

# Noise Monitoring Report

July - December

2021

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# Executive Summary

This noise monitoring report is drafted for the period July - December 2021. 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 overflown 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 2021 for all operational NMTs. As one may expect, NMTs frequently overflown (NMTs 1, 2, and 20) measure higher noise levels which are attributed to aircraft, in comparison to the other NMTs.

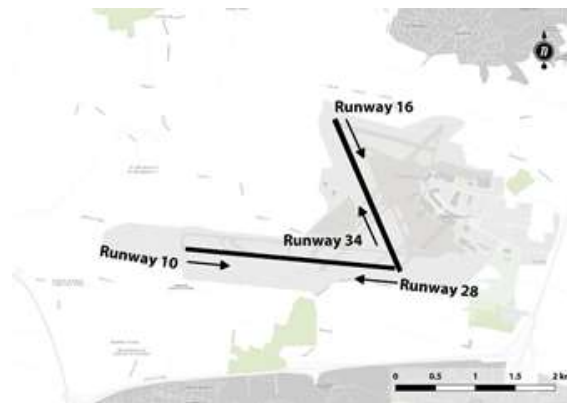


Figure 1: Runway Layout Dublin Airport

NMT	Number of correlated aircraft noise events			
	Description	Arrivals	Departures	Total
1	Arrivals Runway 10, Departures Runway 28	3,660	28,700	32,360
2	Arrivals Runway 28, Departures Runway 10	31,062	3,377	33,439
5	Arrivals Runway 16, Departures Runway 34	177	14	191
6	Arrivals Runway 34, Departures Runway 16	56	77	133
20	Arrivals Runway 28, Departures Runway 10	28,911	2,623	31,534

Table 1: Correlated aircraft noise events

NMT	Daytime noise level, LAeq, 16 h[dB]		Night-time noise level, LAeq, 8 h[dB]	
	Total	Aircraft	Total	Aircraft
1	61.6	60.0	57.5	55.9
2	59.4	58.3	55.9	54.7
3	61.0	51.7	55.5	44.4
4	55.2	45.5	50.6	33.9
5	53.7	36.4	51.0	40.1
6	56.2	34.8	53.7	38.6
20	62.3	56.7	56.5	52.5

Table 2: Average measured noise levels

# Introduction

This half yearly report, commissioned by Dublin Airport, presents a summary of the noise performance near Dublin Airport, for the period from July 1<sup>st</sup> to December 31<sup>st</sup>, 2021.

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 28 departures and runway 10 arrivals)
- St. Doolaghs: (NMT 2: monitoring runway 10 departures and runway 28 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)
- Coast Road: (NMT 20: monitoring runway 10 departures and runway 28 arrivals)

This report presents the results of the measurements in the period from the start of July to the end of December 2021 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 2021 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 2021, Dublin Airport handled a total of 69,748 flights and 7,428,000 passengers. This is an increase of 100% in traffic and an increase of 268% in passenger numbers compared to the same period in 2020. Note that the number of movements includes both departures and arrivals. Figure 3, gives an hourly distribution of the movements for second half of 2021, compared to the hourly distribution of the same period in 2020.

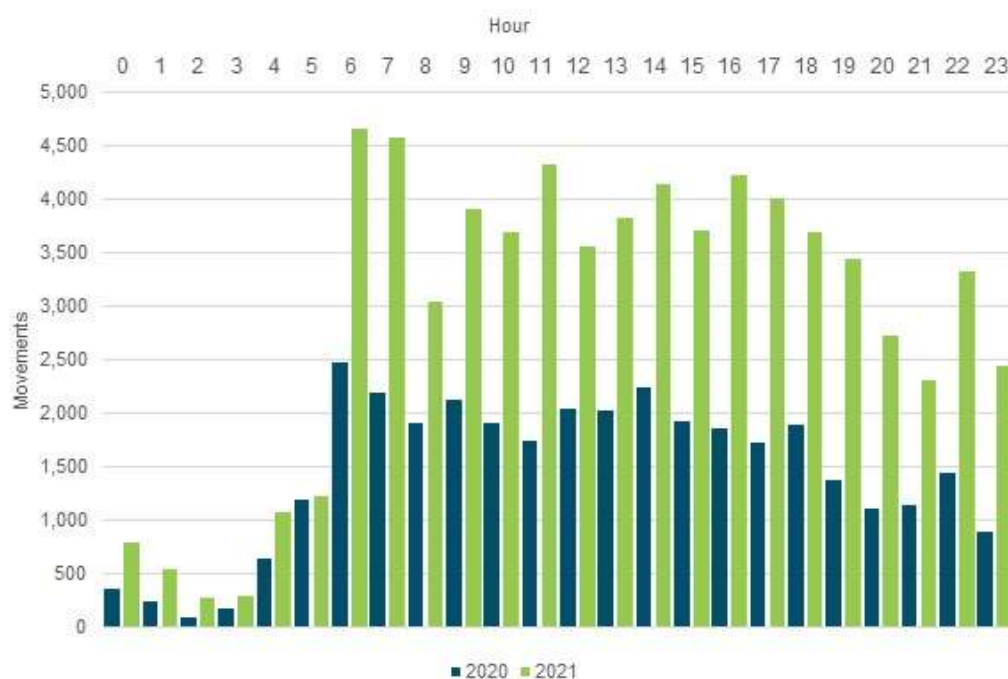


Figure 3: Hourly distribution of movements from July - December 2020 vs 2021

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 73% 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.

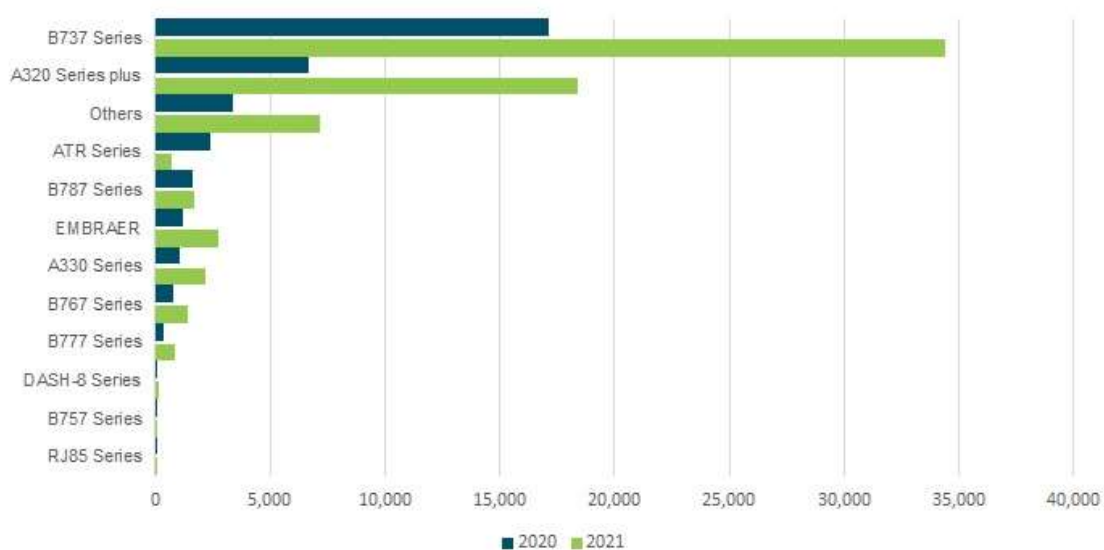


Figure 4: Aircraft type distribution July - December 2020 vs 2021

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 four environmental corridors at Dublin airport, one for every runway direction. For both the second half of 2020 and 2021, 98% 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 28, the runway for aircraft landing and departing in the westerly direction, handled 89% of all movements in the period July to December 2021 versus 88% in 2020. Runway 10, the runway for aircraft landing and departing in the easterly direction, was 10% of the movements in the period July to December 2021 versus 12% in 2020. The remaining percentage of the movements in 2020 and 2021 took place on the cross runway 16/34.

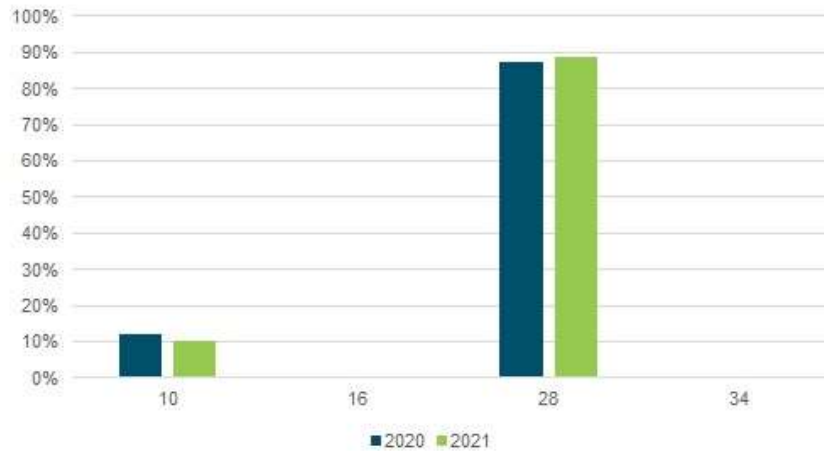


Figure 5: Runway usage, July - December 2020 vs 2021

## 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 2020 and 2021. In which A and D stands for arrivals and departures respectively.

NMTs	Height (ft)			
	2020		2021	
	A	D	A	D
NMT1	940	2,750	680	2,340
NMT2	970	2,800	850	2,530
NMT3	1,250	2,800	740	2,340
NMT4	1,060	3,050	970	2,830
NMT5	1,050	4,180	870	4,730
NMT6	1,080	2,890	904	3,270
NMT20	1,530	3,740	1,500	3,400

Table 4: Average overflight height



# 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, has been commissioned by DAA as of 2017 to monitor the noise performance of Dublin Airport. This system 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 Second condition is the threshold level. The threshold level needs to be exceeded before recording is initiated. The threshold levels are continuously adjusted 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 night-time 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 1<sup>st</sup> up to and including December 31<sup>st</sup>, 2021. The categories are as followed:

Average monthly LAmax noise levels per NMTs are shown in Figure 6

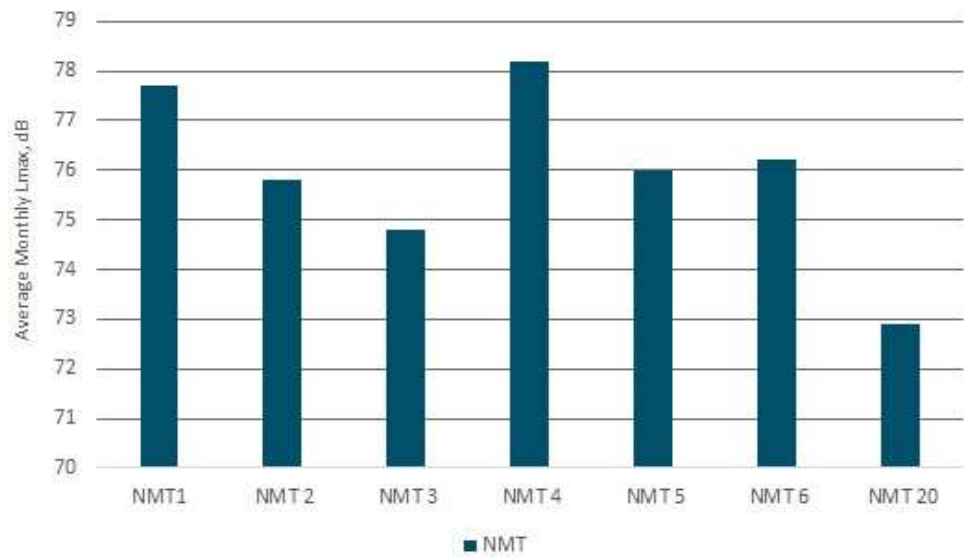


Figure 6: Average LAmax levels distribution for NMTs, July – December 2021

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

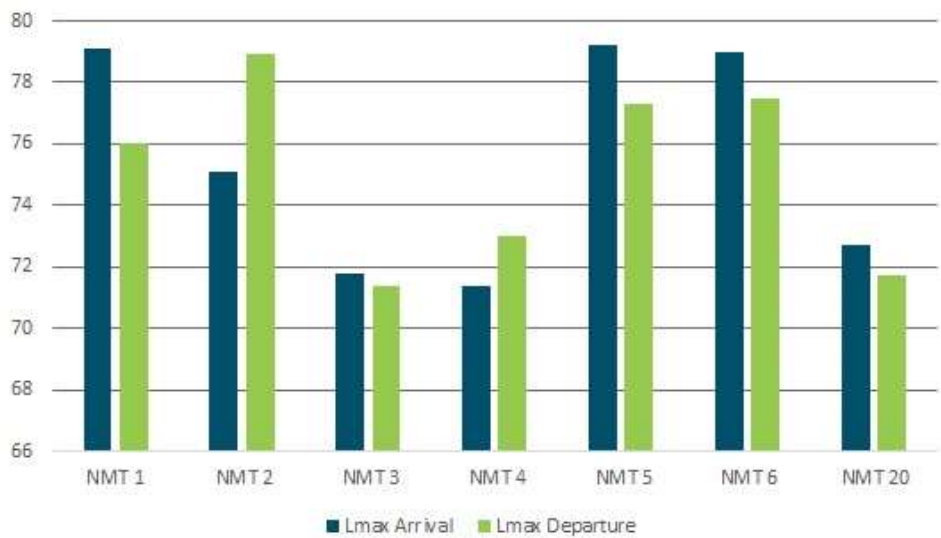


Figure 7: Average LAmax levels distribution for NMTs for arriving and departing aircraft, July - December 2021

Figure 8 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 8: Averaged daytime noise levels per NMTs, July - December 2021

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 9 presents these results per NMT.

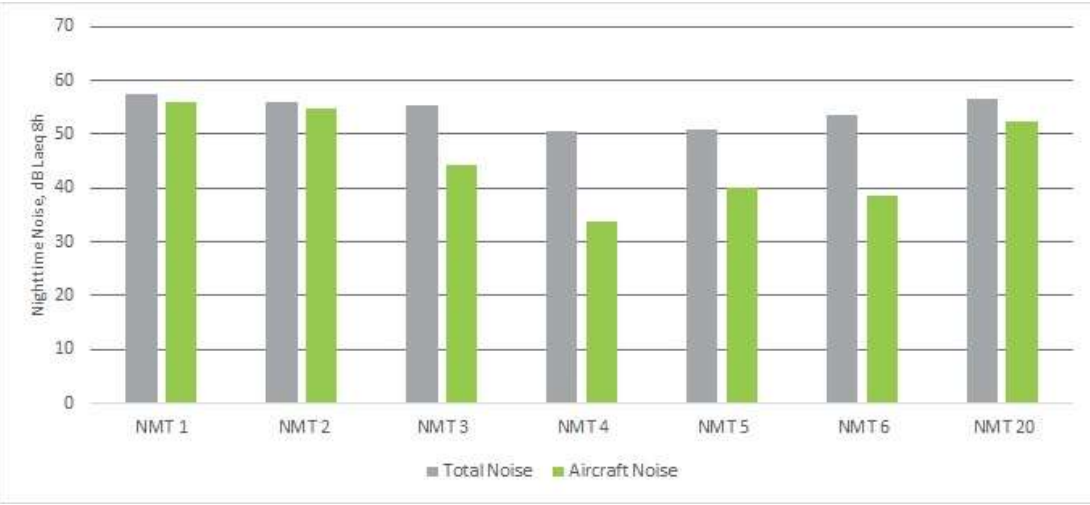


Figure 9: Averaged night-time noise levels per NMTs, July - December 2021

# NMT 1: Bay Lane

Noise Monitoring Terminal 1 ('Bay Lane') is located west of Dublin Airport, see Figure 10 below, under the extended runway centreline of runway 28. Its purpose is to monitor runway 28 departures and runway 10 arrivals. The resulting data for NMT 1 measurements in the period from July 1<sup>st</sup> up to and including December 31<sup>st</sup>, 2021, are presented in this section.



Figure 10: Noise Monitoring Terminal Bay Lane Location

Noise Events

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

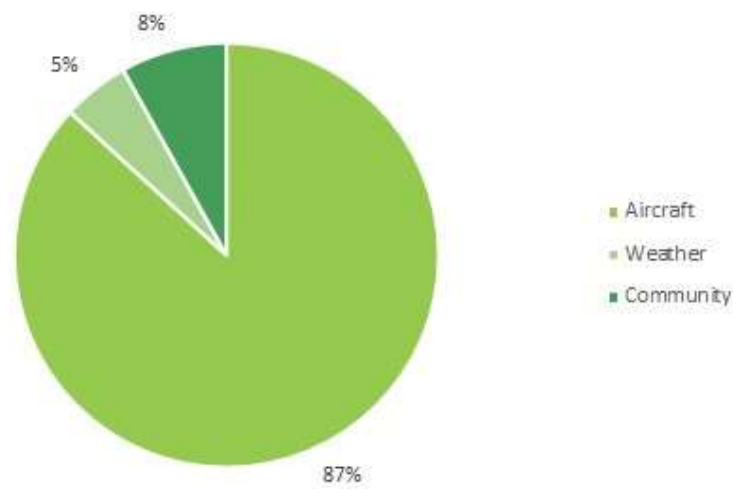


Figure 11: NMT 1 Noise Event Types

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 12.

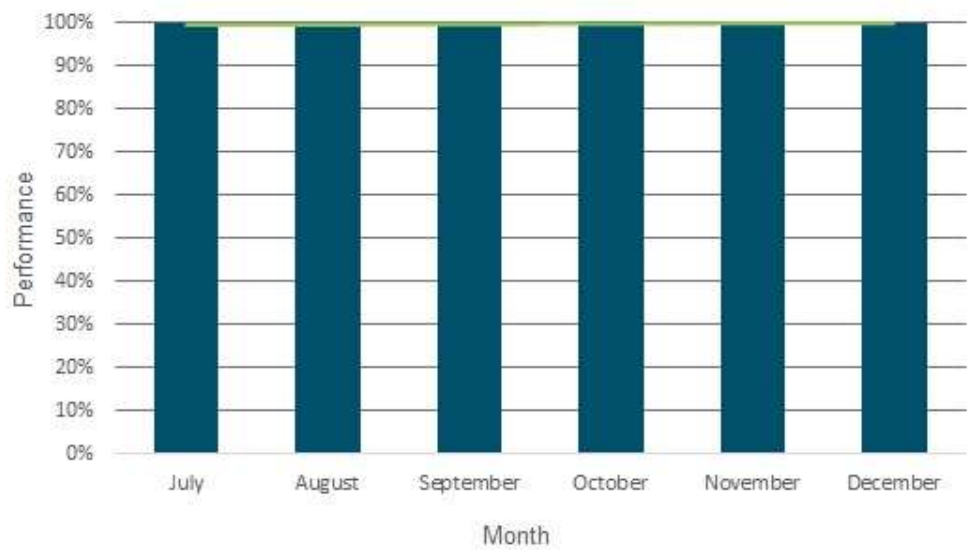


Figure 12: Operational status of NMT1, July - December 2021

## Noise Levels

Figure 13 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.

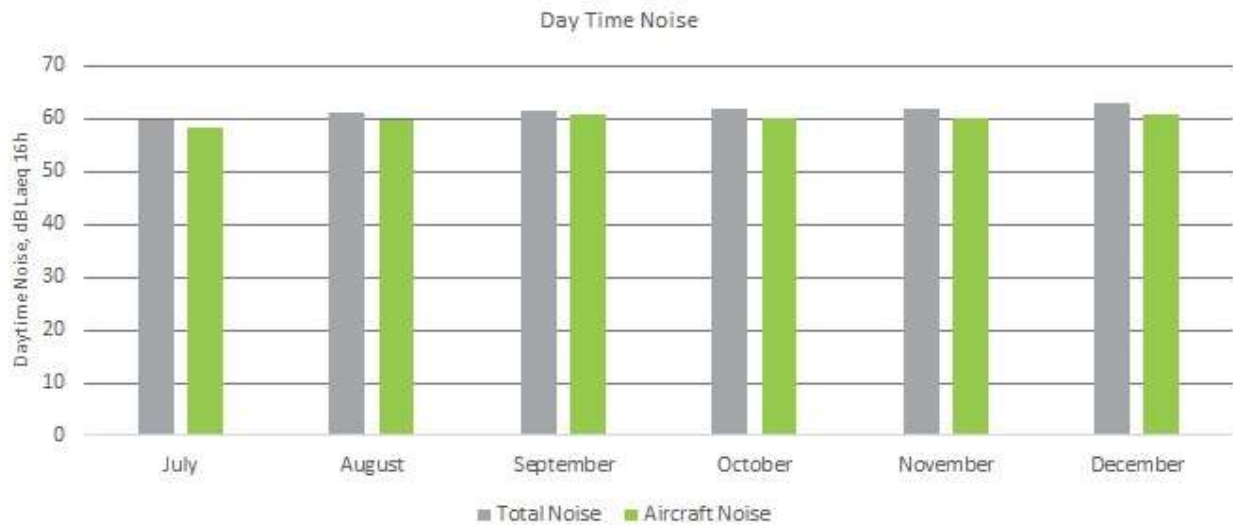


Figure 13: Averaged daytime noise levels for NMT 1, July - December 2021

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 14 presents these results monthly.

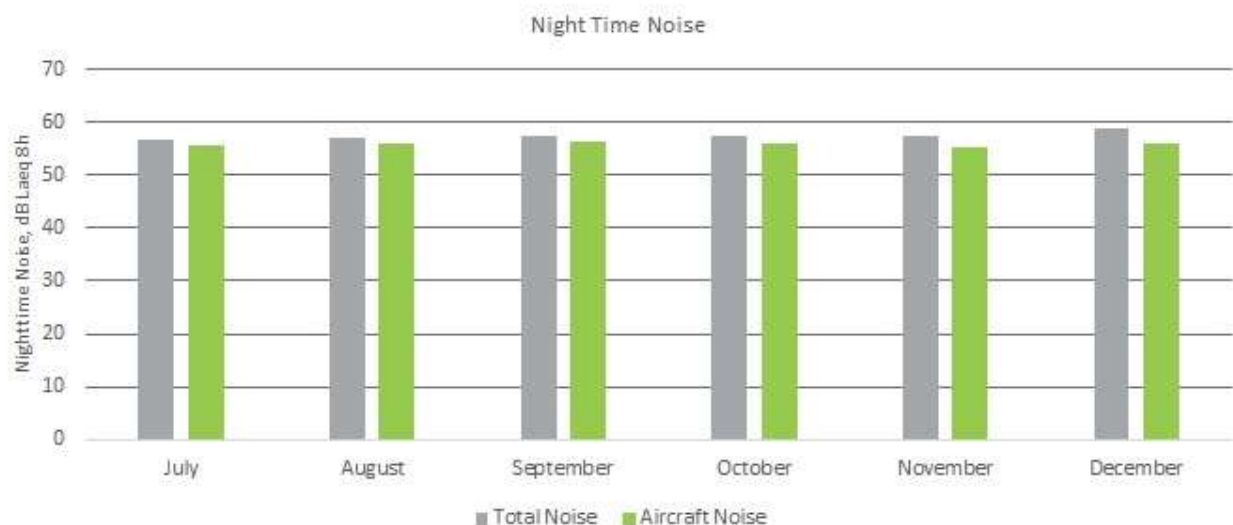


Figure 14: Averaged night-time noise levels for NMT 1, July - December 2021

The hourly noise distribution at NMT 1 as shown in Figure 15.

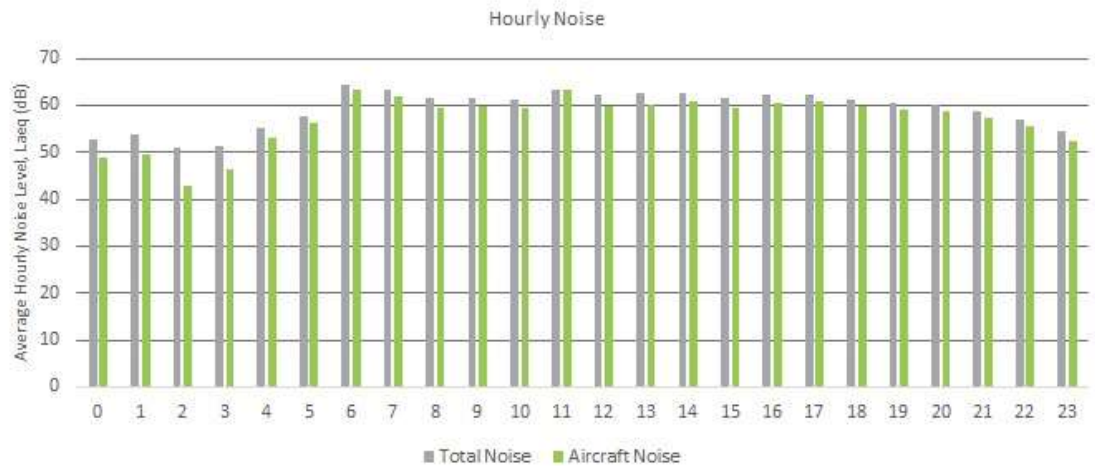


Figure 15: Averaged hourly noise levels for NMT 1, July - December 2021

Figure 16 shows the  $L_{Amax}$  distribution for aircraft noise for the second half of 2021 for NMT1.

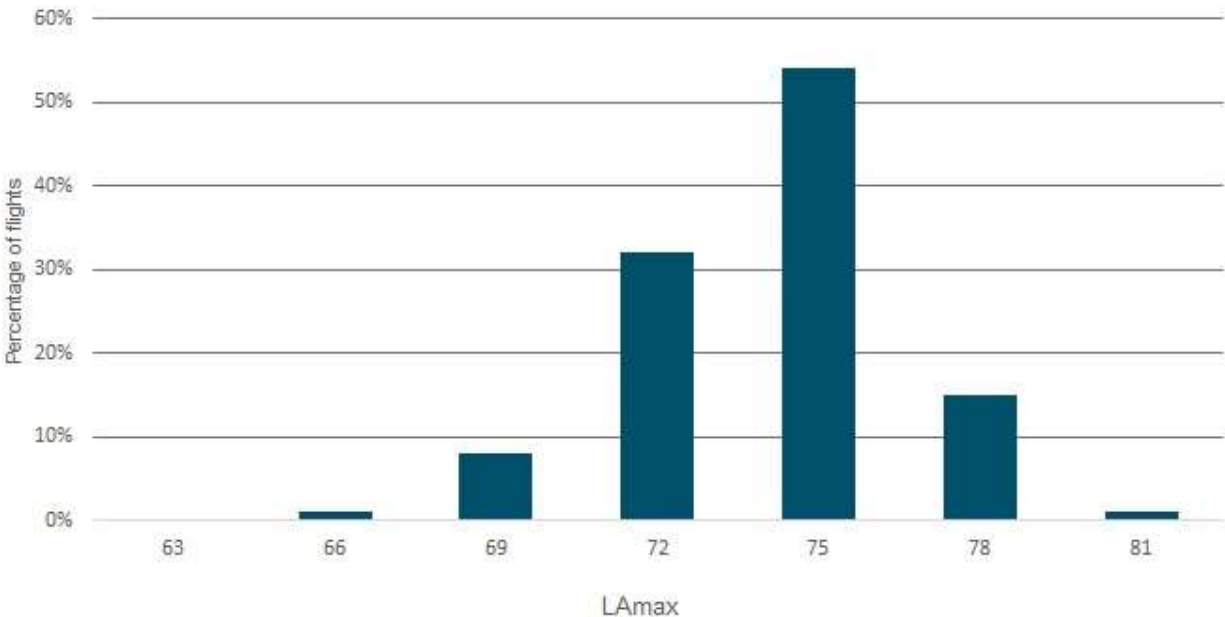


Figure 16:  $L_{Amax}$  levels distribution for NMT 1, July - December 2021

Table 5 shows the top 10 loudest correlated aircraft types from the total count of correlated noise events to NMT1.

Aircraft Type	Max dB	Total Count
AN26	82.9	1
A343	82.6	4
B744	82.5	1
B772	80.1	13
B764	80.0	167
B753	79.7	3
B77W	79.2	255
A333	79.1	1,096
B77L	79.0	159
A332	78.5	48

Table 5: LAmax by aircraft types correlated to NMT1, July - December 2021



# NMT 2: St. Doolaghs

Noise Monitoring Terminal 2 ('St. Doolaghs') is located east of Dublin Airport, see Figure 17 below, under the extended runway centreline of runway 10. Its purpose is to monitor runway 10 departures and runway 28 arrivals. The resulting data for NMT 2 measurements in the period from July 1<sup>st</sup> up to and including December 31<sup>st</sup> 2021, are presented in this section.



Figure 17: Noise Monitoring Terminal St. Doolaghs Location

Noise Events

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

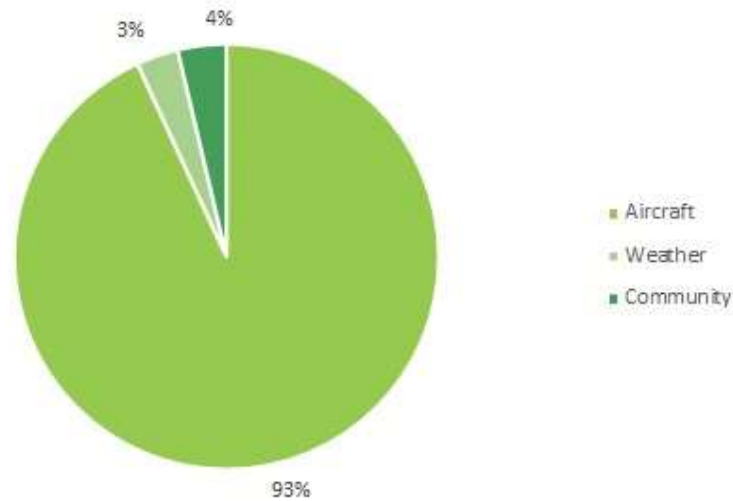


Figure 18: NMT 2 Noise Event Types

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 19.

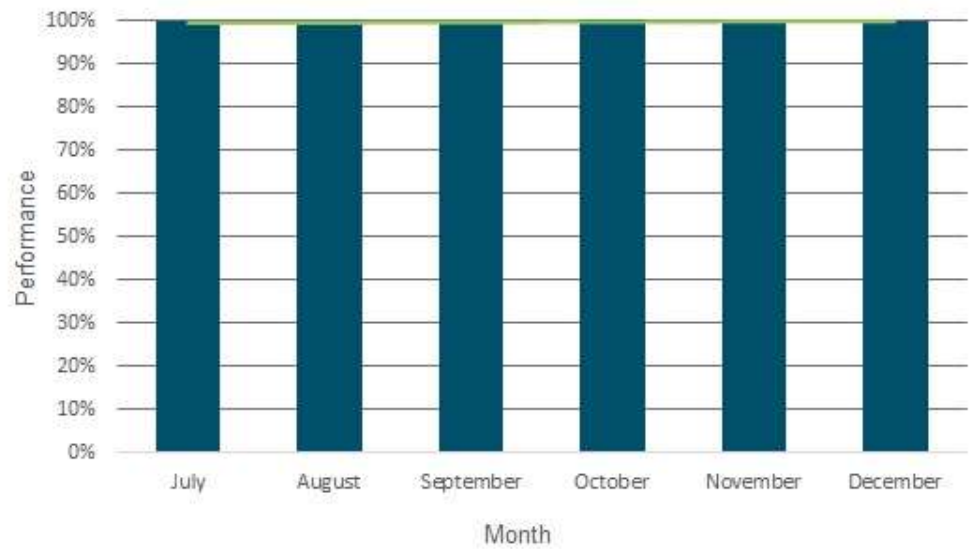


Figure 19: Operational status of NMT 2, July - December 2021

## Noise Levels

Figure 20 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.

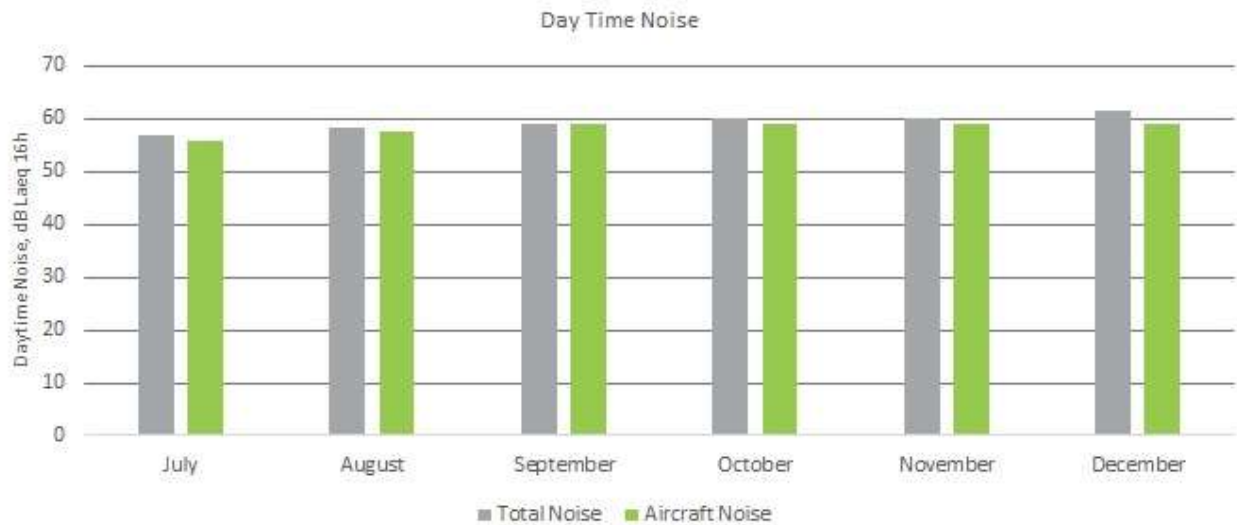


Figure 20: Averaged daytime noise levels for NMT 2, July - December 2021

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 21 presents these results monthly.

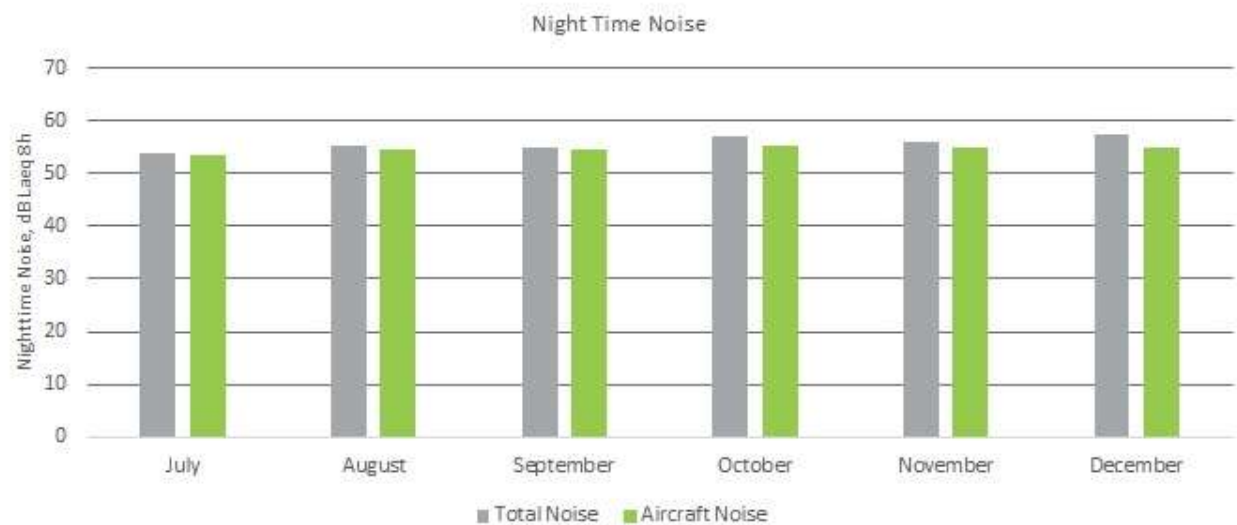


Figure 21: Averaged night-time noise levels for NMT 2, July - December 2021

The hourly noise distribution at NMT 2 as shown in Figure 22.

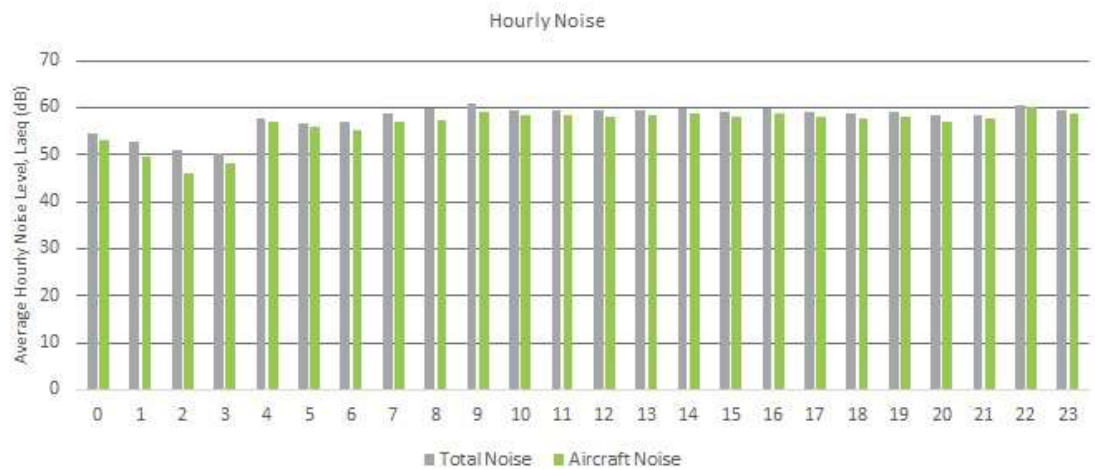


Figure 22: Averaged hourly noise levels for NMT 2, July - December 2021

Figure 23 shows the LAmax distribution for aircraft noise for the second half of 2021 for NMT2.

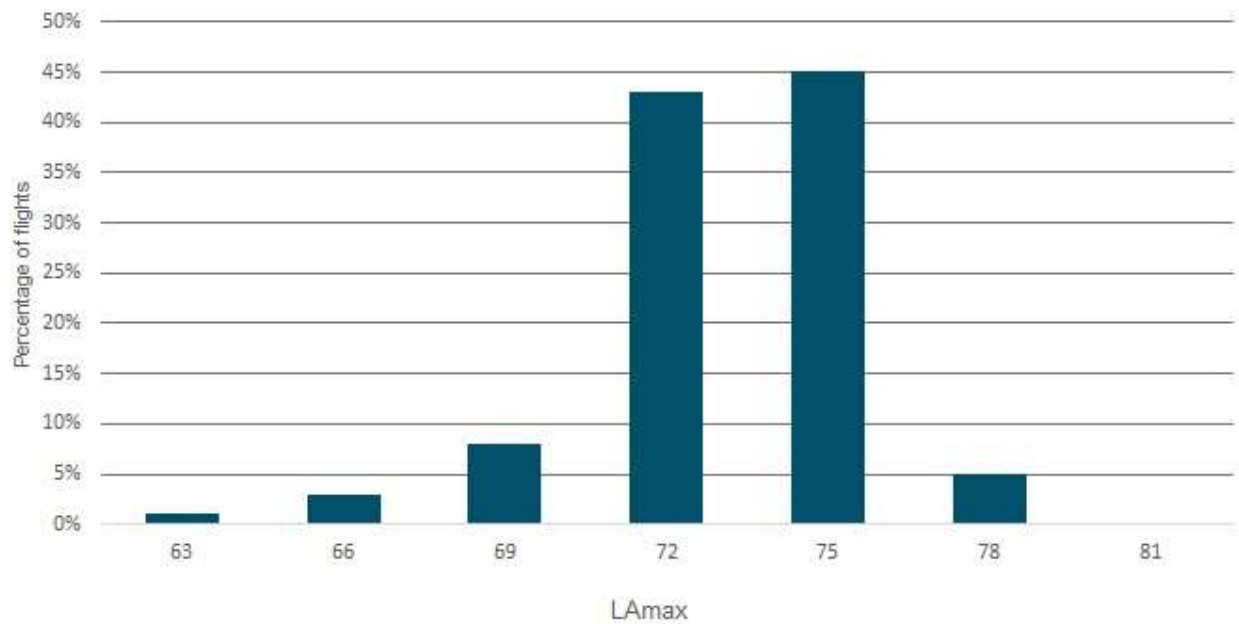


Figure 23: LAmax levels distribution for NMT 2, July - December 2021

Table 6 shows the top 10 loudest correlated aircraft types from the total count of correlated noise events to NMT2.

Aircraft Type	Max dB	Total Count
B744	81.8	1
B764	78.6	167
B735	78.3	1
P180	78.3	6
B734	78.2	498
B77W	78.0	260
A333	77.4	986
B77L	77.3	155
B733	76.9	8
B762	76.9	58

Table 6: LAmax by aircraft types correlated to NMT2, July - December 2021

# NMT 3: Bishopswood

Noise Monitoring Terminal 3 ('Bishopswood') is located west of Dublin Airport and north of flightpath for runway 10/28, see Figure 20 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 1<sup>st</sup> up to and including December 31<sup>st</sup> 2021, are presented in this section.



Figure 24: Noise Monitoring Terminal Bishopswood Location

Noise Events

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

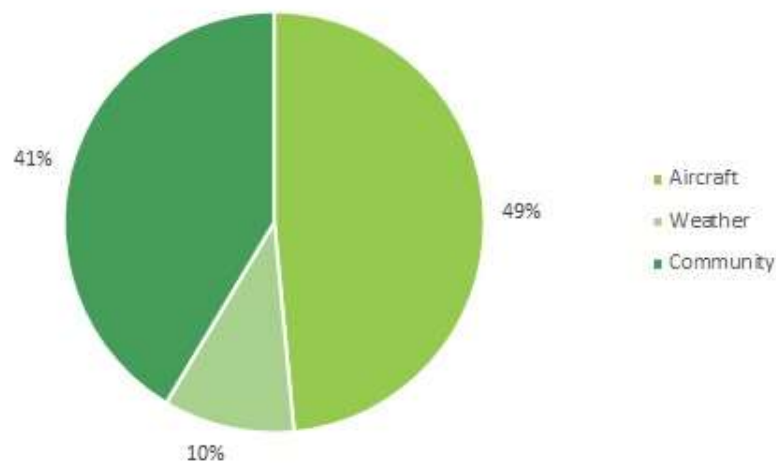


Figure 25: NMT 3 Noise Event Types

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 26.

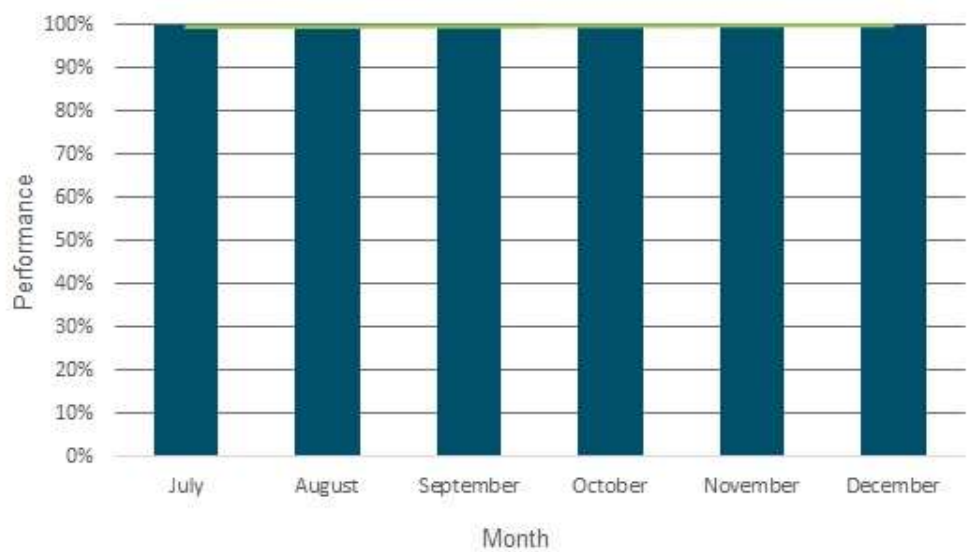


Figure 26: Operational status of NMT 3, July - December 2021

Noise Levels

Figure 27 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.

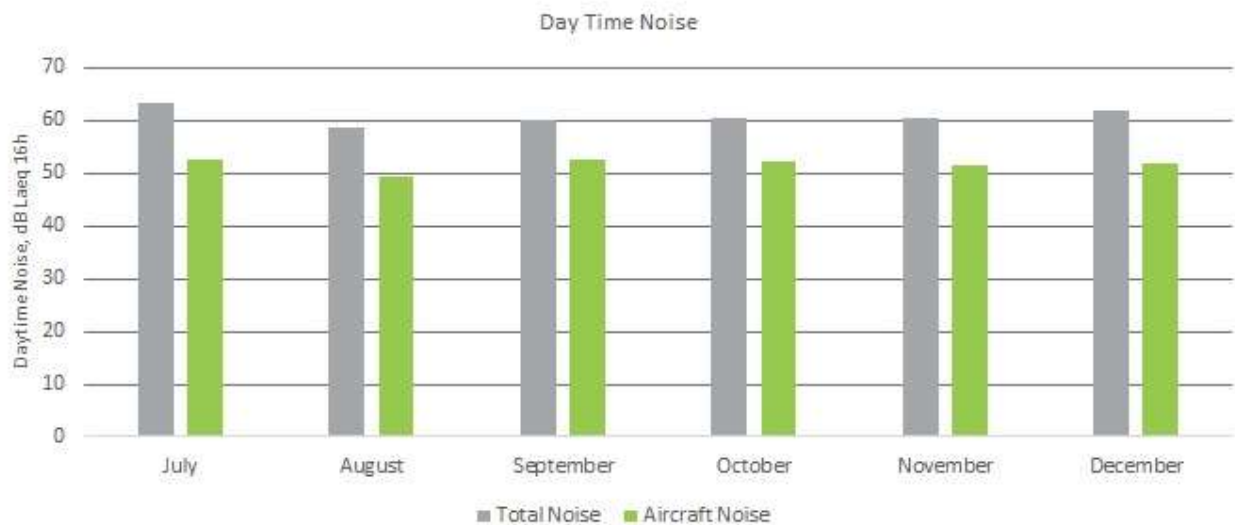


Figure 27: Averaged hourly noise levels for NMT 3, July - December 2021

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 28 presents these results monthly.

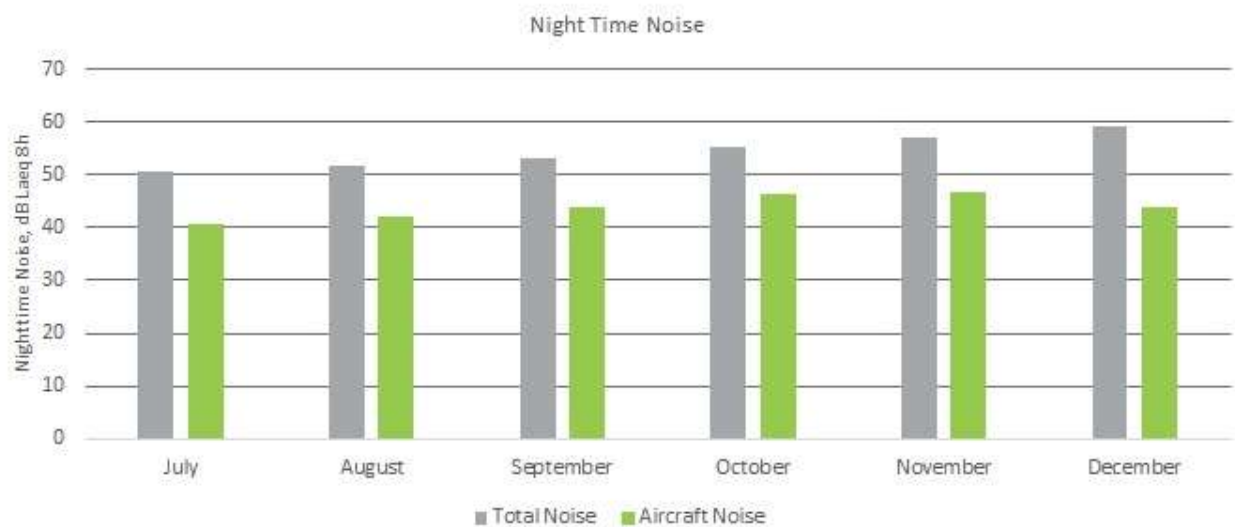


Figure 28: Averaged night-time noise levels for NMT 3, July - December 2021



The hourly noise distribution at NMT 3 as shown in Figure 29.

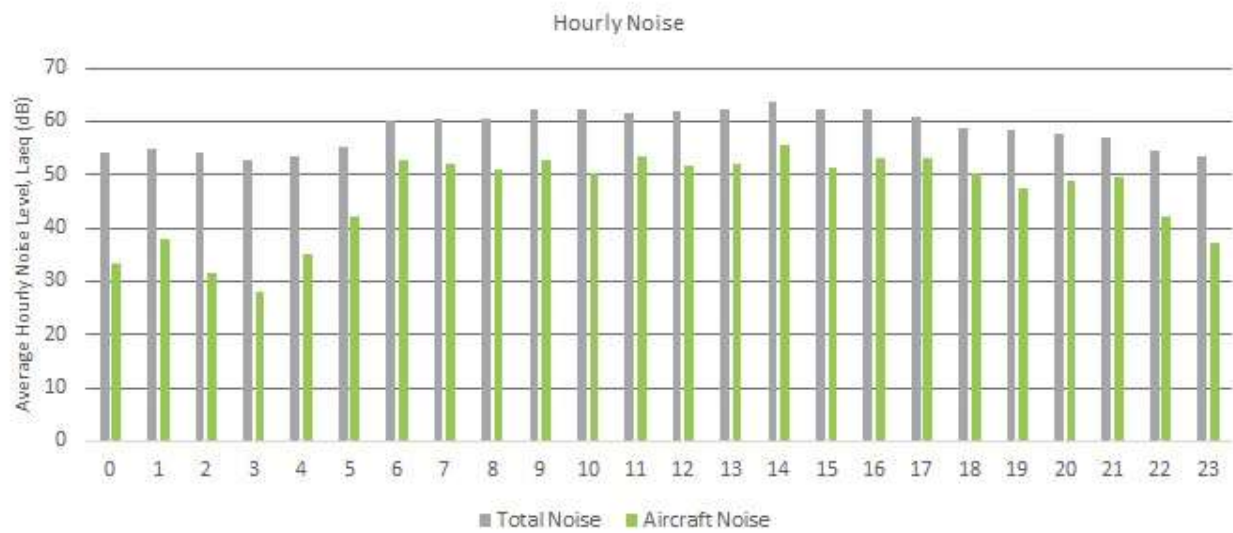


Figure 29: Averaged hourly noise levels for NMT 3, July - December 2021

Figure 31 shows the LAmax distribution for aircraft noise for the second half of 2021 for NMT 3.

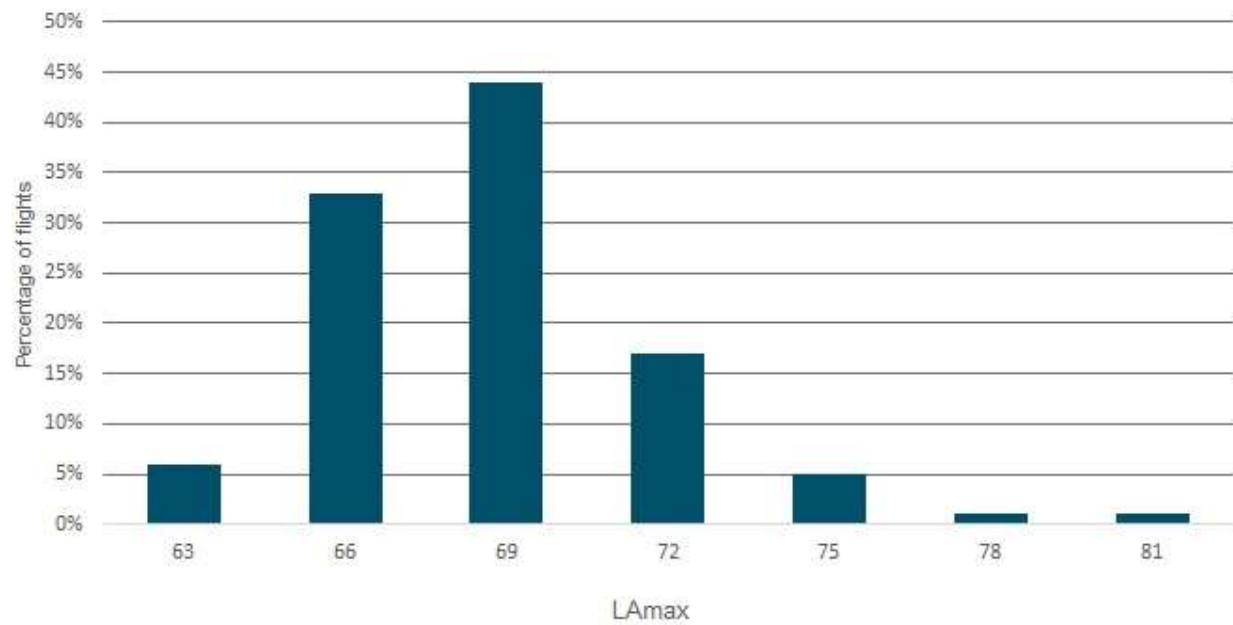


Figure 30: LAmax levels distribution for NMT 3, July - December 2021

Table 7 shows the top 10 loudest correlated aircraft types from the total count of correlated noise events to NMT3.

Aircraft Type	Max dB	Total Count
AT43	78.1	2
E545	76.4	1
SF34	75.7	3
SR22	75.5	1
A35K	75.3	2
B744	75.2	1
E55P	75.0	5
E135	74.7	1
LJ45	74.6	4
CRJ2	74.0	1

Table 7: LAmax by aircraft types correlated to NMT3, July - December 2021

# NMT 4: Feltrim

Noise Monitoring Terminal 4 ('Feltrim') is located east of Dublin Airport and north of the flight path of runway 10/28, see Figure 31 below and monitors the local area. The resulting data for NMT 4 measurements in the period from July 1<sup>st</sup> up to and including December 31<sup>st</sup> 2021, are presented in this section.



Figure 31: Noise Monitoring Terminal Feltrim Location

Noise Events

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

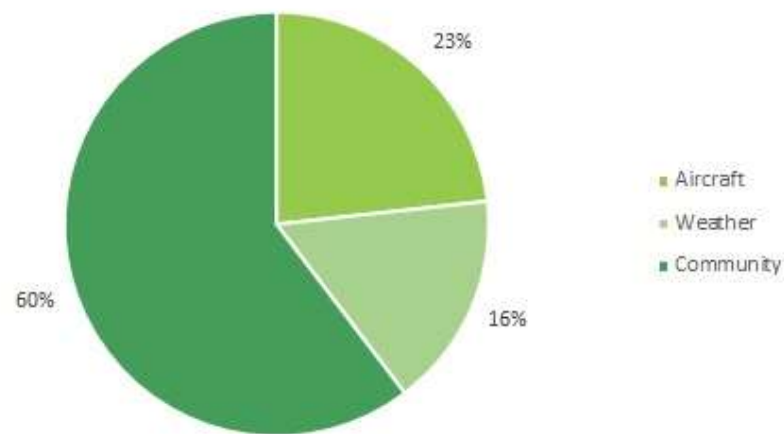


Figure 32: NMT 4 Noise Event Types

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 33.

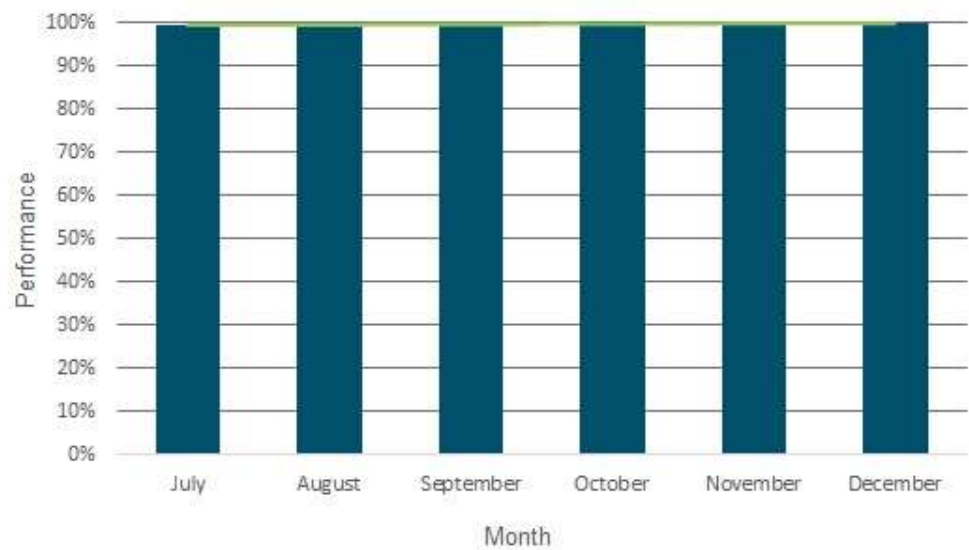


Figure 33: Operational status of NMT 4, July - December 2021

## Noise Levels

Figure 34 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.

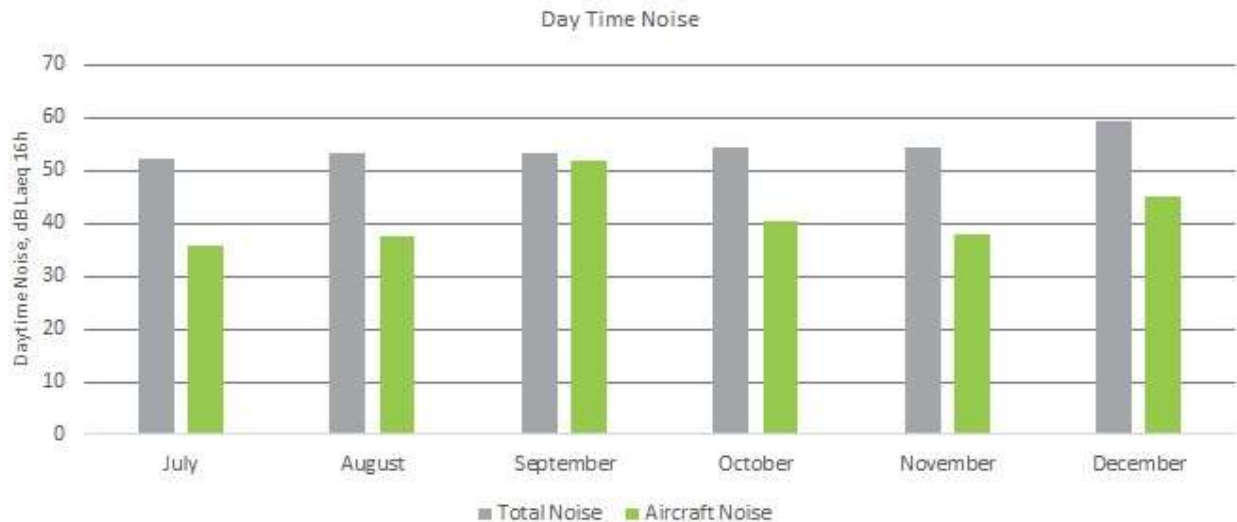


Figure 34: Averaged daytime noise levels for NMT 4, July - December 2021

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 35 presents these results monthly.

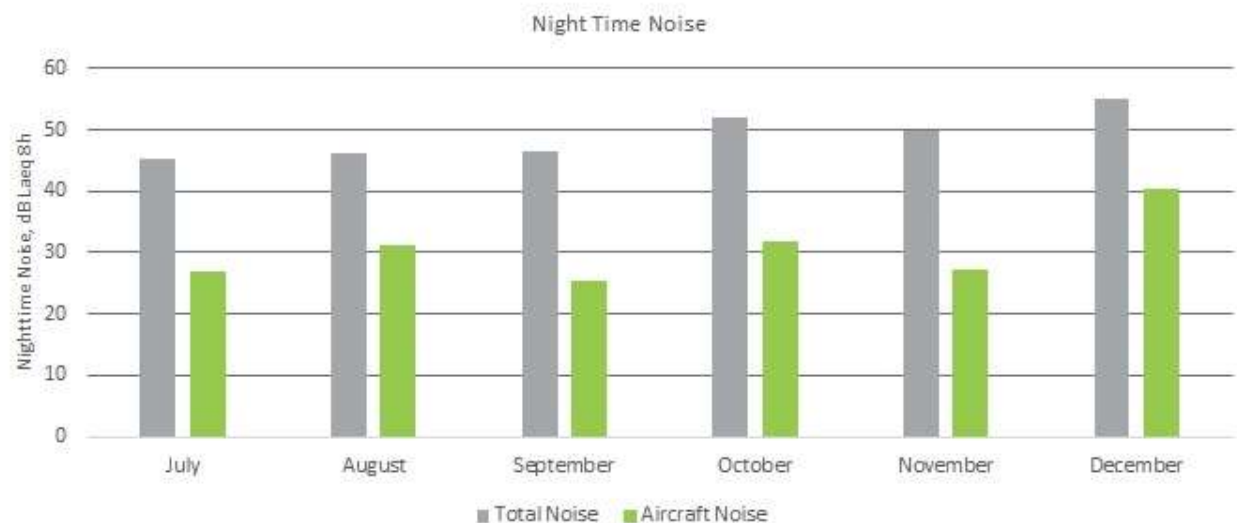


Figure 35: Averaged night-time noise levels for NMT 4, July - December 2021

The hourly noise distribution at NMT 4 as shown in Figure 36.

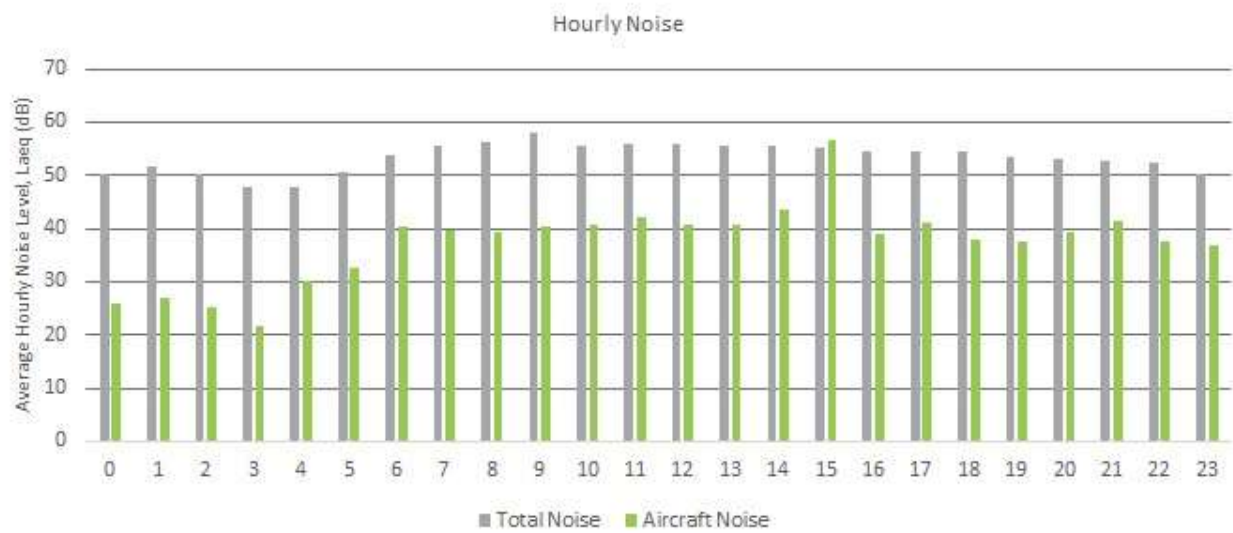


Figure 36: Averaged hourly noise levels for NMT 4, July - December 2021

Figure 37 shows the L<sub>Amax</sub> distribution for aircraft noise for the second half of 2021 for NMT 4.

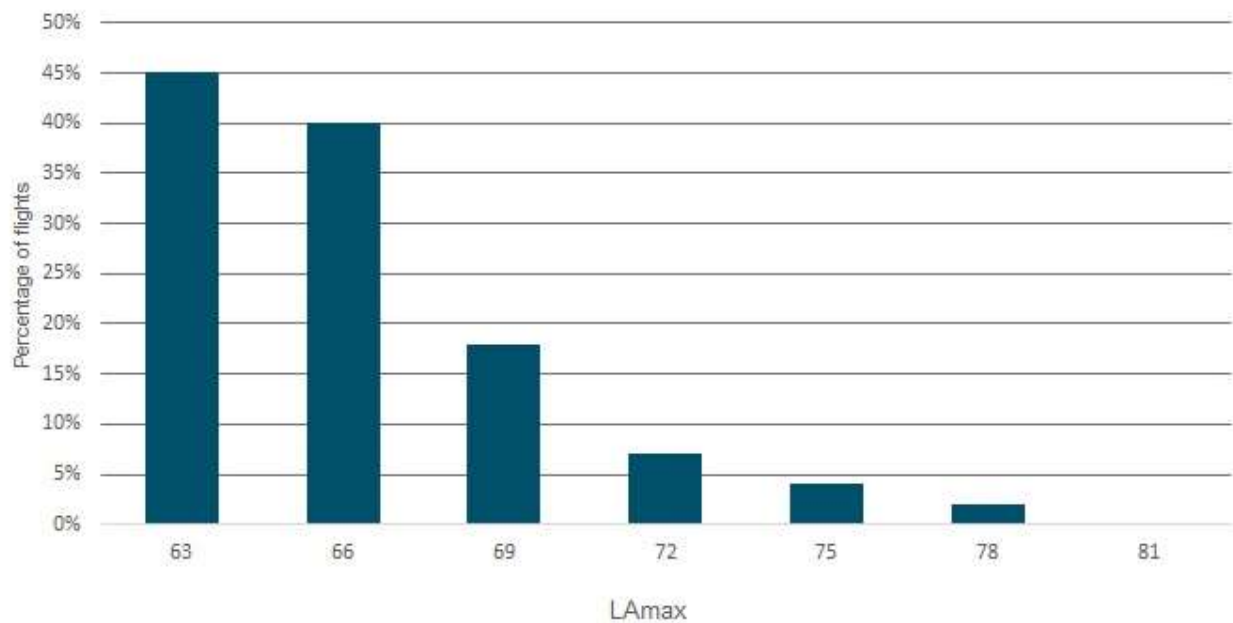


Figure 37: L<sub>Amax</sub> levels distribution for NMT 4, July - December 2021

Table 8 shows the top 10 loudest correlated aircraft types from the total count of correlated noise events to NMT4.

Aircraft Type	AVG Max dB	Total Count
AT43	75.2	1
A332	74.1	5
LJ45	73.0	4
P180	72.7	1
E121	72.5	1
C25M	72.2	3
E55P	72.0	2
C510	71.2	2
E550	71.2	2
FA7X	70.6	4

Table 8: LAmax by aircraft types correlated to NMT4, July - December 2021

# NMT 5: Balcultry

Noise Monitoring Terminal 5 ('Balcultry') is located northwest of Dublin Airport, see Figure 38 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 1<sup>st</sup> up to and including December 31<sup>st</sup> 2021, are presented in this section.



Figure 38: Noise Monitoring Terminal Balcultry Location



Noise Events

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

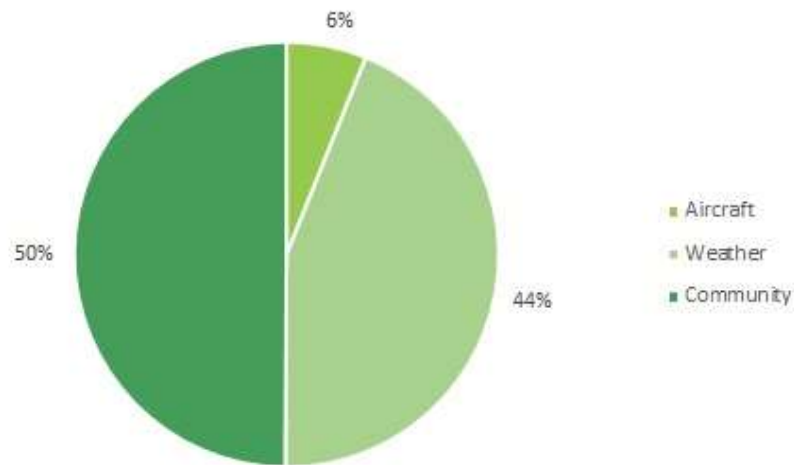


Figure 39: NMT 5 Noise Event Types

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 40.

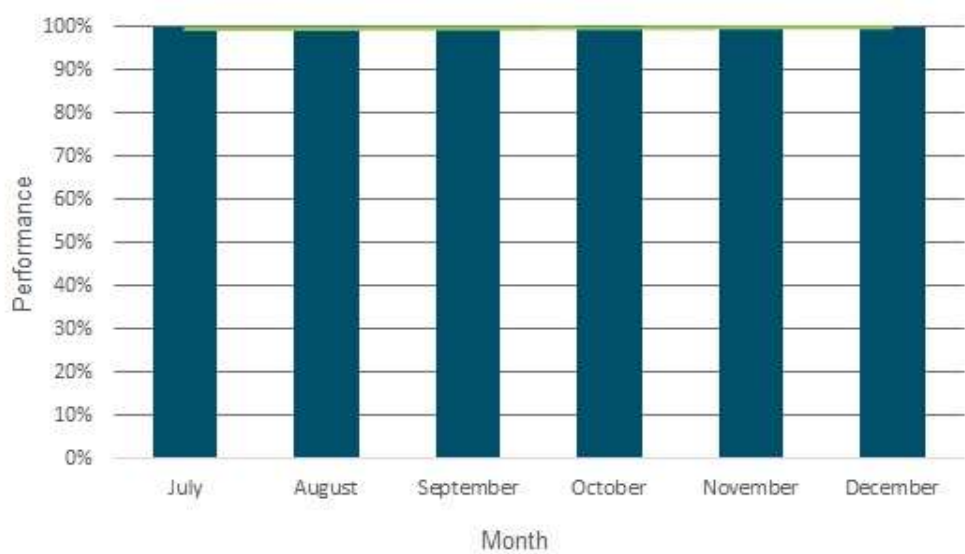


Figure 40: Operational status of NMT 5, July - December 2021

## Noise Levels

Figure 41 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.

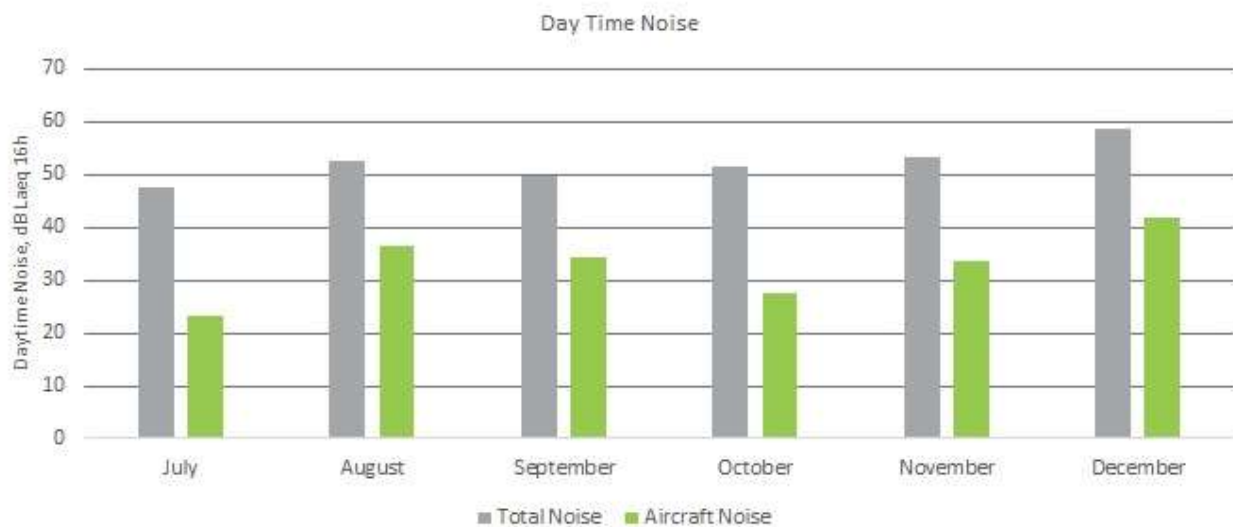


Figure 41: Averaged daytime noise levels for NMT 5, July - December 2021

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 42 presents these results monthly.

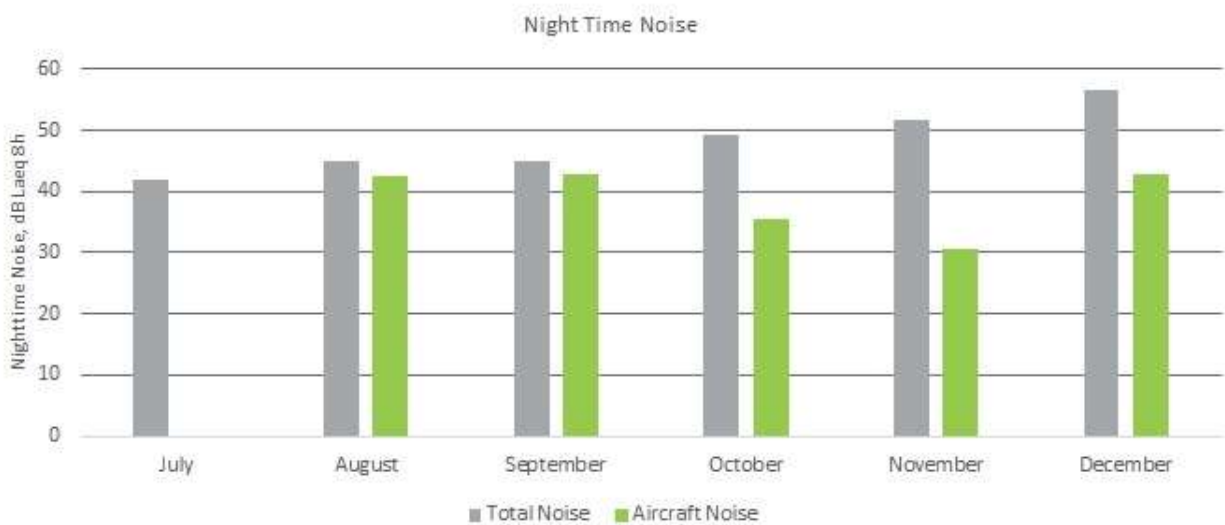


Figure 42: Averaged night-time noise levels for NMT 5, July - December 2021

The hourly noise distribution at NMT 5 as shown in Figure 43.

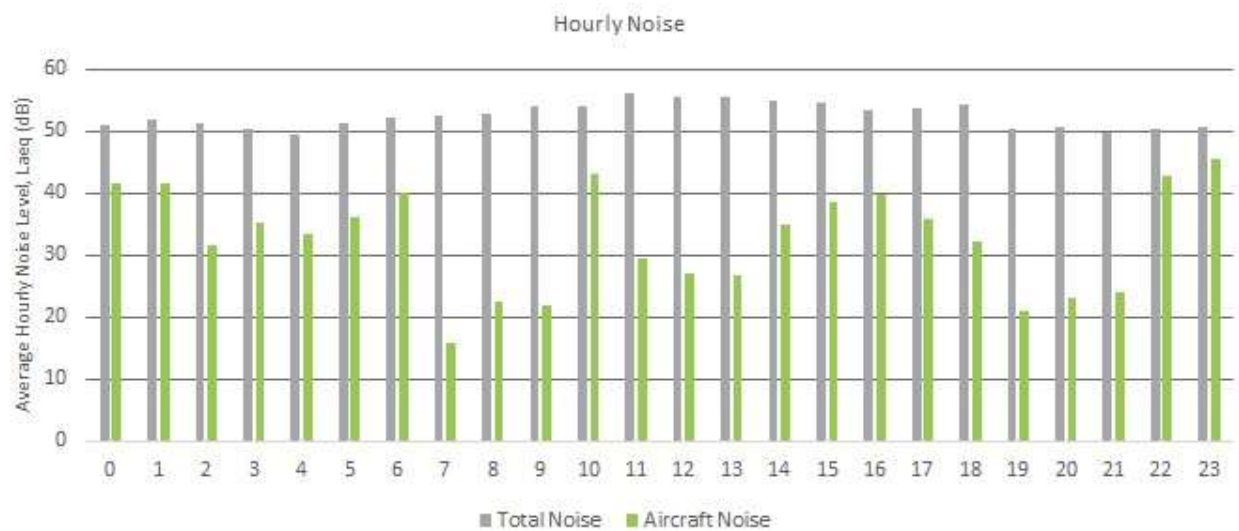


Figure 43: Averaged hourly noise levels for NMT 5, July - December 2021

Figure 44 shows the L<sub>Amax</sub> distribution for aircraft noise for the second half of 2021 for NMT 5.

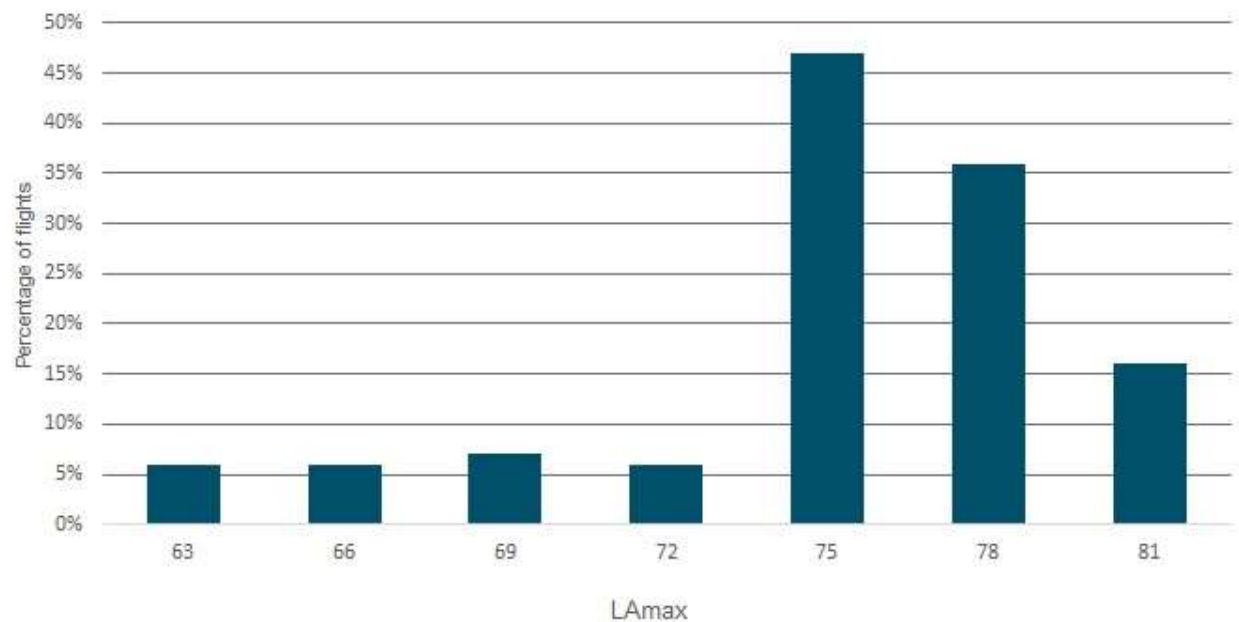


Figure 44: L<sub>Amax</sub> levels distribution for NMT 5, July - December 2021

Table 9 shows the top 10 loudest correlated aircraft types from the total count of correlated noise events to NMT5.

Aircraft Type	Max dB	Total Count
B77W	84.8	1
A332	83.8	1
B764	83.8	4
B763	82.0	4
B788	81.0	2
E295	80.2	1
B752	80.1	1
B39M	79.7	1
DH8D	79.5	1
A21N	79.2	6

Table 9: LAmax by aircraft types correlated to NMT5, July - December 2021

# NMT 6: Artane

Noise Monitoring Terminal 6 ('Artane') is located southeast of Dublin Airport on the roof a school building, see Figure 45 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 1<sup>st</sup> up to and including December 31<sup>st</sup> 2021, are presented in this section.



Figure 45: Noise Monitoring Terminal Artane Location

Noise Events

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

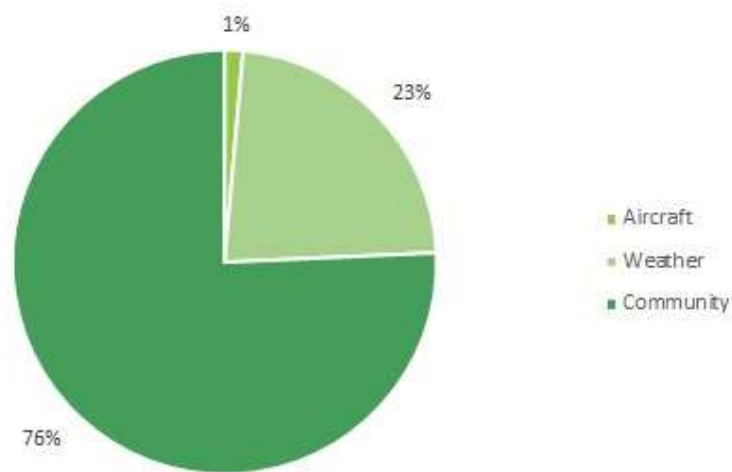


Figure 46: NMT 6 Noise Event Types

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 47.

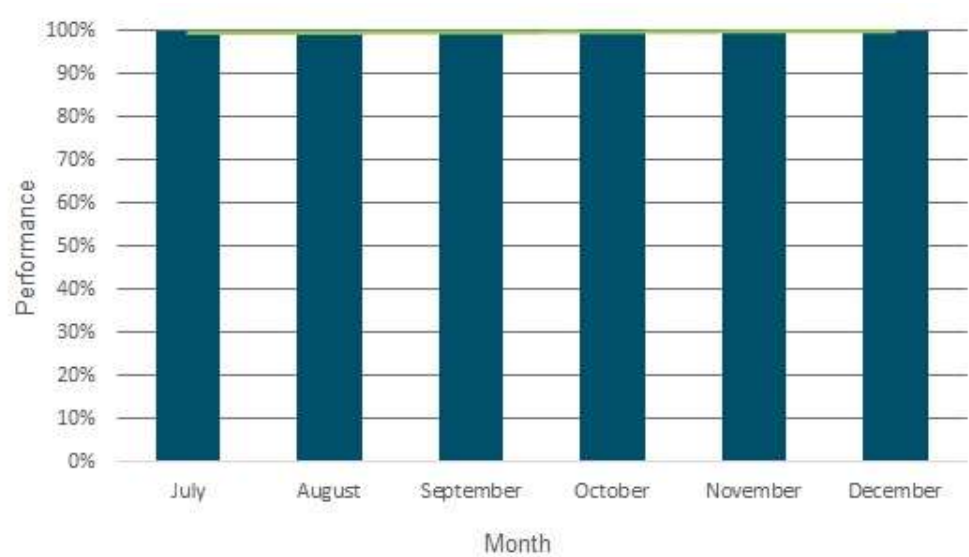


Figure 47: Operational status of NMT 6, July - December 2021

## Noise Levels

Figure 48 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.

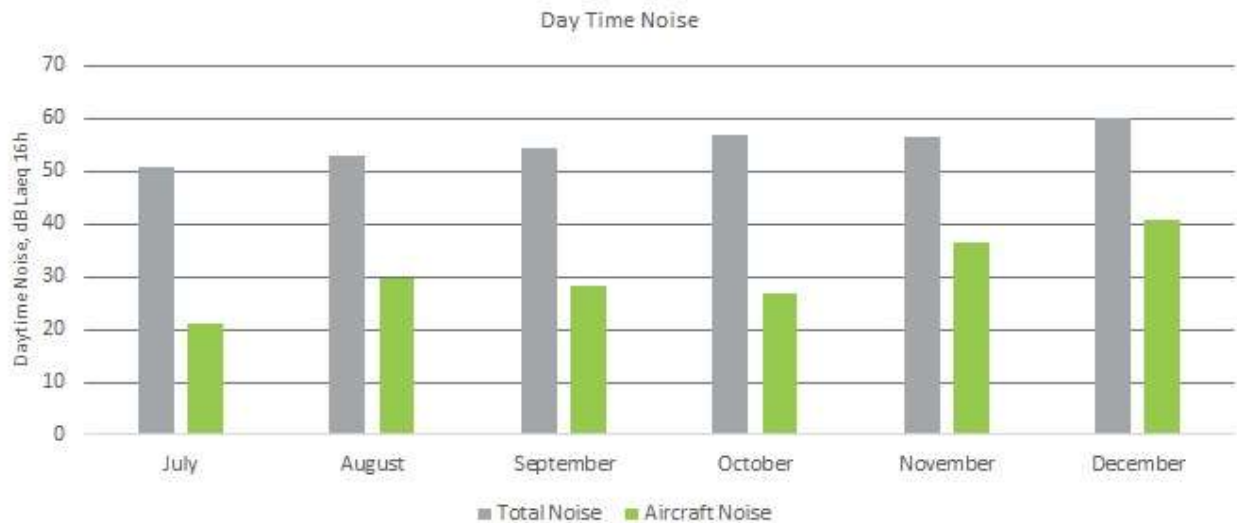


Figure 48: Averaged daytime noise levels for NMT 6, July - December 2021

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 49 presents these results monthly.

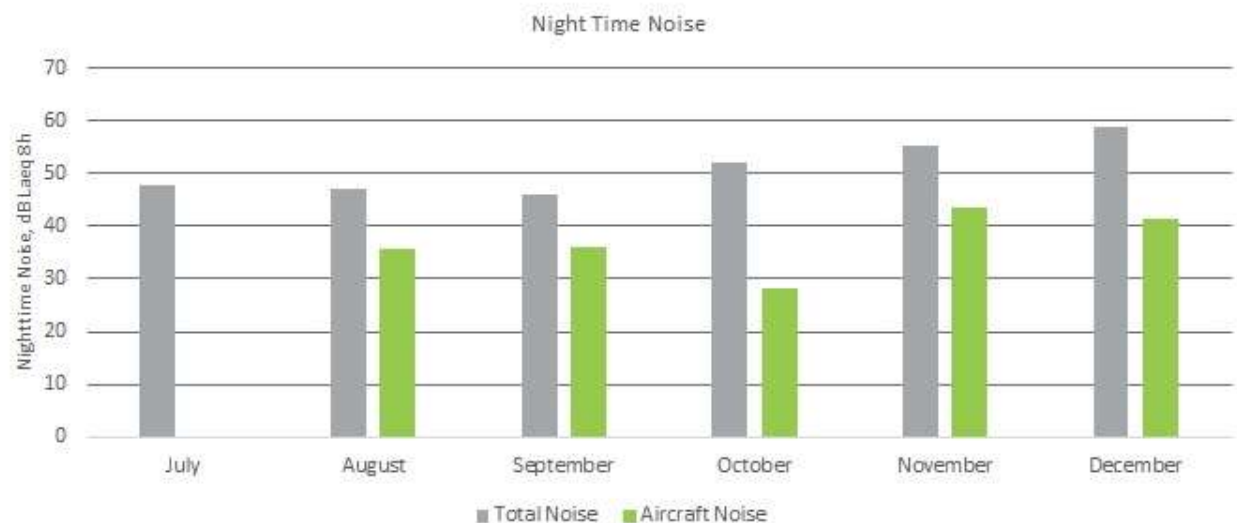


Figure 49: Averaged night-time noise levels for NMT 6, July - December 2021

The hourly noise distribution at NMT 6 as shown in Figure 50

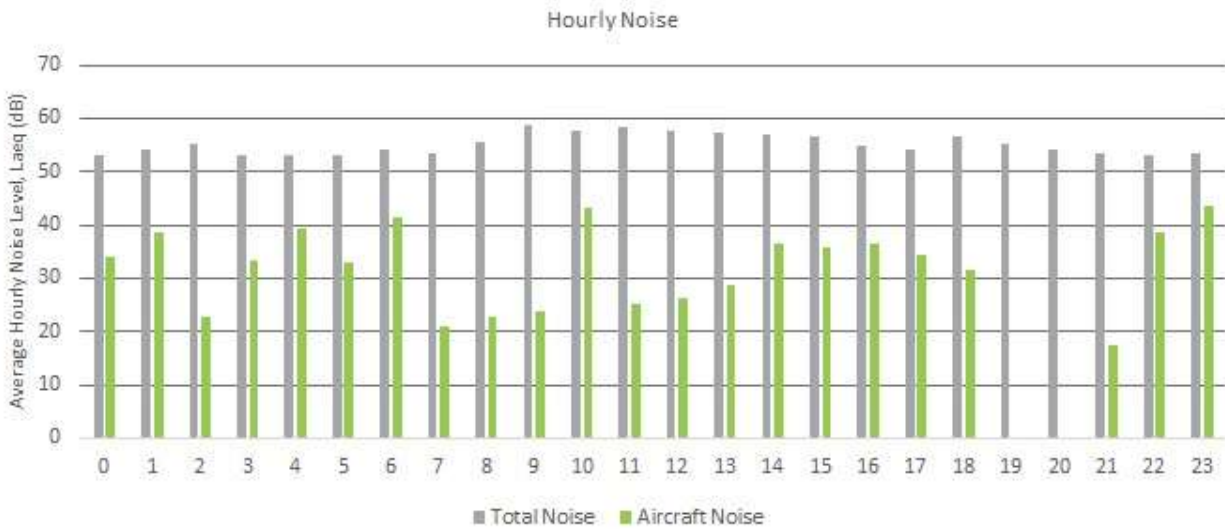


Figure 50: Averaged hourly noise levels for NMT 6, July - December 2021

Figure 51 shows the LAmix distribution for aircraft noise for the second half of 2021 for NMT 6.

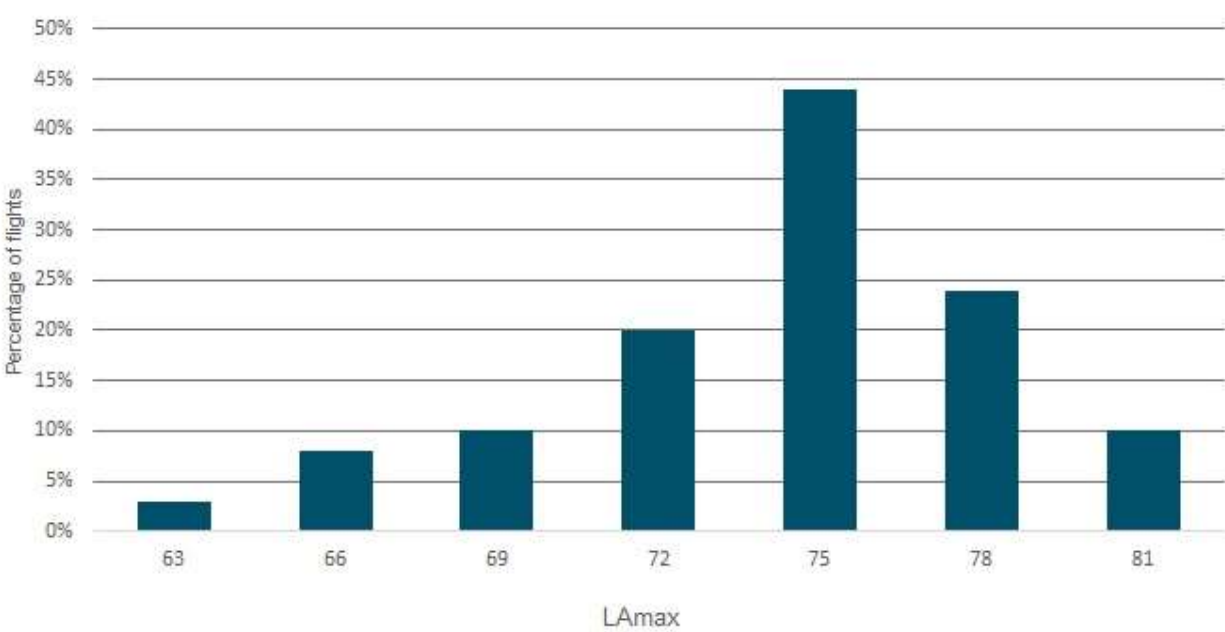


Figure 51: LAmix levels distribution for NMT 6, July - December 2021



Table 10 shows the top 10 loudest correlated aircraft types from the total count of correlated noise events to NMT6.

Aircraft Type	Max dB	Total Count
B39M	85.1	1
A333	81.2	8
A332	80.7	1
B764	80.1	1
E190	79.6	6
B789	79.0	1
B734	77.7	6
B38M	77.3	3
B738	77.3	119
B77W	77.1	1

Table 10: L<sub>Amax</sub> by aircraft types correlated to NMT6, July - December 2021

# NMT 20: Coast Road

Noise Monitoring Terminal 20 ('Coast Road') is located east of Dublin Airport, see Figure 52 below, under the extended runway centreline of runway 10. Its purpose is to monitor runway 10 departures and runway 28 arrivals. The resulting data for NMT 20 measurements in the period from July 1<sup>st</sup> up to and including December 31<sup>st</sup> 2021, are presented in this section.



Figure 52: Noise Monitoring Terminal Coast Road Location

Noise Events

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

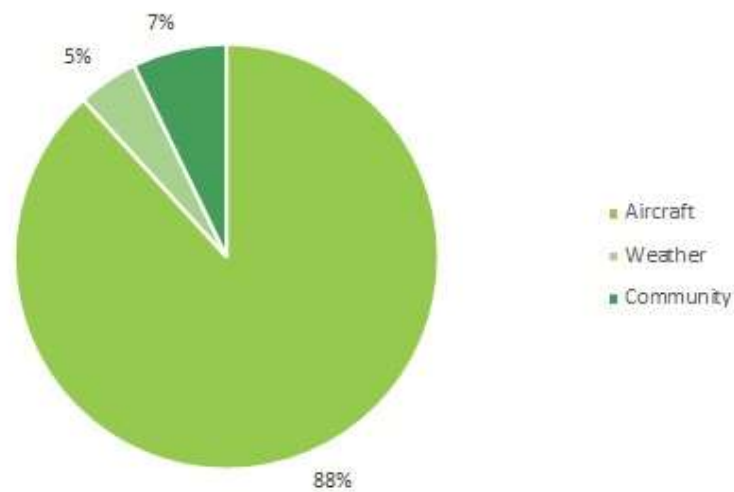


Figure 53: NMT 20 Noise Event Types

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 54.

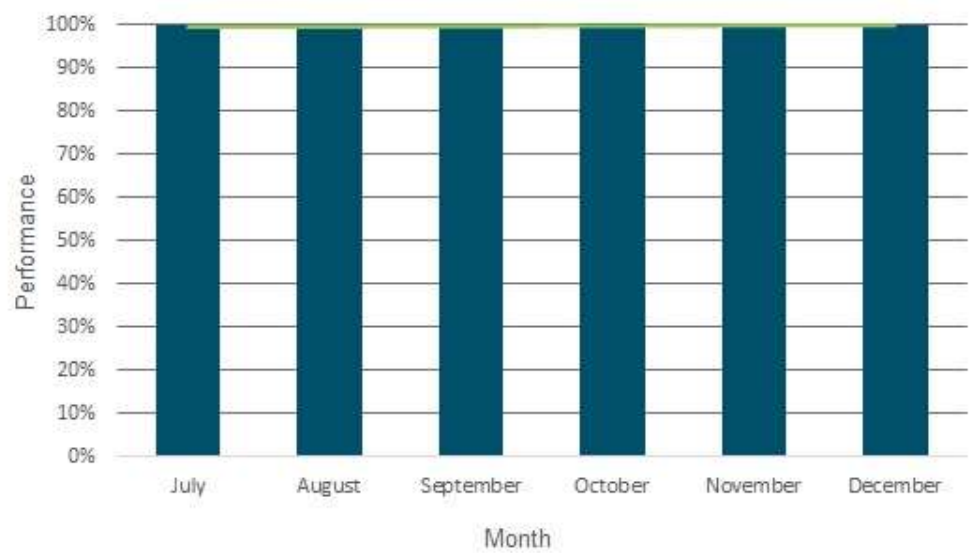


Figure 54: Operational status of NMT 20, July - December 2021

Noise Levels

Figure 55 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.

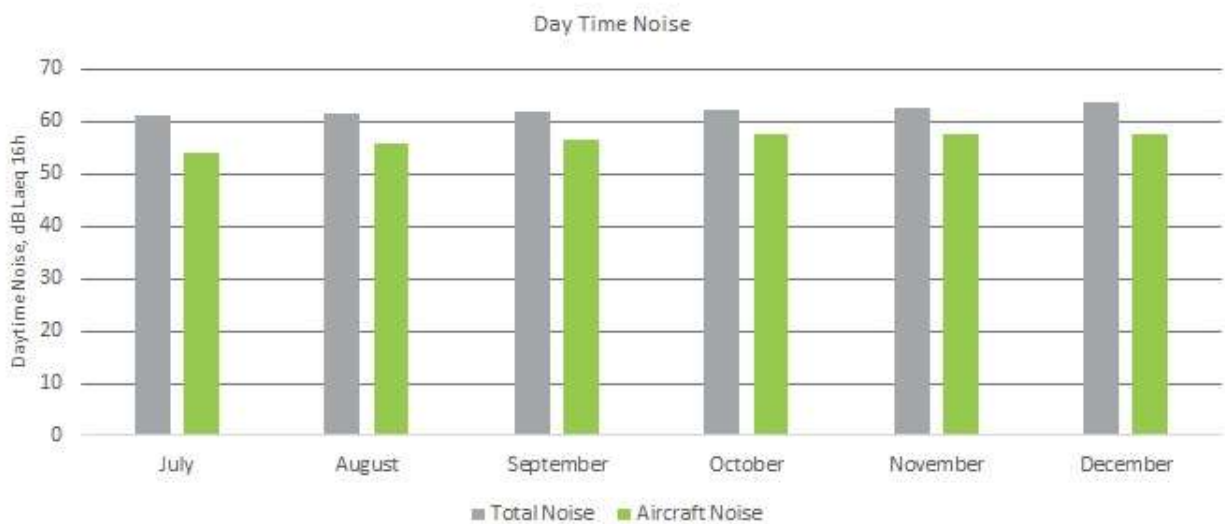


Figure 55: Averaged daytime noise levels for NMT 20, July - December 2021

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 56 presents these results monthly.

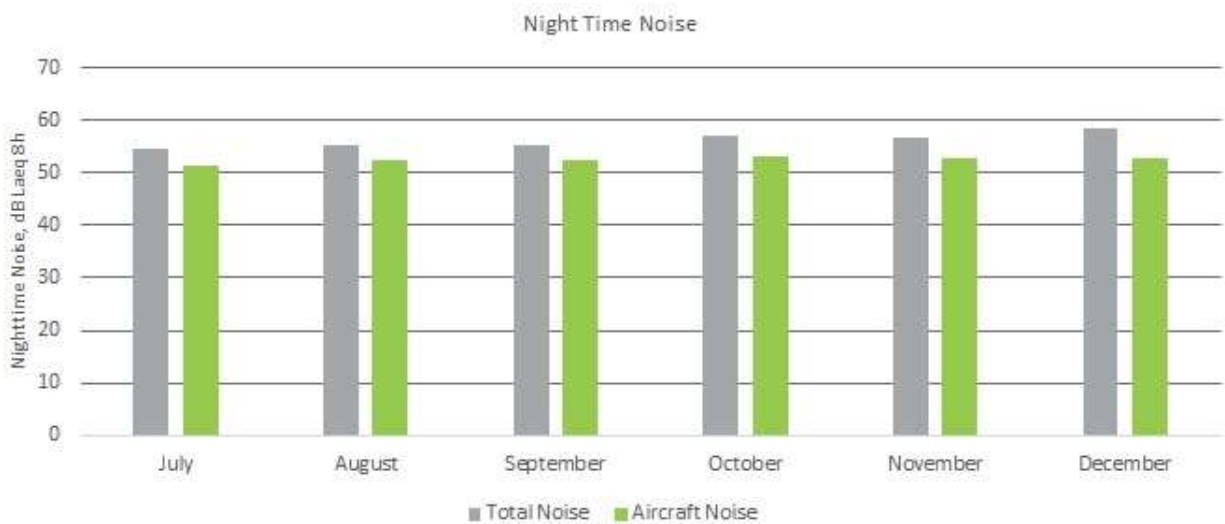


Figure 56: Averaged night-time noise levels for NMT 20, July - December 2021

The hourly noise distribution at NMT 20 as shown in Figure 57.

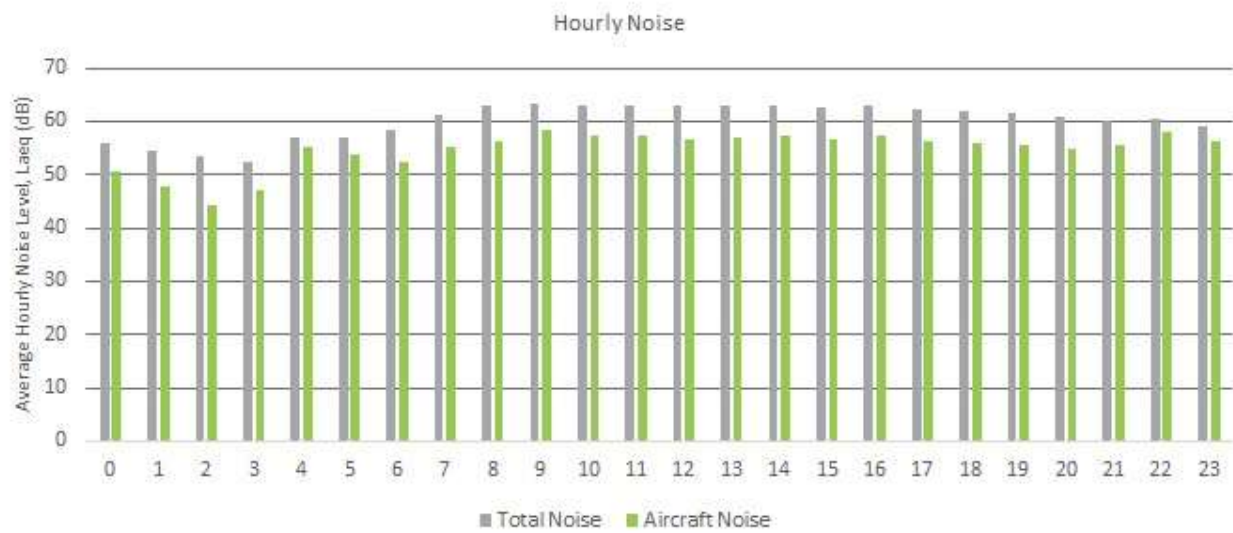


Figure 57: Averaged hourly noise levels for NMT 20, July - December 2021

Figure 58 shows the LAmax distribution for aircraft noise for the second half of 2021 for NMT 20.

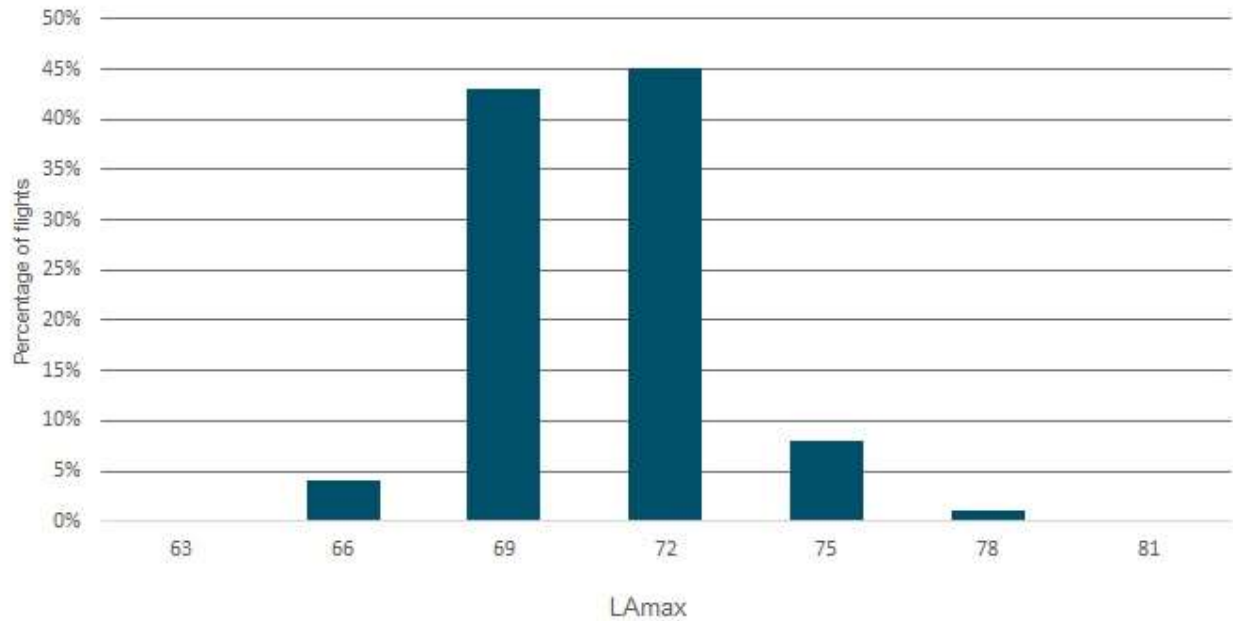


Figure 58: LAmax levels distribution for NMT 20, July - December 2021

Table 11 shows the top 10 loudest correlated aircraft types from the total count of correlated noise events to NMT20.

Aircraft Type	Max dB	Total Count
B744	82.5	1
E121	77.5	1
P180	77.5	6
B764	76.0	166
B77W	76.0	260
AN26	75.3	1
A333	75.1	983
B77L	75.1	155
B773	75.0	1
A332	74.9	48

Table 11: LAmax by aircraft types correlated to NMT20, July - December 2021

# 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 (night-time), 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]
Lamax	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

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

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