



Stansted Airport

Environmental Noise Directive

## Noise Action Plan 2010-2015

Draft for Consultation - June 2009



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# Contents

## **Stansted Airport Draft Environmental Noise Directive Action Plan**

1	Foreword by Airport MD	2
2	Executive Summary	3
3	Purpose and Scope	5
4	Description of the Airport Location	7
5	Background to Noise and Regulation	8
6	Stansted Airport's Framework for Noise Management	12
7	Results of the 2006 Noise Mapping	20
8	Provisions Envisaged for Evaluating the Implementation and the results of the Action Plan	22
9	Our Approach to Managing Noise (the action plan)	23
10	Financial Information – Cost of Noise Management	32
11	Key Consultation Questions, with Response Form/Web Address for Responses	33

## **Annexes**

Annex A	Glossary of Terms	34
Annex B	END Noise Maps	37
Annex C	NPR Map	39
Annex D	Arrival and Departure Maps	40

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# 1. Foreword

Stansted Airport is one of the UK's principal international gateways for trade, tourism and travel and is a key driver for economic development in the East of England. In 2008, the airport served 22.3 million passengers making Stansted, in passenger terms, the 3rd busiest airport in the UK and placed it in the top 50 of the world's leading airports.

Today, the airport offers passenger flights to over 150 destinations served by 23 different airlines – and the routes and different airlines continues to grow. The airport also handled around 200,000 tonnes of cargo during 2008 and in 2012 we look forward to being one of the international gateways for the London Olympics.

However, we are only too aware that with growth comes responsibility. Living near to an airport like Stansted has its advantages – for example, employment opportunities and great transport links – but the airport can also disadvantage some people living in the local community, particularly when it comes to aircraft noise.

Here at the airport, we have been monitoring, reporting and managing noise issues since the early 1990's. Our challenge is to manage that noise in a pro-active, professional yet sensitive way, and to take appropriate actions to reduce and mitigate against aircraft noise where we can.

We pride ourselves on the pro-active way the airport monitors and reports on both aircraft noise and aircraft track-keeping. Through our noise complaints handling systems, we investigate and respond to all those who complain about noise.

Where we find that an airline has breached track-keeping or noise limits, then we fine them and monies raised are used to support local community projects.

London Stansted, as a designated airport, also imposes night flying restrictions set by the Department for Transport to limit aircraft noise generated between 23:30 - 06:00 each day. Our landing fees are set to be more attractive to those airlines that operate the quietest fleet of aircraft.

At Stansted, complacency is not an option for us as we need to continually work on new and improved ways to minimise any impacts from aircraft noise.

This is why we are consulting with the communities around our airport to review this report and the actions we are proposing to take.

We want to know what people think of our draft plans for the next five years before we finalise them for submission to DEFRA later in the year. Each and every response received during the consultation will be reviewed independently from London Stansted by an external consultancy company.

I urge you to view our plans and to share with us your thoughts – details of how to get involved in this consultation are shown in Section 11 of this report. The consultation runs from 12 June to 2 October 2009.

I look forward to hearing your views.



**Stewart Wingate**

Managing Director, London Stansted.

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## 2. Executive Summary

The Environmental Noise (England) Regulations 2006 require airport operators to develop Action Plans designed to manage noise issues and effects arising from aircraft departing from and arriving at their airport, including reduction if necessary. This supports the Government's aim – as set out in the “*The Future of Air Transport White Paper*” (ATWP) – to limit and where possible reduce the number of people in the UK significantly affected by aircraft noise.

Our proposed Noise Action Plans aim to manage and, where possible, reduce the impact of noise from the various aircraft that operate at Stansted Airport.

*At the outset, it is important to clarify that this Noise Action Plan consultation must not be confused with the NATS public consultation process on proposed airspace changes – known as TC North.*

This consultation document seeks views on Stansted Airport Limited's (STAL's) action plan to manage aircraft noise impacts over the five year period 2010– 2015. This document aims to:

- Demonstrate our continuing commitment to managing aircraft noise impacts associated with Stansted Airport's operations. BAA has identified this issue as one of the key priorities for our company's corporate responsibility agenda.
- Allow us to engage with communities affected by aircraft noise and better understand their concerns and priorities, so that we can ensure our airport noise strategies and action plans are well informed.
- Enable us to make progress towards our long term statutory and voluntary aircraft noise objectives.
- Enable us, in our role as the competent authority for Stansted Airport's Noise Action Plan, to meet the requirements of the Environmental Noise Directive 2002/49/EU and The Environmental Noise (England) Regulations 2006 SI (2006) 2238.

Of course, consulting and publishing our finalised noise action plans is only part of the process; we must keep our communities and other stakeholders informed as to the progress we make. We are committed to reporting publicly on our performance and the effectiveness of our actions to address community concerns.

With this in mind, we plan to report on our progress against the action plan in our annual Corporate Responsibility Report. This will be provided to the Stansted Airport Consultative Committee (STACC) and will also be posted on the airport's website.

By prioritising our noise management activities on the most effective actions, we believe we can ensure maximum benefits for noise affected communities.

### **The Structure of this Report**

Over the following paragraphs we have set out the key aspects of sections 3 to 11 contained within this draft action plan. There are a series of Annexes also contained within this document.

**Section 3** sets out the purpose and scope of the draft noise action plan. The purpose is to seek the views of all stakeholders on the proposed draft noise action plan. The scope of the draft noise action plan is extended beyond the areas identified by the strategic noise mapping to include ground noise issues and actions that impact on areas outside of the contours. The section also points out that responsibilities for noise management do not always fall to the airport operator and often fall to the DfT, NATS and/or the CAA. In such cases the airport operator can only recommend any proposed changes.

**Section 4** provides a description of Stansted Airport and comments briefly on potential future development of the airport.

**Section 5** introduces the issue of aircraft noise and details the legal context in which Stansted Airport operates

**Section 6** outlines our strategic approach to aircraft noise management framed around our long term objective “*To limit aircraft noise impacts and gain the trust of our stakeholders that we are using best practicable means to achieve this goal, and to continue this approach into the future, within the framework established by Government.*”

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## 2. Executive Summary

**Section 7** summarises the results of the 2006 noise mapping and is supported by the maps in Annex B. Whilst the mapping introduces a new metric in describing the noise impact because of Stansted's history of noise management controls and frequent contour analysis it does not highlight any new geographical areas of concern with regard to noise impacts.

**Section 8** sets out how we intend to monitor progress against the action plan using performance indicators for individual actions.

**Section 9** is the list of draft actions. There are in excess of 40 actions detailed within the current draft. Some of these represent the continuation of current good practice. There are however a number of new actions which highlight our desire to further improve our noise management approach. Some of the new actions to note are :

- Aim to introduce CDA arrivals on Runway 04
- Review our current fining levels for Off Track Departures
- Introduce a tiered fining level for Departure Noise Infringements

**Section 10** discusses the methodology we used to identify potential actions, assessing the financial costs of noise management and the number of individuals potentially benefiting from any new action.

Finally **Section 11** details how to respond to this consultation and asks the following questions.

1. To what extent do you think that BAA Stansted's noise strategies outlined in the draft noise action plan are targeting the most important problems in relation to aircraft noise?
2. To what extent do you think that the draft noise action plan provides a suitable framework to manage aircraft noise?
3. The draft noise action plan proposes a number of performance indicators to measure progress in implementing the action plan. To what extent do you think that these performance indicators are sufficient?
4. As part of its objective to limit and where possible reduce the impacts of aircraft noise Stansted has set a benchmark goal to be in the top fifth of airport companies for best practice in international airport noise management on comparable sites. To what extent do you think that this goal is sufficiently challenging?
5. Do you have any other comments on Stansted Airport's draft Noise Action Plan?

The deadline for response to these questions is 2nd October 2009.

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## 3. Purpose and scope

### **Purpose**

The European Union Environmental Noise Directive 2002/49/EU and UK government regulations, The Environmental Noise (England) Regulations 2006 SI (2006) 2238 require airports with over 50,000 movements a year to produce Noise Action Plans. The airport operator is the competent authority for drawing up the Action Plan. For Stansted Airport, the authority is Stansted Airport Limited (STAL).

Government guidance states that Noise Action Plans are designed to manage noise issues and effects arising from aircraft departing from and arriving at the airport, including noise reduction if necessary.

This consultation document seeks your views on STAL's proposed Noise Action Plan for Stansted Airport. In accordance with the published guidance, the purpose of this Noise Action Plan is to manage and where possible reduce the impact of noise from aircraft at Stansted Airport over the five year period of 2010 -2015.

STAL recognises that noise from aircraft operations remains a real concern for our local communities, particularly with plans to grow and expand the airport in the coming years. Through this consultation document we hope to engage with communities affected by aircraft noise to better understand their concerns and priorities. By doing so, we can ensure effective action is taken in response.

### **Scope**

In accordance with the requirements of the EU Noise Directive 2002/49/EU, this action plan makes reference to the dB Lden noise contours, 2006, published for Stansted Airport by the Environment Research Consultancy Department (ERCD). The ERCD form part of the Civil Aviation Authority. The contours are shown in Annex B.

Through the methods set out in this action plan, we seek to manage aircraft noise from Stansted Airport operations. Please note that this document includes actions related to any developments for which the airport has been granted planning permission at the time of publication. The action plan considers noise created by aircraft approaching and taking off from the airport, as well as noise created by taxiing aircraft and engine testing carried out within the airport perimeter. The action plan does not, however, include noise from airport construction activities or noise from road and rail traffic associated with the airport. Noise action plans for noise associated with major road and rail routes are dealt with separately under government legislation and do not fall within the responsibility of airport operators. For information, please see

🔗 [www.noisemapping.defra.gov.uk](http://www.noisemapping.defra.gov.uk).

The legal requirement is for STAL to consider noise issues affecting the area shown by the dB Lden noise contours as being within the 55 dB(A), Lden or more and 50 dB(A), Lnight contours referred to above. It is understood that these contours take into account aircraft noise, being noise during the take-off, landing and ground roll. Therefore by considering noise created by taxiing aircraft and engine testing carried out within the airport perimeter, our action plan goes further than the legal requirement. STAL has additionally extended the scope of this action plan by giving consideration to actions which seek to address the impacts of aircraft noise in areas beyond the specified contours.

### **The Stansted Airport Surface Access Strategy (ASAS)**

Stansted Airport has led the way in the development of its Airport Surface Access Strategy (ASAS) with the first ASAS being published in 1999. In line with our planning permission to grow the Airport to 25million passengers per annum (mppa), Stansted published a new ASAS in 2004, with an updated ASAS in 2005 – Progress Through Partnership.

This Strategy 'Leading the way forward' is for growth of the Airport to 35mppa and for the period 2008 -2015. It will build upon the great successes that have been achieved by working in partnership with our stakeholders to improve passengers' whole journey experience. The Strategy is intended to:

- Set out a clear framework for the development of surface access to support the Airport to 2015 in line with the Air Transport White Paper for the Generation 1 Development to 35 million passengers per annum (mppa)
- Contribute significantly towards our corporate sustainability agenda and climate change agenda
- Provide the framework to set challenging targets for surface access
- Contribute to, and influence, regional and local development frameworks.

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## 3. Purpose and scope

Today, the Airport's surface access network connects with many great destinations enabling business and tourist travellers to access key destinations such as London, and regional cities and towns such as Cambridge, Norwich, Colchester, Ipswich, Chelmsford and Peterborough. This is important for the UK and regional economy as it enables business and leisure travellers' easy access to trade internationally or visit.

Our aim is to continue to work with surface transport operators to enhance existing connections with key destinations and to develop new links to others. Stansted Airport and the surface transport providers who serve Stansted have invested heavily in public transport; this has dramatically improved the quality and environmental performance of the transport product.

Many of the transport companies that serve Stansted have indicated that they have plans to continue this trend. This will ensure that Stansted Airport offers a great transport service to our passengers, providing both quality and choice of travel mode. Our aim will be to encourage all surface access providers to enhance existing transport services and to maximise the benefit of this investment.

### **Pre Public Consultation**

Prior to this Noise Action Plan being submitted for Public Consultation, a draft version of this document and our communications plan were sent to various stakeholders, Airlines, members of the Stansted Airport Consultative Committee (STACC), members of the Noise and Track Keeping Working Group (NTKWG), Local Councillors and Air Traffic Control, requesting their views.

The responses received were collated, and any advice offered, where appropriate, were incorporated into this Noise Action Plan. Much of the feedback made reference to the detailed nature of this plan and the industry terms and acronyms used. We have hopefully addressed these issues with references, and a glossary of terms in Annex A.

We have also produced a non-technical summary of our proposed action plans as a result of pre-consultation feedback.



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## 4. Description of the airport location

Stansted Airport covers an area of 957 Hectares. The airport is located approximately 65 kilometres north-east of London, and 50 kilometres south-east of Cambridge. It is a major international airport primarily serving London, the East of England and the South East.

Land surrounding the airport is predominantly arable agricultural land, interspersed with dwellings and farmhouses. Towns in the vicinity of the Airport include Bishop's Stortford, located 3.5 kilometres to the west, Great Dunmow approximately 8 kilometres to the east and Stansted Mountfitchet approximately 3.5 kilometres to the north-west. Nearby villages include Molehill Green, Bamber's Green, Takeley, Takeley Street, Birchanger, Burton End, Tye Green and Gaunt's End.

### **Airport Development**

Stansted Airport's origins date back to the Second World War when the airport was built to provide an airfield base for the United States army.

The modern airport includes the iconic terminal building opened in 1991, having been granted planning permission in 1985. The permission was granted with an initial phase of 8 million passengers per year (mppa), and a second for up to about 15mppa. In 2001, a further planning application for development beyond 15mppa was made, and permission was granted in 2003 for up to 25mppa.

In October 2008, the Secretary of State approved the G1 planning application along with a series of conditions and obligations. Therefore, Stansted's growth is limited by conditions imposed by the Secretary of State. These conditions seek to limit growth by restricting: passenger numbers to 35 mppa, air transport movements to 264,000 and the area within the 57 LAeq noise footprint to 33.9 square kilometres.

In March 2008 STAL submitted planning applications for a second runway and associated development at Stansted Airport. These applications represent the 'Generation 2 project' (G2). They are intended to allow the airport to grow to 68mppa in the future, with two runways and two terminal buildings. In July 2008 the G2 planning applications were 'called in' for determination by the Secretary of State by means of a public inquiry.

### **Airport Use**

Stansted Airport served 22.3 million passengers in the 12 months ending December 2008. In passenger terms this made it the 3rd busiest airport in the UK (after Heathrow and Gatwick), and placed it in the top 50 of the world's leading airports. On average the airport handles around 500 flights per day in the winter period and about 600 flights in the summer period – these being evenly split between departures and arrivals.

In summer 2008 there were 32 scheduled and charter passenger airlines flying to over 165 destinations.

The airport serves a catchment area of over 12 million people in the East of England, London and the wider South East. Over 4 million business passengers use Stansted Airport each year. In 2007, over 180 companies and agencies were located on-airport; employing over 11,700 people, 80% of whom live in Essex and Hertfordshire.

The airport, as one of the region's principal international gateways, and is a key driver for economic development in the East of England. STAL's direct contribution to the regional economy is estimated to be in excess of £400 million a year, and this is forecast to rise as the airport continues to grow.

In 2008 the airport's cargo operation transported 199,487 tonnes of goods worth over £23 billion. In 2006 over 31 million tourists visited the UK, spending some £18 billion. There were a total of 2.1 million overseas visitors to the East of England in 2006, generating expenditure of some £880 million. Overseas visitors account for 17% of total visitors to the East of England and 41% of spending in the region.

The airport has one operational runway: 04/22 is 3,048m in length and is equipped with a Category 3b instrument landing system. In 2008, 99 different aircraft types served the airport with the overwhelming types being twin engine, medium sized, narrow bodied aircraft such as Boeing 737-800 and Airbus A319.

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# 5. Background to noise and regulation

## **The regulation of aircraft noise in the UK**

There are three main tiers of regulation which govern aircraft noise in the UK: International; European and national.

### **International regulation**

The International Civil Aviation Organisation (ICAO) is an inter-governmental organization. It aims to develop the principles and techniques of international civil air navigation and foster the planning and development of international air transport. One of ICAO's chief activities is the establishment of International Standards, Recommended Practices and Procedures regarding the technical fields of aviation, including aircraft noise. After a Standard is adopted it is put into effect by each ICAO member state in its own territories.

ICAO has set progressively tighter certification standards for noise emissions from civil 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. Aircraft falling within chapter 2 have been banned from operating within the EU since 1st April 2002, unless they are granted specific exemptions. The vast majority of civil aircraft now operating therefore fall within Chapters 3 and 4, i.e. they are quieter than the previous Chapter 2 aircraft. All new aircraft manufactured from 2006 onwards must meet the requirements of Chapter 4. The standard for Chapter 4 has been set at 10dB below that of Chapter 3. This is based on an aggregate of reductions in noise measured at three standardised locations close to an airport. As yet, there is no agreed date for the phase out of Chapter 3 aircraft. Further details regarding these standards can be found at

- ➔ [www.dft.gov.uk](http://www.dft.gov.uk) and
- ➔ [www.caa.co.uk](http://www.caa.co.uk)

ICAO also requires Member States to adopt a “balanced approach” to noise management. This balanced approach goes beyond individual aircraft to consider:

- Reducing aircraft noise at source;
- Land planning use;
- Changes to operational procedures;
- Restrictions on the use of the noisiest aircraft.

This approach has been adopted through the various strategies in this Action Plan. Further details of the ICAO “Balanced Approach” can be found at

- ➔ [www.icao.int/env/noise.htm](http://www.icao.int/env/noise.htm)

### **European Regulation**

The European Union (EU) works to define the approach towards a common aviation policy in Europe. The main driving force for this has been the European Civil Aviation Conference (ECAC), which has been set up under the auspices of the EU and ICAO. The EU has issued various directives relating to the management and control of environmental issues and is increasingly assuming responsibility for the regulation of aircraft noise standards. Member States are obliged to comply with the requirements of the directives and incorporate them into national legislation.

The directives of most relevance to aircraft noise are:

**EC Directive 92/14/EEC** – This directive banned Chapter 2 aircraft from landing in the EU from 1st April 2002.

**EC Directive 2002/30** – This directive has various elements:

- It introduced discretionary powers to restrict the operation of marginally compliant Chapter 3 aircraft, where circumstances support this measure
- It requires the publication of environmental noise objectives for the airport
- It requires the adoption of a balanced approach to noise management, including the four elements agreed by ICAO (see above).

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## 5. Background to noise and regulation

**EC Directive 2002/49 (“Environment Noise Directive”)** – This directive requires Member States to create noise maps from all transport sources in urban areas by 2007 and to adopt action plans to manage noise by 2008. The directive also aims to harmonise methods for measuring noise across the EU. It is pursuant to the requirement under this directive that we have produced this action plan.

### **National regulation**

The UK government has an important role in setting and developing policy framework for aircraft noise control at UK airports and achieves this in various ways:

### **The Future of Air Transport White Paper**

In December 2003 The Future of Air Transport White Paper set out a strategic framework for the development of UK airport capacity over the next 30 years. It also outlined several new policies for airports which control, mitigate and compensate for aircraft noise with the aim of reducing and limiting the number of people significantly affected by aircraft noise. These policies are reflected in this action plan.

### **Aeronautical Information Package**

A range of noise controls relating directly to aircraft operations are set out in statutory notices and are published in the UK Aeronautical Information Package (UK AIP) and elsewhere as appropriate. These controls cover aspects such as Continuous Descent Approaches (CDAs), Noise Preferential Routes (NPR's), noise abatement procedures and night flight restrictions. A copy of the UK AIP for Stansted Airport detailing the Noise Abatement Procedures currently in place can be found at,

🔗 [www.nats-uk.ead-it.com/aip/current/ad/EGSS/EG\\_AD\\_2\\_EGSS\\_en.pdf](http://www.nats-uk.ead-it.com/aip/current/ad/EGSS/EG_AD_2_EGSS_en.pdf)

### **Planning Policy**

Government policy for aircraft noise also includes land use and planning policies. These are set out in planning policy guidance (PPG) note 24<sup>1</sup>, which gives advice to local authorities on how the planning system can be used to minimise the adverse effects of aircraft noise. It outlines the main considerations which local authorities should take into account when determining planning applications. For more information, please refer to PPG 24.

### **Acts of Parliament and regulations**

The UK government also enacts Acts of Parliament and regulations which deal with aircraft noise. The relevant legislation is detailed below:

**The Civil Aviation Acts 1982 and 2006** – these Acts grant the government powers to introduce noise control measures to limit or mitigate the effect of noise and vibration connected with taking off or landing aircraft at designated airports (i.e. Heathrow, Gatwick and Stansted). These powers are widened by the Civil Aviation Act 2006. The Act also permits an airport authority to charge aircraft operators for use of the airport based on noise and emissions. Airport operators can thereby introduce differential charges to incentivise the use of quieter and cleaner aircraft. Information regarding Stansted Airport's financial incentives is available at

🔗 [www.stanstedairport.com](http://www.stanstedairport.com) in a document entitled “conditions of use”

The Act also permits airport operators to levy financial penalties on aircraft operators who breach noise abatement requirements imposed by the Secretary of State. A sum equal to the penalties received must then be paid for the benefit of people who live in the vicinity of the airport. At Stansted Airport, we enforce this power to fine airlines and did so prior to 2006. The money raised is reported through the Noise and Track Keeping Working Group (NTKWG) and the Stansted Airport Consultative Committee (STACC) and all funds are directed to Local Community Projects. Stansted Airport is the only London Airport to fine aircraft operators for fly “flagrantly” off track, and as with the Noise infringements, all funds collected are reported to NTKWG and STACC and directed to Local Community Projects.

**The Aerodromes (Noise Restrictions) (Rules and Procedures) Regulations 2003** – The Civil Aviation Act 2006 also confirms that the Secretary of State and airport operators remain subject to these regulations. These regulations transposed the EC Directive 2002/30/EC into UK law. (See above) They apply to major airport operators (i.e. above

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<sup>1</sup> Planning Policy Guidance 24: Planning and Noise published September 1994

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## 5. Background to noise and regulation

50,000 aircraft movements of civil sub-sonic jet aeroplanes per year) and reflect the adoption of the ICAO balanced approach to achieving noise objectives. The regulations also set out the procedures which airports should follow when considering noise related operating restrictions. These include:

- taking into account costs and benefits of measures,
- being non-discriminatory on grounds of nationality or identity of air carrier or aircraft manufacturer and
- being no more restrictive than necessary in order to achieve the environmental objectives for a specific airport.
- ensuring any performance-based operating restrictions are based on the noise performance of the aircraft as determined by ICAO certification procedures.

**The Environmental Noise (England) Regulations 2006** – These regulations transpose the requirements of EC directive 2002/49/EC (Environment Noise Directive – see above) into UK law. They place a duty on the Secretary of State to produce strategic noise maps and, under regulation 18, airport operators are obliged to produce noise action plans based on the strategic noise maps. Once prepared and adopted, the noise action plans must be reviewed and, if necessary, revised, at least every five years and whenever a major development occurs affecting the noise situation. The regulations have been amended by 2008 regulations and there are proposals to amend again by 2009 regulations.

**Airports Act 1986** – This Act gives power to the Secretary of State to make orders if it appears to him that the existing runway capacity of the airport is not fully utilised for a substantial proportion of the time during which it is available. It includes powers to limit the number of occasions on which aircraft may land or take off at an airport and schemes to allocate airport capacity.

**Aeroplane Noise Regulations 1999** – These regulations set out the noise certificate requirements for both propeller and jet aeroplanes registered in the UK and provides that no aircraft can land or take off in the UK without a noise certificate issued by its competent authority which meets at least equal requirements to those for UK registered aircraft. The regulations make reference to noise certification standards and noise limits issued by ICAO and also provides a list of aircraft that are exempt from the ICAO noise certification.

Pursuant to its powers under the Civil Aviation Acts, the Department for Transport (DfT) has direct control over noise at Heathrow, Gatwick and Stansted airports and, following a lengthy consultation, the DfT has also implemented the following specific noise abatement objectives for the course of the current night flight regime which runs from 2006 to 2012:

- Minimise sleep disturbance resulting from overflight of the noisiest types of aircraft
- Mitigate the effects of noise, in particular sleep disturbance. This will be done by encouraging the airport to adopt night noise related criteria in order to determine which residents of domestic or noise sensitive premises should be offered insulation schemes
- to limit the 6.5 hour 48 dBA Leq contour (for the winter and summer seasons combined) to 38 km<sup>2</sup> by 2011-2012.

### **Environmental Noise Objectives**

Additionally, in June 2006, the Secretary of State published long term statutory environmental noise objectives for the Heathrow, Gatwick and Stansted airports.

The long term statutory noise objectives for Stansted Airport are:

- progressively to encourage the use of quieter aircraft at night while allowing overall growth of the airport as envisaged by the White Paper
- to limit the overall noise from aircraft during the night quota period close to existing levels while permitting expansion of the airport's overall traffic in line with White Paper objectives, and
- to meet noise-abatement objectives as adopted from time to time.

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## 5. Background to noise and regulation

### Local authorities

As well as government legislation, additional noise-related controls are introduced by local planning authorities as part of the planning system. This is often done by way of planning obligations contained in section 106 agreements made between the airport operator and the local planning authority. At Stansted Airport these conditions include restrictions of use of APU's, GPU's, the ground running of aircraft engines and the maximum noise contour size for 16hr Leq.

### ANASE

ANASE stands for Attitudes to Noise from Aviation Sources in England. It is a social study commissioned by the DfT in 2002 aimed at reassessing people's attitudes to aircraft noise, reassessing Leq as a measure of annoyance and to determine the financial value of noise. The final report was published in 2007, together with the comments of peer reviewers and is available at

🔗 [www.dft.gov.uk](http://www.dft.gov.uk).

The peer reviewers concluded that the ANASE results are not sufficiently robust to use quantitatively to develop government policy on measurement and financial valuation of noise impacts. Current Government policy is that 57dB LAeq (16 hour) marks the approximate onset of significant annoyance to aircraft noise. This is the starting point the Government use when setting its policy on aircraft noise. The Government has concluded that the ANASE findings are not robust enough to change this policy. The Government recognised that more work is required following the ANASE report and will decide if and how to use the report in the future.

BAA supports the Government's view of ANASE being an important step forward in understanding people's attitudes towards aviation noise. The report's findings will be reflected on and considered by Stansted Airport when formulating noise strategies, objectives and plans.

### Interdependencies

There are interdependencies between the emissions of local air pollutants and carbon dioxide (CO<sub>2</sub>) from aircraft engines, which affect aircraft noise management strategies. Most of the technological advances in aircraft design in the last twenty years have led to both a reduction in noise and CO<sub>2</sub> emissions but in some cases have resulted in an increase in emissions of local air pollutants such as oxides of nitrogen (NO<sub>x</sub>). The challenge for the aviation industry is to manage and balance these three issues simultaneously.

Operational controls also need to be balanced. For example, the adoption of a reduced thrust setting for an aircraft during take-off, can lower the NO<sub>x</sub> emissions by up to 30% or more in some cases compared to a full thrust setting. Many airlines already employ 'reduced thrust' as their standard operating procedure. Whilst this is beneficial in the immediate vicinity of the airport, there can be a small increase in the noise experienced by those further away from the airport under the departure flight path as the aircraft takes a more gentle angle of ascent. Many airlines have adopted Noise Abatement Departure Procedures (NADP) in recent years, which involves operating the aircraft, initially, at a lower altitude, accelerating to fly "clean", (no undercarriage or flaps), thus reducing drag, airframe noise, fuel consumption and CO<sub>2</sub> emissions.

BAA has long been aware of the interdependencies between noise, local air quality and CO<sub>2</sub> emissions and has undertaken a number of studies to help quantify the exact balance that needs to be struck for specific situations. The level of scientific understanding of interdependencies is however incomplete, and BAA continues to promote further research. Examples of studies undertaken include, use of Fixed Electrical Ground Power, Continuous Descent Approach, Reduced Thrust Take-Off, Reduced Engine Taxiing and Continuous Climb Profile.

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## 6. Stansted Airport's Framework for noise management

Airports bring a range of economic, social and environmental effects, both positive and negative. Airports are important economic generators, providing jobs, encouraging inward investment and boosting local tourism.

However, there are also some negative effects for those communities that exist around airports. Noise remains a significant issue for people living or working close to airports or under flight paths.

Managing and, where possible, reducing this noise is a long standing commitment within Stansted Airport Limited's (STAL) corporate responsibility agenda and is critical to maintaining Stansted Airport's permission to grow. Stansted Airport has been a designated airport since 1993 with noise levels set by the Government.

Some noise results from Stansted Airport's own operations, noise which we have the ability to directly control. However, noise is also generated from sources outside our direct control but where we can exert influence to bring about change.

### Noise Strategy

#### Our approach

As outlined in Section 5, as a designated airport, the Government set the policy framework which influences how Stansted Airport Limited responds to aircraft noise issues. The 2003 Air Transport White Paper outlined several ways to control, mitigate and compensate for noise. We also work with airlines, air traffic controllers and local authorities towards achieving our noise objectives.

The Department for Transport (DfT) has direct control over noise at Stansted Airport and, as detailed above, in June 2006 the Secretary of State published long term statutory environmental noise objectives for these airports. This includes setting the night flight movement and noise quota limits and restrictions at these airports.

Our noise strategy also applies to Stansted Airport's plans for future development, which is detailed in the Master Plan (see Section 4 : Description of Airport Location).

#### Our plans

Alongside the statutory noise objectives, STAL has set the following long term objective for the management of aircraft noise:

***To gain the trust of our stakeholders that we are using best practicable means to minimise existing aircraft noise impacts, and this approach will continue into the future, within the framework established by Government.***

This is supported by a long-term goal to be in the top fifth of companies for best practice in international airport noise management on comparable sites. In reality this means consistently being in the top 7 or 8 airports for noise management globally. Stansted Airport Limited sets noise targets each year to work towards this goal, and these are published in our corporate responsibility reports together with performance information against key noise indicators.

We have set five key themes for our noise work programme over the next five years. These themes establish a framework for the airport's noise action plan and help inform our priorities. They are:

1. Demonstrating that we are reducing noise impacts wherever practicable. This includes:
  - a. Quietest fleet practicable;
  - b. Quietest practicable aircraft operations, balanced against NOX and CO2 emissions;
  - c. Effective and credible noise mitigation schemes.
2. Engaging with communities affected by noise impacts to better understand their concerns and priorities, reflecting them as far as possible in airport noise strategies and communication plans;
3. Influencing planning policy to minimise the number of noise sensitive properties around our airports;
4. Organising ourselves to continue to manage noise efficiently and effectively;
5. Continuing to build on our understanding of aircraft noise to further inform our priorities, strategies and targets.

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## 6. Stansted Airport's Framework for noise management

We recognise that following the publication of this noise action plan, it will be important to keep communities and other stakeholders informed as to the progress made. We are committed to reporting publicly on our performance against the action plan and the effectiveness of our actions to address community concerns. We therefore plan to annually report on our progress against this Noise Action Plan in our Corporate Responsibility Report.

### **Measures to reduce aircraft noise currently in place at Stansted Airport**

At Stansted we believe from the evidence of benchmarking studies and long standing status as a designated airport that we have a full and comprehensive range of noise management measures in place. These measures cover operational procedures, stakeholder communication and engagement as well as mitigation and compensation schemes. Set out below are the current measures in place at Stansted Airport.

### **Noise Mitigation and Compensation**

The Air Transport White Paper stated that in addition to controlling and reducing aircraft noise impacts, a proportion of the large economic benefits provided by airport development should be used to mitigate their local impacts. The principal mitigation measure for aircraft noise impacts is the provision of acoustic insulation. In practice, all Stansted Airport Limited's current noise insulation schemes are provided to meet the expectations of the Air Transport White Paper. Specifically these are that airport operators are expected to:

- offer households subject to high levels of noise (69 dBA Leq or more) assistance with the costs of relocating; and
- offer acoustic insulation (applied to residential properties) to other noise-sensitive buildings, such as schools and hospitals, exposed to medium to high levels of noise (63 dBA Leq or more).

To address the impacts of future airport growth the Government also expects the airport operators to:

- offer to purchase those properties suffering from both a high level of noise (69 dBA Leq or more) and a large increase in noise (3 dBA Leq or more); and
- offer acoustic insulation to any residential property which suffers from both a medium to high level of noise (63 dBA Leq or more) and a large increase in noise (63 dBA Leq or more).

Historically, Stansted Airport Limited have produced a "Property Pack" designed to help people who were considering coming to live near Stansted Airport or who wished to relocate locally. The pack contained a wide range of information on flight paths, noise and airport development and was sent out to local and regional Estate Agents for them to pass on to their prospective buyers.

A recent review of the pack with Estate Agents has shown that it is now out-dated and need of a refresh with more balanced, positive information being included alongside the details about aircraft noise and flight paths.

It is Stansted Airport Limited's intention to review the material and re-issue, as required, to Estate Agents, Solicitors and members of the general public.

### **Noise and Track monitoring**

Most large airports have noise and track-keeping (NTK) systems, which take radar data from air traffic control radars and combine it with flight information such as call sign, tail number, type and destination. At Stansted Airport the Noise and Track Keeping (NTK) system captures data from both fixed and mobile noise monitors around the airport, to be matched to operational data.

This information ensures that the ANCON noise model database is kept up to date which in turn is used as an input to the annual noise contours for each of the three airports.

### **Operational procedures and operating restrictions**

Full details are set out in statutory notices and published in the UK Aeronautical Information Package (AIP) and elsewhere as appropriate.



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## 6. Stansted Airport's Framework for noise management

### Runway Use

For safety and aeronautical technical reasons aircraft primarily take-off and land into the wind. In the UK the prevailing winds are south - westerly, so at Stansted aircraft land from the east and depart to the west ('westerly operations') about 70% of the time, measured over a 20 year period. In 2006 the actual percentage of westerly operations was 66%.

### Night Flight Restrictions

#### Current night restrictions regime

The current night restrictions regime was introduced in 2006/7 following extensive consultation. The restrictions are set by the DfT and detailed in a statutory notice, published each season in the supplement to the UK AIP.

#### Night Period and Night Quota Period

The 'night period' is 2300 – 0700 hours (local time) during which period the noisiest types of aircraft classified with a Quota Count /8 (QC) and QC/16 may not be scheduled to land or take-off. Aircraft classified in QC group 4 are also subject to a mandatory scheduling ban in the night quota period. From 2330 to 0600, the 'night quota period', aircraft movements are restricted by movements limits with noise quotas as a supplementary measure. These are set for each season.

#### The Quota Count System

Aircraft are assigned quota count (QC) classifications as follows:

Certified noise level (EPNdB)	Quota count
More than 101.9	QC/16
99 - 101.9	QC/8
96 - 98.9	QC/4
93 - 95.9	QC/2
90 - 92.9	QC/1
87 - 89.9	QC/0.5
84 - 86.9	QC/0.25

Aircraft are classified separately for take-off and landing. Schedules showing the QC classification of individual aircraft are published as part of the statutory notice.

#### Exempt aircraft

Jet aircraft and propeller aircraft are exempt from the movements limits and noise quotas if their noise certification data are less than 84 EPNdB. (Effective Perceived Noise measured in Decibels)

#### Movements limits and Noise Quotas at Stansted

The movements limits and noise quotas for current and future years/seasons are:

Winter	2009	2010	2011
Movement Limit	5000	5000	5000
Noise Quota	3390	3350	3310



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## 6. Stansted Airport's Framework for noise management

Summer	2009	2010	2011	2012
Movement Limit	7000	7000	7000	7000
Noise Quota	4800	4750	4700	4650

The summer season is the period of British Summer Time in any one year as fixed by or under the Summer Time Act 1972 as amended by Statutory Instrument (S.I) 2002/262, the definition of British Summer Time, the winter season is the period between the end of British Summer Time in one year and the start of British Summer Time in the next. The change to British Summer Time occurs at 0100 Greenwich Mean Time (Universal Co-ordinated Time).

### End of season flexibility

The flexibility margin is 10%; i.e. up to 10% of the current season's movements limit may be carried over if sufficient amount of the limit is unused, and up to 10% of the next season's movements limit may be anticipated in the event of an overrun. Any excess overrun is penalised in the following season at double the amount of the excess. The same arrangements apply to the noise quotas.

### Permitted operations

- (1) any aircraft which has a QC value of 4, 8, or 16 may not be scheduled to take off or land during the night quota period;
- (2) any aircraft which has a QC value of 8 or 16 may not be scheduled to take off or land during the night period;
- (3) any aircraft which has a QC value of 8 or 16 may not take off in the night period, except in the period 2300 hours to 2330 hours in circumstances where:
  - (a) it was scheduled to take off prior to 2300 hours;
  - (b) the take-off was delayed for reasons beyond the control of the aircraft operator; and
  - (c) the airport authority has not given notice to the aircraft operator precluding take-off.

### Dispensations

The Secretary of State has the power to specify circumstances in which movements may be disregarded from the night restrictions by the airport managers and the power to authorise that specific flights should be disregarded. The airport companies may disregard night movements in the following exceptional circumstances:

- delays to aircraft which are likely to lead to serious congestion at the aerodrome or serious hardship or suffering to passengers or animals
- delays to aircraft resulting from widespread and prolonged disruption of air traffic.

### Monitoring

Stansted Airport provides to its Airport Consultative Committee, via the NTKWG, and to the Department for Transport, regular reports on usage of the movements limits and the noise quotas, details of any dispensations or exemptions granted, and reports on any movements by QC/8 and QC/16 aircraft during the night period. In addition, under section 78(4) of the Civil Aviation Act 1982 all dispensations granted by the airports have to be reported to the Department for Transport (DfT) in writing within a maximum of one week from when the dispensed flight took place.

### Departure Track Procedures

#### Noise Preferential Routing "Track Keeping"

Aircraft departing from Stansted Airport are required to follow specific paths called noise preferential routes (NPRs) up to an altitude of 4000 ft, unless directed otherwise by air traffic control (ATC). NPRs were designed to avoid overflight of built-up areas where possible. They lead from the take-off runway to the main UK air traffic routes, and form the first part of the Standard Instrument Departure routes (SIDs). At Stansted Airport there are

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## 6. Stansted Airport's Framework for noise management

3 NPR's at each end of the runway namely Clacton (CLN), Dover (DVR) and Buzad (BZD). Associated with each NPR is a swathe extending 1.5 km each side of the nominal NPR centre line, within which aircraft are considered to be flying on track. This takes account of various factors that affect track-keeping including tolerances in navigational equipment, type and weight of aircraft, and weather conditions – particularly winds that may cause drifting when aircraft are turning. Aircraft reaching 4000 ft at any point along an NPR may be turned off the route by ATC onto more direct headings to their destinations – a practice known as 'vectoring'. ATC may also vector aircraft from NPRs below 4000 ft for safety reasons, including in certain weather conditions, for example to avoid storms. ATC may vector Aircraft on the BZD departure routes at 3000ft QNH (above sea level) during the hours of 06:00 – 23:30, outside of these times the 4000ft restriction applies.

Changes in the NPR structure are rare and stability is regarded as important, so that people may know where aircraft noise will be experienced. The frequency with which any particular NPR is used will vary, and is an operational decision for ATC, taking account of the final destination of individual flights, together with other considerations such as overall air traffic and weather conditions, both locally and along intended routes. A map illustrating the current NPRs is provided in Annex C.

To encourage greater adherence to the NPR's and to avoid the over-flight of sensitive areas we fine aircraft that fly "flagrantly" outside the NPR's, and direct all funds to the Stansted Airport Community Fund

### **"1000 ft rule"**

After take-off the aircraft shall be operated in such a way that it is at a height of not less than 1000 ft aal (above aerodrome level) at 6.5 km from the start of roll as measured along the departure track of that aircraft.

### **Arrival Track Procedures**

#### **Continuous Descent Approach (CDA)**

The following is an extract from the UK AIP instructing pilots to use Continuous Descent Approach (CDA) wherever possible. "Where the aircraft is approaching the aerodrome to land it shall commensurate with its ATC clearance minimise noise disturbance by the use of continuous descent and low power, low drag operating procedures (referred to in Detailed Procedures for descent clearance in AD 2-EGSS-1-13 of the UK AIP). Where the use of the procedures is not practicable, the aircraft shall maintain as high an altitude as possible."

Stansted Airport Limited monitors and reports to a common working definition for CDAs as follows:

For monitoring purposes, a descent will be deemed to have been continuous provided that no segment of level flight longer than 2.5 nm occurs below 6000 ft QNH and 'level flight' is interpreted as any segment of flight having a height change of not more than 50 ft over a track distance of 2 nm or more, as recorded in the airport Noise and Track-Keeping System.

The CDA compliance levels are regularly reported back to the airports' Noise and Track Keeping Working Groups and Consultative Committees as well as the Flight Operations Committee (FOC), which includes airline and ATC representatives. At present we measure CDA's on the Westerly Runway only, but are looking to measure CDA compliance on the easterly runway as part of this Noise Action Plan.

#### **Joining Point**

Between 23:30 and 06:00 hours (local time), other than relevant propeller driven aircraft, no aircraft shall descend below 3000ft (QNH) until it is established on final approach and is less than 10 Nautical Miles from touchdown.

No relevant propeller driven aircraft shall descend below 3000ft (QNH), between 23:30 and 06:00 hours (local time), until it is established on final approach or thereafter fly below the approach path indicated by the PAPI (precision approach path indicator).

#### **Limiting the use of reverse thrust**

To minimise disturbance in areas adjacent to the aerodrome, commanders of aircraft are requested to avoid the

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## 6. Stansted Airport's Framework for noise management

use of reverse thrust after landing, consistent with the safe operation of the aircraft, between 2330 and 0600 (local time).

### Noise Limits

#### Departure Noise limits

Fixed noise monitors at the airport are located at approximately 6.5km from start-of-roll (SOR). This corresponds to the flyover measurement point in the ICAO Annex 16 noise certification procedure. There are 8 fixed monitors at Stansted, 4 at either end of the runway. The location of the monitors takes account of the noise preferential routes.

There are noise limits applied at these fixed noise monitors for departing aircraft. During the night quota period (2330-0600) the departure noise limit is 87 dBA Lmax (maximum noise limit measured in decibels). During the remainder of the night period (2300-2330 and 0600-0700) the noise limit is 89 dBA Lmax. These night time limits are consistent with the night restrictions regime. There is also a daytime noise limit of 94 dBA Lmax.

Relating the noise limits to a reference distance 6.5 km from start-of-roll encourages aircraft operators to gain height as quickly as possible and then reduce engine power and noise at the earliest opportunity. There is also a requirement for departing aircraft to attain at least a 1000 feet (see 1000ft rule") altitude when passing the fixed noise monitors. This point was also chosen as few residential areas lay closer to major airports than that and this would result in a noise benefit for residents who live further out from the airport.

In addition, aircraft are required, after take-off, to be operated in such a way that it will not cause more than 89 dBA Lmax by night (from 2300-0700 hours local time) and that it will not cause more than 87 dBA Lmax during the night quota period (2330-0600 hours local time) as measured at any noise terminal at any of the sites referred to in the AIP.

Stansted Airport Limited will fine Airlines whose aircraft breach the noise limits, with the money donated to local community projects through the Stansted Airport Community Fund.

#### Arrivals Noise Limits

There are no arrivals noise limits. A report which considered the feasibility of setting noise limits for arriving aircraft, 'Noise from Arriving Aircraft: Final Report of the ANMAC Technical Working Group', was published in 1999. In light of the findings, the then Aviation Minister, decided against imposing operational noise limits for arriving aircraft.

#### Ground Noise Controls

At Stansted Airport we have a range of measures to control ground noise. These control measures are set out in documents at the airport called Directors Notices (DN's).

- Control of Ground Noise for Fixed Wing Aircraft Engines
- Control of Ground Noise for Rotary Wing Aircraft
- APU / GPU Restrictions of Use

These DN's stipulate what area's of the airport, and during what times, that certain, noisy, activities can take place. These include the ground running of rotary and fixed wing aircraft engines, the testing of aircraft engines on stands, use of APU's and use of GPU's. These details are recorded, monitored and used when investigating any complaints.

#### Differential Noise Charges

Each year we publish our Conditions of Use and airport charges which include a differential charging structure for aircraft operating at Stansted Airport. The charges promote the use of quieter aircraft by charging more for the noisiest aircraft and less for the quieter types. Details can be found on Stansted Airport's website,

☞ <http://www.stanstedairport.com>

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## 6. Stansted Airport's Framework for noise management

### Local Existing Planning Conditions

#### Air Noise Conditions

The grant of planning permission for the G1 development includes conditions on the development of the airport. The conditions include a 35mppa limit on the annual number of passengers and limits on the number of passenger air transport movements, cargo air transport movements and non air transport movements of 243,500, 20,500 and 10,000 respectively.

The G1 planning permission also limits the area enclosed by the 57dB(A) Leq16hr (0700-2300) contour to 33.9 sq km.

#### Ground Noise Obligations

1. From the Implementation Date to issue and maintain the continuance of Director's Notices to the effect that:
  - 1.1 The use of Air Start units, Ground Power Units, Air Conditioning units or any other items of ground servicing equipment which does not conform to current EU standards for noise suppression (85 decibels dBA at 7 metres) is prohibited on any apron area at Stansted
  - 1.2 Ground Power Units must not be used at Stansted when there is serviceable FEGP available on stand
  - 1.3 To use all reasonable endeavours to have FEGP available for use at all times where it is installed
  - 1.4 Except in the circumstances set out in this paragraph APUs are not to be used where Fixed Electrical Ground Power (FEGP) is adequately provided and serviceable. The restrictions will be relaxed where:
    - 1.4.1 The outside air temperature is below +5°C or above +20°C, and FEGP is unserviceable or not installed on the stand
    - 1.4.2 Systems that cannot be powered by FEGP require to be powered up for maintenance purposes, subject to prior permission being obtained from STAL
    - 1.4.3 An aircraft has to be positioned on a stand equipped with FEGP, in such a manner as to make use of the FEGP system impractical (typically small cargo aircraft parked side-on or nose-out on stand)
    - 1.4.4 An aircraft type is not compatible with the FEGP system at Stansted, or has a temporary technical fault preventing the use of FEGP
    - 1.4.5 An aircraft has night-stopped at Stansted (minimum ground time of 2hrs) and is operating its first departure of the day and APUs can be run for a maximum of 45 minutes before departure subject to prior permission by STAL
    - 1.4.6 Where the captain of an aircraft believes that genuine hardship to passengers will result unless the APU is run, then he/she may do so provided that STAL is contacted before starting

### Stakeholder Communication and Engagement

#### Stansted Airport Consultative Committee (STACC)

This committee meets quarterly to advise Stansted Airport Limited on:

- any matters which it may refer to the Committee.
- To consider any question in connection with the problems of the Airport as they affect the users and communities and organisations represented.
- To make suggestions to the Managing Director on any matter connected with the administration of the Airport, which could further the interests of the passengers and the communities and organisations represented.
- To stimulate the interest of the local population in the achievements of the Airport

This committee is made up of representatives of Stansted Airport, including the Managing Director, Head of Environment representatives from the Department for Transport, Local Councillors, County Councillors and local interest groups.

More information on this committee can be found at

➔ <http://www.stacc.info>

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## 6. Stansted Airport's Framework for noise management

### **Noise and Track Keeping Working Group (NTKWG)**

The objectives of this group are as follows:

- Members of the group will be appointed by STAL, taking into account recommendations of STACC. The group will meet at least once prior to the STACC meetings
- Membership will comprise of representatives of Stansted Airport Ltd, Airlines, National Air Traffic Services, The Department for Transport and the Stansted Airport Consultative Committee
- To review the noise & track keeping output of the STAL Flight Evaluation Unit so as to ensure the considerations of the local community are taken into account
- To identify specific areas of concern so as to enable improved performance to be sought in particular elements of noise and track keeping
- To oversee the implementation and operation of enhancements to the existing Noise and Track Keeping System (NTK)
- To ensure that the various elements of the system are used in a co-ordinated way to achieve the best overall benefit for the community
- To ensure the Groups activities remain within the overall framework of Noise management as determined by the DfT
- To improve the general understanding of noise and track keeping issues between the community, airlines and the airport
- The nature of discussions and documentation shall be taken as confidential unless it is clearly expressed or indicated otherwise, and that this will be respected by all group members
- To provide the full committee of STACC with an overview of the activities of the NTKWG together with a statistical analysis of aircraft noise & track keeping.

This meeting is held at Stansted Airport quarterly.

### **Flight Operations Committee (FOC)**

Again, this committee meets quarterly and is chaired by the Head of Airside Operations, with representatives from Airlines (pilots), Ground Handling Agents, NATS, Flight Analysis Unit. The purpose is to discuss and resolve any operational issues that may arise and includes a Flight Evaluation Unit Report.

### **Mobile Noise Monitor Briefings**

Periodically we will conduct briefings to local communities where there has been a request for a Mobile Noise Monitor. This briefing will include a report on the data gathered from the Mobile Noise Monitor.

### **Ad-Hoc Engagements**

Stansted Airport Limited continues to engage stakeholders to promote better understanding of Environmental Issues, e.g. FEGP usage.

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## 7. Results of the 2006 Noise Mapping

Detailed below are the results of the 2006 noise mapping, showing the estimated number of people and dwellings exposed above various noise levels from the strategic mapping of noises from aircraft using Stansted Airport. We have included data from Lday, Levening, Lnight, Lden and Leq noise contours. We considered these results and our current noise mitigation measures in compiling this draft noise action plan.

In 2006 the prevalence of westerly winds mean that approximately 66% of aircraft arrivals come from the east, and approximately 66% of departures are to the west. As previously stated, departing aircraft must remain within the Noise Preferential Routes, 3 at either end of the Runway until they have reached a minimum altitude to be vectored by ATC, or as instructed otherwise. The extent of this runway split can be clearly seen on the Lden 55db Noise Contour Map as it extends further to the North East of the Airport.

The number of dwellings has been rounded to the nearest 50, except when the number of dwellings is greater than zero but less than 50, in which case the total has been shown as "< 50". The associated population has been rounded to the nearest 100, except when the associated population is greater than zero but less than 100, in which case the total has been shown as "<100".

The data below and the associated noise level contour maps in Annex B have been published by the Department for Environment, Food and Rural Affairs and all data is subject to © Crown Copyright 2009. This data was provided to Stansted Airport in the form of an Action Planning Data Pack, as detailed in the "Guidance for airport operators to produce action plans under the terms of the Environmental Noise Regulations 2006"

In Annex B we have included the Noise Contour Maps for 2006 Lden and 2006 Lnight.

**Table 1**

Estimated total number of people and dwellings above various noise levels, Lden

Noise level (dB)	Number of Dwellings	Number of People
≥ 55	3,850	9,400
≥ 60	850	2,100
≥ 65	150	400
≥ 70	<50	<100
≥ 75	0	0

**Table 2**

Estimated total number of people and dwellings above various noise levels, Lday

Noise level (dB)	Number of Dwellings	Number of People
≥ 54	2,300	5,800
≥ 57	750	1,900
≥ 60	350	900
≥ 63	100	300
≥ 66	<50	<100
≥ 69	<50	<100
≥ 72	0	0

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## 7. Results of the 2006 Noise Mapping

**Table 3**

Estimated total number of people and dwellings above various noise levels, Levening

Noise level (dB)	Number of Dwellings	Number of People
≥ 54	2,200	5,300
≥ 57	700	1,800
≥ 60	300	800
≥ 63	100	300
≥ 66	<50	<100
≥ 69	<50	<100
≥ 72	0	0

**Table 4**

Estimated total number of people and dwellings above various noise levels, LAeq, 16

Noise level (dB)	Number of Dwellings	Number of People
≥ 54	2,350	5,700
≥ 57	750	1,900
≥ 60	350	900
≥ 63	100	300
≥ 66	<50	<100
≥ 69	<50	<100
≥ 72	0	0

**Table 5**

Estimated total number of people and dwellings above various noise levels, Lnight

Noise level (dB)	Number of Dwellings	Number of People
≥ 48	2,800	6,800
≥ 51	1,300	3,100
≥ 54	450	1,200
≥ 57	150	300
≥ 60	<50	<100
≥ 63	<50	<100
≥ 66	0	0

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## 8. Provisions Envisaged for Evaluating the Implementation and the results of the Action Plan

### Performance Indicators for the Action Plan

We will monitor a set of performance indicators to track progress against each area of focus, to ensure that the work we are undertaking is resulting in the maximum benefit in terms of managing noise impacts.

The full range of indicators is set against each of the actions out in the noise action plan in Section 9, below. Our performance against these indicators will be regularly reviewed internally through our environmental governance structure. During the five-year period of this action plan, we may add to or amend the range of performance indicators to respond to improvements which enable us to better manage the airport noise impacts.

Set out below are a series of key performance indicators which we propose to publish through our annual Corporate Responsibility Report.

We have included figures for 2006 (where available) against our key performance indicators, in order to set a baseline going for the future.

Reference number	Key performance indicator	2006 Baseline
KP1	Percentage of Chapter 4 (or equivalent) Aircraft	
KP2	Population inside the 55dBA Lden daytime contour (km <sup>2</sup> )	9400
KP3	Population inside the 48dB L night contour	6800
KP4	Population inside the 57dB LAeq <sub>16 hour</sub> daytime summer contour	1900
KP5	Number of infringements of the daytime departure noise limit.	9
KP6	Number of infringements of the Night time departure noise limit.	24
KP7	Percentage of aircraft achieving a CDA (24 hour period)	82.82%
KP8	Percentage of aircraft on track	98.1%
KP9	Number of individual callers making noise related enquiries (April2006-March2007)	2294
KP10	Percent of noise related enquiries responded to within 5 working days	



# 9. Our Approach to Managing Noise (the action plan)

Action	Impact	Timescale	Performance indicator	Nos affected
<b>1. Demonstrating we are doing all that is reasonably practicable to minimise noise impacts</b>				
<b>1a. Quietest Fleet Practicable</b>				
We will prioritise airlines operating Chapter 4 aircraft when introducing new business to Stansted Airport by the end of 2010.	Arrivals Departures Ground Noise	2010	Track the annual percentage of Chapter 4 operations Annual Contours	9400 Lden
We will consult with our airline partners by the end of 2010 on the voluntary phase out of Chapter 3 high aircraft at Stansted Airport by 2015.	Arrivals Departures Ground Noise	2010, 2015	Track the annual percentage of Chapter 3 high operations Annual Contours	9400 Lden
We will review the landing fee differential at least every 3 years commencing in 2010, in order to create incentives for operators to use the quietest possible aircraft within their fleet.	Arrivals Departures Ground Noise	2010, 2013	Conditions of use documents changes in charging. Track percentage within different charging categories. Annual Contours	
We will establish and report a Stansted Airline League Table for noise and emissions based on compliance with noise abatement techniques, by 2012.	Arrivals Departures Ground Noise	2012	League table of ranking from amalgamation of agreed indicators.	
In conjunction with our partners in Sustainable Aviation we will continue to seek through advances in technology to achieve the ACARE goal of 50% reduction in perceived external noise by 2020 based on new aircraft of 2020 relative to equivalent new aircraft in 2000.	Arrivals Departures Ground Noise	Ongoing	Measured reduction in perceived external noise	9400 Lden
<b>1b. Quietest practicable aircraft operations, balanced against NO<sub>x</sub> and CO<sub>2</sub> emissions</b>				
Together with our partners in Sustainable Aviation we will develop a best practice guide for departures by the end of 2015. eg Single Engine Taxiing.	Departures	2015	Publication of DCOP Number of documents circulated. Reduction in key metrics identified in the code. Annual Contours	9400 Lden

## 9. Our Approach to Managing Noise (the action plan)

Action	Impact	Timescale	Performance indicator	Nos affected
We will continue to promote adherence to the ACOP and in particular the achievement of continuous descent approaches through forums such as FOC, the Noise and Track Keeping Working Group, Sustainable Aviation and other communication events.	Arrivals	Ongoing	Percentage of CDA achievement Percentage meeting ILS joining point criteria As new metrics develop (height over sites for example) these could be added.	9400 Lden
We will continue to fine aircraft in who fly flagrantly off track	Departures	Ongoing	Number of infringements and amount of fine money raised for community fund.	>9400 Lden
We will review the fining level for flagrant off track departures in 2011 and 2014	Departures	2011, 2014	Publication of new fining levels	
We will continue to fine aircraft in breach of the DfT departure noise limits.	Departures	Ongoing	Number of infringements and amount of fine money raised for community fund.	>9400 Lden
We will introduce a tiered fining level for departure noise infringements in 2010 and review levels at least every three years thereafter.	Departures	2010, 2013	Publication of new fining levels	
We will continue to promote, monitor, seek to improve and report on adherence to the Departure Noise Abatement procedures detailed in the Stansted AIP EGSS AD 2.21. These are set out below.				
<b>Departure Track Keeping</b> EGSS AD 2.21 Noise abatement procedures Section 8(A) This sub-paragraph applies to aircraft other than any propeller driven aircraft whose MTWA does not exceed 5700 kg; (b) Subject to sub-paragraph (8) (c) below, after any aircraft to which sub-paragraph (8) applies takes off from any runway specified in the first column of the following table, the aircraft shall follow the Noise Preferential Routing Procedure specified in the third column of the table which relates to the ATC clearance previously given to the aircraft and specified in the	Departures	Ongoing	% on track overall % on track by route % on track by airline	>9400 Lden

## 9. Our Approach to Managing Noise (the action plan)

Action	Impact	Timescale	Performance indicator	Nos affected
<p>second column of the table, whether flying in IMC or VMC. (c) Where any aircraft to which sub-paragraph (8) applies has taken off on a VFR flight plan, it shall follow the applicable Noise Preferential Routing Procedure before turning onto the intended track.</p>				
<p>Achieve 1000ft 6.5km from the start of roll., EGSS AD 2.21 Noise Abatement Procedures(3(1)). After take-off the aircraft shall be operated in such a way that it is at a height of not less than 1000 ft aal (above airfield level) at 6.5 km from start of roll as measured along the departure track of the aircraft. This is to ensure departing aircraft achieve at least that climb gradient in order to reduce the impact on the ground.</p>	Departures	Ongoing	Number & % of infringements to 1000ft and 900ft.	2100 Lden
<p><b>Departure noise limit (day).</b> EGSS AD 2.21 (3(3)) Subject to sub-paragraphs (5) and (6) below, any aircraft shall, after take-off, be operated in such a way that it will not cause more than 94 dBA Lmax by day 0700 to 2300 hours local time) as measured at any noise monitoring terminal at any of the sites referred to in sub-paragraph (2). This is to ensure that departing aircraft do not exceed the stated level during the day.</p>	Departures	Ongoing	Number of infringements by type, airline, month	5800 Lday
<p><b>Departure noise (Night).</b> EGSS AD 2.21 (3(4)) Subject to sub-paragraphs (5) and (6) below, any aircraft shall, after take-off, be operated in such a way that it will not cause more than 89 dBA Lmax by night (2300 to 0700 hours local time) and that it will not cause more than 87 dBA Lmax during the night quota period from 2330 to 0600 hours local time) as measured at any noise monitoring terminal at any of the sites referred to in sub-paragraph (2). This is to ensure that departing aircraft do not exceed the stated levels during the night and shoulder periods.</p>	Departures	Ongoing	Number of infringements by type, airline, month	6800 Lnight
<p><b>Overflight of St Elizabeth's Home</b> EGSS AD 2.21 (3(9)) Aircraft using this aerodrome shall maintain as high an altitude as practicable, shall avoid flying over St Elizabeth's Home (*514949N 0000523E) at an altitude of less than 4000 ft (Stansted QNH).</p>	Arrivals Departures	2010	Number of departures penetrating St Elizabeths "gate" as measured in noise an track keeping System. Report to Nats/FOC/NTKWG	

## 9. Our Approach to Managing Noise (the action plan)

Action	Impact	Timescale	Performance indicator	Nos affected
<p><b>Overflight of Bishops Stortford.</b> EGSS AD 2.21 (3(9)) Aircraft using this aerodrome shall maintain as high an altitude as practicable, shall avoid flying over Bishop's Stortford</p>	Arrivals Departures	2010	Number of departures penetrating Bishops Stortford "gate" as measured in noise an track keeping System. Report to Nats/FOC/NTKWG	
<p><b>Overflight of Sawbridgeworth and Stansted Mountfitchet.</b> EGSS AD 2.21 (3(9)) Aircraft using this aerodrome shall maintain as high an altitude as practicable, shall avoid flying over Sawbridgeworth and Stansted Mountfitchet at an altitude of less than 2500 ft</p>	Arrivals Departures	2010	Number of departures penetrating Sawbridgeworth and Stansted Mountfitchet "gate" as measured in noise an track keeping System. Report to Nats/FOC/NTKWG	
<p>Continue to promote, monitor, seek to improve and report on adherence to the Arrival Noise Abatement procedures detailed in the Stansted AIP.</p>	Arrivals	Ongoing	% achievement of CDA by time period	9400 Lden
<p><b>CDA.</b> EGSS AD 2.21 Noise Abatement Procedures (10) Where the aircraft is approaching the aerodrome to land on Runway 22 it shall commensurate with its ATC clearance minimise noise disturbance by the use of continuous descent and low power, low drag operating procedures (referred to in Detailed Procedures for descent clearance in AD 2-EGSS-1-13 of the UK AIP). Where the use of these procedures is not practicable, the aircraft shall maintain as high an altitude as possible. In addition, when descending on initial approach, including the closing heading, and on intermediate and final approach, thrust reductions should be achieved where possible by maintaining a 'clean' aircraft configuration and by landing with reduced flap, provided that in all the circumstances of the flight this is consistent with safe operation of the aircraft. This is to avoid prolonged periods of level flight and keep aircraft as high as possible for as long as possible.</p>				
<p><b>CDA.</b> We will work with NATS to introduce monitoring of CDA arrivals on Runway 04</p>	Arrivals	2015	Introduction of CDA monitoring on Runway 04	9400 Lden

## 9. Our Approach to Managing Noise (the action plan)

Action	Impact	Timescale	Performance indicator	Nos affected
CDA We will report adherence to CDA compliance on Runway 04 when monitoring has been agreed and introduced	Arrivals	2015	% achievement of CDA by time period when introduced, as measured through the NTK System	9400 Lden
We will continue to administer the DfT night restrictions regime and ensure that the number of operations at night is within the limits prescribed.	Arrivals Departures	Ongoing	Publish Usage report each season, Report Weekly to DfT and ACL	6800 Lnight
Review our APU usage strategy annually and implement any changes necessary	Ground Noise	2010 Annually	Report compliance with APU controls / restrictions	<100 Lden
We will continue to monitor adherence and review the effectiveness of our ground noise operational controls, as detailed in our Directors Notices,. The current controls are set out below,  1.Control of Ground Noise for Fixed Wing Aircraft Engines 2.Control of Ground Noise for Rotary Wing Aircraft 3.APU / GPU Restrictions of Use	Ground Noise	Ongoing	Number, location & duration of engine runs APU compliance checks – number of non compliance	900 Lday 900 Lday 400 Lden
<b>Introducing New Technologies</b> We will continue to work with NATS and all stakeholders to implement new technologies as they become available, eg Collaborative Decision Making (CDM)	Arrivals Departures Ground Noise	2015	Introduction of CDM practices.	>9400 Lden
<b>Introducing New Technologies</b> We will continue to work with NATS, DAP and all stakeholders to implement new technologies as they become available, eg RNAV and PRNAV, Precision Area Navigation	Departures	2015	% of aircraft on track	>9400 Lden
We will undertake a review in 2011 of our stand planning procedures to identify any opportunities to prioritise stand allocation so as to minimise ground noise impacts.	Ground Noise	2011	Number of aircraft on ground noise sensitive stands during noise sensitive periods	400 Lden

## 9. Our Approach to Managing Noise (the action plan)

Action	Impact	Timescale	Performance indicator	Nos affected
<b>1c. Effective and credible noise mitigation schemes</b>				
We will continue to acoustically insulate all eligible properties within our current Residential Noise Insulation Scheme in line with our current planning obligations.	Perceived Impacts	Ongoing	Number of applications received vs number processed	
To address the impacts of future growth, we will continue to purchase properties which qualify under our Home Owners Support Scheme (HOSS) as detailed in HOSS publication September 2004.	Perceived Impacts	Ongoing	Number of applications received vs number processed	
We will undertake a review and update our wake vortex policy.	Perceived Impacts	2011 for review, ongoing	Number of properties subjected to vortex strikes	<100 Lden
<b>2. Engage with communities affected by noise impacts to better understand their concerns and priorities, reflecting them as far as possible in airport noise strategies and communication plans</b>				
We will continue to engage with local community representatives on air noise through the NTKWG meetings held on a quarterly basis	Community Trust & Awareness	Quarterly	Key messages for STACC	
We will continue to engage with local community representatives on ground noise through the NTKWG meetings held on a quarterly basis	Community Trust & Awareness	Quarterly	Key messages for STACC	
We will continue to engage with NTKWG on noise management providing quarterly reports of performance and the work of the FEU and FOC.	Community Trust & Awareness	Quarterly	FEU Quarterly Reports & papers delivered on time.	
We will continue to offer a range of contact options for complaints and enquires regarding aircraft noise including email, website and telephone contact options.	Community Trust & Awareness	Quarterly	Number of contacts by contact method.	
We will continue to provide public access to flight track information (delayed by 24 hours) via Webtrak.	Community Trust & Awareness	Ongoing	% availability of Webtrak.	

## 9. Our Approach to Managing Noise (the action plan)

Action	Impact	Timescale	Performance indicator	Nos affected
We will annually review our communication material to ensure relevance and ease of understanding	Community Trust & Awareness	Annually	Feedback from Communication Material published / issued	
We will invite local residents and complainants into the airport to see first-hand the work of the FEU, explain our noise mitigation schemes and demonstrate our NTK system where we perceive there to be a benefit	Community Trust & Awareness	Ongoing	Feedback from invitees	
We will continue to record and investigate all complaints relating to aircraft operations and publish statistics in line with agreed complaints handling policy.	Community Trust & Awareness	Quarterly/ Annually	Number of callers, contacts and events by month. Quarterly via STACC and annually via Corporate Responsibility Report	
From 2010 we will set service level response targets for the handling of complaints and enquiries and will report against these targets.	Community Trust & Awareness	From 2010	Agree targets through NTKWG and report quarterly to this forum and annually in the CR Report	
We will host an Annual Noise and Environment Seminar.	Community Trust & Awareness	Annually	No's in attendance and feedback from Noise and Environment Seminar	
Through our work with NTKWG we will seek to clarify our community noise monitoring program to help gain greater understanding of the impacts in communities affected by Stansted operations.	Community Trust & Awareness	Ongoing	Number of community noise reports	
We will publish a summary report detailing the feedback we receive in relation to this proposed action plan within 6 months of the close of the consultation	Community Trust & Awareness	2010	Publication of Noise Action plan and feedback report.	
We will publish our progress against the action plan on an annual basis.	Community Trust & Awareness	2011, 2012, 2013, 2014, 2015	Annual Monitoring Report, no of actions complete, Report through NTKWG	

## 9. Our Approach to Managing Noise (the action plan)

Action	Impact	Timescale	Performance Indicator	Nos affected
We will continue to direct all money raised by noise and track infringements to the Stansted Community Trust.	Community Trust & Awareness	Ongoing	Number of infringements and fines raised published in FEU/CR report	
<b>3. Influencing planning policy to minimise the number of noise sensitive properties around our airports</b>				
We will engage with the local planning authority to ensure awareness of aircraft operations is considered in the development of sensitive land use.	Land Use Planning, Community Trust & Awareness	Ongoing	Number of interactions with LPA.	
We will commission and publish forecast Leq contours for Air Noise annually in line with our current planning regulations	Land Use Planning, Community Trust & Awareness	Ongoing	Publication of contours on time	
We will review the annual Leq contours as produced by the DfT with Uttlesford District Council and agree upon actions arising	Land Use Planning, Community Trust & Awareness	2010, annually	Actions from Meeting	
We will review the Lden contours as produced by the DEFRA, with Uttlesford District Council and agree upon actions arising	Land Use Planning, Community Trust & Awareness	Within 3 months of Defra Contours being published	Actions from Meeting	
<b>4. Organising ourselves to manage noise efficiently and effectively</b>				
We will update our procedures and policy documentation for monitoring aircraft operations and managing enquiries following the installation of the ANOMS NTK system by the end of 2010.	Consistent and effective management	Annually	Current Procedures manual	



## 9. Our Approach to Managing Noise (the action plan)

Action	Impact	Timescale	Performance Indicator	Nos affected
We will undertake to review and amend as appropriate the Directors Notices relating to noise management.	Arrivals, Departures, Ground Noise	Annually	Number of Directors Notices reviewed / amended	
We will implement a change program for our noise management structure that enables us to enhance the quality of the service provided by the FEU by the end of 2010	Consistent and effective management	2010	Feedback through NTKWG and FOC	
We will request an annual audit of our noise management system	Consistent and effective management	Ongoing	Feedback from audit	
<b>5. Achieving a full understanding of aircraft noise to inform our priorities, strategies and targets</b>				
We will benchmark internationally and publish our ranking on operational noise management with other comparable airports by 2015	Community Trust and Awareness	2015	Benchmark Survey Results	
We will benchmark internationally and publish our ranking in aircraft noise communications with other comparable airports by 2015	Arrivals, Departures, Ground Noise	2015	Benchmark Survey Results	
Working with groups such as ACI, we will continue to support research and participate in trials to gain a better understanding of how aircraft operations impact all elements of air and ground noise.	Arrivals, Departures, Ground Noise	Ongoing	Groups participating in Research Funding provided Number of trials ongoing.	
We will continue to work with ANMAC and implement any initiatives as agreed through that Forum.	Arrivals, Departures, Ground Noise	Ongoing	Minutes of ANMAC Feedback to STACC Feedback to STACC	

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## 10. Financial Information – Cost of Noise Management

Type	Description	Approximate Annual Cost (£)
Staff Costs	Comms Team, Airside Team, FEU, Strategy Environment Team – salary & training	£150,000
Computer and Equipment Costs	Renewal, calibration, repair, Software licences, support development	£300,000
Publications & Communications	Seminars, documents, website	£20,000
Fines	Departure noise limits and off track departures, (to be paid to Stansted Community Trust).	£5,000
Noise Insulation & Mitigation Schemes	Insulation, relocation, community buildings, and wake vortex	£200,000
Research & benchmarking, forecasting	Future contours, support for omega, Sustainable Aviation etc, studies for benchmarking	£20,000
Audit & consultancy	Community monitor schemes, Ground noise surveys etc	£10,000

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# 11. Key Consultation Questions, with Response Form/Web Address for Responses

We would welcome your comments on our proposals and invite your views on the following questions. The responses we receive will be used to influence the detail of the final action plan. Responses to this consultation document do not indicate endorsement of present or future airport operations.

1. To what extent do you think that BAA Stansted's noise strategies outlined in the draft noise action plan are targeting the most important problems in relation to aircraft noise?
2. To what extent do you think that the draft noise action plan provides a suitable framework to manage aircraft noise?
3. The draft noise action plan proposes a number of performance indicators to measure progress in implementing the action plan. To what extent do you think that these performance indicators are sufficient?
4. As part of its objective to limit and where possible reduce the impacts of aircraft noise, Stansted has set a benchmark goal to be in the top fifth of airport companies for best practice in international airport noise management on comparable sites. To what extent do you think that this goal is sufficiently challenging?
5. Do you have any other comments on Stansted Airport's draft Noise Action Plan?

## **Responding to this consultation**

This consultation was launched on 12 June 2009. The deadline for responses is 2 October 2009.

You can send in your response in several ways:

- on the internet, by completing the response form online at:
  - ➔ [www.stanstedairport.com/noise](http://www.stanstedairport.com/noise)
- by printing off the response form and mailing to the following address:

BAA Noise Action Plan Consultation  
GfK NOP Datacentre  
Caxton House  
91 Victoria Road  
Chelmsford CM1 1JW

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# Annex A. Glossary of Terms

<b>aal</b>	above aerodrome level
<b>AIP</b>	Aeronautical Information Publication
<b>ACARE</b>	Advisory Council for Aeronautical Research in Europe
<b>ACOP</b>	Arrivals Code of Practice
<b>ANASE</b>	Attitudes to Noise from Aviation Sources in England
<b>ANMAC</b>	Aircraft Noise Monitoring Advisory Committee. The committee is chaired by the Department for Transport and comprises, among others, representatives of the airlines, Heathrow, Gatwick and Stansted airports and airport consultative committees.
<b>ANOMS</b>	Airport Noise Operations Monitoring System, Stansted Airport's specific NTK system
<b>APU</b>	Auxiliary Power Unit. A power unit located on the aircraft to provide power to essential systems whilst on the Ground.
<b>ATC</b>	Air Traffic Control
<b>ATM</b>	Air Transport Movement
<b>ATWP</b>	Air Transport White Paper
<b>CAA</b>	Civil Aviation Authority
<b>CDA</b>	Continuous Descent Approach
<b>CDM</b>	Collaborative Decision Making, reduction in ground noise, engine running and holding times by sharing data from ground handlers, airlines, slot coordination and Air traffic Control.
<b>dB(A)</b>	A unit of sound pressure level, adjusted in accordance with the A weighting scale, which takes into account the increased sensitivity of the human ear at some frequencies.
<b>Decibel (dB)</b>	The decibel (dB) is a logarithmic unit of measurement that expresses the magnitude of a physical quantity relative to a specified or implied reference level. Its logarithmic nature allows very large or very small ratios to be represented by a convenient number. Being a ratio, it is a dimensionless unit. Decibels are used for a wide variety of measurements including acoustics, and for audible sound A-weighted decibels (dBA) are commonly used.
<b>DCOP</b>	Departure Code of Practice
<b>DEFRA</b>	Department for Environment Food and Rural Affairs (UK Government).
<b>DfT</b>	Department for Transport (UK Government)
<b>DN</b>	Directors Notice, local rules and regulations of Stansted Airport
<b>ERCD</b>	Environmental Research and Consultancy Department of the Civil Aviation Authority.
<b>FEGP</b>	Fixed Electrical Ground Power
<b>FEU</b>	Flight Evaluation Unit
<b>FOC</b>	Flight Operations Committee

## Annex A. Glossary of Terms

<b>G1</b>	Stansted Generation 1 Development
<b>GPU</b>	Ground Power Unit
<b>ICAO</b>	International Civil Aviation Organization
<b>ILS</b>	Instrument Landing System
<b>L<sub>Aeq,16h</sub></b>	The A-weighted average sound level over the 16 hour period of 0700 – 2300
<b>L<sub>day</sub></b>	The A-weighted average sound level over the 12 hour day period of 0700 - 1900 hours.
<b>L<sub>den</sub></b>	The day, evening, night level, Lden is a logarithmic composite of the Lday, Levening, and Lnight levels but with 5 dB(A) being added to the Levening value and 10 dB(A) being added to the Lnight value
<b>L<sub>eq</sub></b>	Equivalent sound level of aircraft noise in dBA, often called equivalent continuous sound level. For conventional historical contours this is based on the daily average movements that take place in the 16 hour period (0700-2300 LT) during the 92 day period 16 June to 15 September inclusive.
<b>L<sub>evening</sub></b>	The A-weighted average sound level over the 4 hour evening period of 1900 - 2300 hours.
<b>L<sub>max</sub></b>	Maximum A-weighted sound level
<b>LPA</b>	Local Planning Authority
<b>L<sub>night</sub></b>	The A-weighted average sound level over the 8 hour night period of 2300 - 0700 hours.
<b>NATS</b>	Formerly known as National Air Traffic Services Ltd. NATS is licensed to provide en-route air traffic control for the UK and the Eastern part of the North Atlantic, and also provides air traffic control services at several major UK airports, including Gatwick.
<b>Noise Bands</b>	Areas with similar noise exposure in 5 dB(A) ranges according to the key shown with the maps
<b>Noise Contour</b>	Map contour line indicating noise exposure in dB for the area that it encloses.
<b>NPR</b>	Noise Preferential Route
<b>NTK</b>	Noise and Track Keeping monitoring system. The NTK system associates radar data from air traffic control radar with related data from both fixed (permanent) and mobile noise monitors at prescribed positions on the ground.
<b>NTKWG</b>	Noise and Track Keeping Working Group
<b>PNdB</b>	Perceived Noise Level, measured in PNdB. Its measurement involves analyses of the frequency spectra of noise events as well as the maximum level.
<b>PPG</b>	Planning Policy Guidance
<b>QC</b>	Quota Count - the basis of the London airports Night Restrictions regime

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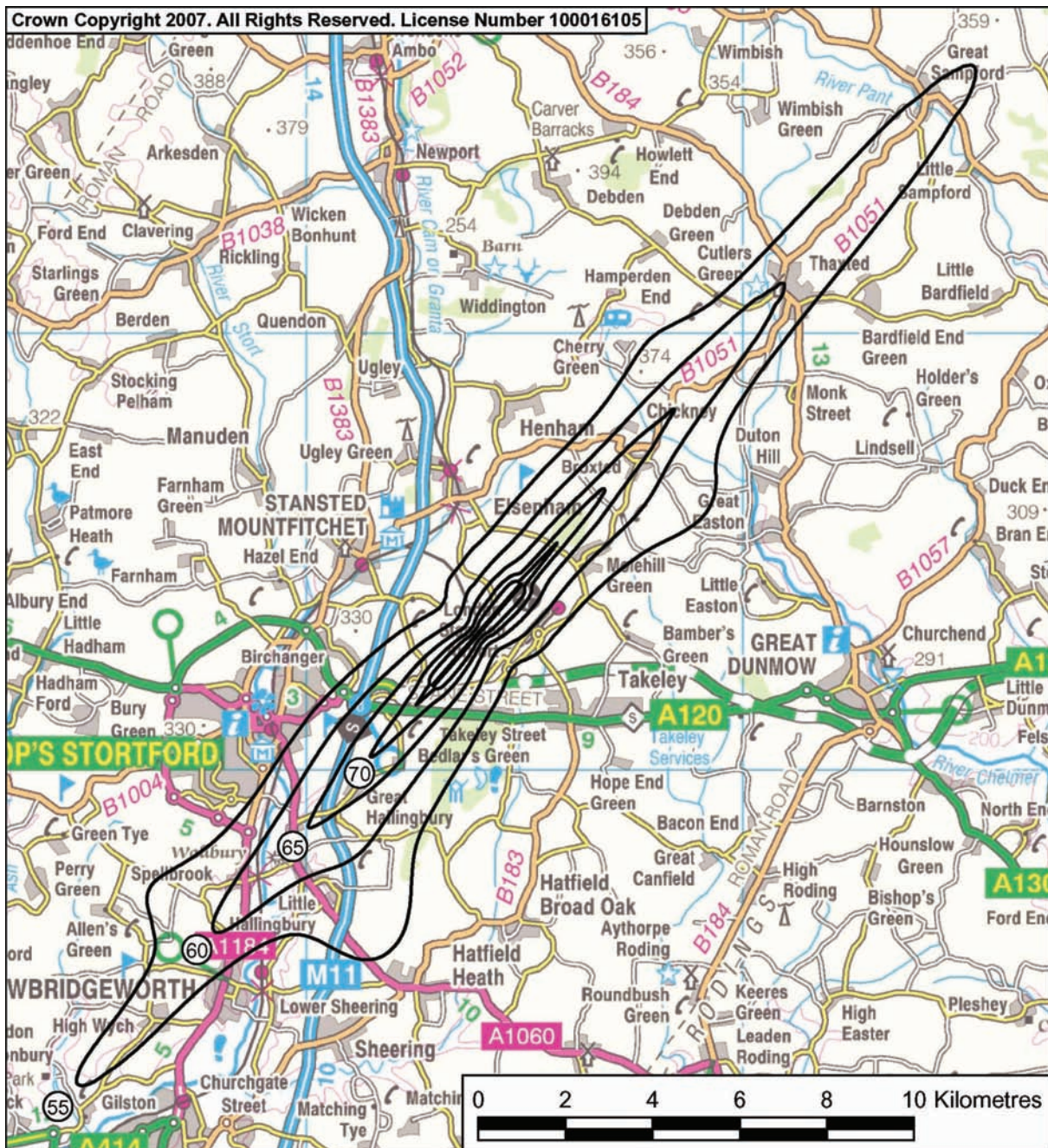
## Annex A. Glossary of Terms

<b>QFE</b>	Atmospheric pressure at aerodrome level (or at runway threshold) (i.e. the altimeter reads zero feet on the ground)
<b>QNH</b>	Altimeter sub scale setting to obtain airfield elevation when on the ground (i.e. the altimeter reads the aircrafts altitude Above Mean Sea Level)
<b>RNAV / PRNAV</b>	Area Navigation / Precision Area Navigation using GPS coordinates
<b>SEL</b>	Sound Exposure Level. The level generated by a single aircraft at the monitoring point. This normalised to a 1 second burst of sound and takes account of the duration of the sound as well as its intensity.
<b>SID</b>	Standard Instrument Departure route
<b>SoS</b>	Secretary of State
<b>STACC</b>	Stansted Airport Consultative Committee
<b>STAL</b>	Stansted Airport Limited
<b>Sustainable Aviation</b>	A UK aviation industry initiative aiming to set out a long term strategy for the industry to address its sustainability issues



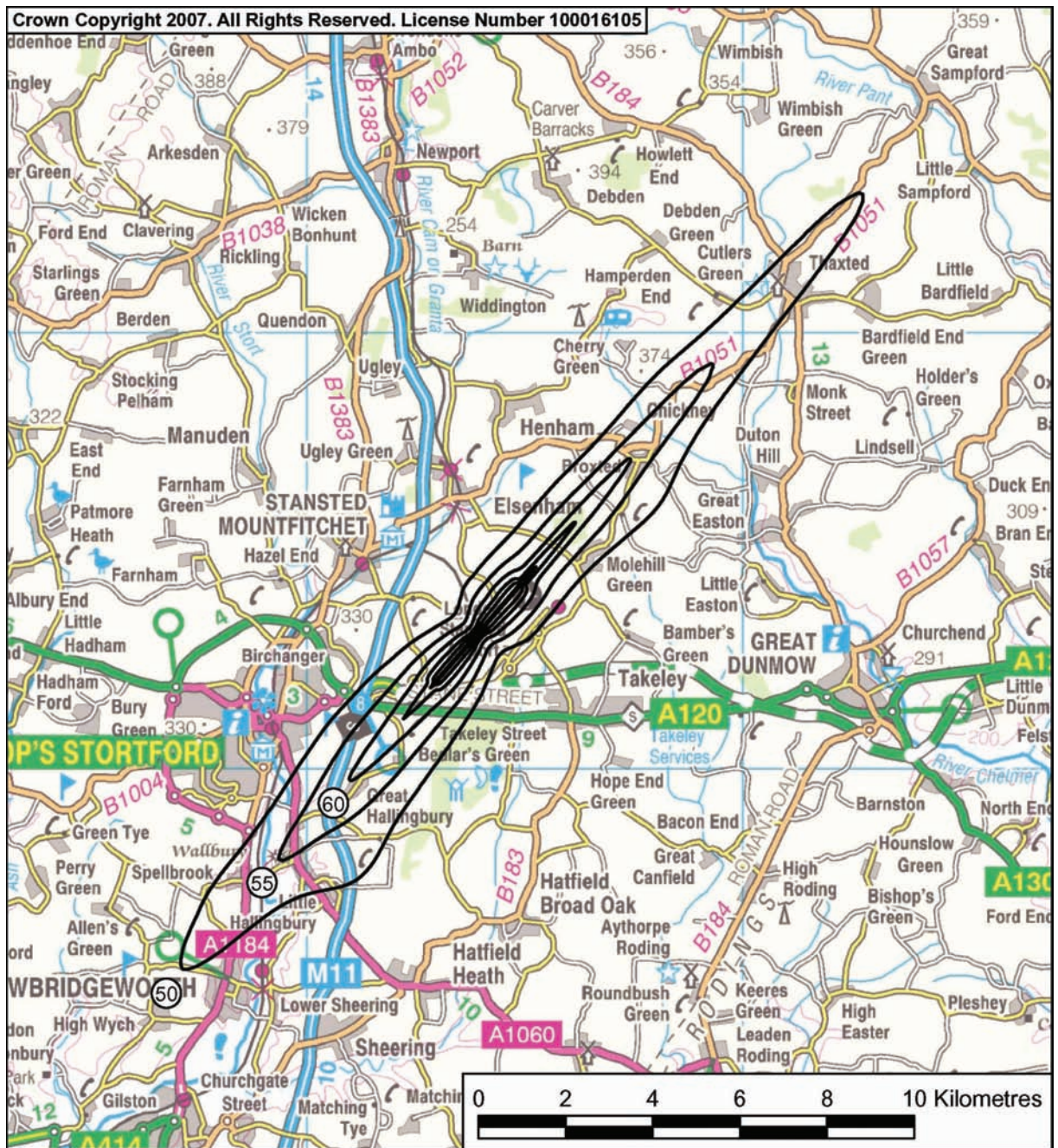
# Annex B. END Noise Contour Maps

Lden



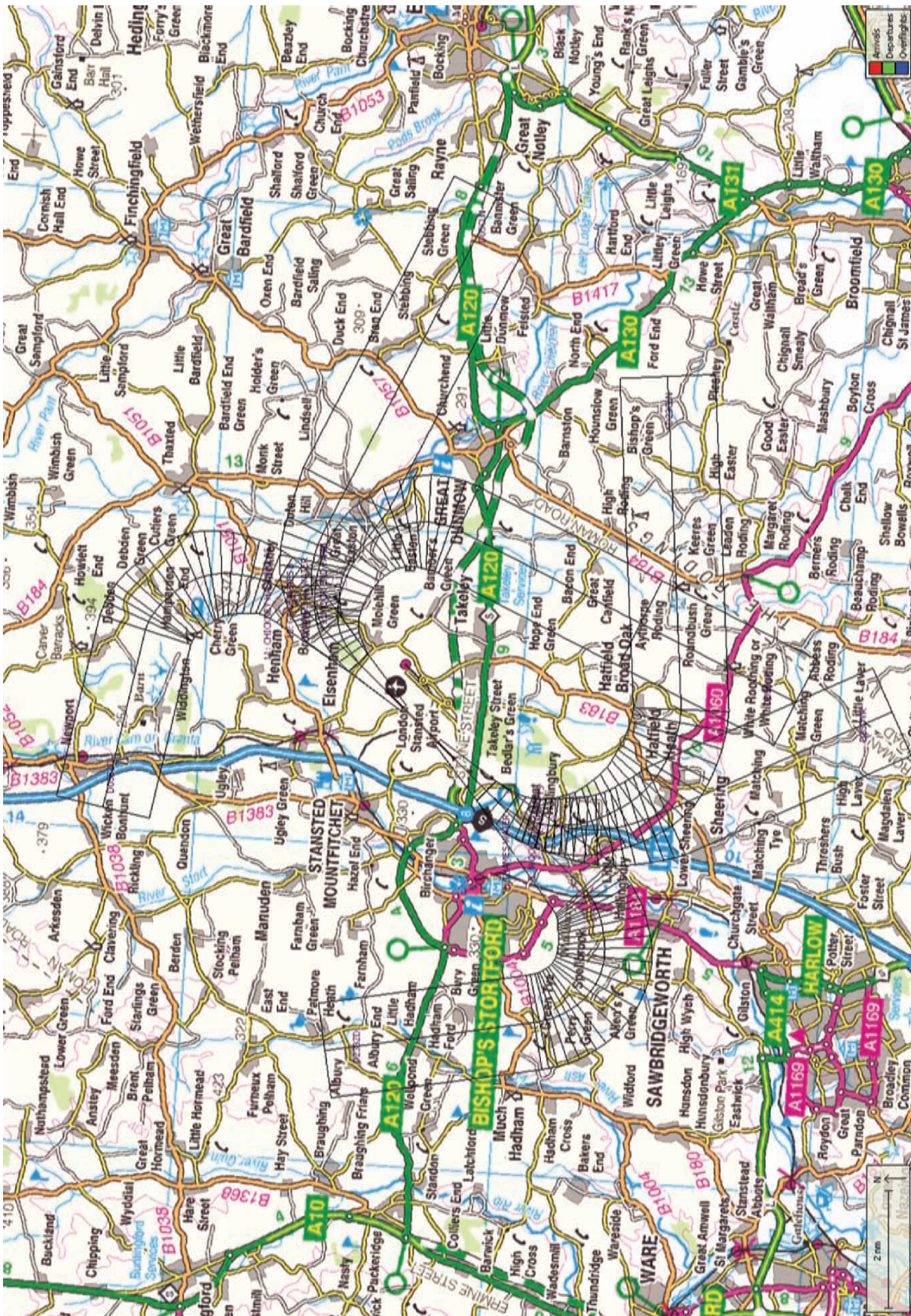


# Annex B. END Noise Contour Maps Night



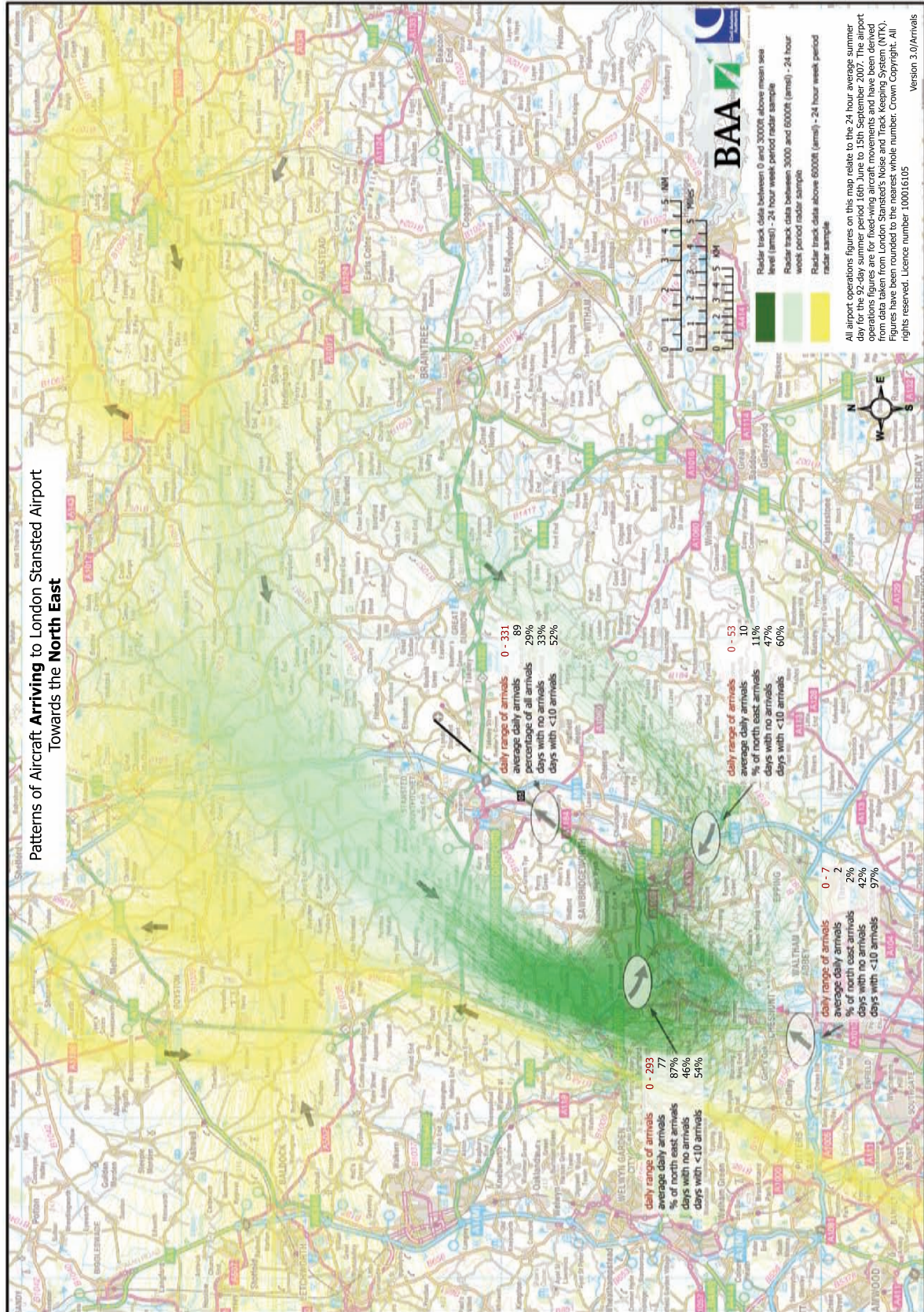


# Annex C. NPR Map



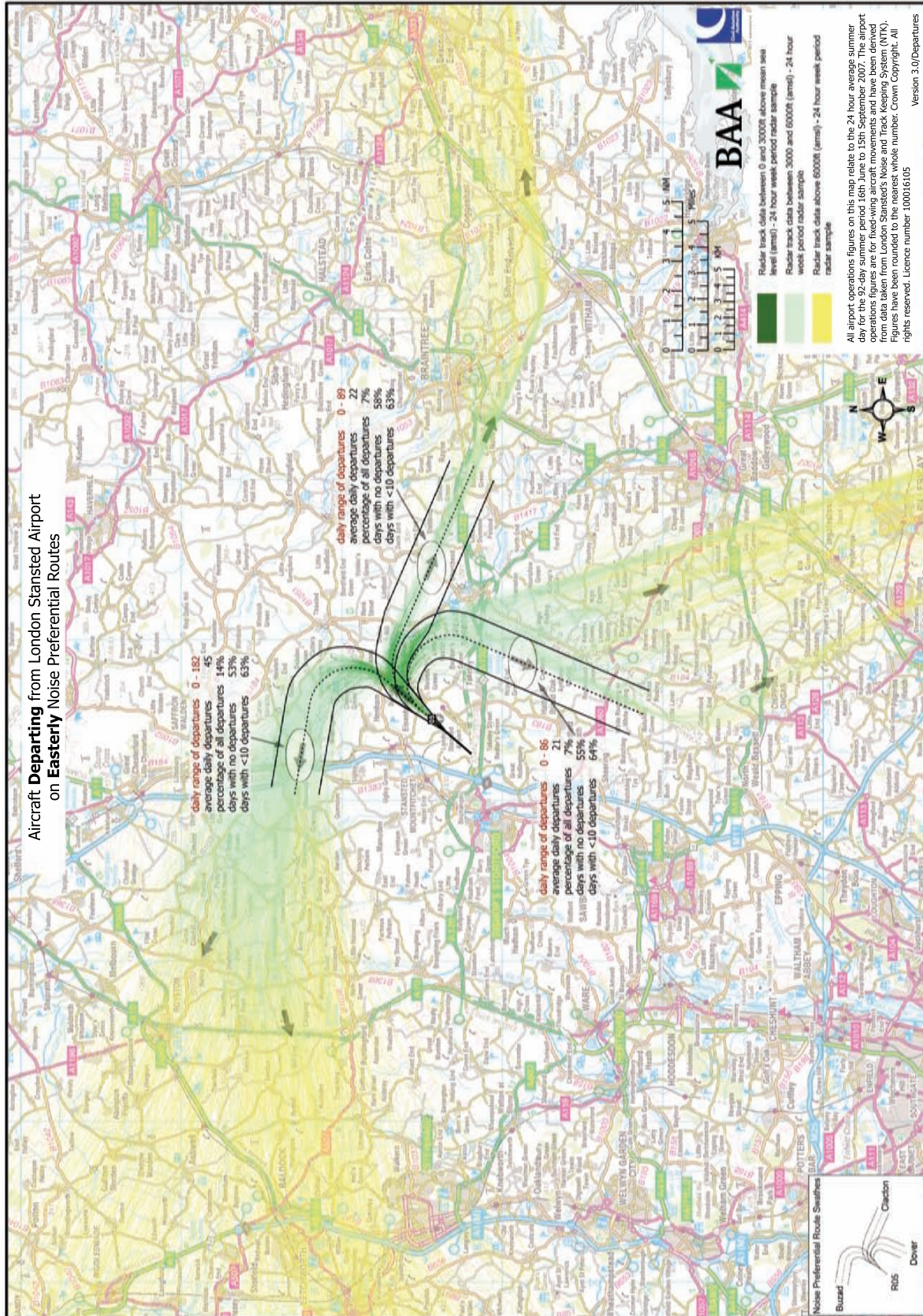


# Annex D. London Stansted Airport Arrival and Departure Maps



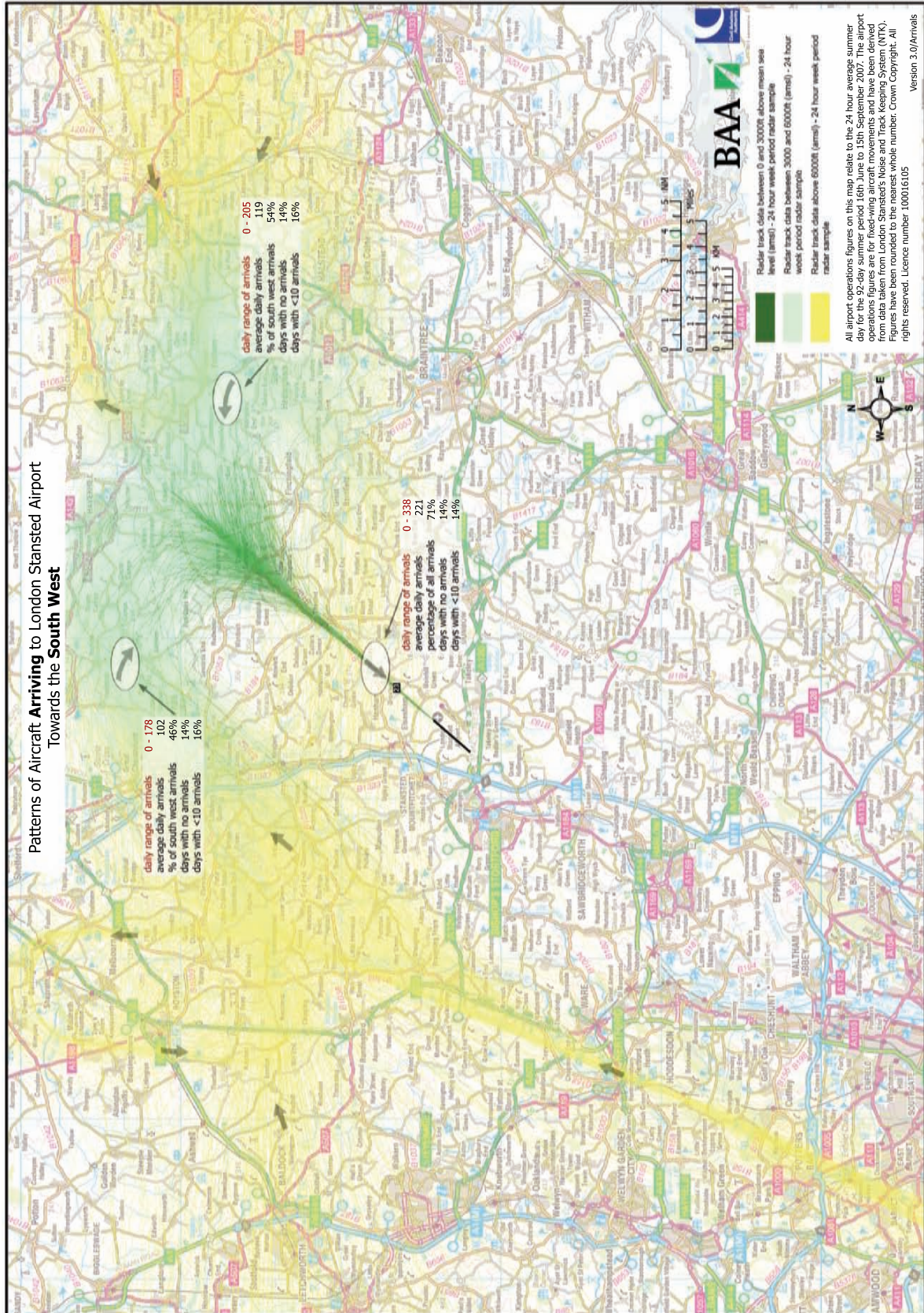


# Annex D. London Stansted Airport Arrival and Departure Maps



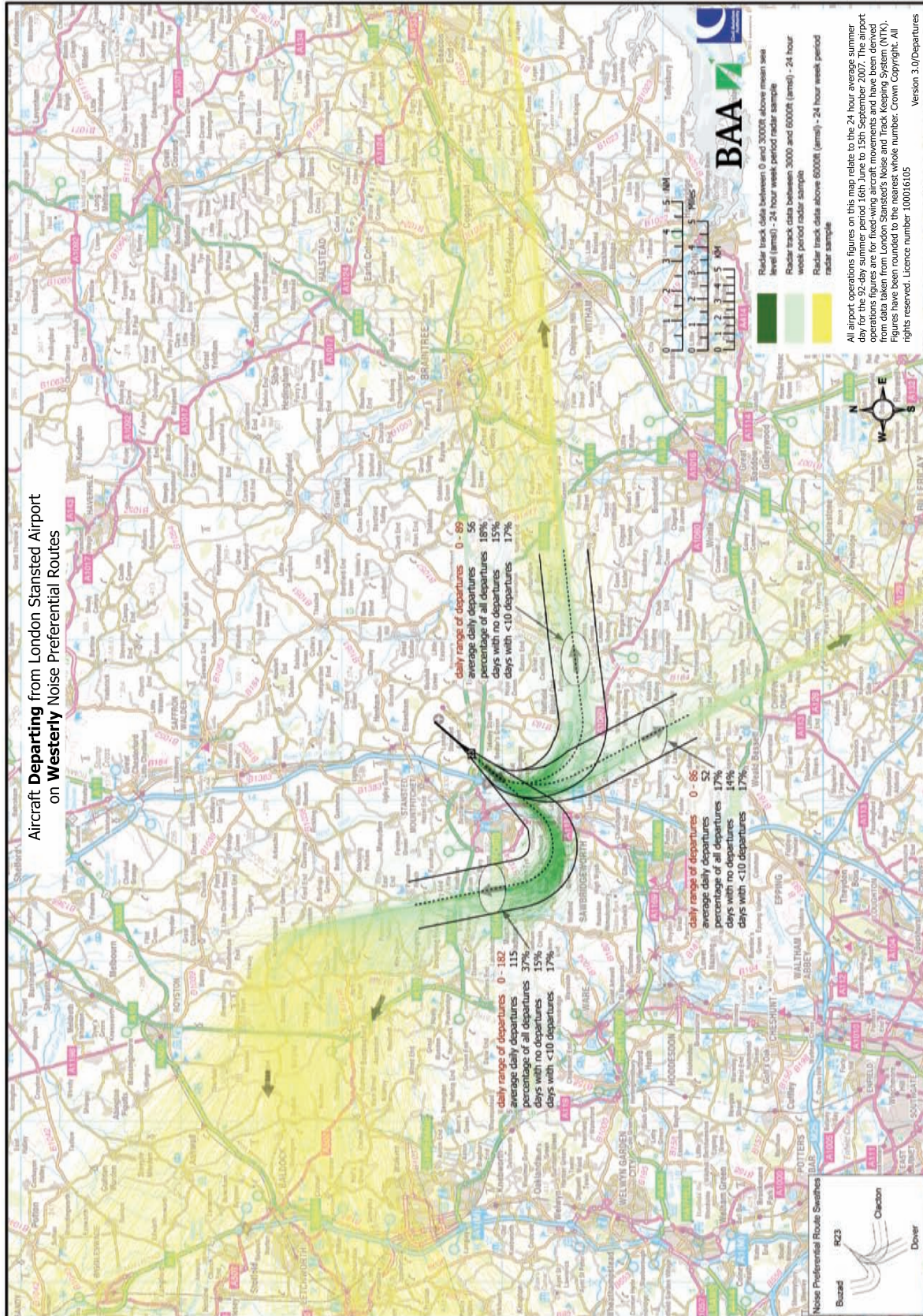


# Annex D. London Stansted Airport Arrival and Departure Maps






# Annex D. London Stansted Airport Arrival and Departure Maps











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