



# L&RS

## Note

### Airport noise restrictions

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#### Abstract

More than 254,000 flights were handled by Ireland's main airports in 2017, the majority through Dublin Airport. It is forecast that the number of flights within Europe will increase by more than 50% to 16.2 million flights per annum between 2017 and 2040. Any increase in air traffic is likely to have a knock on effect on noise levels - the second most significant environmental cause of ill health.

This Note examines briefly the regulatory framework governing airport noise restrictions in light of the recent publication of the *Aircraft Noise (Dublin Airport) Regulation Bill 2018*. It does not examine the Bill in detail.



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**This L&RS Note may be cited as:**

Oireachtas Library & Research Service, 2018, *L&RS Note: Airport noise restrictions*.

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## Introduction

EUROCONTROL<sup>1</sup> forecasts that the number of flights in Europe could increase by more than 50% to 16.2 million flights per annum between 2017 and 2040 (1.9% annual average growth).<sup>2</sup> According to the most recent CSO statistics more than 254,000 flights were handled by Ireland's main airports in 2017. Dublin accounted for 83.4% of all flights (212,248), while Cork handled 7.7% of all flights (19,705).<sup>3</sup>

Although individual aircraft have become around 75% less noisy over the last 30 years, the increase in air traffic means that many citizens are exposed to high noise levels.<sup>4</sup> While the regulation of aircraft noise has been a feature of international and EU law for decades the European Commission has stated that:

“noise-related measures constrain not only airport capacity at a particular airport but also the aviation system as a whole through knock-on effects. Therefore, decisions on noise measures and the desired level of noise protection must be balanced against the overall capacity implications.”<sup>5</sup>

This Note examines briefly the regulatory framework governing airport noise restrictions in light of the recent publication of the [Aircraft Noise \(Dublin Airport\) Regulation Bill 2018](#). It does not provide a detailed analysis of the Bill.

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<sup>1</sup> EUROCONTROL is an intergovernmental organisation supporting European aviation with 41 Member and 2 Comprehensive Agreement States.

<sup>2</sup> EUROCONTROL website “*European Aviation in 2040: Challenges of Growth*.” Available [here](#).

<sup>3</sup> Central Statistics Office (CSO) website “*Aviation Statistics Quarter 4 and Year 2017*.” Available [here](#).

<sup>4</sup> European Commission website – “Aircraft noise”. Available [here](#).

<sup>5</sup> *Ibid*

## Environmental noise regulatory framework

The [Environmental Noise Directive \(END\)](#) 2002/49/EC sets out a general framework for the assessment and management of environmental noise.

The World Health Organisation has identified noise as the second most significant environmental cause of ill health. The European Environment Agency estimates that environmental noise causes:

- at least 10,000 cases of premature death in Europe each year;
- almost 20 million adults to suffer annoyance; and
- a further 8 million to suffer sleep disturbance.<sup>6</sup>

The Environmental Noise Directive requires Member States to prepare and publish, every five years, noise maps and noise management action plans in respect of:

- agglomerations with more than 100,000 inhabitants;
- major roads (more than 3 million vehicles a year);
- major railways (more than 30,000 trains a year); and
- **major airports** (more than 50,000 movements a year, including small aircrafts and helicopters).<sup>7</sup>

When developing noise management action plans competent authorities are required to consult with the public. In Ireland responsibility for the preparation of noise maps lies with Noise Mapping Bodies which include Local Authorities, Irish Rail, and Dublin Airport Authority. The preparation and implementation of noise action plans occurs at local level and is the responsibility of the Local Authorities.<sup>8</sup> Noise maps and action plans must be made available to the public in an accessible manner.<sup>9</sup> Textbox 1 overleaf sets out how noise is measured.

Data gathered under this Directive is collected in the Noise Observation & Information Service for Europe ('Noise') and mapped for public [view](#).

### Environmental Noise

Environmental noise is defined in the Directive as including “unwanted or harmful outdoor sound created by human activities, including noise emitted by means of transport, road traffic, rail traffic, air traffic, and from sites of industrial activity”. In 2018, the World Health Organisation published Environmental Noise Guidelines for the European Region to provide recommendations for protecting human health from exposure to environmental noise originating from various sources: transportation (road traffic, railway and aircraft) noise, as well as wind turbine noise and leisure.

<sup>6</sup> Department of Communications, Climate Action & Environment website “Noise Pollution”. Available [here](#).

<sup>7</sup> Dublin Airport is the only airport in Ireland that falls within this threshold.

<sup>8</sup> Environmental Protection Agency, *Noise Mapping - Round 3*, Available at <http://epa.ie/monitoringassessment/noisemapping/>

<sup>9</sup> See Dublin City Council Noise Maps, Reports & Statistics (2017) at [http://www.dublincity.ie/sites/default/files/content/WaterWasteEnvironment/NoiseMapsandActionPlans/Documents/NoiseMaps\\_Reports\\_Statistics2017\\_Final\\_Print.pdf](http://www.dublincity.ie/sites/default/files/content/WaterWasteEnvironment/NoiseMapsandActionPlans/Documents/NoiseMaps_Reports_Statistics2017_Final_Print.pdf)

While the Directive requires Member States to take action to avoid, prevent, or reduce exposure to environmental noise, it does not set noise limits or targets. Measures to be taken in noise action plans remain at the full discretion of competent authorities in Member States.<sup>10</sup>

The Environmental Noise Directive was given effect to in Irish law by the [Environmental Noise Regulations 2006](#) (S.I. 140/2006).

### Textbox 1: How is noise measured

Decibels (dB) are used to measure noise. The instrument used is called a noise meter. It responds in a similar way to the human ear, to assess sound pressure levels. There are a range of sound levels, some of which are low and some of which are very loud. Typical sound levels measured are as follows:

#### *Painful*

- 150 dB = rock music peak
- 140 dB = fire alarms, jet engines
- 130 dB = jackhammer
- 120 dB = jet plane take-off, loud car stereo

#### *Extremely Loud*

- 110 dB = model airplane
- 106 dB = bass drum roll
- 100 dB = chain saw, pneumatic drill
- 90 dB = lawnmower, large trucks

#### *Very Loud*

- 80 dB = alarm clock, busy street
- 70 dB = busy traffic, vacuum cleaner
- 60 dB = conversation, dishwasher

#### *Moderate*

- 50 dB = moderate rainfall
- 40 dB = quiet room

#### *Soft*

- 30 dB = whisper, quiet library

Source: Ask about Ireland, [Noise](#)

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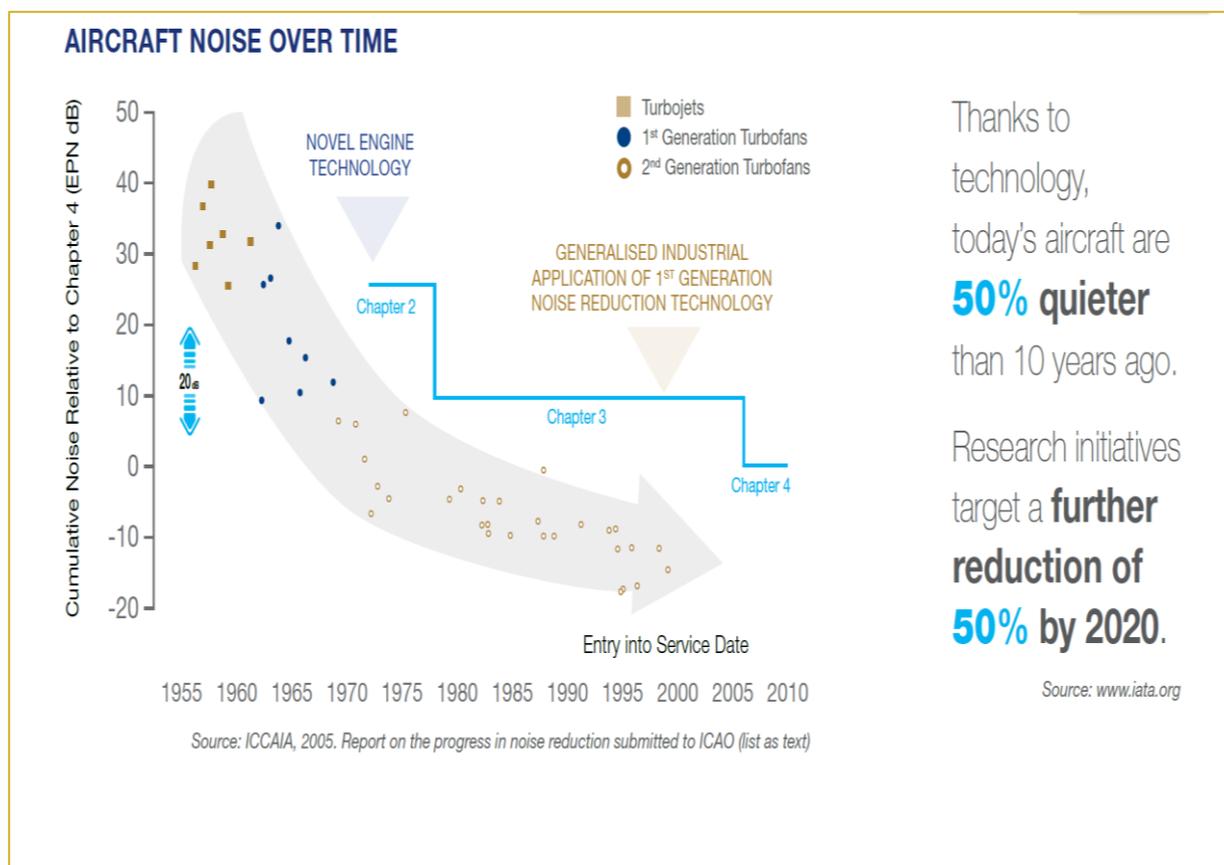
<sup>10</sup> Weissenberger, J. (2013) "New rules on EU airport noise restrictions", Library of the European Parliament Library Briefing. Available [here](#).

## Specific air-traffic legislation

- *International noise certification standards*

The International Civil Aviation Organisation (ICAO), the UN body dealing with civil aviation, is responsible for setting global noise certification standards in respect of aircraft noise. Noise certification is based on aircraft performance at three reference points, fly-over, sideline and approach. Only aircraft meeting these requirements can obtain certification. ICAO standards ensure that the noise certification process is harmonized at a global level. According to the ICAO the primary purpose of noise certification is “to ensure that the latest available noise reduction technology is incorporated into aircraft design and that this is demonstrated by procedures that are relevant to day-to-day operations.”<sup>11</sup>

The ICAO has set progressively more stringent standards for noise emissions from civil aircraft resulting in a reduction in noise from individual aircraft by 75% over the last four decades.<sup>12,13</sup>



**Source:** European Express Association Transport & Environment Committee, [Aircraft Noise Factsheet](#)

<sup>11</sup> ICAO website, *Reduction of Noise at Source*. Available at <https://www.icao.int/environmental-protection/Pages/Reduction-of-Noise-at-Source.aspx>

<sup>12</sup> European Commission (2011) “Commission staff working paper impact assessment” - SEC/2011/1455 final. Available at <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52011SC1455&from=cs>

<sup>13</sup> New manufacturing technologies have also made further noise reductions possible.

The European Commission has systematically transposed ICAO noise standards into European law<sup>14</sup> to reduce noise at source and to promote the use of quieter aircrafts.<sup>15</sup> Aircrafts operating in EU Member States must conform to ICAO standards. Table 1 below provides information on exposure to aircraft noise in Ireland.

**Table 1: Exposure to aircraft noise in Ireland**

Day time exposure to aircraft noise	Night time exposure to aircraft noise
There are 12,400 people in Dublin exposed to more than 55 dB in regards to airports during the day.	At national level, in Ireland, a total of 1,400 people are exposed to more than 50 dB in respect of Dublin airport during the night.
At national level, in Ireland, there is a total of 21,400 people exposed to more than 55 dB regarding airports during the day.	Between 23.00 and 06.00 engine run-ups are prohibited and runways are prioritized for noise abatement purposes.

**Source:** Noise Observation & Information Service for Europe. Available [here](#).

- *Directive 2002/30/EC on noise related operating restrictions at Community Airports (now repealed)*

[Directive 2002/30/EC](#) introduced the International Civil Aviation Organisation (ICAO) concept of a “**Balanced Approach**”<sup>16</sup> to aircraft noise management in the EU. The Balanced Approach involves a process whereby the range of available measures (namely the reduction of aircraft noise at source, land-use planning and management, noise abatement operational procedures and operating restrictions) is considered in a consistent way with a view to addressing the noise problem in the most cost-effective way on an airport-by-airport basis.<sup>17</sup>

The Balanced Approach incorporates four key elements to the mitigation of noise levels at airports (see Figure 1 overleaf).

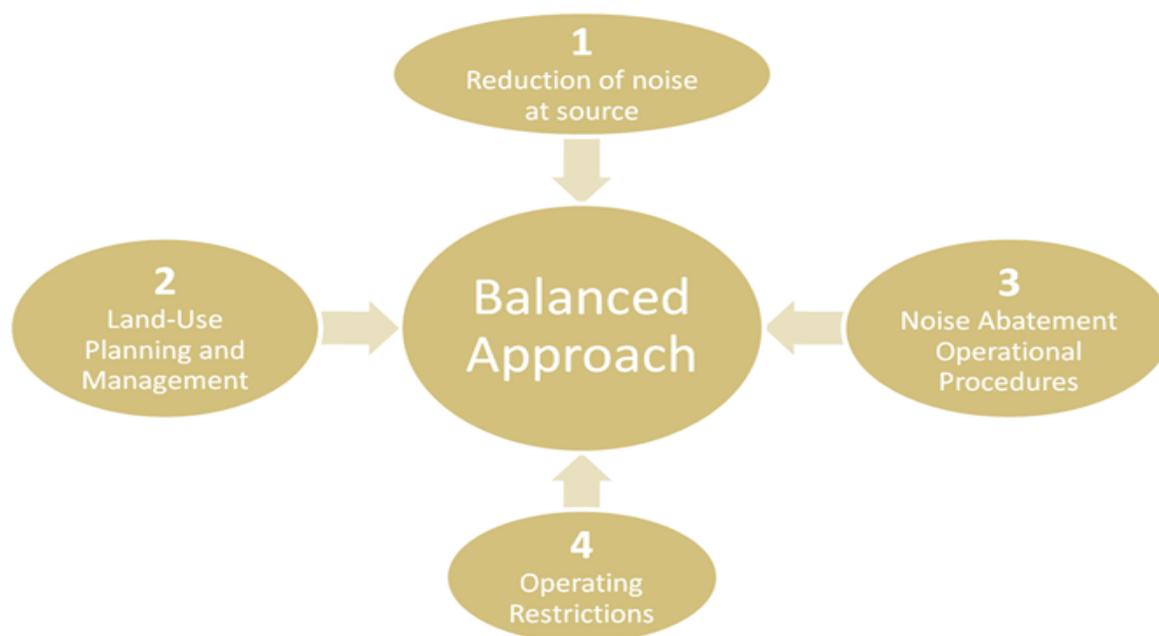
<sup>14</sup> For example: Council Directive 98/20/EC amending Directive 92/14/EEC on the limitation of operation of aeroplanes covered by Part II, Chapter 2, Volume 1 of Annex 16 to the Convention on International Civil Aviation. Available at <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:01998L0020-20070116&from=SK> and Directive 2006/93/EC of the European Parliament and of the Council of 12 December 2006 on the regulation of the operation of aeroplanes covered by Part II, Chapter 3, Volume 1 of Annex 16 to the Convention on International Civil Aviation, second edition (1988) (codified version) (Text with EEA relevance). Available at <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32006L0093>

<sup>15</sup> European Commission (2011) “*Commission staff working paper impact assessment*” SEC/2011/1455 final Available at <https://eur-lex.europa.eu/legal-content/cs/TXT/?uri=CELEX:52011SC1455>

<sup>16</sup> Balanced Approach is defined in Regulation 598/2014 as meaning “the process developed by the International Civil Aviation Organization under which the range of available measures, namely the reduction of aircraft noise at source, land-use planning and management, noise abatement operational procedures and operating restrictions, is considered in a consistent way with a view to addressing the noise problem in the most cost-effective way on an airport-by-airport basis”.

<sup>17</sup> ICAO website, Aircraft Noise, available at <https://www.icao.int/environmental-protection/Pages/noise.aspx>

**Figure 1: The four principal elements of the International Civil Aviation Organization (ICAO) “balanced approach” to aircraft noise management**



**Source:** ICAO Balanced Approach “Aircraft Noise” Available [here](#).

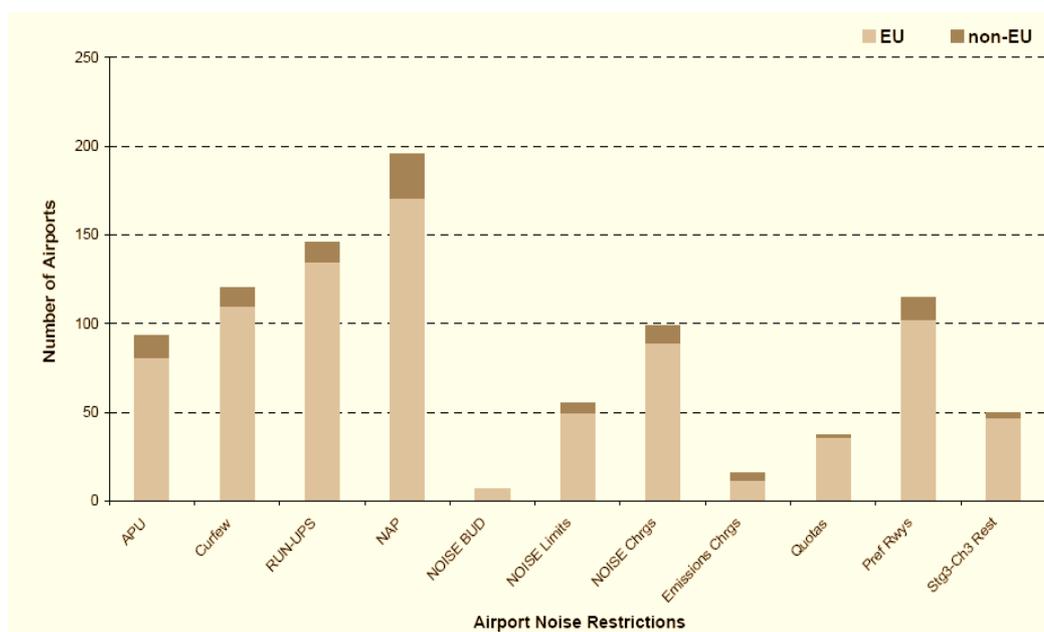
The Directive which applied to airports with more than 50,000 movements per year<sup>18</sup> permitted airports to introduce a series of operating restrictions,<sup>19</sup> including the gradual withdrawal of the noisiest aircrafts, to achieve noise-reduction.

An [impact assessment](#) published by the European Commission in December 2011 provides an analysis of airport noise restriction measures applied in European airports (see Figure 2 overleaf). The measures primarily applied are noise abatement procedures, however operating restrictions (such as curfews) are also utilised. In terms of operating restrictions, of the 224 EU airports assessed:

- over half have curfews;
- over a fifth have noise limits;
- over a fifth have restrictions targeting specific aircraft (aircraft of the “Chapter 3” noise standard certified before 2006); and
- about 3% have noise budgets.

<sup>18</sup> Dublin Airport was the only Irish airport to fall into this category. The [Dublin Airport Noise Management Plan](#) (2018) states that Ireland will implement a Balanced Approach to noise management at Irish Airports.

<sup>19</sup> Operating restrictions are defined in Regulation 598/2014 as meaning “a noise-related action that limits access to or reduces the operational capacity of an airport, including operating restrictions aimed at the withdrawal from operations of marginally compliant aircraft at specific airports as well as operating restrictions of a partial nature, which for example apply for an identified period of time during the day or only for certain runways at the airport.”

**Figure 2: Overview of European (EU and non-EU airport noise restrictions) (2011)**

Notes on Figure 2:

- **APU** (Auxiliary Power Unit) = device to help starting the aircraft engines): use of the APU can be limited to avoid ground noise, with the necessary exceptions for extremely cold temperatures.
- **Run-ups** are engine tests which may be prohibited at specific times or places.
- **Curfews** limit operations during a certain period of time usually at night time for noise-related reasons.
- **NAP** (noise abatement procedures) may take different forms: noise preferential routes (where aircraft fly over least populated areas), thrust management (the more thrust, the more noise is generated but the steeper the aircraft may climb) or specific measures on the ground (e.g. use of specific taxi or runways).
- **Noise budget:** the airport has to manage a yearly noise budget, where the authority gives every movement of an aircraft a noise classification.
- **Noise limits** restrict the use of particular aircraft in function of their noise performance and/or particular period of the day.
- **Noise charges** are airport charges that are increased in function of aircraft noise performance.
- **Operating Quota:** the number of night movements is restricted.
- **Preferential runways:** use of runways is restricted in function of time of the day.
- **Stg3-Ch3 Rest:** specific restrictions applying to 'Chapter 3' aircraft (aircraft types certified before 2006).

The 2002 Directive was transposed into Irish law in November 2003 by the [European Communities \(Air Navigation and Transport Rules and Procedures For Noise Related Operating Restrictions At Airports\) Regulations 2003](#).

- *Aircraft Noise Regulation No. 598/2014*

Following a review of the application of the 2002/30/EC Directive,<sup>20</sup> the European Commission concluded that the provisions of the Directive were not being interpreted in a uniform way by Member States resulting in different operating restrictions being applied.<sup>21</sup> It therefore decided to introduce new regulations in this area.

On 13 June 2016, the regulatory regime for airport noise within the EU was modified with the entry into force of [Regulation \(EU\) No 598/2014](#) (the “Aircraft Noise Regulation”). This Regulation repeals Directive 2002/30/EC (described above) and adopts new measures concerning the introduction of noise-related operating restrictions at airports. In respect of the new Regulation, the Department of Transport Tourism and Sport stated in a [press release](#) in September 2016 that:

“The recent entry into force of a new EU Regulation 598/2014 represents a shift in responsibility from the airport operator to a separate, independent statutory entity or competent authority to oversee the delivery of the new, more prescriptive approach to airport noise management.”<sup>22</sup>

The Regulation sets general rules on aircraft noise management by Member States including:

- The designation of an independent competent authority to oversee airport noise management;
- The introduction of a more stringent definition of ‘marginally compliant aircraft’ [i.e. aircraft which meet the standards in force by a margin of no more than 8 dB rising to 10 dB from June 2020] thus enabling the phase out of the most noisy aircrafts;
- More precise rules on the noise assessment process and on the introduction of operating restrictions;
- The establishment of an independent appeals mechanism; and
- Consultation with stakeholders in respect of the adoption of new operating restrictions in relation to noise management.<sup>23</sup>

Under the Regulation, Member States are required to ensure that the Balanced Approach is adopted in respect of aircraft noise management at airports where a noise problem has been identified. This includes through:

- Using the most cost-effective measures to address the issue; and
- Not applying operating restrictions (such as night bans) as a first resort, but only after consideration of the other measures of the Balanced Approach.

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<sup>20</sup> Report from the Commission to the Council and the European Parliament, *Noise Operation Restrictions at EU Airports (Report on the application of Directive 2002/30/EC)*, 2008. Available at <http://ec.europa.eu/transparency/regdoc/rep/1/2008/EN/1-2008-66-EN-F1-1.Pdf>

<sup>21</sup> Weissenberger, J. (2013) *New rules on EU airport noise restrictions*, Library of the European Parliament Library Briefing. Available [http://www.europarl.europa.eu/RegData/bibliotheque/briefing/2013/120421/LDM\\_BRI\(2013\)120421\\_REV1\\_EN.pdf](http://www.europarl.europa.eu/RegData/bibliotheque/briefing/2013/120421/LDM_BRI(2013)120421_REV1_EN.pdf)

<sup>22</sup> Department of Transport, Tourism and Sport, *New airport noise management regime in Ireland pursuant to EU Reg 598-2014*, September 2016. Available at <http://www.dttas.ie/press-releases/2016/new-airport-noise-management-regime-ireland-pursuant-eu-reg-598-2014>

<sup>23</sup> *Ibid*

## Aircraft Noise (Dublin Airport) Regulation Bill 2018

The purpose of the [Aircraft Noise \(Dublin Airport\) Regulation Bill 2018](#), which was published on 26 November 2018, is to allow for the implementation of a number of provisions of the [Aircraft Noise Regulation No. 598/2014](#).<sup>24</sup> These include the designation of Fingal County Council as the competent authority and An Bord Pleanála as the appeals body. Fingal County Council will, if the Bill is enacted, have exclusive competence to impose, revoke, replace, or amend the terms of an operating restriction in place at Dublin airport.<sup>25</sup>

The Bill also provides for amendments to the *Planning and Development Act, 2000*<sup>26</sup> in respect of any future:

- planning application for development at Dublin Airport which would have a significant impact on noise;
- application to amend, replace or revoke any operating restriction currently in place at the airport.

For more information, including Departmental briefing on the Bill please refer to the Bills Tracker page for this Bill.<sup>27</sup>

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<sup>24</sup> An EU Regulation is a binding legislative act which must be applied in its entirety across the EU. That said some provisions may require national implementing legislation (e.g. the designation of a competent authority).

<sup>25</sup> Subject to any subsequent decision of the appeals body.

<sup>26</sup> An administrative consolidation prepared by the Law Reform Commission is available at <http://revisedacts.lawreform.ie/eli/2000/act/30/front/revised/en/html>

<sup>27</sup> Library & Research Service, Bills Tracker, Aircraft Noise (Dublin Airport) Bill. Available at <http://eolas.library.oireachtas.local/airport-noise-dublin-airport-bill-2018/>



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