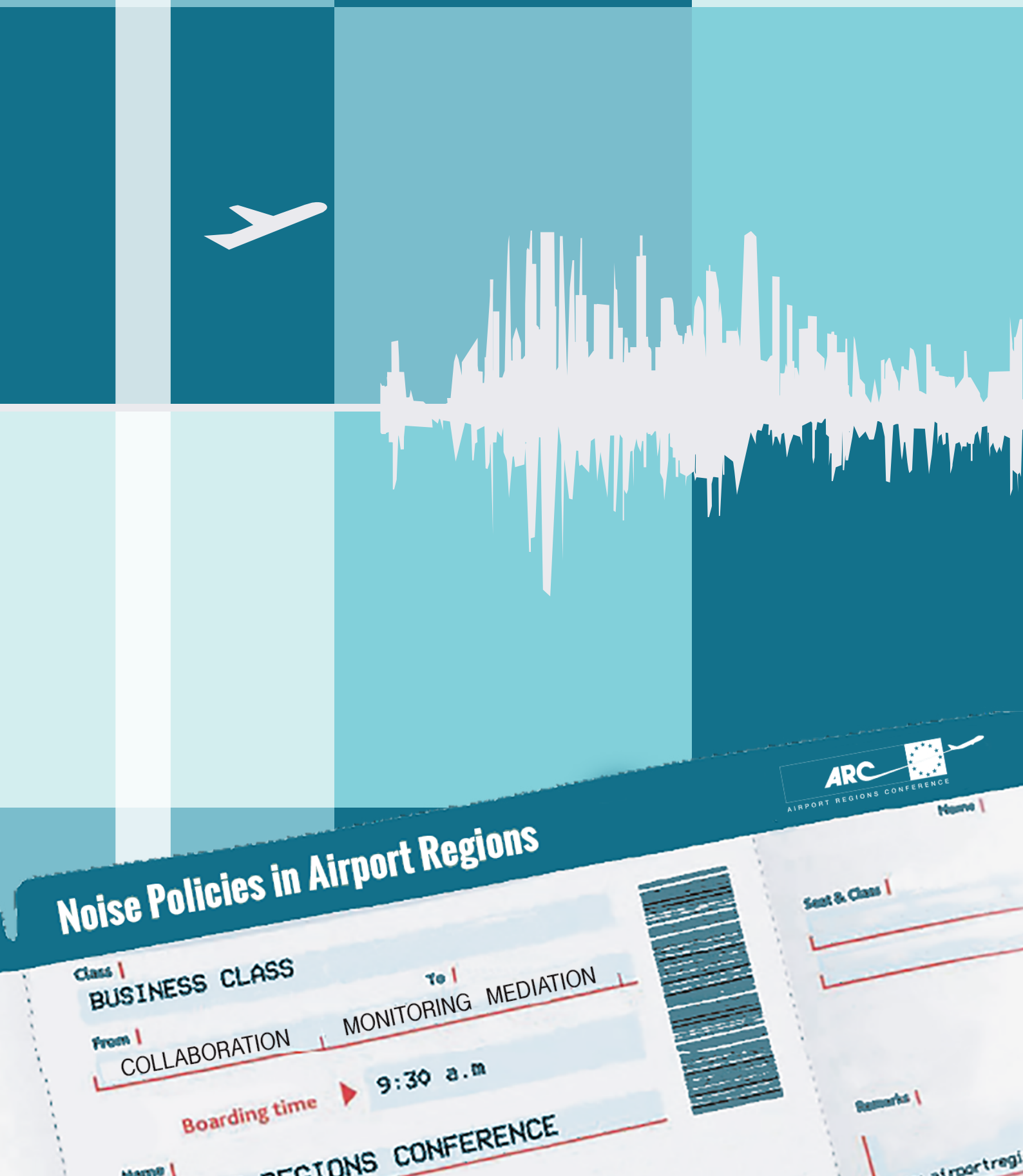
# PROCEEDINGS

November 2017



# Noise Policies in Airport Regions

Edited by
Airport Regions Conference

Conference organised by
Airport Regions Conference

Noise Policies in Airport Regions
Proceedings of Conference, 20 November 2015

## About the Airport Regions Conference

The Airport Regions Conference (ARC) is an association of regional and local authorities across Europe with an international airport situated within or near their territory.

The ARC brings together a wide range of expertise at the interface of air transport and local and regional policies. A common concern is to balance the economic benefits generated by the airports against their environmental impact, notably the effect on the quality of life of local residents.

The members exchange best practices through the ARC network and reflect together on policy challenges ahead. As such the ARC also serves as a platform to express members' interests to the European Institutions.

# Contents

# Welcome words

## Sergi Alegre

*ARC President, Vice Mayor El Prat de Llobregat*

Airports are an intrinsic part of the society: they have both social and economic impacts on the communities surrounding them and on their inhabitants. For passengers, airports are the symbol of inter-regional and global connectivity. For residents, however, an airport might be a threat to their quality of life. Hence noise is the foremost concern of residents. Even though its impact on the environment is not a lasting one, the adverse effects it has on the residents' health are significant and noise immediately triggers reactions. As such, noise is the main threat to aviation growth.

For a long time, this was an unspoken truth. An elephant in the room. The aviation industry, and to some extent some regulators, were unable to mention noise as a serious concern not only to the residents, but also to the industry itself. Mentioning noise was a taboo. I am proud that the ARC has helped through the years to break this taboo, to put the topic on the table. As one of the participants to our conference said «We are talking about noise, and yet the sun still rises every morning». We are now able to have passionate debates about noise, and we can look together for solutions.

That was the purpose of the conference that the ARC held in Brussels on the 20th November 2015. A new airport noise regulation (Regulation EU No 598/2014 of the European Parliament and of the Council of 16 April 2014 on the establishment of rules and procedures regarding the introduction of noise-related operating restrictions at Union airports within a Balanced Approach and repealing Directive EC No 30/2002) was due to come into force in June 2016. We felt the need to analyse the impact this regulation has on cities and regions.
I am grateful for the productive encounter that we had in Brussels and I am hopeful that a better regulatory framework will help airport regions in combatting aircraft noise. I wish you a fruitful reading.

## Joachim WEMPE

*ARC interest Group leader*

Airports have an important role to play in the everyday life of Airport Regions: be it an economic role or a social role. It is equally important to acknowledge the environmental impacts that they have. Amongst these, airports impact residents' health, their quality of life and crystallise opposition to aviation.

For this, reason, it is important, now more than ever, to provide a legal framework on airport noise that allows for proper consideration of residents' legitimate concerns.

The purpose of the day is to envisage altogether the impact Regulation 598/2014 will have on regions and cities and also to lay the ground for future reflection on the topic. This Regulation will come into force in June 2016 and it will provide clarity and a working framework for actions related to fighting noise.

# A proactive noise management: the EU at the service of national decision-makers


## Koen de Vos

*Policy Officer, DG for Mobility and Transport, European Commission*


Noise is a strong societal problem, calling for an answer from the European Union: four million people in Europe are subject to airport noise levels that are above 55db. Noise is not only an annoyance; it is a health threat factor.

## The ICAO and European frameworks

The European Union can only intervene within the legal framework given at international level by International Civil Aviation Organization (ICAO) (the so called balanced approach) and by the European legal framework (principle of subsidiarity).

Moreover, fighting noise requires taking into account the existing interdependencies (environmental interdependencies: emissions and local air quality) and system capacity.

The ICAO balanced approach defines four pillars that can be used for the implementation of noise policies:

1. Limitation of noise at source i.e. the use of quieter aircraft

This is implemented in Europe through the ICAO noise standards and the interdiction of the noisiest aircraft. Aircraft operating in member states must conform to these standards, which are known as Chapters. The Chapters set maximum acceptable noise levels for different aircraft during landing and take-off.

EU specific legislation regarding limiting noise at source by use of quieter aircraft:

- Directive 93/2006 on the regulation of the operation of aeroplanes;
- Regulation 598/2014 on the establishment of rules and procedures with regard to the introduction of noise-related operating restrictions at Union airports;
- Clean Sky Joint Undertaking – EU funded research body on the contribution of new technologies to the reduction of noise pollution;

2. Optimize aircraft trajectories & procedures

Implementation of the European ATM Master Plan containing for example the implementation of high precision, low thrust, curved approaches avoiding noise sensitive areas, prepared by Single European Sky ATM Research (SESAR) Joint Undertaking.

3. Land use

Land use is understood as a means to keep distance from the airport area:

- avoiding residential building;
- insulation and compensation programme.

4. Operating restrictions

- This is done in Europe through Regulation 598/2014;
- The Regulation allows for direct application within all the Member States; it provides a framework for action but does not allow for European intervention on individual situations and measures;
- Nonetheless, by providing a common framework, the regulation aims to ensure some level-playing fields between the different airports.

# Implications of the regulation 598/2014 from the perspective of a regional authority: Hessen, Germany (Frankfurt Airport)

**Regine Barth**

*Head of Department, Aircraft Noise Management, Ministry for Economics, Energy, Transport and Regional Development (HMWEVL), State of Hessen*

In our region, there is quite a lot of concern among the local citizens that regulation 598/2014 will restrict the regional ministry as the competent authority for Frankfurt Airport in its noise policies. It was even feared that the existing night flight ban for Frankfurt Airport (between 23:00 - 05:00) would need to be recalled due to the Regulation. However, all of these fears are unfounded when the regulation is properly analysed. It is important to explain this to affected citizens, both at a local level as well as at EU level.

Another reason for the regional authority (HMWEVL) to scrutinise the regulation was due to the intention of the government of the Land of Hessen to implement a noise limit (a ceiling) at Frankfurt Airport to limit future noise. In addition to a number of different existing instruments to manage aircraft noise and its effects, this limit shall strengthen trust that there will be no uncontrolled increase of noise exposure when air traffic in Frankfurt grows as foreseen.

## The state of play at Frankfurt airport: the stakeholders dialogue

The land of Hessen started to fund and strengthen the Stakeholder Dialogue in 1998, firstly with a mediation process, then with a 'Regional Dialog-Forum' and now with a "Forum airport and region".

Participants are municipalities, airport, airlines, air traffic control, public authorities, experts and associations. The forum focusses on non-binding measures, especially the development of noise

abatement procedures, noise evaluation and noise monitoring.

Another important project was the commissioning of the 'NORAH Study', a large scientific study on traffic noise impacts (more information: www.laermstudie.de) which was published in October 2015.

Also, another important form of dialogue and consultation for decision-makers is foreseen by national law prior to all major decisions of HMWEVL, German ATC and the National Supervising Authority for ATC. For legal procedures and binding measures, such as formally implementing new Air Traffic Control procedures, the "Aircraft Noise Commission" prescribes the consultation of stakeholders, especially municipalities and counties.

## State of Play at Frankfurt airport: the active noise abatement (reduction of noise at source)

A number of measures are taken in order to limit the noise at the source, directly from the aircraft.

Some airlines (Lufthansa, Condor) have refitted the A-320 family with vortex generators which allow a decrease of several decibels, especially during landings; it also allows avoiding certain disturbing frequencies.

Further progress in active noise abatement is hampered by some framework conditions on national and international levels. From an economic point of view, there are too few incentives for the aviation industry to invest into new, less noisy aircraft or equipment for advanced navigation techniques. A working group led by HMWEVL works on instrumentation and potential policy measures on how to amend the framework conditions and avoid barriers for active noise abatement measures as well as to create more incentives for active noise abatement at source or through new procedures.

## State of play in Frankfurt: operational improvements

A commission of experts was set up in 2008 and is led by Deutsche Flugsicherung (German Air Traffic Control) and a local mayor.

A first package of noise abatement measures was adopted in 2010 (comprising a 3.2 degrees landing procedure on the new runway, segmented (curved) RNAV Approach for night-time etc.) and there is a continuous development of additional measures (height increase of transitions, avoiding turns on ILS over Offenbach and Mainz).

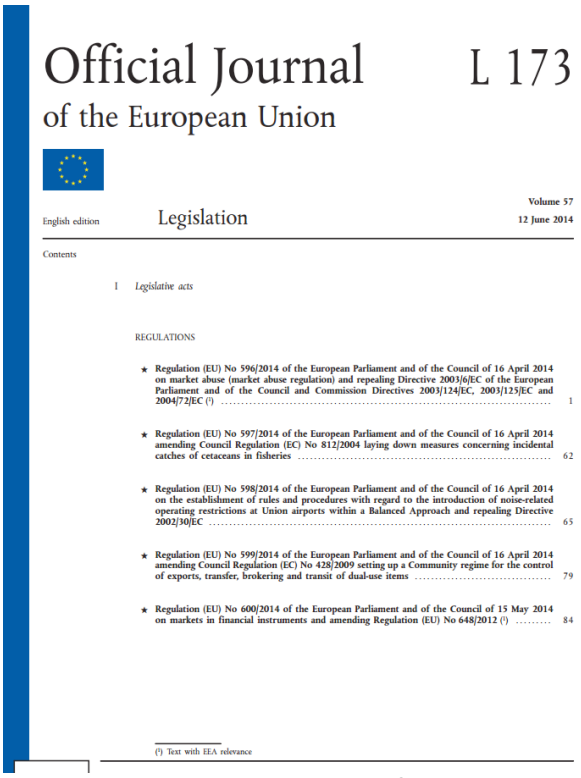
Moreover, Frankfurt Airport uses dedicated runways operations; this new concept is in its test phase for night flights, as it commenced in April 2015.

Fraport and Deutsche Flugsicherung installed Ground Based Augmentation System (GBAS): this enables new types of procedures and more precise implementation e.g. to better avoid settlement areas.

Another "noise abatement package" combining different threads and measures is currently being prepared and is expected in 2017.

## State of play in Frankfurt: operating restrictions

Frankfurt is famous for introducing a night flight ban in 2011. This night-flight ban was a condition for the opening of a new fourth runway. The main features



Official Journal L 173
of the European Union

English edition Legislation Volume 57
12 June 2014

Contents

I *Legislative acts*

REGULATIONS

★ Regulation (EU) No 596/2014 of the European Parliament and of the Council of 16 April 2014 on market abuse (market abuse regulation) and repealing Directive 2003/6/EC of the European Parliament and of the Council and Commission Directives 2003/124/EC, 2003/125/EC and 2004/72/EC (1) ..... 1

★ Regulation (EU) No 597/2014 of the European Parliament and of the Council of 16 April 2014 amending Council Regulation (EC) No 812/2004 laying down measures concerning incidental catches of cetaceans in fisheries ..... 62

★ Regulation (EU) No 598/2014 of the European Parliament and of the Council of 16 April 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 and repealing Directive 2002/30/EC ..... 65

★ Regulation (EU) No 599/2014 of the European Parliament and of the Council of 16 April 2014 amending Council Regulation (EC) No 428/2009 setting up a Community regime for the control of exports, transfer, brokering and transit of dual-use items ..... 79

★ Regulation (EU) No 600/2014 of the European Parliament and of the Council of 15 May 2014 on markets in financial instruments and amending Regulation (EU) No 648/2012 (1) ..... 84

(1) Text with EEA relevance

***With this measure, the Land of Hessen hopes to answer the concerns of many citizens and citizens' organizations that fear that the night flight ban introduced in 2011 in Frankfurt would be withdrawn because of Regulation 2014/598/EU***

of this flight ban are:

- no scheduled flights from 23:00-05:00 local time
- a maximum of 133 scheduled flights from 22:00 - 06:00 local time (average per night/year);
- some exceptions can be granted for landings (possibly until 00:00 local time) but not more than an average of 7.5 per night/year;
- some exceptions can be granted for take-off but only if the reason for delay could not be influenced/avoided by the airline; any exception requires prior permission from the HMWEVL;
- obviously, some exceptions can be granted for special cases or in emergency situations (medical flights, safety etc.);
- only Chapter 4 Aircraft are allowed.

With this measure, the Land of Hessen hopes to answer the concerns of many citizens and citizens' organizations that fear that the night flight ban introduced in 2011 in Frankfurt would be withdrawn because of Regulation 598/ 2014.

## State of play in Frankfurt: noise related fees

Fraport has been a frontrunner when it comes to the installation of noise-related airport fees. There is a continuous increase in the noise-related share of the fee as an incentive for less noisy aircraft.

New innovations in the fee structure are foreseen for 2016. This includes an incentive to activate and license GBAS onboard aircraft.

## State of play in Frankfurt: land use planning and management

Since 2000 a large zone has been defined near the airport where no new housing is permitted. This no housing zone is legally binding and it must be reflected in regional and local land use plans.

Furthermore, in 2011 a Noise Protection Area was created according to the national Noise Protection Act. In this area, no new housing is allowed; there are restrictions for the installation of infrastructures such as hospitals, schools etc. In this area Fraport has to fund the noise insulation and the sound proofing of existing houses and apartments, in line with national legislation. The size of the Noise Protection Area is being determined by the combination of three contours: Leq6-22 55 dB(A) for restrictions on new infrastructure, Leq6-22 60 dB(A) for insulation of living rooms etc. and compensation of lower usability of gardens and balconies and Leq22-6 50 dB(A) and Lmax 6x68 dB(A) for insulation and ventilation of bed rooms. Specific rules have been stipulated by HMWEVL for the insulation of offices and industrial buildings. Additionally, a 'Regional Fund' has been created by the Hessian Government to provide additional help for citizens and municipalities severely affected by noise.

## Regulation 598/2014 from the perspective of Hessen

Most of the elements included in Regulation 598/2014 were already provisioned for in the German legislation, as it was already compliant with the ICAO Balanced approach.

One core principle of German administrative law is the principle of proportionality: a measure by an authority which affects the legal position of a person or legal entity may - among other prerequisites - only be implemented if the measure is suitable to successfully address the intended goal, if there is no milder measure to achieve the goal and if the consequences for the person or legal entity are not disproportionate in relation to the intended goal. So, the philosophy of the balanced approach is covered by this principle. Neither the Regulation nor any ICAO document on the Balanced Approach denies the role of the competent authority when it comes to defining the concrete noise policy for an airport. To the contrary, ICAO also states that it is and remains the responsibility of the member states according to their legal framework.

The HMWEVL is confident that it will be able to implement Regulation 598/2014. Nevertheless, with some additional administrative burden e.g. concerning the additional use of a different noise calculation method compared to the national rules. The ministry does not consider that the regulation would bring additional limitations to potential future operational restrictions.

# Benchmarking noise policies

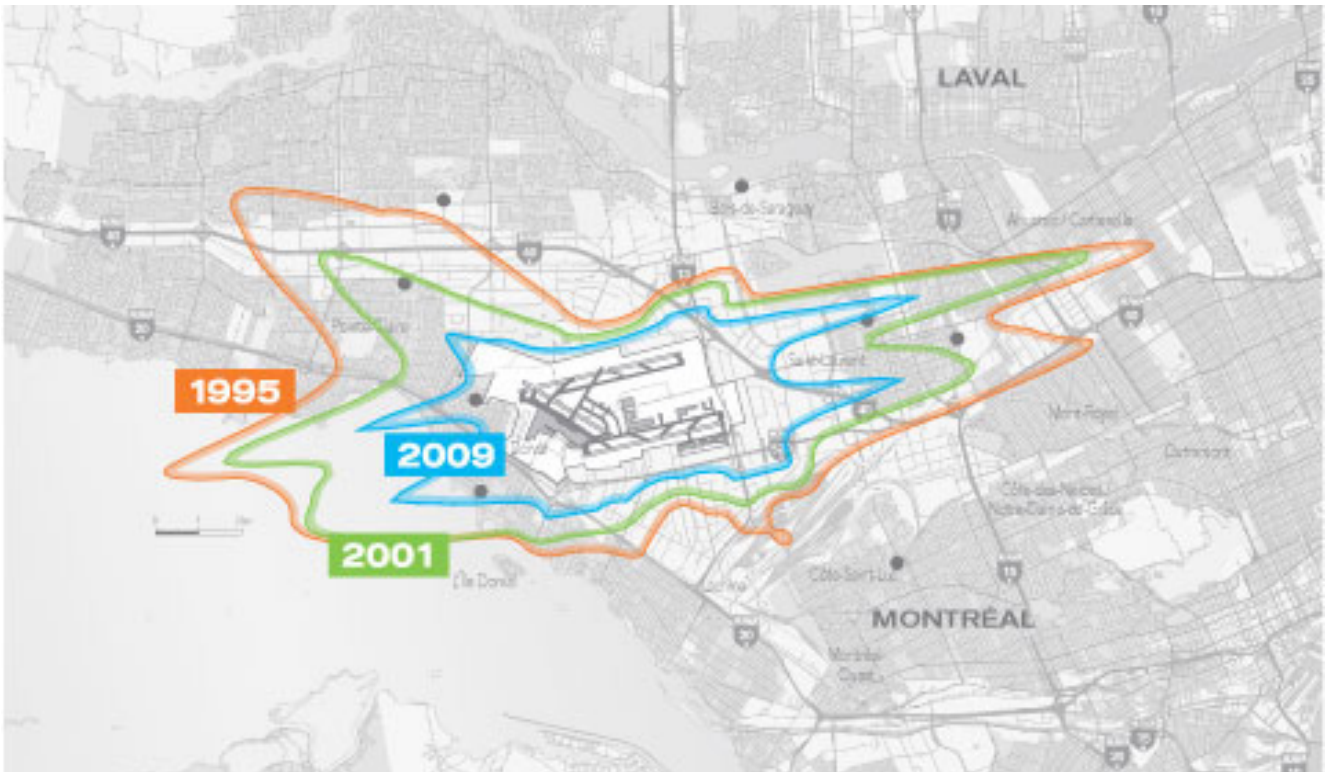
**Pascal Garreau**

*Consultant, Arcandia Consulting*

There is a need to develop a tool to assess noise policies at airports and to be able to compare different situations, whilst allowing for the diversity of situations to be taken into account.

## The need to better assess noise policies

Airport noise is a paradox: the surface affected by noise has been continuously reduced throughout the years and aircraft are becoming less noisy. In numbers, the population affected by noise has been steadily decreasing. Nonetheless, the opposition to aviation in general and to airports in particular keeps focussing on noise. This paradox shows the limitations of policies solely addressing acoustic aspects.




***Noise contours around YUL***

***Source: Aéroports de Montreal***

As such the issue needs to be solved, to obtain permission to grow and even operate.

The ICAO balanced approach sets up a series of pillars to combat noise but these tools may not be sufficient to assess the variety of tools available and already in use in many European airports, nor in the way they are implemented.

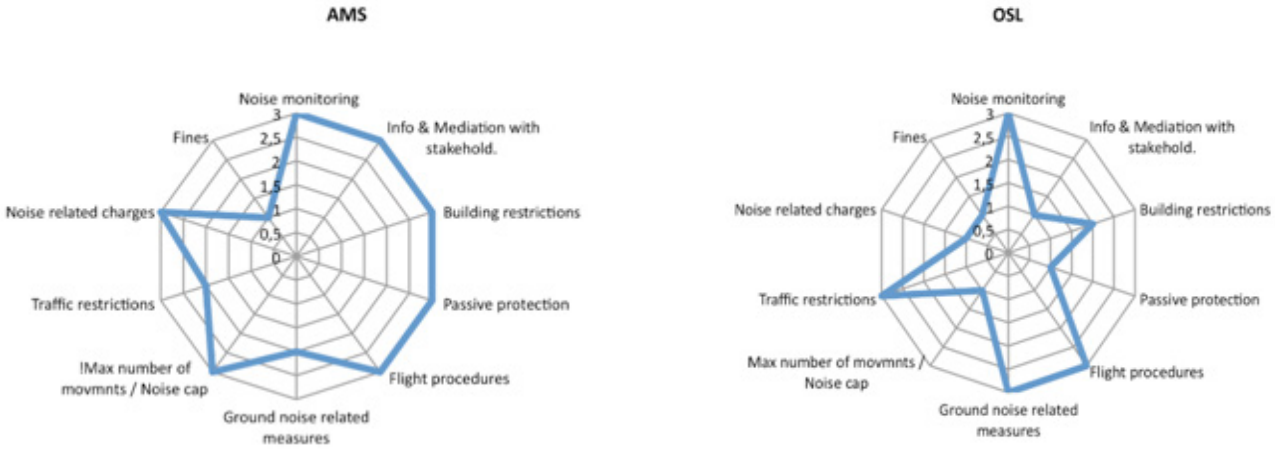
A study conducted in 2014 for the ARC allows for the comparison (through publically available information) of diverse policies and tools available at an airport, in the largest European airports.

By comparing tools and their implementation, it is possible to proceed to "mapping" the situation in various airports. Such mapping does not "rank" one situation against another, nor does it aim at granting rewards or apportioning blame. It allows for identification of actions that could be further developed. As such, the methodology is designed to help decision-makers.

| | Noise monitoring systems | | Land use planning and management | | Operationnal procedures | | Operating restrictions | | Market-based tools | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Noise monitoring | Info & Mediation with stakehold. | Building restrictions | Passive protection | Flight procedures | Ground noise related measures | Max number of movmnts / Noise cap | Traffic restrictions | Noise related charges | Fines |
| **Criteria** | | | | | | | | | | |
| X | | Few initiatives | Few initiatives | Few initiatives | Few initiatives | Few initiatives | Few initiatives | Few initiatives | Few initiatives | Few initiatives |
| XX | | Some tools are proposed | Some tools are proposed | Some tools are proposed | Some tools are proposed | Some tools are proposed | Some tools are proposed | Some tools are proposed | Some tools are proposed | Some tools are proposed |
| XXX | | Large access to informations and strong involvment of the stakeholders | There are restrictions and they are respected | Grants are avalable to insulate houses. Repurshasing is proposed. | Use of runways & trajectories are designed in order to mitigate the noise and protect the population. | Various tools are implemented. There are some controls | There a cap on movements or noise | Some types of aircraft are baned (exceeding the international regulations) or there is a curfew. | Charges are modulated dur to the aircraft noise levels | Disrespect of rules can be fined and fines ar effectively implemented |

***Overview of the tools evaluated for the Study***






***Situation at Amsterdam (AMS) and Schiphol (OSL)***

***Source: ARC report on Benchmarking noise policies***

# EUROCONTROL – The right to mobility and high environmental standards

**Andrew Watt**

*Head of Unit, Support to Single European Sky related policies, EUROCONTROL*

Air traffic in Europe is expected to increase ro 16,9 million flights by 2030 and 13% of European airports will be over capacity, at least at some moments of the day. The question is hence how to preserve the right to mobility and to combine it with high environmental standards? It is getting exceedingly difficult to build a new airport in Europe. Congestion at airports impacts the overall network and therefore a decision taken locally because of noise will have a global impact.

Some projects are 'in the pipeline' and may bring relief, for example through SESAR (the Single European Sky ATM research project) and evolving technologies to appraise the impact of the new procedures are being developed.

The industry has the right to not just continue at the same level but to grow. A decision must be made in cooperation between all stakeholders including the local community, to be effective.

# Community Outreach


## Koen de Vos

*Policy Officer, DG for Mobility and Transport, European Commission*


Community outreach and engagement of the citizen are a new feature of Regulation 598/2014. It is not only noise that needs to be treated but also annoyance and a link must be made with the Environmental Noise Directive (2002/49) and with the availability and provision of data.

Community outreach is not part of the ICAO balanced approach, however regulation 598/2014 attempts to lay down some principles and processes for it:

1. to set noise abatement objectives - set in framework of environmental noise directive - including consultation

- to identify the possible mitigating measures:technical work of airport / service provider / airlines;
- transparency of technical input;

2. to assess cost-effectiveness;

3. to select appropriate measures;

4. to consult with stakeholders, including citizens living in the vicinity;

5. to adopt the measures and notify affected parties;

6. to implement the measures;

7. to provide for dispute resolution

Obviously, each individual situation will have to be considered when adopting the above.

## Verification of Aircraft Noise and Performance Data

**Ivan de Lepinay**

*Environmental Protection Officer, European Aviation Safety Agency (EASA)*

### What is noise performance data?

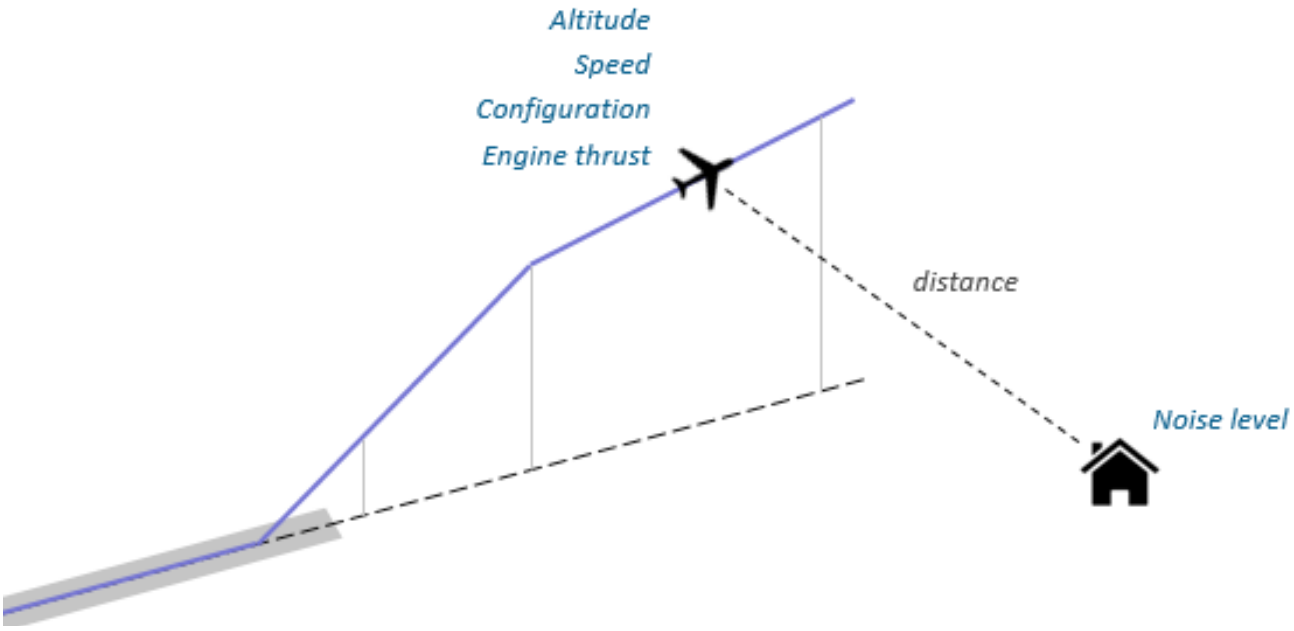
Any airport noise modelling needs to be fed by data.

Noise and performance data refers to the aircraft-specific data needed to compute noise contours around airports using a model compliant with Directive 2015/996 (END Annex II), European Civil Aviation Conference (ECAC) document No 29 or ICAO Doc 9911.

It allows for the derivation of the altitude, speed, configuration and engine thrust of an aircraft during take-off and landing, as well as the noise level at a given engine thrust and distance from the aircraft.

Noise contours at airports are produced by combining this noise and performance data with local information on the airport layout (runways, departure and landing routes) and operations (number of movements by each aircraft type).

Noise and performance data is currently available through a website maintained by Eurocontrol: www.aircraftnoisemodel.org



## EASA role in noise modelling, as per Regulation 598/2014

Regulation provides for a specific role of the European Aviation Safety Agency (EASA) in noise modelling.

The Agency will:

Request data

- identify gaps in the current set of aircraft in the database
- send data requests and provide ad-hoc support
-

Verify it

- design a procedure to verify the data (in progress)
- interact with manufacturers until the data is successfully verified

Make it available

- maintain a website where the data can be downloaded

The anticipated benefits are:

More robust data

- consistent data quality from one aircraft type to the other
- Improved coverage of the fleet operating in Europe
- more regular and better targeted data requests (will prioritise aircraft with largest contribution to noise exposure)

Better comparability of aircraft noise contours across Europe

- reduced need for noise modellers to create data for their local fleet
- improved harmonisation of modelling assumptions, especially in terms of aircraft substitutions

Improved correlation between modelled and measured noise levels

EASA is entrusted to certify the aircraft and to verify their airworthiness and compliance with environmental standards. As such, EASA already collects data related to the performance and noise of aircraft. The verification of this data will therefore be optimised thanks to the existing links between the Agency and the manufacturers.

A database of over 143 aircraft types (civilian aircraft and non-rotorcraft) is available together with standard LTO profiles and noise power information is available on www.aircrafnoisemodel.org

EASA will complement the database with additional aircraft types, verify the data with help from the manufacturers and make this information available online. The ambition is to publish robust data, encompassing all the fleets operating in Europe, which in turn should improve the correlation between calculated and measured noise levels around airports.

Noise contours are not a solution for noise policies per se but a commonly used indicator to objectivise debates.

# Airport Noise Modelling - Overview

**Sharon Mahony**

*Aviation Environmental Analyst, EUROCONTROL*

## Noise modelling: what is it for?

Unlike a noise monitoring system, which records noise exposure on a limited number of specific locations around the airport, noise modelling is the only means to assess the impact of airport noise on the surrounding population in a global manner.

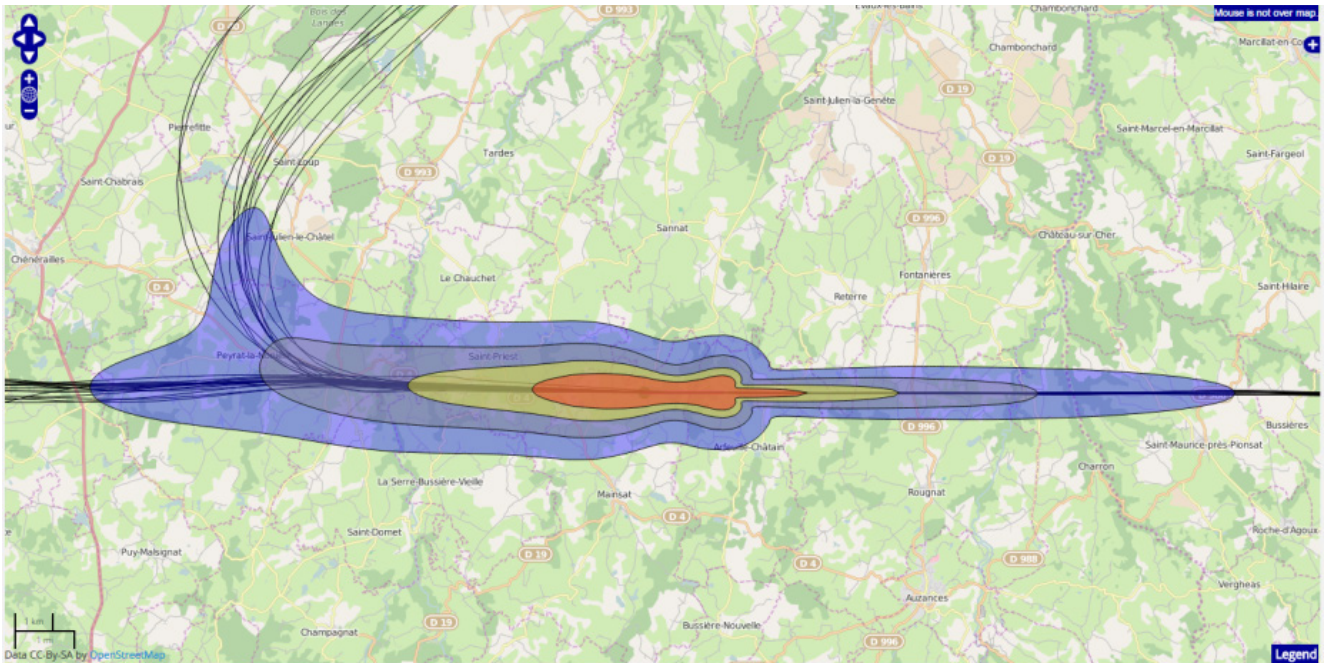
Noise modelling is a means of evaluating how an airport's noise impact is likely to evolve in the future, based on traffic growth and fleet evolution forecasts, taking into account land-use planning purpose.

Consequently, noise modelling is an essential means to quantify the potential benefit of noise mitigation measures:

- operational restrictions (for the noisiest aircraft)
- noise abatement procedures

Noise modelling is also needed to evaluate the noise impact of any operational changes within the terminal control area (TMA) in relation with other objectives (e.g. safety, capacity):

- route layout and usage modification
- new runways



## Noise modelling: what is calculated?

Noise modelling allows for the calculation of noise contours (zones inside which noise exceeds acertain level threshold). It may use different types of noise metrics:

- Single operations: SEL, LAmax
- All operations: Lden, Lnight
- Other metrics

And it allows an evaluation of the number of people inside the noise contours:

- A post-processing activity
- Use of geographic information system (GIS) tools and population databases

## Examples of airport noise models used in Europe

There are several models in use:

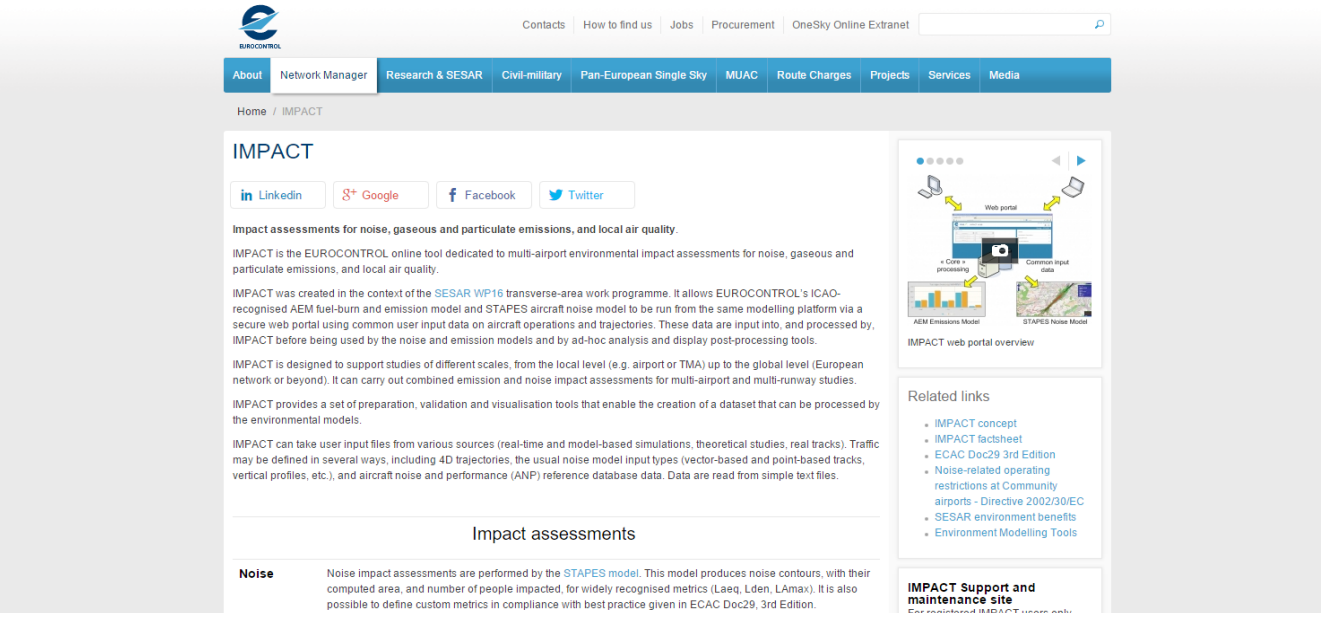
- National noise models:
  - ANCON (United Kingdom)
  - NLR model (Netherlands)
  - NORTIM (Norway)
  - These models are fully compliant with

    ECAC Doc.29 3rd Ed. but do not aim to be distributed

- The US FAA's Integrated Noise Model (INM):
  - a historical model used by many European states
  - slight differences with the ECAC
  - Doc.29 3rd Ed. method
  - not maintained anymore - replaced by AEDT
- European model:
  - the multi-airport STAPES noise model
  - jointly owned by EC, EASA and EUROCONTROL
  - fully compliant with ECAC Doc.29 3rd Ed.
  - accessible via the EUROCONTROL's IMPACT web portala certain level threshold). It may use different types of noise metrics:
- Single operations: SEL, LAmax
- All operations: Lden, Lnight
- Other metrics

And it allows an evaluation of the number of people inside the noise contours:

- A post-processing activity
- Use of geographic information system (GIS) tools and population databases



## What is the future of airport modelling?

- ANCAT[1] /AIRMOD[2] is preparing the 4th Edition of the ECAC Doc. 29
- Updates and clarifications on the noise calculation method described in Volume 2
- Drafting of a new Volume 3 related to modelling verification and validation
  - development of Reference Cases to check that a noise model software is compliant with the ECAC Doc.29 calculation method of Volume 2
  - guidance on the validation of Doc.29 compliant noise models against actual noise measurements
- Development of a European helicopter noise model
  - publically available and Funded by the EU Horizon 2020 Research and Innovation programme

1 The standing Group of Experts on the Abatement of Nuisances Caused by Air Transport (ANCAT) was created in 1974

2 ANCAT's Aircraft Noise Modelling Task Group (AIRMOD) is responsible for maintaining ECAC Doc 29

# The role of a controlling authority and impact of architecture

**Victor Haïm (President) & Jacques Roland (Member)**

*Airport Nuisance Control Authority (ACNUSA)*

***Victor Haïm***

***Jacques Roland***

## What is ACNUSA?

### Origin and functioning

ACNUSA was created by French law on 12th July 1999 in order to specifically deal with airport noise pollution. It is the oldest administrative authority in the field of environmental protection. The scope of the law was extended in July 2010 in order to include all types of pollution in and around airports.

ACNUSA has a general jurisdiction; whenever pollution is directly or indirectly attributable to airport activities:

- noise pollution
- air pollution
- water pollution
- ground pollution etc.

All French airports are concerned but ACNUSA has special powers with regards to airports at which, during at least one of the five previous years, there have been at least 20,000 movements of planes weighing 20 tons or more.

ACNUSA is an independent administrative authority. The President is appointed by decree, two of the members are appointed by decree by Parliament and the other members are appointed by decree by the related ministry. ACNUSA also has budgetary autonomy. It is funded by the general budget of the country and the budget voted by the French parliament and is financially supervised by the French court of auditors.

**Actions**

ACNUSA members decide collegially on:

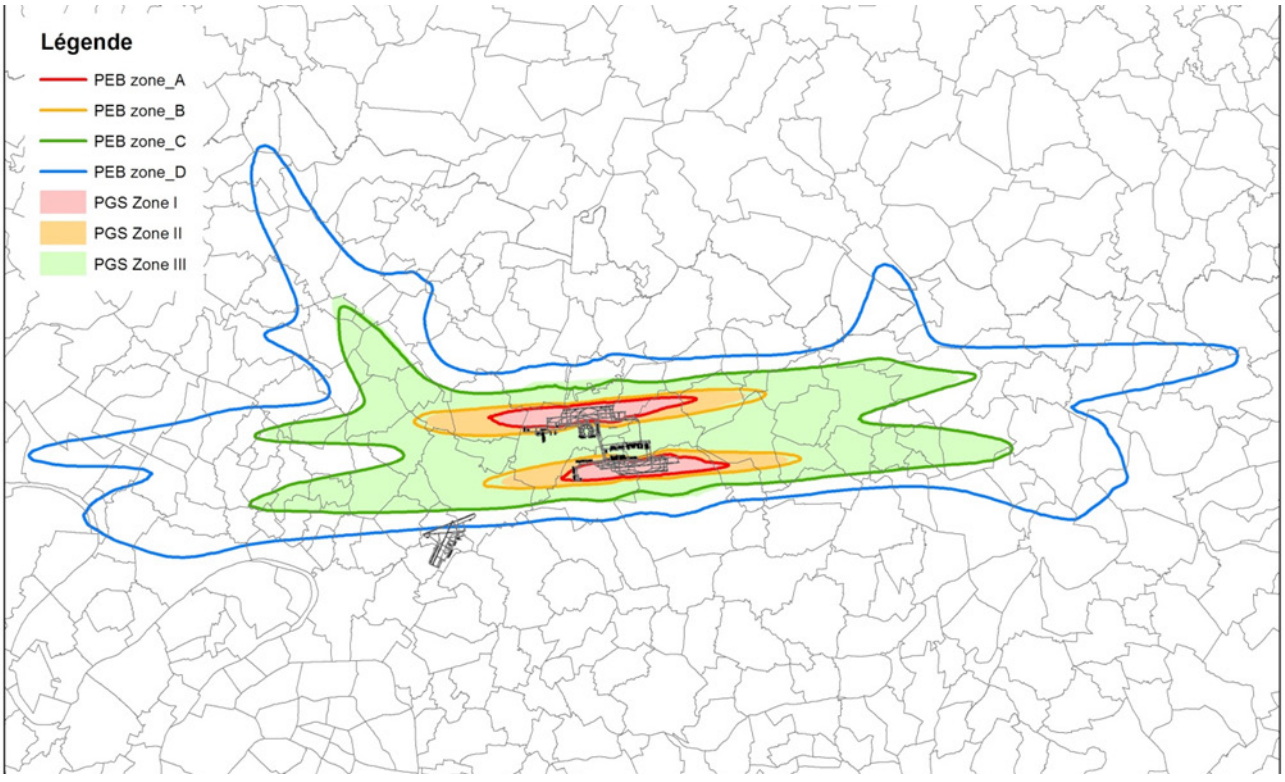
- Fines to be applied in case of infringement of environmental protection rules: 7 people representing interests linked to airports or airlines activities, either as professionals or as neighbours, are seconded to ACNUSA when examining the cases. The fines sanction breaches of environmental protection rules decided at government level and mentioned in the Aeronautical Information Publication (AIP). For corporations, fines may reach €20,000 or €40,000, depending on the type of infringement. The maximum fine is always €1,500 when the breach has been committed by an individual.
- Recommendations on issues related to environmental pollution generated by air transport in and around airports
- Mandatory opinions on any draft regulations dealing with airport environmental protection
- Publication of an annual report outlining the information collected and the proposals made during the past year

## An example of an ACNUSA recommendation: Evaluation of architectural types in an airport noise area

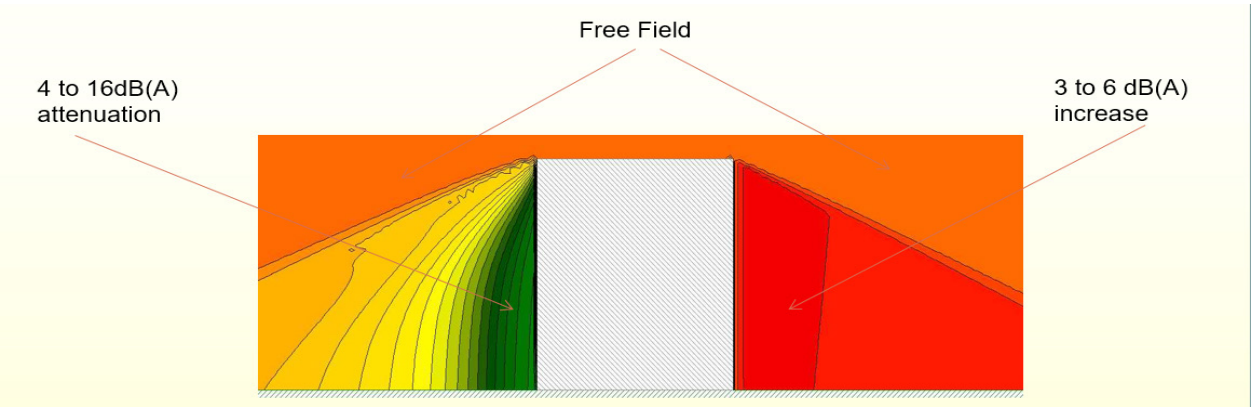
Territories close to airports are very attractive to populations, due to proximity of jobs but regulations forbid any increase in the number of residents in exposed area (A, B and C Zones of PEB).

The challenge is how to let the population live in these areas without damages to health and a major lack of comfort. For example, façade insulation can be effective.

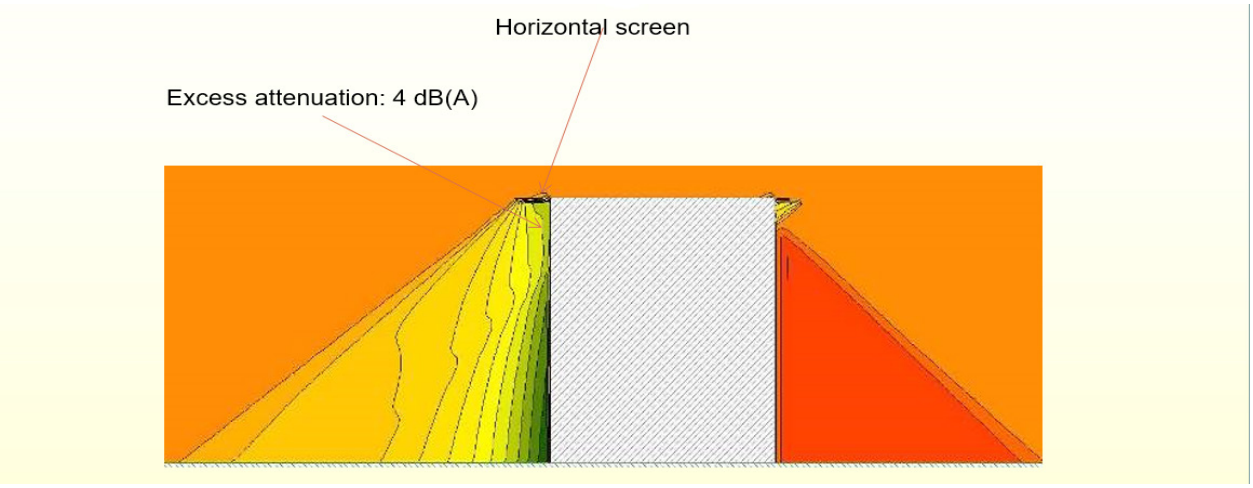
Noise mapping considers the noise level without the impact (positive or negative) of existing constructions: relevant building shapes, orientation and suitable urban planning, although these elements can offer a notable reduction of façade noise exposure when compared to free-field level.



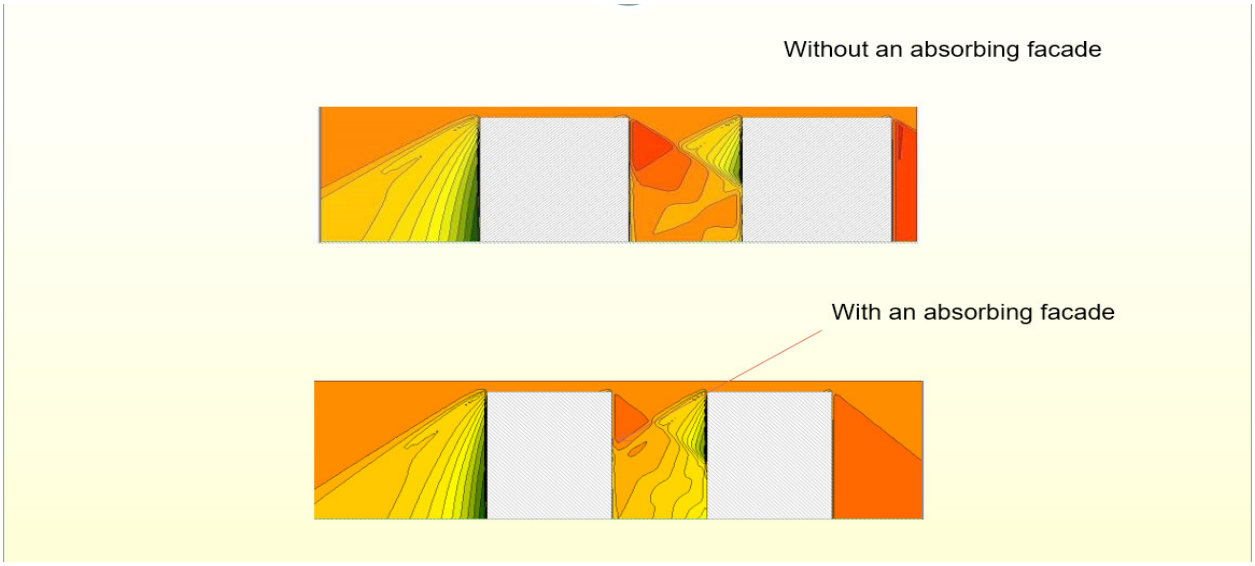
***Typical situation***



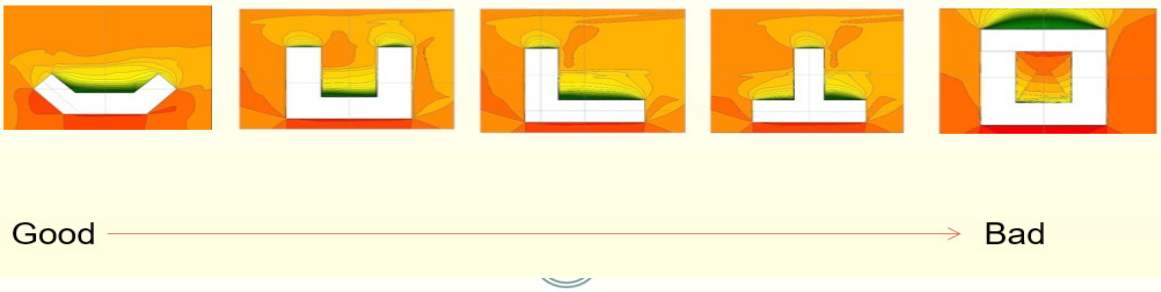

***Addition of horizontal screens***



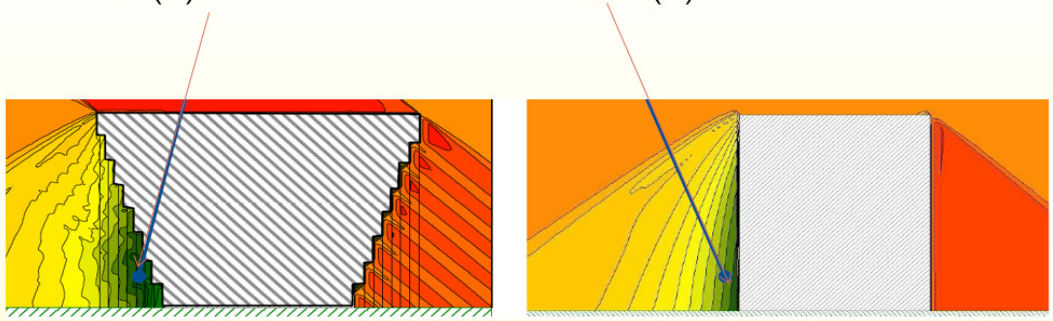

***Reflection of other buildings***



***Reflection of other buildings***

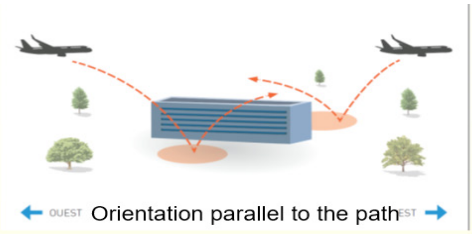


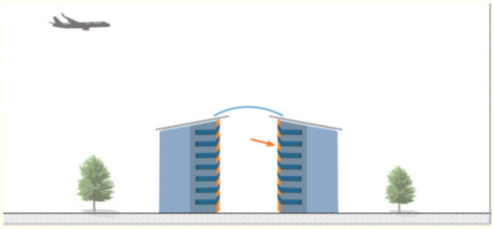

Inverse pyramid shape may be interesting, but not very realistic



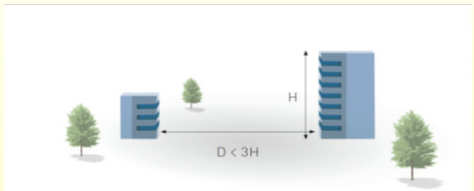

***Reflection of other buildings***





Roofed streets




Protect against reflections by absorbing facades

Loggia with absorbing lining

# Communication with residents: La Maison de l'Environnement de Paris-CDG

**Elizabeth de Masson**

*Delegate for Sustainable Development, Aéroports de Paris (AdP)*

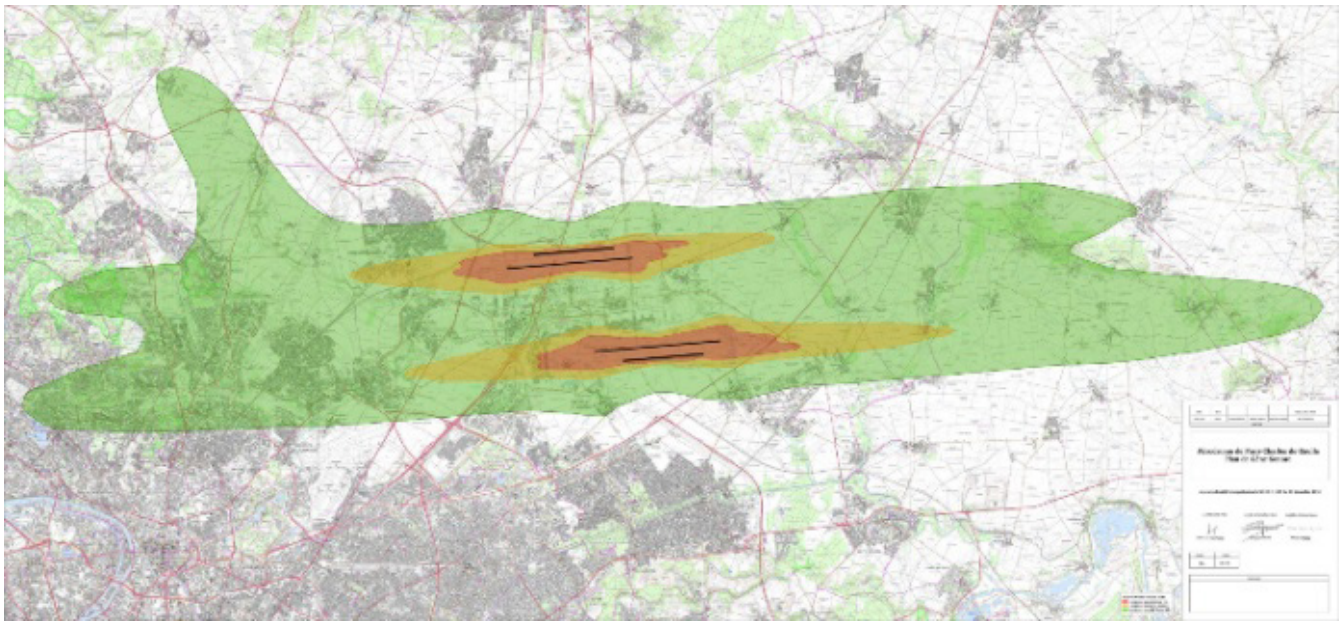
'La Maison de l'Environnement' (MDE – Environmental house) was created out of a legal obligation to inform residents on environmental and air transport issues but it soon became an indispensable tool both for Aéroports de Paris and for the local communities.

The 'Environmental house' is open on week days and some weekends in case of specific events. It employs no less than 16 persons on site. Former air traffic controllers work on site several days a week to explain the technicalities of air traffic control (ATC) to visitors. A permanent exhibition is maintained, dealing with the history of the airport. 'VITRAIL', a tool for visualising the trajectories (not in real time) is also available.

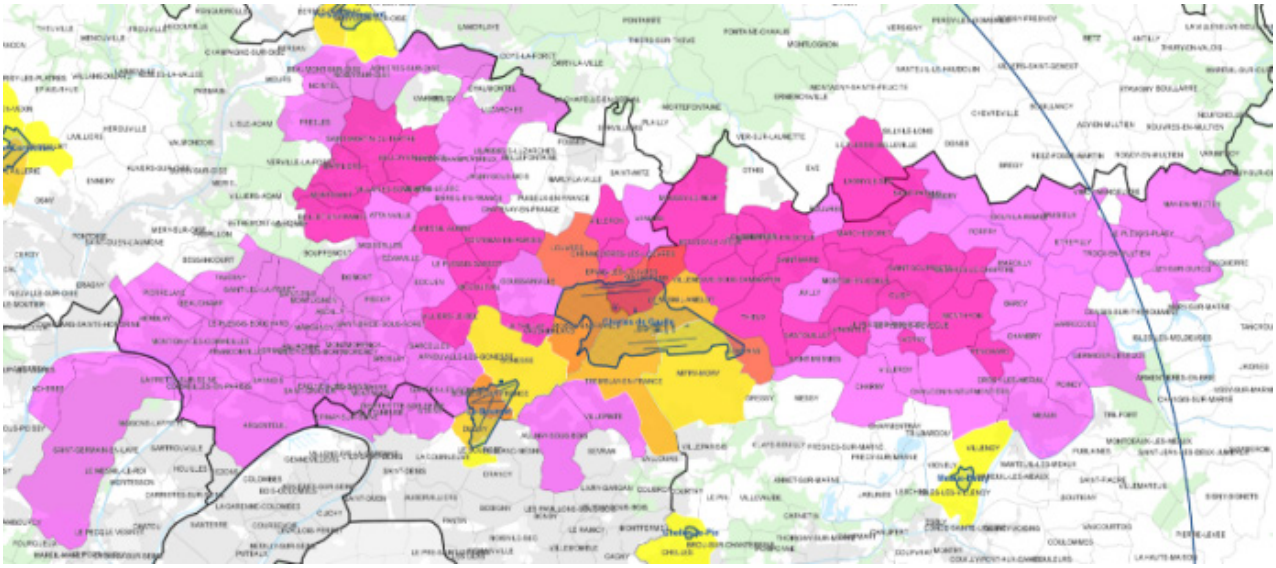
## The missions of the 'Maison de l'Environement'

The venue is open on week days and some weekends in case of specific events; it employs no less than 16 persons on site. A permanent exhibition is maintained, dealing with the history

*The noise exposure at Charles-de-Gaulle airport*



*The administrative borders around Charles-de-Gaulle airport*



of the airport and former air traffic controllers work on site several days a week to explain the technicalities of ATC to visitors. 'VITRAIL', a tool for visualizing the trajectories (not in real time) is also available.

**Relationship with local towns**

There are 127 municipalities under the Paris-Charles de Gaulle noise exposure area, in three different counties. A partnership agreement has been signed between the Maison de l'Environement and several of them:

- 16 cities in Val d'Oise County (23%)
- 21 cities in Seine-et-Marne County (44%)
- 2 cities in Oise County (100%)

**Information exhibitions and visits of the airport**

Visits are organized for local authorities and elected officials, for associations and for schools - there are some 157 organised visits per year.

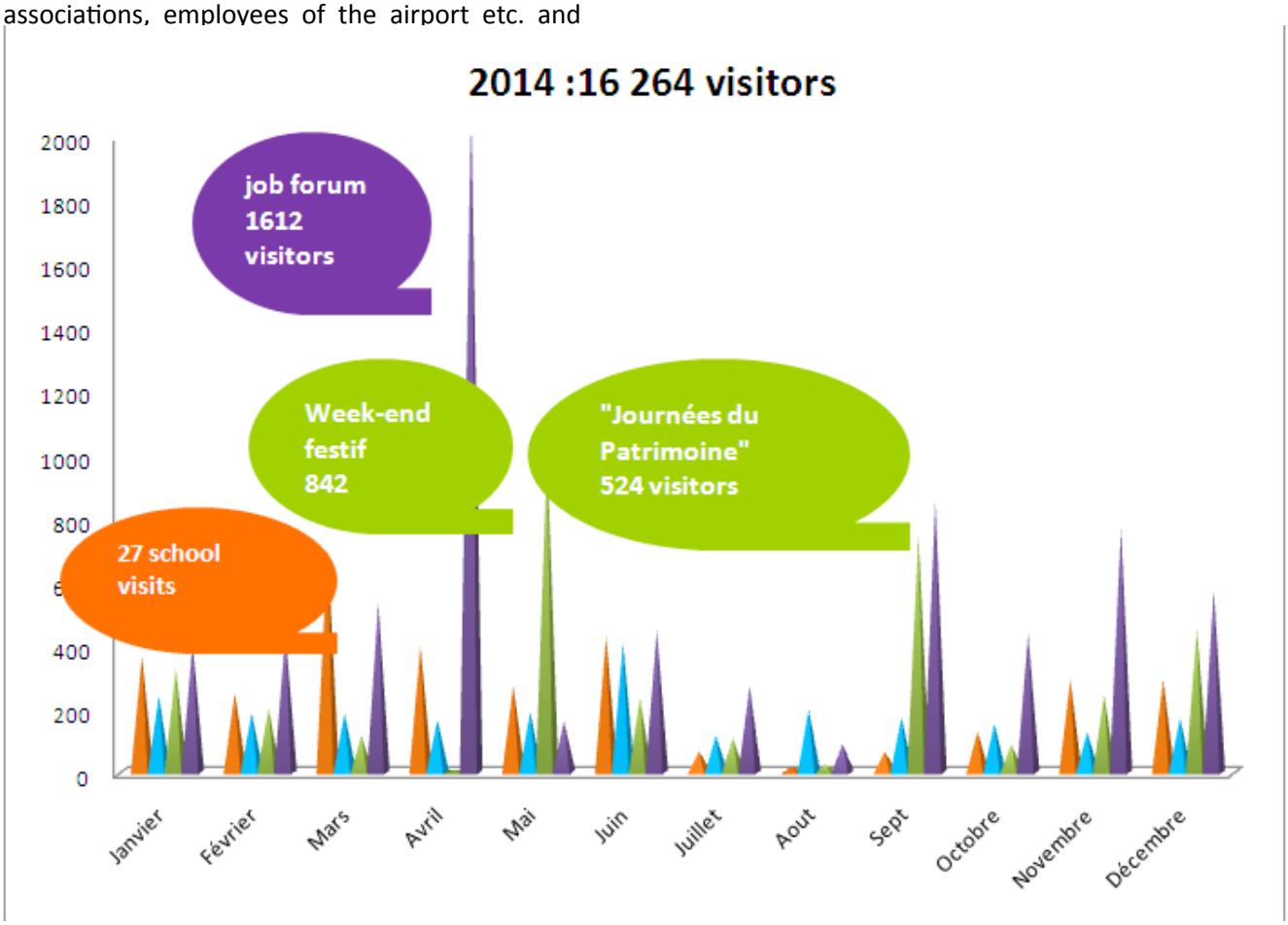
Temporary exhibitions are dedicated to all stakeholders: local residents and officials, associations, employees of the airport etc. and

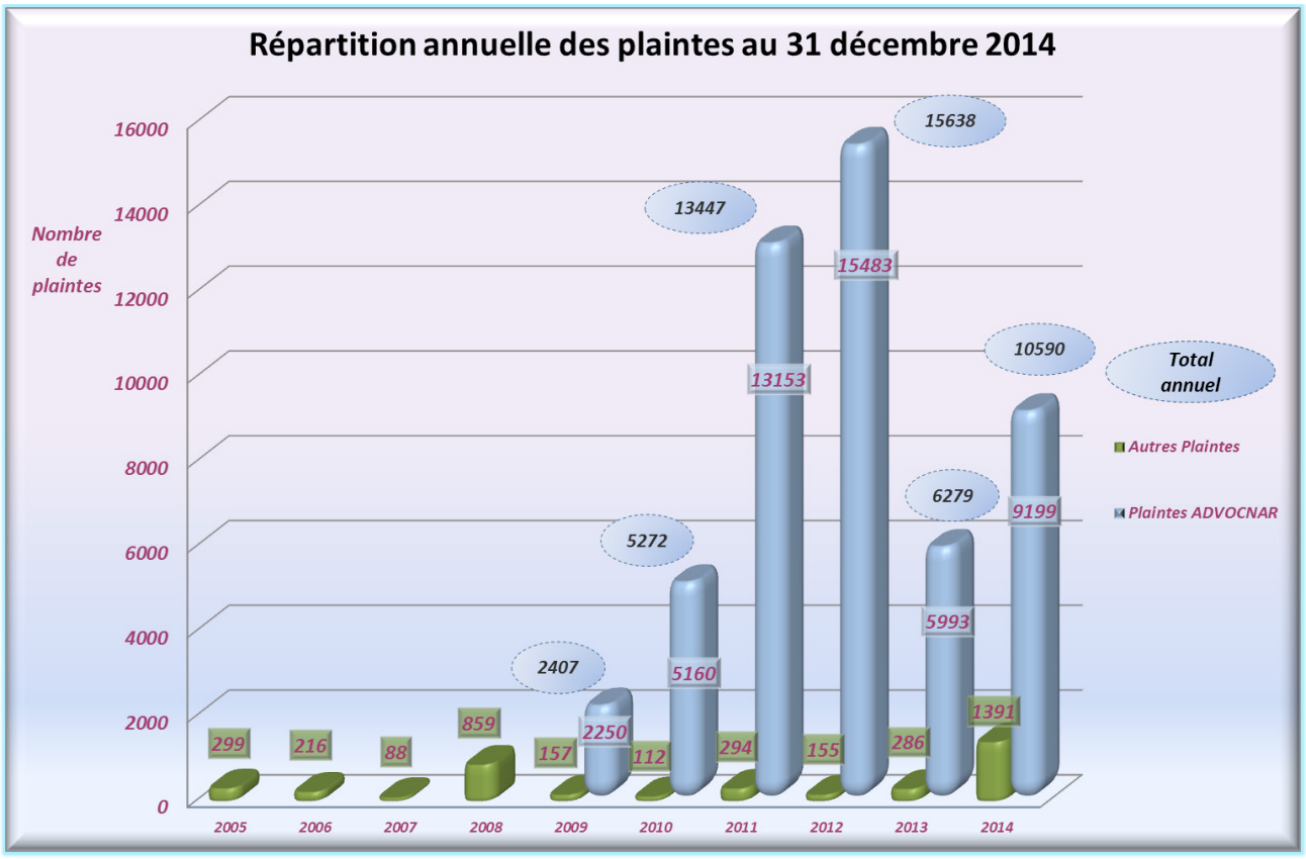
Specific events are also organised at the Maison de l'Environnement several times per year:

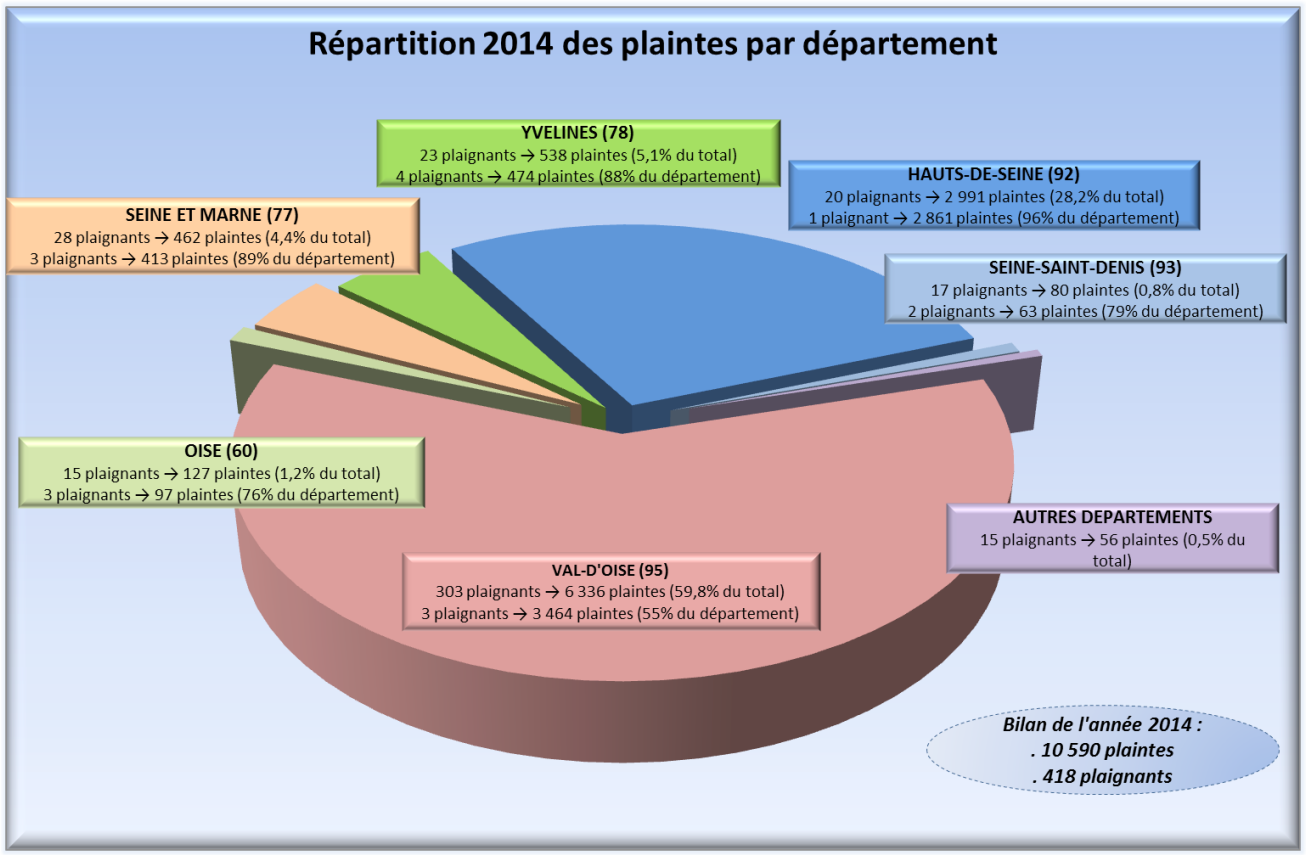
- general job forums that are very successful (up to 2,000 persons) and more specific "discovering the airport jobs seminars", which aim at younger and disadvantaged populations;
- other events, such as 'journée de la patrimoine' are extremely successful as well. This is a day where specific installations and buildings of historical interest are open to all citizens nationwide in France.

**Information and dialogue with residents' associations**

Maison de l'Environnement answers questions and complaints, and analysis their origin, which allows them to identify zones where further effort is needed the most.




Répartition annuelle des plaintes au 31 décembre 2014
Nombre de plaintes
16000
14000
12000
10000
8000
6000
4000
2000
0
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
299
216
88
859
157
2250
2407
112
5160
5272
294
13153
13447
155
15483
15638
286
5993
6279
1391
9199
10590
Total annuel
Autres Plaintes
Plaintes ADVOCNAR


Répartition 2014 des plaintes par département
YVELINES (78)
23 plaignants → 538 plaintes (5,1% du total)
4 plaignants → 474 plaintes (88% du département)
HAUTS-DE-SEINE (92)
20 plaignants → 2 991 plaintes (28,2% du total)
1 plaignant → 2 861 plaintes (96% du département)
SEINE ET MARNE (77)
28 plaignants → 462 plaintes (4,4% du total)
3 plaignants → 413 plaintes (89% du département)
SEINE-SAINT-DENIS (93)
17 plaignants → 80 plaintes (0,8% du total)
2 plaignants → 63 plaintes (79% du département)
OISE (60)
15 plaignants → 127 plaintes (1,2% du total)
3 plaignants → 97 plaintes (76% du département)
AUTRES DEPARTEMENTS
15 plaignants → 56 plaintes (0,5% du total)
VAL-D'OISE (95)
303 plaignants → 6 336 plaintes (59,8% du total)
3 plaignants → 3 464 plaintes (55% du département)
Bilan de l'année 2014 :
. 10 590 plaintes
. 418 plaignants

**Specific actions with local schools**

Specific actions are aimed at local schools, as today's children may well be tomorrow's residents. Moreover, children are often 'opinion drivers' within their families. It is also part of the corporate social responsibility (CSR) strategy of Aéroports de Paris (ADP) to encourage children and residents in finding employment at the airport.

Some agreements have been made with the Ministry of Education, in order to target schools, specifically schools from less fortunate areas. This was a joint initiative from the State representative of a neighbouring county and ADP. After some years, approximately 6,600 pupils have been through this programme. The programme includes:

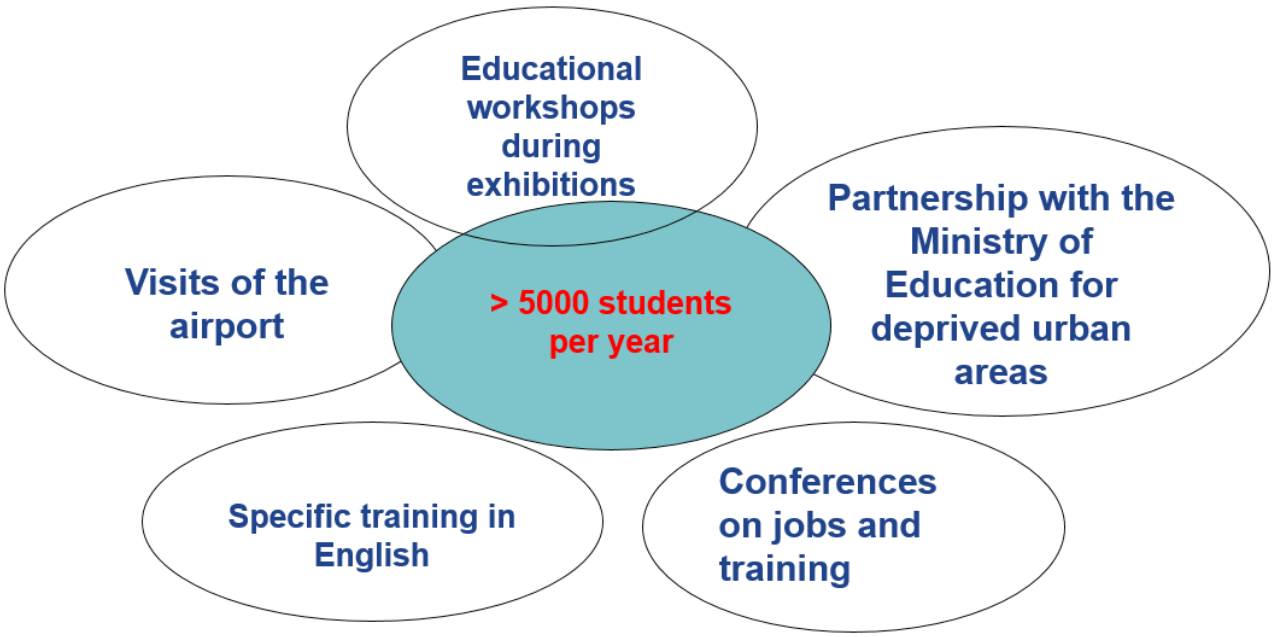
- visit to the airport
- seminars on jobs at the airport
- conferences
- internships
- scientific, pedagogic etc. workshops
- school quiz competition
- an agreement to have some visits and presentations in English in order to help pupils in learning the language.

**Administration of the environmental consultative committee for Paris-CDG and Paris-Le Bourget (LBG)**

A showcase for environmental and CSR actions

The Maison de l'Environement also serves as a show case for:

- the use of electric cars
- the greening of landscapes
- the use of solar panels
- the integration of disabled workers



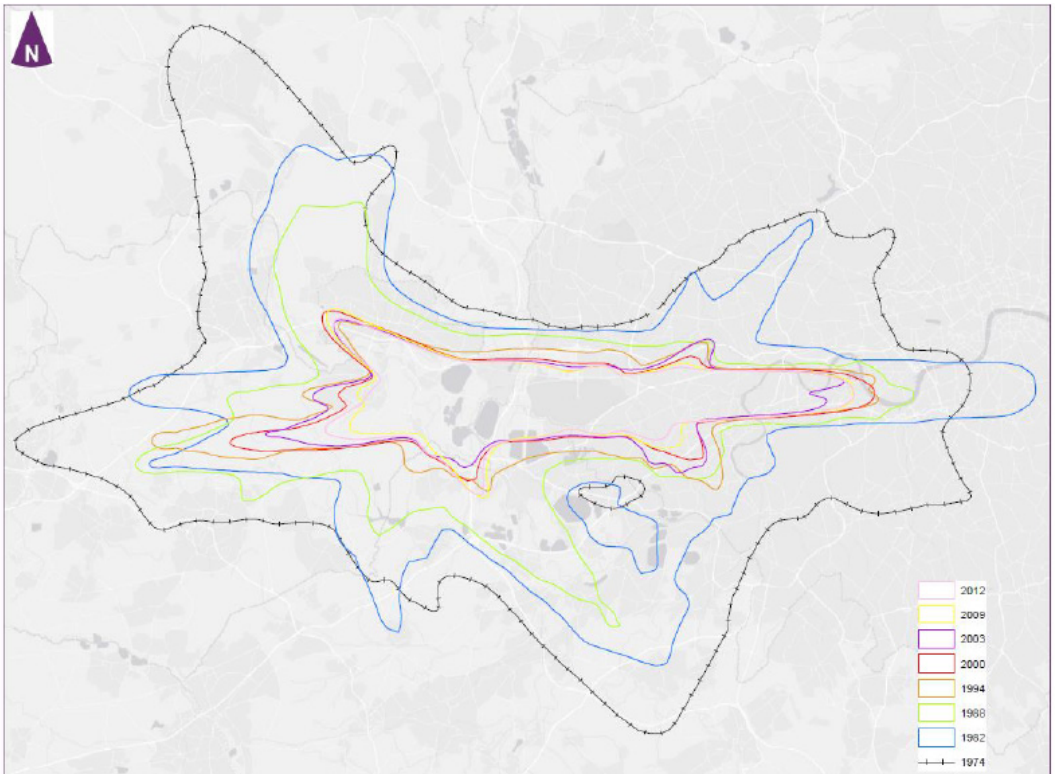
## Rick Norman

*Head of Noise and Air Quality, Heathrow Airport*

## Moving towards a 4th generation airport noise management programme

For many years Heathrow has structured its noise programmes around the International Civil Aviation Organisation's 'Balanced Approach' (quieter planes, quieter procedures, land use planning and mitigations), with operating restrictions being focussed on night flights and the voluntary phase out of the noisiest aircraft for operating at Heathrow.

As a consequence, the extent of noise contours has shrunk by around 90% since the 1970s but the complaint locations are changing.




***Reflection of other buildings***

## Several generations of noise management programmes

This evolution of complaint shows the need to constantly review and improve the noise management programmes. From Heathrow's extensive experience in dealing with noise and implementing noise management programmes, it is possible to see that the first actions were driven by legislation and by the need to acknowledge the existence of the problem, as well as the need to better understand the problem. The next generations of noise management programme are business driven (maintaining a licence to grow), moving towards fourth generation management programmes aimed at reducing the environmental impact and at creating and maintaining environmental capacity.

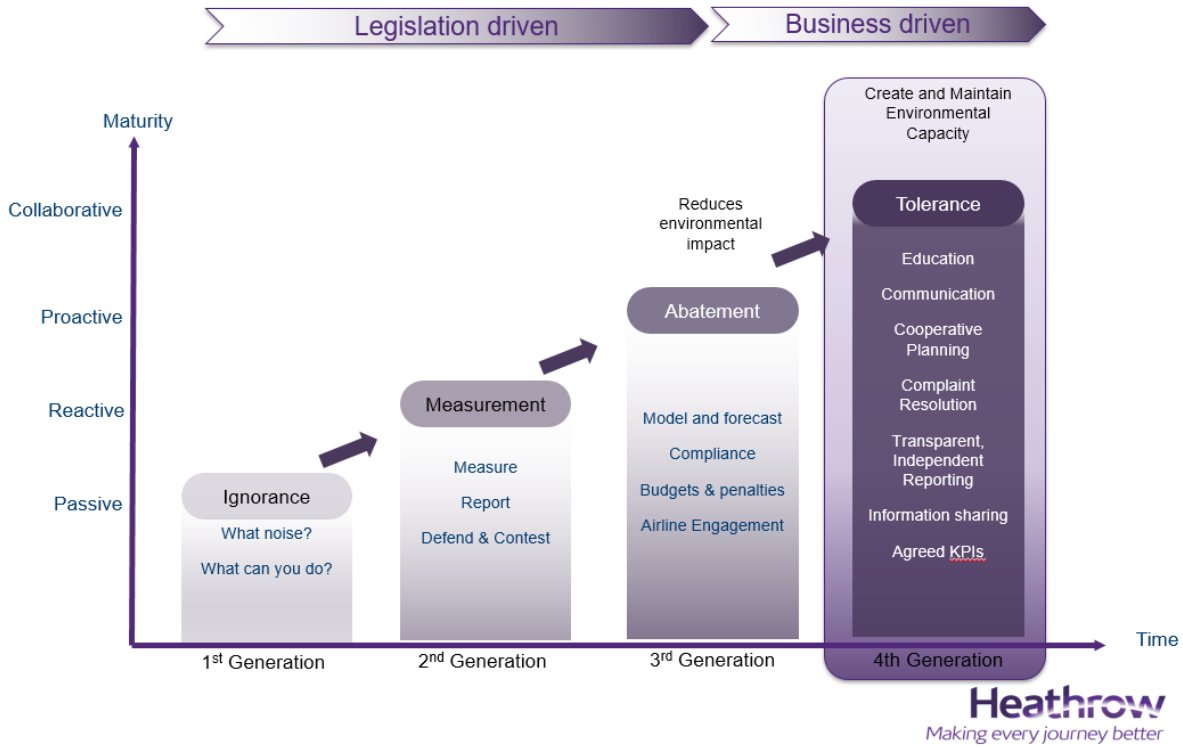
Noise strategy has traditionally focused on noise reduction factors, such as acoustic strategies

- to reduce noise levels.
- to educate people in contours.
- to reduce number annoyed (standard formula)

But some residents in local communities perceive little or no benefit. As a result, increasingly airports are considering the non-acoustic factors in their noise management strategy.

The challenges facing most airports are similar and centre around the following aspects:

- Building and maintaining trust
- Implementing airspace change
- Managing the potential impacts of growth




Source : B&K presentation ACI 2012

In the case of Heathrow, there have been a number of significant changes in the approach to noise management over the past 5 or 6 years, dealing with both the acoustic and non-acoustic aspects. For example the following activities have been undertaken:

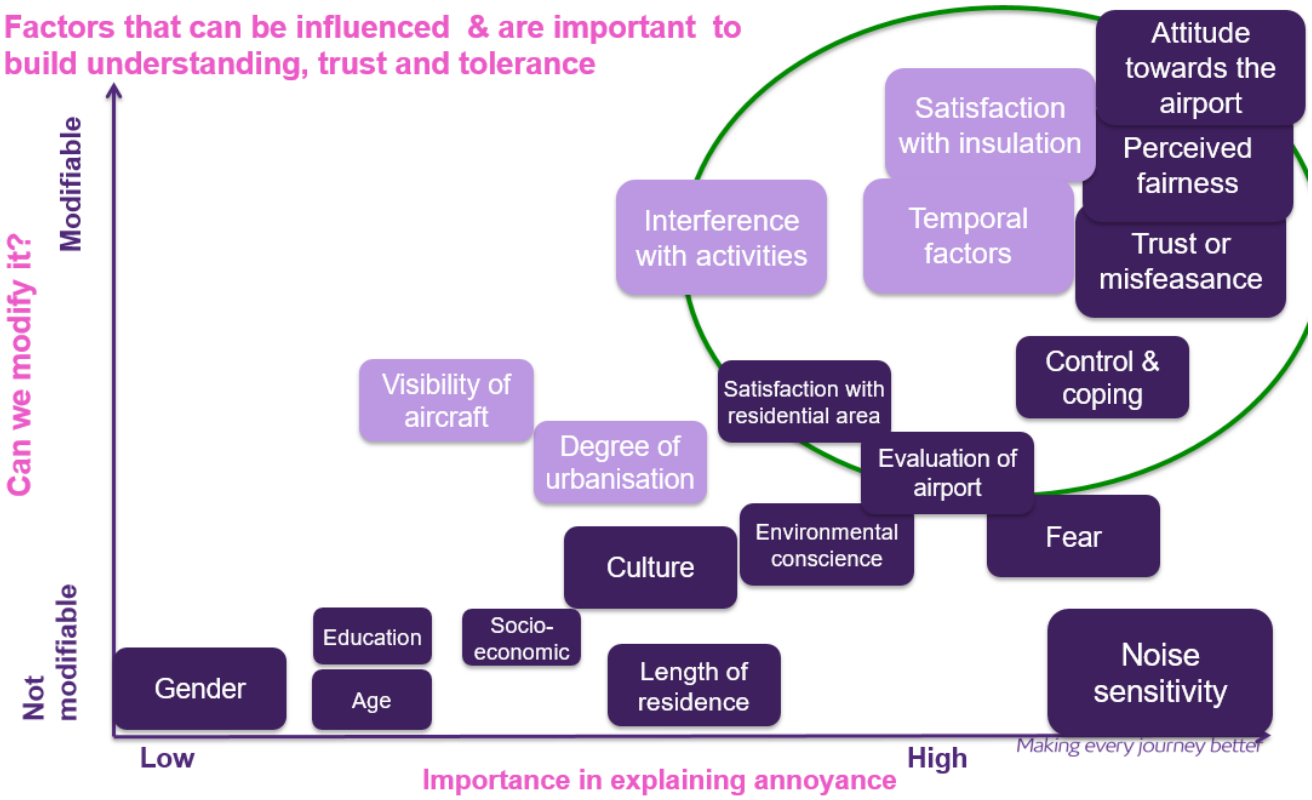
Building and maintaining trust

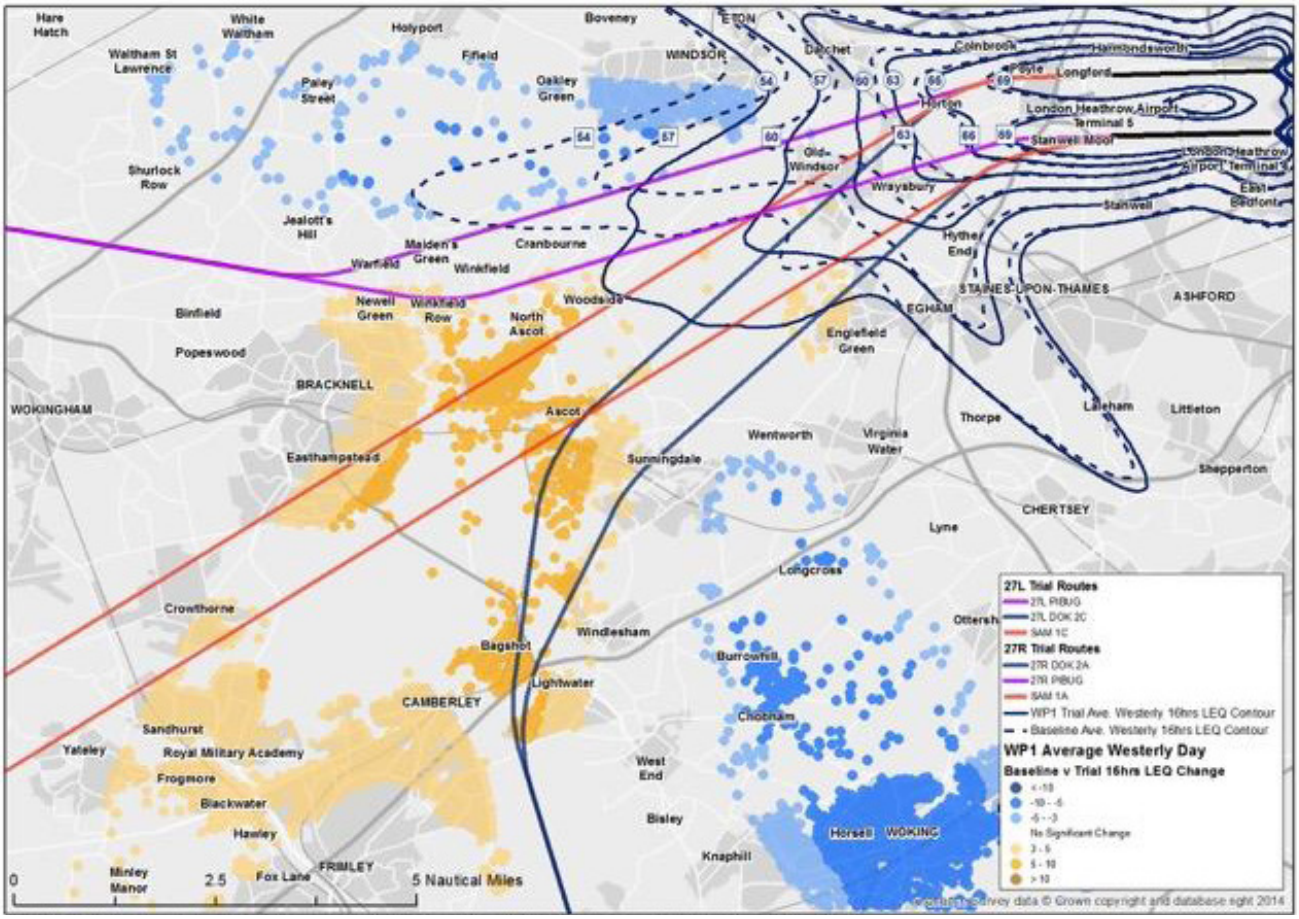
- changed and established new engagement forums e.g. Heathrow Noise Forum and Community Noise Forum
- provided greater transparency in terms of data provision
- consulted widely to inform the approach
- conducted regular polling of the whole community
- undertaken external peer review and audit

Importantly Heathrow has worked directly with airport opponent groups, trying to establish a common ground and build a communication bridge.

Implementing Airspace Change

- conducted operational trials of respite concepts
- engaged with community groups and forums
- undertaken collaborative research
- assessed impacts in new and supplementary ways






Managing the potential impacts of growth:

- broadened the community base with which we engage
- transparent and regular engagement
- used feedback from community stakeholders to help inform and shape our proposals

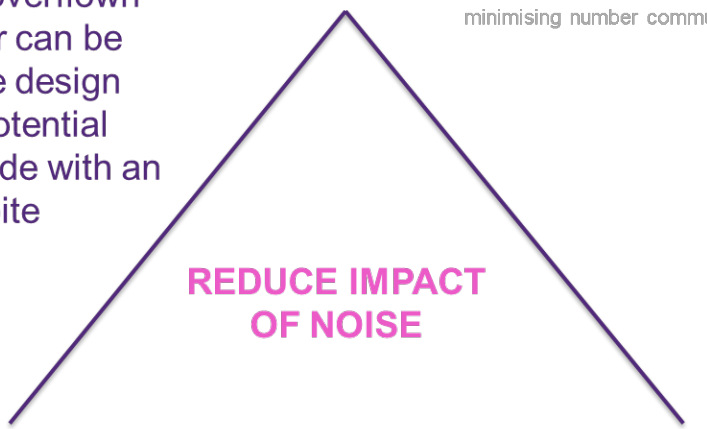
## Non acoustical strategies are just beginning

The aviation industry (regulators, airlines, ATC, airports) must continue to invest in means to reduce aircraft noise levels - this is the minimum expectation from residents but additional to these acoustical improvements, a non-acoustic strategy is becoming increasingly important and complementary to a noise reduction strategy.

Working with airports, local authorities need to recognise their responsibilities within the Balanced Approach and the views of all sections of their community. Polling of local attitudes and research are key aspects of a strong noise strategy and there is a need for a better understanding of:

- the value and effectiveness of noise management interventions
- health impacts
- the context of aviation noise in modern society
- how best to communicate on noise?
- the value of effective engagement and collaboration
- what influences perception and attitudes to noise

The number of people overflown within a specific contour can be minimised with airspace design but there are choices/potential compromises to be made with an approach pursuing respite




**1 Improved understanding - Research**

- Property values and length of tenure
- Local Community Attitudes
- Independent Aircraft Noise Authorities
- Non-acoustic factors
- Health effects
- Monetisation of noise

**2 Improved Collaboration**

- Noise Action Plan
- Developing concepts of respite
- Introducing Supplementary Metrics
- Updating our engagement forums
- Pre consultation groups
- Joint submission on Aviation Policy Framework with HACAN

**3 Better Operations**

- Noise Blueprint
- Marginally compliant Chapter 3 voluntary phase out
- QC4 at night voluntary ban
- Operational trials

**4 Communication and transparency**

- Operations Freedoms reporting
- Fly Quiet Programme
- Consultations – insulation and respite
- NAP audit and annual EU contours
- Metrics
- Webtrak
- New Publications and style

# Some outcomes of the Q & A with the audience

# (morning and afternoon sessions)

## Conflict resolution

- Airport noise generates conflict: the very first step in managing and maybe even resolving this conflict is to acknowledge the conflict and the right of each party to take part in a conflict resolution process; refusing the word “conflict” will not make it disappear.

## Cost and impact of noise

- Actual cost of air transport and inclusion of nuisance in the economic impact studies;
- It is important to acknowledge the perceived nuisance for which residents are complaining and the fact that some nuisances are less perceived (e.g. low frequencies) but still have an important health impact.

## The spread of roles between European national and local level

- The EU can only provide a framework for noise policy processes but decision have to be taken at local level; there is a real difficulty in defining what is the competent ‘local’ authority; in some EU Member States, the competence remains with the State (e.g. France) whilst in others the competence is decentralised (e.g. Germany); one of the limitations of EU intervention is that the EU cannot define what the adequate level (in decibels) of intervention is; this has to be done at a ‘local’ level; what is certain is that there is a need to decrease as much as possible the number of people living under these noise levels.

## The interdependencies CO2/Noise

- There is a switch between the level of concerns during the last kilometres of an aircraft trajectory; the closest the aircraft is to landing and taking off, the most important noise concerns are; during flight and in altitude, the main concern is air quality and CO2 emissions; alternative taxing solutions are developed that help reducing both CO2 and ground noise.

## The weaknesses of noise mitigation programmes

- There are real problems when it comes to financing noise insulation: the programmes may exist but there are 10 year waiting lists (in the case of Paris);
- Many mitigation programmes do not finance 100% of the sound insulations costs;
- Noise mapping is not sufficient when there is no supporting political objective of exposure reduction.

## Military flights

- Complexity of transferring traffic from large congested airports to (former) military airports
- Due to lack of data, military flights are often not taken into account in the noise contour calculations. It is fair to acknowledge that they represent a geographically limited portion of the noise issue.

## Availability of data

- EASA will start collecting and verifying aircraft noise and performance data when the Regulation comes into force; the Agency will soon publish a European Aviation Environmental Report jointly prepared with the Commission, the European Environment Agency and EUROCONTROL.

## Communication complexity

- Aviation is a highly technical topic and the «experts» often have difficulties in adapting the explanations provided without jargon.

ANNEX

**REGULATION (EU) No 598/2014 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL**

**of 16 April 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 and repealing Directive 2002/30/EC**

THE EUROPEAN PARLIAMENT AND THE COUNCIL OF THE EUROPEAN UNION,

Having regard to the Treaty on the Functioning of the European Union, and in particular Article 100(2) thereof,

Having regard to the proposal from the European Commission,

After transmission of the draft legislative act to the national parliaments,

Having regard to the opinion of the European Economic and Social Committee (1,

Having regard to the opinion of the Committee of the Regions (2,

Acting in accordance with the ordinary legislative procedure (3,

Whereas:

(1) A key objective of the common transport policy is sustainable development. This requires an integrated approach aimed at ensuring both the effective functioning of Union transport systems and protection of the environment.

(2) Sustainable development of air transport requires the introduction of measures aimed at reducing the noise impact from aircraft at Union airports. Those measures should improve the noise environment around Union airports in order to maintain or increase the quality of life of neighbouring citizens and foster compatibility between aviation activities and residential areas, in particular where night flights are concerned.

(3) Resolution A33/7 of the International Civil Aviation Organization (ICAO) introduces the concept of a 'Balanced Approach' to noise management (Balanced Approach) and establishes a coherent method to address aircraft noise. The Balanced Approach should remain the foundation of noise regulation for aviation as a global industry. The Balanced Approach recognises the value of, and does not prejudge, relevant legal obligations, existing agreements, current laws and established policies. Incorporating the international rules of the Balanced Approach in this Regulation should substantially lessen the risk of international disputes in the event of third-country carriers being affected by noise-related operating restrictions.

(4) Following the removal of the noisiest aircraft pursuant to Directive 2002/30/EC of the European Parliament and of the Council (4) and Directive 2006/93/EC of the European Parliament and of the Council (5), an update of how to use operating restriction measures is required to enable authorities to deal with the current noisiest aircraft so as to improve the noise environment around Union airports within the international framework of the Balanced Approach.

(5) The report from the Commission of 15 February 2008 entitled 'Noise Operation Restrictions at EU Airports' pointed to the need to clarify in the text of Directive 2002/30/EC the allocation of responsibilities and the precise rights and obligations of interested parties during the noise assessment process so as to guarantee that cost-effective measures are taken to achieve the noise abatement objectives for each airport.

(6) The introduction of operating restrictions by Member States at Union airports on a case-by-case basis, whilst limiting capacity, can contribute to improving the noise climate around airports. However, there is a possibility of distorting competition or hampering the overall efficiency of the Union aviation network through the inefficient use of existing capacity. Since the achievement of the specific noise abatement objective of this Regulation cannot be sufficiently achieved by the Member States but can rather, by reason of harmonised rules on the process for introducing operating restrictions as part of the noise management process, be better achieved at Union level, the Union may adopt measures in accordance with the principle of subsidiarity as set out in Article 5 of the Treaty on European Union. In accordance with the principle of proportionality, as set out in that Article, this Regulation does not go beyond what is necessary in order to achieve that objective. Such a harmonised method does not impose noise quality objectives, which continue to derive from Directive 2002/49/EC of the European Parliament and of the Council (6), other relevant Union rules or legislation within each Member State, and does not prejudge the concrete selection of measures.

(7) This Regulation should only apply to Member States in which an airport with more than 50 000 civil aircraft movements per calendar year is located and when the introduction of noise-related operating restrictions is being considered at such an airport.

(8) This Regulation should apply to aircraft engaged in civil aviation. It should not apply to aircraft such as military aircraft and aircraft undertaking customs, police and fire-fighting operations. Furthermore, various operations of an exceptional nature, such as flights for urgent humanitarian reasons, search and rescue in emergency situations, medical assistance, and disaster relief, should be exempted from this Regulation.

(9) While noise assessments should be carried out on a regular basis in accordance with Directive 2002/49/EC, such assessments should only lead to additional noise abatement measures if the current combination of noise mitigating measures does not achieve the noise abatement objectives, taking into account expected airport development. For airports where a noise problem has been identified, additional noise abatement measures should be identified in accordance with the Balanced Approach methodology. In order to ensure a wide application of the Balanced Approach within the Union, its use is recommended whenever it is considered adequate by the individual Member State concerned, even beyond the scope of this Regulation. Noise-related operating restrictions should be introduced only when other Balanced Approach measures are not sufficient to attain the specific noise abatement objectives.

(10) While a cost-benefit analysis provides an indication of the total economic welfare effects by comparing all costs and benefits, a cost-effectiveness assessment focuses on achieving a given objective in the most cost-effective way, requiring a comparison of only the costs. This Regulation should not prevent Member States from using cost-benefit analyses where appropriate.

(11) The importance of health aspects needs to be recognised in relation to noise problems, and it is therefore important that those aspects be taken into consideration in a consistent manner at all airports when a decision is taken on noise abatement objectives, taking into account the existence of common Union rules in this area. Therefore, health aspects should be assessed in accordance with Union legislation on the evaluation of noise effects.

(12) Noise assessments should be based on objective and measurable criteria common to all Member States and should build on existing information available, such as information arising from the implementation of Directive 2002/49/EC. Member States should ensure that such information is reliable, that it is obtained in a transparent manner and that it is accessible to competent authorities and stakeholders. Competent authorities should put in place the necessary monitoring tools.

(13) The competent authority responsible for adopting noise-related operating restrictions should be independent of any organisation involved in the airport's operation, air transport or air navigation service provision, or representing the interests thereof and of the residents living in the vicinity of the airport. This should not be understood as requiring Member States to modify their administrative structures or decision-making procedures.

(14) It is recognised that Member States have decided on noise-related operating restrictions in accordance with national legislation based on nationally acknowledged noise methods, which, as yet, might not be fully consistent with the method described in the authoritative European Civil Aviation Conference Report Doc 29 entitled 'Standard Method of Computing Noise Contours around Civil Airports' (ECAC Doc 29) nor use the internationally recognised aircraft noise performance information. However, the efficiency and effectiveness of a noise-related operating restriction should be assessed in accordance with the methods prescribed in ECAC Doc 29 and the Balanced Approach. Accordingly, Member States should adapt their assessments of operating restrictions in national legislation towards full compliance with ECAC Doc 29.

(15) A new and wider definition of operating restrictions as compared to Directive 2002/30/EC should be introduced in order to facilitate the implementation of new technologies and new operational capabilities of aircraft and ground equipment. Its application should not lead to delay in the implementation of operational measures which could immediately alleviate the noise impact without substantially affecting the operational capacity of an airport. Such measures should therefore not be considered to constitute new operating restrictions.

(16) The centralisation of information on noise would substantially reduce the administrative burden for both aircraft operators and airport operators. Such information is currently provided and managed at the level of individual airports. Those data need to be placed at the disposal of aircraft operators and airports for operational purposes. It is important to use the databank of the European Aviation Safety Agency ('the Agency') concerning noise performance certification as a validation tool with the European Organisation for the Safety of Air Navigation (Eurocontrol) data on individual flights. Such data are currently already systematically requested for central flow management purposes, but are not at present available to the Commission or to the Agency, and need to be specified for the purpose of this Regulation and for performance regulation of air traffic management. Good access to validated modelling data, determined in accordance with internationally recognised processes and best practices, should improve the quality of mapping of noise contours of individual airports to support policy decisions.

(17) To avoid unwanted consequences for aviation safety, airport capacity and competition, the Commission should notify the relevant competent authority if it finds that the process followed for the introduction of noise-related operating restrictions does not meet the requirements of this Regulation. The relevant competent authority should examine the Commission notification and should inform the Commission of its intentions before introducing the operating restrictions.



(18) In order to take account of the Balanced Approach, provision should be made for the possibility of exemptions in special circumstances for operators from developing third countries, without which such operators would suffer undue hardship. Reference to 'developing countries' is to be understood in the light of this specific aviation context and does not include all countries that would otherwise be referred to as such, within the international community. In particular, it is necessary to ensure that any such exemptions are compatible with the principle of non-discrimination.

(19) In order to reflect the continuous technological progress in engine and airframe technologies and the methods used to map noise contours, the power to adopt acts in accordance with Article 290 of the Treaty on the Functioning of the European Union should be delegated to the Commission with respect to regularly updating the noise standards for aircraft referred to in this Regulation and the reference to the associated certification methods, taking into account, when appropriate, changes in relevant ICAO documents and updating the reference to the method for computing noise contours, taking into account, when appropriate, changes in relevant ICAO documents. In addition, changes to ECAC Doc 29 should also be taken into consideration for technical updates through delegated acts, as appropriate. It is of particular importance that the Commission carry out appropriate consultations during its preparatory work, including at expert level. The Commission, when preparing and drawing-up delegated acts, should ensure a simultaneous, timely and appropriate transmission of all relevant documents to the European Parliament and to the Council.

(20) While this Regulation requires a regular assessment of the noise situation at airports, such an assessment does not necessarily entail the adoption of new noise-related operating restrictions or the review of existing ones. Therefore, this Regulation does not require the review of noise-related operating restrictions already in place at the date of its entry into force, including those resulting from court decisions or local mediation processes. Minor technical amendments to measures without substantive implications for capacity or operations should not be considered as new noise-related operating restrictions.

(21) Where the consultation process preceding the adoption of a noise-related operating restriction was launched under Directive 2002/30/EC and is still ongoing at the date of entry into force of this Regulation, it is appropriate to allow the final decision to be taken in accordance with Directive 2002/30/EC in order to preserve the progress already achieved in that process.

(22) Considering the need for the consistent application of the noise assessment method within the Union aviation market, this Regulation sets out common rules in the field of noise operating restrictions.

(23) Directive 2002/30/EC should therefore be repealed,

HAVE ADOPTED THIS REGULATION:

*Article 1*

**Subject matter, objectives and scope**

1. This Regulation 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, so as to help improve the noise climate and to limit or reduce the number of people significantly affected by potentially harmful effects of aircraft noise, in accordance with the Balanced Approach.

2. The objectives of this Regulation are:

(a) to facilitate the achievement of specific noise abatement objectives, including health aspects, at the level of individual airports, while respecting relevant Union rules, in particular those laid down in Directive 2002/49/EC, and the legislation within each Member State;

(b) to enable the use of operating restrictions in accordance with the Balanced Approach so as to achieve the sustainable development of the airport and air traffic management network capacity from a gate-to-gate perspective.

3. This Regulation shall apply to aircraft engaged in civil aviation. It shall not apply to aircraft engaged in military, customs, police or similar operations.

*Article 2*

**Definitions**

For the purpose of this Regulation, the following definitions shall apply:

(1) 'aircraft' means fixed-wing aircraft with a maximum certificated take-off mass of 34 000 kg or more, or with a certificated maximum internal accommodation for the aircraft type in question consisting of 19 passenger seats or more, excluding any seats for crew only;

(2) 'airport' means an airport which has more than 50 000 civil aircraft movements per calendar year (a movement being a take-off or landing), on the basis of the average number of movements in the last three calendar years before the noise assessment;

(3) 'Balanced Approach' means 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;

(4) 'marginally compliant aircraft' means aircraft which are certified in accordance with limits laid down in Volume 1, Part II, Chapter 3 of Annex 16 to the Convention on International Civil Aviation signed on 7 December 1944 (the Chicago Convention) by a cumulative margin of less than 8 EPNdB (Effective Perceived Noise in Decibels) during a transitional period ending on 14 June 2020, and by a cumulative margin of less than 10 EPNdB following the end of that transitional period, whereby the cumulative margin is the figure expressed in EPNdB obtained by adding the individual margins (i.e. the differences between the certificated noise level and the maximum permitted noise level) at each of the three reference noise measurement points defined in Volume 1, Part II, Chapter 3 of Annex 16 to the Chicago Convention;

(5) 'noise-related action' means any measure that affects the noise climate around airports, for which the principles of the Balanced Approach apply, including other non-operational actions that can affect the number of people exposed to aircraft noise;

(6) 'operating restriction' means 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.

*Article 3*

**Competent authorities**

1. A Member State in which an airport as referred to in point (2) of Article 2 is located shall designate one or more competent authorities responsible for the process to be followed when adopting operating restrictions.

2. The competent authorities shall be independent of any organisation which could be affected by noise-related action. That independence may be achieved through a functional separation.

3. The Member States shall notify the Commission, in a timely manner, of the names and addresses of the designated competent authorities referred to in paragraph 1. The Commission shall publish that information.



*Article 4*

**Right of appeal**

1. Member States shall ensure the right to appeal against operating restrictions adopted pursuant to this Regulation before an appeal body other than the authority that adopted the contested restriction, in accordance with national legislation and procedures.

2. The Member State in which an airport as referred to in point (2) of Article 2 is located shall notify the Commission, in a timely manner, of the name and address of the designated appeal body referred to in paragraph 1 or, where appropriate, of the arrangements for ensuring that an appeal body is appointed.

*Article 5*

**General rules on aircraft noise management**

1. Member States shall ensure that the noise situation at an individual airport as referred to in point (2) of Article 2 is assessed in accordance with Directive 2002/49/EC.

2. Member States shall ensure that the Balanced Approach is adopted in respect of aircraft noise management

at those airports where a noise problem has been identified. To that end, they shall ensure that:

(a) the noise abatement objective for that airport, taking into account, as appropriate, Article 8 of, and Annex V to, Directive 2002/49/EC, is defined;

(b) measures available to reduce the noise impact are identified;

(c) the likely cost-effectiveness of the noise mitigation measures is thoroughly evaluated;

(d) the measures, taking into account public interest in the field of air transport as regards the development prospects of their airports, are selected without detriment to safety;

(e) the stakeholders are consulted in a transparent way on the intended actions;

(f) the measures are adopted and sufficient notification is provided for;

(g) the measures are implemented; and

(h) dispute resolution is provided for.

3. Member States shall ensure that, when noise-related action is taken, the following combination of available measures is considered, with a view to determining the most cost-effective measure or combination of measures:

(a) the foreseeable effect of a reduction of aircraft noise at source;

(b) land-use planning and management;

(c) noise abatement operational procedures;

(d) not applying operating restrictions as a first resort, but only after consideration of the other measures of the Balanced Approach.

The available measures may if necessary include the withdrawal of marginally compliant aircraft. Member States, or airport managing bodies, as appropriate, may offer economic incentives to encourage aircraft operators to use less noisy aircraft during the transitional period referred to in point (4) of Article 2. Those economic incentives shall comply with the applicable rules on State aid.

4. The measures may, within the Balanced Approach, be differentiated according to aircraft type, aircraft noise performance, use of airport and air navigation facilities, flight path and/or the timeframe covered.

5. Without prejudice to paragraph 4, operating restrictions which take the form of the withdrawal of marginally compliant aircraft from airport operations shall not affect civil subsonic aircraft that comply, through either original certification or re-certification, with the noise standard laid down in Volume 1, Part II, Chapter 4 of Annex 16 to the Chicago Convention.

6. Measures or a combination of measures taken in accordance with this Regulation for a given airport shall not be more restrictive than is necessary in order to achieve the environmental noise abatement objectives set for that airport. Operating restrictions shall be non-discriminatory, in particular on grounds of nationality or identity, and shall not be arbitrary.

*Article 6*

**Rules on noise assessment**

1. The competent authorities shall ensure that the noise situation at airports for which they are responsible is assessed on a regular basis, in accordance with Directive 2002/49/EC and the legislation applicable within each Member State. The competent authorities may call on the support of the Performance Review Body referred to

in Article 3 of Commission Regulation (EU) No 691/2010 (7).

2. If the assessment referred to in paragraph 1 indicates that new operating restriction measures may be required to address a noise problem at an airport, the competent authorities shall ensure that:

(a) the method, indicators and information in Annex I are applied in such a way as to take due account of the contribution of each type of measure under the Balanced Approach, before operating restrictions are introduced;

(b) at the appropriate level, technical cooperation is established between the airport operators, aircraft operators and air navigation service providers to examine measures to mitigate noise. The competent authorities shall also ensure that local residents, or their representatives, and relevant local authorities are consulted, and that technical information on noise mitigation measures is provided to them;

(c) the cost-effectiveness of any new operating restriction is assessed, in accordance with Annex II. Minor technical amendments to measures without substantive implications on capacity or operations shall not be considered new operating restrictions;

(d) the process of consultation with interested parties, which may take the form of a mediation process, is organised in a timely and substantive manner, ensuring openness and transparency as regards data and computation methodologies. Interested parties shall have at least three months prior to the adoption of the new operating restrictions to submit comments. The interested parties shall include at least:

(i) local residents living in the vicinity of the airport and affected by air traffic noise, or their representatives, and the relevant local authorities;

(ii) representatives of local businesses based in the vicinity of the airport, whose activities are affected by air traffic and the operation of the airport;

(iii) relevant airport operators;

(iv) representatives of those aircraft operators which may be affected by noise-related actions;

(v) the relevant air navigation service providers;

(vi) the Network Manager, as defined in Commission Regulation (EU) No 677/2011 (8);

(vii) where applicable, the designated slots coordinator.

3. The competent authorities shall follow up and monitor the implementation of the operating restrictions and take action as appropriate. They shall ensure that relevant information is made available free of charge and that it is readily and promptly accessible to local residents living in the vicinity of the airports and to the relevant local authorities.

4. The relevant information may include:

(a) while respecting national law, information on alleged infringements due to changes in flight procedures, in terms of their impact and the reasons why such changes were made;

(b) the general criteria applied when distributing and managing traffic in each airport, to the extent that those criteria may have an environmental or noise impact; and

(c) data collected by noise measuring systems, if available.

*Article 7*

**Noise performance information**

1. Decisions on noise-related operating restrictions shall be based on the noise performance of the aircraft as determined by the certification procedure conducted in accordance with Volume 1 of Annex 16 to the Chicago Convention, sixth edition of March 2011.

2. At the request of the Commission, aircraft operators shall communicate the following noise information in respect of the aircraft that they operate at Union airports:

(a) the aircraft nationality and registration mark;

(b) the noise documentation of the aircraft used, together with the associated maximum take-off weight;

(c) any modification of the aircraft which affects its noise performance and is stated on the noise documentation.

. Upon request of the Agency, holders of an aircraft type certificate or a supplemental type certificate issued in accordance with Regulation (EC) No 216/2008 of the European Parliament and of the Council (9), and legal or natural persons operating aircraft for which no type certificate has been issued under that Regulation, shall provide aircraft noise and performance information for noise modelling purposes. The Agency shall specify the data required and the timeframe for, and the form and manner of, its provision. The Agency shall verify the received aircraft noise and performance information for modelling purposes and shall make the information available to other parties for noise modelling purposes.

4. The data referred to in paragraphs 2 and 3 of this Article shall be limited to what is strictly necessary and shall be provided free of charge, in electronic form and using the format specified, where applicable.

5. The Agency shall verify the aircraft noise and performance data for modelling purposes in relation to its tasks performed in accordance with Article 6(1) of Regulation (EC) No 216/2008.

6. Data shall be stored in a central database and made available to competent authorities, aircraft operators, air navigation service providers and airport operators for operational purposes.

*Article 8*

**Rules on the introduction of operating restrictions**

1. Before introducing an operating restriction, the competent authorities shall give to the Member States, the Commission and the relevant interested parties six months' notice, ending at least two months prior to the determination of the slot coordination parameters as defined in point (m) of Article 2 of Council Regulation (EEC) No 95/93 (10) for the airport concerned for the relevant scheduling period.

2. Following the assessment carried out in accordance with Article 6, the notification shall be accompanied by a written report in accordance with the requirements specified in Article 5 explaining the reasons for introducing the operating restriction, the noise abatement objective established for the airport, the measures that were considered to meet that objective, and the evaluation of the likely cost-effectiveness of the various measures considered, including, where relevant, their cross-border impact.

3. At the request of a Member State or on its own initiative, the Commission may, within a period of three months after the day on which it receives notice under paragraph 1, review the process for the introduction of an operating restriction. Where the Commission finds that the introduction of a noise-related operating restriction does not follow the process set out in this Regulation, it may notify the relevant competent authority accordingly. The relevant competent authority shall examine the Commission notification and inform the Commission of its intentions before introducing the operating restriction.

4. Where the operating restriction concerns the withdrawal of marginally compliant aircraft from an airport, no additional services above the number of movements with marginally compliant aircraft in the corresponding period of the previous year shall be allowed at that airport six months after the notification referred to in paragraph 1. The Member States shall ensure that the competent authorities decide on the annual rate for reducing the number of movements of marginally compliant aircraft of affected operators at that airport, taking due account of the age of the aircraft and the composition of the total fleet. Without prejudice to Article 5(4), that rate shall not be more than 25 % of the number of movements of marginally compliant aircraft for each operator serving that airport.

*Article 9*

**Developing countries**

1. In order to avoid undue economic hardship, the competent authorities may exempt marginally compliant aircraft registered in developing countries from noise operating restrictions, while fully respecting the principle of non-discrimination, provided that such aircraft:

(a) are granted a noise certification to the standards specified in Chapter 3, Volume 1 of Annex 16 to the Chicago Convention;

(b) were operated in the Union during the five-year period preceding the entry into force of this Regulation;

(c) were on the register of the developing country concerned in that five-year period; and

(d) continue to be operated by a natural or legal person established in that country.

2. Where a Member State grants an exemption provided for in paragraph 1, it shall forthwith inform the competent authorities of the other Member States and the Commission thereof.

*Article 10*

**Exemption for aircraft operations of an exceptional nature**

The competent authorities may, on a case-by-case basis, authorise individual operations at airports for which they are responsible in respect of marginally compliant aircraft which could not otherwise take place on the basis of this Regulation.

The exemption shall be limited to:

(a) operations which are of such an exceptional nature that it would be unreasonable to withhold a temporary exemption, including humanitarian aid flights; or

(b) non-revenue flights for the purpose of alterations, repair or maintenance.

*Article 11*

**Delegated acts**

The Commission shall be empowered to adopt delegated acts in accordance with Article 12 concerning:

(a) technical updates to the noise certification standards provided for in Article 5(5) and point (a) of Article 9(1), and to the certification procedure provided for in Article 7(1);

(b) technical updates to the methodology and indicators set out in Annex I.

The purpose of those updates shall be to take into account changes to relevant international rules, as appropriate.

*Article 12*

**Exercise of the delegation**

1. The power to adopt delegated acts is conferred on the Commission subject to the conditions laid down in this Article.

2. The power to adopt delegated acts referred to in Article 11 shall be conferred on the Commission for a period of five years from 13 June 2016. The Commission shall draw up a report in respect of the delegation of power not later than nine months before the end of the five-year period. The delegation of power shall be tacitly extended for periods of an identical duration, unless the European Parliament or the Council opposes such extension not later than three months before the end of each period.

3. The delegation of power referred to in Article 11 may be revoked by the European Parliament or by the Council. A decision to revoke shall put an end to the delegation of the powers specified in that decision. It shall take effect the day following the publication of the decision in theOfficial Journal of the European Union or at a later date specified therein. It shall not affect the validity of any delegated acts already in force.

4. As soon as it adopts a delegated act, the Commission shall notify it simultaneously to the European Parliament and to the Council.

5. A delegated act adopted pursuant to Article 11 shall enter into force only if no objection has been expressed either by the European Parliament or the Council within a period of two months of notification of that act to the European Parliament and the Council or if, before the expiry of that period, the European Parliament and the Council have both informed the Commission that they will not object. That period shall be extended by two months at the initiative of the European Parliament or of the Council.

*Article 13*

**Information and revision**

Member States shall upon request submit information on the application of this Regulation to the Commission.

No later than 14 June 2021, the Commission shall report to the European Parliament and to the Council on the application of this Regulation.

That report shall be accompanied, where necessary, by proposals for revision of this Regulation.

*Article 14*

**Existing operating restrictions**

Noise-related operating restrictions which were already introduced before 13 June 2016 shall remain in force until the competent authorities decide to revise them in accordance with this Regulation.

*Article 15*

**Repeal**

Directive 2002/30/EC is repealed with effect from 13 June 2016.

*Article 16*

**Transitional provisions**

Notwithstanding Article 15 of this Regulation, noise-related operating restrictions adopted after 13 June 2016 may be adopted in accordance with Directive 2002/30/EC where the consultation process prior to their adoption was ongoing at that date and provided that those restrictions are adopted at the latest one year after that date.

*Article 17*

**Entry into force**

This Regulation shall enter into force on 13 June 2016.

This Regulation shall be binding in its entirety and directly applicable in all Member States.

Done at Strasbourg, 16 April 2014.

For the European Parliament

The President

M. SCHULZ

For the Council

The President

D. KOURKOULAS

_____

(1) OJ C 181, 21.6.2012, p. 173.

(2) OJ C 277, 13.9.2012, p. 110.

(3) Position of the European Parliament of 12 December 2012 (not yet published in the Official Journal) and position of the Council at first reading of 24 March 2014 [(not yet published in the Official Journal). Position of the European Parliament of 15 April 2014 (not yet published in the Official Journal).

(4) Directive 2002/30/EC of the European Parliament and of the Council of 26 March 2002 on the establishment of rules and procedures with regard to the introduction of noise-related operating restrictions at Community airports (OJ L 85, 28.3.2002, p. 40).

(5) 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) (OJ L 374, 27.12.2006, p. 1).

(6) Directive 2002/49/EC of the European Parliament and of the Council of 25 June 2002 relating to the assessment and management of environmental noise (OJ L 189, 18.7.2002, p. 12).

(7) Commission Regulation (EU) No 691/2010 of 29 July 2010 laying down a performance scheme for air navigation services and network functions and amending Regulation (EC) No 2096/2005 laying down common requirements for the provision of air navigation services (OJ L 201, 3.8.2010, p. 1).

(8) Commission Regulation (EU) No 677/2011 of 7 July 2011 laying down detailed rules for the implementation of air traffic management (ATM) network functions and amending Regulation (EU) No 691/2010 (OJ L 185, 15.7.2011, p. 1).

(9) Regulation (EC) No 216/2008 of the European Parliament and of the Council of 20 February 2008 on common rules in the field of civil aviation and establishing a European Aviation Safety Agency, and repealing Council Directive 91/670/EEC, Regulation (EC) No 1592/2002 and Directive 2004/36/EC (OJ L 79, 19.3.2008, p. 1).

(10) Council Regulation (EEC) No 95/93 of 18 January 1993 on common rules for the allocation of slots at Community airports (OJ L 14, 22.1.1993, p. 1).

---

**ANNEX I**

**ASSESSMENT OF THE NOISE SITUATION AT AN AIRPORT**

**Methodology:**

Competent authorities will ensure the use of noise assessment methods which have been developed in accordance with the European Civil Aviation Conference Report Doc 29 entitled 'Standard Method of Computing Noise Contours around Civil Airports', 3rd Edition.

**Indicators:**

1. Air traffic noise impact will be described, at least, in terms of noise indicators Lden and Lnight which are defined and calculated in accordance with Annex I to Directive 2002/49/EC.

2. Additional noise indicators which have an objective basis may be used.

**Noise management information:**

**1. Current inventory**

1.1. A description of the airport, including information about its size, location, surroundings, air traffic volume and mix.

1.2. A description of any environmental objectives for the airport and the national context. This will include a description of the aircraft noise abatement objectives for the airport.

1.3. Details of noise contours for the relevant previous years — including an assessment of the number of people affected by aircraft noise, carried out in accordance with Annex II to Directive 2002/49/EC.

1.4. A description of the existing and planned measures to manage aircraft noise already implemented in the framework of the Balanced Approach and their impact on and contribution to the noise situation, by reference to:

1.4.1. For reduction at source:

(a) information on the current aircraft fleet and any expected technology improvements;

(b) specific fleet renewal plans.

1.4.2. For land-use planning and management:

(a) planning instruments in place, such as comprehensive planning or noise zoning;

(b) mitigating measures in place, such as building codes, noise insulation programmes or measures to reduce areas of sensitive land use;

(c) consultation process in respect of the land-use measures;

(d) monitoring of encroachment.

1.4.3. For noise abatement operational measures, to the extent that those measures do not restrict the capacity of an airport:

(a) use of preferential runways;

(b) use of noise-preferential routes;

(c) use of noise abatement take-off and approach procedures;

(d) indication of the extent to which those measures are regulated under environment indicators, as mentioned in Annex I to Regulation (EU) No 691/2010.

1.4.4. For operating restrictions:

(a) use of global restrictions, such as a cap on movements or noise quotas;

(b) use of aircraft-specific restrictions, such as the withdrawal of marginally compliant aircraft;

(c) use of partial restrictions, drawing a distinction between daytime measures and night-time measures.

1.4.5. The financial instruments in place, such as noise-related airport charges.

**2. Forecast without new measures**

2.1. Descriptions of airport developments, if any, already approved and in the pipeline, for example, increased capacity, runway and/or terminal expansion, approach and take-off forecasts, projected future traffic mix and estimated growth and a detailed study of the noise impact on the surrounding area caused by expanding the capacity, runways and terminals and by modifying flight paths and approach and take-off routes.

2.2. In the case of airport capacity extension, the benefits of making that additional capacity available within the wider aviation network and the region.



2.3. A description of the effect on noise climate without further measures, and of those measures already planned to ameliorate the noise impact over the same period.

2.4. Forecast noise contours — including an assessment of the number of people likely to be affected by aircraft noise — distinguishing between established residential areas, newly constructed or planned residential areas and planned future residential areas that have already been granted authorisation by the competent authorities.

2.5. Evaluation of the consequences and possible costs of not taking action to reduce the impact of increased noise, if it is expected to occur.

**3. Assessment of additional measures**

3.1. Outline of the additional measures available and an indication of the main reasons for their selection. Description of those measures chosen for further analysis and information on the outcome of the cost-efficiency analysis, in particular the cost of introducing those measures; the number of people expected to benefit and the timeframe; and a ranking of the overall effectiveness of particular measures.

3.2. An overview of the possible environmental and competitive effects of the proposed measures on other airports, operators and other interested parties.

3.3. Reasons for selection of the preferred option.

3.4. A non-technical summary.

---

**ANNEX II**

**Assessment of the cost-effectiveness of noise-related operating restrictions**

The cost-effectiveness of envisaged noise-related operating restrictions will be assessed taking due account of the following elements, to the extent possible, in quantifiable terms:

(1) the anticipated noise benefit of the envisaged measures, now and in the future;

(2) the safety of aviation operations, including third-party risks;

(3) the capacity of the airport;

(4) any effects on the European aviation network.

In addition, competent authorities may take due account of the following factors:

(1) the health and safety of local residents living in the vicinity of the airport;

(2) environmental sustainability, including interdependencies between noise and emissions;

(3) any direct, indirect or catalytic employment and economic effects.

---

**Statement by the Commission on the revision of Directive 2002/49/EC**

The Commission is discussing with the Member States Annex II to Directive 2002/49/EC (noise calculation methods) with a view to adopting it in the coming months.

Based on work the WHO is currently undertaking regarding the methodology to assess health implications of the noise impact, the Commission intends to revise Annex III to Directive 2002/49/ EC (estimation of health impact, dose response curves).

Airport Regions Conference

Rue Montoyer 21
1000 Bruxelles, Belgium

Telephone: +32 2 513 48 85
E-mail: info@airportregions.org
Website: www.airportregions.org

ARC
AIRPORT REGIONS CONFERENCE