



Airport Noise Regulations

European Union

France • Germany • Italy • Portugal • Spain
Sweden • United Kingdom

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Prepared by the Staff of the Global Legal Research Directorate

I. Comparative Summary

This multinational report on airport noise regulations surveys the laws of the European Union (EU); six of its Member States (France, Germany, Italy, Portugal, Spain, and Sweden); and the United Kingdom (UK). (The UK left the European Union on January 31, 2020, but is bound by EU legislation until at least December 31, 2020.) The report focuses on civil aviation; it does not address noise pollution from military flights.

On the EU-level, the following legislation is in force: the Environmental Noise Directive (END), and Regulation (EU) No. 598/2014 on the Establishment of Rules and Procedures with Regard to the Introduction of Noise-Related Operating Restrictions at Union Airports within a Balanced Approach. All surveyed jurisdictions have transposed the END Directive, and the regulation is directly enforceable in all EU Member States. Thus, all EU Member States must adopt a “balanced approach” (as defined by International Civil Aviation Organization, ICAO) to combat noise pollution from airports, and survey airport noise levels every five years (see the EU survey). However, the actual noise level at airports is regulated by the individual Member States.

Noise thresholds typically vary between the surveyed jurisdictions as well as between individual airports, taking into account both geographic and commercial interests. All jurisdictions surveyed have restrictions on airport noise, and all jurisdictions have higher noise allowances for daytime operations than nighttime operations, with the strictest limits being in force from approximately 11:00 p.m./12:00 a.m. to 6:00 a.m./7:00 a.m. For instance, in **Portugal**, all airports that are not designated as a major airport prohibit takeoff and landing between 12:00 a.m. and 6:00 a.m. In **Germany**, night flights are typically allowed, but certain airports, such as the Frankfurt Airport (Germany’s busiest airport), prohibit airplanes from landing or taking off between 11:00 p.m. and 5:00 a.m. In contrast, other countries, such as **Spain**, **Sweden**, and the **UK**, only restrict the number of flights, the number of open runways, and/or the types of aircraft in operation during the night.

All jurisdictions surveyed require that noise from airports be taken into account when planning and zoning new residential areas and airports. For example, **Germany** prohibits hospitals from being built in any airport noise zone and daycares from being built in zones with daytime noise, while **France** prohibits any remodeling of existing properties that would increase the total number of persons subjected to airport noise. Most countries also have programs for improving the soundproofing of residential properties close to existing airports. For example, in both **Germany** and **Sweden**, the operators of airports must compensate residential owners for soundproofing measures. In Sweden, the level of noise warranting insulation measures is decided for each airport by the local governing authority.

Other methods for limiting noise levels include the imposition of taxes or fines on airlines or airports that violate established noise thresholds. For example, **France** imposes a noise pollution

tax on airports that exceed set noise thresholds, and airports in **Sweden** and the **UK** apply noise charges or financial penalties to airlines for violations of indicated noise levels.

Other jurisdictions, such as **Italy**, have focused on creating vegetation and other sound barriers around airports to contain noise.

II. European Union

In the European Union (EU), aircraft noise is addressed in the following legislation: the Environmental Noise Directive (END) and Regulation (EU) No. 598/2014 on the Establishment of Rules and Procedures with Regard to the Introduction of Noise-Related Operating Restrictions at Union Airports within a Balanced Approach.¹ A regulation is in its entirety directly applicable in all EU Member States, whereas a directive must be transposed into national law by the Member States. Directives are only binding with regard to the goal that the EU countries must achieve; the means for achieving the goal are up to the individual Member States.²

END requires Member States to develop noise maps every five years to determine the exposure to environmental noise, make information on environmental noise and its effects available to the public, and adopt action plans based upon the noise-mapping results to manage noise issues and effects.³ Environmental noise includes noise emitted from air traffic, among other sources.⁴ END only applies to major civil airports, meaning airports with more than 50,000 movements a year.⁵ For the noise maps, two indicators are used: “Lden” for the overall noise level during the day, evening, and night, which is used to describe the annoyance caused by exposure to noise; and “Lnight” for the sound level during the night used to describe sleep disturbance.⁶ However, it is up to the Member States to set limits or target values, or to decide what measures to include in the action plans.

Regulation (EU) No. 598/2014 “lays down, where a noise problem has been identified, rules on the process to be followed for the introduction of noise-related operating restrictions in a consistent manner on an airport-by-airport basis . . . in accordance with the Balanced Approach.”⁷ The Balanced Approach is the standard for noise management agreed by the International Civil Aviation Organization (ICAO).⁸ The Regulation only applies to civil airports in Member States in

¹ Consolidated Version of the Environmental Noise Directive (END), 2002 O.J. (L 189) 12, <https://perma.cc/G3NE-78DQ>; Regulation (EU) No. 598/2014, 2014 O.J. (L 173) 65, <https://perma.cc/2YU5-QRBG>.

² Consolidated Version of the Treaty on the Functioning of the European Union (TFEU), art. 288, paras. 2, 3, 2016 O.J. (C 202) 47, <https://perma.cc/4FWQ-996H>.

³ END art. 1.

⁴ Id. art. 3, point (a).

⁵ Id. art. 3, point (p), arts. 7, 8.

⁶ Id. art. 3, points (f), (g); arts. 5, 7.

⁷ Regulation (EU) No. 598/2014, art. 1, para. 1.

⁸ *Aircraft Noise. Balanced Approach to Aircraft Noise Management*, ICAO, <https://perma.cc/23QA-42E6>.

which an airport with more than 50,000 civil aircraft movements per calendar year is located.⁹ Noise levels at airports must be regularly monitored.¹⁰ However, the Regulation does not set specific noise thresholds; that competence remains with the national and local authorities of the EU Member States.

Finally, it should be noted that the European Commission's *Flightpath 2050* report stated that the goal for 2050 is to have reduced the perceived noise emission of flying aircraft by 65% in comparison to the year 2000.¹¹

III. Individual Country Surveys

France

French rules on airport noise are principally based on international standards, such as Annex 16 of the Convention on International Civil Aviation, and European Union regulations, such as the Environmental Noise Directive and Regulation (EU) No. 598/2014.¹² However, the principles laid out in these texts are implemented by means of several laws and regulations at the national level. These laws and regulations fall into four main themes: urban zoning rules to limit the number of people exposed to airport noise pollution, operating procedures to limit noise pollution to the extent possible, operating restrictions, and taxation.

The areas surrounding airports that are exposed to aircraft noise pollution are subject to special land-use zoning rules.¹³ The construction of housing in the zones deemed most exposed to aircraft noise is prohibited, with limited exceptions for housing directly related to industrial, commercial, or agricultural activities authorized in these zones.¹⁴ The renovation or alteration of pre-existing housing in these zones are only allowed if they do not increase the number of inhabitants exposed to noise. In zones that are deemed moderately exposed to airport noise, only individual homes may be constructed, so long as they are built in areas that are already urbanized and served by existing infrastructure, and so long as their construction will not cause a large increase in the number of inhabitants exposed to airport noise.¹⁵

Airports are subject to special approach rules. "Environmental protection spaces" are defined for each airport, and aircraft must stay within these defined spaces during landing and takeoff.¹⁶

⁹ Regulation (EU) No. 598/2014, art. 1, para. 3, art. 2, point (2).

¹⁰ Id. art. 6.

¹¹ European Commission, *Flightpath 2050: Europe's Vision for Aviation Report of the High Level Group on Aviation Research* 15 (2011), <https://perma.cc/HY5J-LTU5>.

¹² *La réglementation*, Bruitparif, <https://perma.cc/2BY7-6NBR>.

¹³ Code de l'urbanisme art. L112-3, <https://perma.cc/ES78-WS5T>.

¹⁴ Id. art. L112-10.

¹⁵ Id.

¹⁶ Code des transports art. L6362-1, <https://perma.cc/82V4-6729>.

Additionally, the government may place operating restrictions on specific airports to limit noise pollution.¹⁷ For example, the airport of Paris-Charles-de-Gaulle is subject to several operating restrictions, such as the prohibition on takeoffs and landings by certain categories of aircraft between certain times, limitations on the number of takeoff/landing timeslots during nighttime, or the prohibition on flights turning northwards immediately after takeoff during nighttime.¹⁸ Several other large French airports are subject to similar restrictions.¹⁹ The decision to impose restrictions is based on several factors, such as the airport's location and the balancing of environmental concerns against economic considerations.²⁰

The French government imposes a noise pollution tax on airports that meet or exceed certain criteria regarding the number of flights and the takeoff weight of the aircraft that use them.²¹ The proceeds of this tax are to be used to subsidize noise insulation work done by local inhabitants.²²

Germany

In Germany the protection against aircraft noise is addressed in two laws: the Air Traffic Act and the Aircraft Noise Act.²³ In addition, there are several regulations implementing the two laws.

The Air Traffic Act requires authorities to take aircraft noise into account when the construction of a new airport or the expansion of an existing airport is requested.²⁴ The limits established in the Aircraft Noise Act must be complied with.²⁵ Measures to mitigate aircraft noise can only be taken in coordination with state and local authorities.²⁶ The Air Traffic Act also established two committees that advise the competent German Federal Ministries and the aviation authorities with regard to measures for the protection against aircraft noise.²⁷ Airport operators may set

¹⁷ Code de l'aviation civile art. R227-8, <https://perma.cc/9G49-GAPQ>.

¹⁸ Ministère de la Transition écologique et solidaire, *Paris Charles de Gaulle, Restrictions d'exploitation pour raisons environnementales* (Oct. 2018), <https://perma.cc/G66P-5MV3>.

¹⁹ *Aéroports: restrictions environnementales*, Ministère de la Transition écologique et solidaire, (Oct. 22, 2019), <https://perma.cc/9PM8-4E5D>.

²⁰ Code de l'aviation civile art. R227-9.

²¹ *Taxes aéronautiques, Taxe sur les nuisances sonores aériennes*, Ministère de la Transition écologique et solidaire (Jan. 20, 2020), <https://perma.cc/X4D3-Q9WK>; Code général des impôts art. 1609 quatervicies A, <https://perma.cc/L624-BCG3>.

²² *Taxes aéronautiques*, supra note 21; Code général des impôts art. 1609 quatervicies A.

²³ Luftverkehrsgesetz [LuftVG], May 10, 2007, Bundesgesetzblatt [BGBl.] I at 698, as amended, <https://perma.cc/QK3L-QKKS>; Gesetz zum Schutz gegen Fluglärm [FluLärmG], Oct. 31, 2007, [BGBl.] I at 2550, as amended, <https://perma.cc/U5P6-KVGA> (original), <https://perma.cc/H2CU-CH4P> (unofficial English translation, updated through Oct. 31, 2007).

²⁴ LuftVG, § 6, para. 2.

²⁵ Id. § 8, para. 1.

²⁶ Id. § 29, para. 1.

²⁷ Id. §§ 32a, 32b.

operating hours for their airports, which must be approved by the state aviation authorities.²⁸ The airports in Germany therefore have different operating hours, with some airports limiting or prohibiting nighttime flights. The restrictions set for the airport in Frankfurt were challenged in court.²⁹ As a result of the decision, flights between 11:00 p.m. and 5:00 a.m. are prohibited, and flights between 10:00 p.m. and 11:00 p.m. and between 5:00 a.m. and 6:00 a.m. are limited to approximately 133.

The Aircraft Noise Act aims to protect the public in general and neighborhoods surrounding the airport from hazards, significant disadvantages, and significant nuisances caused by airplanes.³⁰ It establishes noise protection areas for the areas surrounding civil and military airfields. The noise protection area of an airport is divided into two protective zones for the day and one protective zone for the night depending on the extent of the noise pollution.³¹ The noise from aircraft at airports may not exceed certain continuous sound levels during the day or certain continuous noise and maximum noise levels at night. There are different levels for new and existing airports. The levels set in the Aircraft Noise Act must be regularly evaluated in light of the state of the art and research in aviation and noise impact. The evaluations had to take place by 2017 at the latest and are then required at least every ten years thereafter.³²

Depending on the noise protection zone, certain building restrictions are in place. In general, no noise-sensitive buildings, such as hospitals and retirement homes, can be built in a noise protection zone. The same applies to the construction of schools and kindergartens in daytime protection zones. New dwellings cannot be constructed in a daytime protection zone 1 or in a nighttime zone.³³ For existing residential buildings located in these zones, airport operators must reimburse the costs for structural soundproofing measures.³⁴

Italy

Italy has adopted a number of laws and decrees related to airport noise,³⁵ two of which are particularly relevant.

²⁸ Id. § 6, § 25, para. 1, sentence 1, no. 3.

²⁹ Bundesverwaltungsgericht [BVerwG], Apr. 4, 2012, docket no. BVerwG 4 C 8.09, ECLI:DE:BVerwG:2012:040412U4C8.09.0, <https://perma.cc/24MC-PCT2>.

³⁰ FluLärmG, § 1.

³¹ Id. § 2, para. 2.

³² Id. § 2, para. 3.

³³ Id. § 5, para. 1, 2.

³⁴ Id. § 9, para. 1; § 12, para. 1.

³⁵ Decreto del Ministro dell' Ambiente n. 345 del 18 dicembre 2018 di approvazione del Piano degli interventi di contenimento ed abbattimento del rumore dell'aeroporto G.B. Pastine di Ciampino, <https://perma.cc/9RHN-NUBZ>; Decreto Legislativo 19-8-2005 n. 194, Attuazione della direttiva 2002/49/CE relativa alla determinazione e alla gestione del rumore ambientale, <https://perma.cc/6M46-MTKA>; Decreto Legislativo 17-1-2005 n. 13, Attuazione della direttiva 2002/30/CE relativa all'introduzione di restrizioni operative ai fini del contenimento del rumore negli aeroporti comunitari, <https://perma.cc/7XSN-3W5G>; Decreto Ministeriale 29/11/2000, Criteri per la predisposizione da parte delle società e degli enti gestori dei servizi pubblici di trasporto o delle relative infrastrutture, dei piani degli interventi di contenimento e abbattimento del rumore,

The Ministerial Decree issued on October 31, 1997, regulates the methodology for the measurement of noise at civil airports and in military airports limited to civilian traffic.³⁶ In particular, the Decree establishes the criteria for measuring the noise emitted by aircraft during airport activities;³⁷ the procedures for adopting airport noise-reduction measures, classifying airports in relation to the level of noise pollution, and defining the characteristics of monitoring systems;³⁸ and the criteria for identifying “areas of respect” (*zone di rispetto*) for airport areas and activities, including factors that regulate urban planning in areas of respect.³⁹ Under the Decree, Italy’s 20 regions regulate the modalities required for the submission of acoustic impact documentation to the National Civil Aviation Authority (NCAA) for those areas where landings and takeoffs of aircraft used for pleasure or sport take place.⁴⁰ The provisions of the Decree do not apply to the noise produced in the performance of air emergency activities, or related to public safety, first aid and civil protection activities.⁴¹

The 1997 Decree establishes a noise assessment index for the purpose of verifying compliance with permissible airport noise levels.⁴² The procedures for determining such values are set forth in two annexes attached to the Decree.⁴³

The Decree also created two commissions to develop the applicable general criteria and definitions concerning noise abatement procedures in all airport activities, in areas of respect, and in other areas.⁴⁴ In turn, the NCAA must establish, for each airport open to civilian traffic, a commission chaired by the director of the airport district and composed of a representative for each of the following entities: the region, province, and municipalities involved; the Regional Environmental Protection Agency; and the National Flight Assistance Authority, air carriers, and

<https://perma.cc/B9FR-Q62W>; Decreto Ministeriale 3/12/1999, Procedure e zone di rispetto negli aeroporti, <https://perma.cc/7MUJ-KMW8>; Decreto del Presidente del Consiglio dei Ministri 5/12/1997, Determinazione dei requisiti acustici passivi degli edifici, <https://perma.cc/2DYJ-S5C4>; Decreto del Presidente della Repubblica 11/12/1997, n. 496, Regolamento recante norme per la riduzione dell'inquinamento acustico prodotto dagli aeromobili civili, <https://perma.cc/WW35-7EBJ>; Decreto del Presidente del Consiglio dei Ministri 14/11/1997, Determinazione dei valori limite delle sorgenti sonore, <https://perma.cc/8MLW-P8HS>; Decreto Ministeriale del 31/10/1997, Metodologia di misura del rumore aeroportuale, <https://perma.cc/MYY6-N2M2>; Legge 26/10/1995, n. 447, Legge quadro sull'inquinamento Acustico, <https://perma.cc/GNE6-PMGP>.

³⁶ Ministerial Decree 31/10/1997 art. 1.

³⁷ Id. art. 1(1)(a).

³⁸ Id. art. 1(1)(b).

³⁹ Id. art. 1(1)(c).

⁴⁰ Id. art. 1(2).

⁴¹ Id. art. 1(3).

⁴² Id. art. 3(1).

⁴³ Id. art. 3(2), referring to Annex A (“Airport Noise Assessment”), and Annex B (“Instrumentation and Method of the Measurement for the Acoustic Characterization of the Airport Surroundings”).

⁴⁴ Id. art. 4(1).

airport management companies.⁴⁵ The purpose of these local commissions is to establish an “anti-noise procedure” for their respective airports.⁴⁶ The commissions must define the boundaries of three areas of respect—Zones A, B, and C—based on the airport regulatory plan, the territorial and urban planning tools in force, and the applicable noise abatement procedures.⁴⁷

Entities in charge of determining the level curves and noise reduction procedures and managing monitoring systems must be granted access to information on the flight paths of civilian aircraft at the respective airport.⁴⁸

The Ministerial Decree of December 3, 1999, includes additional anti-noise provisions applicable to air carriers and airports:

- Carriers must implement noise-abatement procedures for aircraft maneuvers in the air.⁴⁹
- Anti-noise procedures must optimize ground projections of routes to protect the exposed populations,⁵⁰ noise-reducing routes must be used during take-off and landing,⁵¹ and the use of thrust reversal must be within permissible limits.⁵²
- Each airport must define areas appropriate for the testing of engines.⁵³
- Anti-noise procedures must be defined for each airport open to civilian traffic according to the applicable regulations.⁵⁴

The regional authority regulating Rome’s airports—Aeroporti di Roma—has adopted a series of noise-mitigation measures over time, including the creation of artificial dunes, installation of vegetation barriers, creation of “fast exits” on a particular runway, and incorporation of soundproofing barriers into the area used to test engines.⁵⁵

Portugal

Portugal’s framework for airport noise regulation consists of three legal instruments: Decree-Law No. 9, Decree-Law No. 293, and EU Regulation No. 598/2014.

⁴⁵ Id. art. 5(1).

⁴⁶ Id.

⁴⁷ Id. art. 6(1).

⁴⁸ Id. art. 6(5).

⁴⁹ Ministerial Decree 3/12/1999, *supra* note 35, art. 3(1).

⁵⁰ Id. art. 3(2)(a).

⁵¹ Id. art. 3(2)(b).

⁵² Id. art. 3(2)(e).

⁵³ Id. art. 3(3).

⁵⁴ Id. art. 3(4).

⁵⁵ *Rumore Aeroportuale*, Aeroporti di Roma, <https://perma.cc/BU5F-5MBZ>.

Decree-Law No. 9 of January 17, 2007, approved the General Noise Regulation, which establishes a regime for the prevention and control of noise pollution, with a view to safeguarding human health and the well-being of the population.⁵⁶ This Regulation applies to permanent and temporary noisy activities and other sources of noise that may cause discomfort, including, but not limited to, transportation infrastructure, vehicles, and traffic.⁵⁷

According to article 11, depending on the classification of an area as “mixed” or “sensitive,” the following exposure limit values must be respected:

- a) Mixed areas must not be exposed to external ambient noise above 65 dB(A), expressed by the L indicator (den index), and greater than 55 dB(A), expressed by the indicator L (n index);
- b) Sensitive areas must not be exposed to outside ambient noise above 55 dB(A), expressed by the L indicator (den index), and greater than 45 dB(A), expressed by the indicator L (n index).⁵⁸

At airports and airfields not covered by Decree-Law No. 293 of November 11, 2003, the landing and take-off of civil aircraft between 12:00 a.m. and 6:00 a.m. is prohibited, except for reasons of a *force majeure*.⁵⁹

In order to ensure compliance with the exposure limit values set out in article 11, a joint act of the members of the government responsible for transportation and the environment may authorize the landing and take-off of civil aircraft between 12:00 a.m. and 6:00 a.m. at airports and airfields that have a specific system for monitoring and simulating air traffic noise. That system must allow the airport to characterize the surroundings in relation to the L(den index) and L(n index) and determine the maximum number of landings and take-offs between 12:00 a.m. and 6:00 a.m.⁶⁰

Decree-Law No. 293 of November 11, 2003, transposed into Portugal’s domestic law Directive 2002/30/EC, of the European Parliament and of the Council, of March 26, on the establishment of rules and procedures for the introduction of noise-related operating restrictions at community airports.⁶¹

The provisions of Decree-Law No. 293 apply to commercial air transport and general aviation.⁶² It applies only to civil aircraft,⁶³ with the exception of state aircraft, emergency medical and fire

⁵⁶ Decreto-Lei No. 9/2007, de 17 de Janeiro, art. 1, <https://perma.cc/FK2W-7Z85>.

⁵⁷ Id. art. 2(1)(e).

⁵⁸ Id. art. 11(1) (translation by author). Article 3 defines, among other things, “mixed” and “sensitive” areas, the various indicators and indexes, and “transportation infrastructure.”

⁵⁹ Id. art. 20(1).

⁶⁰ Id. art. 20(2).

⁶¹ Decreto-Lei No. 293/2003, de 19 de Novembro, art. 1(1), <https://perma.cc/X8QE-CPN7>.

⁶² Id. art. 1(2).

⁶³ Id. art. 1(3).

flights, and head-of-state flights.⁶⁴ “State aircraft” are those used in military, customs, and police services.⁶⁵

Article 3 of Decree-Law No. 293 defines “airport” as a civilian airport whose traffic exceeds 50,000 movements per year of civil subsonic propulsion aircraft (“movement” being understood as a landing or take-off), taking into account the average of the last three years that preceded the application of Decree No. 293’s provisions to the airport in question.⁶⁶

Regulation (EU) No. 598/2014 on the Establishment of Rules and Procedures with Regard to the Introduction of Noise-Related Operating Restrictions at Union Airports within a Balanced Approach revoked Directive 2002/30/EC.⁶⁷ “Airport” is defined by the Regulation as an airport whose traffic exceeds 50,000 movements of civil aircraft per calendar year, based on the average movements over the past three years preceding the noise assessment.⁶⁸

Spain

In Spain, Law 37/2003 on Noise,⁶⁹ implemented by Royal Decree 1513/2005,⁷⁰ provides the general legal framework for the management of environmental noise, transposing EU Directive 2002/49/CE.⁷¹ Additionally, Royal Decree 1367/2007 enacted regulations on noise zoning and acoustic emissions, establishing maximum limits for noise emissions applicable to airports, considering the type of use given to the surrounding land, such as residential, recreational, industrial, or agricultural.⁷²

Under Law 37/2003 and its implementation under Royal Decrees 1513/2005 and 1367/2007, airports are required to develop Strategic Noise Maps (SNMs) to evaluate the overall exposure to noise in a given area due to the existence of different sources of noise.⁷³ An SNM must be created and reviewed every five years for major airports, which are those civil airports exceeding 50,000 commercial movements a year.⁷⁴ Aeropuertos Españoles y Navegación Aérea (AENA) is the

⁶⁴ Id. art. 1(4).

⁶⁵ Id. art. 1(5).

⁶⁶ Id. art. 3.

⁶⁷ Regulamento (UE) No. 598/2014 do Parlamento Europeu e do Conselho de 16 de Abril de 2014, art. 15, 2014 O.J. (L 173) 65, <https://perma.cc/5T85-X8CA>.

⁶⁸ Id. art. 2(2).

⁶⁹ Ley 37/2003, Boletín Oficial del Estado [B.O.E.], Nov. 18, 2003, <https://perma.cc/79HB-X362>.

⁷⁰ Real Decreto 1513/2005 Regula Ley 37/2003, B.O.E., Dec. 17, 2005, <https://perma.cc/4LF7-ESNZ>.

⁷¹ EU Directive 2002/49/CE, 2002 O.J. (L 189) 12, <https://perma.cc/5G85-B73C>.

⁷² Real Decreto 1367/2007 en lo referente a Zonificación Acústica, Objetivos de Calidad y Emisiones Acústicas, arts. 24-25 & Annex III, Table A1, B.O.E., Oct. 19, 2007, <https://perma.cc/RQ8L-SEL7>.

⁷³ Ley 37/2003, art. 15.3; Real Decreto 1513/ 2005, arts. 5-9; Real Decreto 1367/2007, art. 32.

⁷⁴ Real Decreto 1367/2007, art. 24.

state-owned company that manages and operates Spanish airports. It provides all the SNMs of Spanish airports on its website.⁷⁵

Regarding specific airport noise regulations, Law 21/2003 on Air Safety provides that airport regulations, including noise levels and restrictions for air travel, are to be issued through *Circulares aeroportuarias* (administrative regulations) applicable to each airport, considering its location and surrounding areas.⁷⁶ Each *circular aeroportuaria* establishes specific restrictions on the conduct of air traffic and airport operations in order to reduce their acoustic impact on the environment.⁷⁷ For example, at Madrid-Barajas Airport in Spain's capital, Circular 2/2006, of July 26, 2003, issued by the General Directorate of Civil Aviation, provides specific rules applicable to the airport for the configuration of flights and air routes according to applicable environmental standards, including rules and procedures for air traffic noise.⁷⁸ The Circular specifies the conditions for the use of airport runways and the instruments required, depending on day or night landings and takeoffs.⁷⁹ It also sets forth the general procedure for taxiing, moving, and parking aircraft, with restrictions between 11:00 p.m. and 7:00 a.m. on certain runways.⁸⁰

AENA has adopted measures aimed at reducing the problems that noise causes for people in the areas surrounding airports. These measures are based on the "balanced approach" adopted by the International Civil Aviation Organization (ICAO) in Resolution of Assembly A33-7 of October 2001, which was ratified by Resolution A36-2 of September 2007.⁸¹ The balanced approach is based on four components: reduction of noise at the source, land-use planning and management, noise-reduction procedures and operations, and restrictions on aircraft operations.⁸²

Sweden

Sweden is a Member of the European Union (EU) and thus bound by EU law pertaining to airport noise.⁸³ In addition, Sweden regulates noise at airports in national legislation and regulations.⁸⁴ As required by EU law, Sweden has adopted all four of the core elements of the International

⁷⁵ *Strategic Noise Maps*, AENA, <https://perma.cc/VLN4-M8TG>.

⁷⁶ Ley 21/2003 de Seguridad Aérea, art. 8, B.O.E., July 8, 2003, <https://perma.cc/C9NS-M54D>.

⁷⁷ *Id.*

⁷⁸ Dirección General de Aviación Civil, Circular 2/2006, of July 26, 2003, por la que se Establece n Procedimientos de Disciplina de Tráfico Aereo en Materia de Ruido en el Aeropuerto de Madrid-Barajas, <https://perma.cc/U8ZM-7KBJ>.

⁷⁹ *Id.* art. 1.

⁸⁰ *Id.* art. 2.

⁸¹ *Noise pollution*, AENA, <http://www.aena.es/en/corporate/noise-pollution.html>.

⁸² *Id.*

⁸³ Specifically, the Consolidated Version of the Environmental Noise Directive (END), 2002 O.J. (L 189) 12, <https://perma.cc/G3NE-78DQ>, and Regulation (EU) No. 598/2014, 2014 O.J. (L 173) 65, <https://perma.cc/2YU5-QRBG>. For further information see the EU survey in this report.

⁸⁴ Lag (2000:150) om marktjänster på flygplatser, <https://perma.cc/3L7E-BAY7>; 6 § Förordning (2004:675) om omgivningsbuller, <https://perma.cc/JR96-G6PE>; Lag (2011:866) om flygplansavgifter, <https://perma.cc/V6SX-C9WD> (implementing EU Directive 2009/12/EU).

Civil Aviation Organization (ICAO) “balanced approach.”⁸⁵ This requires Sweden to take a combination of measures to reduce noise pollution from airports, including “reduction of noise at source,” “land-use planning and management policies,” “noise abatement operational procedures,” and “operating restrictions on aircraft.”⁸⁶

Conforming with EU law, Sweden requires noise levels to be evaluated every five years for airports with more than 50,000 airport events and that the responsible authority (Trafikverket) create a noise map of impacted areas and issue a report on measures undertaken to counter noise pollution.⁸⁷ All measurements of air pollution must be done using one of three international standards of testing: Nordtest ACOU 075, ISO 3891, or ISO 20906:2009.⁸⁸

Swedish airports measure airport noise in three categories—6:00 a.m. to 6:00 p.m. (daytime), 6:00 p.m. to 10:00 p.m. (evening), and 10:00 p.m. to 6:00 a.m. (night)⁸⁹—and has different noise thresholds and operations restrictions for each timeframe. For example, between 10:00 p.m. and 6:00 a.m., “departing traffic may not leave [the special flight path] between Upplands Väsby and Vallentuna before the airplane has reached a height of 3,050 meters [10,000 feet].”⁹⁰ Between 10:00 p.m. and 6:00 a.m. there are also restrictions on how an airplane may approach landing (except in an emergency).⁹¹ Sound levels are measured in FBN (*Flygbuller*) and all sound calculations are added with five units between 6:00 p.m. and 10:00 p.m. and with ten units between 10:00 p.m. and 6:00 a.m., to account for the greater disturbance created by airport noise at these times.⁹²

Swedish airports also collect a “noise charge” from airlines that exceed the set noise thresholds.⁹³ These charges are specific to each airport, as well as to each type of transportation.⁹⁴ For example, the highest charges are for noise violations at the smaller Bromma City Airport, located closer to Stockholm City and in a more densely populated area.⁹⁵ Moreover, Arlanda Airport uses “green

⁸⁵ *Aircraft Noise – Balanced Approach to Aircraft Noise Management*, ICAO, <https://perma.cc/29G9-PG2J>. The EU adopted the balanced approach in 2002. *Airports*, EASA, <https://perma.cc/Y22B-BYK4>.

⁸⁶ *Airports*, EASA, *supra* note 85.

⁸⁷ 6 § and 8a § Förordning (2004:675) om omgivningsbuller, <https://perma.cc/JR96-G6PE>. For an example of a noise map see the noise impact map for Arlanda, Sweden’s largest airport, on the Swedavia Airports website, <https://perma.cc/H28B-V8EK>.

⁸⁸ *Beräkning och mätning av flygbuller*, Transportstyrelsen, <https://perma.cc/ESC4-M562>.

⁸⁹ *Stockholm Arlanda Airport, För grannar*, Swedavia Airports, <https://perma.cc/3UAA-4NVY>.

⁹⁰ *Id.*

⁹¹ *Id.*

⁹² *Id.*

⁹³ See Swedavia AB, *Airport Charges & Conditions of Services: Valid from 15 January 2020*, at 9-10, <https://perma.cc/R5VK-92K3>.

⁹⁴ *Id.*

⁹⁵ *Id.* at 9.

flight patterns” whereby the airplane glides the final stretch as it approaches the airport, in an effort to reduce noise pollution.⁹⁶

Sweden restricts the building of both residential buildings and office spaces near existing airports.⁹⁷ Airport operators are also responsible for insulating existing properties from airport noise. However, what level of noise warrants insulation measures is decided on a case-by-case basis by the relevant County Administrative Board.⁹⁸ For example, homes located near Arlanda Airport are insulated if the maximum noise level for both day and night is regularly exceeded, or if the night levels are exceeded at least three times a night for 150 days, and the current insulation of the home does not bring the indoor noise level down to the target level.⁹⁹

United Kingdom

The aim of the UK government’s Aviation Policy Framework is to balance the economic benefit of high-volume flights into the UK with “[limiting], and where possible, reduc[ing] the number of people in the UK significantly affected by aircraft noise.”¹⁰⁰ In line with the EU Regulations, it has adopted a balanced approach¹⁰¹ towards aircraft noise levels that includes supporting the aircraft industry to develop quieter aircraft, supporting airport operators in enforcing noise policies, and careful management of UK airspace.¹⁰²

With the exception of the UK’s busiest airports—Heathrow, Gatwick, and Stansted—which are known as designated airports and handled by the Secretary of State, the government’s policy is that noise issues should be handled at the local level by the relevant local authority and the airport operator. This is reflected in the various laws that regulate aircraft noise.

The Civil Aviation Act (CAA) 1982, the main statute regulating the noise of aircraft,¹⁰³ provides that airport operators may establish and maintain noise control plans with the aim of avoiding, limiting, or mitigating the noise of aircraft that take off or land at airports. Such plans may

⁹⁶ *Hållbarhetsarbete*, LfV, <https://perma.cc/D5LR-RD7J>; see also Press Release, SAS Group, SAS först med kurvade inflygningar i daglig flygverksamhet på Stockholm-Arlanda, SAS (May 6, 2010), <https://perma.cc/5NRA-UXBH>.

⁹⁷ 2 kap. 5 § 1 st. 4p and 2 kap. 6a § 2 st. Plan- och Bygglag (PBL) (2010:900), <https://perma.cc/V2LE-4M6U>; SOU 2019:68 Modernare byggregler- förutsägbart, flexibelt och förenklat, <https://perma.cc/NZ78-EJ9C>.

⁹⁸ Per Leino, *Swedavia vill inte ha ny bullergräns*, Hela Gotland (Dec. 15, 2018), <https://perma.cc/2BQQ-PEKK>.

⁹⁹ *Stockholm Arlanda Airport, För grannar*, supra note 89.

¹⁰⁰ 608 Parl. Deb. H.C. (6th ser.) (2016) 341WH <https://perma.cc/6UN5-H5WS>.

¹⁰¹ Airports (Noise-related Operating Restrictions) (England and Wales) Regulations 2018, SI 2018/785, <https://perma.cc/374R-LTYW>.

¹⁰² Department for Transport, *UK Airspace Policy: A Framework for Balanced Decisions: on the Design and Use of Airspace* (2017) <https://perma.cc/J662-6D2B>.

¹⁰³ Civil Aviation Act 1982 c. § 78, <https://perma.cc/DJH7-FDUC>. This is a devolved area and Scottish Ministers are responsible for aircraft in Scotland.

- require aircraft operators to comply with certain requirements prior to taking off or landing at the airport;
- prohibit specified aircraft from taking off or landing during specified periods;
- specify the maximum number of occasions that specified aircraft may take off or land during specified periods;
- impose other restrictions to limit the amount of noise caused by aircraft during specified periods.¹⁰⁴

The Secretary of State may also limit or mitigate the impact of aircraft noise at the three airports listed above¹⁰⁵ by providing directions to the managers of these airports to avoid, limit, or mitigate the effect of noise either generally or in a particular airway, including by limiting runway or aircraft use for a period of time to provide relief to local residents.¹⁰⁶ The Secretary of State may also require the managers of designated airports to install, operate, and maintain noise-measuring equipment and provide any reports relating to this equipment that he or she may specify.¹⁰⁷ While these airports do not typically schedule flights during nighttime hours (between 11:30 p.m. and 6:00 a.m.), they do permit a limited number of flights to operate during this time using a quota system, provided the aircraft is a design that operates below a certain noise level.¹⁰⁸ The number of flights per day and at night at other airports are made by the local authorities when they provide permission for the construction or expansion of an airport and by the managers of these airports.¹⁰⁹

Airport operators have the ability to charge aircraft operators for using their airports and may factor in the noise of any aircraft used in calculating these charges. The implementation of any charges relating to noise must be for the purposes of encouraging the use of quieter aircraft to reduce the inconvenience from aircraft noise, controlling noise in the areas surrounding airports, and promoting compliance with any noise limits.¹¹⁰ Airport operators may also impose penalties on aircraft operators for breaches of the airport's noise control plan. Any payments received under the plan must be used for the benefit of persons living near the airport.¹¹¹

Section 78A of the CAA 1982 enables managers of designated airports to impose financial penalties on any aircraft operator who breaches noise abatement requirements that the Secretary of State has made. Any penalties the managers receive must likewise be used "for the benefit of

¹⁰⁴ Id. § 38A.

¹⁰⁵ Id. § 78.

¹⁰⁶ Id. § 38A. See also Civil Aviation Act 2012, Explanatory Notes, ¶ 19, <https://perma.cc/6VVA-B5TH>.

¹⁰⁷ Civil Aviation Act 1982 c. § 78.

¹⁰⁸ Department for Transport, *Night Flight Restrictions at Heathrow, Gatwick and Stansted Decision Document*, (2017), <https://perma.cc/YEX8-6J9C>. See also Department for Transport, *UK Airspace Policy*, *supra* note 102, ¶ E.19.

¹⁰⁹ Civil Aviation Act 1982 c. § 38, <https://perma.cc/DJH7-FDUC>.

¹¹⁰ Id.

¹¹¹ Id. § 38C.

persons who live in the area” surrounding the airport.¹¹² In addition, the Secretary of State may provide grants towards the cost of sound-proofing buildings located near a designated airport.¹¹³

The Civil Aviation Authority, the UK’s aviation regulator is responsible for regulating airspace over the UK, including traffic routes used by aircraft to fly in and out of airports. Any changes to how UK airspace is used must follow procedures set by the Authority, which has a duty to consider a number of factors the government has established when deciding whether or not to approve such changes, including the noise level of aircraft along with the safety and efficiency of the airspace when determining whether a proposed route is acceptable.¹¹⁴ When exercising the duties relating to aviation, both the Secretary of State and the Authority have a general duty to ensure that each license holder is able to take reasonable measures to mitigate adverse environmental effects (including noise) at the airport for which they are licensed.

In addition to the above measures, the government has established the Independent Commission on Civil Aviation Noise (ICCAN) as a “non-statutory, advisory body created to provide independent, impartial advice to government, regulators and the UK aviation industry.”¹¹⁵

¹¹² Id. § 78.

¹¹³ Id. § 79.

¹¹⁴ *Noise*, Civil Aviation Authority, <https://perma.cc/YJ2E-XNPA>.

¹¹⁵ ICCAN, <https://perma.cc/9CJK-NMQ5>.