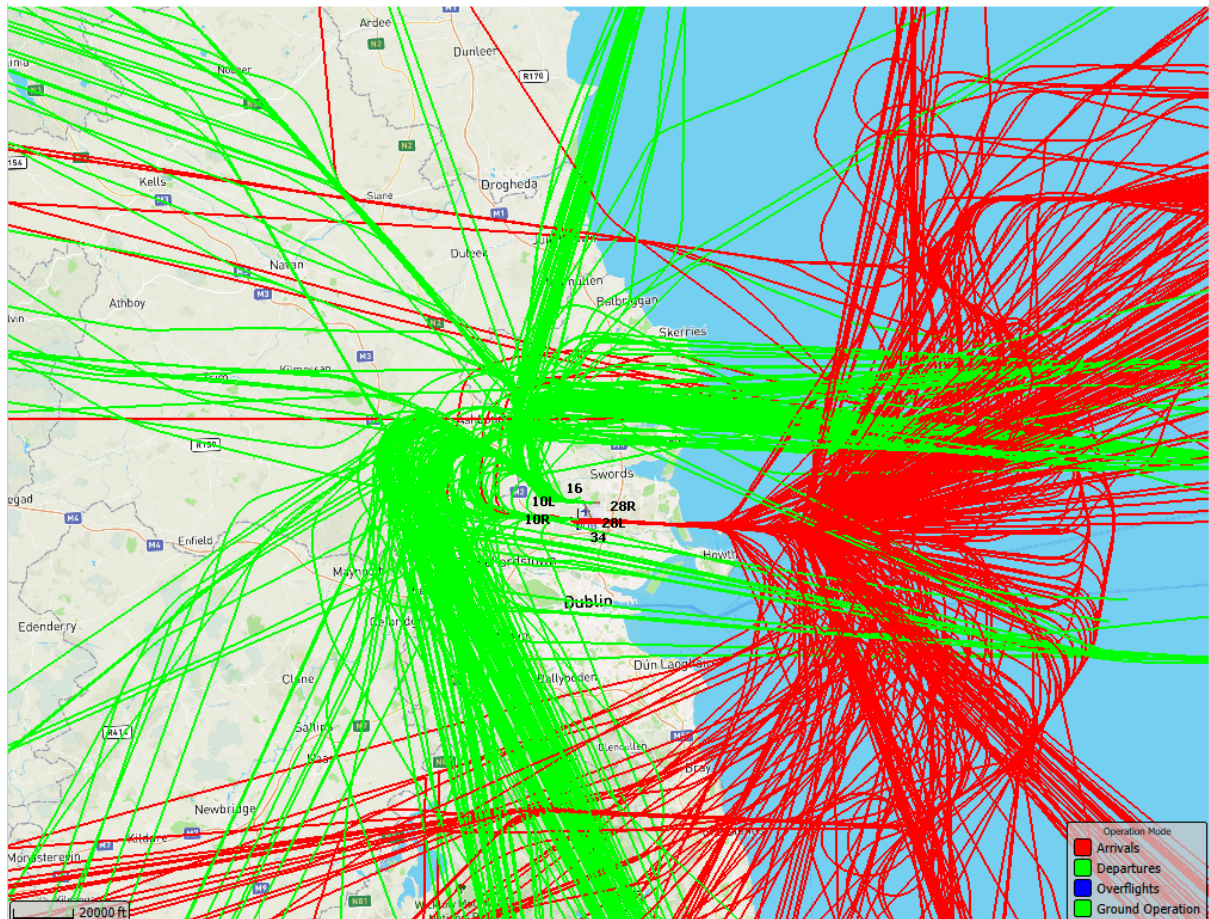


Figure 11: 797 Westerly operations on 28th September 2023

October 2023 Easterly Operations

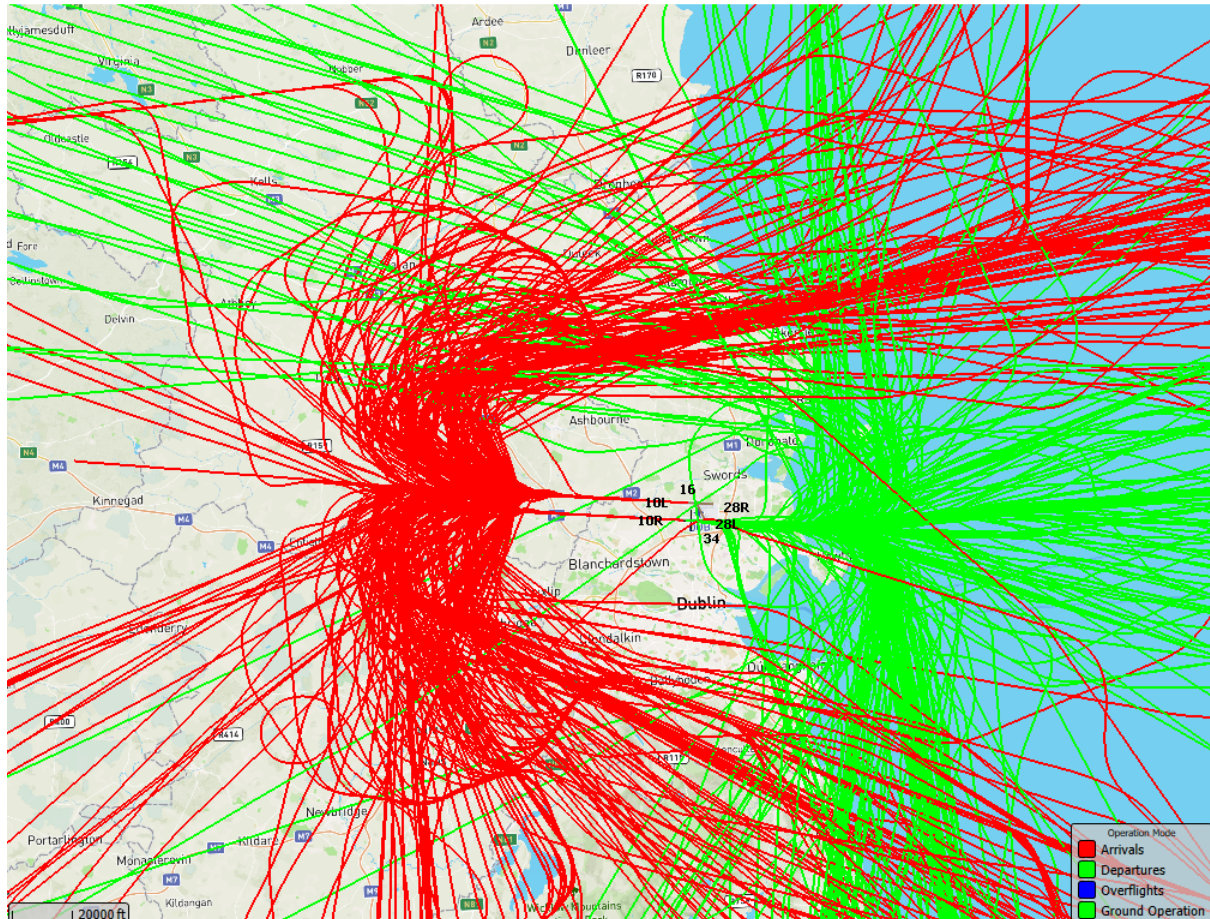


Figure 12: 719 Easterly operations on 27th October 2023

October 2023 Westerly Operations

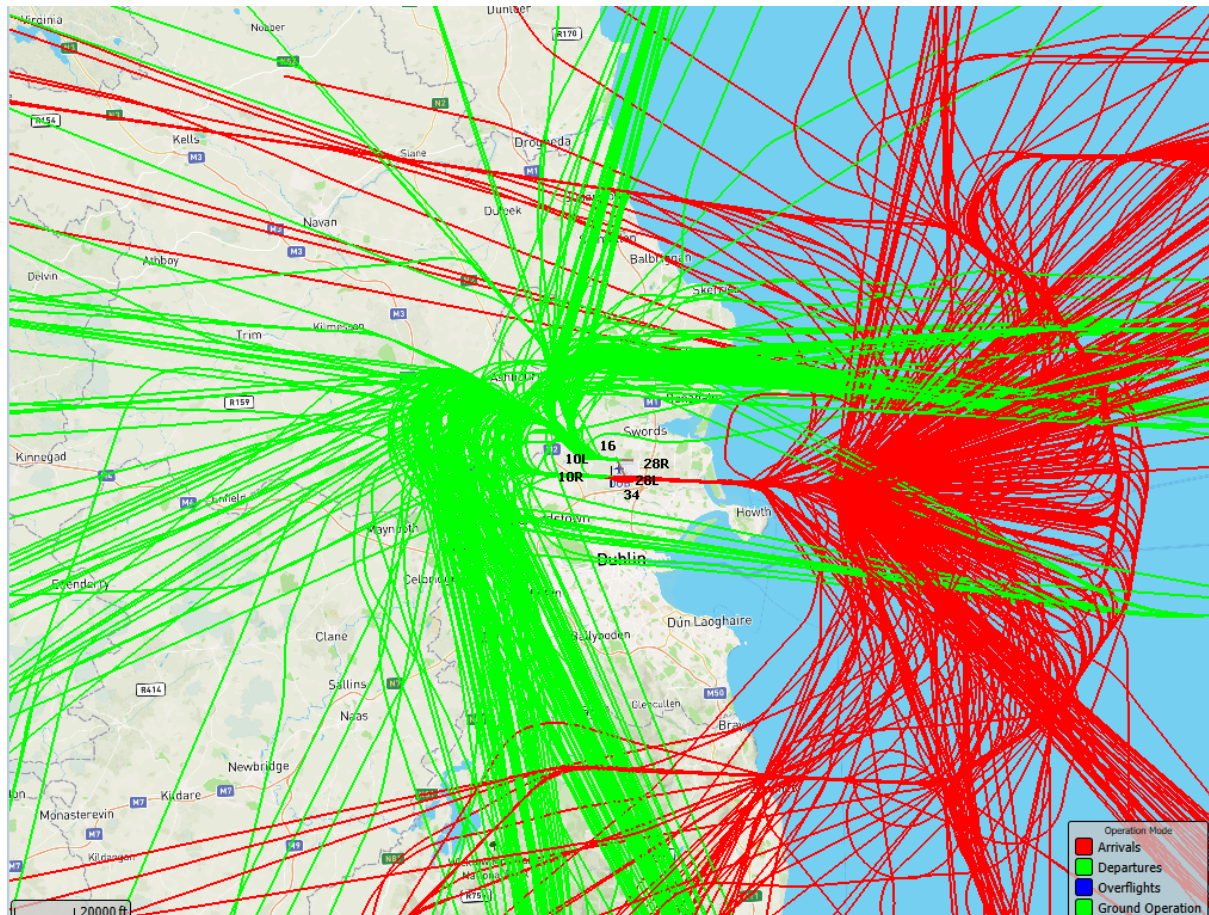


Figure 13: 793 Westerly operations on 6th October 2023

November 2023 Easterly Operations

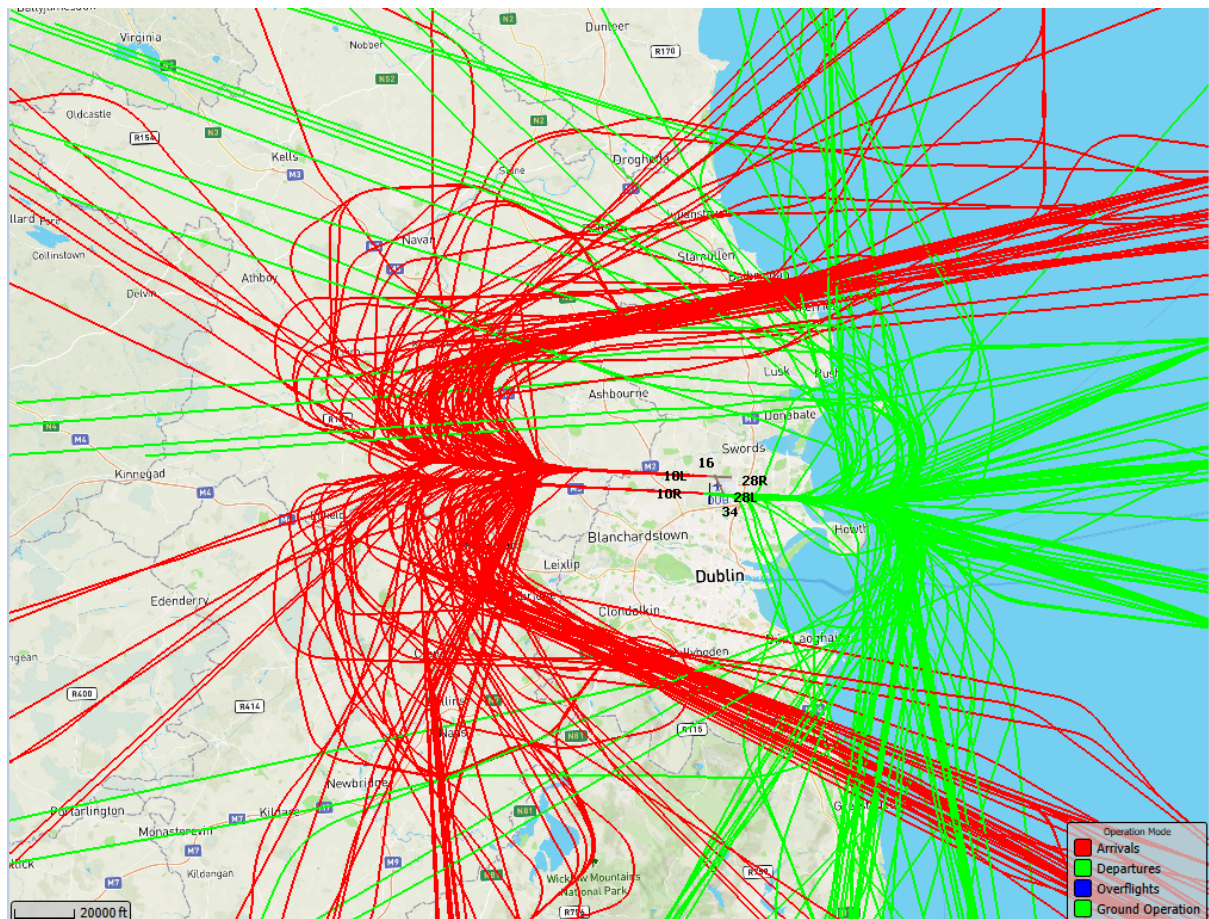


Figure 14: 414 Easterly operations on 4th November 2023

November 2023 Westerly Operations

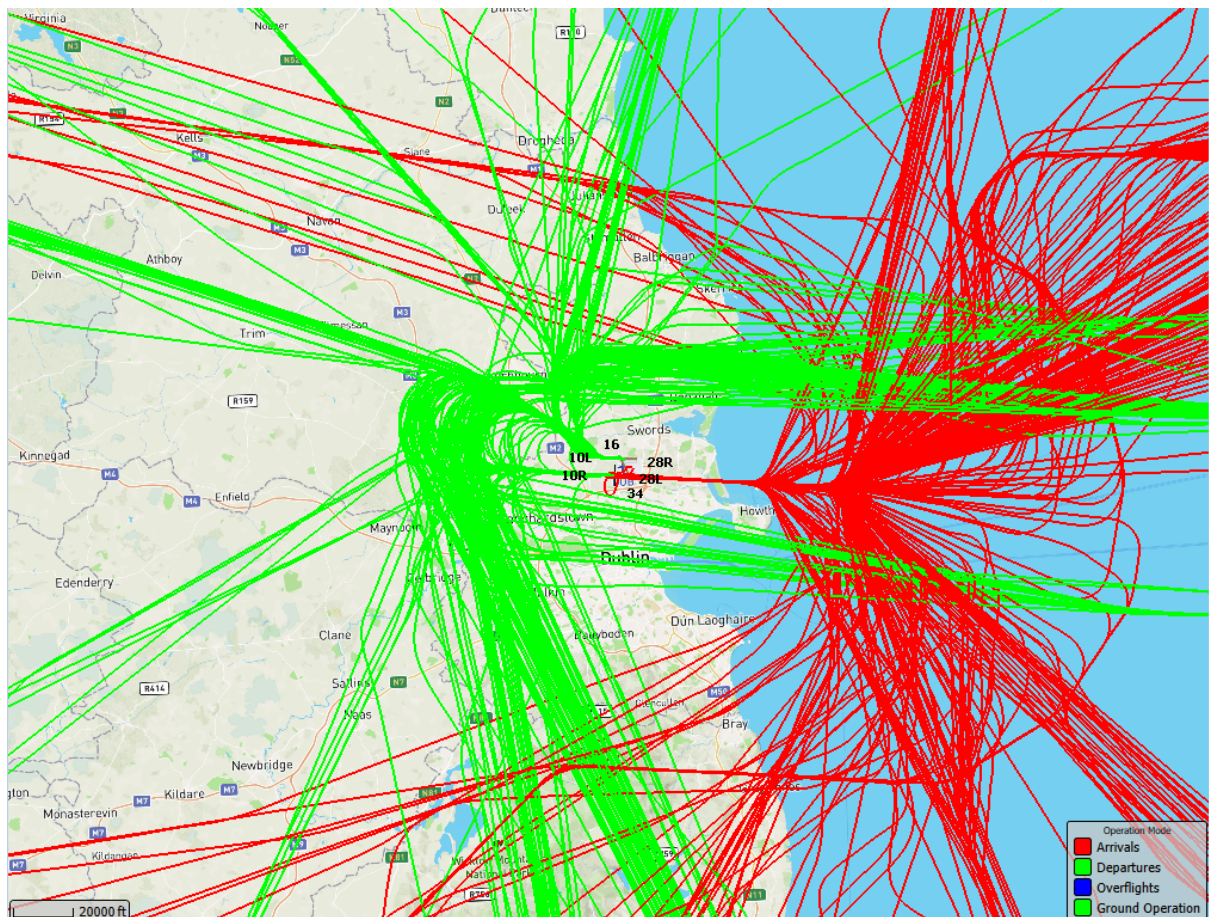


Figure 15: 683 Westerly operations on 3rd November 2023

December 2023 Easterly Operations

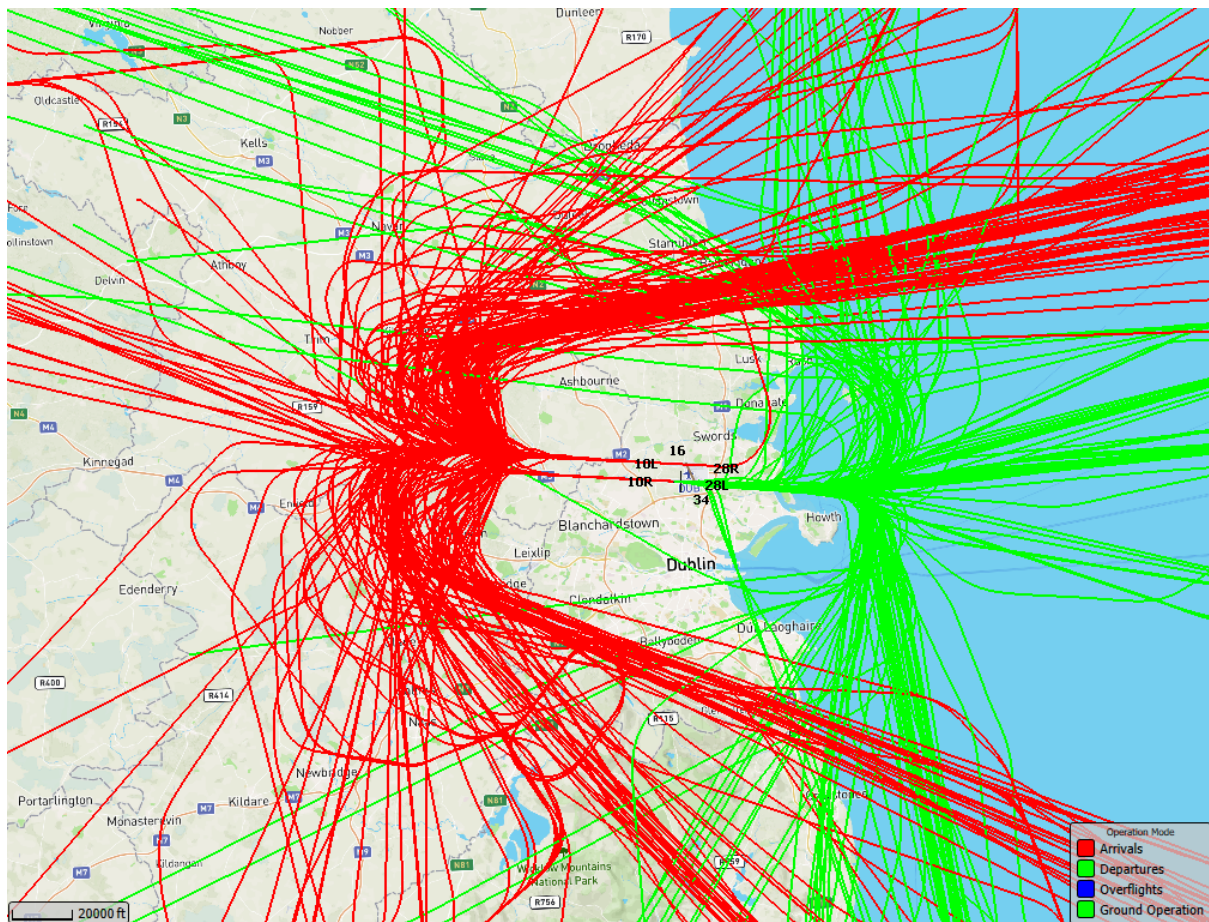


Figure 16: 507 Easterly operations on 6th December 2023

December 2023 Westerly Operations

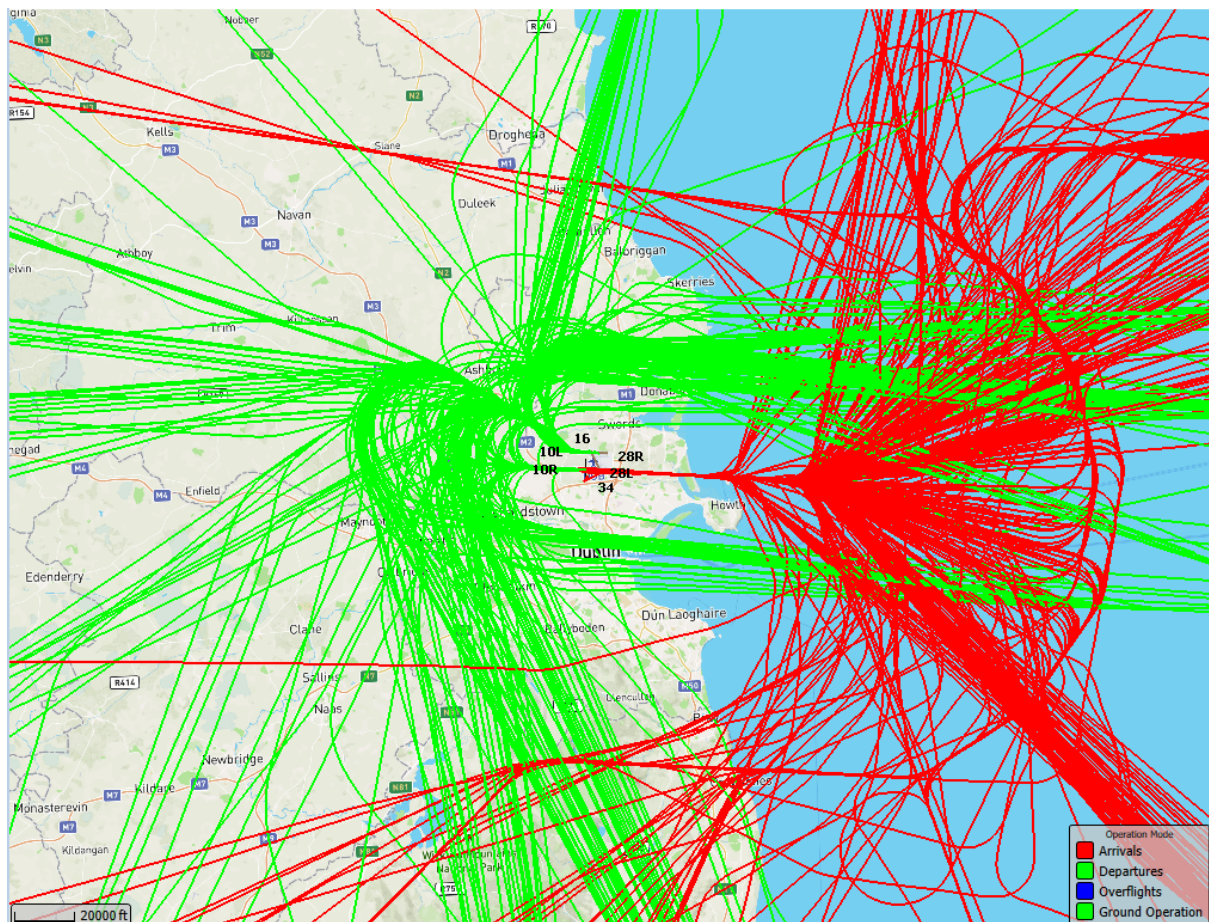


Figure 17: 711 Westerly operations on 22nd December 2023

Noise Monitoring Statistics

Reading guide

The noise values presented in this report are values based on measurements, these values will differ from noise contours produced by computer modelling and are not directly comparable. Noise contours produced by computer modelling are typically based on an average summer or annual day and include all aircraft movements rather than those which produce correlated noise events.

The measured noise values are obtained from Noise Monitoring Terminals (NMTs). An upgraded Noise and Flight Track Monitoring System (NFTMS) with all new NMTs, provided by Envirosuite, was commissioned by DAA in 2017 to monitor the noise performance of Dublin Airport. This system was subject to a further upgrade in Q1 2021 and further upgrades and expansions of the system are being considered.

These NMTs are set to record continuously and to trigger a noise event when two conditions are met. The first condition is the threshold level. The threshold level needs to be exceeded before recording is initiated. The threshold levels are continuously monitored by Envirosuite to ensure maximum correlation between noise and individual operations. The second condition is the length of the recorded noise events. The recorded noise events should last for at least 10 seconds. Due to its proximity to agricultural, roads, and/or urban areas, NMTs can be triggered not just by aviation noise. It is for this reason the system is designed to correlate a noise event with an aircraft departing or landing. Similarly, the system can detect when the noise originates from a weather event, such as thunder or other stormy conditions.

Noise measurements are classified in three categories: aircraft, community, and weather. The community category, or normal human activity, includes all noise events that are not categorized as aircraft or weather. The measurement of total noise includes all three noise categories.

Noise levels calculation methodology

The noise monitoring system logs, per correlated aircraft event, the duration and measures the noise level of the event, which is later converted to LAeq, 1 hour. This is the sound level, in decibels, equivalent to the total A-weighted sound energy of one hour. Average noise levels, for a reference duration, are derived from LAeq, 1 hour. The four noise levels are used in this report are:

- LAeq, 16 h, average daytime noise levels: - The LAeq, 16 h is determined by averaging the aircraft noise levels per month between 07:00 and 23:00, hence 16 hours.
- LAeq, 8 h, average nighttime noise levels: - The LAeq, 8 h is determined by averaging the aircraft noise levels per month between 23:00 and 07:00, hence 8-hour equivalent.
- LAeq, average hourly noise levels: - Same methodology applies for LAeq, compared to LAeq, 16 h and LAeq, 8 h, instead an average is taken per hour over a half year period instead of per month.
- LMax: - LMax indicates the maximum recorded noise level per correlated aircraft-noise event, while the average noise levels indicate the average noise levels for a reference duration.
- LMax distribution: This distribution is determined by determining the number of occurrences per 3 dB bracket, since every 3 dB increase is a doubling in sound level.

Average NMT figures

The following graphs presented below display an Average value measured per NMT between the reporting period from July 1st up to and including December 31st 2023. The categories are as followed:

Average monthly LAmax noise levels per NMTs are shown in Figure 18

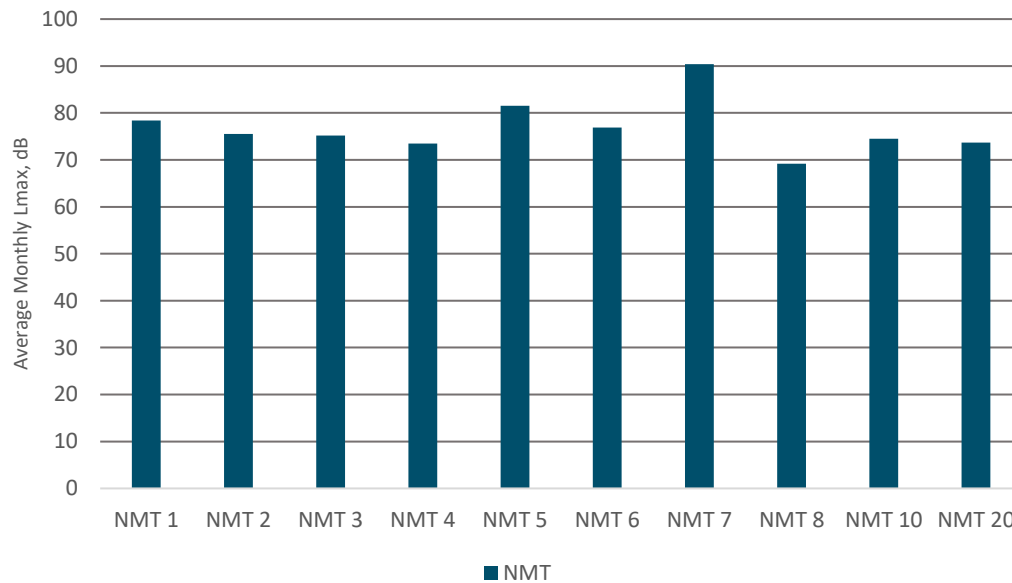


Figure 18: Average LAmax levels distribution for NMTs, July – December 2023

Average monthly LAmax noise levels per NMT for departing and arriving aircraft.

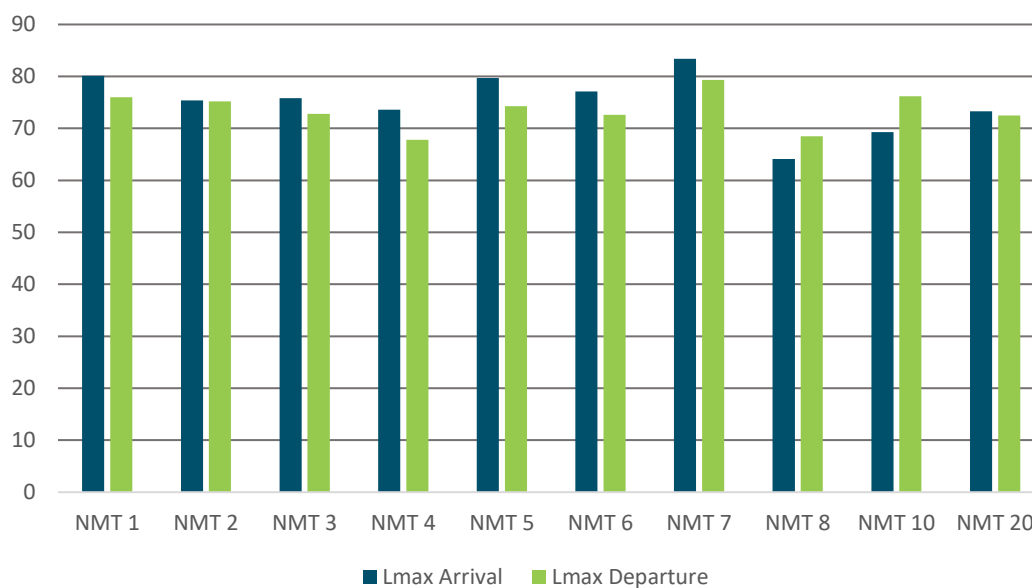


Figure 19: Average LAmax levels distribution for NMTs for arriving and departing aircraft, July – December 2023

Figure 14 presents the average noise levels measured at by all the NMTs for this reporting period during daytime which is defined as 07:00 in the morning to 22:59 in the evening. This procedure is followed both for all noise events, and for those events that were correlated to aircraft movements. The results shown are presented per NMT.

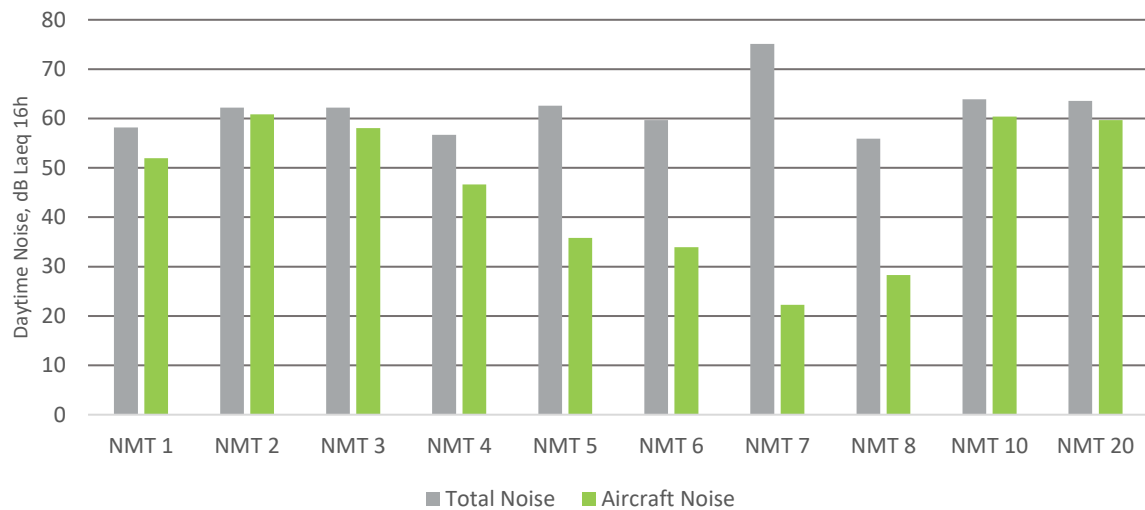


Figure 20: Averaged daytime noise levels per NMTs, July – December 2023

Noise levels during the night are determined using a similar method as described above. The night period is defined as a period between 23:00 in the evening to 06:59 in the morning. Noise levels are therefore averaged over an 8-hour window. Figure 21 presents these results per NMT.

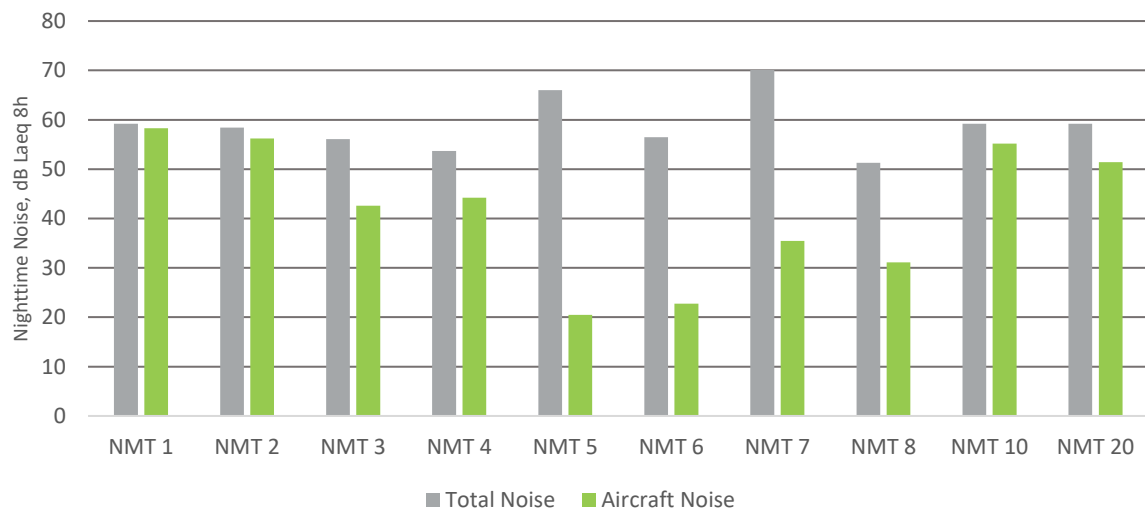


Figure 21: Averaged nighttime noise levels per NMTs, July - December 2023

NMT 1: Bay Lane

Noise Monitoring Terminal 1 ('Bay Lane') is located west of Dublin Airport, see Figure 16 below, under the extended runway centreline of runway 28L. Its purpose is to monitor runway 28L departures and runway 10R arrivals. The resulting data for NMT 1 measurements in the period from July 1st up to and including December 31st, 2023 are presented in this section.

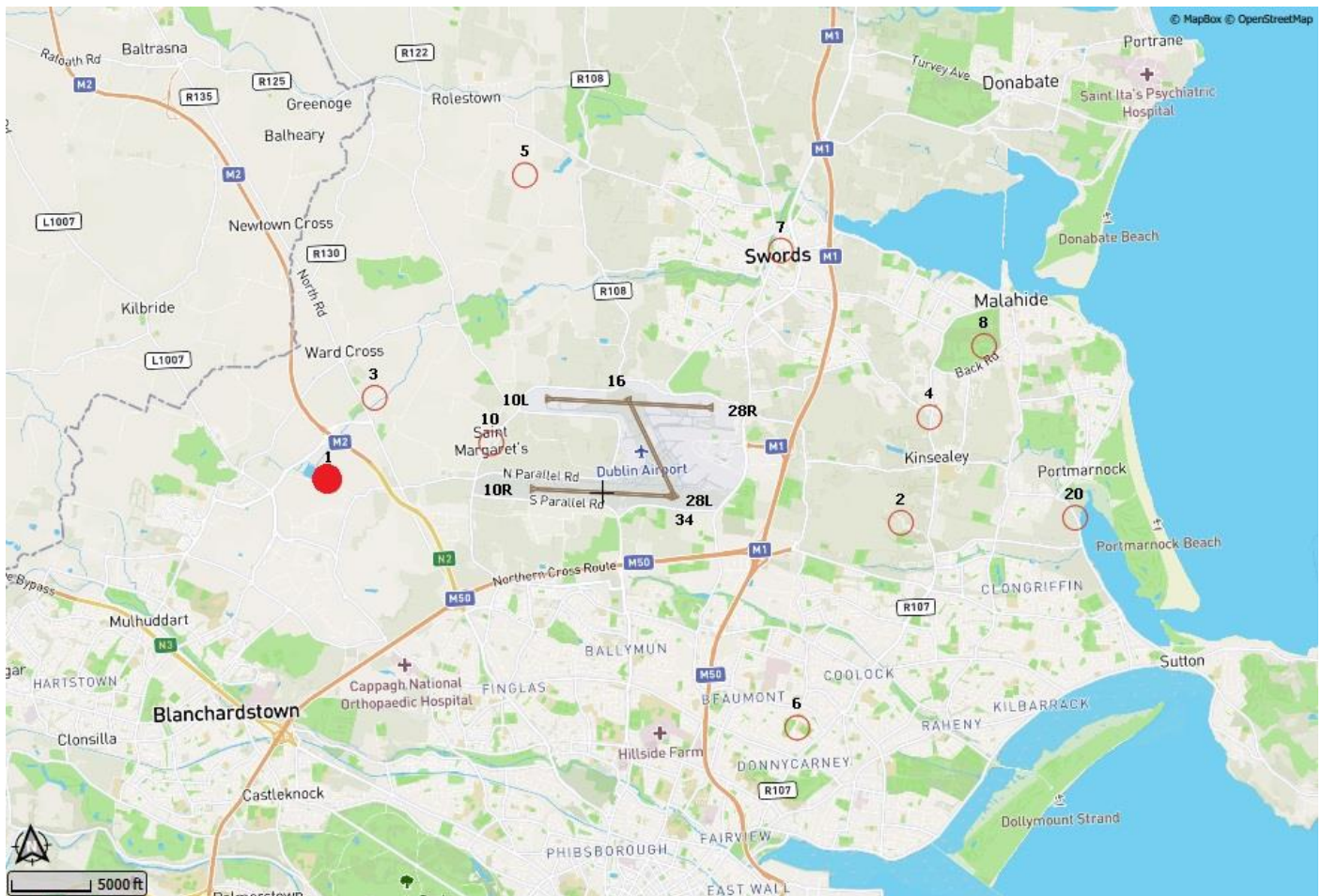


Figure 22: Noise Monitoring Terminal Bay Lane Location

Noise Events

The figure below shows the breakdown of noise events attributed to aircraft, weather, and the community.

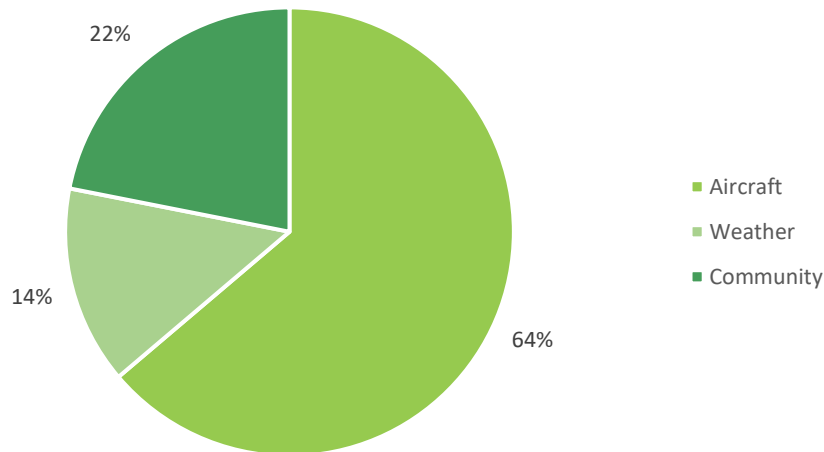


Figure 23: NMT 1 Noise Event Types

NMT Operational Status

To ensure that Noise Monitoring Terminals keep working within specific limits, internal calibration checks are completed every 6 hours. Outside of the 6 hourly calibration checks, NMTs will require maintenance and during this time will not record noise events. The operational status of NMT 1: Bay Lane is presented in Figure 24.

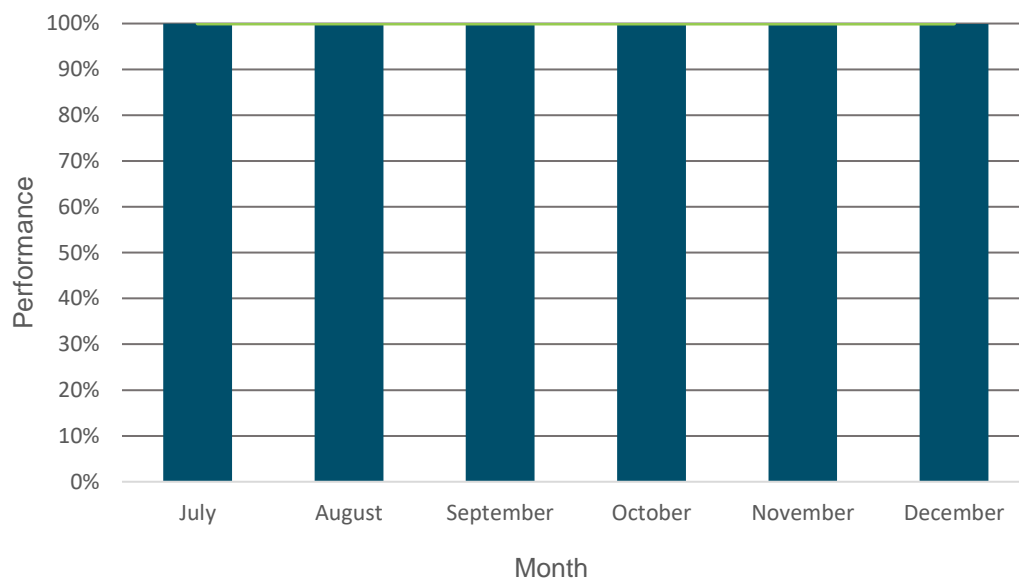


Figure 24: Operational status of NMT1, July – December 2023

Noise Levels

Figure 25 presents the average noise levels measured at NMT 1 during daytime periods, which are defined to be from 07:00 in the morning to 22:59 in the evening. Recorded noise levels during these time segments are therefore averaged over a 16-hour window.

This procedure is followed both for all noise events, and for those events that were correlated to aircraft movements. The results shown are presented monthly.

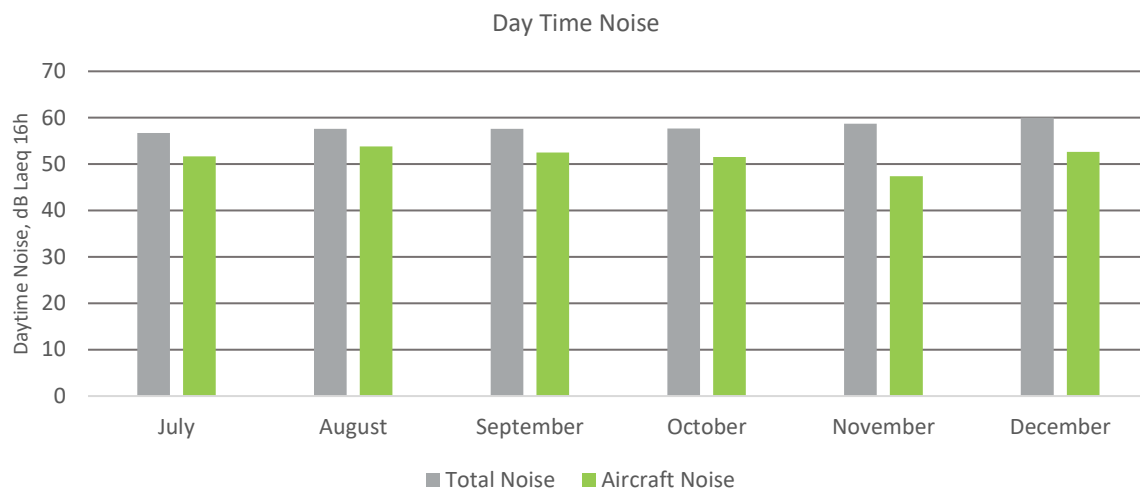


Figure 25: Averaged daytime noise levels for NMT 1, July – December 2023

Noise levels during the night are determined using a similar method as mentioned above. The night period is defined as a period between 23:00 in the evening to 06:59 in the morning. Noise levels are therefore averaged over an 8-hour window. Figure 26 presents these results monthly.

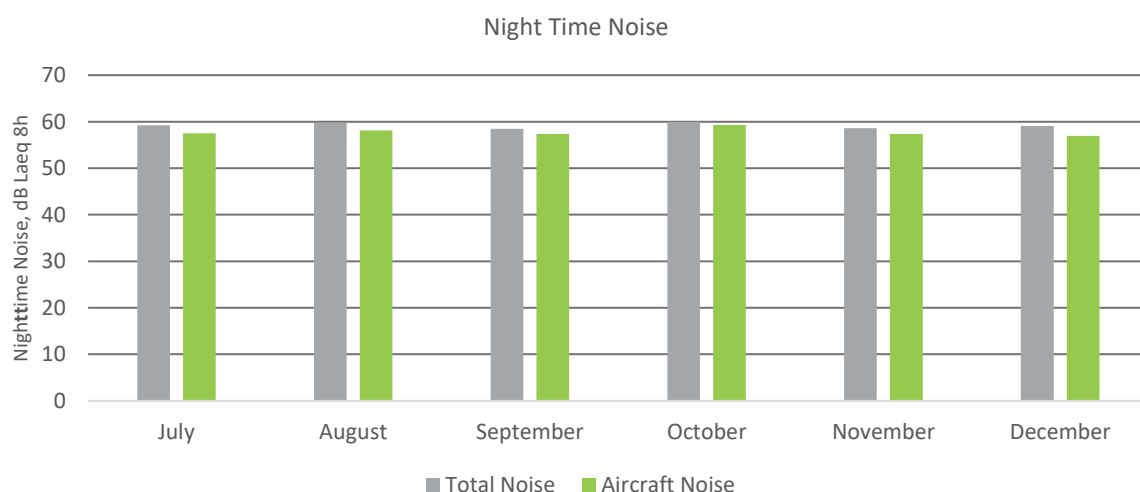


Figure 26: Averaged nighttime noise levels for NMT 1, July –December 2023

The hourly noise distribution at NMT 1 as shown in Figure 27.

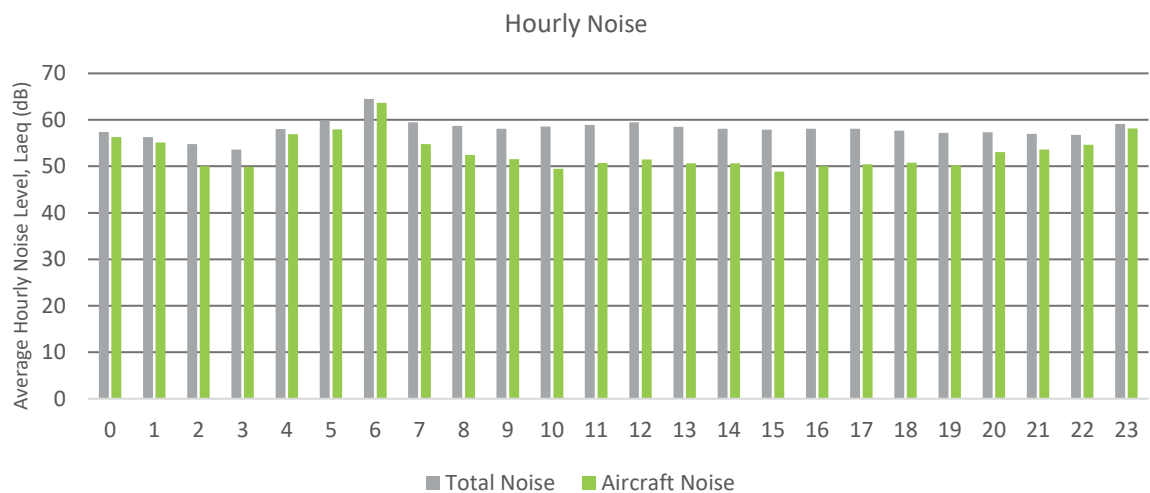


Figure 27: Averaged hourly noise levels for NMT 1, July – December 2023

Figure 28 shows the LAmax distribution for aircraft noise for the second half of 2023 for NMT1.

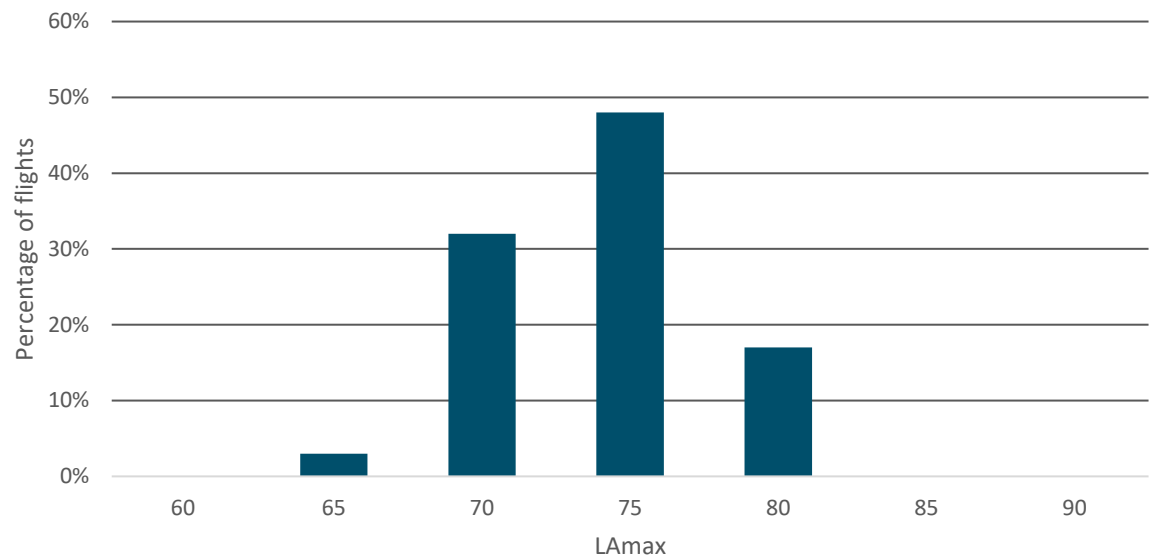


Figure 28: LAmax levels distribution for NMT 1, July – December 2023

Table 5 shows the top 10 loudest correlated aircraft types from the total count of correlated noise events to NMT 1.

Aircraft Type	Max dB	Total Count
B744	94.3	1
B764	84	14
A35K	83.1	2
B772	82.2	48
A306	81.6	7
F406	81.3	1
B77L	81.2	55
A332	81.1	82
A333	81	212
B77W	81	106

Table 5: LAmax by aircraft types correlated to NMT 1, July - December 2023

NMT 2: St. Doolaghs

Noise Monitoring Terminal 2 ('St. Doolaghs') is located east of Dublin Airport, see Figure 23 below, under the extended runway centreline of runway 10R. Its purpose is to monitor runway 10R departures and runway 28L arrivals. The resulting data for NMT 2 measurements in the period from July 1st up to and including December 31st, 2023 are presented in this section.

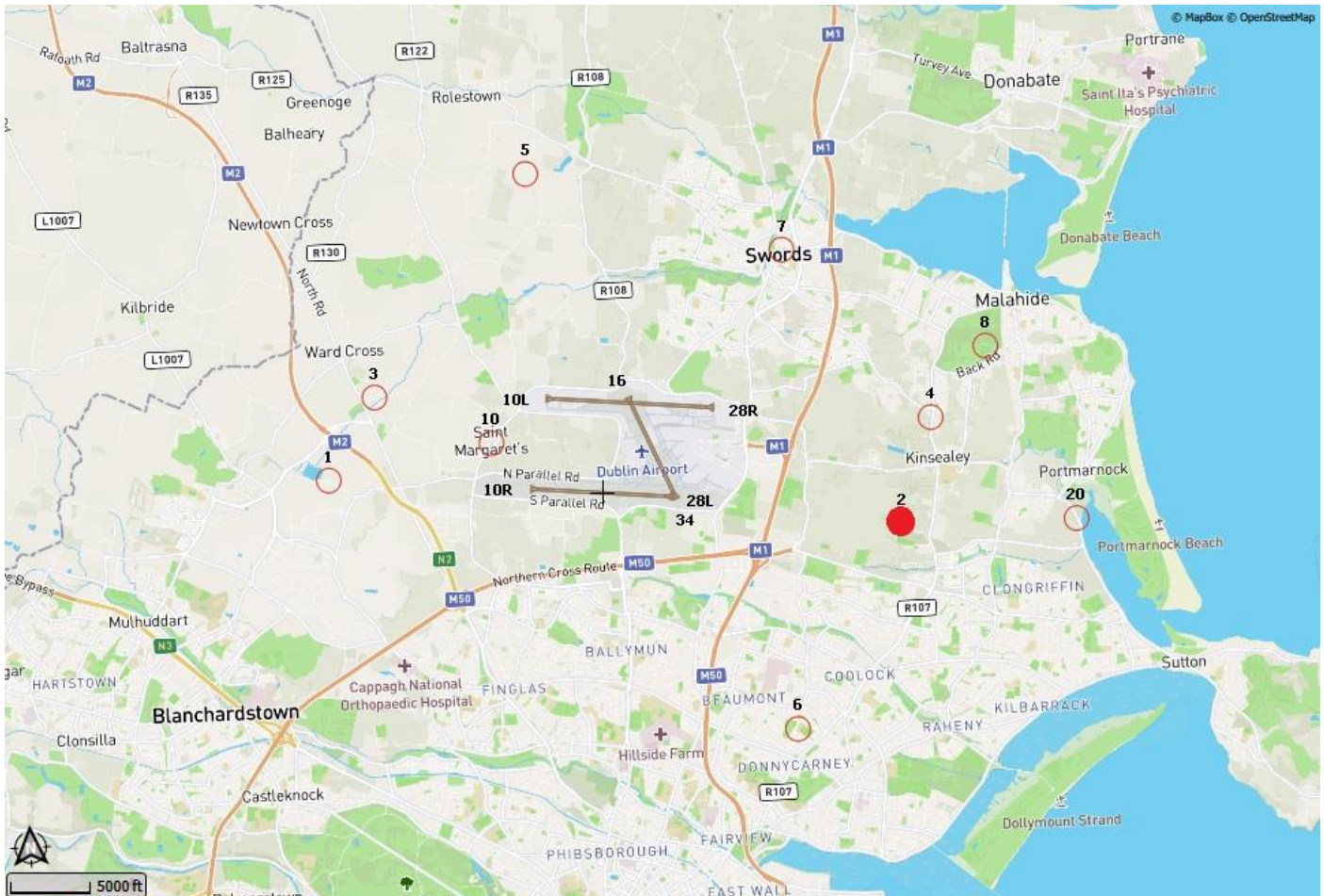


Figure 29: Noise Monitoring Terminal St. Doolaghs Location

Noise Events

The figure below shows the breakdown of noise events attributed to aircraft, weather, and the community.

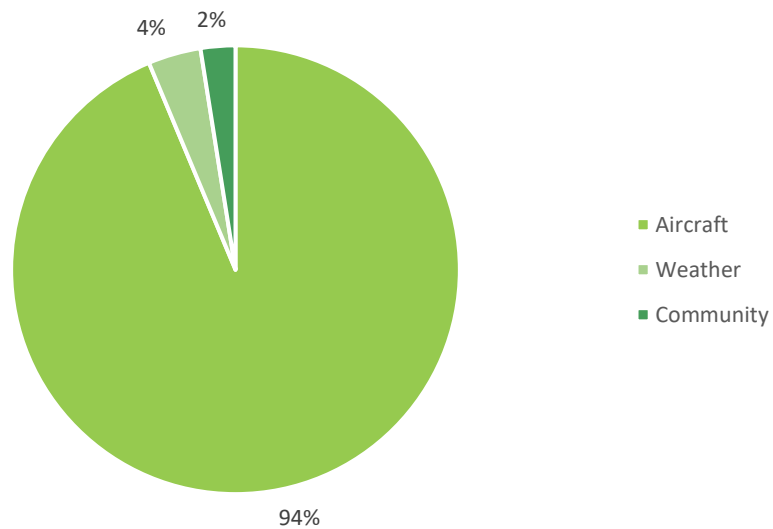


Figure 30: NMT 2 Noise Event Types

NMT Operational Status

To ensure that Noise Monitoring Terminals keep working within specific limits, internal calibration checks are completed every 6 hours. Outside of the 6 hourly calibration checks, NMTs will require maintenance and during this time will not record noise events. The operational status of NMT 2: St. Doolaghs is presented in Figure 31.

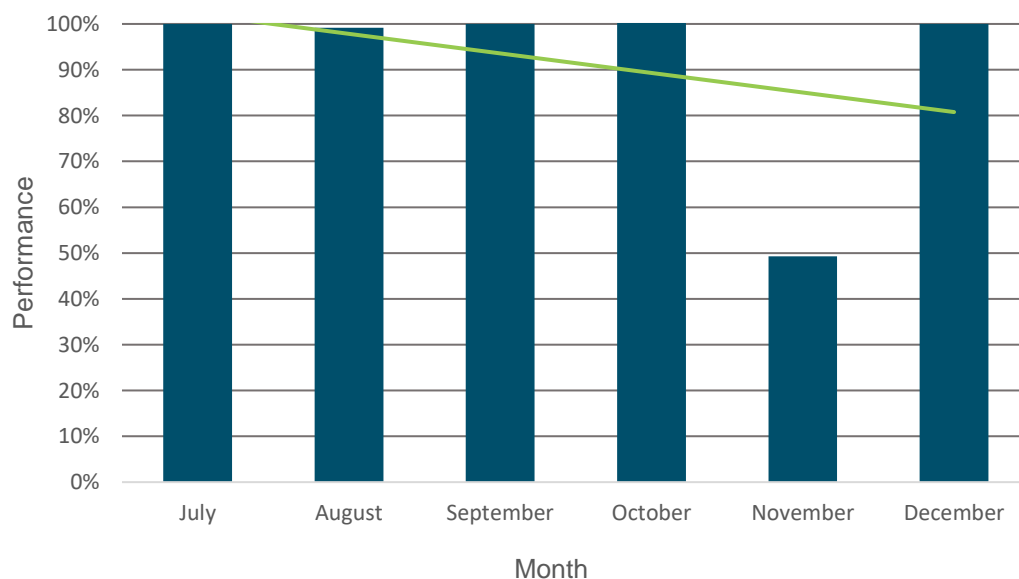


Figure 31: Operational status of NMT 2, July – December 2023

Noise Levels

Figure 32 presents the average noise levels measured at NMT 2 during daytime periods, which are defined to be from 07:00 in the morning to 22:59 in the evening. Recorded noise levels during these time segments are therefore averaged over a 16-hour window.

This procedure is followed both for all noise events, and for those events that were correlated to aircraft movements. The results shown are presented monthly.

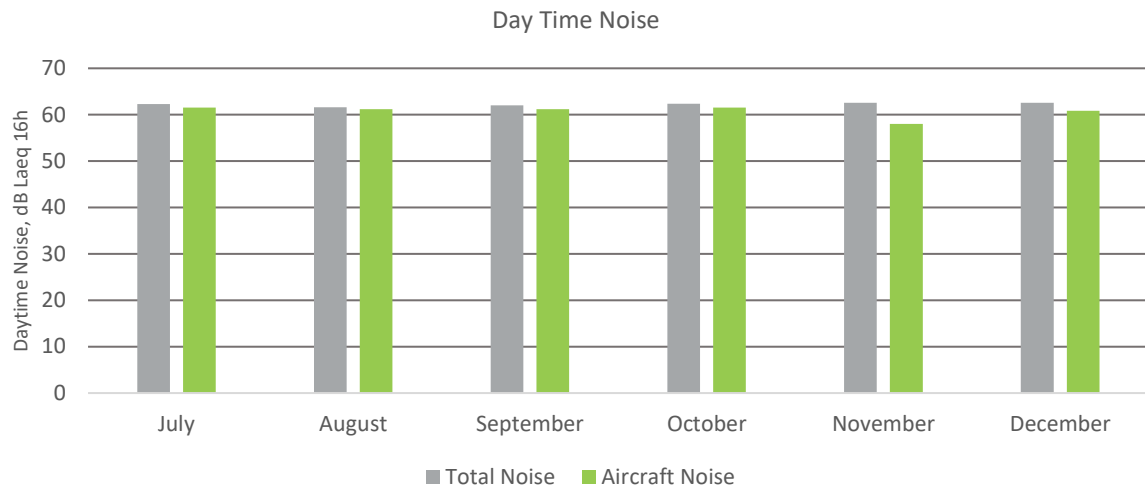


Figure 32: Averaged daytime noise levels for NMT 2, July – December 2023

Noise levels during the night are determined using a similar method. The night period is defined as a period between 23:00 in the evening to 06:59 in the morning. Noise levels are therefore averaged over an 8-hour window. Figure 33 presents these results monthly.

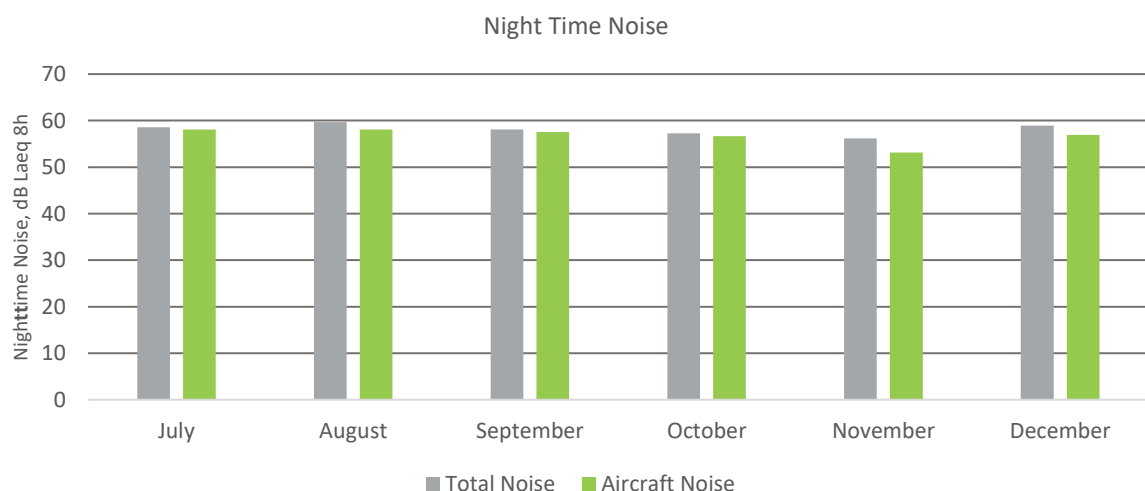


Figure 33: Averaged nighttime noise levels for NMT 2, July – December 2023

The hourly noise distribution at NMT 2 as shown in Figure 34.

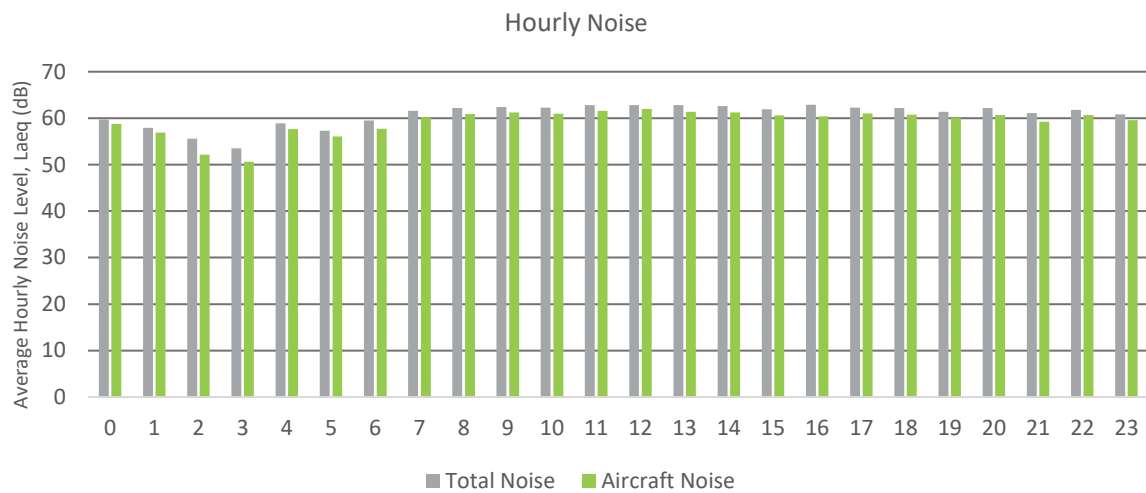


Figure 34: Averaged hourly noise levels for NMT 2, July – December 2023

Figure 35 shows the L_{Amax} distribution for aircraft noise for the second half of 2023 for NMT 2.

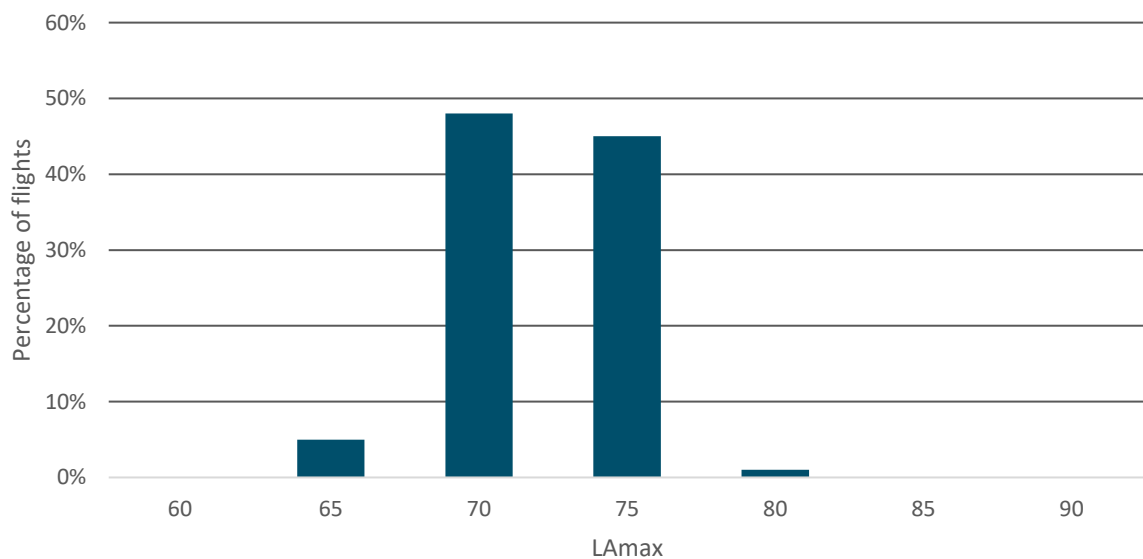


Figure 35: L_{Amax} levels distribution for NMT 2, July – December 2023

Table 6 shows the top 10 loudest correlated aircraft types from the total count of correlated noise events to NMT 2.

Aircraft Type	Max dB	Total Count
HAWK	86.1	2
B744	83.4	1
C130	83	1
B764	79.7	170
P180	79.5	6
B77W	78.8	433
B753	78.3	12
A333	78.2	1666
A332	78	587
B772	77.9	230

Table 6: LAmax by aircraft types correlated to NMT 2, July - December 2023

NMT 3: Bishopswood

Noise Monitoring Terminal 3 ('Bishopswood') is located west of Dublin Airport and north of flightpath for runway 10R/28L, see Figure 30 below. Its purpose is to monitor aircraft noise levels in the local area. The resulting data for NMT 3 measurements in the period from July 1st up to and including December 31st, 2023 are presented in this section.

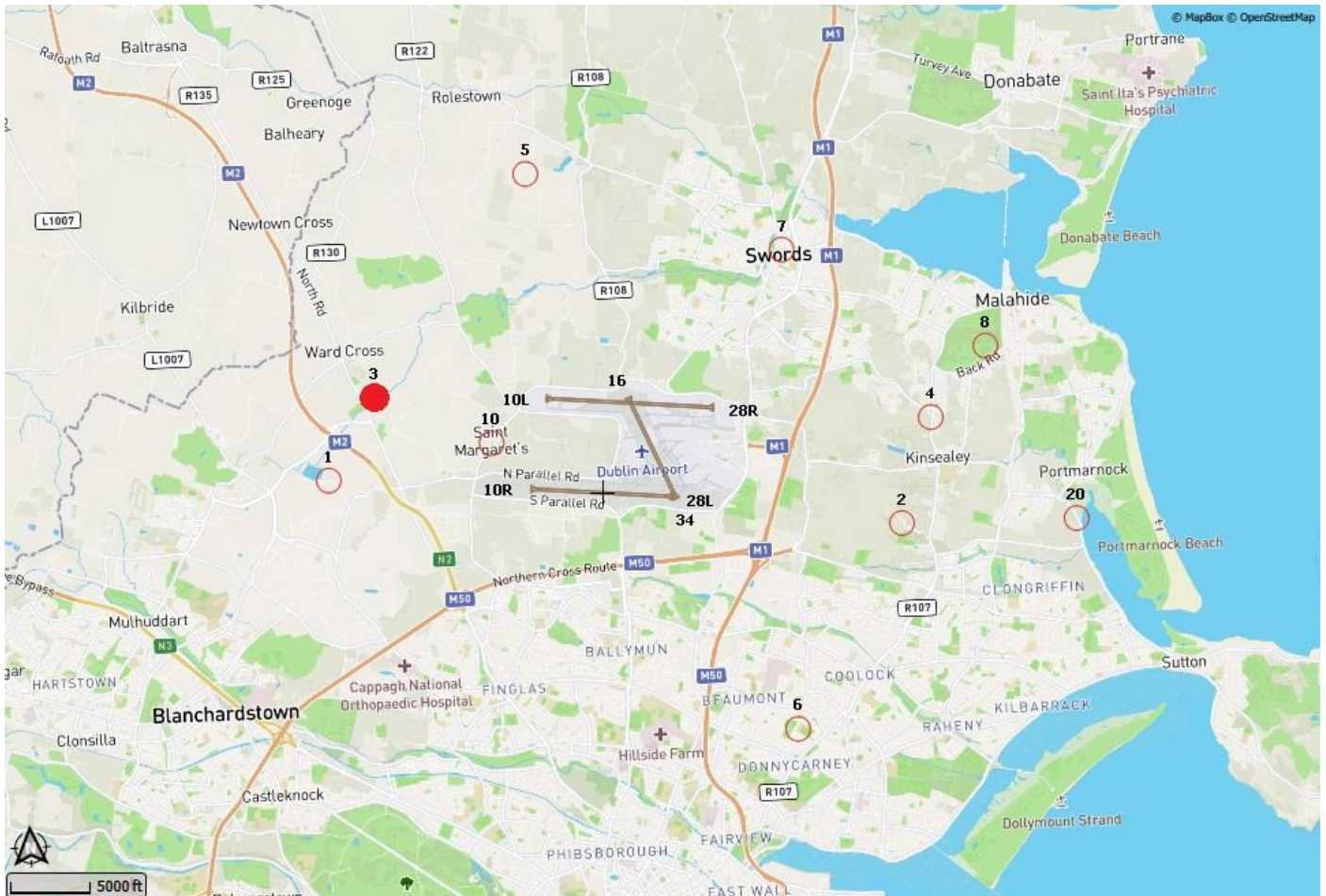


Figure 36: Noise Monitoring Terminal Bishopswood Location

Noise Events

The figure below shows the breakdown of noise events attributed to aircraft, weather, and the community.

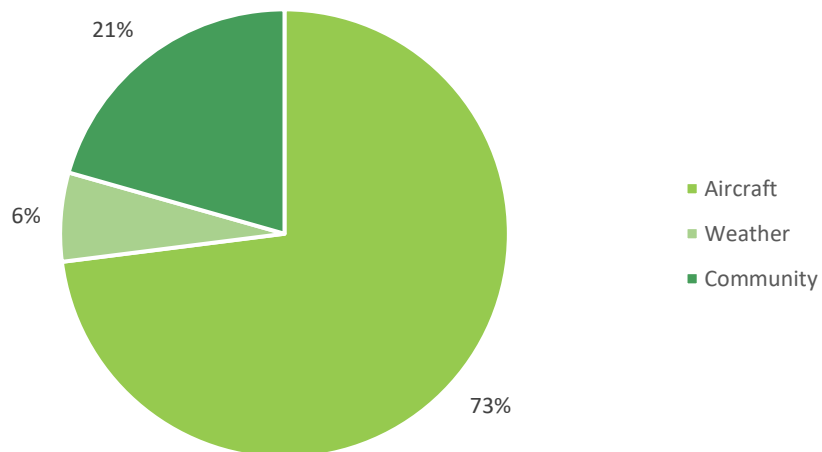


Figure 37: NMT 3 Noise Event Types

NMT Operational Status

To ensure that Noise Monitoring Terminals keep working within specific limits, internal calibration checks are completed every 6 hours. Outside of the 6 hourly calibration checks, NMTs will require maintenance and during this time will not record noise events. The operational status of NMT 3: Bishopswood is presented in Figure 38.

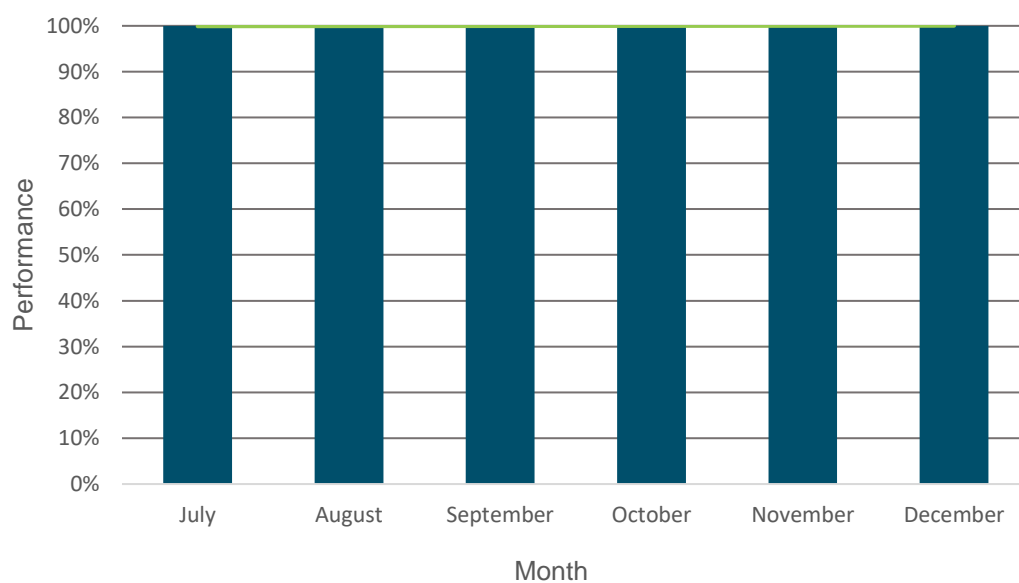


Figure 38: Operational status of NMT 3, July – December 2023

Noise Levels

Figure 39 presents the average noise levels measured at NMT 3 during daytime periods, which are defined to be from 07:00 in the morning to 22:59 in the evening. Recorded noise levels during these time segments are therefore averaged over a 16-hour window.

This procedure is followed both for all noise events, and for those events that were correlated to aircraft movements. The results shown are presented monthly.

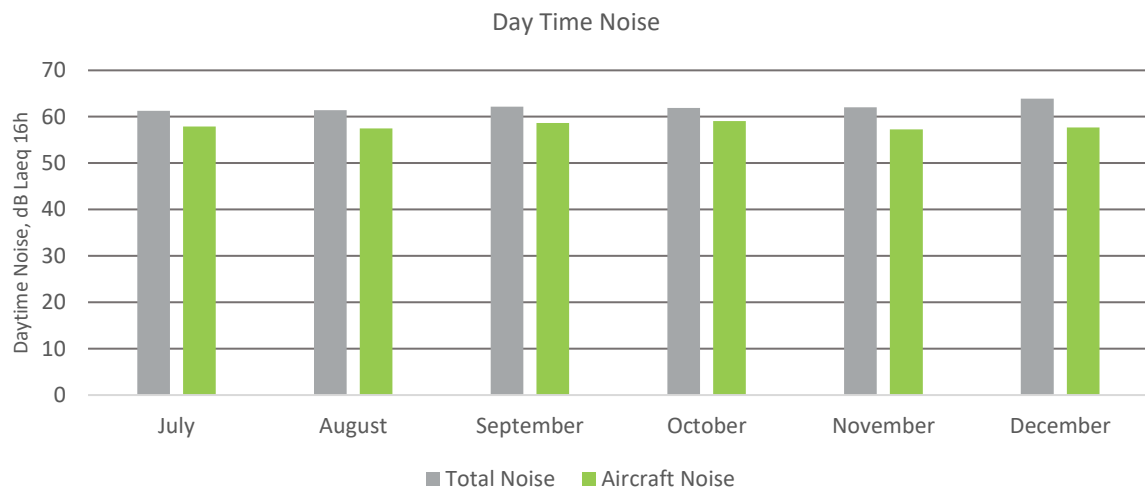


Figure 39: Averaged hourly noise levels for NMT 3, July – December 2023

Noise levels during the night are determined using a similar method. The night period is defined as a period between 23:00 in the evening to 06:59 in the morning. Noise levels are therefore averaged over an 8-hour window. Figure 40 presents these results monthly.

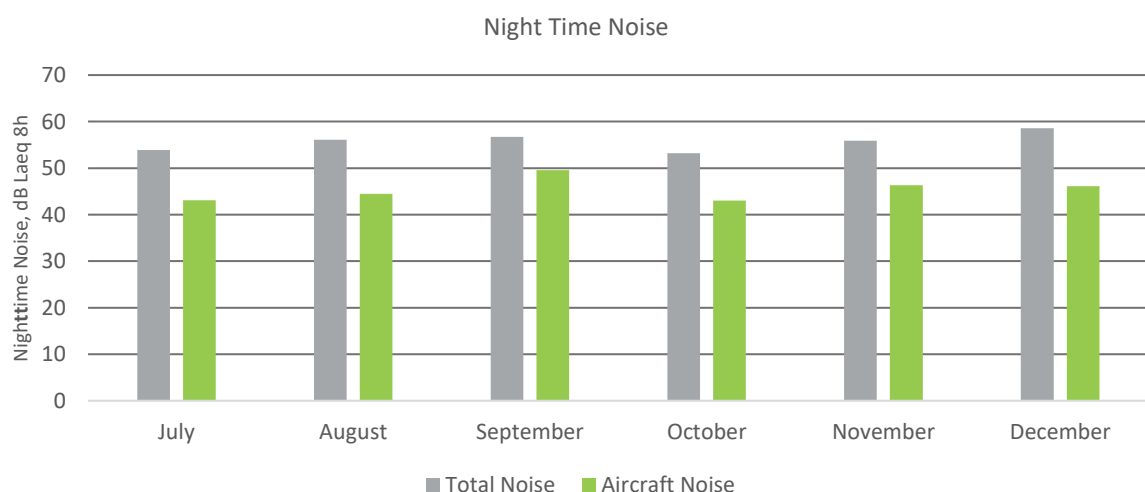


Figure 40: Averaged nighttime noise levels for NMT 3, July – December 2023

The hourly noise distribution at NMT 3 as shown in Figure 41.

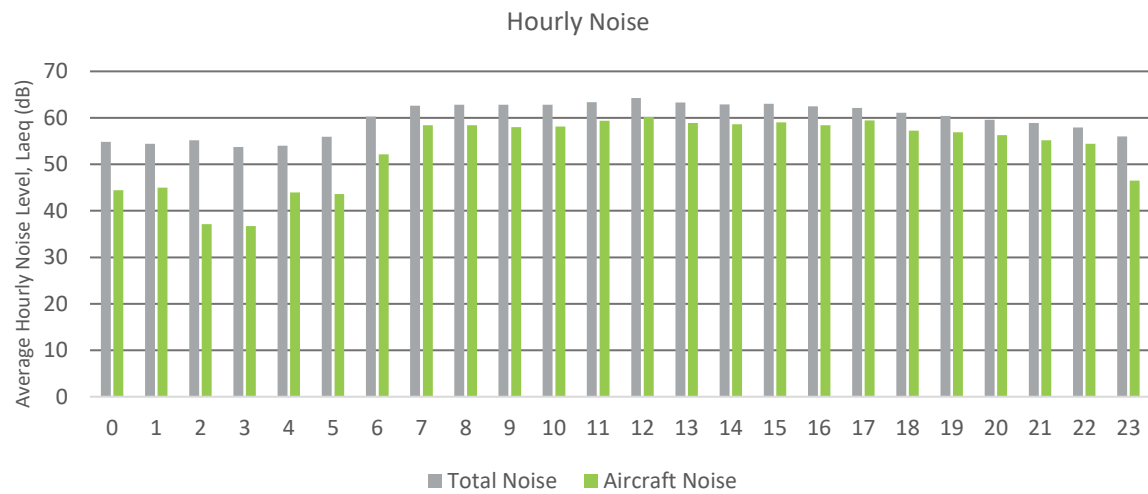


Figure 41: Averaged hourly noise levels for NMT 3, July – December 2023

Figure 42 shows the LAmax distribution for aircraft noise for the second half of 2023 for NMT 3.

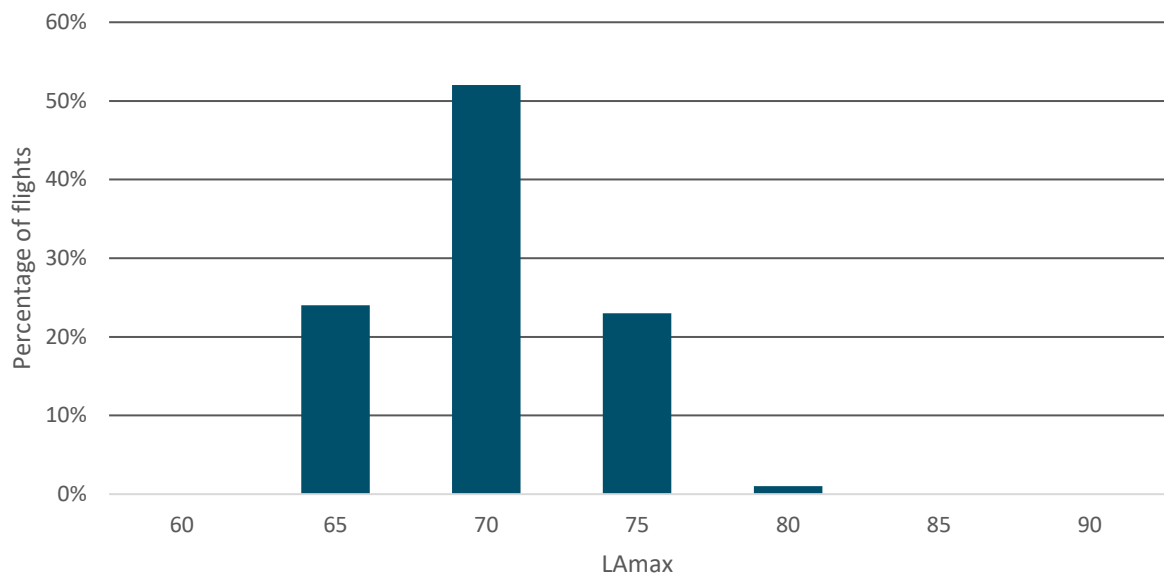


Figure 42: LAmax levels distribution for NMT 3, July – December 2023

Table 7 shows the top 10 loudest correlated aircraft types from the total count of correlated noise events to NMT 3.

Aircraft Type	Max dB	Total Count
HAWK	82	3
C130	81.1	1
P180	78.8	2
B744	78.2	1
E50P	76.4	1
EP3	76.2	2
B764	75.9	164
A333	75.6	1649
B733	75.3	17
B39M	75.1	10

Table 7: L_Amax by aircraft types correlated to NMT 3, July - December 2023

NMT 4: Feltrim

Noise Monitoring Terminal 4 ('Feltrim') is located east of Dublin Airport and north of the flight path of runway 10R/28L, see Figure 37 below and monitors the local area. The resulting data for NMT 4 measurements in the period from July 1st up to and including December 31st, 2023 are presented in this section.

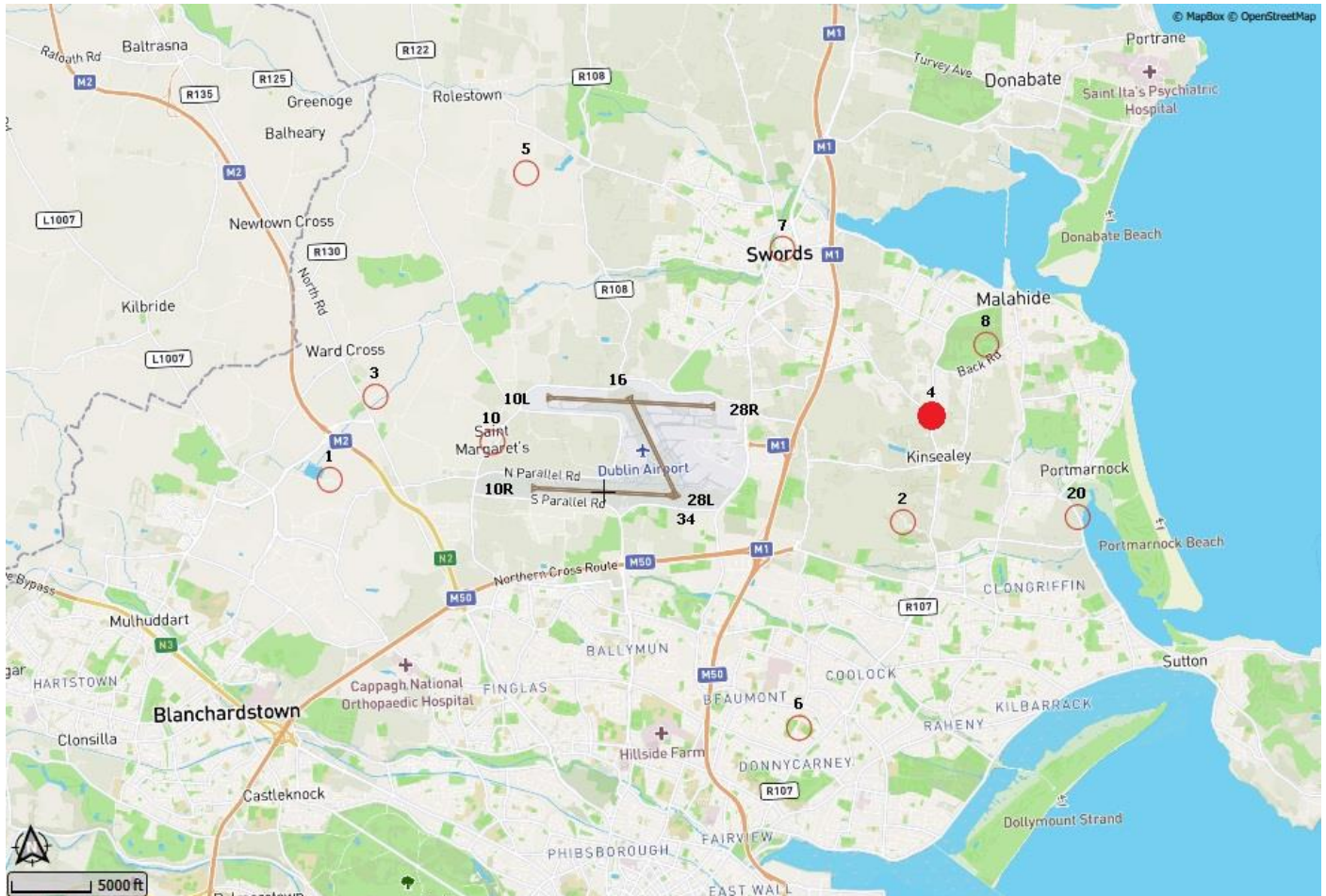


Figure 43: Noise Monitoring Terminal Feltrim Location

Noise Events

The figure below shows the breakdown of noise events attributed to aircraft, weather, and the community.

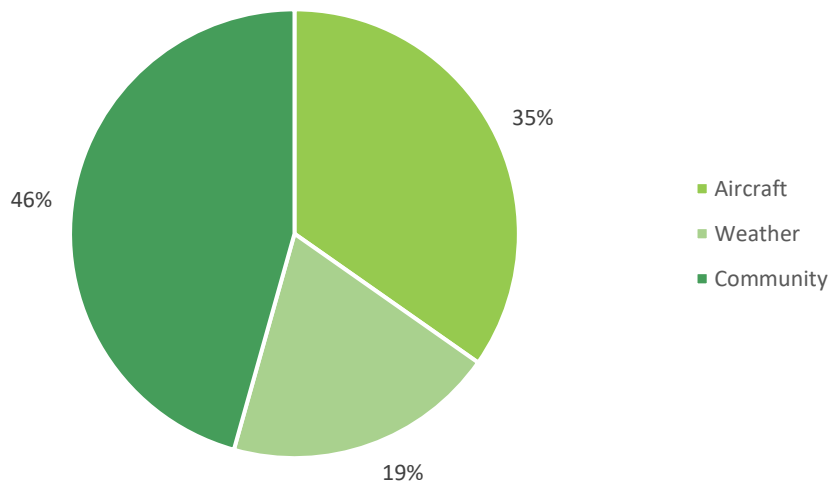


Figure 44: NMT 4 Noise Event Types

NMT Operational Status

To ensure that Noise Monitoring Terminals keep working within specific limits, internal calibration checks are completed every 6 hours. Outside of the 6 hourly calibration checks, NMTs will require maintenance and during this time will not record noise events. The operational status of NMT 4: Feltrim is presented in Figure 45.

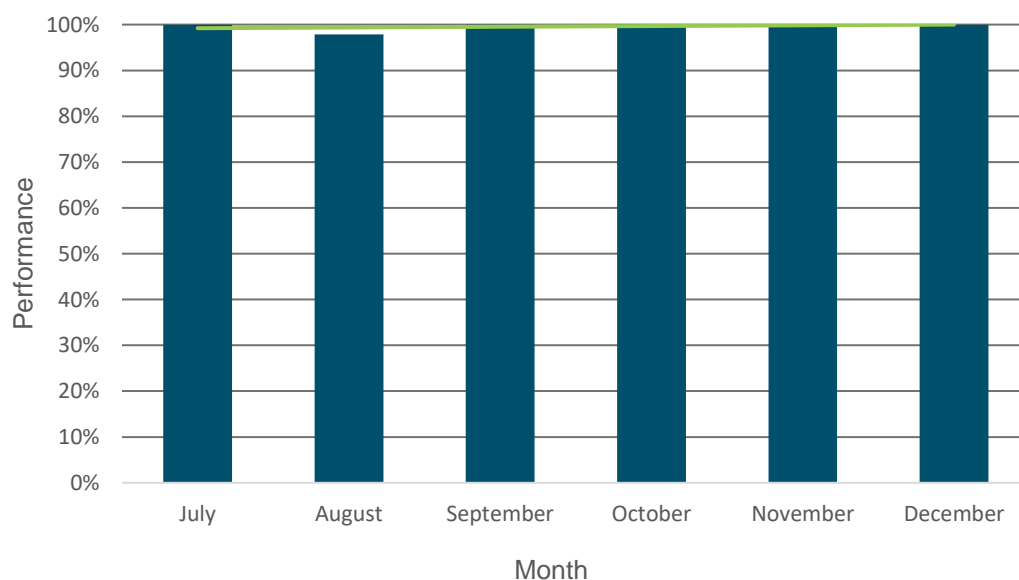


Figure 45: Operational status of NMT 4, July – December 2023

Noise Levels

Figure 46 presents the average noise levels measured at NMT 4 during daytime periods, which are defined to be from 07:00 in the morning to 22:59 in the evening. Recorded noise levels during these time segments are therefore averaged over a 16-hour window.

This procedure is followed both for all noise events, and for those events that were correlated to aircraft movements. The results shown are presented monthly.

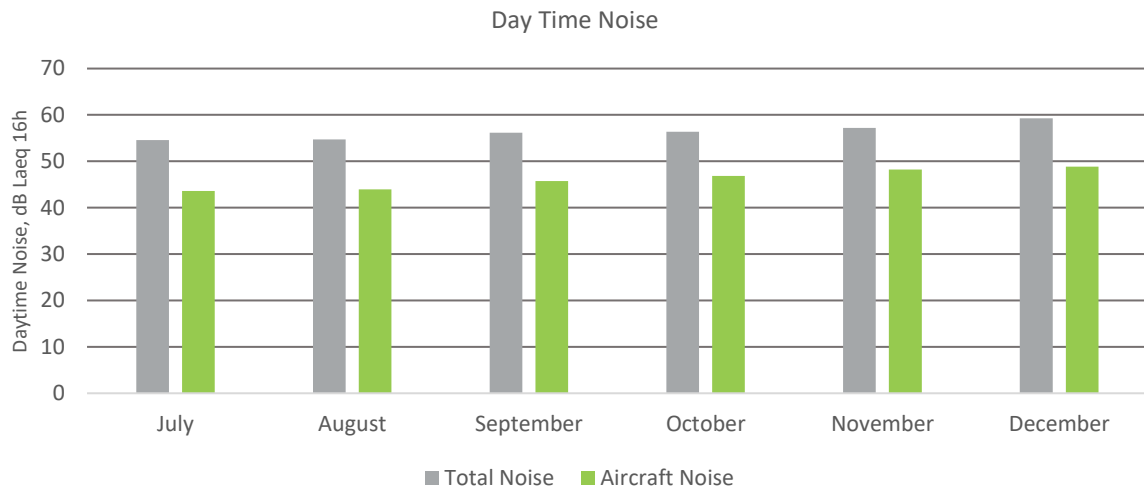


Figure 46: Averaged daytime noise levels for NMT 4, July – December 2023

Noise levels during the night are determined using a similar method. The night period is defined as a period between 23:00 in the evening to 06:59 in the morning. Noise levels are therefore averaged over an 8-hour window. Figure 47 presents these results monthly.

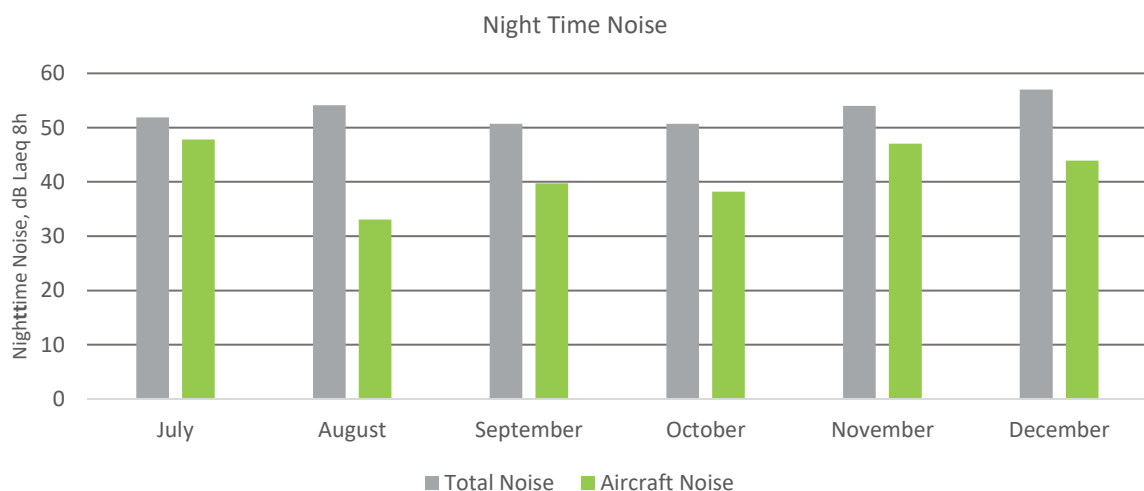


Figure 47: Averaged nighttime noise levels for NMT 4, July – December 2023

The hourly noise distribution at NMT 4 as shown in Figure 48.

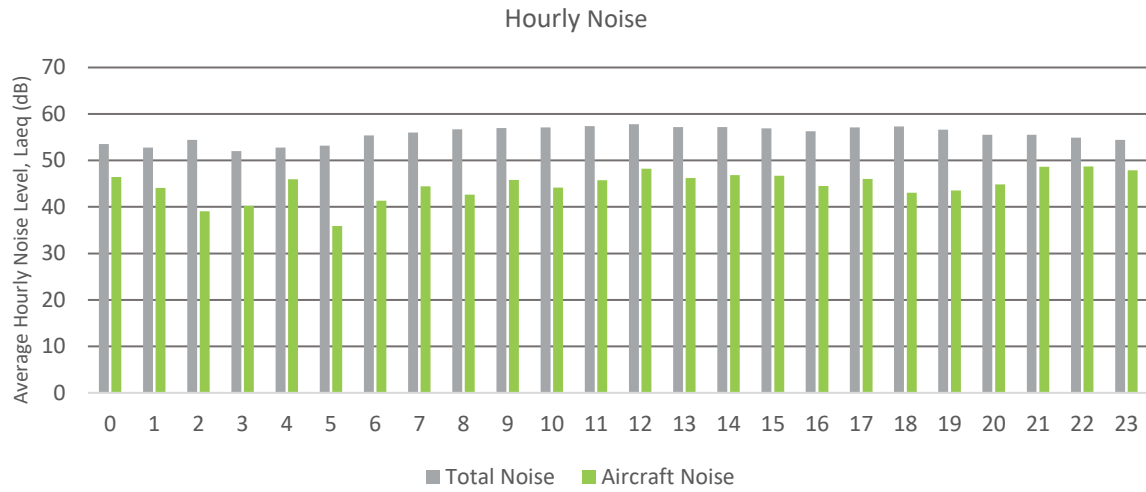


Figure 48: Averaged hourly noise levels for NMT 4, July – December 2023

Figure 49 shows the L_{Amax} distribution for aircraft noise for the second half of 2023 for NMT 4.

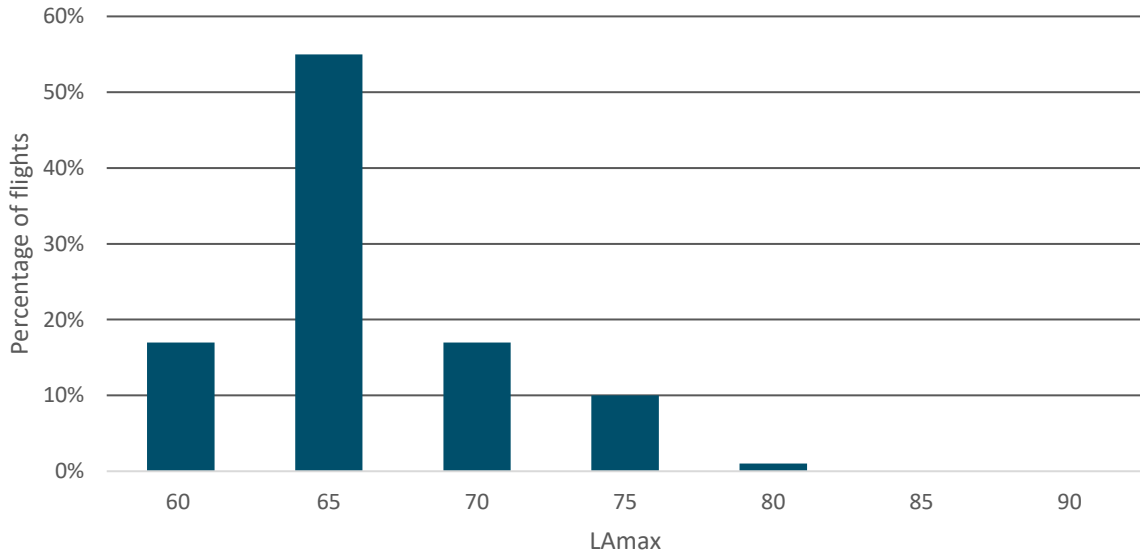


Figure 49: L_{Amax} levels distribution for NMT 4, July – December 2023

Table 8 shows the top 10 loudest correlated aircraft types from the total count of correlated noise events to NMT 4.

Aircraft Type	AVG Max dB	Total Count
C25M	81.2	1
P180	81	1
525	80.9	1
A400	77.2	1
E295	76.9	3
F900	76.1	1
BCS1	73	7
SF34	72.9	5
PC12	72.8	1
7M8	72.5	25

Table 8: LAmax by aircraft types correlated to NMT 4, July - December 2023

NMT 5: Balcultry

Noise Monitoring Terminal 5 ('Balcultry') is located northwest of Dublin Airport, see Figure 44 below, under the extended runway centreline of runway 34. Its purpose is to monitor runway 34 departures and runway 16 arrivals. The resulting data for NMT 5 measurements in the period from July 1st up to and including December 31st, 2023 are presented in this section.

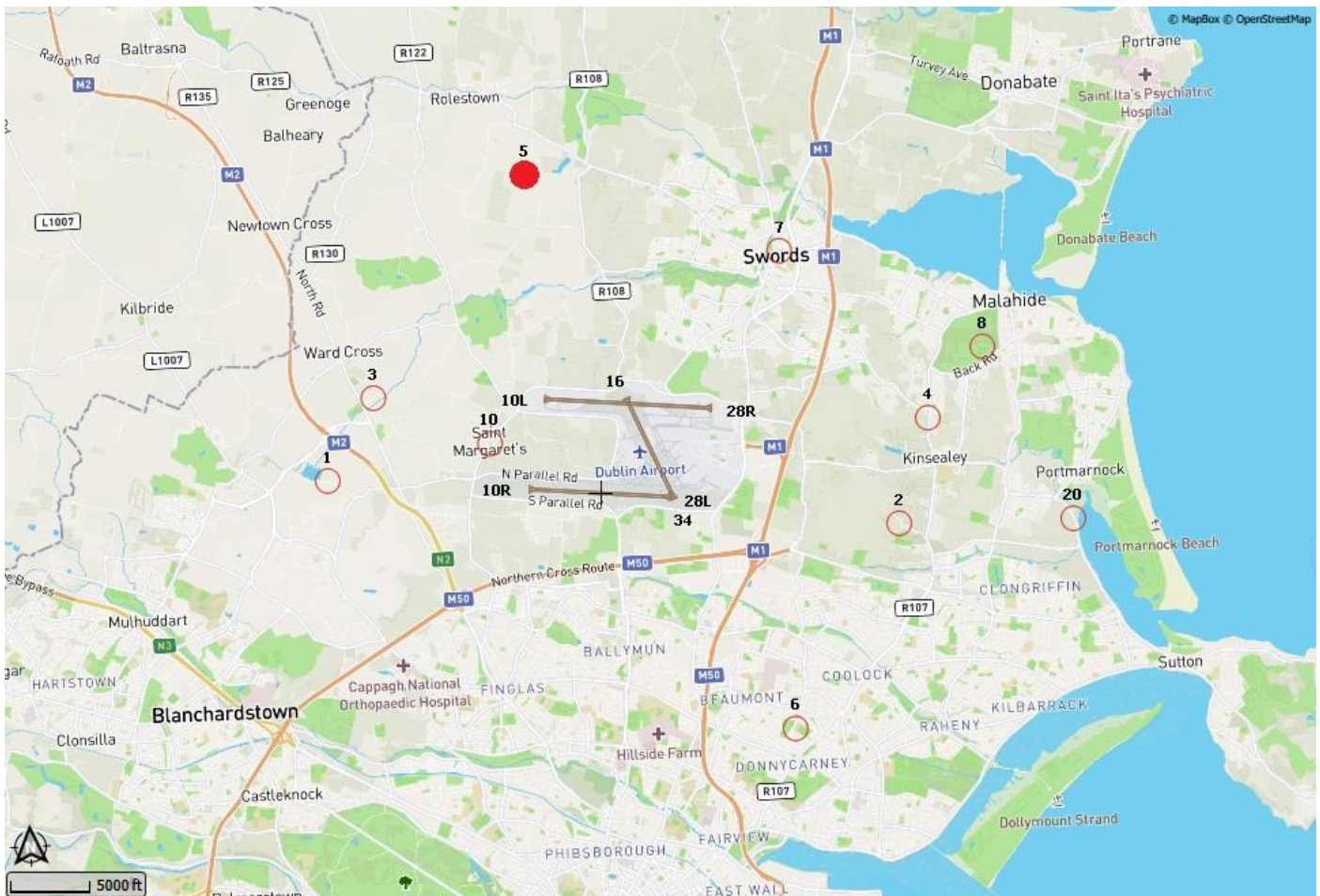


Figure 50: Noise Monitoring Terminal Balcultry Location

Noise Events

The figure below shows the breakdown of noise events attributed to aircraft, weather, and the community.

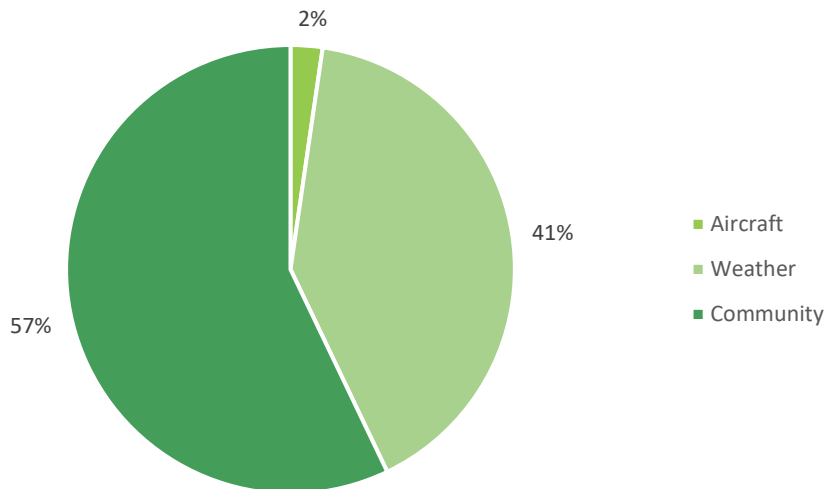


Figure 51: NMT 5 Noise Event Types

NMT Operational Status

To ensure that Noise Monitoring Terminals keep working within specific limits, internal calibration checks are completed every 6 hours. Outside of the 6 hourly calibration checks, NMTs will require maintenance and during this time will not record noise events. The operational status of NMT 5: Balcultry is presented in Figure 52.

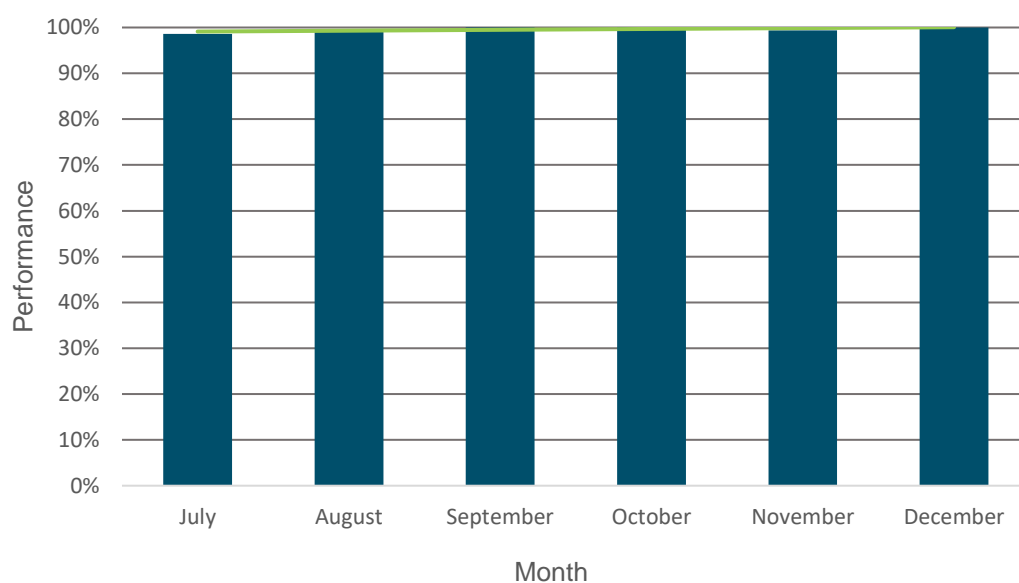


Figure 52: Operational status of NMT 5, July – December 2023

Noise Levels

Figure 53 presents the average noise levels measured at NMT 5 during daytime periods, which are defined to be from 07:00 in the morning to 22:59 in the evening. Recorded noise levels during these time segments are therefore averaged over a 16-hour window.

This procedure is followed both for all noise events, and for those events that were correlated to aircraft movements. The results shown are presented monthly.

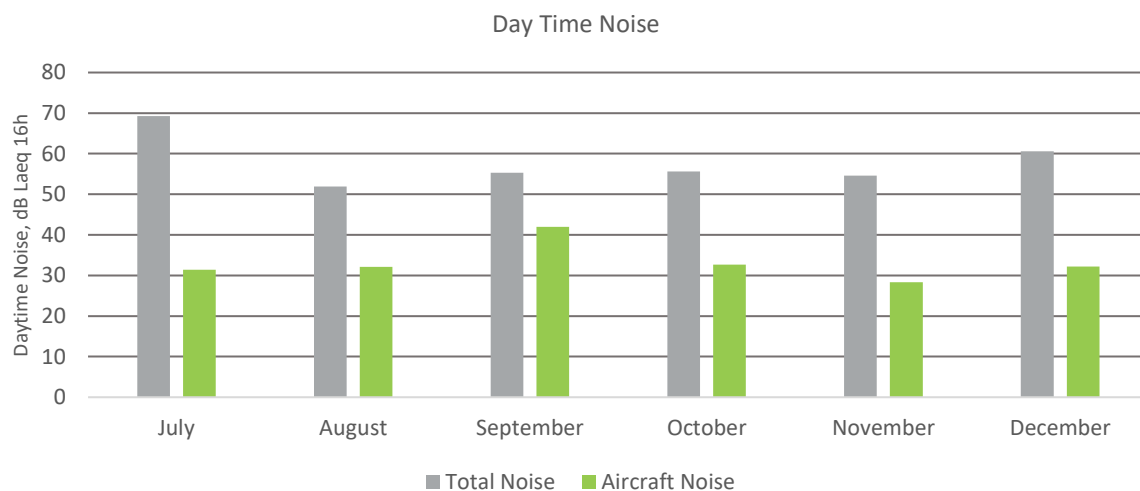


Figure 53: Averaged daytime noise levels for NMT 5, July – December 2023

Noise levels during the night are determined using a similar method. The night period is defined as a period between 23:00 in the evening to 06:59 in the morning. Noise levels are therefore averaged over an 8-hour window. Figure 54 presents these results monthly.

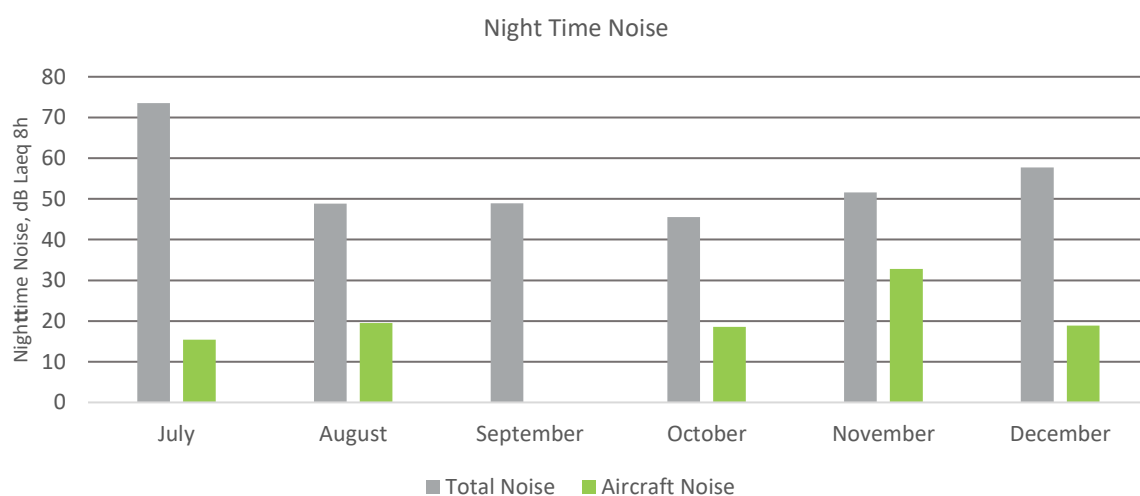


Figure 54: Averaged nighttime noise levels for NMT 5, July – December 2023

The hourly noise distribution at NMT 5 as shown in Figure 55.

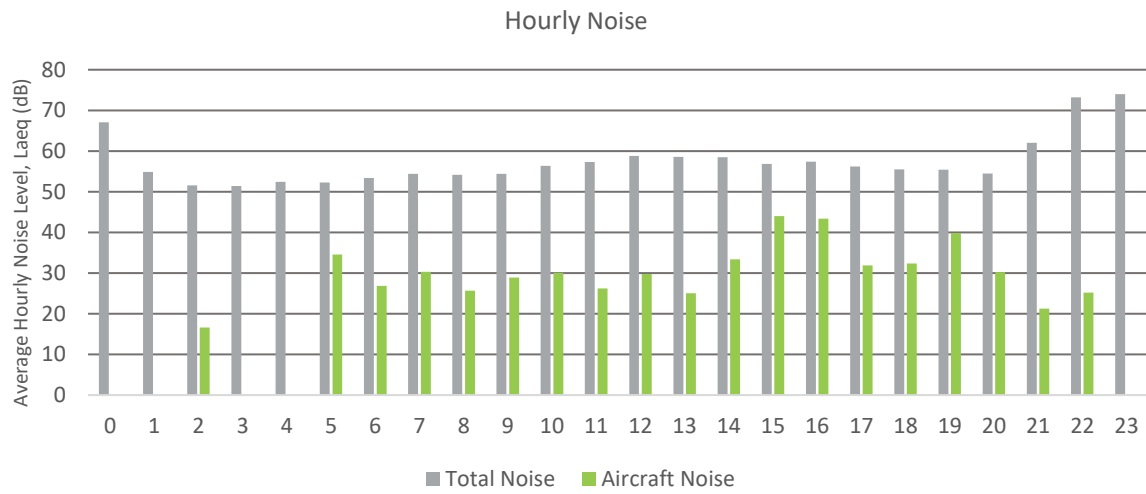


Figure 55: Averaged hourly noise levels for NMT 5, July – December 2023

Figure 56 shows the LAmax distribution for aircraft noise for the second half of 2023 for NMT 5.

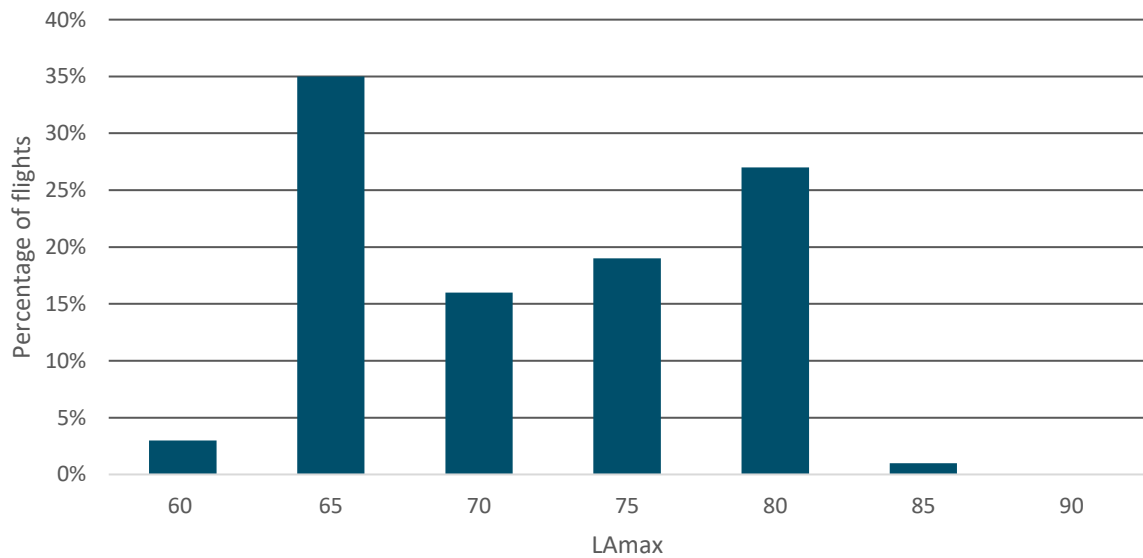


Figure 56: LAmax levels distribution for NMT 5, January – June 2023

Table 9 shows the top 10 loudest correlated aircraft types from the total count of correlated noise events to NMT 5.

Aircraft Type	Max dB	Total Count
B77W	84.9	1
B788	81.6	2
B762	81.5	1
A333	81.1	5
A332	80.4	2
A20N	80.3	2
A21N	80.1	3
7M8	79.8	3
B763	78.8	3
B38M	78.7	15

Table 9: LAmax by aircraft types correlated to NMT 5, July - December 2023

NMT 6: Artane

Noise Monitoring Terminal 6 ('Artane') is located southeast of Dublin Airport on the roof a school building, see Figure 51 below, under the extended runway centreline of runway 16. Its purpose is to monitor runway 16 departures and runway 34 arrivals. The resulting data for NMT 6 measurements in the period from July 1st up to and including December 31st, 2023 are presented in this section.

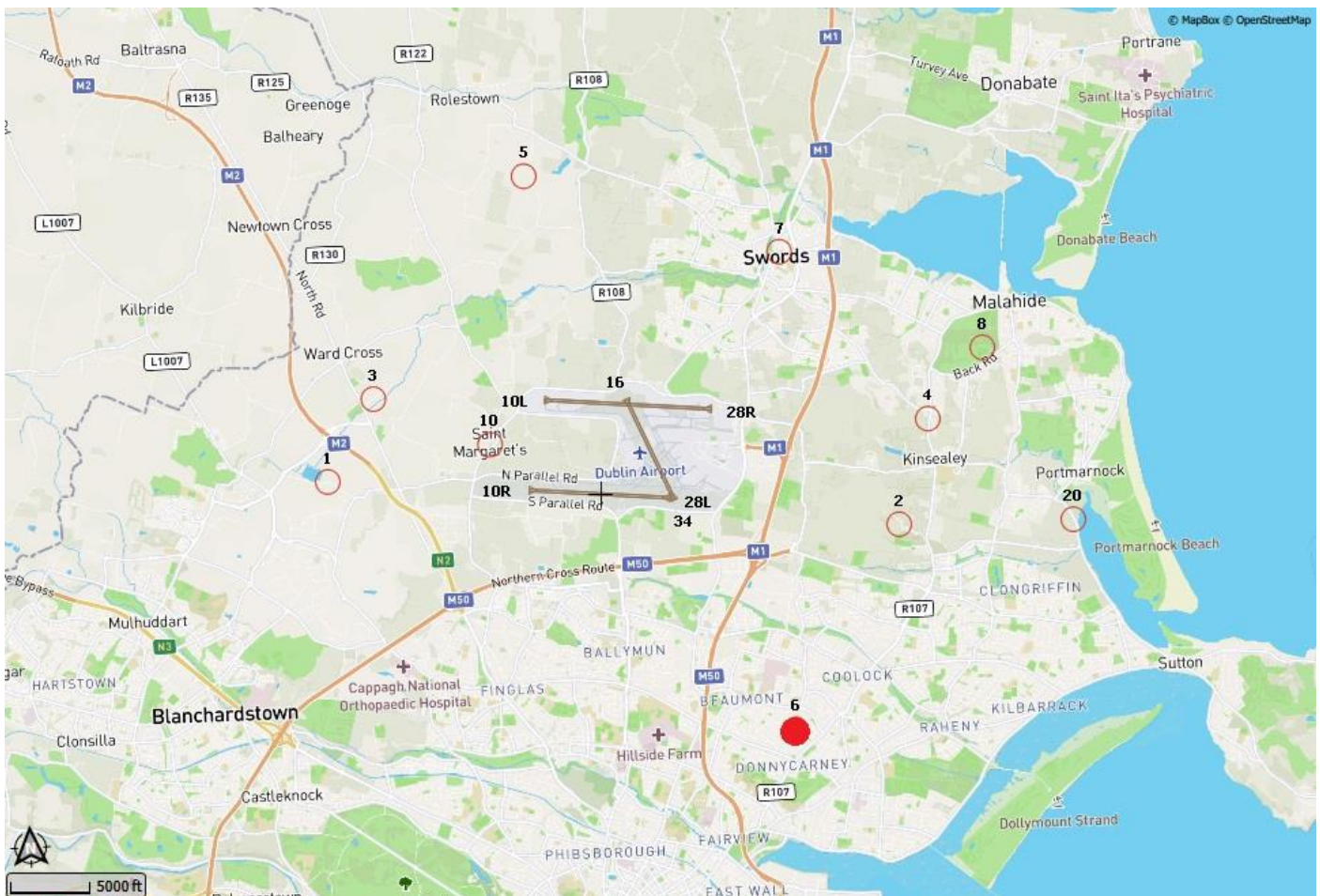


Figure 57: Noise Monitoring Terminal Artane Location

Noise Events

The figure below shows the breakdown of noise events attributed to aircraft, weather, and the community.

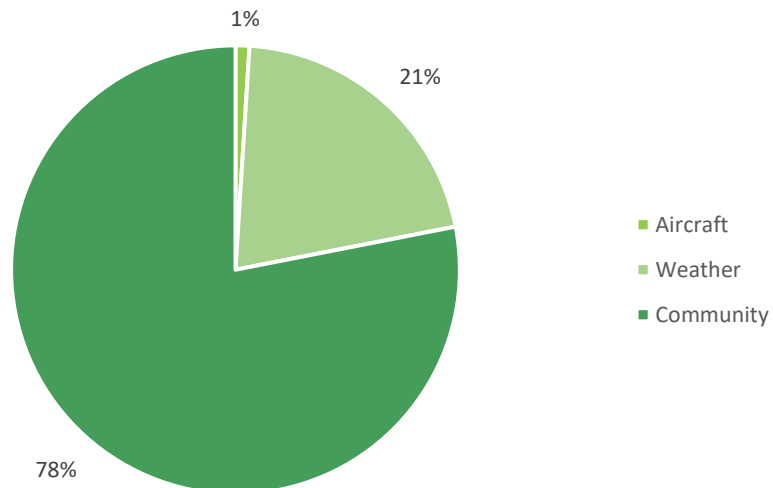


Figure 58: NMT 6 Noise Event Types

NMT Operational Status

To ensure that Noise Monitoring Terminals keep working within specific limits, internal calibration checks are completed every 6 hours. Outside of the 6 hourly calibration checks, NMTs will require maintenance and during this time will not record noise events. The operational status of NMT 6: Artane is presented in Figure 59.

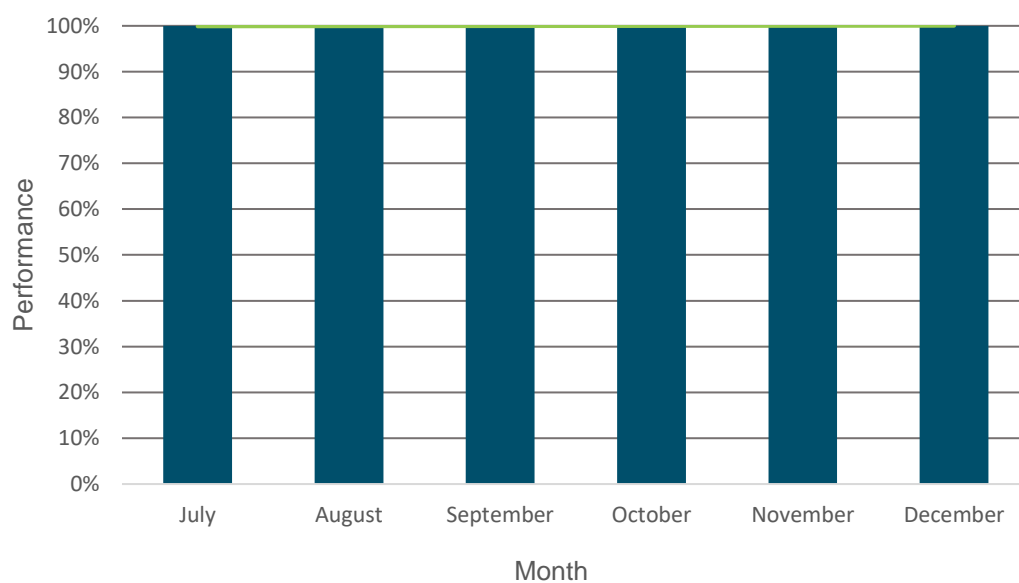


Figure 59: Operational status of NMT 6, July – December 2023

Noise Levels

Figure 60 presents the average noise levels measured at NMT 6 during daytime periods, which are defined to be from 07:00 in the morning to 22:59 in the evening. Recorded noise levels during these time segments are therefore averaged over a 16-hour window.

This procedure is followed both for all noise events, and for those events that were correlated to aircraft movements. The results shown are presented monthly.

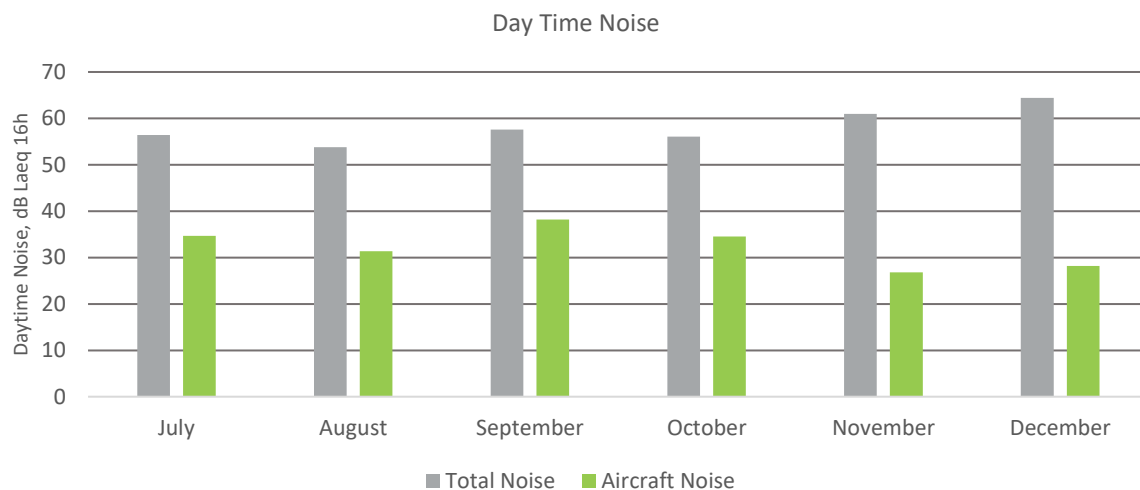


Figure 60: Averaged daytime noise levels for NMT 6, July – December 2023

Noise levels during the night are determined using a similar method. The night period is defined as a period between 23:00 in the evening to 06:59 in the morning. Noise levels are therefore averaged over an 8-hour window. Figure 61 presents these results monthly.

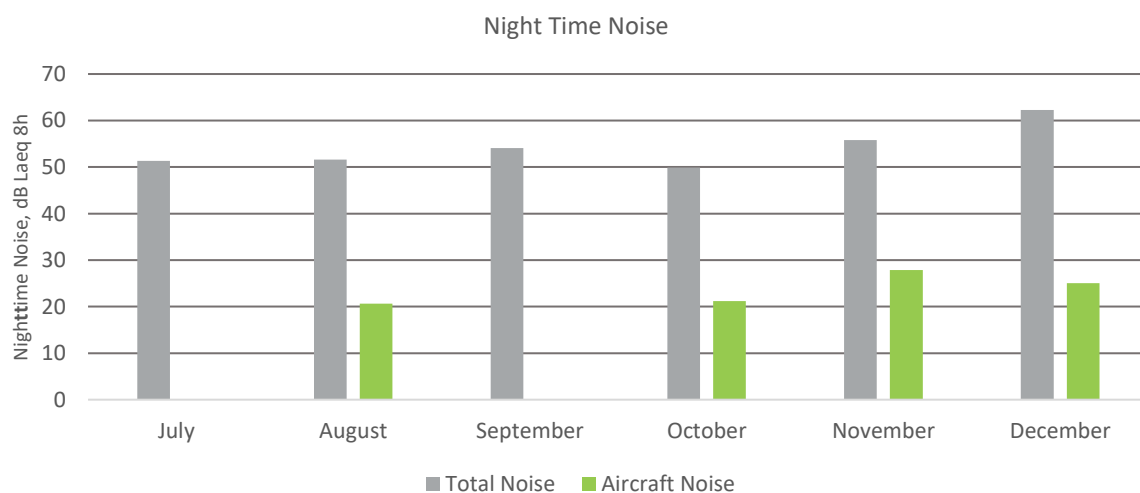


Figure 61: Averaged nighttime noise levels for NMT 6, January – June 2023

The hourly noise distribution at NMT 6 as shown in Figure 62.

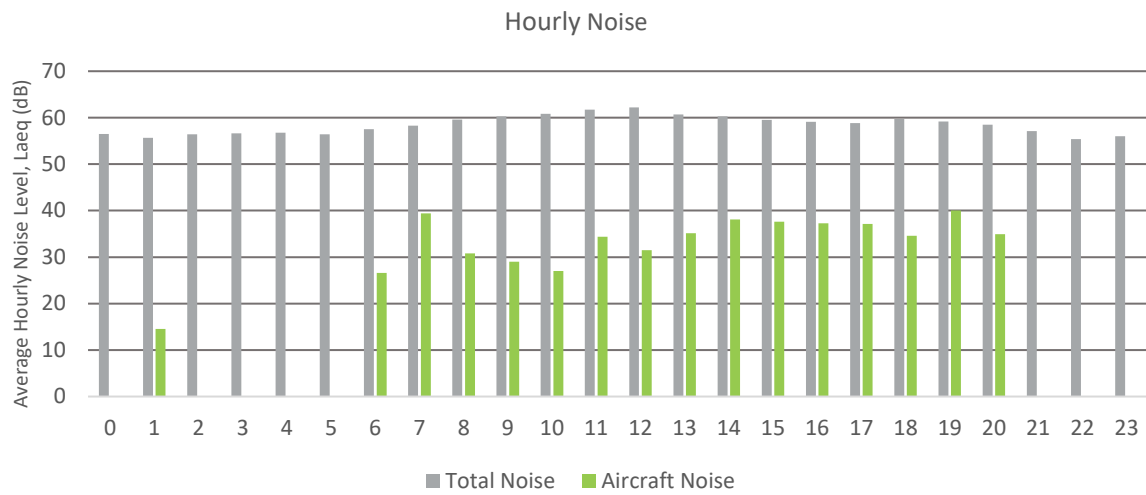


Figure 62: Averaged hourly noise levels for NMT 6, July – December 2023

Figure 63 shows the LAmax distribution for aircraft noise for the second half of 2023 for NMT 6

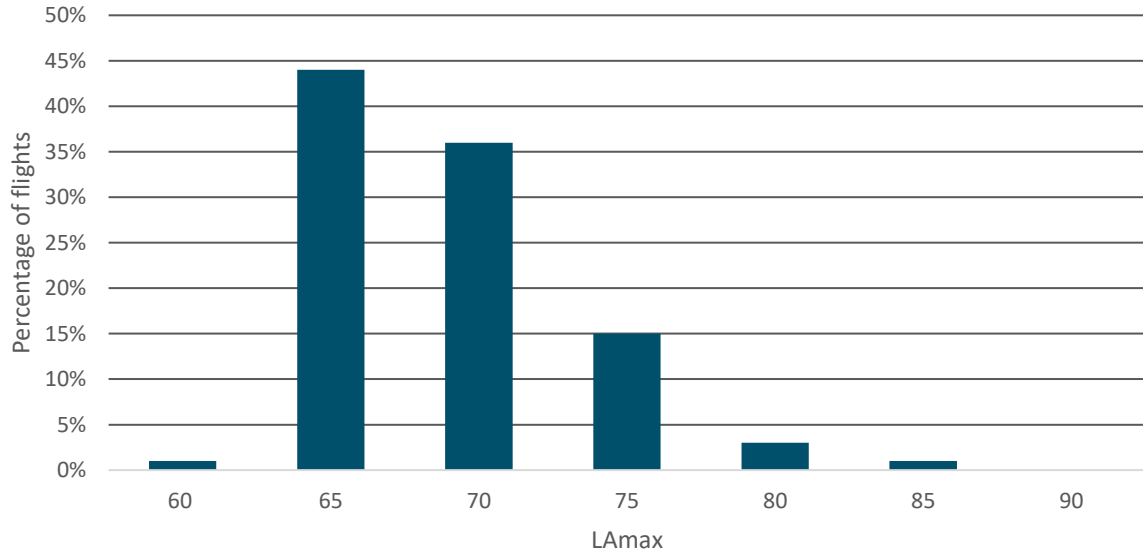


Figure 63: LAmax levels distribution for NMT 6, July – December 2023

Table 10 shows the top 8 loudest correlated aircraft types from the total count of correlated noise events to NMT 6.

Aircraft Type	Max dB	Total Count
B788	85.5	2
B752	83.6	2
A333	79.9	4
A332	79.8	3
A20N	77	2
B763	77	2
E190	76.5	3
A321	76.4	1
B738	76.1	27
A319	75.9	1

Table 10: LAmax by aircraft types correlated to NMT 6, July - December 2023

NMT 7: County Hall

Noise Monitoring Terminal 7 ('County Hall') is located north of Dublin. Its purpose is to monitor runway 28R departures. The resulting data for NMT 7 measurements in the period from July 1st up to and including December 31st, 2023 are presented in this section.

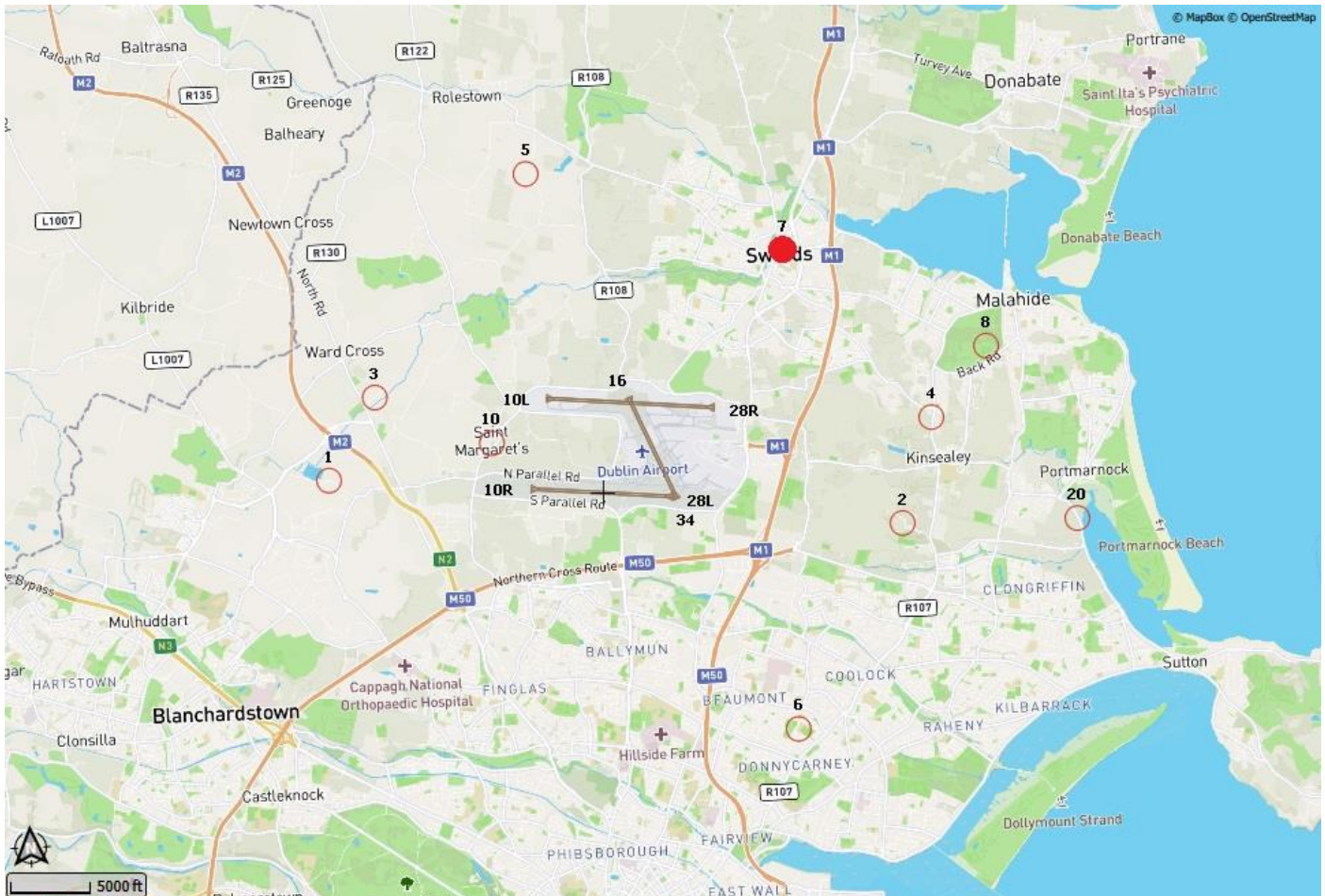


Figure 64: Noise Monitoring Terminal Coast Road Location

Noise Events

The figure below shows the breakdown of noise events attributed to aircraft, weather, and the community.

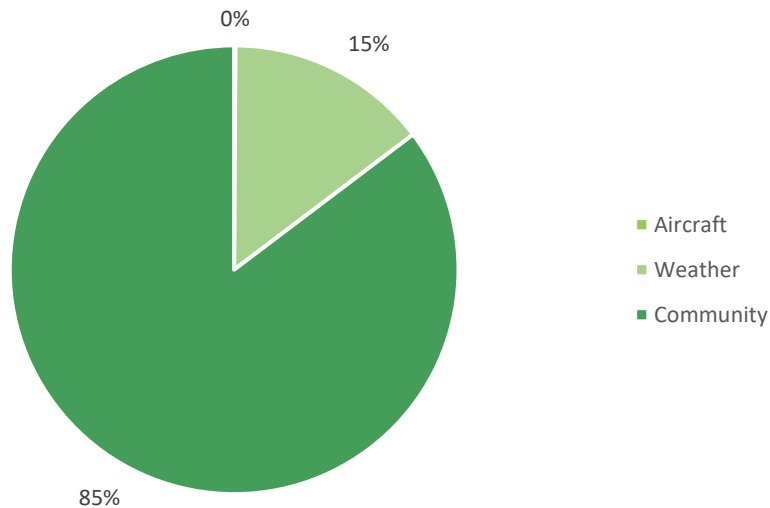


Figure 65: NMT 7 Noise Event Types

NMT Operational Status

To ensure that Noise Monitoring Terminals keep working within specific limits, internal calibration checks are completed every 6 hours. Outside of the 6 hourly calibration checks, NMTs will require maintenance and during this time will not record noise events. The operational status of NMT 7: Coast Road is presented in Figure 66.

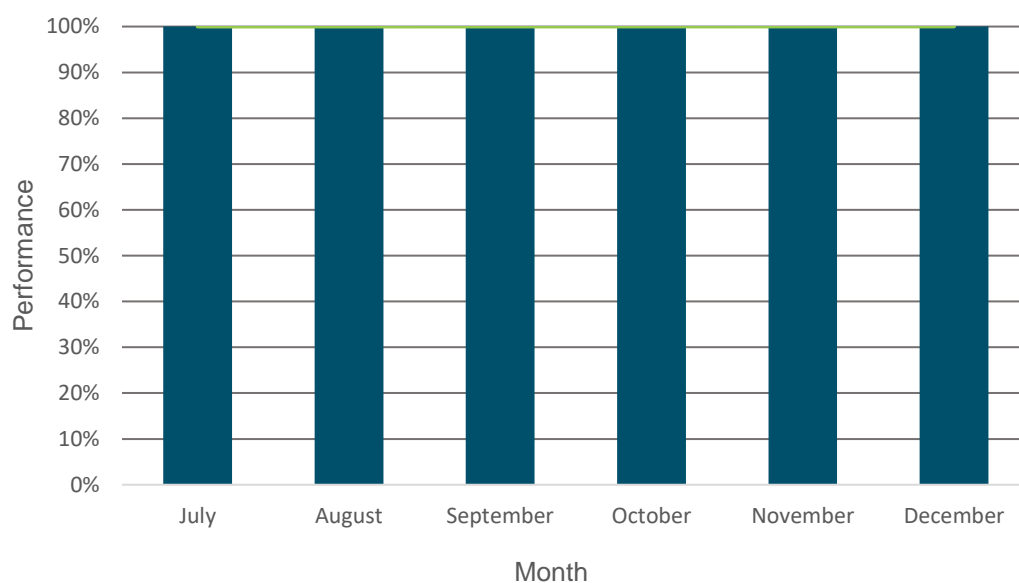


Figure 66: Operational status of NMT 7, July – December 2023

Noise Levels

Figure 67 presents the average noise levels measured at NMT 7 during daytime periods, which are defined to be from 07:00 in the morning to 22:59 in the evening. Recorded noise levels during these time segments are therefore averaged over a 16-hour window.

This procedure is followed both for all noise events, and for those events that were correlated to aircraft movements. The results shown are presented monthly.

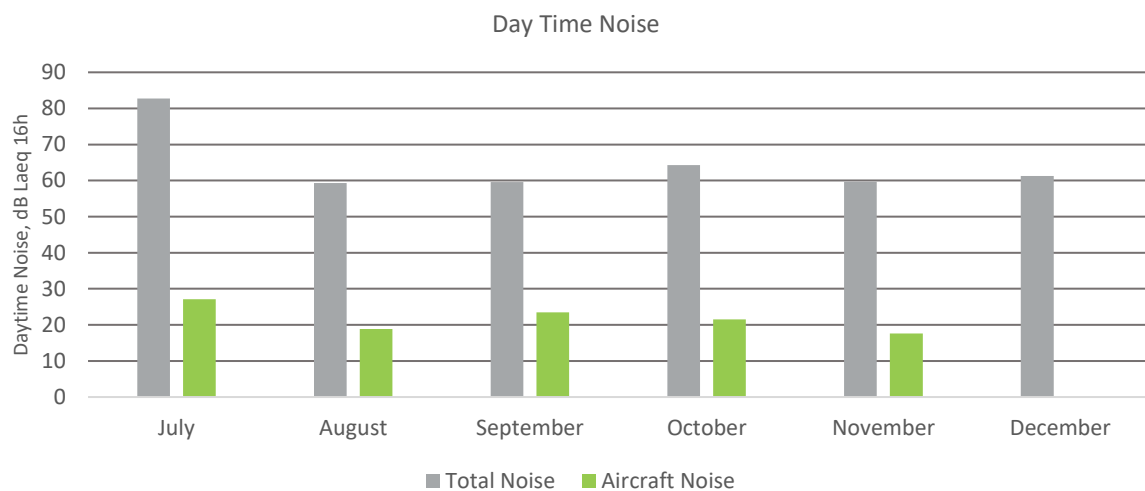


Figure 67: Averaged daytime noise levels for NMT 7, July – December 2023

Noise levels during the night are determined using a similar method. The night period is defined as a period between 23:00 in the evening to 06:59 in the morning. Noise levels are therefore averaged over an 8-hour window. Figure 68 presents these results monthly.

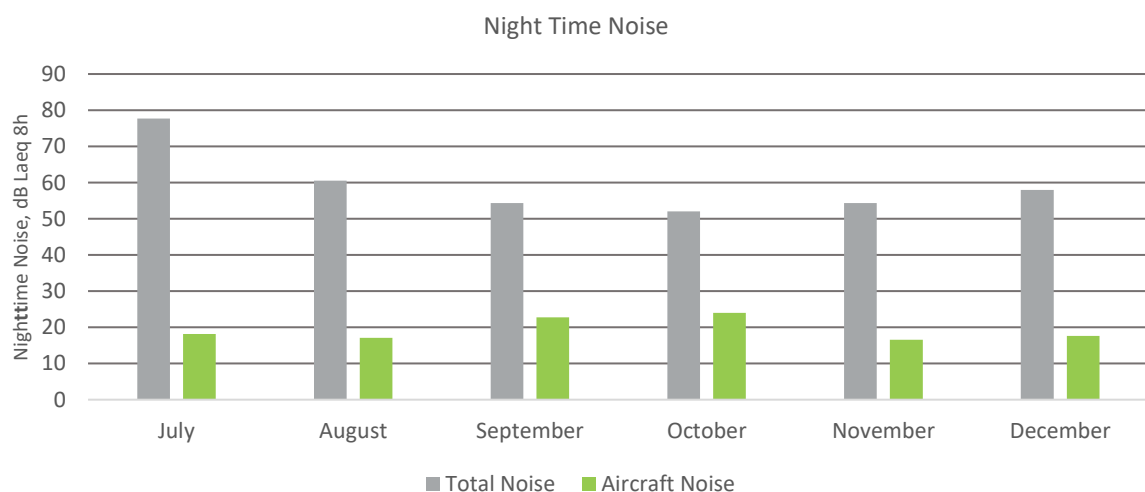


Figure 68: Averaged nighttime noise levels for NMT 7, July – December 2023

The hourly noise distribution at NMT 7 as shown in Figure 69.

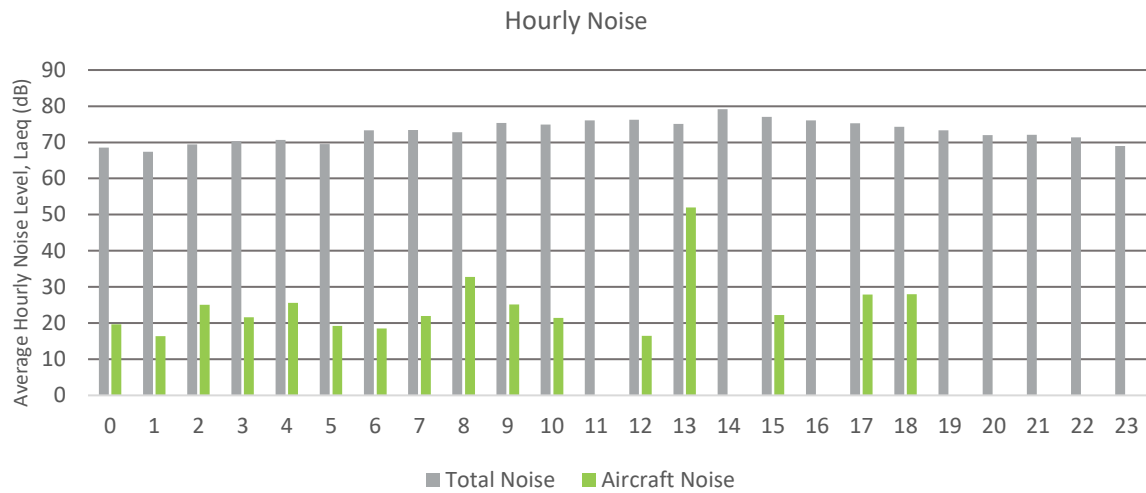


Figure 69: Averaged hourly noise levels for NMT 7, July – December 2023

Figure 70 shows the LAmax distribution for aircraft noise for the second half of 2023 for NMT 7.

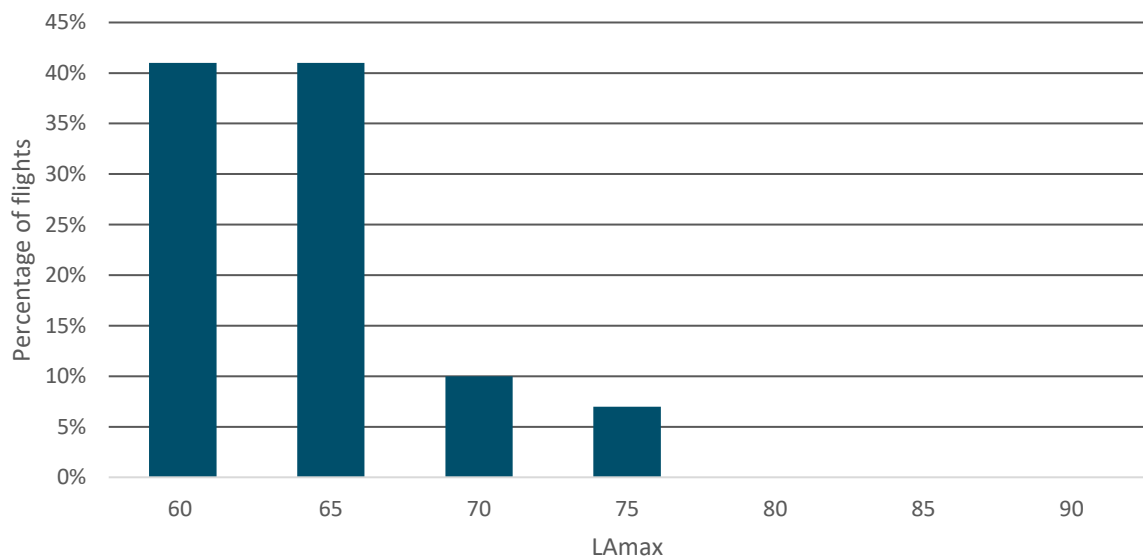


Figure 70: LAmax levels distribution for NMT 7, July – December 2023

Table 11 shows the top 7 loudest correlated aircraft types from the total count of correlated noise events to NMT 7.

Aircraft Type	Max dB	Total Count
A320	79.6	1
EVSS	77	8
A333	70.4	3
AT73	68.5	5
B738	67.1	2
A319	64.1	3
AT72	63.9	8

Table 11: LAmax by aircraft types correlated to NMT 7, July – December 2023

NMT 8: Malahide Hall

Noise Monitoring Terminal 8 (Malahide Demesne) is located northeast of Dublin. Its purpose is to monitor runway 28R departures. The resulting data for NMT 8 measurements in the period from July 1st up to and including December 31st, 2023 are presented in this section.

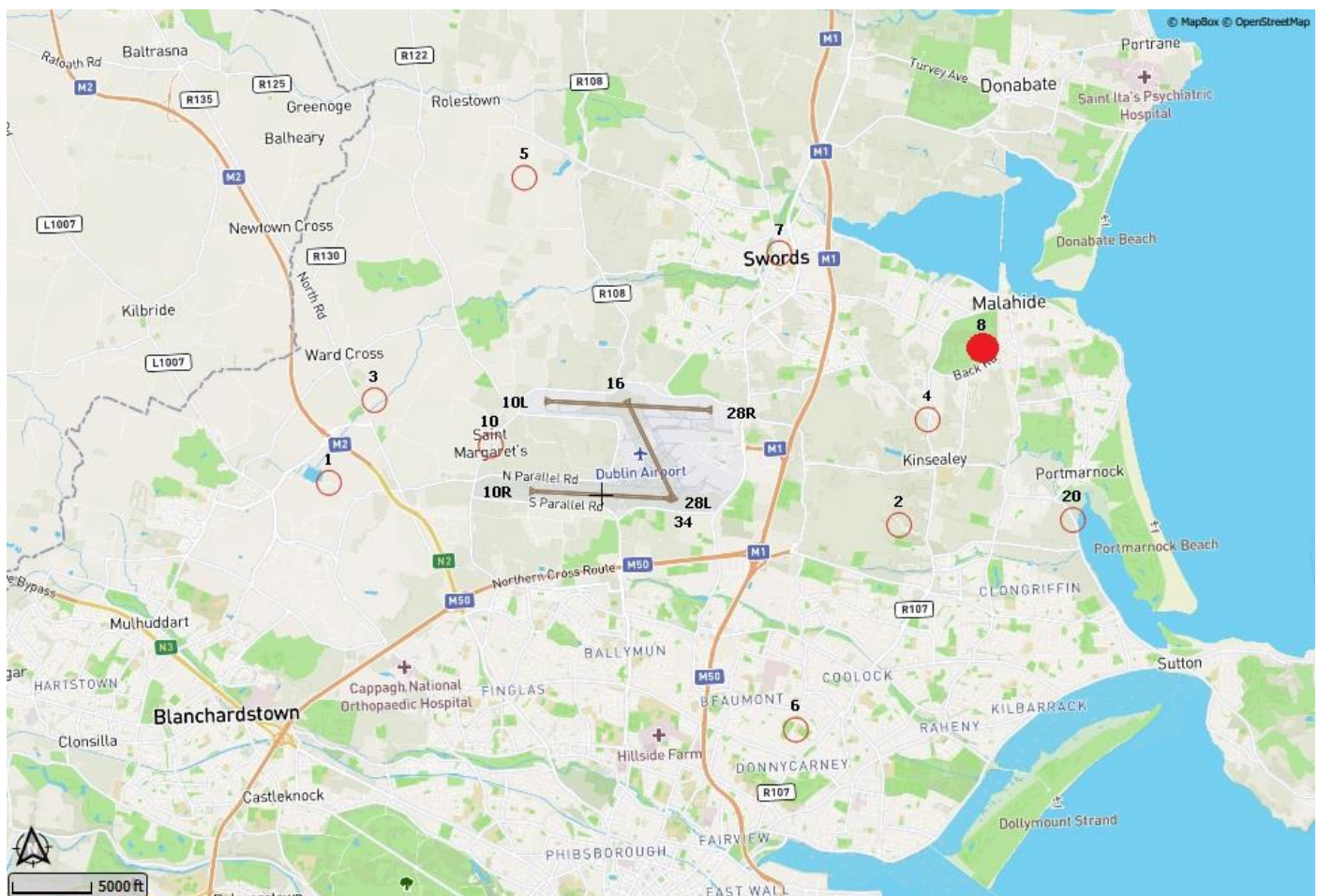


Figure 71: Noise Monitoring Terminal Coast Road Location

Noise Events

The figure below shows the breakdown of noise events attributed to aircraft, weather, and the community.

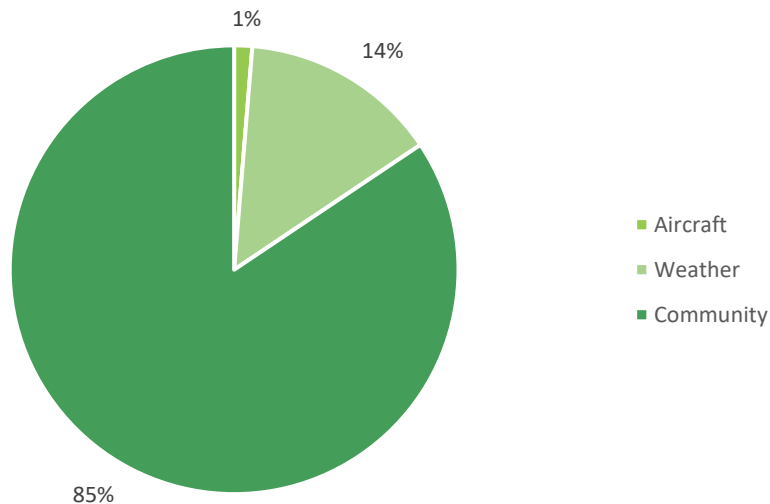


Figure 72: NMT 8 Noise Event Types

NMT Operational Status

To ensure that Noise Monitoring Terminals keep working within specific limits, internal calibration checks are completed every 6 hours. Outside of the 6 hourly calibration checks, NMTs will require maintenance and during this time will not record noise events. The operational status of NMT 8: Coast Road is presented in Figure 73.

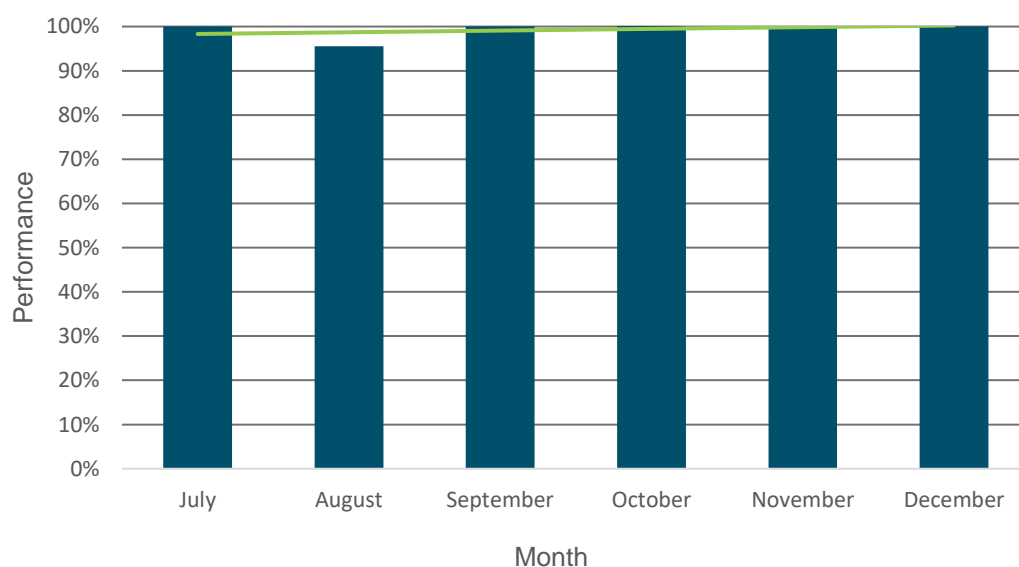


Figure 73: Operational status of NMT 8, July – December 2023

Noise Levels

Figure 74 presents the average noise levels measured at NMT 8 during daytime periods, which are defined to be from 07:00 in the morning to 22:59 in the evening. Recorded noise levels during these time segments are therefore averaged over a 16-hour window.

This procedure is followed both for all noise events, and for those events that were correlated to aircraft movements. The results shown are presented monthly.

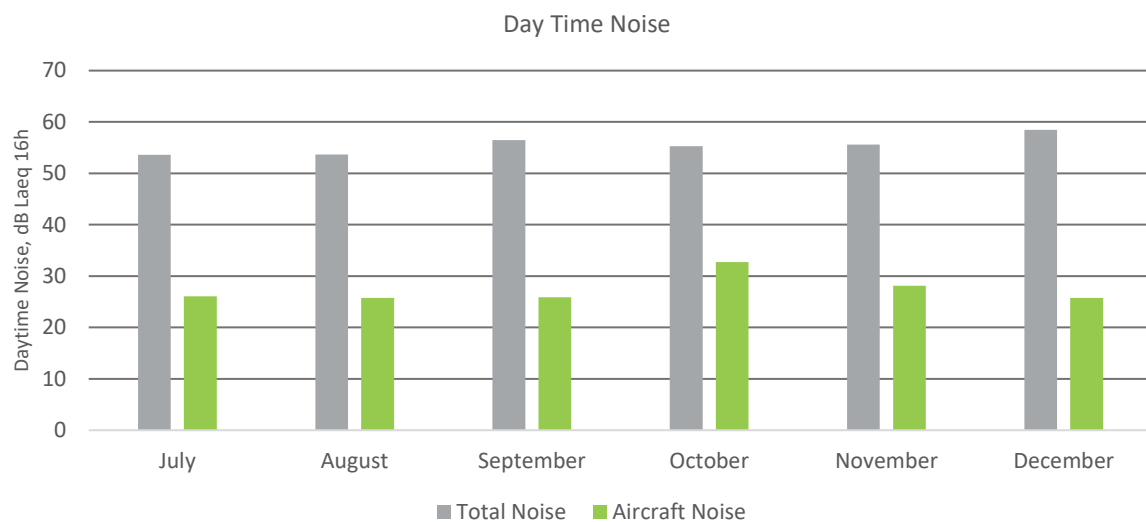


Figure 74: Averaged daytime noise levels for NMT 8, July – December 2023

Noise levels during the night are determined using a similar method. The night period is defined as a period between 23:00 in the evening to 06:59 in the morning. Noise levels are therefore averaged over an 8-hour window. Figure 75 presents these results monthly.

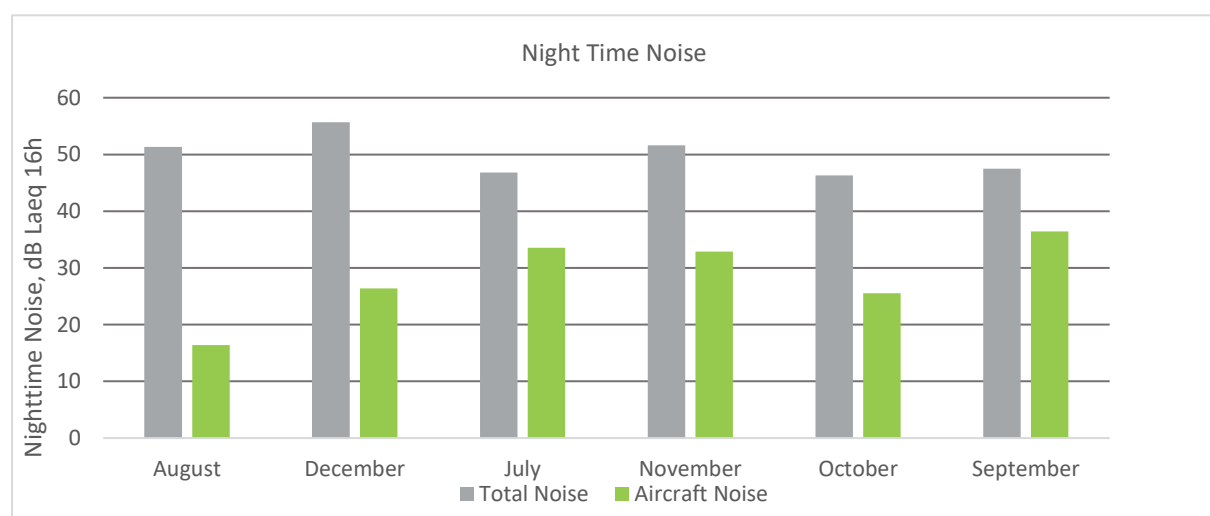


Figure 75: Averaged nighttime noise levels for NMT 8, July – December 2023

The hourly noise distribution at NMT 8 as shown in Figure 76.

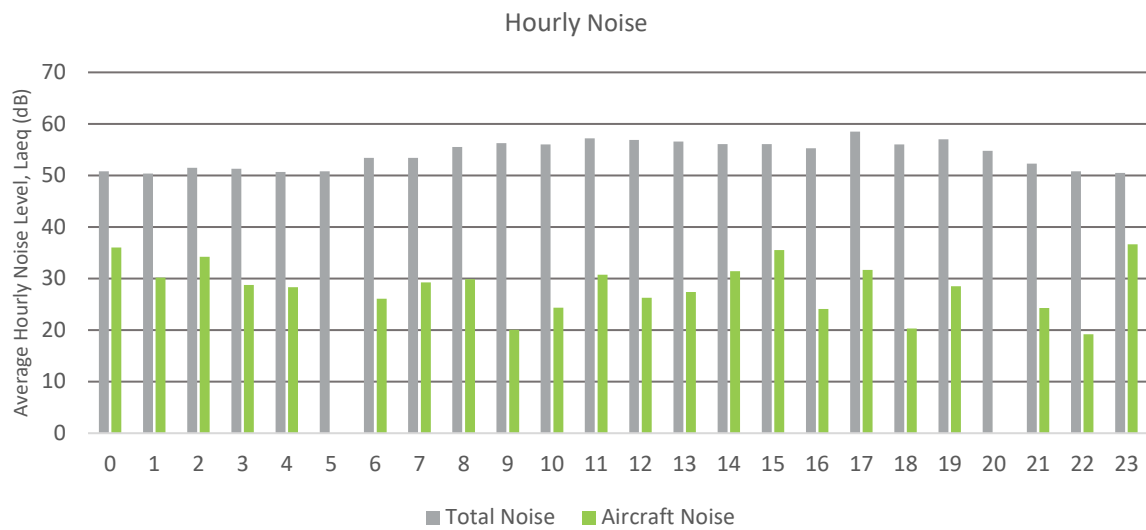


Figure 76: Averaged hourly noise levels for NMT 8, July – December 2023

Figure 77 shows the LAmax distribution for aircraft noise for the second half of 2023 for NMT 8.

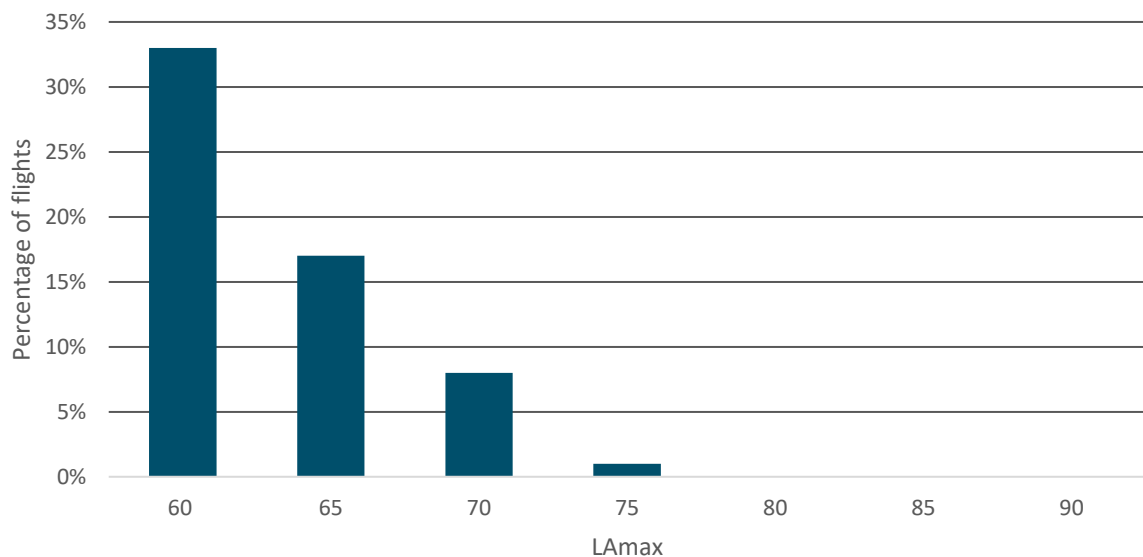


Figure 77: LAmax levels distribution for NMT 8, July – December 2023

Table 12 shows the top 10 loudest correlated aircraft types from the total count of correlated noise events to NMT 8.

Aircraft Type	Max dB	Total Count
E145	70.5	1
DH8D	69.2	1
A332	68.7	5
AT76	67.3	5
AT73	65.3	98
AT45	65.2	2
F406	64.9	3
B77W	64.6	3
A333	63.9	16
B752	63.8	2

Table 12: LAmax by aircraft types correlated to NMT 8, July – December 2023

NMT 10: St: Margaret's National School

Noise Monitoring Terminal 10 (St. Margaret's National School) is located west of Dublin and positioned between NMT 1 and 3. Its purpose is to monitor runway 28R departures and 10L arrivals. The resulting data for NMT 10 measurements in the period from July 1st up to and including December 31st, 2023 are presented in this section.

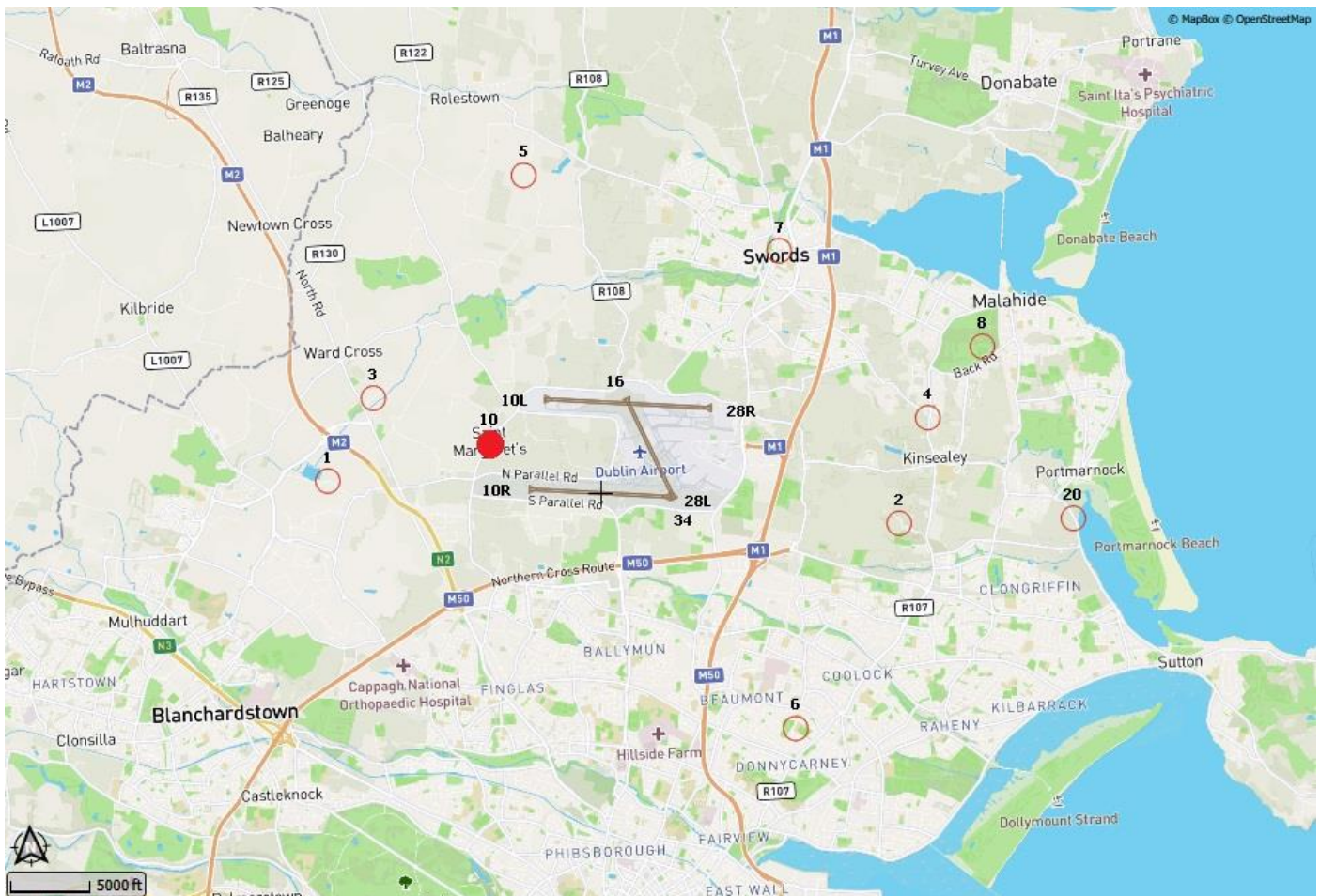


Figure 78: Noise Monitoring Terminal Coast Road Location

Noise Events

The figure below shows the breakdown of noise events attributed to aircraft, weather, and the community.

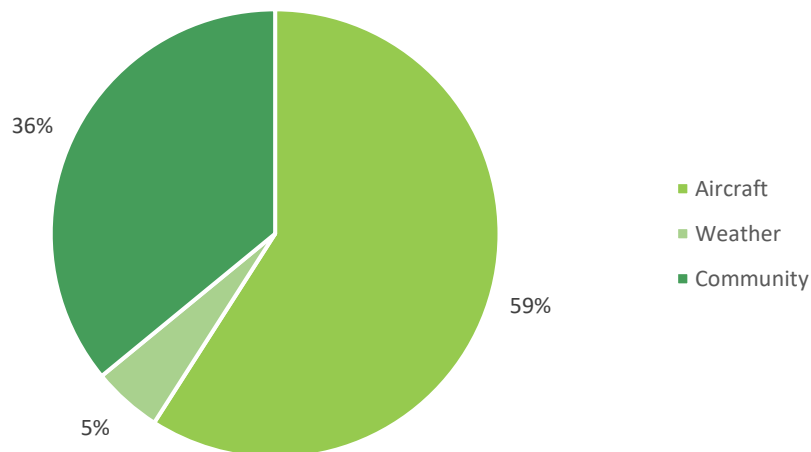


Figure 79: NMT 8 Noise Event Types

NMT Operational Status

To ensure that Noise Monitoring Terminals keep working within specific limits, internal calibration checks are completed every 6 hours. Outside of the 6 hourly calibration checks, NMTs will require maintenance and during this time will not record noise events. The operational status of NMT 10: Coast Road is presented in Figure 80.

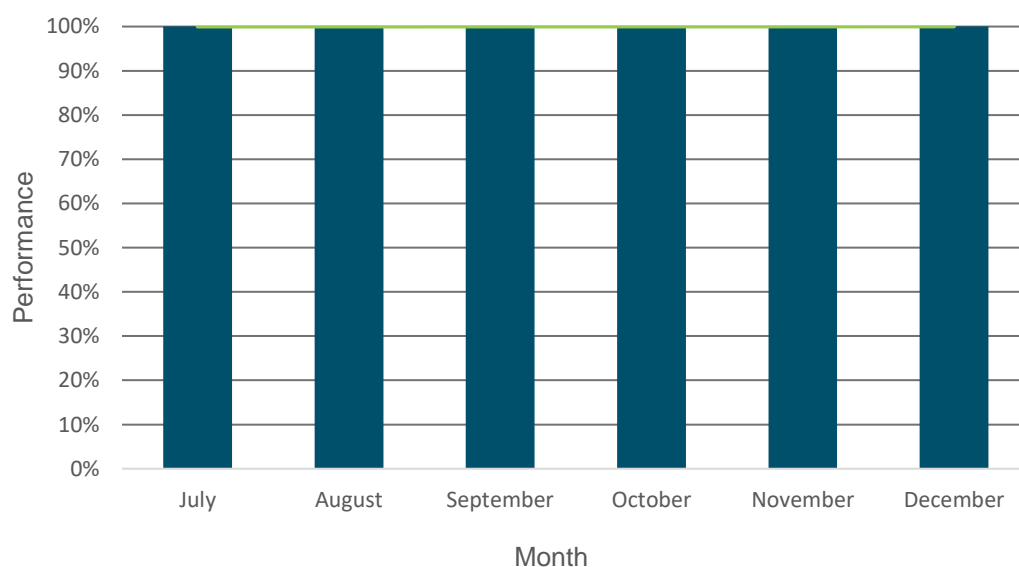


Figure 80: Operational status of NMT 10, July – December 2023

Noise Levels

Figure 81 presents the average noise levels measured at NMT 10 during daytime periods, which are defined to be from 07:00 in the morning to 22:59 in the evening. Recorded noise levels during these time segments are therefore averaged over a 16-hour window.

This procedure is followed both for all noise events, and for those events that were correlated to aircraft movements. The results shown are presented monthly.

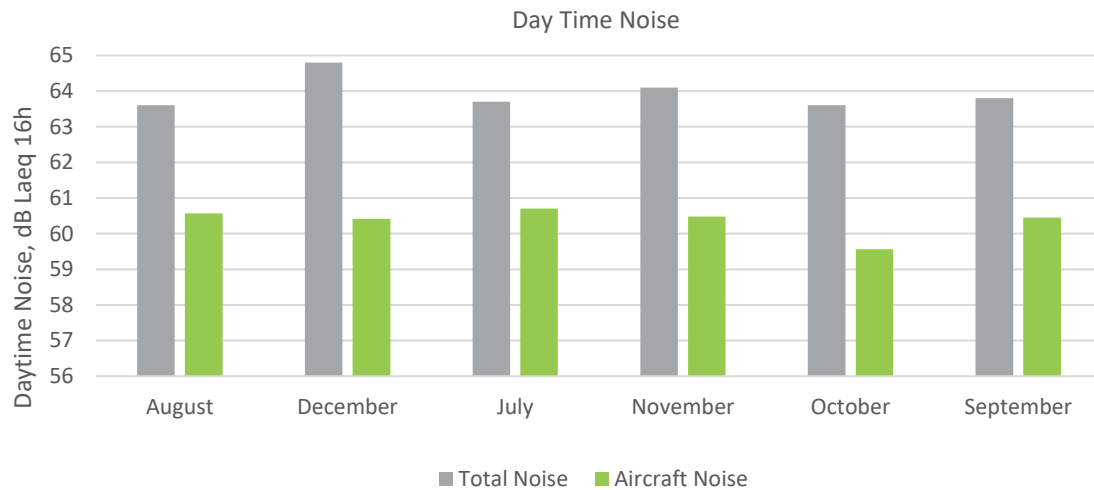


Figure 81: Averaged daytime noise levels for NMT 10, July – December 2023

Noise levels during the night are determined using a similar method. The night period is defined as a period between 23:00 in the evening to 06:59 in the morning. Noise levels are therefore averaged over an 8-hour window. Figure 82 presents these results monthly.

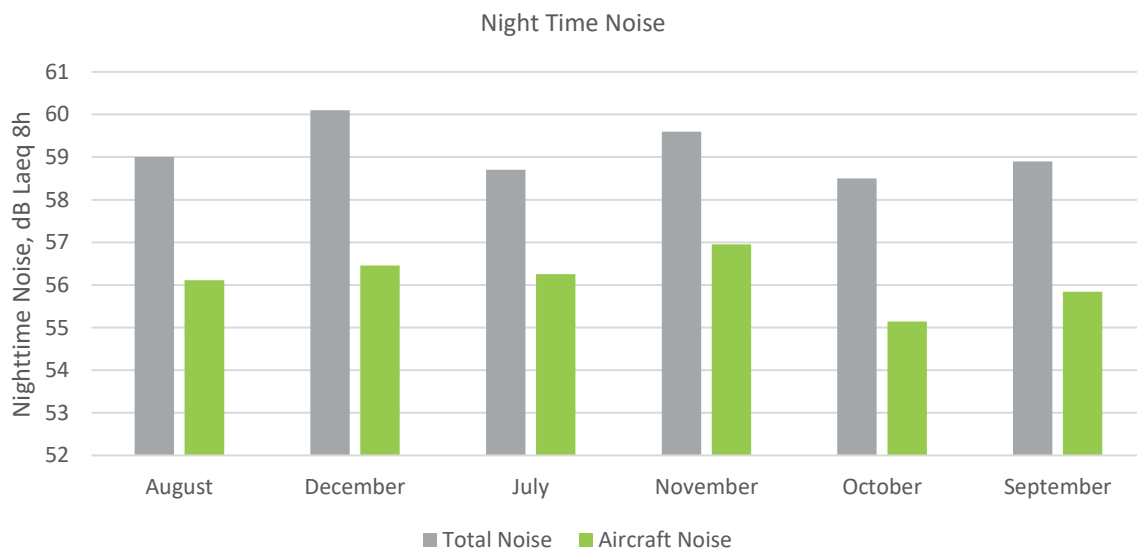


Figure 82: Averaged nighttime noise levels for NMT 10, July – December 2023

The hourly noise distribution at NMT 8 as shown in Figure 83.

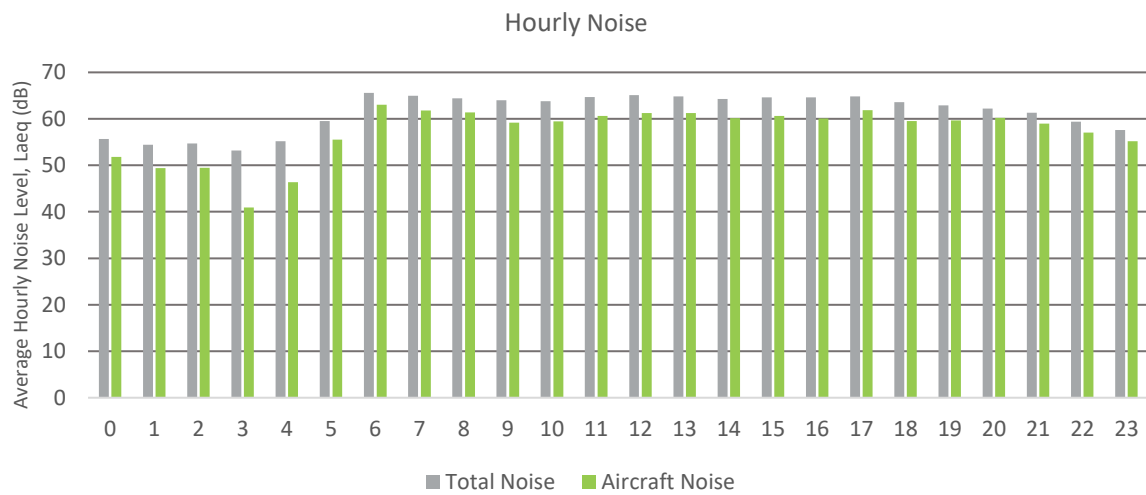


Figure 83: Averaged hourly noise levels for NMT 10, July – December 2023

Figure 84 shows the LAmax distribution for aircraft noise for the second half of 2023 for NMT 10.

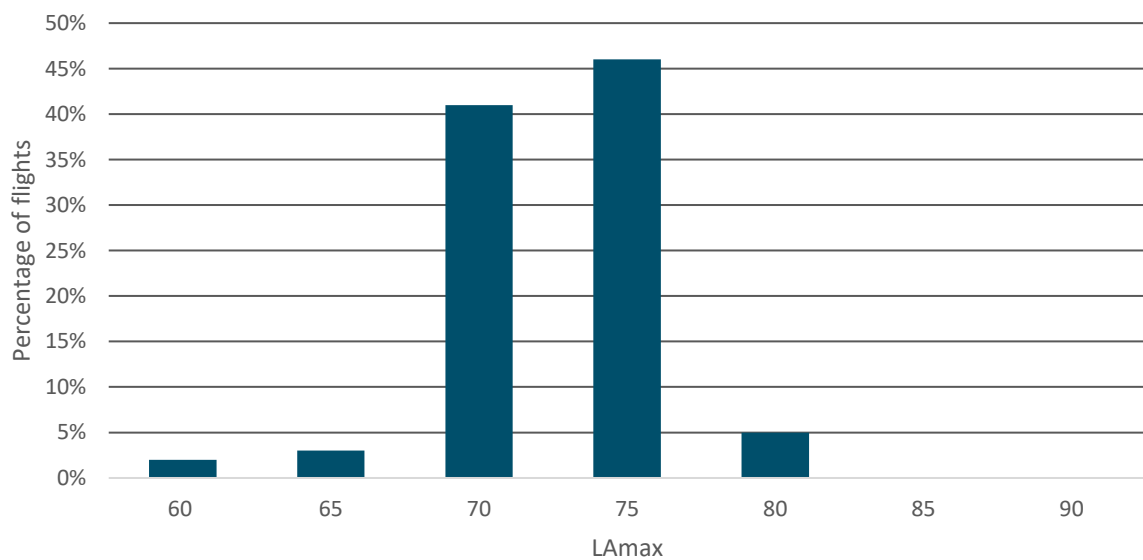


Figure 84: LAmax levels distribution for NMT 10, July – December 2023

Table 13 shows the top 10 loudest correlated aircraft types from the total count of correlated noise events to NMT 10.

Aircraft Type	Max dB	Total Count
HAWK	87.6	4
B744	83	1
B764	80.4	147
A333	79.7	1603
A332	78.8	577
BE18	78.3	1
B77W	77.7	407
B739	77.6	16
B772	77	225
B763	76.6	718

Table 13: LAmax by aircraft types correlated to NMT 10, July – December 2023

NMT 20: OP (Oscar Pappa)

Noise Monitoring Terminal 20 ('Oscar Pappa') is located east of Dublin Airport, see Figure 77 below, under the extended runway centreline of runway 10R. Its purpose is to monitor runway 10R departures and runway 28L arrivals. The resulting data for NMT 20 measurements in the period from July 1st up to and including December 31st, 2023 are presented in this section.

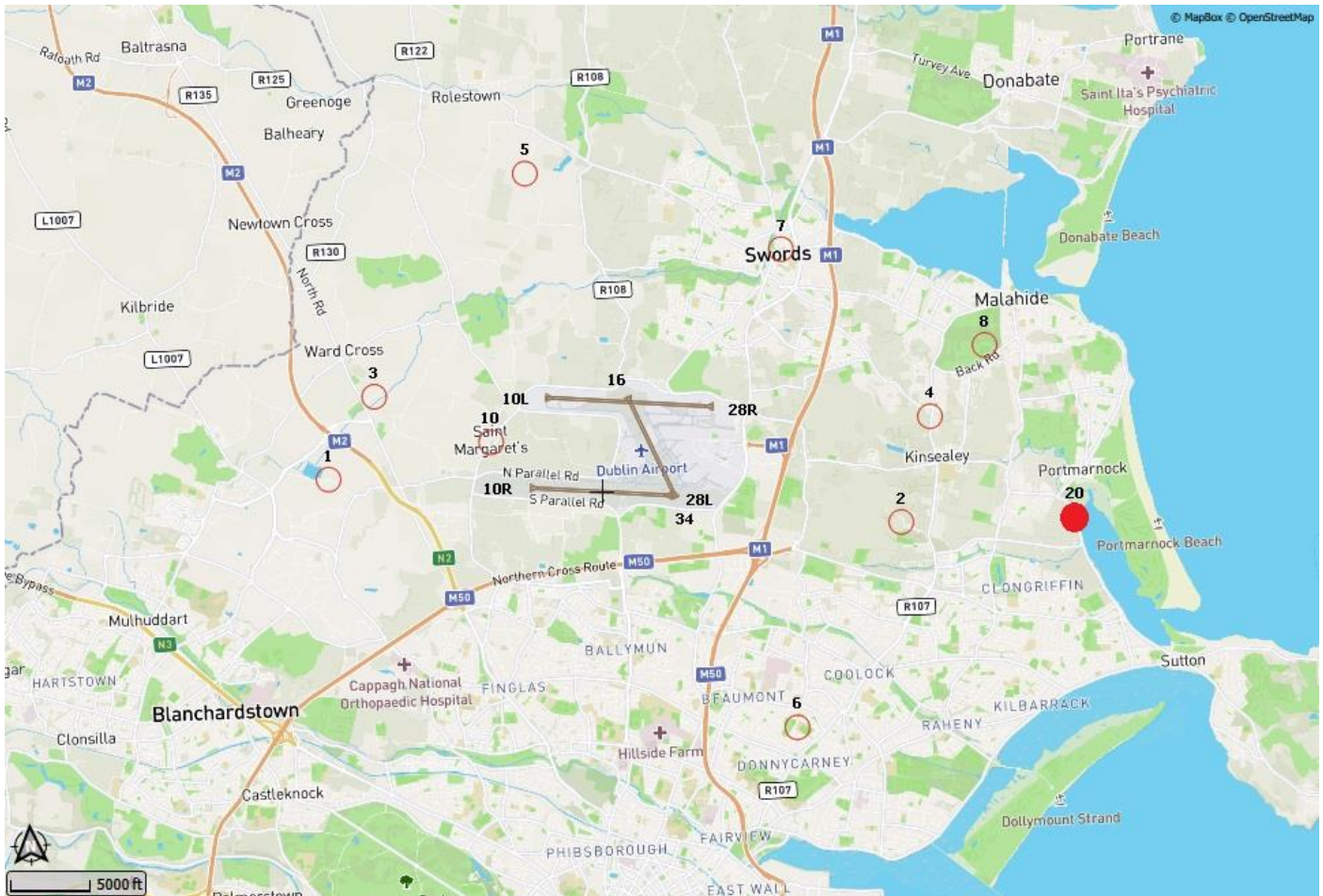


Figure 85: Noise Monitoring Terminal Coast Road Location

Noise Events

The figure below shows the breakdown of noise events attributed to aircraft, weather, and the community.

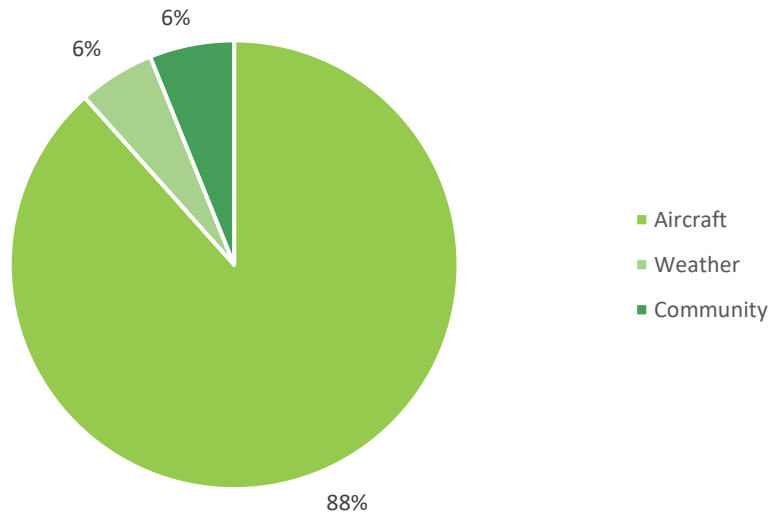


Figure 86: NMT 20 Noise Event Types

NMT Operational Status

To ensure that Noise Monitoring Terminals keep working within specific limits, internal calibration checks are completed every 6 hours. Outside of the 6 hourly calibration checks, NMTs will require maintenance and during this time will not record noise events. The operational status of NMT 20: Coast Road is presented in Figure 87.

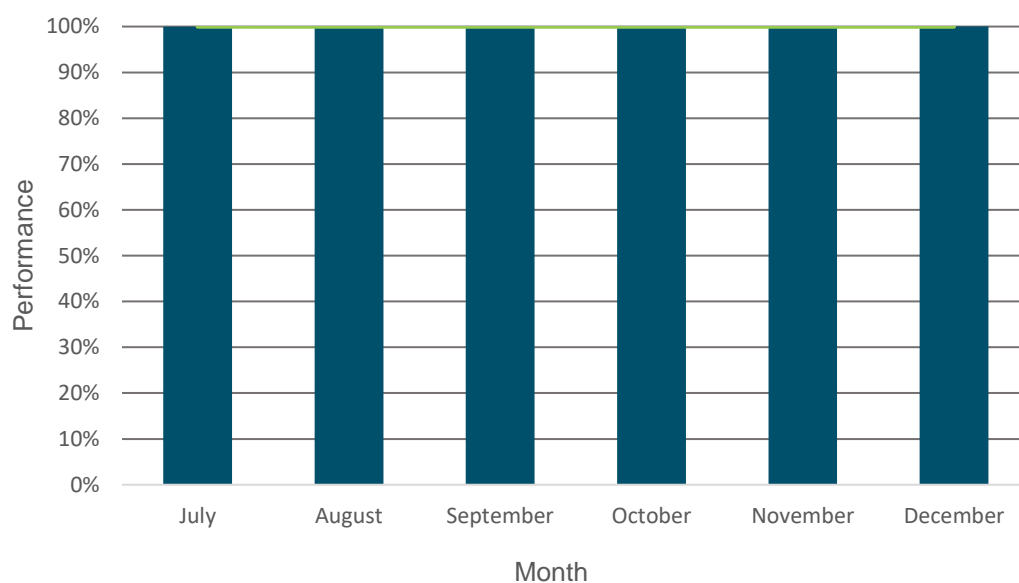


Figure 87: Operational status of NMT 20, July – December 2023

Noise Levels

Figure 88 presents the average noise levels measured at NMT 20 during daytime periods, which are defined to be from 07:00 in the morning to 22:59 in the evening. Recorded noise levels during these time segments are therefore averaged over a 16-hour window.

This procedure is followed both for all noise events, and for those events that were correlated to aircraft movements. The results shown are presented monthly.

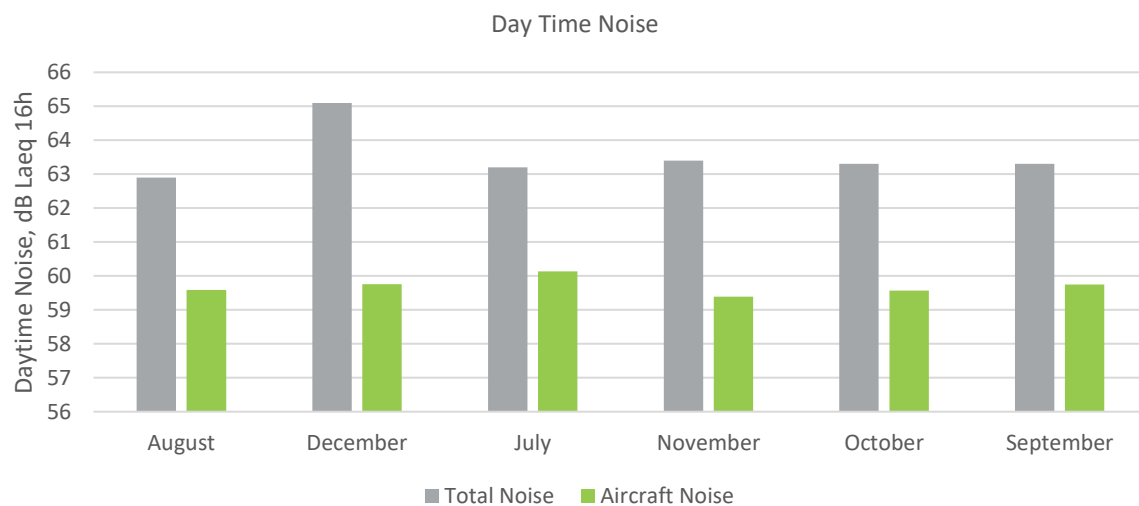


Figure 88: Averaged daytime noise levels for NMT 20, July – December 2023

Noise levels during the night are determined using a similar method. The night period is defined as a period between 23:00 in the evening to 06:59 in the morning. Noise levels are therefore averaged over an 8-hour window. Figure 89 presents these results monthly.

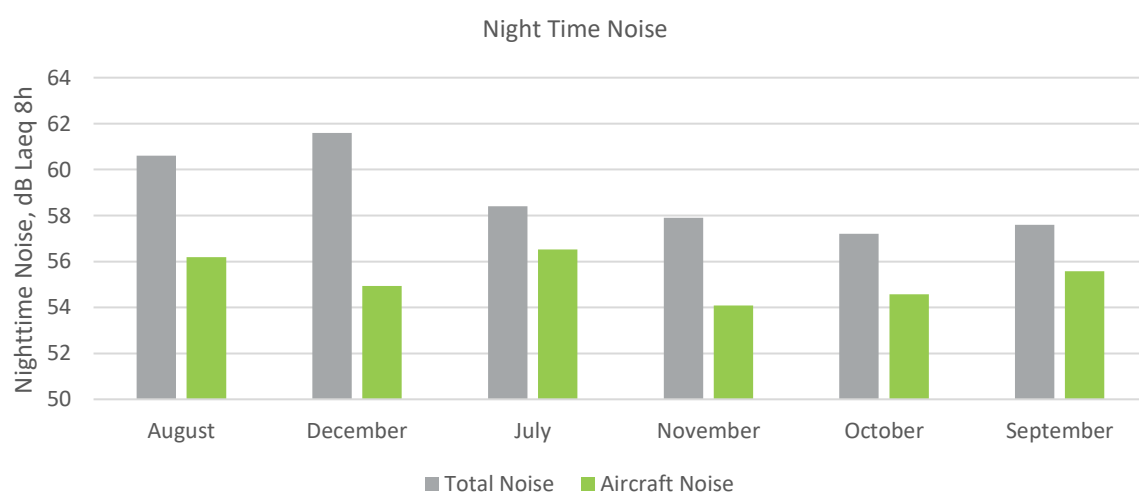


Figure 89: Averaged nighttime noise levels for NMT 20, July – December 2023

The hourly noise distribution at NMT 20 as shown in Figure 90.

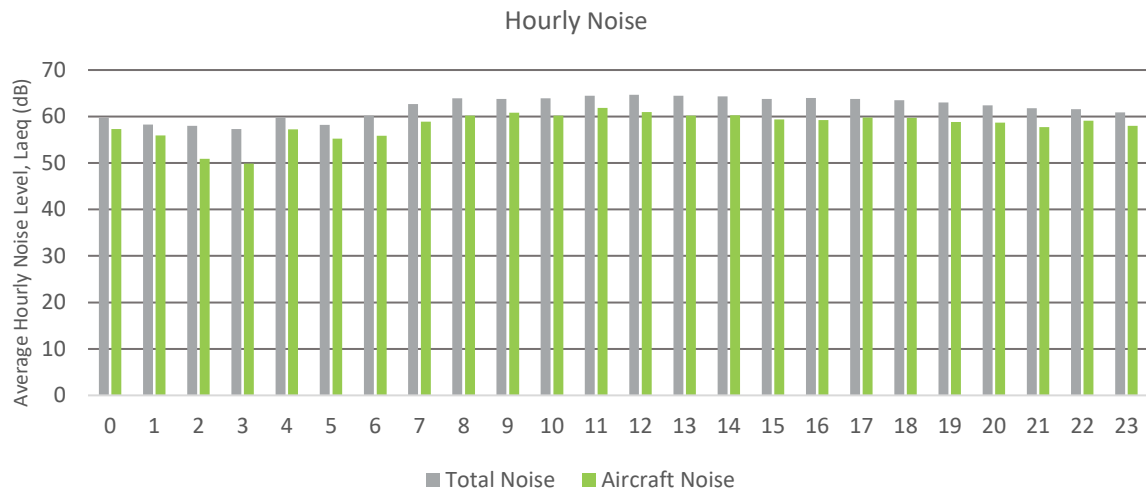


Figure 90: Averaged hourly noise levels for NMT 20, July – December 2023

Figure 91 shows the LAmax distribution for aircraft noise for the second half of 2023 for NMT 20.

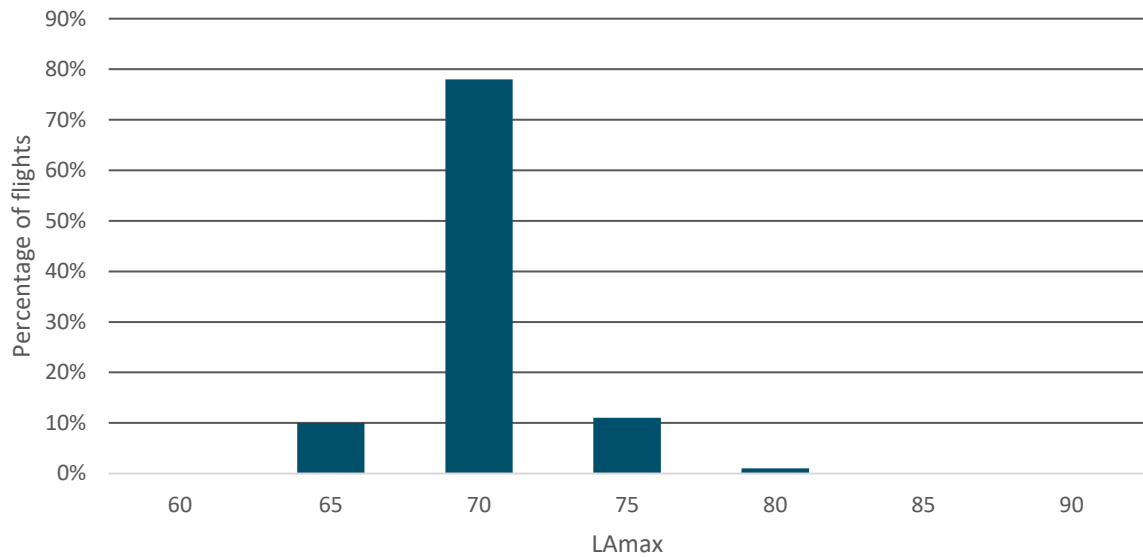


Figure 91: LAmx levels distribution for NMT 20, July – December 2023

Table 14 shows the top 10 loudest correlated aircraft types from the total count of correlated noise events to NMT 20.

Aircraft Type	Max dB	Total Count
HAWK	90	2
B744	80	1
A400	79	2
C130	78.8	1
P80	77.6	2
P180	77.1	6
B77W	76.9	465
B764	76.8	188
A332	76.2	640
A333	76	1782

Table 14: L_Amax by aircraft types correlated to NMT 20, July – December 2023

Glossary

Symbol	Description	Unit
LAeq	A-weighted, equivalent noise level, averaged per hour over a half year period.	[dB]
LAeq, 8 h	A-weighted, equivalent noise level, averaged over eight hours per month between 23:00 and 07:00 (nighttime), hence 8 hour equivalent.	[dB]
LAeq, 16 h	A-weighted, equivalent noise level, averaged over 16 hours per month between 07:00 and 23:00 (daytime), hence 16 hour equivalent.	[dB]
LA,MAX	A-weighted, maximum recorded noise level per correlated aircraft-noise event, instead of indicating the average noise levels for a reference duration.	[dB]

Report inquiries

Phone: +61 2 9463 4503

Online form: <https://www.dublinairport.com/about-us/-community-affairs/noise-complaint>

This report is drafted by Envirosuite on behalf of Dublin Airport.