Department for Transport

Night Flying Restrictions at Heathrow, Gatwick and Stansted Airports

Stage 2 of Consultation on Restrictions to apply from 30 October 2005

June 2005

Department for Transport

Department for Transport
Great Minster House
76 Marsham Street
London SW1P 4DR
Telephone 020 7944 8300
Internet service: www.dft.gov.uk

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GLOSSARY AND ABBREVIATIONS

ANCON 2	Aircraft Noise Contour Model version 2
ANMAC	Aircraft Noise Monitoring Advisory Committee.
CAA	Civil Aviation Authority.
CDA	Continuous Descent Approach — a procedure intended to minimize noise nuisance during the intermediate approach phase.
Certifi(cat)ed Noise Levels	The ICAO aircraft noise certification procedure for subsonic aircraft over 5,700kg requires three separate noise measurements to be made at approach, lateral and flyover locations. The three certificated noise levels (measured in EPNdB) are determined within tight tolerances and normalised to standard atmospheric conditions.
dB	Unit of relative sound level or changes in sound level.
dBA	Unit of sound pressure level measured on the A weighted scale, *i.e.* as measured on an instrument that applies a weighting to the electrical signal as a way of simulating the way a typical human ear responds to a range of acoustic frequencies.
ECtHR	European Court of Human Rights.
Environmental Objective	A longer term objective for an airport within the definition at Regulation 2 of *The Aerodromes (Noise Restrictions) (Rules and Procedures) Regulations 2003* (SI 2003/1742).
EPNdB	Effective Perceived Noise Decibels.
EPNL	Effective Perceived Noise Level measured in EPNdB. Its measurement involves analyses of the frequency spectra of noise events and the duration of the sound as well as the maximum level.
ERCD	Environmental Research and Consultancy Department of the Civil Aviation Authority.
ICAO	International Civil Aviation Organisation.
L_{max}	The maximum sound level (normally in dBA) measured during an aircraft flyby.
L_{den}	A weighted average of sound levels during the day, evening and night as defined in Directive 2002/49/EC.
L_{eq}	A measure of long term average noise exposure. For aircraft it is the level of a steady sound which, if heard continuously over the same period of time, would contain the same total sound energy as all the aircraft noise events.

L_{night}	Usually, the eight hour L_{eq} average noise level from a specified source or sources as defined in Directive 2002/49/EC, in the UK defined to cover 2300-0700 local time; sometimes defined over other periods at night.
Movements Limit	The number of movements allowed during a season between 2330 and 0600 (the Night Quota Period).
Night Period	Defined as 2300-0700 local time.
Night Quota Period	Defined as 2330-0600 local time unless the context indicates otherwise.
Noise Abatement Objective	A subsidiary objective, referred to in the definition of an environmental objective in SI 2003/1742.
Noise Footprint	The area within which the noise level, normally defined using the SEL metric (*q.v.*), from a noise event is equal to or greater than the specified level. The footprint may relate separately to an arrival or a departure, or may be defined as an 'envelope' encompassing both.
Noise Quota	An aggregation of quota count for individual aircraft, used to define a seasonal limit or usage by comparison with the applicable limit.
NPR	Noise Preferential Route — essentially the first part of a Standard Instrument Departure route (SID), compliance with which is assessed by reference to a swathe 3km wide.
NTK	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.
PPG	Planning Policy Guidance.
Quota Count (QC)	The weighting attributed to the arrival or departure of a specified aircraft type by reference to its certificated noise performance, divided into 3EPNdB bands.
SEL	Sound Exposure Level. The level generated by a single aircraft at the measurement point. Accounts for the duration of the sound as well as its intensity.
SI	Statutory Instrument. A form of legislation which allows the provisions of an Act of Parliament to be subsequently brought in to force or altered without Parliament having to pass a new act. They are also referred to as secondary, delegated or subordinate legislation.
UK AIP	UK Integrated Aeronautical Information Package.
WHO	World Health Organisation.

1. Introduction

1.1 On 15 January 2004 the Department announced[1] its decision, in the light of consultation carried out in 2003[2], to continue the present regime of night restrictions at Heathrow, Gatwick and Stansted until 30 October 2005, and in July 2004[3] we issued Stage 1 of a consultation about proposals for change.

1.2 The stage one consultation paper was published on 21 July 2004 and the closing date for responses was 29 October. Our intention was to publish the second stage consultation paper in early 2005 to enable us to have a new regime in place by 30 October. However, there is not sufficient time to do this now.

1.3 The airline industry publishes its schedules well in advance and so any changes to the night restrictions regime need to be announced before the airlines' scheduling conference. The scheduling conference for the winter season is held in June and the scheduling conference for the following summer season is held in November as the winter season is only 5 months long.

1.4 Our second stage consultation on the new regime is important. Again, we shall welcome responses from any interested person or organisation. We still need to allow a full three months for responses and time to consider those responses properly and complete assessments required under European Directive 2002/30. We also need to complete a full Regulatory Impact Assessment that we shall publish with the decision announcement.

1.5 To provide sufficient time to do this, the present night restrictions regime will continue for a further year from 30 October 2005 until 29 October 2006. During that year the hours of the restrictions, the system for classifying aircraft, and other aspects of the regime will remain unchanged. The movements limits and noise quotas for the three airports for winter 2005/2006 will be the same as for the current year as follows:

Winter Season 2005/2006

	Movements Limit	Noise Quota
Heathrow	2550	4140
Gatwick	5250	6640
Stansted	5000	3550

1 *House of Commons Official Report,* 15 January 2004, cols 44-46WS.

2 *Night Flying Restrictions at Heathrow, Gatwick and Stansted: consultation on a one-year extension and certain general principles*, published April 2003.

3 *Night Flying Restrictions at Heathrow, Gatwick and Stansted: Stage 1 of Consultation on Restrictions to apply from 30 October 2005,* July 2004.

1.6 We also intend that for the 2006 summer season the movements limits and noise quotas for the three airports should be the same as for summer 2005 as follows:

Summer Season 2006

	Movements Limit	Noise Quota
Heathrow	3250	5610
Gatwick	11200	9000
Stansted	7000	4950

1.7 If you have any comments on the proposed movements limits and noise quotas for summer 2006 please include them as part of your response to this consultation paper. In light of such comments we shall then give further consideration to the movements limits and quotas for the summer season.

1.8 After considering comments volunteered at Stage 1 about the length of the next proposed regime, the Department confirms its intention that the next night restrictions regime should apply for six years, from 29 October 2006 until the end of the summer season 2012.

1.9 This paper:

- repeats the contextual framework and the broad aims of the night restrictions;
- translates and refines these into proposed environmental objectives and noise abatement objectives;
- sets out our decisions in respect of the classification of aircraft;
- gives options for the length of the night quota period and states our provisional preference to continue with the present definition; and
- gives our proposals for the movements limits and noise quotas over the six years of the regime.

1.10 As at Stage 1, this consultation is being carried out in accordance with the Government's Code of Practice on Written Consultations (see **Annex A**). All the basic information that is essential to this Stage 2 consultation is in this paper (including its Annexes) although you may wish to refer back to the Stage 1 consultation for further details about proposals which were then put for consideration. Details of how to obtain reports containing more detailed technical information are set out in section 10.

2. The structure of the consultation

2.1 This is the second of two stages of consultation. This paper covers:

- a statement of our environmental objectives and specific noise abatement objectives for Heathrow, Gatwick and Stansted;
- decisions relating to the classification of aircraft, in the light of responses to the first stage of the consultation;
- the proposal to continue the present definition of the night period (2300-0700) and night quota period (2330-0600) as against the alternative of extending the night quota period to cover the whole night period;
- the treatment of quota categories of aircraft in relation to the quota period;
- proposals for movements limits and noise quotas for each season to 2012;
- a statement of policy on further noise insulation schemes or criteria in respect of night disturbance;
- proposals for two additional departure noise monitors at Heathrow; and
- a partial Regulatory Impact Assessment, on which your comments are invited.

2.2 The consultation document is therefore complex and includes a number of technical issues. Not all readers may wish to explore all the details. We will, however, take account of all representations, even if they cover only some of the questions asked, or are expressed only as a general view about the stringency of the restrictions.

2.3 Nevertheless, the more questions you are able to respond to, the more helpful that will be when we come to consider all the responses.

2.4 We shall particularly welcome further information, in this stage of the consultation, about the costs and/or benefits of restrictions as proposed, as compared with the present level of restriction.

3. General background

Where we are now

3.1 The present night restrictions regime for Heathrow, Gatwick and Stansted was originally intended to apply until 31 October 2004. The consultation paper that we published in April 2003 proposing to extend the restrictions for a further year explained that the policy environment was in the process of changing. In particular, it drew attention to the then current consultation on *The Future Development of Air Transport in the United Kingdom: South East*; to the judgment then awaited from the Grand Chamber of the European Court of Human Rights on an action against the 1993 night restrictions regime at Heathrow; and to European Directives on Noise Related Operating Restrictions and on the Assessment and Management of Environmental Noise.

3.2 These matters had been largely clarified, when we issued Stage 1 of the present consultation last July. We have now considered the responses to Stage 1. This Stage 2 consultation sets out our conclusions based on those responses, and proposals.

3.3 The present night restrictions regime will now be extended for a further year from October 2005 to October 2006 as described in paragraphs 1.2-1.5.

3.4 Below we refresh on the broad background, which we also described at Stage 1.

Directive 2002/30/EC: Noise Related Operating Restrictions

3.5 European Directive 2002/30/EC of 28 March 2002[4] reflects the 'balanced approach' to aircraft noise management recommended in October 2001 in Resolution A33-7 of the 33rd Assembly of the International Civil Aviation Organisation (ICAO). It has established new rules and procedures with regard to the introduction of noise related operating restrictions at the largest airports. The Directive has been incorporated into UK legislation by *The Aerodromes (Noise Restrictions) (Rules and Procedures) Regulations 2003*[5]. These rules and procedures apply to restrictions of a partial nature affecting the operation of aircraft according to period of time, such as at night.

3.6 The UK has incorporated the necessary arrangements to give effect to the Directive in UK legislation. The Secretary of State for Transport has retained responsibility for noise issues at the airports designated for the purposes of section 78 of the Civil Aviation Act 1982 (in other words Heathrow, Gatwick and Stansted) and is the competant authority for these purposes under Article 3 of the Directive and Regulatory 4(1) of SI 2003/1742. At all other airports covered by the Directive, including Luton, the airport operator is the *'competent authority'*. The *'competent authority'* is responsible for setting out the environmental noise objectives for the relevant airports and for following the rules on the assessment of measures to achieve those objectives.

4 Included as an annex in the April 2003 consultation document.

5 SI 2003 No. 1742.

3.7 The UK Regulations state that:

> "'Environmental objective', in relation to an airport, means an objective set by a competent authority in support of one or more of the following objectives – the promotion of the development of airport capacity in harmony with the environment, facilitating any specific noise abatement objectives at that airport, achieving maximum environment benefit in the most cost effective manner, limiting or reducing the number of people significantly affected by aircraft noise."

3.8 A description of the information that, as far as appropriate and possible, must be considered in making decisions on operating restrictions, is set out at Annex II to the Directive. This includes information about the airport and existing noise mitigation methods, a forecast of the noise climate without the introduction of new noise mitigation measures, and an assessment of the impact and costs of additional measures that could be taken to improve the noise climate. The assessment of noise is also linked through to a noise mapping process to be established by a European Directive on the assessment and management of environmental noise.

Directive 2002/49/EC: Assessment and Management of Environmental Noise

3.9 This is a measure that refers to noise from all transport modes (including major roads, railways and airports), industry and significant population clusters ('agglomerations'). The Directive was published on 25 June 2002, and the Government is consulting on how to transpose it into UK law. The Directive seeks to harmonise the measurement and assessment of noise, principally by requiring a programme of strategic noise maps to be produced in prescribed comparable form[6], with the first round to be completed by 30 June 2007. The Directive also requires the production of action plans, based on the noise maps, to manage noise issues and effects at the mapped locations. The Directive stipulates that preparation of the plans must include early and effective opportunities for public consultation. The first round of these action plans must be completed no later than 18 July 2008. Directive 2002/49/EC does not introduce limit values but action plans will seek to address, in particular, areas where noise exposure is deemed to induce harmful effects on human health or to preserve environmental noise quality where it is good.

3.10 The Government is also currently developing a separate National Ambient Noise Strategy for England, which will build on the requirements of Directive 2002/49/EC. The Department for Transport is working with the Department of the Environment, Food and Rural Affairs on this subject. The Strategy will not, however, modify the London airports' night restrictions currently under consultation.

[6] The noise indicators, based on the day-evening-night level L_{den}, are defined in the Directive.

Legal challenge by the London Boroughs of Richmond-upon-Thames and of Wandsworth

3.11 The London Borough of Richmond-upon-Thames and the London Borough of Wandsworth obtained permission to seek judicial review of the Stage 1 consultation document (especially paragraphs 7.4-7.10) on a ground arguing that the Secretary of State had wrongly regarded himself as bound by article 4(4) of Directive 2002/30/EC to maintain a noise classification system which did not depart from ICAO noise classification data.

3.12 The proceedings were stayed generally on 14 December and the court made an order recording that the parties had agreed:

- that the Secretary of State is entitled to have regard to the operational noise of aircraft (and not merely to ICAO certification data) in formulating operating restrictions, provided that, in respect of restrictions at any given airport, aircraft with the same ICAO certificated noise levels are to be treated in the same way; and

- that this interpretation of article 4(4) of the Directive does not depart from that stated in the Stage 1 consultation paper.

3.13 This left the way clear for Stage 2 of the consultation to proceed.

4. Environmental and noise-abatement objectives

4.1 At chapter 6 of the Stage 1 consultation document, we described the contextual framework and aims for the night restrictions, and went on to discuss the definition of environmental objectives as set out in the regulations (SI 2003/1742) implementing the operating restrictions Directive 2002/30/EC**.** The broad aims were:

- to take account of the strategic framework for the next thirty years set out in *The Future of Air Transport*;
- to take account of the final Judgment reached by the ECtHR[7] in the case of *Hatton and Others* v. *the UK*;
- to take account of the undertaking given in the decision letter granting planning permission for Terminal 5 at Heathrow to consult on an extension of the night quota period[8];
- to take account of the *Guidelines for Community Noise* published by the World Health Organisation in 1999, noting that these are long-term targets for improving health;
- to take account of wider competitiveness, employment and economic considerations;
- within the scope of existing legislation[9] to bear down on night noise[10], particularly by encouraging the use of quieter aircraft at night; and
- at each airport, to strike a fair balance between the protection of local communities from excessive aircraft noise levels at night and the provision of air services at night where they are of benefit to the national, regional or local economy.

4.2 The White Paper framework included (paragraph 3.12) the aim:

- to bear down on aircraft noise at night subject to finding an appropriate balance with economic and social considerations.

4.3 We now move on, in the light of responses to Stage 1, to set out the proposed environmental objectives and noise-abatement objectives for each airport.

7 European Court of Human Rights, Strasbourg.

8 Although the Inspector at the T5 Inquiry heard a lot of evidence about night flights and interference with sleep, we indicated it was necessary to consult from first principles on the possibility of extending the night quota period because the evidence was put forward in a different context and because it may now be out-of-date.

9 Section 78 of the Civil Aviation Act 1982 and SI 2003/1742 implementing Directive 2002/30/EC.

10 Paragraph 3.12 of the White Paper, *Future of Air Transport*.

4.4 Consultees may recall that, as noted at para 3.7 above:

" 'environmental objective', in relation to an airport, means an objective set by a competent authority in support of one or more of the following objectives:

– the promotion of the development of airport capacity in harmony with the environment;

– facilitating any specific noise abatement objectives at that airport;

– achieving maximum environmental benefit in the most cost-effective manner;

– limiting or reducing the number of people significantly affected by aircraft noise."

4.5 The first of these possible over-arching objectives was a guiding principle in *The Future of Air Transport* White Paper and our proposed noise objectives for Heathrow, Gatwick and Stansted are intended to achieve this for each airport in the light of its particular circumstances.

Environmental objectives

4.6 The environmental objectives which underlie our proposals, below, for specific controls, are framed with a view to the longer term evolution of the three airports up to a time-horizon of thirty years or so.

4.7 The environmental objective for each specific airport has been framed with reference to the 'balanced approach' required by ICAO Resolution A33/7 and taking into account the World Health Organisation (WHO) *Guidelines for Community Noise*, published in 1999, in respect of night noise, as long term targets for improving human health. The objective for each airport is as follows:

- for **Heathrow**,

  – progressively to encourage the use of quieter aircraft by day and by night;

  – to avoid allowing the overall noise from aircraft during the night quota period to increase above what was permitted in 2002-03;

  – to support the principal daytime noise objective as set out in the White Paper, namely that if a third runway is built, the 57dBA daytime noise contour should not exceed its area in 2002 (127 km^2); and

  – to meet noise-abatement objectives as adopted from time to time;

- for **Gatwick**, taking account of the airport's sustainable development agreement:
  - progressively to encourage the use of quieter aircraft by day and by night;
  - to avoid allowing the overall noise from aircraft during the night quota period to increase above 2002-03 levels; and
  - to meet noise-abatement objectives as adopted from time to time;
- for **Stansted**,
  - 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.
  - to meet noise-abatement objectives as adopted from time to time;

4.8 These objectives are, as noted above, set with a view to the medium to longer term: to 2030 and somewhat beyond. (Given the need, as we see it, to maintain some end-year flexibility, and variabilities in the relationship between quota usage and contour areas, none of our proposals is assumed to guarantee that the noise abatement objective will not be exceeded in a particular year.)

4.9 On the basis of the evidence available to us, including the responses to Stage 1, we believe these objectives are consistent with, and proportionate to, the economic benefits (including benefits to passengers) which night flights produce. However, we would welcome any further information, from respondents to Stage 2, which may tend either to support or to contradict this contention.

Proposed noise-abatement objectives

4.10 As foreshadowed at Stage 1, we propose noise-abatement objectives for the night-time which relate specifically to the six-year time horizon of the proposed night restrictions. The noise-abatement objectives are intended to be consistent with the broader environmental objectives set out above. Again, our proposed noise-abatement objectives may be divided into those which relate to all three airports equally, and those specific to each.

4.11 We do not believe that objectives requiring the elimination of all disturbance at night would be compatible with a fair balance with economic costs to airport users.

4.12 Our proposed objectives common to all three airports are:

- to minimize sleep disturbance resulting from overflight of the noisiest types of aircraft;

- to mitigate the effects of noise (in particular, sleep disturbance effects) by encouraging the adoption by the airports of appropriate night-noise-related criteria, for domestic and other noise-sensitive premises, to determine which residents should be offered sound insulation to be paid for or contributed to by the airport.

4.13 In pursuance of these common objectives, we intend to continue to prevent QC/8 or noisier aircraft from flying at night other than in exceptional circumstances. This reflects what we believe, on the basis of research findings about the thresholds of sleep disturbance from aircraft noise events, to be the disproportionate contribution of such aircraft to sleep disturbance.

4.14 We propose to further limit sleep disturbance by formally preventing QC/4 aircraft from being scheduled to operate during the night quota period, still defined as at present – the reasons for concluding that this should be a scheduling ban rather than an absolute operating ban are discussed at paragraphs 5.23-5.37 below.

4.15 As foreshadowed at paragraph 7.11(c) of the Stage 1 consultation document, we considered again, in the light of the proposed environmental objectives, whether it might be appropriate to propose to extend the QC/4 scheduling ban to the full night period 2300-0700. To do so would be likely to produce some reduction in sleep disturbance, even if the QC/4 aircraft operating on schedule in the shoulder periods were to be displaced by other aircraft of similar aggregate quota contribution. However, we have also taken into account, in the context of the balanced approach, the prospective economic disbenefits of such a ban.

4.16 From these objectives we conclude that it is probably appropriate to retain the current definition of the night quota period, from 2330 to 0600 local time.

4.17 Our airport-specific night noise abatement objectives, on this basis, are:

- at **Heathrow**, to limit the 6.5 hour 48 dBA L_{eq} contour (for the winter and summer seasons combined) to 55 km^2 by 2011-12. In 2002-03 the contour map implied by maximum usage of the limits would have been 55.7 km^2 while the actual contour covered 53.9 km^2 [11];

- at **Gatwick**, to limit the 6.5 hour 48 dBA L_{eq} contour (for the winter and summer seasons combined) to 40 km^2 by 2011-12, representing a reduction of about 3% compared with 2002-03;

11 See Stage 1 consultation document, pp61-62 for further details of 2002-03 contours if required.

- at **Stansted**, where the average quota per aircraft (in the limit and in actuality) is currently low, to allow for expected growth in the average size of aircraft flying at night as the airport develops while taking advantage of the gradual displacement of noisier by quieter aircraft weight for weight. We believe it will be possible to keep within the present night quota period contour implied by the 2002-03 noise quota while allowing for growth; so we propose specifically:

  – to limit the 6.5 hour 48 dBA L_{eq} contour (for the winter and summer seasons combined) to 38 km^2 by 2011-12, comparable with what we would expect from maximum usage of the present noise quota.

4.18 Note that the proposed Heathrow and Stansted objectives are referenced to what is currently permitted, whereas those for Gatwick refer to outturn quota usage in 2002-03. This reflects in part what we believe to be the greater scope to bear down on noise at Gatwick without unduly limiting the operational and economic benefits available.

4.19 While our proposed noise abatement objective is to limit the 6.5 hour 48d_BA L_{eq} contour to 55km^2 by 2011-12, a more stringent objective for Heathrow is also under consideration in which the noise contour would contract. Our assessment suggests that it would be possible to reduce the contour area by a little more than 10% while allowing full use of the existing movements limits to be realistically achievable. This could be done by maintaining the existing movements limits and reducing the noise quota. According to our assessment, because of the introduction of quieter aircraft as airlines modernise their fleets, such a reduction might be possible without significant disruption to the evolution of Heathrow, fleets. In deciding whether to set a more stringent objective for Heathrow we will need to consider whether any significant economic or operational benefit would be lost by freezing movement limits. We would like respondents to provide clear evidence – beyond what was supplied in stage one – to indicate what economic and operational benefits would be lost by freezing the movements limit.

4.20 Projected future-year contours illustrating the possible effect of achieving these objectives are shown at **Annex C**. You should note that the shape of contours will in practice be influenced by the modal split (proportions of easterly and westerly operations), by details of the aircraft fleet, by the pattern of departure routes and their relative usage, by the proportions of arrivals and departures and by various other factors. So these contours should be regarded as a guide only.

4.21 Noise contours take account, through the calibration of the computer model used to generate them (in this case ANCON 2) of the actual noise detected by noise monitors from normal operations at the airports. They do not rely solely on the absolute noise levels attributed to each type of aircraft through certification.

4.22 Different noise abatement objectives could be set, for example if the Department were to be persuaded, after consideration of consultation responses that it should extend the night quota period. We have given below an indication of how the objectives might be

amended for a potential 8-hour night quota period. For consistency and clarity, the possible objectives there are intended to be as consistent as reasonably practicable with the proposed objectives at 4.16 above. We also provide an explanation for the changes. These are part of the consultation, though the Government's current expectation is that it would not extend the night quota period.

4.23 If the night quota period were extended to run from 2300 to 0700 hours, we would first reformulate the quantitative noise-abatement objectives as to noise contours so that they related to the 2300-0700 period (L_{night} contours). These L_{night} contours coincide with one of the metrics required by the environmental noise Directive, 2002/49/EC. The Directive specifies contours on the basis of 5dB (rather than 3dB) intervals and is based on calendar years rather than combined scheduling seasons[12].

4.24 If the night quota period were extended, we would propose these airport-specific noise-abatement objectives:

- at Heathrow, to limit the 8 hour 50dBA L_{eq} contour (for the winter and summer seasons combined) to 92 km^2 by 2012, compared with its aggregate area of 92.3 km^2 in 2003;

- at Gatwick, to limit the 8 hour 50dBA L_{eq} contour (for the winter and summer seasons combined) to 43 km^2 by 2012, representing a reduction of about 4% compared with 2003;

- at Stansted, to limit the 8 hour 50dBA L_{eq} contour (for the winter and summer seasons combined) to 45 km^2 by 2012, somewhat above the actual area in 2003;

4.25 **Your comments are invited on the proposals for environmental and noise-abatement objectives as set out above**.

Current inventory, base case assessments and forecasts without new measures

4.26 These data, required by 2002/30/EC and SI 2003/1742, were largely included at Stage 1 and are not repeated here. However, we have included at **Annex B** to this consultation some additional information about recent performance at the airports (particularly at night) in respect of departure noise limits, adherence to Noise Preferential Routes (NPRs) on departure, and Continuous Descent Approach (CDA). Our final decision on operating restrictions will be informed by this and by any relevant information provided to us before that decision is taken.

12 See Stage 1, Annex C, pp51-53 for L_{night} contours for each airport as at 2003. The areas are shown there in bands rather than as cumulative totals.

5. Classification of aircraft

5.1 In Stage 1, at chapter 7, we explained the present system of night restrictions, including the Quota Count (QC) system introduced in 1993 especially for Heathrow, Gatwick and Stansted.

5.2 It has not proved possible to issue this Stage 2 consultation document in time for decisions to be taken in advance of the Winter 2005-2006 and Summer 2006 scheduling conferences. Changes proposed below, would, therefore, be introduced with effect from Winter 2006/7

5.3 Types of aircraft (based on airframe, engine type and maximum take-off or landing weight) are allocated into QC bands which, subject to a maximum value of 16 and a current minimum of 0.5, each span 3 decibels of noise as determined by the international system for noise certification. The bands are:

Certificated Noise Level (EPNdB)[13]	Quota Count
More than 101.9	16
99-101.9	8
96-98.9	4
93-95.9	2
90.92.9	1
Less than 90	0.5
Less than 87	See footnote[14]

5.4 In the Stage 1 consultation paper, we made clear that, although not obliged to do so, we proposed to retain the QC system. Consultees were asked for their views. Some suggested that the QC system should be jettisoned in its entirety in favour of a system based entirely on numerical movements limits. However, over 80% of consultees who expressed a view on this point said that the QC system should be retained. In the light of that response, **we have decided to retain the QC system** as part of system of **common arrangements** across the three designated airports.

5.5 Some of the consultees suggested that the QC system should be altered so as to take account of measurements of operational noise in so far as these differed from ICAO certification data. But the consultees who suggested changes were far from unanimous as to what the changes should be. No suggested system was both consistent with the Government's legal obligations (as set out in paragraphs 3.11 and 3.12 above) and superior, in our view, to that currently in place.

13 Effective Perceived Noise Decibels, a specialised noise unit used for aircraft noise certification tests. Figures based on average of flyover and sideline for departures, and after 9EPNdB subtraction from approach value.

14 Jet aircraft with a maximum certificated weight not exceeding 11,600kg and propeller aircraft are currently exempt from the movements limits and noise quotas if their certification data are less than 87EPNdB. See decision below on QC/0.25.

5.6 Various aspects of the QC system had been examined as part of the Department's earlier review[15] of the QC system, as noted in part 7 of the Stage 1 paper. For the reasons discussed, we are not taking forward the idea of an unbanded system. In the light of some comments received on Stage 1, we further considered whether to shift the boundaries of the QC bands (which was not considered in depth in the *Review*). Taken separately from the question of what the effective noise quotas should be, upon which we consult below, the main potential effects would be in relation to (a) the relative weightings on arrivals and departures; and (b) the number of aircraft (types) which would be subject to the QC/4, /8 and /16 scheduling and operating restrictions. Issue (a) is addressed below in the context of the minus 9EPNdB adjustment. Turning to (b), a reduction in the band ceilings would for example have brought aircraft types currently permitted to be scheduled at night into the banned category, irrespective of their respective empirical noise performance relative to their certificated values. We have concluded that such a change would not be fair, conducive to orderly fleet planning, or necessary in order to help achieve the environmental and noise-abatement objectives for the airports.

Introduction of a new QC/0.25 band (84-86.9 EPNdB)

5.7 This was discussed at paragraphs 7.13-7.17 of the Stage 1 consultation document, and supporting details were at Annex F to that consultation.

5.8 We proposed to introduce a new QC/0.25 band, below 0.5, while abandoning the weight limit, currently in force, which requires jet aircraft with a maximum certificated weight of more than 11,600kg to be classified as QC/0.5 even if, based on their certificated noise data alone, they would have been in the exempt category.

5.9 The potential effect of introducing this band would therefore be (i) to reclassify some aircraft, previously QC/exempt, to 0.25 if their adjusted certificated noise was between 84 and 86.9 EPNdB inclusive; and (ii) to reclassify some aircraft, previously QC/0.5 by virtue of exceeding the weight limit, either to QC/0.25 or to QC/exempt, depending on whether the relevant adjusted certificated noise level for departure or arrival was below the 84 EPNdB cut-off.

5.10 Most respondents agreed that it would be fair and appropriate to introduce the QC/0.25 category on the basis described and **we have decided to do so**, on the basis that the noise quotas to be set will take account of the estimated effect of this definitional change on the relationship between quota usage and achievement of the noise-abatement objectives (specifically the contour objectives).

5.11 **Annex D** is a table, prepared on our behalf by the CAA, showing the expected quota classifications of aircraft including those which, we believe, would be in the QC/0.25 category. We propose that this table should (subject to any technical corrections and updates for aircraft types newly expected to visit one or more of the airports) form the basis for the QC system from 29 October 2006.

15 Available, as are most other ERCD reports, from The Stationery Office. See section 10 of this document.

5.12 Broadly, the detailed aircraft types found to be in the QC/0.25 category confirm the generic description given in Annex F to Stage 1.

5.13 A net effect of the introduction of the QC/0.25 category will be to reduce the overall quota usage required to operate at present levels, or at the present movements limits. This is because the majority of aircraft currently operating at the three airports, which are affected by this change, are arriving narrow-body jets currently classified as QC/0.5 on approach by virtue of exceeding the weight threshold, which will be reclassified to QC/0.25 on approach. These aircraft are typically modern members of the Boeing 737 family, and certain of the Airbus 319/321 types.

5.14 Comparatively few of the aircraft types, which operate frequently at night at Heathrow, Gatwick and Stansted, will be reclassified from Exempt (zero) to QC/0.25. And comparatively few aircraft currently departing from these airports during the present night quota period will be classified QC/0.25 on departure.

5.15 Stansted is the one airport of the three where there are substantial numbers of prospective QC/0.25 departures, and this partly offsets the effect there of arrivals reclassified downwards to QC/0.25.

5.16 The net effect is, we estimate, to reduce the quota usage represented by current aircraft at each airport by proportions less than 10% in each case. The biggest reduction is at Gatwick – the reductions are smaller at Heathrow, where larger aircraft types dominate, and at Stansted, partly because of the departures noted above.

5.17 The noise contours, relevant to our noise-abatement objectives, will not of course be reduced purely as a numerical consequence of the introduction of QC/0.25, though they may be slightly affected by its incentive effects. We have taken this into account in making the quantitative proposals in section 7 below.

Retention of minus 9 EPNdB adjustment for arrivals

5.18 Paragraphs 7.18 to 7.21 of the Stage 1 consultation document explained the system of adjusting the approach certification value by a deduction of 9 in order to make it broadly comparable with the departure noise value, which is an average of the flyover and sideline values. We went on to summarize the findings of the CAA's ERCD Report 0204[15], which in our view appeared to justify keeping the adjustment factor.

5.19 Some consultees favoured introducing separate movements limits and/or noise quotas for arrivals and departures, instead of using 9 EPNdB or any other adjustment factor to aggregate arrivals and departures in a combined QC control. Arguments put in favour of this proposition included that different people were affected, and that no simple adjustment factor could capture the difference in character between approach and departure noise. It is also true by definition that separate movements limits or noise

quotas for arrivals and departures, adding to the same overall totals, would over time represent a more stringent control than a single combined (arrivals and departures) movements limit or noise quota.

5.20 Consultees did not advance any arguments which, in our view, contradicted ERCD's technical findings.

5.21 Having considered these arguments, the Secretary of State has concluded that proposals for a system of separate controls for arrivals and departures should not be taken forward, and that the 9 EPNdB adjustment is a reasonable and pragmatic method for combining them, while taking account of the particular patterns and characteristics of arrivals and departures in setting the limits themselves for each airport.

5.22 **We have therefore decided to retain the 9 EPNdB adjustment within a system of combined movements limits and noise quotas each covering arrivals and departures together.**

QC/4 scheduling or operations ban – current night quota period

5.23 Paragraphs 7.22-23 of the Stage 1 document briefly discussed the question of whether to prohibit QC/4 aircraft from operating between 2330 and 0600, and proposed that we should do so. This proposal drew a mixed response. Residents, local authorities and environmental groups, who expressed a view, generally welcomed it.

5.24 However, numerous industry respondents argued that the incremental environmental benefit of a ban on operations, as distinct from scheduling, of QC/4 aircraft was small when compared with the disbenefits, particularly those to passengers forced to make an overnight stay when a flight scheduled before 2330 is unavoidably delayed beyond that time. To prevent aircraft in this situation from taking off after 2330 (but still early within the night quota period) would, these respondents argued, cause disruption to services. While we are proposing in any case to continue the serious delay provisions (see paragraph 6.12 below) for disregards under s.78(4), these would not necessarily apply in all such instances. So, we think, this argument does have force. (However, if it is decided to extend the night quota period, we would propose to ban the operation as well as scheduling of QC/8 aircraft in the 2300-2330 half-hour.)

5.25 There are also significant potential disbenefits to arriving aircraft (though generally rather less serious, in our view, than the disbenefits associated with departures) and respondents highlighted these also. The flight-times of intercontinental services are subject to significant variability due to weather conditions (particularly winds in the upper airways) and other factors, which can lead them to arrive substantially earlier than they are scheduled to – and normally do – arrive. The variability is such (in relation to aircraft operating 'envelopes') that it would not always be practical to offset it by, for example, flying more slowly at cruise altitude.

5.26 In such cases, an operating ban on QC/4 aircraft would be liable to result in aircraft being kept in the air for long periods in holding patterns. This would result in forgone opportunities for earlier-than-scheduled arrival for passengers, and (more importantly in our view) avoidable waste of aviation fuel – an environmental as well as an economic cost.

5.27 The overall incidence of unscheduled operation by QC/4s is already relatively small, for example, ranging from 0.5% of total night quota period movements at Stansted in 2002-03 to 5% at Heathrow in Summer 2003. This is discussed further in the Regulatory Impact Assessment at **Annex E**.

5.28 On balance, we have been persuaded by these arguments. In so concluding, we expect the airports, and their scheduling committees, to continue to make every effort to ensure that schedules are drawn up in good faith and that action will be taken if and when any particular service is found to be systematically arriving before 0600 when it is scheduled after that time. We shall look to the airports, and their noise monitoring fora, to keep this point under review.

5.29 Few respondents opposed a QC/4 scheduling ban between these times. Voluntary bans are already in force at Heathrow and Stansted. Only one operator (DAS Air Cargo) regularly schedules QC/4 operations at Gatwick. In its response to Stage 1, that operator – while not welcoming the prospect of a ban – accepted that a scheduling ban was likely to be imposed and indicated its intention to switch to less noisy aircraft for night operations at Gatwick.

5.30 We have taken account of the potential economic disbenefits to this operator and to other prospective operators of a formal scheduling ban and have concluded that the benefits outweigh the costs.

5.31 **We have therefore decided to proceed with a ban on scheduling but not on operating QC/4 aircraft in the night quota period, at all three airports**.

QC/4 scheduling and operations in the shoulder periods

5.32 At 7.23 of Stage 1, we also stated our intention to consider whether QC/4 aircraft should still be allowed to operate in the shoulder periods 2300-2330, 0600-0630 and 0630-0700, if these times were to be brought within the night quota period – whether immediately, by phasing out over the six years of the regime; or if not, whether or not this should remain for consideration as an issue for a subsequent review.

5.33 As explained elsewhere in this consultation, Ministers are provisionally minded to maintain the current night quota period, but will consider responses which favour extending it to 2300-0700, on an assumption of comparable stringency of the limits to be applied.

5.34 For the reasons given above, Ministers are definitely not minded to proceed with an operating ban in the existing night quota period, and similar reasons apply more strongly in the shoulder periods – given that the potential for disruption to services scheduled before 2300 or after 0700 is greater in view of the greater number of such services. We are therefore consulting only on the question of a scheduling ban.

5.35 Turning, then, to the merits of extending the scheduling ban, we consider that – while the costs and benefits are as ever very difficult to quantify – the environmental benefit in terms of reduced sleep disturbance is likely to be proportionately less (because a higher proportion of people is awake) and the economic cost to operators of making financially premature fleet adjustments is likely to be significantly higher.

5.36 Having, therefore, considered the matter in the light of those responses to Stage 1 which considered it, and in the light of our proposed environmental and noise abatement objectives, including the balanced approach as expressed in 2002/30, our tentative and provisional view is that this is a matter which should be left for further review preparatory to the Government's consultation on the next night restrictions regime, which will be from October 2012. However, we shall carefully consider your views whether they agree or disagree with our provisional judgement.

5.37 To summarize, the question is thus: **do you agree that, even if we do decide to extend the night quota period to cover the whole night from 2300 to 0700, the proposed QC/4 scheduling ban should continue to apply only between 2330 and 0600 for the duration of the 2006-12 regime and be subject to review when we come to consider the regime from 2012 onwards?**

Departure noise limits

5.38 In December 2000 the Government announced new lower noise limits for aircraft departing from Heathrow, Gatwick and Stansted and more efficient noise monitoring arrangements. At the same time, we confirmed we would commence a further review of both monitoring efficiency and of the noise limits, possibly incorporating a differential or tiered effect[16].

5.39 A review was carried out by the Environmental Research and Consultancy Department (ERCD) of the Civil Aviation Authority, overseen by the Aircraft Noise Monitoring Advisory Committee (ANMAC). ERCD analysed noise and track monitoring data obtained from the noise and track-keeping system at the three airports. The results were published in their technical report *Departure Noise Limits and Monitoring Arrangements at Heathrow, Gatwick and Stansted Airports:* ERCD Report 0207 in April 2003[17].

16 Decision Announcement of 18 December 2000.

17 Two further reports may also be of interest: *An Assessment of the Accuracy of Flight Path Data used in the Noise and Track-keeping System at Heathrow, Gatwick and Stansted Airports:* ERCD Report 0209, and *Techniques used by ERCD for the Measurement and Analysis of Aircraft Noise and Radar Data*: ERCD Report 0406.

5.40 The main findings were summarised in the April 2003 consultation paper on night flying restrictions, which also included a broad indication as to how we would take account of them when bringing forward proposals for a new night restrictions regime. The key findings were:

(i) as the night-time and shoulder period noise limits should be broadly compatible with the night restrictions regime, scope for changes depends on those restrictions: if a complete ban on take-offs by aircraft classified as QC/4 were to be implemented in the night quota period, it might be feasible to reduce the departure noise limit that also applies from 2330-0600 by 3dB;

(ii) while there are still appreciable numbers of Boeing 747-200s and other older types of heavy Chapter 3 aircraft in operation, it is only feasible to reduce the daytime noise limit (at all three airports) by 1dB;

(iii) monitoring performance could be improved by installing two new monitors at Heathrow and moving one of the Stansted monitors to a new location; and

(iv) the possible basis for a scheme of differential or tiered limits to ensure operators of all types of aircraft, not just the noisiest ones, minimise their noise on take-off has been identified and is recommended to be taken forward by means of a trial to assess the benefits and practical difficulties of operating such limits.

5.41 At Stage 1 of the present consultation, we noted (at 7.23(a)) that **if** we proceeded with an operating ban on QC/4 aircraft in the night quota period, we intended also to propose reducing the departure noise limits between 2330 and 0600 from 87dBA L_{max} to 84dBA.

5.42 Since, as declared above, we have decided **not** to apply an operating ban but only a scheduling ban on these aircraft, **we do not propose to reduce this noise limit**, as this proposal was contingent on a full operating ban being applied, so as to make sure that all types of aircraft legitimately entitled to fly in the night quota period would normally be capable, if appropriately flown, of complying with the noise limits.

5.43 We considered the possibility of reducing the noise limit but exempting aircraft of QC/4 or higher from it but have concluded that this would not be fair or appropriate.

5.44 We need to maintain a broad consistency between the night flying restrictions and the departure noise limits applying between the relevant hours. With this in mind, we also indicated at Stage 1 of the present consultation (at paragraph 2.4(vii)), that we would consult at Stage 2 on reducing the departure noise limits that apply in the current night shoulder periods (2300-2330 and 0600-0700) to an extent consistent with other changes (if any) in the night restrictions.

5.45 As indicated at paragraph 5.30, our preferred proposal is not to extend the night quota period to cover the current night shoulder periods; nor are we proposing any other significant changes to the restrictions that apply at those times. It follows, therefore, that we are not proposing, assuming that we do proceed in accordance with the foregoing and are not persuaded to extend the night quota period nor to introduce an operating as distinct from scheduling ban on QC/4, to alter the departure noise limit, 89dBA, that applies in the shoulder periods 2300-2330 and 0600-0700.

5.46 However, the alternative scenario described at paras 7.44-7.52 below does provide for the extension of the night quota period (with an accompanying ban on QC8 operations). If that scenario were adopted we would also propose to reduce the departure noise limit in the current night shoulder periods from 89dBA to 87dBA, the same as applies in the current night quota period.

5.47 The assessments of noise and costs at **Annex E** (Partial RIA), with the information required by 2002/30/EC, for each of the airports, take account of these proposals relating to the departure noise limits. The assessment for Heathrow also take account of the proposal described below (paragraphs 5.47 to 5.57) for two additional noise monitors at Heathrow.

New noise monitors at Heathrow

5.48 The departure noise limits are related to a fixed reference distance in relation to the runway and aircraft departure tracks; the distance being 6.5km from start of roll[18]. At each airport, the monitors are sited in an arc as near as practicable to 6.5km from start of roll at each end of the runway. The spacing of the monitors takes account of the location of the departure routes and the tracks actually flown. To ensure consistency in the noise monitoring arrangements, the limits at individual monitors are adjusted in accordance with the published formula[19] to account for the effects of any displacement from the reference point. As indicated at paragraph 5.38 above, the review included a detailed assessment of the performance of the monitor arrays (the number and spacing of the monitors) at each airport with the aim of ensuring that each of the arrays provides the best possible coverage for detecting any infringements of the noise limits. For this purpose, ERCD carried out a V analysis[20] using radar track and height data from the NTK system at each airport. For any given aircraft type on a particular route, the greater the percentage of departures flying through a 60° V above any monitor, the better the array performance.

18 Start of roll is where aircraft (using the full runway length) typically begin their take-off run. It is approximately 150 metres in from the “start” end of the runway.

19 Decision of 18 December 2000. The formula is: an increase in the noise limits of 1dB for each 100 metres (or fractions thereof *pro rata*) that the monitor is short of the 6.5 km reference distance; a decrease in the noise limits of 1dB for each 1,000 metres (1 km) that the monitor lies beyond the 6.5 km reference distance; and an increase of 0.4 dB for each 10 m of monitor site elevation above airfield level (or a decrease of -0.4 for each 10 m below airfield level) (again, or fractions thereof *pro rata*).

20 Described in ERCD Report 0207, section 2.

5.49 The study found that at Gatwick the straight out departure routes and the close spacing of the monitors ensure that high proportions of all noise critical aircraft types fly within a V.

5.50 The study also found 8 scenarios (either moving an existing monitor or inserting an additional monitor), 6 at Heathrow and 2 at Stansted, by which the performance of the monitoring arrays could be improved. Of these three were substantially more beneficial than the remainder in terms of improving detection of the noisier aircraft types. These were, at Heathrow:

- an additional monitor between existing monitors F and G; and
- an additional monitor between existing monitors H and I.

5.51 And at Stansted:

- moving existing monitor 7 (Palegates Farm) to a new location which is closer to the centre line of the relevant noise preferential departure route and to where aircraft actually fly.

5.52 As indicated in the April 2003 consultation paper, moving an existing monitor to another location within the range of the positional adjustments established by the decision of December 2000 does not require any form of cost benefit assessment or extensive consultation. Arrangements to move Stansted monitor 7 to the approximate location indicated in April 2003 are therefore being progressed by BAA Stansted.

5.53 We also indicated in the April 2003 consultation paper, that a proposal for additional monitors requires formal consultation and assessment, either separately or as part of a package of measures. Accordingly, we now **propose** two additional monitors for Heathrow, at the sites identified by ERCD, assisted by BAA Heathrow. These are shown on the map at **Annex F**, labelled J and K. The approximate locations for these sites are as follows:

	Co-ordinates (WGS 84)	Elevation	Latitude	Longitude
Site J	TQ 1185 7591	–1m	512816N	0002328W
Site K	TQ 1157 7456	–3m	512733N	0002344W

5.54 The positional adjustments that would apply at these sites (calculated in accordance with the existing formula) and related information are shown below. Details relating to the adjacent monitors have also been included for information.

Runway	Site	Track distance km	Elevation above sea level m	Elevation above runway m	Positional adjustment dBA
Heathrow 09R	F	6.4	21	-3	plus 0.9
	J	6.7	24	0	minus 0.2
	G	6.5	21	-3	minus 0.1
	H	6.37	21	-3	plus 1.2
	K	6.35	22	-2	plus 1.4
	I	6.6	20	-4	minus 0.3

5.55 We propose that these two additional monitors should be used on a full 24 hour basis, as are the present fixed noise monitors at all three airports. However, although the great majority of departures from Heathrow take place during the daytime (0700-2300), the majority of infringements of the noise limits occur in the present night shoulder period of 2300-2330. We therefore consider it appropriate to consider the costs and benefits associated with the provision of these additional monitors as an integral part of the assessments at **Annex E**.

5.56 Following consideration in ANMAC of the possible form of a scheme of differential noise limits, a trial commenced at Gatwick in 2004. Phase 1, an initial desk study at Gatwick FEU[21], was intended to provide reasonably large but manageable sample sizes of measured noise levels to compare against the proposed differential limits, for a range of aircraft types. An important aim was to assess the practicalities of operating a differential limits scheme at the airports.

5.57 Phase 2 to date has concentrated on identifying cases where potential noise level reductions for a particular aircraft type and airline may be achievable. The study will also consider whether emissions would likely to be significantly affected by a possible differential limits scheme which encouraged aircraft to be operated more quietly at the fixed reference distance, 6.5km from start of roll.

5.58 The study is continuing. Progress is being overseen by ANMAC.

21 Flight Evaluation Unit (the Airport's noise monitoring unit).

6. Definition of night period and of night quota period

6.1 The night period is the period from 2300 to 0700 local, and the night quota period is from 2330 to 0600 local.

6.2 In Stage 1, at paragraphs 8.8-11, we set out some background to the question of definition of the night period and night quota period, and invited comments and in particular factual information supporting respondents' views as to whether these definitions should be altered.

6.3 We would welcome any comments (which you have not already made at Stage 1) which you may have on these alternatives, and in particular on whether (and why) the system of movements and quota restrictions should continue to apply in the present night quota period, or should apply throughout the night period. Please comment on the principles of restricting either period, keeping these comments separate from your views on the levels of the movements limits and noise quotas, which we ask about in section 7 below.

6.4 Among the factors you may wish to consider is the extent to which lengthening the night quota period (and setting the movements limits and noise quotas to accommodate present levels of activity initially in Winter 2006-07) may lead operators currently flying in the shoulder periods to switch to slots in the core night quota period 2330-0600.

6.5 You may also wish to consider how, in your personal opinion, the different forms of nuisance from aircraft noise vary at different times through the night. For example, taking the periods as a whole, fewer people will tend to be asleep in the shoulder periods 2300-2330 and 0600-0630 than during the current night quota period. This may mean that, in the shoulder periods, more people will be aware of aircraft noise and bothered by it; but, on the other hand, proportionately more people in the 2330-0600 period may be at risk or being awoken; or, if they *are* awoken, they may regard that disturbance to their sleep as more disruptive.

6.6 Another factor you may wish to consider, if you regard it as significant, is the extent to which you think that extending the night quota period might make the pattern of night flights through the night less predictable from year to year.

6.7 **Your views are invited**.

Direct economic benefits from night flights and costs of constraints

6.8 We are especially grateful to those respondents who did contribute information at Stage 1 in response to this request. However, the response in this area was sporadic, and did not give us a comprehensive picture of the economic impact of night flights and of night restrictions. **We still require further information**, especially from airlines and other airport users, so that we can determine whether the noise-abatement objectives which we are proposing in this consultation document are appropriate, and in particular consistent with our objective of striking a fair balance between local disturbance, the limits of social acceptability and the economic benefits of night flights.

6.9 Among other things it would be helpful to know specifically, in the case of particular airport users:

- from those operating in the current night quota period, how they would be likely to respond to a reduction of the movements limits and/or noise quotas over the six years of the regime;
- from those intending to expand operations in or into the night quota period, what the effect on their business would be if a tightening of restrictions meant that they were no longer able to do so, or to be sure of being able to do so;
- from those operating in either or both of the current shoulder periods, what the financial effects on their business would be if an extension to the night quota period meant that they would in future need to operate within movements limits and noise quotas;
- again from those operating in the shoulder periods, whether extending the night quota period to cover the whole night period from 2300-0700 would lead them to change or expand the pattern of operations to operate services between 2330 and 0600; and
- from those not currently operating at the designated airports but planning or contemplating doing so within the six year period, what would be the benefits of being able to do so or the revenues and/or profits forgone as a result of being prevented from doing so.

6.10 Comments bearing on the overall economic impact of proposed restrictions will be welcome as well as those bearing on the situation of the individual consultee.

6.11 Supposing, hypothetically, that the movement and noise quotas would be set precisely to accommodate current levels of night flying in either case, **are you in favour of extending the night quota period to 2300-0700 or would you prefer to retain the current definition?**

Disregards

6.12 Under the present regime, and for many years previously, movements (and quota) are disregarded in the following circumstances:

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

6.13 **We propose to continue these disregards. Are you content?**

Movements scheduled after 0630 arriving before 0600

6.14 At present, an aircraft, unless it is QC/exempt or rated QC/8 or 16, which is scheduled to land after 0630 local time but arrives before 0600, is disregarded from the quota (but not movements) limit.[22] This rule was intended to act as a disincentive to excessively long holding of early morning arrivals. However, the Government's view is that any such incentive effect is now outweighed by the undesirable complication which this rule brings, relative to the small number of affected operations; together with the need to bear down upon night noise by maintaining pressure on both the movements limits and noise quotas.

6.15 We **therefore propose to remove this rule from October 2006**, so that all movements during the night quota period will count against both the movement and noise quotas unless it is exempted for another reason. **Do you agree?**

22 **Corrigendum**: in Stage 1, Annex B p47, it was stated that these aircraft were not counted against the movement limit. This was incorrect: the disregard applies to the noise quota, not the movement limit. We apologize for this error.

7. Proposed movements and quota controls

7.1 This section is in two parts. Firstly, we explain and set out our proposals for movements and quota controls in the night quota period as it stands. These are given for each airport and are related to the noise-abatement objectives which we discussed earlier. Then secondly, we propose an alternative scenario, in which the night quota period is extended to cover the whole night period 2300-0700.

7.2 The intention of these proposals, because they are grounded on a common set of environmental objectives for the medium to longer term, is that they should represent broadly comparable outcomes in noise terms, and similar financial or (in economic parlance) opportunity-costs (*i.e.* the forgone benefits of services not able to fly) to the industry and its users from having to comply with the limits. However, neither the environmental effects nor the economic costs will be identical, if only because being regulated over a different period has varying operational planning implications in itself for different operators.

7.3 **You are invited to assess both options**.

7.4 In either case, we have made a judgement, based on the limited information from Stage 1 responses and previous work, that these noise-abatement objectives are compatible with striking a fair balance with net economic benefits associated with night flights, or disbenefits associated with their limitation. We intend to re-assess this judgement in the light of responses to Stage 2.

7.5 This means that we may conclude, depending on the information in those responses, that the objectives remain valid; or that the noise-abatement objectives should be relaxed somewhat (if we find that we have underestimated the economic disbenefits relative to the benefits of environmental constraint) or that they can and should be tightened to bear down on noise while still maintaining a fair balance (if the converse is true).

7.6 If we conclude that the noise-abatement objectives need to be adjusted in this way, we intend to adjust the proposed movements and quota controls accordingly.

7.7 These options both assume that the new QC/0.25 category is introduced, as discussed at paragraphs 5.7-5.17 above. This allows, in varying degree at each airport, a reduction in the noise quota corresponding with current and expected fleet mix. Conversely, it means that a slightly smaller quota usage will be expected to correspond to a given night quota period contour area.

Carryover and overrun arrangements

7.8 Under the night restrictions regime for the present season (Winter 2004-05 at the time of writing), the following carryover and overrun provisions apply:

- if required, a shortfall in use of the movements limits and/or noise quota in one season of up to 10% may be carried over to the next season;
- conversely, up to 10% of an overrun in movements and/or quota usage in one season (not being covered by carryover from the previous season) will be deducted from the corresponding allocation in the following season;
- an overrun of more than 10% will result in a deduction of 10% plus twice the excess above that amount from the following season's allowance; and
- the absolute maximum overrun is 20% of the original limit in each case.

7.9 In years when Easter does not fall within the Winter season or when the Summer season lasts for 30 weeks or less, the allowable flexibility is 5% rather than 10%.

7.10 At Stage 1, in Annex B, we explained these end-year flexibility rules and in Annex C, we showed the usage of flexibility at each airport over recent years.

7.11 In each case, we have taken account in broad terms of the practical difficulties, which themselves differ in detail at each airport, of managing the schedules through each season so as to make efficient use of the quota. This is one reason why the aforementioned carryover provisions were originally established, and in our view this rationale remains broadly applicable.

7.12 We have also considered the question of variable season length. The lengths of the Winter and Summer seasons can change from year to year, and one consultee suggested that the movements limits and noise quotas should be adjusted precisely for each season in proportion to the number of days it contains.

7.13 This is clearly a reasonable suggestion. However, our view is that such an adjustment would be over-complicated, both in administrative terms and in so far as it would make the year-on-year changes to the movements limits and noise quotas difficult for the public to understand and interpret.

7.14 We also have come to the view that even the 5%/10% differential rule falls between two stools: it does not provide the precise adjustment which would be given by using the exact number of days in the season, yet it complicates the rules. We have decided to propose that the flexibility rule should be the same in each year.

7.15 We then considered what that flexibility should be. 5% has usually proved sufficient, but this was exceeded in Winter 2001-02. If we do decide to simplify to a single rule, it needs to encompass cases of irregular season length. We also intend that those involved in the scheduling process should not feel required artificially to hold back available movements and/or quota, so that the effective limit might become lower than is stated in the regulation. Since we also see merit in using a round number in keeping with simplifying the rules, this leads us to propose standardizing the flexibility at 10% rather than some figure intermediate between 5% and 10%.

7.16 After consideration, **we are therefore proposing in principle:**

- to continue the present carryover/overrun rules; except
- allowing the same flexibility in all years, irrespective of the relative length of the seasons or the incidence of Easter but intended to allow for these factors as well as for the general practicalities of scheduling; and
- to set the flexibility at 10%.

7.17 We regard these provisions as sufficient to provide both for the practical difficulties of managing the limits efficiently, including the avoidance of any need for a moratorium late in the season, and for the variability of season length from one year to the next. **Are you content with each part of the above proposal?**

7.18 The numerical proposals, set out below, are based upon the assumption that the carryover system does remain unchanged, subject to fixed 10% flexibility as proposed.

Existing night quota period 2330-0600

Heathrow

7.19 As discussed earlier, we propose to set a noise abatement objective for Heathrow in the night quota period to limit the 48d BA L_{eq} 6.5 hour noise contour to 55 km^2. This aims to avoid allowing the overall noise from aircraft to increase above what was permitted in 2002-2003.

7.20 We believe that the introduction of the QC/0.25 category permits, at Heathrow, an immediate reduction of around 2% in the quota count for a given traffic mix similar to recent patterns. The 0.25 category – because of the incentive it gives to short-haul operators especially – should also facilitate continuation of the gradual trend towards adoption of more noise-efficient aircraft, permitting a further reduction over time in the QC per movement. However, this effect will, we expect, be less marked at Heathrow than at Gatwick or Stansted.

7.21 Overall (day-night) air transport movements at Heathrow will in due course become formally subject to the annual limit set in conjunction with the granting of permission for Terminal 5, and we expect daytime growth to take the airport quickly towards that 480,000 total. Most of the services constituting this growth will not, we expect, be economically reliant on access to slots in the night quota period.

7.22 Against this backdrop, we propose that the night movements limit should be allowed to increase slightly from the present seasonal levels of 2550 (Winter) and 3250 (Summer) to 2820 (Winter) and 3600 (Summer).

7.23 Thus, in conjunction, the limits will provide for a reduction over the six years in QC per movement (if both the movements limits and noise quotas are fully used) and an effective bearing down on noise which, we think, the industry can achieve without a major impact upon economic benefits. This is, however, more demanding than the current regime in which there has not been the same pressure to reduce QC per movement.

7.24 Taking account of the need for airport users as a whole to plan and adapt their fleets gradually over time, and the desirability of a progressive cementing of the improvement towards the noise-abatement objective, we propose that the quota should be the same over the six years of the regime.

7.25 The movements limits and noise quotas we propose are:

	2004-05 existing	2005-06 rollover	2006-07 proposed	2007-08	2008-09	2009-10	2010-11	2011-12
							movement limits	
Winter	2550	2550	2600	2640	2690	2730	2780	2820
Summer	3250	3250	3300	3370	3420	3490	3540	3600
							noise quota	
Winter	4140	4140	4080	4080	4080	4080	4080	4080
Summer	5610	5610	5100	5100	5100	5100	5100	5100

Gatwick

7.26 At Gatwick, as stated at paragraph 4.16 above, the proposed airport-specific noise-abatement objective is to limit the 6.5 hour 48 dBA L_{eq} contour (for the winter and summer seasons combined) to 40km^2 by 2011-2012, representing a reduction of about 3% compared with its 2002-03 actual area.

7.27 In order to make sure that the night restrictions support this objective, we shall need to bring down the noise quotas so that, taking the winter and summer seasons together, the overall quota permitted in the seasonal year 2011-2012 is somewhat below the quota used in 2002-03 (when the corresponding contour area was 41.3 km^2 and, of course, the QC/0.25 category had not been in use).

7.28 It is also our goal, in support of the environmental objectives, to provide incentives for the use of quieter aircraft at night. We have stated our intention to ban the scheduling of QC/4 aircraft at night, which will have a significant effect at Gatwick where there is no current voluntary preclusion of these aircraft. Reduction of the noise quotas in absolute terms will in itself provide an incentive for the use of quieter aircraft.

7.29 The movements limits and noise quotas we propose are:

	2004-05 existing	2005-06 rollover	2006-07 proposed	2007-08	2008-09	2009-10	2010-11	2011-12
							movement limits	
Winter	5250	5250	3000	3000	3000	3000	3000	3000
Summer	11200	11200	10000	10000	10000	10000	10000	10000
							noise quota	
Winter	6640	6640	2500	2360	2220	2080	1940	1800
Summer	9000	9000	7000	6780	6560	6340	6120	5900

7.30 This, we realize, represents a significant reduction compared with the present limits, both for movements and for quota (which we are proposing to more than halve in the winter season); our proposed numerical limits (disregarding any QC/0.25 adjustment where applicable) would in some instances have been exceeded over recent seasons. We believe nevertheless that a noise abatement objective, which aims for some reduction in the overall noise emitted in the night quota period, is justifiable, given the scope that still exists for the gradual replacement of noisier by relatively quieter aircraft within the Gatwick 'fleet'. And we think it reasonable to set noise quotas pursuant to the objectives on the basis that they may be fully used in any year; and movements limits which make a reasonable allowance for the uptake of quieter aircraft.

7.31 We recognise that setting the movements and quota limits in this way is very likely to have some economic impact. However, on the information available to us at present, and subject of course to the responses to this Stage 2 consultation, we believe that the environmental benefits of reduced movements and quota limits are proportionate to any economic benefit foregone. **Do you agree?**

Stansted

7.32 At Stansted, again as stated at paragraph 4.16 above, the proposed airport-specific noise-abatement objective is to limit the 6.5 hour 48 dBA L_{eq} contour (for the winter and summer seasons combined) to 38 km^2 by 2011-2012, close to the area which we think would be attained if the present winter and summer quota and movements limits were fully used.

7.33 In proposing the noise-abatement objectives for Stansted we have a particularly difficult balance to strike. Stansted continues to be a rapidly growing airport by day and night, and has been identified in *The Future of Air Transport* White Paper as suitable for the development of a second runway by some time around 2012.

7.34 Many of the airlines already serving Stansted, notably those in the low-cost, express parcels and cargo sectors, have indicated at Stage 1 that their business models attach considerable weight to the availability of slots in the night period, including the night quota period, associated with logistical considerations or with the need to fit a number of rotations into the 24 hour operating day-night in order to maintain capital efficiency and keep their charges and/or fares competitive. And we expect operators in these sectors, with similar scheduling requirements, to form part of the demand for growth at the airport in the run-up to 2012.

7.35 At the same time, many of the residents from the neighbourhood of Stansted and their representatives have argued that, while they are ready to accept growth in traffic at the airport in the daytime (at least, such as can be accommodated by a single-runway airport), they are sceptical of the commercial need for further night flights.

7.36 These sectoral issues, and the competitive dimensions associated with them, are discussed further in the partial Regulatory Impact Assessment (RIA) annexed at **E**. As for Heathrow and Gatwick, we are inviting Stansted operators to provide further information about the economic benefits to them of, as the case may be, continued or growing access to the airport during the night quota period.

7.37 A feature of night operations at Stansted over recent years has been rather distinct trends as between the winter and summer seasons.

7.38 Winter movements have doubled since 1999-00 and quota usage has increased, albeit by a lesser amount. (In both winter and summer, QC per movement actuals have fallen from around 1.0 to around 0.8, thus tending to converge with the ratio of QC to movement limits, which have increased to 0.71.)

7.39 In summer, night quota period movements fell in 2003 after peaking in 2002. Quota usage fell in absolute as well as relative terms, after having exceeded the set limits in 2000 and 2001, while the QC limit had been allowed to rise to 4950 under the present regime, a limit which has been repeated in the 'rollover' for summer 2005. To some extent this decline in summer night quota period traffic may have reflected temporary adverse market conditions during the past two years or so.

7.40 Taking account of these varying and somewhat complicated patterns, we believe the airport-specific noise-abatement objective is defensible. By setting combined winter and summer QC totals in the vicinity of 6800-7000, we propose that it will be possible to avoid the need to reduce the existing movements limits (and so potentially inhibit daytime growth through more stringently limiting scope for increasing night movements) if operators can reduce average QC per movement further, into the vicinity of 0.5 to 0.6. This is a demanding aspiration, but we believe that the introduction of the QC/0.25 category can help Stansted operators considerably in this regard.

7.41 We propose to bear down on night noise by ensuring that the 6.5 hour 48 dBA L_{eq} contour should remain close to existing permitted levels. If operators are to use the movements limits to the full extent proposed, which have not increased from the previous regime, QC per movement will need to improve further from current levels.

	2004-05 existing	2005-06 rollover	2006-07 proposed	2007-08	2008-09	2009-10	2010-11	2011-12
							movement limits	
Winter	5000	5000	5000	5000	5000	5000	5000	5000
Summer	7000	7000	7000	7000	7000	7000	7000	7000
							noise quota	
Winter	3550	3550	3510	3470	3430	3390	3350	3310
Summer	4950	4950	4900	4850	4800	4750	4700	4650

7.42 We understand the argument for setting a more demanding environmental objective and bearing down on movements as well as quota (perhaps by limiting quota period movements to recent actual levels). However, some operators need night quota period movements in order to develop their business (including, in some cases, their daytime businesses). We believe that maintenance of the existing night movements limits represents a fair balance which allows activity to grow from current levels. **Do you agree?**

Extended night quota period 2300-0700

7.43 We have stated that our provisional preference is for a set of limits which continue to apply in the existing night quota period from 2330-0600, supported by continuing the prohibition on QC/8 and QC/16 movements in the 2300-2330 and 0600-0700 shoulder periods.

7.44 However, we have arrived at this provisional preference on the basis of limited information in response to Stage 1 about the prospective economic and operational disbenefits of applying limits to the longer period, coupled with reservations as to the possibility of an environmental consequence, unwanted by many consultees, if the effect were to be to permit flights to take place earlier in the morning (*i.e.* in the present night quota period) than they otherwise would, or perhaps conveniently can, at present. We have concluded, more firmly, that sub-dividing the quota period into hourly (or greater) sub-periods, subject to their own quota restrictions, would result in an excessively complicated regulatory regime, with excessive associated risks of otherwise avoidable delays.

7.45 We are unlikely to be persuaded that sub-period restrictions are desirable, but the question of the economic and environmental costs and benefits of extending the night quota period to the full night period appears to us to be less clear cut, in both these aspects.

7.46 We therefore **need your views, and where applicable commercial and economic information** about the prospective consequences of extending the night quota period.

7.47 If persuaded, we would modify our noise-abatement objectives as described earlier, so as to relate to the L_{night} contour.

7.48 The movements limits and noise quotas we would propose if we were to extend the night quota period to 2300-0700 are:

	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12
							movements limit
Heathrow							
Winter	N/A	12400	12660	12920	13180	13440	13740
Summer	N/A	17540	18000	18460	18920	19380	19820
Gatwick							
Winter	N/A	7500	6760	6760	6760	6760	6760
Summer	N/A	18020	18020	18020	18020	18020	18020
Stansted							
Winter	N/A	7100	7100	7100	7100	7100	7100
Summer	N/A	14020	14020	14020	14020	14020	14020
							noise quota
Heathrow							
Winter	N/A	19840	19840	19840	19840	19840	19840
Summer	N/A	28060	28060	28060	28060	28060	28060
Gatwick							
Winter	N/A	5800	4970	4740	4510	4280	4060
Summer	N/A	13880	13240	12600	11960	11320	10700
Stansted							
Winter	N/A	5700	5220	5100	4980	4860	4760
Summer	N/A	10520	10300	10080	9860	9640	9390
							noise quotas/movements limits ratio
Heathrow							
Winter	N/A	1.60	1.57	1.54	1.51	1.48	1.44
Summer	N/A	1.57	1.54	1.51	1.48	1.45	1.42
Gatwick							
Winter	N/A	0.77	0.74	0.70	0.67	0.63	0.60
Summer	N/A	0.77	0.73	0.70	0.66	0.63	0.59
Stansted							
Winter	N/A	0.80	0.74	0.72	0.70	0.68	0.67
Summer	N/A	0.75	0.73	0.72	0.70	0.69	0.67

7.49 Thus, at each airport, we would be proposing to cap overall movements throughout the six-year regime, which allows, at Heathrow specifically, for modest growth to continue from recent levels of activity; while bearing down on the overall noise levels permitted through the quota system and, as for our proposal if the night quota period remains at 2330-0600 as at present, continuing to give incentives for the steady adoption into fleets of less noisy aircraft. In extending the night quota period, we would propose also to convert the current ban on scheduling QC/8 operations during the 2300-2330 half-hour into an operating ban.

7.50 As before, these proposals assume that we shall proceed with the proposal to introduce the new QC/0.25 category into the quota system.

7.51 We shall welcome your comments on these proposals, or suggestions for alternatives.

8. Noise insulation: policy for aircraft night noise criteria

8.1 *The Future of Air Transport* White Paper set out (in Chapter 3, paragraphs 3.15-3.27) the Government's policy on noise mitigation and compensation. The policy set out there relates to existing noise exposure as well as to future development.

Principles and objectives

8.2 The underlying principle is grounded on the fact that the total elimination of noise nuisance from aviation would not be compatible with striking a fair balance between environmental, social and economic interests.

8.3 The Government believes it right that steps should be taken to mitigate the worst of the noise nuisance which remains after operational measures have been taken to control noise, and that (in keeping with the polluter-pays principle) the industry, through the airports, should fund such mitigation measures.

8.4 However, the main focus of the specific proposals there, as of the White Paper as a whole, was on daytime operations, which are critical to the capacity utilization at airports and hence to the demand for new runway and terminal capacity. For this reason, the White Paper did not discuss noise mitigation criteria in respect of night noise, which were therefore left for later consideration in – for the short term – the night restrictions context.

8.5 We discussed this issue at paragraph 7.23(b) of the Stage 1 consultation document. We intended to propose that new night-time noise insulation criteria should take account of the actual operational noise of the noisiest aircraft that would still be likely to be operating at night – in this context meaning, by implication, in the night quota period.

8.6 Daytime noise contour criteria for mitigation schemes are proposed in the White Paper. These criteria address annoyance due to aircraft operations. In particular, we expect airports to offer relocation assistance to households subject to daytime noise of more than 69 L_{eq} and acoustic insulation to non-domestic noise-sensitive buildings, such as schools and hospitals, exposed to daytime noise levels of 63dBA L_{eq} or more.

8.7 The distinctive contribution of night noise is the extent to which it can cause sleep disturbance (*i.e.* as well as annoyance to those already awake, as daytime noise also does). Research[23] has suggested that the incidence of sleep disturbance is especially associated with the loudest noise events, and in particular those which produce more than 90dBA SEL[24]. (Clearly some sleep disturbance due to aircraft noise can occur in the

23 In particular, in the UK, the 1992 *Report of a Field Study of Aircraft Noise and Sleep Disturbance*.

24 See Glossary. Sound Exposure Level means, in essence, the level of a noise event if all its energy were concentrated evenly in one second. A plot connecting points of equal SEL from the departure, approach or an envelope of the two from a particular type of aircraft is known as a noise 'footprint'.

daytime too, but the proportion of people frequently affected by this is much lower. In any case, a combination of daytime and night-time criteria can effectively take account of daytime sleep disturbance.)

Principal questions for your consideration

8.8 In framing our proposals for noise insulation policy along the lines described above, pursuant to the relevant night noise abatement objective, we next need to consider three broad questions:

- whether or not the policy should be immediately implemented through statutory regulations (under s.79 of the Civil Aviation Act 1982);
- whether to use a noise footprint or some other single or combined criterion; and
- if a noise footprint criterion is used, how (on the basis of what aircraft type or types) to define it for each airport. This includes the question of whether the footprint should be the combined departure and approach footprint envelope for a single type of aircraft, or a footprint envelope combining the noisiest types on departure and arrival, which may well be different aircraft. It also includes the question whether the footprints should be derived from actual operations (as was mooted at Stage 1) derived from the distribution of noise readings from the relevant class of aircraft, or based upon the stylized information available from noise certification for the type(s) in question.

8.9 Taking the first of these questions, we **propose** that the policy should be initially announced on a voluntary basis but, as for daytime noise as set out at paragraph 3.25 of *The Future of Air Transport*, the Government would if necessary consider giving statutory backing under section 79[25].

8.10 On the second question, we do **propose** to give a noise footprint based criterion, and to use the 90dBA SEL footprint which appears to us to represent a good indicator of the vicinity in which the probability of sleep disturbance from aircraft noise events becomes significant (taking account of the fact that individuals' sensitivity in this regard varies substantially). It would be possible to set a criterion combining both footprint (to capture the effect of the noisiest aircraft regularly operating) and contour (to represent the average) criteria, and indeed this has been done in schemes provided by Stansted Airport in 1991 and currently. However, night noise contours are substantially smaller than daytime ones and for a night-only criterion, the complication of incorporating a night contour (even at, say, the 57dBA L_{eq} level rather than 66 as used in recent schemes and corresponding to the NEC B/C boundary in PPG24, or 63 daytime on which BAA has consulted, as recommended in *The Future of Air Transport*, for non-domestic noise-sensitive buildings) would (we think) not be justified by the refinement it would add to an appropriate footprint.

25 Heathrow and Gatwick are currently designated for the purpose of this section. For a statutory scheme to be stipulated at Stansted, it would first be necessary to designate the airport under s.80 for that purpose.

8.11 As to the third question, we still **propose** taking account of the noisiest categories of aircraft which will operate at night at each airport. We propose to qualify this, to the extent that we do not propose to take account of aircraft which will operate only very infrequently; and in this category we propose to include aircraft types not scheduled to operate in a given period but which may occasionally do so, as well as disregarded movements (such as those allowed to operate because of serious disruption) or flights which may occasionally occur but are excluded from the restrictions regime (essentially, by reason of some emergency).

8.12 At paragraph 5.42 above, we noted that our decision not to proceed with a QC/4 operating ban at night meant that we could not proceed either with the proposal to reduce the departure noise limit during the present night quota period. This constraint does not, in our view, apply in the same way so as absolutely to preclude us from including non-scheduled movements in the insulation criterion; but nevertheless our provisional view is that the frequency with which such operations occur is not sufficient to justify allowing them to determine the criterion. However, this *is* a provisional judgement and **your comments are invited**.

8.13 At Stage 1, Annex G, we gave an example in relation to Heathrow, based on the landing footprints (only) of the Boeing 747-400 with Rolls Royce engines. These footprints were based upon the 95th percentile of this type of aircraft in sample – that is to say, the noise level which was exceeded by only 5% of operations.

8.14 The selection of this category of aircraft as representing a relatively high-noise type on arrival from the QC/2 class was based primarily on the findings of ERCD Report 0205, the Quota Count Validation Study.

Whether scheme should relate to night quota period or whole night period

8.15 It should follow that, if we proceed with a ban (at all three airports) on scheduling QC/4 movements in the night quota period, then the noisiest aircraft deemed for this purpose to be operating would in each case be a QC/2 aircraft.

8.16 The next question, on which we invite your views, is therefore whether this criterion should relate to the night quota period (as presently defined, 2330-0600) or to the whole night period (whether or not we decide to extend the night quota period to cover that whole period, 2300-0700). The relevance of this question depends to a large extent on whether we decide to proceed on the basis of our proposal above, that unscheduled QC/4 (or higher) operations should not drive the insulation criterion. We **propose** that the night noise criterion we set as policy should relate to the 'noisiest' aircraft (based on the findings of ERCD Report 0205). Noise footprints indicating the approximate boundaries of possible schemes set on this basis are at **Annex G**.

8.17 Consistent with paragraph 8.11, we propose that the Heathrow criteria should be based on the arrival footprint only – as no departures are scheduled during the NQP. We propose that the Gatwick and Stansted criteria should be based on arrivals and departures as both operate during the night quota period.[26]

8.18 In addition to these high-level issues, it will be necessary to define the administrative details of the scheme. For example,

- to what extent (if at all) buildings other than private dwellings should be eligible for the insulation;
- whether the insulation grants should be provided for the whole dwelling/building or for bedrooms only, or for some intermediate criterion such as 'bedroom-plus-roof' (leaving it open, of course, for the householder to pay for additional insulation if required); and
- how properties which have benefited from previous insulation schemes, or from insulation installed wholly at the householder's expense, should be treated.

8.19 We would not expect to stipulate all these and other implementation details in a policy statement, but would expect the airports to consult locally on such matters as appropriate – as has been done for daytime noise. However, **we would welcome your views** on the extent of detail which the Government should stipulate and in particular on our provisional proposals that:

- the night criteria should apply to non-domestic buildings where people sleep on most nights, but that the provision for such buildings should be specifically adapted to their nature and circumstances;
- the noise insulation provision which the Government expects airports to make solely by reason of the night noise criterion should relate to bedrooms only (possibly including roofs where immediately above); and
- properties whose bedrooms have benefited from previous airport noise insulation schemes should not necessarily be eligible, unless the standard of insulation is now (or, if it has subsequently been removed, was at the time of installation) significantly below currently achievable technical standards.

Estimating the costs of insulation schemes for each airport

8.20 We have estimated that the cost of insulating each property on this basis would be very roughly in the order of £3,000, excluding the airport's administrative costs. **We invite your comments upon this estimate**.

26 The arrival footprint for Stansted is not shown at Annex G as it is already included in the airport's existing noise insulation scheme.

8.21 Based on the 'noisiest' QC/2 aircraft types, we estimate that around 41,100 households near Heathrow would be within the footprint and around 240 at Gatwick, before deducting vacant properties and those which might be excluded for other reasons such as those already benefiting from a high standard of insulation. At Stansted, we estimate that a further 50 households would be within the relevant footprint as compared with the existing scheme. If the overall take-up rate among these households were, say, 50% then the total cost to the BAA airports would on these assumptions be in the order of £50M.

8.22 It should, however, be borne in mind that the adoption of night noise criteria along these lines would reduce the possible costs of further insulation that might be required following any subsequent review of daytime noise insulation criteria, such as was recommended in paragraph 3.25 of *The Future of Air Transport* White Paper or subsequent reviews. BAA has now brought forward proposals for daytime insulation criteria. Conversely, the net cost of additionally applying night noise criteria along these lines will be less once daytime criteria are incorporated.

8.23 **We would welcome your views on all the matters discussed above**, in relation to whether and how night noise level criteria should be specified, what broad rules should apply, whether the costs of implementation which we have estimated above appear reasonable and whether the costs of implementation (on our estimate or yours, if different) represent a fair economic burden for the industry.

9. Summary of Questions

9.1 You are welcome to comment on any matter mentioned in this consultation paper, even where no specific question is posed. The specific questions posed in this paper are summarised below:

Q1. Do you have any comments on the proposals for environmental and noise abatement objectives set out in section 4?

Q2. Do you agree that the QC/4 scheduling ban should continue to apply only between 2330 and 0600 as set out in paragraphs 5.32-5.37

Q3. Do you have any views on the definition of the night period and night quota period? (paragraphs 6.1-6.7)

Q4. Are you in favour of extending the night quota period if the movements limits and noise quotas were set precisely to accommodate current levels of night flying described in paragraph 6.11?

Q5. Are you content to continue with the arrangements for disregarding movements? (paragraph 6.12)

Q6. Do you agree with proposals to remove the rule on movements scheduled after 0630 but arriving before 0600? (paragraph 6.14-6.15)

Q7. Are you content with the carry and overrun arrangements proposed? (paragraphs 7.8-7.18)

Q8. Do you have any comments on the proposed movements limits and noise quotas for Heathrow, Gatwick and Stansted? (paragraphs 7.19-7.52)

Q9. In relation to a noise insulation scheme, do you have any comments on:

Q9a whether or not policy should be implemented through statutory regulations?

Q9b whether to use a noise footprint or other criterion?

Q9c if a noise footprint criterion is used, how to define it for each airport?

Q9d whether the scheme should relate to the whole night or the current night quota period? (paragraphs 8.8-8.21)

How to respond

9.2 Please send us your comments as soon as possible, and in any event, no later than 16 September 2005.

9.3 The address to which to send them is:

Department for Transport
Aviation Environmental Division 4
Zone 1/34
Great Minster House
76 Marsham Street
LONDON
SW1P 4DR

email: nr-stagetwo@dft.gsi.gov.uk

9.4 A list of organisations and others to whom this consultation paper is being sent is at **Annex H**.

9.5 Representative bodies or organisations are asked to bring this paper to the attention of all the various interests they represent. **When responding, representative groups should provide a summary of the people and organisations they represent.**

9.6 Additional copies of this consultation paper may be obtained by writing to the address given in paragraph 9.3 or by telephoning 020 7944 5796, or may be downloaded from the DfT website www.aviation.dft.gov.uk

Disclosure of responses

9.7 In due course, the Department may wish, or be asked, to copy or disclose responses to others. Please make it clear if you would object to us copying or disclosing all or part your response. We will make your response publicly available unless you ask us not to. Even if you ask us not to do so, you should be aware that, under the provisions of the Freedom of Information Act, your response may, after due consideration of the balance between the public interest and the interests of confidentiality, be held to be disclosable if requested.

9.8 All responses will be included in any summary of results, although individuals will not be identified. Names and addresses may be held in an electronic database of interested parties for the purpose of distributing future documents on similar issues. However, any such details on a database will not be given to a third party.

9.9 If you wish to view individual responses after the consultation period has ended, these will be available for public viewing for a period of 6 months at the DfT Library and Information Centre, Ashdown House, 123 Victoria Street, London SW1E 6DE. Details on how to make an appointment to view the responses are in paragraph 10.3 below.

10. Availability of documents

10.1 All the ERCD technical reports listed below are available from The Stationery Office, PO Box 29, Norwich NR3 1GN. Telephone 0870 600 5522; Fax 0870 600 5533. An additional charge will apply for posting. These reports are also available on the CAA website: www.caa.co.uk/publications.

Techniques used by ERCD for the Measurement and Analysis of Aircraft Noise and Radar Data: ERCD Report 0406, January 2005.

Review of the Quota Count (QC) System: Reanalysis of the differences between Arrivals and Departures: ERCD Report 0204, November 2002.

Quota Count Validation Study – Noise Measurement and Analysis: ERCD Report 0205.

A Practical Method for Estimating Operational Lateral Noise Levels: ERCD Report 0206.

Departure Noise Limits and Monitoring Arrangements at Heathrow, Gatwick and Stansted Airports: ERCD Report 0207.

An Assessment of the Accuracy of Flight Path Data used in the Noise and Track-keeping System at Heathrow, Gatwick and Stansted Airports: ERCD Report 0209.

The CAA Aircraft Noise Contour Model: ANCON Version 1 DORA Report 9120 published November 1992.

The UK Civil Aircraft Noise Contour Model ANCON – Improvements in Version 2 R&D Report 9842 Published July 1999 (ERCD).

United Kingdom Aircraft Noise Index Study: main report, DR Report 8402 published 1985 (available from TSO as above).

10.2 Further copies of this night restrictions consultation paper and the reports listed below are available from:

Department for Transport
Aviation Environmental Division 2
Zone 1/34
Great Minster House
76 Marsham Street
LONDON, SW1P 4DR.

Telephone 020 7944 5796.

They are also available on the DfT website: www.aviation.dft.gov.uk

Review of the Quota Count (QC) System used for administering the night noise quotas at Heathrow, Gatwick and Stansted Airports. DfT administrative report, amended 2004.

Night Flying Restrictions at Heathrow, Gatwick and Stansted: consultation on a one-year extension and certain general principles published April 2003.

The Future Development if Air Transport in the United Kingdom: South East, second edition published February 2003.

The Future of Air Transport, **CM** 6064 published December 2003 £25, TSO.

Guidelines for Community Noise, published for the World Health Organisation 1999 Available at www.who.int

10.3 All these reports may be inspected free of charge at the DfT Library and Information Centre, Ashdown House, 123 Victoria St, London, SW1E 6DE. The Library is open Monday to Friday. Anyone wishing to inspect the reports, or the consultation responses as referred to in paragraph 9.10, is requested to telephone the Librarian on 020 7944 3039 to make an appointment. Please note that it will not be possible to gain admittance without an appointment.

Department for Transport
June 2005

ANNEX A

Code of Practice

This consultation has been carried out in accordance with the Government's Code of Practice on Written Consultation. The code of practice sets out the following criteria:

1. Consult widely throughout the process, allowing a minimum of 12 weeks for written consultation at least once during the development of the policy.

2. Be clear about what your proposals are, who may be affected, what questions are being asked and the timescale for responses.

3. Ensure that your consultation is clear, concise and widely accessible.

4. Give feedback regarding the responses received and how the consultation process influenced the policy.

5. Monitor your Department's effectiveness at consultation, including through the use of a designated consultation co-ordinator.

6. Ensure your consultation follows better regulation best practice, including carrying out a Regulatory Impact Assessment if possible.

   A full version of the code can be found at:

   http://www.cabinet-office.gov.uk/regulation/consultation/code.asp

   If you have any complaints about this consultation process please contact:

   Andrew Price
   Corporate Secretariat Division
   9/09
   105 Victoria Street
   London
   SW1E 6DT

ANNEX B

Additional information on noise performance

We have included in this annex some additional information about recent performance at the airports (particularly at night) in respect of departure noise limits, adherence to Noise Preferential Routes (NPRs) on departure, and Continuous Descent Approach (CDA).

Tables 1-3 show the percentage of aircraft flying within the swathe of the noise preferential routes (NPRs). 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 part of the Standard Instrument Departure routes (SIDs). Associated with each NPR is a swathe extending approximately 1.5 km each side of the nominal NPR centre line, within which aircraft are considered to be flying on track. Aircraft reaching 4000ft (3000ft on some routes at Gatwick and Stansted) at any point along an NPR may be turned off the route by air traffic control (ATC) onto more direct headings to their destination – a practice known as vectoring.

Figures 1-3 of this annex give an indication of each of the NPRs at the three airports.

Table 4 contains information on Continuous Descent Approach (CDA). CDA is a leading method for reducing arrivals noise at distance from the airport. Heathrow, Gatwick and Stansted airports have developed a common working definition for monitoring 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 nautical miles (nm) occurs below 6000ft QNH and 'level flight' is interpreted as any segment of flight having a height change of not more than 50ft over a track distance of 2nm or more, as recorded in the airport Noise and Track-Keeping system.'

Table 5 contains noise infringement data. Aircraft are required, after take-off, to be operated in such a way that it will not cause more that 89dBA L_{max} by night (from 2300-0700 hours local time) and that it will not cause more that 87dBA L_{max} 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 Aeronautical Information Package (AIP). Airlines whose aircraft breach departure noise limits are fined either £500 or £1000 (depending on the severity of the breach) with the money donated to local community projects.

Figure 1: London Heathrow Airport Standard Instrument Departure Routes

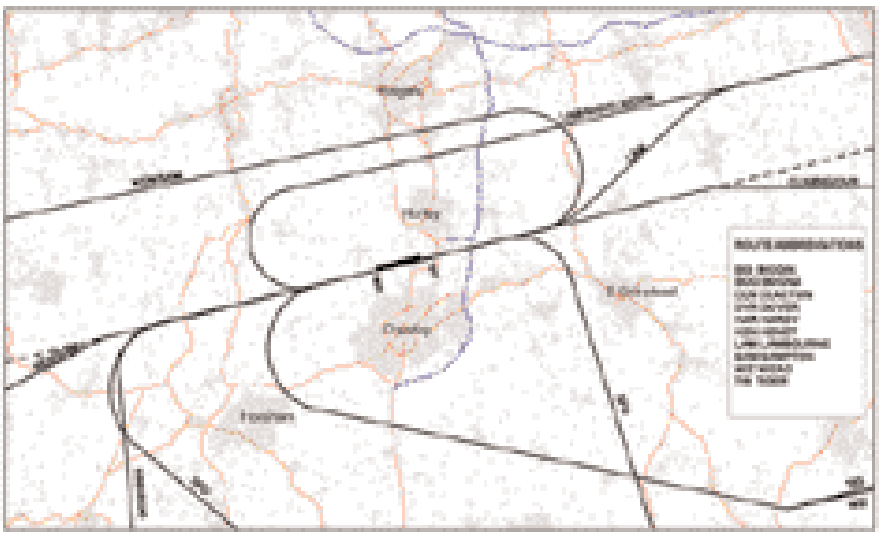


Figure 2: London Gatwick Airport Standard Instrument Departure Routes

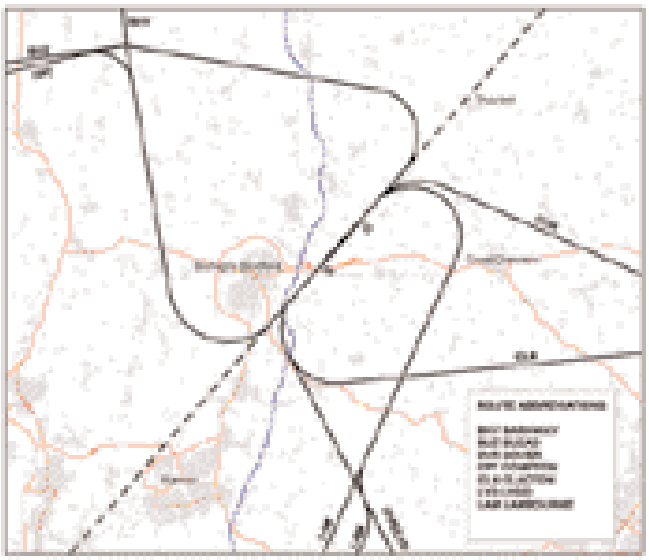


Figure 3: London Stansted Airport Standard Instrument Departure Routes

Table 1: Percentage of aircraft flying within the Noise Preferential Route swathe at Heathrow in 2003 (24 hour)

Runway	Route	Jan	Feb	March	April	May	June	July	Aug	Sept	Oct	Nov	Dec
27L	SAM	98.0	98.8	97.8	100	96.9	97.5	97.8	98.3	99.0	98.7	98.7	98.4
	WOB	98.8	99.3	98.7	98.8	97.3	97.1	97.4	96.9	98.7	98.9	99.3	98.5
	MID	96.9	98.2	98.3	95.3	96.8	94.8	95.4	93.9	94.7	94.8	97.3	95.3
	DVR	86.1	92.1	91.2	90.1	92.9	94.7	93.4	92.5	93.6	88.9	93.7	87.1
	CPT	99.4	99.2	100	99.7	99.2	99.8	99.1	99.6	99.7	99.4	99.7	95.9
	BPK	97.4	99.1	98.6	97.2	96.8	97.2	97.8	96.6	97.7	98.2	97.4	98.4
27R	SAM	99.5	98.8	99.5	99.7	97.5	99.2	99.3	99.4	99.7	99.5	100	99.7
	WOB	98.9	98.9	97.5	97.5	96.5	97.1	97.2	97.6	97.8	97.9	99.2	99.2
	MID	96.7	98.3	97.9	97.4	94.9	94.7	93.2	89.9	93.9	92.7	98.6	95.9
	DVR	88.9	94.4	95.1	91.0	94.6	92.5	92.1	92.8	93.6	90.8	94.8	87.5
	CPT	99.7	99.8	100	99.5	99.2	100	99.4	99.9	99.9	99.8	99.7	99.8
	BPK	97.9	98.9	98.7	97.0	97.4	97.1	97.4	98.0	96.5	99.0	98.3	97.7
09R	MID	97.3	96.7	95.7	96.7	95.4	95.8	92.6	95.7	94.9	97.3	96.5	94.8
	SAM	99.5	99.1	99.7	99.5	100	99.3	98.5	98.6	98.6	99.8	99.3	98.7
	CPT[1]	37.9	20.3	28.1	28.5	21.6	27.8	24.3	31.1	29.3	28.8	29.0	28.0
	DVR	99.1	99.4	99.6	99.4	99.1	99.3	98.4	99.2	99.3	99.5	99.3	99.7
	BPK	97.4	98.7	98.5	99.2	96.7	96.4	95.2	96.9	93.4	98.5	97.0	96.7
	BUZ	96.5	97.9	98.6	98.2	95.5	96.2	94.2	98.0	93.0	98.5	97.6	95.6

1 The proximity of the Compton NPR to inbound traffic en-route from holding positions and to landing aircraft on final approach can make it necessary for Air Traffic Control to vector aircraft off the NPR below 4000ft to order to maintain separation between inbound and outbound traffic.

Table 2: Percentage of aircraft flying within the Noise Preferential Route swathe in 2003 (24 hours)

Runway	Route	Jan	Feb	March	April	May	June	July	Aug	Sept	Oct	Nov	Dec
26L	LAM/CLN/DVR	99.3	99.4	93.9	94.2	95.2	93.8	94.1	95.2	94.1	96.2	94.6	93.4
	SAM/KEN	100	99.8	100	99.8	100	100	100	100	99.9	100	100	99.9
	SFDW	100	100	100	100	100	100	100	100	100	100	100	100
	BOG/HAR	100	100	99.6	99.7	99.7	99.8	99.8	99.6	99.9	100	99.9	99.8
	WIZ/TIG	100	100	56.2	88.9	95.7	83.4	94.1	83.3	89.0	100	100	81.8
08R	KEN/SAM	99.0	98.1	98.5	98.5	97.0	97.1	96.4	97.4	96.9	97.7	96.5	96.9
	LAM	100	99.6	100	99.7	100	99.7	99.5	100	100	100	100	100
	CLN/DVR	100	99.9	99.9	100	100	100	100	100	100	99.9	99.9	100
	SFD	100	99.7	98.7	98.9	96.1	98.2	97.8	88.2	98.4	99.4	98.6	98.3

Table 3: Stansted

Runway	Route	Jan	Feb	March	April	May	June	July	Aug	Sept	Oct	Nov	Dec
23	BZD-R	99.1	99.1	99.1	98.7	99.2	99.0	99.1	99.3	99.0	99.5	98.7	98.7
	CLN-R	96.7	97.6	97.4	93.8	96.5	97.4	97.8	98.6	98.7	99.1	98.4	98.8
	DVR-R	99.1	98.3	98.5	99.4	98.6	98.9	99.3	99.5	98.5	99.7	99.2	99.7
05	BZD-S	98.4	99.2	99.3	99.4	99.0	99.2	98.5	99.2	99.3	98.8	99.6	99.0
	CLN-S	98.2	98.3	99.0	98.5	96.9	99.7	99.1	98.2	99.6	98.4	99.1	99.7
	DVR-S	97.7	95.6	96.7	97.0	95.7	97.9	97.0	93.9	94.5	96.9	96.3	97.7

Table 4: Continuous Descent Approach (CDA) during the Night Quota Period (2330 – 0600) in 2003
Percentage of arrivals achieving CDA

		Jan	Feb	March	April	May	June	July	Aug	Sept	Oct	Nov	Dec
Heathrow[2]	27R	93	97	91	95	93	98	92	98	94	89	94	87
	27L	85	94	97	88	94	98	83	94	94	97	91	94
	09L	82	92	93	88	79	91	93	93	96	85	89	86
	09R	74	86	85	89	80	91	33	94	92	85	87	89
Gatwick	08	81	85	94	92	87	88	90	86	91	91	90	86
	26	86	80	84	88	85	85	85	90	89	79	87	74
Stansted[3]	23	55	61	56	58	68	67	75	78	82	72	56	64

2 Heathrow figures are for 2300-0600.

3 Due to airspace restrictions CDA is not a requirement on runway 05 at Stansted at the moment.

Table 5: Aircraft exceeding the departure noise limits in 2003 and revenue from surcharges

	Runway	Jan NQP[4]	Jan SP[5]	Feb NQP	Feb SP	March NQP	March SP	April NQP	April SP	May NQP	May SP	June NQP	June SP
Heathrow	09L												
	09R	2(£1000)[6]	1(£1000)	2(£1000)		2(£1000)	1(£500)	1(£500)				1(£500)	
	27L	5£2500)	4(£2000)	2(£1000)	1(£500)			1(£500)				10(£5000)	
	27R	1(£500)								2(£1000)		1(£500)	1(£500)
Gatwick	08R			1(£500)									
	26L												
Stansted	23	1											
		(£1000)									1(£500)		
	05			1(£1000)							1(£500)		

	Runway	July NQP	July SP	Aug NQP	Aug SP	Sept NQP	Sept SP	Oct NQP	Oct SP	Nov NQP	Nov SP	Dec NQP	Dec SP
Heathrow	09L		2(£1000)		2(£1000)	1(£500)				1(£500)			
	09R	4(£2000)	1(£500)	1(£500)	1(£500)	2(£1000)	6(£4000)		2(£1000)	3(£2500)	3(£1500)	2(£1000)	5(£3000)
	27L	2(£1000)	4(£3000)	5(£2500)	2(£1000)	8(£4500)	6(£3500)	2(£1000)	2(£1000)	1(£500)	1(£500)	2(£1000)	
	27R	3(£1500)	1(£500)	1(£1000)		3£2000)	1(£500)	1(£500)	2(£1000)				
Gatwick	08R												
	26L					1(£500)		1(£500)				2(£1500)	
Stansted	23	1(0)			1(£500)	1(£500)							
	05							1(£500)					

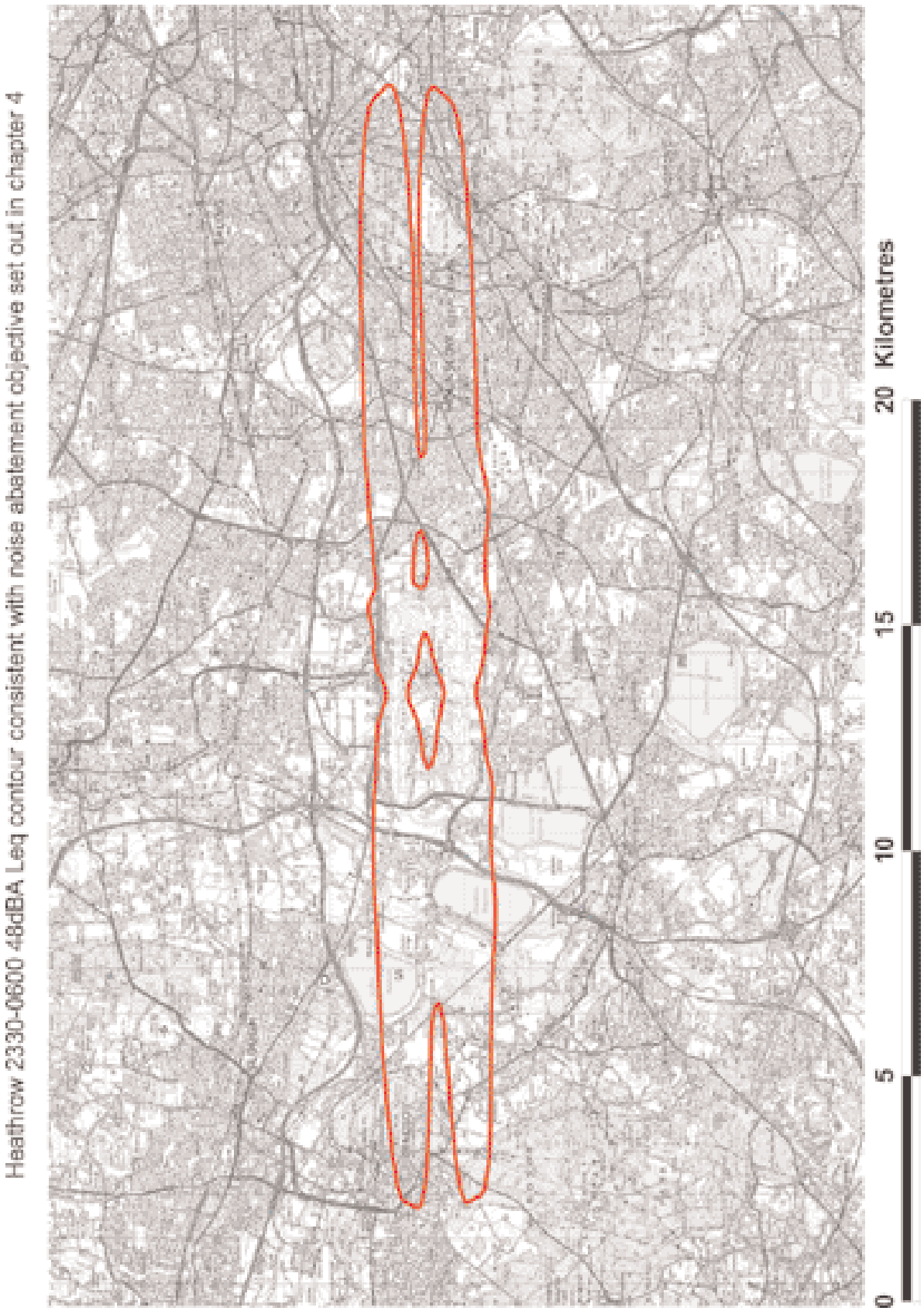
4 Night Quota Period (2330-0600).

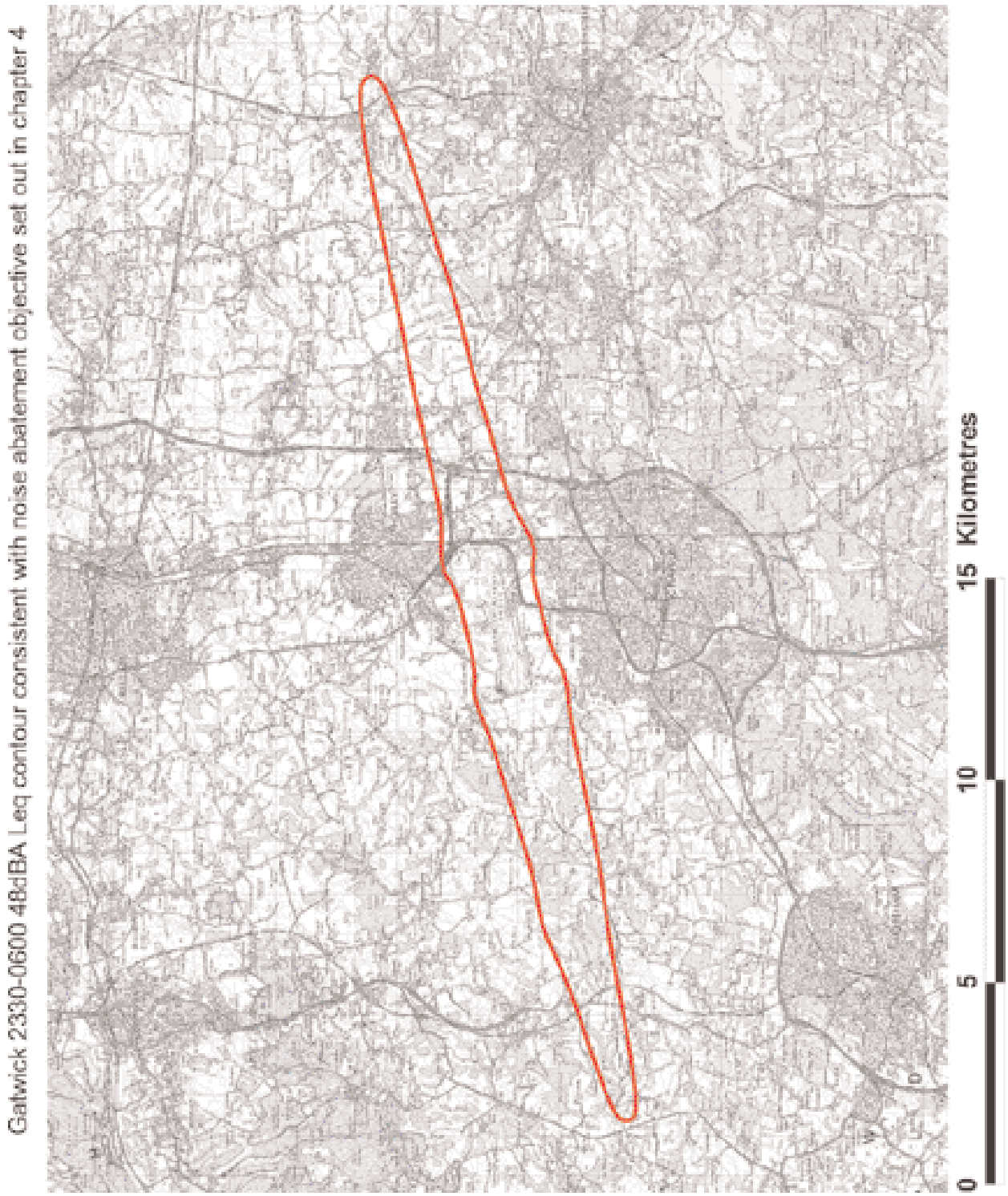
5 Shoulder periods (2300-2330 and 0600-0700).

6 Aircraft exceeding the departure noise limits are fined either £500 or £1000 depending on the severity of the breach.

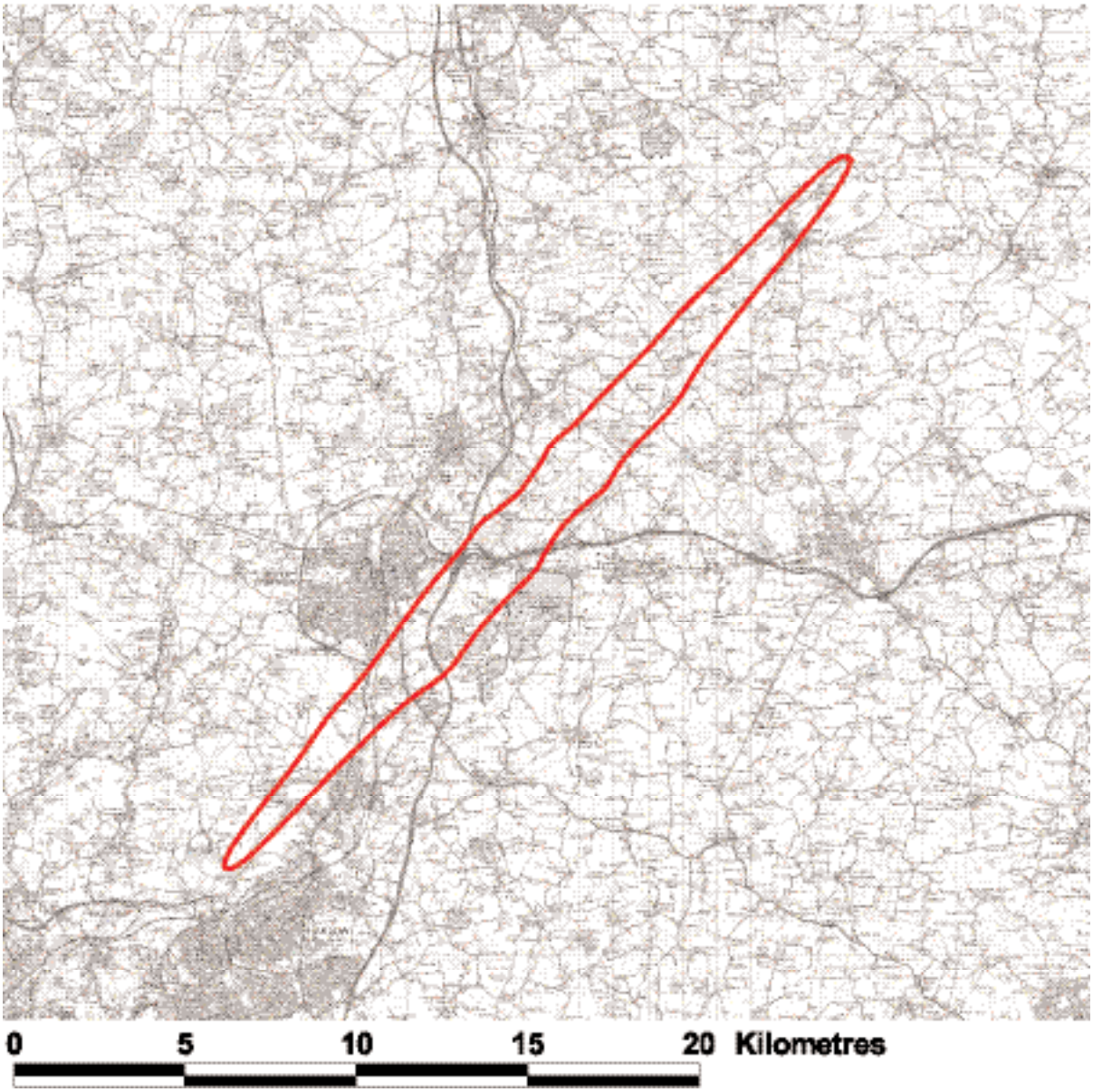
ANNEX C

Projected Noise Contours for noise-abatement objectives




Gatwick 2330-0600 48dBA Leq contour consistent with noise abatement objective set out in chapter 4
0
5
10
15
Kilometres

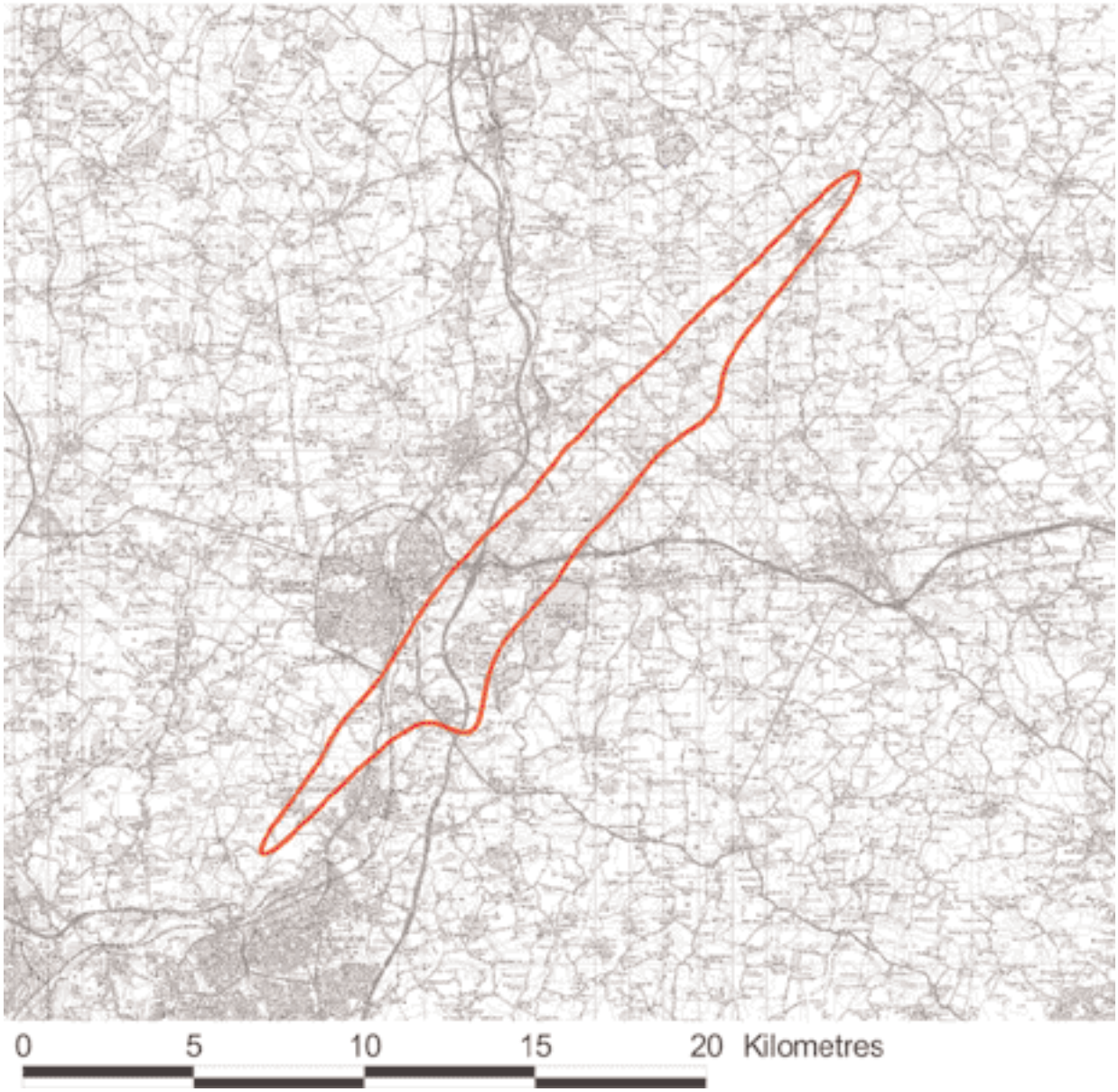
Stansted 2330-0600 48dBA Leq contour
consistent with noise abatement objective set out in chapter 4




Heathrow 2300-0700 50dBA Leq contour consistent with noise abatement objective set out in chapter 4
0
5
10
15
20 Kilometres

Gatwick 2300-0700 50dBA Leq contour consistent with noise abatement objective set out in chapter 4

Stansted 2300-0700 50dBA Leq contour
consistent with noise abatement objective set out in chapter 4



ANNEX D – Expected Quota Classifications

Noise classification according to type – DEPARTURES

DEPARTURES			Maximum certificated take-off weight – tonnes							
		Noise Level Band (EPNdB):	<84	84-86.9	87-89.9	90-92.9	93-95.9	96-98.9	99-101.9	>101.9
		Quota Count:	EXEMP	QC/0.25	QC/0.5	QC/1	QC/2	QC/4	QC/8	QC/16
Aeroplane	Engine	Remarks								
Agusta A109A II	Allison 250-C20B				2.60					
Airbus A300B2-1C	CF6-50C,C2R						142.00			
Airbus A300B2-203	CF6-50C2	Mod.2150 (short nozzle)					142.00			
Airbus A300B2-203	CF6-50C2	Mod.3305,2150 (short nozzle)					142.00			
Airbus A300B2-203	CF6-50C2						142.00			
Airbus A300B2-320	JT9D-59A	Mod 3305					157.50			
Airbus A300B2-320	JT9D-59A						142.00			
Airbus A300B2K-3C	CF6-50C,C2R	Mod.3305,2150 (short nozzle)					137.00			
Airbus A300B2K-3C	CF6-50C,C2R						142.00			
Airbus A300B4-103	CF6-50C2	Mod.2150					157.50			
Airbus A300B4-103	CF6-50C2	Mod.3305,3373					157.50			
Airbus A300B4-103	CF6-50C2						157.50			
Airbus A300B4-120	JT9D-59A						160.00			
Airbus A300B4/C4/F4-203	CF6-50C2	Mod.2150 (short nozzle)					165.00			
Airbus A300B4/C4/F4-203	CF6-50C2	(long nozzle)					165.00			
Airbus A300B4-220	JT9D-59A						165.00			
Airbus A300B4-2C	CF6-50C2,C2R	Mod.3305,2150 (short nozzle)					150.00			
Airbus A300B4-2C	CF6-50C2,C2R	Mod.3373					150.00			
Airbus A300B4-2C	CF6-50C2,C2R						157.50			
Airbus A300B4-601	CF6-80C2A1						165.00			
Airbus A300B4-603	CF6-80C2A3						165.00			
Airbus A300B4-605R	CF6-80C2A5						171.70			
Airbus A300B4-620	JT9D-7R4H1						165.00			
Airbus A300B4-622	PW4158	Mod.8550 (JAS-kit)					171.70			
Airbus A300B4-622	PW4158						171.70			
Airbus A300B4-622R	PW4158	"B-package" equipped A300-622 are equiv.					171.70			
Airbus A300B4-622R	PW4158	Mod.8550 (JAS-kit)				158.49	171.70			
Airbus A310-203	CF6-80A3						142.00			
Airbus A310-203C	CF6-80A3	Mod.5327,5771 & 604				129.79	142.00			
Airbus A310-203C	CF6-80A3					133.19	142.00			
Airbus A310-204	CF6-80C2A2					144.79	160.00			
Airbus A310-221	JT9D-7R4D1					141.59	142.00			
Airbus A310-222	JT9D-7R4E1					141.99				
Airbus A310-304	CF6-80C2A2					144.69	157.00			
Airbus A310-308	CF6-80C2A8						164.00			
Airbus A310-322	JT9D-7R4E1						153.00			
Airbus A310-324	PW4152	Mod.8921 ("B-package")					157.00			
Airbus A310-324	PW4152						157.00			
Airbus A310-325	PW4156A						164.00			
Airbus A319-111	CFM56-5B5				72.00					
Airbus A319-111	CFM56-5B5/P	Mod. No. 25800-SAC			72.00					
Airbus A319-111	CFM56-5B5/P	Mod. Nos. 25800-SAC and 27772			73.50					
Airbus A319-112	CFM56-5B6				72.00					
Airbus A319-112	CFM56-5B6/P				73.50					
Airbus A319-114	CFM56-5A5				64.00	74.00				
Airbus A320-111	CFM56-5-A1				67.19	77.00				
Airbus A320-211	CFM56-5-A1				67.79	78.00				
Airbus A320-212	CFM56-5-A3	Eng. mods. 20775,21478			70.49	78.00				
Airbus A320-214	CFM56-5B4/P	Engine Mod. No. 25800 SAC			73.50	83.00				
Airbus A320-231	V2500-A1				74.89	77.00				
Airbus A320-231	V2500-A1Mod 22461	"BUMP" Rating			75.70	78.00				
Airbus A321-111	CFM56-5-B1 or CFM56-5-B1/2				76.05	90.00				
Airbus A321-112	CFM56-5-B2				75.30	90.00				
Airbus A321-131	V2530-A5				83.30	90.00				
Airbus A321-211	CFM56-5B3/P	Engine Mod. 25800 SAC				85.00	95.00			
Airbus A321-211	CFM56-5B3/P	Engine Mods. 25800 SAC and 27772				89.00	95.00			
Airbus A321-214	CFM56-5B-4	Single or double annular combusters			75.30	83.00				
Airbus A321-231	V2533-A5				75.00	95.00				
Airbus A330-202	CF6-80E1A4	Engine rated at 70,000 lb					230.00			
Airbus A330-301	CF6-80E1A2						230.00			
Airbus A330-243	RR Trent 772B					185.00	250.00			
Airbus A330-342	RR Trent 772						230.00			
Airbus A330-322	PW 4168						217.00			
Airbus A340-200	CFM56-5C2					231.50	270.00			
Airbus A340-311	CFM56-5C2					233.99	270.00			
Airbus A340-312	CFM56-5C3						270.00			
Airbus A340-313	CFM56-5C4						275.00	280.00		
Airbus A340-642	RR Trent 556						368.00			
Antonov 12 CUB	Ivchenko AI – 20K	"CUB" is the NATO designation					61.00			
Antonov 12 BK	Ivchenko AI – 20M						61.00			
Antonov 22	NK-12MA	AV-90 propellers								250.00
Antonov 26	Ivchenko AI – 24T						24.00			
Antonov 72	D-36-1A				34.80					
Antonov 124										E
ATR42-200	P&W PW120	Full Power	15.75							
ATR42-300	P&W PW120	Full Power	17.00							
ATR42-320	P&W PW121	Full Power	16.70							
ATR72-101/-102	P&W PW124	Full Power		19.99						

E – QC estimated

Noise classification according to type – DEPARTURES

DEPARTURES			Maximum certificated take-off weight – tonnes							
		Noise Level Band (EPNdB):	<84	84-86.9	87-89.9	90-92.9	93-95.9	96-98.9	99-101.9	>101.9
		Quota Count:	EXEMP	QC/0.25	QC/0.5	QC/1	QC/2	QC/4	QC/8	QC/16
Aeroplane	Engine	Remarks								
ATR72-201/-202	P&W PW124	Full Power		21.50						
ATR72-210	P&W PW127	Full Power	21.50							
B707-100B	JT3D-1	QNC Hushkit								109.45
B707-100B	JT3D-3B	QNC Hushkit								117.03
B707-120B	JT3D-1	SHANNON Hushkit							117.03	
B707-138B	JT3D-1or JT3D-3B at -1 thrusts	SHANNON Hushkit							117.03	
B707-300B ADV/C	JT3D-1-3B(IC)	SHANNON Hushkit							146.19	
B707-300B ADV/C	JT3D-3B	QNC Hushkit							151.95	
B707-300B ADV/C	JT3D-3B	SHANNON Hushkit							145.60	
B707-300B ADV/C	JT3D-7	SHANNON Hushkit							149.69	
B707-300B ADV/C	JT3D-7	Quiet Skies Stage 3 Hushkit						152.73		
B707-300B or C	JT3D-3B	TRAICOR/SHANNON (COMTRAN) Hushkit								150.96
B717-200	BR700-715A1-30	18,500 lb SLST		54.89						
B717-200	BR700-715C1-30	21,000 lb SLST		54.89						
B720B	JT3D-1	QNC Hushkit								106.14
B720B	JT3D-1	SHANNON Hushkit						106.14		
B720B	JT3D-3B	QNC Hushkit							106.14	
B720B	JT3D-3B	SHANNON Hushkit						106.14		
B727-100	JT8D-7FCD							80.50		
B727-100 (FED.EX.)	JT8D-7/A/B	With Boeing nacelle					76.88			
B727-100 (FED.EX.)	JT8D-9 or -9A	With Burbank Aeronautical Corp. nac.					76.88			
B727-100RE	2x JT8D-217/1x JT8D-9/9A	VALSAN hushkit				56.70				
B727-17RE	2x JT8D-217/1x JT8D-9/9A	VALSAN hushkit					79.61			
B727-200	JT8D-15 or -17								95.03	
B727-200	JT8D-15/A	FedEx Hushkit						88.36		
B727-200	JT8D-9QN/-15QN/-17QN/-17RQN	All operated at -9 thrusts						74.45	86.41	
B727-200	2x JT8D-17/1x -15	All operated at -15 thrusts							88.36	
B727-200 (FED. EX.)	JT8D-7/A/B	With Burbank Aeronautical Corp. nac.						80.93		
B727-200 (FED. EX.)	JT8D-7B(A) (B)	With Boeing nacelle						78.30		
B727-200 (FED. EX.)	JT8D-7B(A) (B)	With Burbank Aeronautical Corp. nac.						78.30		
B727-200 (FED. EX.)	JT8D-9/A	With Burbank Aeronautical Corp. nac.					76.88			
B727-200	JT8D-7	STC SA4833NM						80.74		
B727-200	JT8D-9	STC SA4833NM						78.46		
B727-200	JT8D-17	STC ST00350AT & SA5839NM						88.36		
B727-200	JT8D-17R	STC SA5839NM						86.41		
B727-200RE	2x JT8D-217C/1x JT8D-15	VALSAN hushkit					86.41			
B727-200RE	2x JT8D-217C/1x JT8D-17	VALSAN hushkit					90.04			
B727-200RE	2x JT8D-217C/1x JT8D-17A	VALSAN hushkit						95.03		
B727-200RE	2x JT8D-219/1x JT8D-7,7A or 7B	VALSAN hushkit					76.88			
B727-200RE	2x JT8D-217/1x JT8D-15	BFGoodrich Super27 modification					88.68			
B727-300	RR Tay 651-54	Dee Howard QF modification				76.88				
B737-200	JT8D-15 or -15A	P&W double wall fan duct treatment						50.89		
B737-200	JT8D-15 or -15A	P&W double wall fan duct treatment+Mod10					50.89			
B737-200	JT8D-7 or -7A	P&W double wall fan duct treatment							80.56	
B737-200	JT8D-7 or -7A	PM treatment						52.89		
B737-200	JT8D-9QN or -9AQN	PM treatment						53.07		
B737-200ADV	JT8D-15 or -15A	NORDAM LGW-H hushkit					54.20			
B737-200/200C NON ADV	JT8D-15 &-15 A at -15 thr.	NORDAM hushkit see STC SA5730NM				54.20				
B737-200/200C(ADV)	JT8D-15/-17 & A engs. at -15 thr.	NORDAM hushkit see STC SA5730NM				56.14	57.70			
B737-200/200C(ADV)	JT8D-17 & A engs. at -17 thr.	NORDAM hushkit see STC SA5730NM				55.91	57.61			
B737-200/200C(ADV)	JT8D-9/-15/-17 & A engs at -9 thr.	NORDAM hushkit see STC SA5730NM				56.08	56.47			
B737-200ADV	JT8D-15 or -15A	NORDAM LGW hushkit (STC ST00131SE)					56.47			
B737-200ADV	JT8D-15 or -15A	P&W double wall fan duct treatment						52.39		
B737-200ADV	JT8D-15 or -15A	PM treatment						52.75	58.11	
B737-200ADV	JT8D-15QN/-15AQN						47.90	58.10		
B737-200ADV	JT8D-17 or -17A	inlet and nose dome porous metal, P&WA DW fan treat.							58.11	
B737-200ADV	JT8D-17 or -17A	PM treatment						51.37	58.11	
B737-200ADV	JT8D-17QN/-17AQN							58.10		
B737-200ADV	JT8D-7 or -7A	PM treatment						52.80		
B737-200ADV	JT8D-9QN or -9AQN	PM treatment						55.57		
B737-300	CFM56-3B1				62.82					
B737-300	CFM56-3B2				63.28					
B737-300	CFM56-3C1	Engine rated at 20,000 lb			62.82					
B737-400	CFM56-3B2	Engine rated at 22,000 lb			63.80					
B737-400	CFM56-3C1					68.04				
B737-500	CFM56-3-B1	18500Lb SLST			60.24					
B737-500	CFM56-3-B1	20000Lb SLST			63.05					
B737-500	CFM56-3-B1(R)	18500Lb SLST			59.10					
B737-500	CFM56-3-B2	18500Lb SLST			60.24					
B737-500	CFM56-3-C1	18500Lb SLST			60.24					
B737-500	CFM56-3-C1	20000Lb SLST			63.05					
B737-700	CFM56-7B20	20000lb SLST			70.08					
B737-700	CFM56-7B22	22000lb SLST			70.08					
B737-700	CFM56-7B24	24000lb SLST			70.08					
B737-800	CFM56-7B24	24000lb SLST			76.67	79.02				

E – QC estimated

Noise classification according to type – DEPARTURES

DEPARTURES			Maximum certificated take-off weight – tonnes							
		Noise Level Band (EPNdB):	<84	84-86.9	87-89.9	90-92.9	93-95.9	96-98.9	99-101.9	>101.9
		Quota Count:	EXEMP	QC/0.25	QC/0.5	QC/1	QC/2	QC/4	QC/8	QC/16
Aeroplane	Engine	Remarks								
B737-800	CFM56-7B26	26000lb SLST			74.98	79.02				
B737-800	CFM56-7B27	27000lb SLST			73.10	79.02				
B737-900	CFM56-7B26	26000lb SLST				76.88				
B747-100	JT9D-3A (DRY)	100"CN" nacelles								332.48
B747-100	JT9D-3A (DRY)	100"D" nacelles								332.48
B747-100	JT9D-3A (WET)	100"D" nacelles								333.39
B747-100	JT9D-3A (WET)	100"CN" nacelles								333.39
B747-100	JT9D-7/7A	200"CN" nacelles								332.94
B747-100	JT9D-7/7A (DRY)	100"D" nacelles								333.39
B747-100	JT9D-7/7A (DRY)	200"B" nacelles								332.48
B747-100	JT9D-7/7A (WET)	100"D" nacelles								333.39
B747-100	JT9D-7/7A (WET)	200"B" nacelles								333.39
B747-100	JT9D-7/7A /7AH	100"CN" nacelles								332.94
B747-100	JT9D-7J	Operated at -7A rating with 100"CN" nacelles								332.94
B747-100	JT9D-7F versions									E
B747-100/200/300	JT9D-7R4G2	With -300R nacelles						318.79	377.84	
B747-100/200/300	RB211-524B2								362.89	376.80
B747-100/200/300	RB211-524C2								368.99	377.80
B747-100/200/300	RB211-524D4								377.80	
B747-200	JT9D-70A								371.95	
B747-200	JT9D-7F									368.30
B747-200	JT9D-7J	200"CN" nacelles								362.90
B747-200	JT9D-7Q								377.80	
B747-200	RB211-524D4-19/22								372.00	
B747-200	RB211-524D4X-19/22								377.84	
B747-200/300	CF6-50B2								372.80	
B747-200/300	CF6-50E/E1								377.84	
B747-200/300	CF6-50E2								374.29	377.84
B747-200B	CF6-50E								351.50	
B747-200B	JT9D-3A (DRY)	200"B" nacelles								347.90
B747-200B	JT9D-3A (DRY)	200"CN" nacelles								348.00
B747-200B	JT9D-3A (WET)	200"B" nacelles								350.60
B747-200B	JT9D-3A (WET)	200"CN" nacelles								350.05
B747-200B	JT9D-7/7A (DRY)	200"B" nacelles								351.53
B747-200B	JT9D-7/7A (DRY)	200"CN" nacelles								356.10
B747-200B	JT9D-7/7A (WET)	200"B" nacelles								351.53
B747-200B	JT9D-7/7A (WET)	200"CN" nacelles								351.53
B747-200B,-200 C/F	JT9D-7F or -7J	200"CN" nacelles								362.90
B747-200B	RB211-524D4	RRN nacelles							377.84	
B747-200F	CF6-50E2								371.90	377.80
B747-200F	JT9D-70A	ROHR supplied nacelles							371.95	
B747-300	CF6-50E2								362.87	
B747-300	CF6-80C2B1							310.79	375.30	
B747-300	JT9D-7R4G2								377.84	
B747-300/200 B,C & F	CF6-50E									285.76
B747-400	CF6-80C2B1F	With N1 modifier.						317.19	396.89	
B747-400	CF6-80C2B1F							315.00	392.50	396.89
B747-400	PW4056	Package B/Phase 1 engine							394.63	
B747-400	PW4056	Package B/Phase 1 engine (FB2B)							396.89	
B747-400	PW4056(-3)	Phase III engine (FB2C)							396.89	
B747-400	PW4056							292.19	370.57	394.63
B747-400	PW4056 (-1C)	Package A/B Phase 1 (FB2C)							396.89	
B747-400	PW4056 (-3)	Applicable to S/N 26055 and 26056							394.63	
B747-400	PW4056 (-3)	Basic rating 56750lb Phase III(FB2C)							396.89	
B747-400	PW4056 (-3)	Phase III(FB2C) & Noise reduction inlet							396.89	
B747-400	RB211-524G							319.00	396.89	
B747-400	RB211-524H2							322.50	396.89	
B747-400D	CF6-80C2B1F	With N1 modifier.						313.39	377.80	
B747-400D	CF6-80C2B1F							312.29		
B747-400F	CF6-80C2B1F								396.89	
B747-400F	CF6-80C2B5F								396.89	
B747-400F	PW4056 (-1C)	Pkg A/B Ph I (FB2C) & Noise reduction inlet							396.89	
B747-400F	PW4056 (-1C)								396.89	
B747-SP	JT9D-7A								317.95	
B747-SP	JT9D-7F/-7J								299.37	
B747-SP	RB211-524B2								315.70	
B747-SP	RB211-524D4								318.42	
B747-SR	JT9D-7A								276.70	
B747SR/-100	CF6-45A2	With -200"GB" nacelles						311.60	340.19	
B747SR/-100/200/300	JT9D-3A	With "100CN" nacelles								322.05
B747SR/-100/200/300	JT9D-3A	With "200CN" nacelles								322.05
B747SR/-100/200/300	JT9D-7	With "100CN" nacelles								332.94
B747SR/-100/200/300	JT9D-7	With "200CN" nacelles							304.99	332.94
B747SR/-100/200/300	JT9D-7A	With "100CN" nacelles								332.90
B747SR/-100/200/300	JT9D-7A	With "200CN" nacelles							324.59	332.94
B747SR/-100/200/300	JT9D-7F	With "100CN" nacelles								340.20
B747SR/-100/200/300	JT9D-7F	With "200CN" nacelles							326.99	340.19

E – QC estimated

Noise classification according to type – DEPARTURES

DEPARTURES			Maximum certificated take-off weight – tonnes							
		Noise Level Band (EPNdB):	<84	84-86.9	87-89.9	90-92.9	93-95.9	96-98.9	99-101.9	>101.9
		Quota Count:	EXEMP	QC/0.25	QC/0.5	QC/1	QC/2	QC/4	QC/8	QC/16
Aeroplane	Engine	Remarks								
B747SR/-100/200/300	JT9D-7J	With "200CN" nacelles							324.69	351.53
B757-200	PW2037					112.40				
B757-200	PW2040					115.90				
B757-200	RB211-535C				101.79	108.90				
B757-200	RB211-535E4				115.80					
B757-300	RB211-535E4B					117.93				
B767-200	CF6-80A					154.89	159.21			
B767-200	JT9D-7R4D	Package "A" Eng. Install No.BG700 series				138.59	156.50			
B767-200	JT9D-7R4D	Package "B" Eng Install No.BG800/BG900 series				134.99	156.65			
B767-200	JT9D-7R4E					136.19	166.50			
B767-200/-200 ER	CF6-80A2	50KLb rating				144.39	159.21			
B767-200/-200 ER	CF6-80C2B				140.29	159.21				
B767-200/-200 ER	CF6-80C2B2					163.29				
B767-200/-200 ER	CF6-80C2B2F					153.80				
B767-200/-200 ER	CF6-80C2B4					175.54				
B767-200/-200 ER	CF6-80C2B4F	N1 Modifier			143.29	163.50				
B767-200/-200 ER	JT9D-4RE					136.19	163.30			
B767-200/-200 ER	JT9D-7R4D					135.17				
B767-200/-200 ER	JT9D-7R4E					136.19	166.50			
B767-200/-200 ER	JT9D-7R4E4					135.19	159.20			
B767-200/-200 ER	PW4050						170.20			
B767-200/-200 ER	PW4052 (FB2T)					159.20				
B767-200/-200 ER	PW4056 (FB2B)					162.79	181.44			
B767-200/-200 ER	PW4056 PHASE III (FB2C)	With noise reduction inlet			152.50	179.17				
B767-200/-200 ER	PW4060						172.00			
B767-200/-200 ER	PW4060 PHASE III (FB2C)	With noise reduction inlet			147.00	179.17				
B767-200/-200 ER	PW4060A						169.30			
B767-300	CF6-80C2B6F	With N1 modifier				178.29	185.10			
B767-300 & -300ER	CF6-80C2B2F					151.90				
B767-300 & -300ER	CF6-80C2B4					175.49	184.60			
B767-300 & -300ER	CF6-80C2B6					175.09	184.60			
B767-300 & -300ER	CF6-80C2B6 (fadec)	With N1 modifier				177.69	184.60			
B767-300 & -300ER	CF6-80C2B7F (fadec)						186.88			
B767-300 & -300ER	PW4056 (FB2B)						184.60			
B767-300 & -300ER	PW4056 PHASEIII (FB2C)	With noise reduction inlet			149.00	186.88				
B767-300 & -300ER	PW4060 (FB2B)						184.60			
B767-300 & -300ER	PW4060 PHASEIII (FB2C)	With noise reduction inlet			144.00	182.50	186.88			
B767-300 & -300ER	PW4062 PHASEIII (FB2C)	With noise reduction inlet				174.00	186.88			
B767-300 & -300ER	RB211-524G					170.89	184.61			
B767-300 & -300ER	RB211-524H					170.69	184.61			
B767-400ER	CF6-80C2B8F						204.12			
B777-200	GE90-76B				229.52	242.67				
B777-200	GE90-85B					286.90				
B777-200	GE90-90B						286.90			
B777-200	GE90-94B					263.08				
B777-200	PW4077	At 77,000 sea level static thrust				242.67	246.75			
B777-200	Trent 877						247.21			
B777-200	Trent 895						297.56			
B777-200 IGW	PW4090						249.48			
B777-200 IGW	Trent 890						286.90			
B777-300	Trent 892						299.37			
BAe 1-11 Series 200	Spey 506-14, A, AW or D	With mod.5320 Parts A,D & E						36.30		
BAe 1-11 Series 300	Spey 511-14 or -14W	With mod.5320 Parts A, B, D & E						40.60		
BAe 1-11 Series 400	Spey 511-14 or -14W	With mod.5320 Parts A, B, D & E						40.60		
BAe 1-11 Series 475	Spey 512-14DW	With mod.5320 Parts A, B, D & E							44.68	
BAe 1-11 Series 500	Spey 512-14 DW	With mod.5320 Parts A, B, D & E							47.40	
BAe 1-11 Series 510	Spey 512-14 E	With mod.5320 Parts A, B, D & E							43.55	
BAe 125-1000/-1000A	PW305/305B			16.10						
BAe 125-700A/-700B (HS)	TFE-731-3-1H	Reverse thrust mod.256991				11.57				
BAe 125-700A/-700B (HS)	TFE-731-3-1H			11.57						
BAe 125-800	TFE-731-5R-1H		12.43							
BAe 125-800	TFE-731-5R-1H	With DH Reverser mod.259283		12.43						
BAe 125-800A/800B	TFE-731-5R-1H	With DH Reverser mod.259283	12.43							
BAe 125-800A/800B	TFE-731-5R-1H		12.43							
Bae 125-800XP	TFE-731-5BR-1H		12.70							
BAe 125 Series 1-(521) (HS)	Viper 521							9.62		
BAe 125 Series 1 (HS)	Viper 520							9.44		
BAe 125 Series 1A (HS)	TFE-731-3-1H	Mod.252605			9.84					
BAe 125 Series 1A (HS)	TFE-731-3-1H	Mod.252606		9.62						
BAe 125 Series 1B/R-522 (HS)	Viper 522							10.07		
BAe 125 Series 1B/S-522 (HS)	Viper 522							9.84		
BAe 125 Series 1B-522 (HS)	Viper 522							9.62		
BAe 125 Series 1B (HS)	Viper 521							9.62		
BAe 125 Series 3A (HS)	TFE-731-3-1H	Mod. 252603			9.84					
BAe 125 Series 3A/RA (HS)	TFE-731-3-1H	Mod. 252600			10.71					
BAe 125 Series 3B (HS)	Viper 522							9.84		
BAe 125 Series 3B/RA (HS)	Viper 522							10.34		

E – QC estimated

Noise classification according to type – DEPARTURES

DEPARTURES			Maximum certificated take-off weight – tonnes							
		Noise Level Band (EPNdB):	<84	84-86.9	87-89.9	90-92.9	93-95.9	96-98.9	99-101.9	>101.9
		Quota Count:	EXEMP	QC/0.25	QC/0.5	QC/1	QC/2	QC/4	QC/8	QC/16
Aeroplane	Engine	Remarks								
BAe 125 Series 3B/RC (HS)	Viper 522							10.71		
BAe 125 Series 400A (HS)	TFE-731-3-1H	Mod. 252550			10.71					
BAe 125 Series 400B (HS)	Viper 522							10.57		
BAe 125 Series 403B (HS)	Viper 522							10.71		
BAe 125 Series 600A (HS)	TFE-731-3-1H	Mod.252468			11.57					
BAe 125 Series 600A and B (HS)	Viper 601-22	Mod.252405					11.57			
BAe 125 Series 600B (HS)	Viper 601-22								11.57	
BAe 125 Series F3B (HS)	TFE-731-3-1H	Eng. mod.252603			9.84					
BAe 125 Series F3B/RA	TFE-731-3-1H	Eng. mod.252551			10.71					
BAe 125 Series F400 (HS)	TFE-731-3-1H	Eng. mod.252551			10.71					
BAe 125 Series F600B (HS)	TFE-731-3-1H	Eng. mod.252469			11.57					
BAe 146-100	ALF 502R-3			34.47						
BAe 146-100	ALF 502R-4			34.47						
BAe 146-100	ALF 502R-5	Plus eng. option71/1		37.31						
BAe 146-100-20	ALF 502R-3	Plus eng. option71/1		37.31						
BAe 146-100-20	ALF 502R-3				37.31					
BAe 146-100-20	ALF 502R-3A	Plus eng. option71/1		37.31						
BAe 146-100-20	ALF 502R-4	Plus eng. option71/1		37.31						
BAe 146-100-20	ALF 502R-4				37.31					
BAe 146-100-21	ALF 502R-5				37.31					
BAe 146-100-31	ALF 502R-5	Plus eng. option71/1		38.10						
BAe 146-100A	ALF 502R-3A	Plus eng. option71/1		37.31						
BAe 146-200	ALF 502R-3	Plus eng. option71/1		40.60						
BAe 146-200	ALF 502R-3A	Plus eng. option71/1		40.60						
BAe 146-200	ALF 502R-5	Plus eng. option71/1		42.18						
BAe 146-300	ALF 502R-5	Plus eng. option71/1		44.23						
BAe 146-300	LF507-1F or 1H				46.04					
BAe 146-RJ100	LF507-1F	(AVRO 146-RJ100)			46.04					
BAe 146-RJ70	LF507-1F	(AVRO 146-RJ70)		40.82						
BAe 146-RJ85	LF507-1F	(AVRO 146-RJ85)		44.00						
BAe 748 Series 1 (Avro)	RR Dart 514						E			
BAe 748-2A	RR Dart 532-2						20.19			
BAe 748-2A	RR Dart 534-2	With either BAe mod. 6408 or 6517				21.09				
BAe 748-2B	RR Dart 534-2, 535-2 or 536-2	With either BAe mod. 6408 or 6517				21.09				
BAe 748-2B	RR Dart 534-2, 535-2 or 536-2							21.09		
BAe ATP	P&W PW126		22.93							
BAe ATP	P&W PW126A		22.93							
BAe Herald	RR Dart Mk 527				E					
BAe Herald	RR Dart Mk 532-9				E					
BAe Jetstream 3100	Garret TPE 331 series		6.95							
BAe Jetstream 3200	TPE331-12UA(R)-701H	Dowty propeller R333/4-82-F/12	7.35							
BAe Jetstream 3200	TPE331-12UA(R)-702H	McCauley propeller 4HFR34C653/L106FA	7.35							
BAe Jetstream 41	TPE331-14GR-801H(L)/14HR-801H(R)			10.43						
BAe Vanguard Freighter	RR Tyne Mk 506				E					
BAe Viscount	RR Dart 7/1 Mk 525				E					
Beech 200	PW PT6A-41	Hartzell propeller HC-D4N-3 A/D-9383K	5.67							
Beech 200 or C12F	PW PT6A-41	McCauley propeller 4HFR34 C754/94LA-0	5.67							
Beech 200 or 200C	PW PT6A-41	Hartzell propeller HC-B3TN-3Gor-3N	5.67							
Beech 350	PW PT6A-60A	Hartzell propeller HC-B4MP-3C/M10476N	6.80							
Beech 400	JT15D-5					7.16				
Beech 400A	JT15D-5					7.30				
Beech B200 , B200C,B200CT	PW PT6A-42	Hartzell propeller HC-B3TN-3G/T10178HB-3R	5.67							
Beech B200 , B200C,B200CT	PW PT6A-42	McCauley propeller 3GFR-34C702/100LA-2	5.67							
Beech B300	PW PT6A-60A	Hartzell propeller HC-B4MP-3/M10476K	6.80							
Beech F33	Continental IO-520-B	McCauley propeller 3A32C76/82NB-2 (Bonanza)	1.54							
Beech MU300	JT15D-4				6.40					
Beech MU300-10	JT15D-5					7.16				
Beechcraft King Air C90A	PW PT6A – 21	Hartzell HC-B3TN-2(B) propeller	4.58							
Beechcraft S/King Air 200	PW PT6A -135		4.94							
Bell 206B3	Allison 250-C20B or -C20J	JetRanger		E						
Bombardier Global Express	BR700-710A2-20	Model BD700-1A10		43.55						
Britt-Norm Islander	LYC. 0-540-E4C5		2.99							
Canadair CL-600	ALF-502L-2				18.71					
Canadair CL-600-2B16	CF34-3A2		20.46							
Canadair CL-600-2B19	CF34-3B		21.86							
Canadair CL-601	CF34-1A		20.46							
Canadair CL-601	CF34-3A		20.46							
Canadair Regional Jet	CF34-3A1		24.04							
CASA C-212-CB	Garret TPE 331-5-251C	Full Power		6.49						
CASA C-212-CC	Garret TPE 331-10-501C	Full Power		7.71						
CASA CN-235	GE CT7-7A	Full Power		14.42						

E – QC estimated

Noise classification according to type – DEPARTURES

DEPARTURES			Maximum certificated take-off weight – tonnes							
		Noise Level Band (EPNdB):	<84	84-86.9	87-89.9	90-92.9	93-95.9	96-98.9	99-101.9	>101.9
		Quota Count:	EXEMP	QC/0.25	QC/0.5	QC/1	QC/2	QC/4	QC/8	QC/16
Aeroplane	Engine	Remarks								
Cessna 310R	Continental IO-520-M		2.50							
Cessna 404	Pratt & Whitney PT6A-34	Titan	3.81							
Cessna 404	TCM-GTSIO-520-M	Titan	3.81							
Cessna 421C	TCM-GTSIO-520-L	Golden Eagle	3.36							
Cessna 500/501 Citation I	JT15D-1/1A		5.35							
Cessna 501 Citation I	Williams FJ44-2A		5.67							
Cessna 525A	Williams FJ44-2C		5.61							
Cessna 550 Citation II	JT15D-4		6.40							
Cessna 550 Citation Bravo	PW530A		6.71							
Cessna 560 Citation V	JT15D-5A				7.21					
Cessna 560 Citation Ultra	JT15D-5D				7.39					
Cessna 560 Citation XL	PW 545A		9.07							
Cessna 560 Citation XLS	PW 545B		9.16							
Cessna 650 Citation VI	TFE731-3B-100S			9.98						
Cessna 650 Citation VII	TFE731-4R-25			10.43						
Cessna 750 Citation X	Allison AE3007A		16.19							
Cessna F406 Caravan II UK NTC 90	PW PT6A-112		4.47							
Cessna T310R	Continental TSIO-520-B		2.50							
Concorde	RR Olympus593 Mk 610									185.07
Convair 580	Allison 501-D13H				26.40					
Dassault Mercure 100A	JT8D-15							54.52		
Dassault Mercure 100B	JT8D-15							56.70		
DC10-10	CF6-6D1A							206.38		
DC10-10/15	CF6-50C2-F						206.40			
DC10-10/15	CF6-6K							206.40		
DC10-30	CF6-50C								259.46	
DC10-30/-30F	CF6-50A								267.62	
DC10-30/-30F	CF6-50C1								267.62	
DC10-30/-30F	CF6-50C2							267.60		
DC10-30/-30F	CF6-50C2-R							259.45		
DC10-30/-30F	CF6-50C2B							289.40		
DC10-40	JT9D-20							240.40		
DC10-40	JT9D-20J							E		
DC10-40	JT9D-59A							234.39	259.50	
DC3 (or C47 Dakota)	PWR-1830				E					
DC6	PWR2800-CB3				E					
DC8-54F	JT3D-3B	BAC Hushkit								149.69
DC8-61	JT3D-3B	QNC PLS quiet nacelle								145.29
DC8-61	JT3D-3B	QNC quiet nacelle								140.52
DC8-61F	JT3D-3B	BAC quiet nacelle								147.42
DC8-61F	JT3D-3B	QNC quiet nacelle								140.52
DC8-62	JT3D-3B	ADC Hushkit							151.95	
DC8-62	JT3D-3B	BAC/MGM Hushkit							157.85	
DC8-62	JT3D-3B	TNC Hushkit							151.95	
DC-8-62F	JT3D-3B	Noise reduction nacelles STC SA4892NM							158.76	
DC8-62	JT3D-7	W/ADC QN Hushkit							154.45	
DC8-62	JT3D-7	W/TNC QN Hushkit							151.95	
DC8-62/-62F	JT3D-7	BAC II Hushkit STC SA4892-NM							158.76	
DC8-62/-62F	JT3D-7	BAC II Hushkit STC SA5455-NM							151.95	
DC8-63F	JT3D-3B	BAC II Hushkit STC SA5455-NM							161.03	
DC8-63	JT3D-7	BAC/MGM Hushkit							160.12	
DC8-63F	JT3D-7	BAC Hushkit SA4892-NM							160.12	
DC8-63	JT3D-7	TNC Hushkit								161.03
DC8-71	CFM56-2-C1						148.78			
DC8-71	CFM56-2C5						147.42			
DC8-72	CFM56-2-C1						158.76			
DC8-72	CFM56-2-C3						158.76			
DC8-73	CFM56-2-C1						161.03			
DC9-10	JT8D-7							37.06		
DC9-10	JT8D-7/-7A							37.06		
DC9-10(ABS)	JT8D-7/-7A/-7B					41.14				
DC9-14/15	JT8D-7/7A	Hardwall					41.14			
DC9-21	JT8D-11							44.45		
DC9-30	JT8D-7	ABS Hushkit (STC SA1613GL)					47.63			
DC9-30	JT8D-11	Hardwall						48.99		
DC9-30	JT8D-11/9/15	At -9 rating all with acoustically treated nac. to SCN3891 and SCN3894						48.99		
DC9-30	JT8D-17							48.99		
DC9-30	JT8D-9	Hardwall						51.71		
DC9-40	JT8D-11							51.71		
DC9-40	JT8D-15							51.71		
DC9-50	JT8D-17								54.34	
DC9-51	JT8D-17A	ABS Partnership Chapter 3 Hushkit					54.88			
DHC-6 Twin Otter	PW PT6A – 20		5.25							
DHC-7-101	P&W PT6A-50	Full Power	19.50							
DHC-7-103	P&W PT6A-50	Full Power	19.96							

E – QC estimated

Noise classification according to type – DEPARTURES

DEPARTURES			Maximum certificated take-off weight – tonnes							
		Noise Level Band (EPNdB):	<84	84-86.9	87-89.9	90-92.9	93-95.9	96-98.9	99-101.9	>101.9
		Quota Count:	EXEMP	QC/0.25	QC/0.5	QC/1	QC/2	QC/4	QC/8	QC/16
Aeroplane	Engine	Remarks								
DHC-8-101	UACL P&W PW120 or PW120A		14.97							
DHC-8-102	UACL P&W PW120 or PW120A		15.65							
DHC-8-311	UACL P&W PW123		19.50							
Dornier 328-100	PW119A or PW119B		13.64							
Dornier 328-300	PW306B		15.20							
EH Industries EH101	GE CT7-6A						14.60			
Embraer Bandeirante EMB-110	PW PT6A – 34		5.67							
Embraer EMB-120	P&W PW-115 or -118		11.50							
Embraer EMB-121	Pratt & Whitney PT6A-28	Xingu	E							
Embraer EMB-135	Rolls Royce AE3007A1				22.20					
Embraer EMB-145	Allison AE3007A				20.99					
Eurocopter AS355F1	Allison 250-C20F				2.40					
Eurocopter AS355N	Arrius 1A			2.54						
Eurocopter BO 105 DB	Allison 250-C20B					E				
Eurocopter BO 105 DBS-5	Allison 250-C20B					E				
Eurocopter EC135T1	Turbomeca Arrius 2B1			2.84						
Fairchild SA227-AC	Garrett TPE-331-11U	Dowty propeller R321/4-82-F/8		6.58						
Fairchild SA227-AT	Garrett TPE-331-11U-601E	Merlin MC	5.62							
Fairchild SA227-AT	Garrett TPE-331-11U-601G	Merlin MC	6.35							
Falcon 10	TFE 731-2			8.30						
Falcon 20	TFE 731-5BR-2C				13.76					
Falcon 20	CF700-20-2					13.02				
Falcon 200	ATF3-6-4C			14.52						
Falcon 2000	CFE 738-1-1B	With Dee Howard TR 6000 thrust reverser	16.56							
Falcon 2000	CFE 738-1-1B		16.56							
Falcon 50	TFE 731-3				17.60					
Falcon 50	TFE731-3-1C				18.50					
Falcon 900	TFE 731-5A			20.64						
Falcon 900	TFE 731-5AR-1C			20.64						
Falcon 900B	TFE 731-5BR-1C			20.64						
Fokker F27 Mk050	Pratt & Whitney 125B		20.82							
Fokker F27 Mk200,400,500,600	RR Dart 500 series	With hushkit mod.1800			20.82					
Fokker F27 Mk.200,400,500,600	RR Dart 500 series					20.41				
Fokker F28 Mk070	RR Tay 620-15			41.73						
Fokker F28 Mk0100	RR Tay 620-15				47.17					
Fokker F28 Mk0100	RR Tay 650-15				49.90					
Fokker F28 Mk1000	Spey Mk555-15	5 chute nozzle plus tailpipe liner					30.16			
Fokker F28 Mk1000	Spey Mk555-15N/P	5 chute nozzle plus tailpipe liner					30.16			
Fokker F28 Mk2000	Spey Mk555-15	5 chute nozzle plus tailpipe liner					30.16			
Fokker F28 Mk2000	Spey Mk555-15N/P	5 chute nozzle plus tailpipe liner					30.16			
Fokker F28 Mk3000	Spey Mk555-15H	5 chute nozzle plus tailpipe liner					33.11			
Fokker F28 Mk3000	Spey Mk555-15H	Unsilenced						33.21		
Fokker F28 Mk4000	Spey Mk555-15H	5 chute nozzle plus tailpipe liner					32.21			
Fokker F28 Mk4000	Spey Mk555-15H	Unsilenced						32.21		
Fokker F28 Mk4000	Spey Mk555-15P	5 chute nozzle plus tailpipe liner				33.11				
Fokker F28 Mk6000	Spey Mk555-15H	5 chute nozzle plus tailpipe liner						33.11		
Gulfstream G-I	RR Dart Mk 529				E					
Gulfstream G-II	RR SPEY 511-8	With tip tanks						E		
Gulfstream G-II	RR SPEY 511-8							29.70		
Gulfstream G-IIB	RR SPEY 511-8	Quiet Technology Stage 3 hush kit (STC 02618AT)				31.62				
Gulfstream G-III/-IIB	RR SPEY 511-8							31.62		
Gulfstream G-IV	TAY 610-8		32.52							
Gulfstream G-IV	TAY 611-8		33.20							
Gulfstream G-V	BR700-710A1-10			41.05						
Gulfstream G-V SP (G550)	BR700-710C4-11			41.28						
Guppy	Allison 501 D22C	Hamilton Standard 54H60-123/7111B-2 propeller				E				
IAI 1124	TFE 731-3-1G			10.50						
IAI Astra SPX	TFE 731-40R-200G			11.18						
IL-18D	IVA1-20M								64.00	
IL-62M	D-30Ku	With noise suppressors							167.00	
IL-62M	D-30Ku									167.00
IL-76T(TD)	D-30KP(D-30KP 2 ser.)									170.00
IL-86	NK-86									210.01
IL-96-300	PS-90A								250.00	
Learjet 23	CJ610-1/-4						5.67			
Learjet 24	CJ610-1/-4							5.90		
Learjet 24/24D	CJ610-6						6.12			
Learjet 24D	CJ610-6							6.12		
Learjet 24E	CJ610-6						5.85			
Learjet 24F	CJ610-6						6.12			
Learjet 24F-A	CJ610-6						5.67			
Learjet 25	CJ610-6							6.80		
Learjet 25 B/C/D/F XR	CJ610-6/8A							7.39		
Learjet 28/29	CJ610-8A							6.80		
Learjet 31A	TFE 731-2-3B			7.71						
Learjet 35/36	TFE 731-2-2B			8.16						

E – QC estimated

Noise classification according to type – DEPARTURES

DEPARTURES			Maximum certificated take-off weight – tonnes							
		Noise Level Band (EPNdB):	<84	84-86.9	87-89.9	90-92.9	93-95.9	96-98.9	99-101.9	>101.9
		Quota Count:	EXEMP	QC/0.25	QC/0.5	QC/1	QC/2	QC/4	QC/8	QC/16
Aeroplane	Engine	Remarks								
Learjet 35A	TFE 731-2-2B		8.04							
Learjet 35A/36A	TFE 731-2-2B		8.30							
Learjet 45	TFE731-20		9.20							
Learjet 45	TFE731-20R		9.30							
Learjet 55	TFE 731-3A-2B				9.51					
Learjet 60	PW305A		10.48							
Learjet M55	TFE 731-3A	Std. nozzle			9.75					
Learjet M55	TFE 731-3A	With Aeronca thrust reverser			9.57					
Learjet M55C	TFE 731-3A-3AR	With reverser			9.75					
Learjet M55C	TFE 731-3A-3AR -3B	With reverser			9.75					
Lockheed L1011-1	RB211-22B						195.05			
Lockheed L1011-100	RB211-22B							211.37		
Lockheed L1011-200	RB211-524B							211.34		
Lockheed L1011-385-1-14 & -15	RB211-22B(+SB 72-8700)							215.00		
Lockheed L1011-385-1 -15	RB211-22B							211.37		
Lockheed L1011-385-1 -15 193T	RB211-22B						204.10			
Lockheed L1011-50	RB211-22B						204.12			
Lockheed L1011-500	RB211-524B							224.98		
Lockheed L1011-500	RB211-524B3							228.60		
Lockheed L1011-500	RB211-524B4							231.33		
Lockheed 1329-23E (Jetstar)	TFE 731-31E					20.07				
Lockheed L 188A	Allison 501D-13					51.26				
Lockheed L 188C	Allison 501D-13					51.26	52.62			
Lockheed L382G Hercules	Allison 501-D22A	Military version C130					70.31			
MD-11	CF6-80C2D1F						280.30			
MD-11	PW4460						280.30			
MD-11 Freighter	PW4462						285.99			
MD-80	JT8D-209					63.50				
MD-80	JT8D-217					63.50	72.80			
MD-80	JT8D-217A					63.50	72.80			
MD-80	JT8D-217C					63.50	72.80			
MD-82	JT8D-217C					67.80				
MD-82	JT8D-219					67.80				
MD-83	JT8D-219					63.50	72.80			
MD-87	JT8D-217A					67.80				
MD-87	JT8D-217C					67.80				
MD-87	JT8D-219					63.50	67.80			
MD-88	JT8D-219						72.58			
MD-90-30	IAE V2525-D5			70.76						
MD 900 Explorer	PW 206A		2.84							
Mooney M20J	Lycoming IO-360-A3B6D		1.22							
Mooney M20K	Teledyne TSIO-360-GB1		1.32							
Partenavia P68B	LYC. IO-360-A1B6		1.99							
Piaggio P-180	PW PT6A-66		4.94							
Piper PA-23-250	LYC. IO-540-C4B5		2.36							
Piper PA-E23-250	LYC. IO-540-C4B5		2.36							
Piper PA-31-350	LYC. TIO-540-J2BD		3.18							
Piper PA-31	LYC. TIO-540-2AC		2.95							
Piper PA-34-200T	Lycoming TSIO-360-E	Seneca II	2.09							
Piper PA-34-200T	Teledyne TSIO-360-E	Seneca II	2.09							
Piper PA-34-220T	Continental TSIO-360-KB	Seneca III	2.13							
Piper PA-60-600P	LYC. IO-540-S1A5/-P1A5		2.72							
Puma (ECF) SA-330F/G	Turbemeca IVA						E			
Raytheon 390 Premier 1	Williams-Rolls FJ44-2A		5.71							
Rockwell Commander 690C	Garrett TPE 331-625-4K	Turbo Commander	4.68							
SAAB SF340A	GE CT7-5A	Full power		12.25						
SAAB SF340A	GE CT7-5A2		12.70							
SAAB SF340A	GE CT7-7E	Full power	12.25							
Sabreliner 65	TFE 731-3R				10.89					
Sabreliner 80	CF700-2D-2					10.60				
SE210 Caravelle B3	JT8D-7							53.98		
SE210 Caravelle B3	JT8D-9							56.97		
Shorts Belfast	RR Tyne 12					104.30				
Shorts SD330	P&W PT6A-45R			10.39						
Shorts SD360	P&W PT6A-65AR			12.00						
Shorts SD360	P&W PT6A-65R			12.00						
Shorts SD360-300	P&W PT6A-67R		12.29							
Sikorsky S76A	Allison 250-C30S						E			
Sikorsky S76B	P&W PT6B-36A						E			
Sikorsky S76C+	Turbomeca Arriel 2S1					5.31				
SN-601 Corvette	JT15D-4		7.00							
Swearingen Merlin III	TPE331-11U-601G		E							
Transall C160	RR Tyne MK22						49.15			
TU-134	D-30 I ser.							45.00		
TU-134A	D-30 II ser.								47.00	
TU-134A-3	D-30 III ser.							48.99		
TU-134B	D-30 II ser.								47.00	
TU-134B-3	D-30 III ser.							48.99		
TU-154	NK-8-2u							98.00		

E – QC estimated

Noise classification according to type – DEPARTURES

DEPARTURES			Maximum certificated take-off weight – tonnes							
		Noise Level Band (EPNdB):	<84	84-86.9	87-89.9	90-92.9	93-95.9	96-98.9	99-101.9	>101.9
		Quota Count:	EXEMP	QC/0.25	QC/0.5	QC/1	QC/2	QC/4	QC/8	QC/16
Aeroplane	Engine	Remarks								
TU-154M	D-30 Ku-154 (SAM)	With noise suppressors						104.00		
TU-204-100	PS-90A					103.00				
TU-204-120C	RR RB211-535E4					103.00				
VFW 614	Rolls Royce/SNECMA M45H Mk501					20.87				
Yak-40	A1-25				16.00					
Yak-42	D-36	With noise suppressors					54.00			
Yukon								E		

E – QC estimated

Noise classification according to type – ARRIVALS

ARRIVALS			Maximum certificated take-off weight – tonnes							
		Noise Level Band (EPNdB):	<84	84-86.9	87-89.9	90-92.9	93-95.9	96-98.9	99-101.9	>101.9
		Quota Count:	EXEMP	QC/0.25	QC/0.5	QC/1	QC/2	QC/4	QC/8	QC/16
Aeroplane	Engine	Remarks								
Agusta A109A II	Allison 250-C20B				2.60					
Airbus A300B2-1C	CF6-50C,C2R						128.00			
Airbus A300B2-203	CF6-50C2	Mod.2150 (short nozzle)					130.00			
Airbus A300B2-203	CF6-50C2	Mod.3305,2150 (short nozzle)					130.00			
Airbus A300B2-203	CF6-50C2						130.00			
Airbus A300B2-320	JT9D-59A	Mod.3305					134.00			
Airbus A300B2-320	JT9D-59A						136.00			
Airbus A300B2K-3C	CF6-50C,C2R	Mod.3305,2150 (short nozzle)					130.00			
Airbus A300B2K-3C	CF6-50C,C2R						130.00			
Airbus A300B4-103	CF6-50C2	Mod.2150					133.00			
Airbus A300B4-103	CF6-50C2	Mod.3305,3373					133.00			
Airbus A300B4-103	CF6-50C2						133.00			
Airbus A300B4-120	JT9D-59A						133.00			
Airbus A300B4/C4/F4-203	CF6-50C2	Mod.2150 (short nozzle)					134.00			
Airbus A300B4/C4/F4-203	CF6-50C2	(long nozzle)					134.00			
Airbus A300B4-220	JT9D-59A						134.00			
Airbus A300B4-2C	CF6-50C2,C2R	Mod.3305,2150 (short nozzle)					134.00			
Airbus A300B4-2C	CF6-50C2,C2R	Mod.3373					134.00			
Airbus A300B4-2C	CF6-50C2,C2R						133.00			
Airbus A300B4-601	CF6-80C2A1					138.00				
Airbus A300B4-603	CF6-80C2A3					138.00				
Airbus A300B4-605R	CF6-80C2A5					140.00				
Airbus A300B4-620	JT9D-7R4H1					138.00				
Airbus A300B4-622	PW4158	Mod.8550 (JAS-kit)				138.00				
Airbus A300B4-622	PW4158					138.00				
Airbus A300B4-622R	PW4158	"B-package" equipped				140.00				
Airbus A300B4-622R	PW4158	Mod.8550 (JAS-kit)				140.00				
Airbus A310-203	CF6-80A3					121.50				
Airbus A310-203C	CF6-80A3	Mod.5327,5771 & 604				122.00				
Airbus A310-203C	CF6-80A3					122.00				
Airbus A310-204	CF6-80C2A2				122.00					
Airbus A310-221	JT9D-7R4D1					118.50				
Airbus A310-222	JT9D-7R4E1					121.50				
Airbus A310-304	CF6-80C2A2				123.00					
Airbus A310-308	CF6-80C2A8				123.00					
Airbus A310-322	JT9D-7R4E1					123.00				
Airbus A310-324	PW4152	Mod.8921 ("B-package")				123.01				
Airbus A310-324	PW4152					124.00				
Airbus A310-325	PW4156A					124.00				
Airbus A319-111	CFM56-5B5			68.00						
Airbus A319-111	CFM56-5B5/P	Mod. No. 25800-SAC		68.00						
Airbus A319-111	CFM56-5B5/P	Mod. No. 25800-SAC and 27772		62.50						
Airbus A319-112	CFM56-5B6			68.00						
Airbus A319-112	CFM56-5B6/P			68.00						
Airbus A319-114	CFM56-5A5			68.00						
Airbus A320-111	CFM56-5-A1				67.00					
Airbus A320-211	CFM56-5-A1				68.00					
Airbus A320-212	CFM56-5-A3	Eng. mods.20775,21478			68.00					
Airbus A320-214	CFM56-5B4/P	Engine Mod. No. 25800 SAC		68.00						
Airbus A320-231	V2500-A1				68.00					
Airbus A320-231	V2500-A1Mod 22461	"BUMP" Rating			68.00					
Airbus A321-111	CFM56-5-B1 or CFM56-5-B1/2			80.00						
Airbus A321-112	CFM56-5B-2			80.00						
Airbus A321-131	V2530-A5			80.00						
Airbus A321-211	CFM56-5B3/P	Engine Mod. 25800 SAC			80.00					
Airbus A321-211	CFM56-5B3/P	Engine Mods. 25800 SAC and 27772			80.00					
Airbus A321-214	CFM56-5B-4	Single or double annular combusters		68.00						
Airbus A321-231	V2533-A5				80.00					
Airbus A330-202	CF6-80E1A4				180.00					
Airbus A330-301	CF6-80E1A2				190.00					
Airbus A330-243	RR Trent 772B				200.00					
Airbus A330-342	RR Trent 772				190.00					
Airbus A330-322	PW4168				179.00					
Airbus A340-200	CFM56-5C2				200.00					
Airbus A340-311	CFM56-5C2				200.00					
Airbus A340-312	CFM56-5C3				200.00					
Airbus A340-313	CFM56-5C4				200.00					
Airbus A340-642	RR Trent 556					259.00				
Antonov 12 CUB	Ivchenko AI – 20K	"CUB" is the NATO designation					61.00			
Antonov 12 BK	Ivchenko AI – 20M				58.00					
Antonov 22	NK-12MA	AV-90 propellers					180.00			
Antonov 26	Ivchenko AI – 24T (-245VT)					24.00				
Antonov 72	D-36-1A				33.00					
Antonov 124									E	
ATR42-200	P&W PW120				15.50					
ATR42-300	P&W PW120				16.85					
ATR42-320	P&W PW121				16.40					
ATR72-101/-102	P&W PW124			19.90						
ATR72-201/-202	P&W PW124			21.35						

E – QC estimated

Noise classification according to type – ARRIVALS

ARRIVALS			Maximum certificated take-off weight – tonnes							
		Noise Level Band (EPNdB):	<84	84-86.9	87-89.9	90-92.9	93-95.9	96-98.9	99-101.9	>101.9
		Quota Count:	EXEMP	QC/0.25	QC/0.5	QC/1	QC/2	QC/4	QC/8	QC/16
Aeroplane	Engine	Remarks								
ATR72-210	P&W PW127		21.35							
B707-100B	JT3D-1	QNC Hushkit					86.18			
B707-100B	JT3D-3B	QNC Hushkit					86.18			
B707-120B	JT3D-1	SHANNON Hushkit						86.18		
B707-138B	JT3D-1or JT3D-3B at -1 thrusts	SHANNON Hushkit						86.18		
B707-300B ADV/C	JT3D-1-3B(IC)	SHANNON Hushkit						112.04		
B707-300B ADV/C	JT3D-3B	QNC Hushkit						112.26		
B707-300B ADV/C	JT3D-3B	SHANNON Hushkit							108.86	
B707-300B ADV/C	JT3D-7	SHANNON Hushkit							91.17	
B707-300B ADV/C	JT3D-7	Quiet Skies Stage 3 Hushkit					112.27			
B707-300B or C	JT3D-3B	TRAICOR/SHANNON (COMTRAN) Hushkit						112.04		
B717-200	BR700-715A1-30	18,500 lb SLST	49.90							
B717-200	BR700-715C1-30	21,000 lb SLST	49.90							
B720B	JT3D-1	QNC Hushkit				79.38				
B720B	JT3D-1	SHANNON Hushkit					79.38			
B720B	JT3D-3B	QNC Hushkit				79.38				
B720B	JT3D-3B	SHANNON Hushkit					79.38			
B727-100	JT8D-7FCD						68.62			
B727-100 (FED.EX.)	JT8D-7/A/B	With Boeing nacelle			62.37					
B727-100 (FED.EX.)	JT8D-9 or -9A	With Burbank Aeronautical Corp. nac.			64.64					
B727-100RE	2x JT8D-217 & 1x JT8D-9 or -9A	VALSAN re_engine & hushkit			54.89					
B727-17RE	2x JT8D-217 & 1x JT8D-9 or -9A	VALSAN re_engine & hushkit			64.64					
B727-200	JT8D-15 or -17						73.03			
B727-200	JT8D-15/A	FedEx Hushkit			75.30					
B727-200	JT8D-9QN/-15QN/-17QN/-17RQN	All operated at -9 thrusts					71.67			
B727-200	Two JT8D-17 one -15	All operated at -15 thrusts					64.64			
B727-200 (FED. EX.)	JT8D-7/A/B	With Burbank Aeronautical Corp. nac.				70.08				
B727-200 (FED. EX.)	JT8D-7B(A) (B)	With Boeing nacelle				68.04				
B727-200 (FED. EX.)	JT8D-7B(A) (B)	With Burbank Aeronautical Corp. nac.			68.04					
B727-200 (FED. EX.)	JT8D-9/A	With Burbank Aeronautical Corp. nac.				68.04				
B727-200	JT8D-7	STC SA4833NM			68.04	70.08				
B727-200	JT8D-9	STC SA4833NM				70.06				
B727-200	JT8D-17	STC ST00350AT & SA5839NM			74.39					
B727-200	JT8D-17R	STC SA5839NM			73.03					
B727-200RE	2x JT8D-217C & 1x JT8D-15	VALSAN hushkit			67.13					
B727-200RE	2x JT8D-217C & 1x JT8D-17	VALSAN hushkit				72.12				
B727-200RE	2x JT8D-217C & 1x JT8D-17A	VALSAN hushkit				72.12				
B727-200RE	2x JT8D-219 & 1x JT8D-7,7A or 7B	VALSAN hushkit			64.64					
B727-200RE	2x JT8D-217 & 1x JT8D-15	BFGoodrich Super27 modification				74.39				
B727-300	RR Tay 651-54	Dee Howard QF modification			62.40					
B737-200	JT8D-15 or -15A	P&W double wall fan duct treatment					46.72	47.63		
B737-200	JT8D-15 or -15A	P&W double wall fan duct treatment +Mod10					47.63			
B737-200	JT8D-7 or -7A	PM treatment					46.72			
B737-200	JT8D-7 or 7A	P&W double wall fan duct treatment: 30deg flap					47.39			
B737-200	JT8D-9QN						47.16			
B737-200ADV	JT8D-15 or -15A	NORDAM LGW-H hushkit			46.72					
B737-200/-200C(ADV)	JT8D-15/-17 & A engs. at -15 thr.	NORDAM hushkit see STC SA5730NM			48.53					
B737-200/-200C(ADV)	JT8D-17 & A engs. at -17 thr.	NORDAM hushkit see STC SA5730NM			48.53					
B737-200/-200C(ADV)	JT8D-9/-15/-17 & A engs at -9 thr.	NORDAM hushkit see STC SA5730NM			48.53					
B737-200/200C NON ADV	JT8D-15/-17 & A engs. at -15 thr.	NORDAM hushkit see STC SA5730NM				47.63				
B737-200ADV	JT8D-15 or -15A	NORDAM LDV hushkit (STC ST00131SE)			48.53					
B737-200ADV	JT8D-15 or -15A	P&W double wall fan duct treatment					46.72			
B737-200ADV	JT8D-15 or -15A	PM treatment					44.72	46.72		
B737-200ADV	JT8D-15QN/15AQN						48.53			
B737-200ADV	JT8D-17 or -17A	Inlet and nose dome porous metal, P&WA DW fan treat					48.53			
B737-200ADV	JT8D-17 or -17A	PM acoustic treatment					43.23			
B737-200ADV	JT8D-17QN/17AQN						48.53			
B737-200ADV	JT8D-7 or -7A	PM treatment				44.45	48.53			
B737-200ADV	JT8D-9QN					34.83	49.16			
B737-300	CFM56-3B1					54.43				
B737-300	CFM56-3B2					54.89				
B737-300	CFM56-3C1					52.53				
B737-400	CFM56-3B2/3C1					56.25				
B737-500	CFM56-3-B1	18500Lb SLST				51.71				
B737-500	CFM56-3-B1	20000Lb SLST				51.71				
B737-500	CFM56-3-B1(R)					49.90				
B737-500	CFM56-3-B2	18500Lb SLST				51.71				
B737-500	CFM56-3-C1	18500Lb SLST				51.71				
B737-500	CFM56-3-C1	20000Lb SLST				51.71				
B737-700	CFM56-7B20	20000Lb SLST		60.78						
B737-700	CFM56-7B22	22000lb SLST		60.78						
B737-700	CFM56-7B24	24000lb SLST		60.78						
B737-800	CFM56-7B24	24000lb SLST			66.36					
B737-800	CFM56-7B26	26000lb SLST			66.36					

E – QC estimated

Noise classification according to type – ARRIVALS

ARRIVALS			Maximum certificated take-off weight – tonnes							
		Noise Level Band (EPNdB):	<84	84-86.9	87-89.9	90-92.9	93-95.9	96-98.9	99-101.9	>101.9
		Quota Count:	EXEMP	QC/0.25	QC/0.5	QC/1	QC/2	QC/4	QC/8	QC/16
Aeroplane	Engine	Remarks								
B737-800	CFM56-7B27	27000lb SLST			66.36					
B737-900	CFM56-7B26	26000lb SLST			66.81					
B747-100	JT9D-3A (DRY)	100 “CN” nacelles							265.35	
B747-100	JT9D-3A (DRY)	100 “D” nacelles						265.35		
B747-100	JT9D-3A (WET)	100 “CN” nacelles							265.35	
B747-100	JT9D-3A (WET)	100 “D” nacelles						265.35		
B747-100	JT9D-7/7A	200 “CN” nacelles						265.35		
B747-100	JT9D-7/7A (DRY)	100 “D” nacelles						265.35		
B747-100	JT9D-7/7A (DRY)	200 “B” nacelles						265.35		
B747-100	JT9D-7/7A (WET)	100 “D” nacelles						265.35		
B747-100	JT9D-7/7A (WET)	200 “B” nacelles						265.35		
B747-100	JT9D-7/7A/7AH	100 “CN” nacelles							265.35	
B747-100	JT9D-7J	Operated at -7A rating with 100 “CN” nacelles							265.35	
B747-100	JT9D-7F versions								E	
B747-100/200/300	JT9D-7R4G2	with -300R nacelles						285.76		
B747-100/200/300	RB211-524B2							265.35		
B747-100/200/300	RB211-524C2							265.35		
B747-100/200/300	RB211-524D4						289.99	302.00		
B747-200	JT9D-70A							285.76		
B747-200	JT9D-7F							285.79		
B747-200	JT9D-7J	200”CN” nacelles						265.35	285.76	
B747-200	JT9D-7Q							304.48		
B747-200	RB211-524D4-19/22							285.76		
B747-200	RB211-524D4X-19/22						289.89	302.09		
B747-200/-300	CF6-50B2							272.20		
B747-200/-300	CF6-50E/E1							285.76		
B747-200/-300	CF6-50E2							285.76		
B747-200B	CF6-50E							265.35		
B747-200B	JT9D-3A (DRY)	200”B” nacelle						265.35		
B747-200B	JT9D-3A (DRY)	200”CN” nacelles						265.35		
B747-200B	JT9D-3A (WET)	200”B” nacelles						265.35		
B747-200B	JT9D-3A (WET)	200”CN” nacelles						265.35		
B747-200B	JT9D-7/7A (DRY)	200”B” nacelle						265.35		
B747-200B	JT9D-7/7A (DRY)	200”CN” nacelle						265.35		
B747-200B	JT9D-7/7A (WET)	200”CN” nacelle						265.35		
B747-200B	JT9D-7/7A (WET)	200”B” nacelle						265.35		
B747-200B,-200 C/F	JT9D-7F or -7J	200”CN” nacelles						265.35	285.76	
B747-200B	RB211-524D4	RRN nacelles					285.76			
B747-200F	CF6-50E2							299.37		
B747-200F	JT9D-70A	ROHR supplied nacelles						285.76		
B747-300	CF6-50E2							285.76		
B747-300	CF6-80C2B1						298.69	320.00		
B747-300	JT9D-7R4G2							285.76		
B747-300/200 B,C & F	CF6-50E							285.76		
B747-400	CF6-80C2B1F	with and without the N1 modifier					295.74			
B747-400	PW4056	Package B/Phase 1 engine					285.76			
B747-400	PW4056	Package B/Phase 1 engine (FB2B)					285.76			
B747-400	PW4056 (-3)	Phase III (FB2C)					285.76			
B747-400	PW4056						295.08			
B747-400	PW4056 (-1C)	Package A/B Phase 1 (FB2C)					295.74			
B747-400	PW4056 (-3)	Applicable to S/N 26055 and 26056					285.76			
B747-400	PW4056 (-3)	Basic rating 56750lb Phase III(FB2C)					295.74			
B747-400	PW4056 (-3)	Phase III (FB2C) & Noise reduction inlet				285.76	295.74			
B747-400	PW4056 (-3)					285.76	302.09			
B747-400	RB211-524G						295.74			
B747-400	RB211-524H2						295.74			
B747-400D	CF6-80C2B1F	With N1 Modifier					270.80			
B747-400D	CF6-80C2B1F						270.80			
B747-400F	CF6-80C2B1F						302.09			
B747-400F	CF6-80C2B5F						302.09			
B747-400F	PW4056(-1C)	Pkg A/B Ph I (FB2C) & Noise reduction inlet				285.76	302.09			
B747-SP	JT9D-7A						210.92			
B747-SP	JT9D-7F						215.46			
B747-SP	JT9D-7J						215.46			
B747-SP	RB211-524B2						204.12			
B747-SP	RB211-524D4							185.97		
B747-SR	JT9D-7A							255.83		
B747SR/-100	CF6-45A2	With -200 “GB” nacelles						255.83		
B747SR/-100/200/300	JT9D-3A	“100CN” nacelle					188.99	208.65		
B747SR/-100/200/300	JT9D-3A	“200CN” nacelle					199.19	235.87		
B747SR/-100/200/300	JT9D-7	“100CN” nacelle					198.99	235.87		
B747SR/-100/200/300	JT9D-7	“200CN” nacelle					208.64	244.94		
B747SR/-100/200/300	JT9D-7A	“100CN” nacelle					202.19	235.87		
B747SR/-100/200/300	JT9D-7A	“200CN” nacelle					213.79	255.83		
B747SR/-100/200/300	JT9D-7F	“100CN” nacelle					188.49	215.46		
B747SR/-100/200/300	JT9D-7F	“200CN” nacelle					198.39	235.87		

E – QC estimated

Noise classification according to type – ARRIVALS

ARRIVALS			Maximum certificated take-off weight – tonnes							
		Noise Level Band (EPNdB):	<84	84-86.9	87-89.9	90-92.9	93-95.9	96-98.9	99-101.9	>101.9
		Quota Count:	EXEMP	QC/0.25	QC/0.5	QC/1	QC/2	QC/4	QC/8	QC/16
Aeroplane	Engine	Remarks								
B747SR/-100/200/300	JT9D-7J	"200CN" nacelle					198.39	235.87		
B757-200	PW2037				93.89					
B757-200	PW2040				93.89					
B757-200	RB211-535C					95.25				
B757-200	RB211-535E4			95.26						
B757-300	RB211-535E4B			101.61						
B767-200	CF6-80A					131.60				
B767-200	JT9D-7R4D	Package "A" Eng. Install No.BG700 series				120.00	131.54			
B767-200	JT9D-7R4D	Package "B" Eng. Install No.BG800/BG900 series				118.00	131.54			
B767-200	JT9D-7R4E					136.07	163.30			
B767-200/-200 ER	CF6-80A2	50KLb rating				136.08				
B767-200/-200 ER	CF6-80C2B				136.08					
B767-200/-200 ER	CF6-80C2B2				136.08					
B767-200/-200 ER	CF6-80C2B2F2				131.50					
B767-200/-200 ER	CF6-80C2B4				136.08					
B767-200/-200 ER	CF6-80C2B4 F	N1 modifier			136.08					
B767-200/-200 ER	JT9D-4RE					119.34	136.05			
B767-200/-200 ER	JT9D-7R4D						122.47			
B767-200/-200 ER	JT9D-7R4E						136.08			
B767-200/-200 ER	JT9D-7R4E4						136.08			
B767-200/-200 ER	PW4050				125.90					
B767-200/-200 ER	PW4052 (FB2T)				136.08					
B767-200/-200 ER	PW4056 (FB2B)				136.08					
B767-200/-200 ER	PW4056 PHASEIII (FB2C)	With noise reduction inlet			136.08					
B767-200/-200 ER	PW4060				125.90					
B767-200/-200 ER	PW4060 PHASEIII (FB2C)	With noise reduction inlet			136.08					
B767-200/-200 ER	PW4060A				125.90					
B767-300	CF6-80C2B6F	With N1 modifier			140.40					
B767-300 & -300ER	CF6-80C2B2F				139.30					
B767-300 & -300ER	CF6-80C2B4				145.15					
B767-300 & -300ER	CF6-80C2B6				145.15					
B767-300 & -300ER	CF6-80C2B6 (fadec)				145.15					
B767-300 & -300ER	CF6-80C2B7F (fadec)				145.15	154.22				
B767-300 & -300ER	PW4056 (FB2B)					145.15				
B767-300 & -300ER	PW4056 PHASEIII (FB2C)	With noise reduction inlet			145.15					
B767-300 & -300ER	PW4060 (FB2B)					145.15				
B767-300 & -300ER	PW4060 PHASEIII (FB2C)	With noise reduction inlet			145.15					
B767-300 & -300ER	PW4062 PHASEIII (FB2C)	With noise reduction inlet			145.15					
B767-300 & -300ER	RB211-524G				134.59	145.15				
B767-300 & -300ER	RB211-524H				134.59	145.15				
B767-400ER	CF6-80C2B8F				158.76					
B777-200	GE90-76B				201.70					
B777-200	GE90-85B				208.65					
B777-200	GE90-90B				208.65					
B777-200	GE90-94B				208.65					
B777-200	PW4077	At 77,000lb sea level static thrust				201.85				
B777-200	Trent 877					201.85				
B777-200	Trent 895					213.19				
B777-200 IGW	PW4090					201.85	208.65			
B777-200 IGW	Trent 890					208.65				
B777-300	Trent 892					237.68				
BAe 1-11 Series 200	Spey 506-14, A, AW or D	With mod.5320 Parts A,D & E				32.21				
BAe 1-11 Series 300	Spey 511-14 or -14W	With mod.5320 Parts A, B, D & E				32.56				
BAe 1-11 Series 400	Spey 511-14 or -14W	With mod.5320 Parts A, B, D & E				32.56				
BAe 1-11 Series 475	Spey 512-14DW	With mod.5320 Parts A, B, D & E				38.10				
BAe 1-11 Series 500	Spey 512-14 DW	With mod.5320 Parts A, B, D & E				39.46				
BAe 1-11 Series 510	Spey 512-14 E	With mod.5320 Parts A, B, D & E				39.00				
BAe 125-1000/-1000A	PW305/305B		12.93							
BAe 125-700A/-700B (HS)	TFE-731-3-1H	Reverse thrust mod.256991			9.98					
BAe 125-700A/-700B (HS)	TFE-731-3-1H			9.98						
BAe 125-800	TFE-731-5R-1H	With DH Reverser Mod 259283	10.59							
BAe 125-800	TFE-731-5R-1H			10.59						
BAe 125-800A/-800B	TFE-731-5R-1H	with DH Reverser mod.259283	10.59							
BAe 125-800A/-800B	TFE-731-5R-1H			10.59						
Bae 125-800XP	TFE-731-5BR-1H			10.59						
BAe 125 Series 1-(521) (HS)	Viper 521	Flap mod. 252672					8.21			
BAe 125 Series 1 (HS)	Viper 520	Flap mod. 252672					8.21			
BAe 125 Series 1A (HS)	TFE-731-3-1H	Mod. 252605			8.87					
BAe 125 Series 1A (HS)	TFE-731-3-1H	Mod.252606			8.87					
BAe 125 Series 1B (HS)	Viper 521	Flap mod. 252672					8.87			
BAe 125 Series 1B/R-522 (HS)	Viper 522	Flap mod. 252672					8.87			
BAe 125 Series 1B/S-522 (HS)	Viper 522	Flap mod. 252672					8.87			
BAe 125 Series 1B-522 (HS)	Viper 522	Flap mod. 252672					8.87			
BAe 125 Series 3A (HS)	TFE-731-3-1H	Mod. 252603			9.07					
BAe 125 Series 3A/RA (HS)	TFE-731-3-1H	Mod. 252600		9.07						
BAe 125 Series 3B (HS)	Viper 522	Flap mod. 252672					9.07			
BAe 125 Series 3B/RA (HS)	Viper 522	Flap mod. 252672					9.07			

E – QC estimated

Noise classification according to type – ARRIVALS

ARRIVALS			Maximum certificated take-off weight – tonnes							
		Noise Level Band (EPNdB):	<84	84-86.9	87-89.9	90-92.9	93-95.9	96-98.9	99-101.9	>101.9
		Quota Count:	EXEMP	QC/0.25	QC/0.5	QC/1	QC/2	QC/4	QC/8	QC/16
Aeroplane	Engine	Remarks								
BAe 125 Series 3B/RC (HS)	Viper 522	Flap mod. 252672					9.07			
BAe 125 Series 400A (HS)	TFE-731-3-1H	Mod. 252550		9.07						
BAe 125 Series 400B (HS)	Viper 522	Flap mod. 252672					9.07			
BAe 125 Series 403B (HS)	Viper 522	Flap mod. 252672					9.07			
BAe 125 Series 600A (HS)	TFE-731-3-1H	Mod. 252468			9.98					
BAe 125 Series 600A and B (HS)	Viper 601-22	Silencer mod. 252405					9.98			
BAe 125 Series 600B (HS)	Viper 601-22					9.98				
BAe 125 Series F3B (HS)	TFE-731-3-1H	Eng. mod.252603			9.07					
BAe 125 Series F3B/RA	TFE-731-3-1H	Eng. mod.252551		9.07						
BAe 125 Series F400 (HS)	TFE-731-3-1H	Eng. mod.252551		9.07						
BAe 125 Series F600B (HS)	TFE-731-3-1H	Eng.mod.252469			9.98					
BAe 146-100	ALF 502R-3				32.82					
BAe 146-100	ALF 502R-4				32.82					
BAe 146-100	ALF 502R-5	Plus option 71/1		33.27						
BAe 146-100-20	ALF 502R-3	Plus option71/1		33.27						
BAe 146-100-20	ALF 502R-3				33.27					
BAe 146-100-20	ALF 502R-3A	Plus option71/1		33.27						
BAe 146-100-20	ALF 502R-4	Plus option71/1		33.27						
BAe 146-100-20	ALF 502R-4				33.27					
BAe 146-100-21	ALF 502R-5			33.27						
BAe 146-100-31	ALF 502R-5	Plus option71/1		35.15						
BAe 146-100A	ALF 502R-3A	Plus option71/1		33.27						
BAe 146-200	ALF 502R-3	Plus option71/1		35.15						
BAe 146-200	ALF 502R-3A	Plus option71/1		35.15						
BAe 146-200	ALF 502R-5	Plus option71/1		36.74						
BAe 146-300	ALF 502R-5	Plus option71/1		38.33						
BAe 146-300	LF 507-1F or -1H				40.14					
BAe 146-RJ100	LF 507-1F	(AVRO 146-RJ100)			40.14					
BAe 146-RJ70	LF 507-1F	(AVRO 146-RJ70)			37.88					
BAe 146-RJ85	LF 507-1F	(AVRO 146-RJ85)			38.56					
BAe 748 Series 1 (Avro)	RR Dart 514						E			
BAe 748-2A	RR Dart 532-2						19.51			
BAe 748-2A	RR Dart 534-2	With either BAe mod. 6408 or 6517		19.51						
BAe 748-2B	RR Dart 534-2, 535-2 or 536-2	With either BAe mod. 6408 or 6517	19.50							
BAe 748-2B	RR Dart 534-2, 535-2 or 536-2						19.51			
BAe ATP	P&W PW126				22.25					
BAe ATP	P&W PW126A				22.25					
BAe Herald	RR Dart Mk 527				E					
BAe Herald	RR Dart Mk 532-9				E					
BAe Jetstream 3100	Garret TPE 331 series		6.60							
BAe Jetstream 3200	TPE331-12UA(R)-701H	Dowty propeller R333/4-82-F/12	7.35							
BAe Jetstream 3200	TPE331-12UA(R)-702H	McCauley propeller 4HFR34C653/L106FA	7.35							
BAe Jetstream 41	TPE331-14GR-801H(L)/14HR-801H(R)		10.12							
BAe Vanguard Freighter	RR Tyne Mk 506				E					
BAe Viscount	RR Dart 7/1 Mk 525				E					
Beech 200	PW PT6A-41	Hartzell propeller HC-D4N-3 A/D-9383K	5.67							
Beech 200 or C12F	PW PT6A-41	McCauley propeller 4HFR34 C754/94LA-0	5.67							
Beech 200 or 200C	PW PT6A-41	Hartzell propeller HC-B3TN-3Gor-3N	5.67							
Beech 350	PW PT6A-60A	Hartzell propeller HC-B4MP-3C/M10476N	6.80							
Beech 400	JT15D-5		6.44							
Beech 400A	JT15D-5			6.85						
Beech B200, B200C,B200CT	PW PT6A-42	Hartzell propeller HC-B3TN-3G/T10178HB-3R	5.67							
Beech B200, B200C,B200CT	PW PT6A-42	McCauley propeller 3GFR-34C702/100LA-2	5.67							
Beech B300	PW PT6A-60A	Hartzell propeller HC-B4MP-3/M10476K	6.80							
Beech F33	Continental IO-520-B	McCauley propeller 3A32C76/82NB-2 (Bonanza)	1.54							
Beech MU300	JT15D-4		5.99							
Beech MU300-10	JT15D-5		6.44							
Beechcraft King Air C90A	PW PT6A – 21		4.58							
Beechcraft S/King Air 200	PW PT6A – 135		4.94							
Bell 206B3	Allison 250-C20B or C20J	JetRanger		E						
Bombardier Global Express	BR700-710A2-20	Model BD700-1A10	35.66							
Britt-Norm Islander	LYC. 0-540-E4C5		2.99							
Canadair CL-600	ALF-502L-2		16.33							
Canadair CL-600-2B16	CF34-3A2		16.33							
Canadair CL-600-2B19	CF34-3B		17.24							
Canadair CL-601	CF34-1A		16.33							
Canadair CL-601	CF34-3A		16.33							
Canadair Regional Jet	CF34-3A1		21.32							
CASA C-212-CB	Garret TPE 331-5-251C		6.26							
CASA C-212-CC	Garret TPE 331-10-501C		7.35							
CASA CN-235	GE CT7-7A		14.20							

E – QC estimated

Noise classification according to type – ARRIVALS

ARRIVALS			Maximum certificated take-off weight – tonnes							
		Noise Level Band (EPNdB):	<84	84-86.9	87-89.9	90-92.9	93-95.9	96-98.9	99-101.9	>101.9
		Quota Count:	EXEMP	QC/0.25	QC/0.5	QC/1	QC/2	QC/4	QC/8	QC/16
Aeroplane	Engine	Remarks								
Cessna 310R	Continental IO-520-M		2.50							
Cessna 404	Pratt & Whitney PT6A-34	Titan	3.81							
Cessna 404	TCM-GTSIO-520-M	Titan	3.81							
Cessna 421C	TCM-GTSIO-520-L	Golden Eagle	3.36							
Cessna 500/501 Citation I	JT15D-1/-1A		5.13							
Cessna 501 Citation I	Williams FJ44-2A		5.15							
Cessna 525A	Williams FJ44-2C		5.22							
Cessna 550 Citation II	JT15D-4		6.12							
Cessna 550 Citation Bravo	PW530A		6.12							
Cessna 560 Citation V	JT15D-5A		6.90							
Cessna 560 Citation Ultra	JT15D-5D		6.90							
Cessna 560 Citation XL	PW 545A			8.48						
Cessna 560 Citation XLS	PW 545B		8.48							
Cessna 650 Citation VI	TFE731-3B-100S			9.07						
Cessna 650 Citation VII	TFE 731-4R-25		9.07							
Cessna 750 Citation X	Allison AE3007A		14.42							
Cessna F406 Caravan II	PW PT6A-112		4.47							
Cessna T310R	Continental TSIO-520-B		2.50							
Concorde	RR Olympus593 Mk 610									185.07
Convair 580	Allison 501-D13H				23.59					
Dassault Mercure 100A	JT8D-15						50.30			
Dassault Mercure 100B	JT8D-15						52.16			
DC10-10	CF6-6D1A							164.88		
DC10-10/-15	CF6-50C2-F						164.50			
DC10-10/-15	CF6-6K						164.90			
DC10-30/30F	CF6-50A							186.43		
DC10-30/30F	CF6-50C							186.43		
DC10-30/30F	CF6-50C1							186.43		
DC10-30/30F	CF6-50C2							197.60		
DC10-30/30F	CF6-50C2-R							192.32		
DC10-30/30F	CF6-50C2B							192.32		
DC10-40	JT9D-20							182.80		
DC10-40	JT9D-20J							E		
DC10-40	JT9D-59A							182.80		
DC3 (or C47 Dakota)	PWR-1830				E					
DC6	PWR2800-CB3				E					
DC8-54F	JT3D-3B	BAC Hushkit							113.12	
DC8-61	JT3D-3B	QNC PLS quiet nacelle						108.86		
DC8-61	JT3D-3B	QNC quiet nacelle						108.86		
DC8-61F	JT3D-3B	BAC quiet nacelle						112.49		
DC8-61F	JT3D-3B	QNC quiet nacelle						112.49		
DC8-62	JT3D-3B	ADC Hushkit							113.40	
DC8-62	JT3D-3B	BAC/MGM Hushkit				108.86				
DC8-62	JT3D-3B	TNC Hushkit						113.40		
DC-8-62F	JT3D-3B	Noise Reduction Nacelles STC SA4892NM				121.11				
DC8-62	JT3D-7	W/ADC QN Hushkit							113.40	
DC8-62	JT3D-7	W/TNC QN Hushkit						124.74		
DC8-62/-62F	JT3D-7	BAC II Hushkit STC SA4892-NM					108.86			
DC8-62/-62F	JT3D-7	BAC II Hushkit STC SA5455-NM					113.40			
DC8-63F	JT3D-3B	BAC II Hushkit STC SA5455-NM					121.11			
DC8-63	JT3D-7	BAC/MGM Hushkit					124.74			
DC8-63F	JT3D-7	BAC Hushkit STC SA4892-NM					121.11			
DC8-63	JT3D-7	TNC Hushkit						124.74		
DC8-71	CFM56-2-C1				117.03					
DC8-71	CFM56-2C5				108.86					
DC8-72	CFM56-2-C1				113.40					
DC8-72	CFM56-2-C3				108.86					
DC8-73	CFM56-2-C1				124.74					
DC9-10	JT8D-7						37.06			
DC9-10	JT8D-7/-7A					37.06				
DC9-10(ABS)	JT8D-7/7A/7B			37.06						
DC9-14/15	JT8D-7/7A	Hardwall						37.06		
DC9-21	JT8D-11						42.37			
DC9-30	JT8D-7	ABS Hushkit (STC SA1613GL)			45.81					
DC9-30	JT8D-11	Hardwall					46.27			
DC9-30	JT8D-11/9/15	At -9 rating all with acoustically treated nac. to SCN3891/3894				44.50				
DC9-30	JT8D-17					44.50				
DC9-30	JT8D-9	Hardwall					46.27			
DC9-40	JT8D-11					46.27				
DC9-40	JT8D-15					46.27				
DC9-50	JT8D-17					49.90				
DC9-51	JT8D-51A	ABS Partnership Chapter 3 Hushkit			49.90					
DHC-6 Twin Otter	PW PT6A – 20		5.25							
DHC-7-101	P&W PT6A-50		18.60							
DHC-7-103	P&W PT6A-50		19.05							
DHC-8-101	UACL P&W PW120 or PW120A				15.38					
DHC-8-102	UACL P&W PW120 or PW120A				15.38					

E – QC estimated

Noise classification according to type – ARRIVALS

ARRIVALS			Maximum certificated take-off weight – tonnes							
		Noise Level Band (EPNdB):	<84	84-86.9	87-89.9	90-92.9	93-95.9	96-98.9	99-101.9	>101.9
		Quota Count:	EXEMP	QC/0.25	QC/0.5	QC/1	QC/2	QC/4	QC/8	QC/16
Aeroplane	Engine	Remarks								
DHC-8-311	UACL P&W PW123				19.05					
Dornier 328-100	PW119B or PW119A		13.23							
Dornier 328-300	PW306B		14.09							
EH Industries EH101	GE CT7-6A						14.60			
Embraer Bandeirante EMB-110	PW PT6A – 34		5.67							
Embraer EMB-120	P&W PW-115 or -118		10.83							
Embraer EMB-121	Pratt & Whitney PT6A-28	Xingu	E							
Embraer EMB-135	Rolls Royce AE3007A1		18.50							
Embraer EMB-145	Allison AE3007A		18.70							
Eurocopter AS355F1	Allison 250-C20F				2.40					
Eurocopter AS355N	Arrius 1A			2.54						
Eurocopter BO 105 DB	Allison 250-C20B					E				
Eurocopter BO 105 DBS-5	Allison 250-C20B					E				
Eurocopter EC135T1	Turbomeca Arrius 2B1			2.84						
Fairchild SA227-AC	Garrett TPE-331-11U		6.35							
Fairchild SA227-AT	Garrett TPE-331-11U-601E	Merlin MC	5.62							
Fairchild SA227-AT	Garrett TPE-331-11U-601G	Merlin MC	6.35							
Falcon 10	TFE 731-2			7.80						
Falcon 20	TFE 731-5BR-2C		13.10							
Falcon 20	CF700-20-2						12.38			
Falcon 200	ATF3-6-4C			12.52						
Falcon 2000	CFE 738-1-1B	With Dee Howard TR 6000 thrust reverser		14.97						
Falcon 2000	CFE 738-1-1B			14.97						
Falcon 50	TFE 731-3				16.19					
Falcon 50	TFE731-3-1C				16.19					
Falcon 900	TFE 731-5A		19.05							
Falcon 900	TFE 731-5AR-1C		19.05							
Falcon 900B	TFE 731-5BR-1C		19.05							
Fokker F27 Mk050	Pratt & Whitney 125B				18.99					
Fokker F27 Mk200,400,500,600	RR Dart 500 series	With hushkit mod.1800		19.73						
Fokker F27 Mk.200,400,500,600	RR Dart 500 series				19.73					
Fokker F28 Mk070	RR Tay 620-15		36.74							
Fokker F28 Mk0100	RR Tay 620-15			38.78						
Fokker F28 Mk0100	RR Tay 650-15			39.92						
Fokker F28 Mk1000	Spey Mk555-15	5 chute nozzle plus tailpipe liner				26.76				
Fokker F28 Mk1000	Spey Mk555-15N/P	5 chute nozzle plus tailpipe liner				26.76				
Fokker F28 Mk2000	Spey Mk555-15	5 chute nozzle plus tailpipe liner				26.76				
Fokker F28 Mk2000	Spey Mk555-15N/P	5 chute nozzle plus tailpipe liner				26.76				
Fokker F28 Mk3000	Spey Mk555-15H	5 chute nozzle plus tailpipe liner				29.03				
Fokker F28 Mk3000	Spey Mk555-15H	Unsilenced				29.03				
Fokker F28 Mk4000	Spey Mk555-15H	5 chute nozzle plus tailpipe liner				29.03				
Fokker F28 Mk4000	Spey Mk555-15H	Unsilenced				29.03				
Fokker F28 Mk4000	Spey Mk555-15P	5 chute nozzle plus tailpipe liner				31.53				
Fokker F28 Mk6000	Spey Mk555-15H	5 chute nozzle plus tailpipe liner			31.30					
Gulfstream G-I	RR Dart Mk 529				E					
Gulfstream G-II	RR Spey 511-8	with tip tanks			E					
Gulfstream G-II	RR SPEY 511-8				26.54					
Gulfstream G-IIB	RR Spey 511-8	Quiet Technology Stage 3 hush kit (STC 02618AT)			26.54					
Gulfstream G-III/-IIB	RR SPEY 511-8				26.54					
Gulfstream G-IV	TAY 610-8		26.54							
Gulfstream G-IV	TAY 611-8		26.54							
Gulfstream G-V	BR700-710A1-10		34.16							
Gulfstream G-V SP (G550)	BR700-710C4-11		34.16							
Guppy	Allison 501 D22C	Hamilton Standard 54H60-123/7111B-2 propeller				E				
IAI 1124	TFE 731-3-1G		8.62							
IAI Astra SPX	TFE 731-40R-200G		9.39							
IL-18D	IVA1-20M					52.60				
IL-62M	D-30Ku	With noise suppressors				107.00				
IL-62M	D-30Ku						107.00			
IL-76T(TD)	D-30KP (D-30KP 2 ser.)								151.50	
IL-86	NK-86							175.00		
IL-96-300	PS-90A						175.00			
Learjet 23	CJ610-1/-4	Raisbeck Mk II			5.40					
Learjet 24	CJ610-1/-4	Raisbeck Mk II			5.40					
Learjet 24/24D	CJ610-6					5.40				
Learjet 24D	CJ610-6				5.40					
Learjet 24E	CJ610-6			5.40						
Learjet 24F	CJ610-6			5.40						
Learjet 24F-A	CJ610-6			5.40						
Learjet 25	CJ610-6					6.03				
Learjet 25 B/C/D/F XR	CJ610-6/8A					6.03				
Learjet 28/29	CJ610-8A					6.49				
Learjet 31A	TFE 731-2-3B		7.26							
Learjet 35/36	TFE 731-2-2B		6.49							

E – QC estimated

Noise classification according to type – ARRIVALS

ARRIVALS			Maximum certificated take-off weight – tonnes							
		Noise Level Band (EPNdB):	<84	84-86.9	87-89.9	90-92.9	93-95.9	96-98.9	99-101.9	>101.9
		Quota Count:	EXEMP	QC/0.25	QC/0.5	QC/1	QC/2	QC/4	QC/8	QC/16
Aeroplane	Engine	Remarks								
Learjet 35A	TFE 731-2-2B		6.49							
Learjet 35A/36A	TFE 731-2-2B		6.94							
Learjet 45	TFE731-20			8.70						
Learjet 45	TFE731-20R			8.70						
Learjet 55	TFE 731-3A-2B		7.71							
Learjet 60	PW305A		8.85							
Learjet M55	TFE 731-3A	Aeronca thrust reverser	7.71							
Learjet M55	TFE 731-3A	Std. nozzle	8.17							
Learjet M55C	TFE 731-3A-3AR	With reverser	8.17							
Learjet M55C	TFE 731-3A-3AR -3B	With reverser	8.17							
Lockheed L1011-1	RB211-22B						162.39			
Lockheed L1011-100	RB211-22B						166.92			
Lockheed L1011-200	RB211-524B					166.92				
Lockheed L1011-385-1-14 & -15	RB211-22B(+SB 72-8700)						166.92			
Lockheed L1011-385-1 -15	RB211-22B						166.92			
Lockheed L1011-385-1 -15 193T	RB211-22B						162.40			
Lockheed L1011-50	RB211-22B					162.39				
Lockheed L1011-500	RB211-524B					166.92				
Lockheed L1011-500	RB211-524B3					166.92				
Lockheed L1011-500	RB211-524B4						166.92			
Lockheed 1329-23E (Jetstar)	TFE 731-31E				16.33					
Lockheed L 188A	Allison 501D-13				43.39					
Lockheed L 188C	Allison 501D-13				44.50					
Lockheed L382G Hercules	Allison 501-D22A	Military version C130			61.24					
MD-11	CF6-80C2D1F						213.87			
MD-11	PW4460						213.87			
MD-11 Freighter	PW4462						218.41			
MD-80	JT8D-209		58.97							
MD-80	JT8D-217			68.00						
MD-80	JT8D-217A			68.00						
MD-80	JT8D-217C			68.00						
MD-82	JT8D-217C			68.00						
MD-82	JT8D-219			68.00						
MD-83	JT8D-219			68.00						
MD-87	JT8D-217A			58.97						
MD-87	JT8D-217C			59.00						
MD-87	JT8D-219			59.00						
MD-88	JT8D-219			63.28						
MD-90-30	IAE V2525-D5		64.41							
MD 900 Explorer	PW 206A		2.84							
Mooney M20J	Lycoming IO-360-A3B6D		1.22							
Mooney M20K	Teledyne TSIO-360-GB1		1.32							
Partenavia P68B	LYC. IO-360-A1B6		1.99							
Piaggio P-180	PW PT6A-66		4.94							
Piper PA-23-250	LYC. IO-540-C4B5		2.36							
Piper PA-E23-250	LYC. IO-540-C4B5		2.36							
Piper PA-31-350	LYC. TIO-540-J2BD		3.18							
Piper PA-31	LYC. TIO-540-2AC		2.95							
Piper PA-34-200T	Lycoming TSIO-360-E	Seneca II	2.09							
Piper PA-34-200T	Teledyne TSIO-360-E	Seneca II	2.09							
Piper PA-34-220T	Continental TSIO-360-KB	Seneca III	2.13							
Piper PA-60-600P	LYC. IO-540-S1A5/-P1A5		2.72							
Puma (ECF) SA330F/G	Turbemeca IVA						E			
Raytheon 390 Premier 1	Williams-Rolls FJ44-2A		5.35							
Rockwell Commander 690C	Garrett TPE 331-625-4K	Turbo Commander	4.68							
SAAB SF340A	GE CT7-5A		12.02							
SAAB SF340A	GE CT7-5A2		12.04							
SAAB SF340A	GE CT7-7E		12.02							
Sabreliner 65	TFE 731-3R		9.89							
Sabreliner 80	CF700-2D-2					9.98				
SE210 Caravelle B3	JT8D-7							49.44		
SE210 Caravelle B3	JT8D-9							49.44		
Shorts Belfast	RR Tyne 12					104.30				
Shorts SD330	P&W PT6A-45R		10.25							
Shorts SD360	P&W PT6A-65AR		11.84							
Shorts SD360	P&W PT6A-65R		11.84							
Shorts SD360-300	P&W PT6A-67R			12.02						
Sikorsky S76A	Allison 250-C30S						E			
Sikorsky S76B	P&W PT6B-36A						E			
Sikorsky S76C+	Turbomeca Arriel 2S1					5.31				
SN-601 Corvette	JT15D-4		6.00							
Swearingen Merlin III	TPE331-11U-601G		E							
Transall C160	RR Tyne MK22			47.00						
TU-134	D-30 I ser.					40.00				
TU-134A	D-30 II ser.						43.00			
TU-134A-3	D-30 III ser.					43.00				
TU-134B	D-30 II ser.						43.00			

E – QC estimated

Noise classification according to type – ARRIVALS

ARRIVALS			Maximum certificated take-off weight – tonnes							
		Noise Level Band (EPNdB):	<84	84-86.9	87-89.9	90-92.9	93-95.9	96-98.9	99-101.9	>101.9
		Quota Count:	EXEMP	QC/0.25	QC/0.5	QC/1	QC/2	QC/4	QC/8	QC/16
Aeroplane	Engine	Remarks								
TU-134B-3	D-30 III ser.					43.00				
TU-154	NK-8-2u							78.00		
TU-154M	D-30 Ku-154 (SAM)	With noise suppressors					80.00			
TU-204-100	PS-90A					88.20				
TU-204-120C	RR RB211-535E4			89.50						
VFW 614	Rolls Royce/SNECMA M45H Mk501				19.95					
Yak-40	A1-25					14.70				
Yak-42	D-36	With noise suppressors					50.00			
Yukon						E				

E – QC estimated

ANNEX E – Partial Regulatory Impact Assessment (RIA)

Title

1. Night Flying Restrictions at Heathrow, Gatwick and Stansted: Consultation on Restrictions to apply from 30 October 2005 – Partial RIA

Purpose and intended effect of measure

The objective

2. To renew night flying restrictions for Heathrow, Gatwick and Stansted airports which would otherwise lapse on 30 October 2005. To ensure that an appropriate balance is struck between environmental and economic considerations, taking into account latest developments in aircraft technology, fleet mix and legal obligations. The restrictions and assessment procedures need to comply with EU Directive 2002/30/EC.

Devolution

3. Not relevant. These restrictions apply only to Heathrow, Gatwick and Stansted airports.

Background

4. There have been restrictions on night flights at Heathrow Airport since 1962, at Gatwick since 1971 and at Stansted since 1978; but not a total ban. The underlying principle of the restrictions is to preserve a balance between the need to protect local communities from excessive aircraft noise at night, and permitting the operation of services which provide economic benefits.

5. The current restrictions, introduced in October 1999 after extensive consultation, comprise a maximum number of movements which can be made each season with a quota, related to an aircraft's noise classification on take-off or landing, as a supplementary measure designed to encourage the use of quieter aircraft. The movements limits and quotas apply from 2330 to 0600 (the Night Quota Period (NQP)). There are also restrictions on the noisiest types of aircraft which also cover the 'shoulder' periods from 2300 to 2330 and from 0600 to 0700, to provide further protection.

6. The present regime was originally intended to apply to 31 October 2004. Previous practice has been to review the night restrictions at Heathrow, Gatwick and Stansted about every five or six years. This enables us to take account of technological improvements (*e.g*. quieter aircraft), the findings of sleep research and related matters.

The Government has made commitments to review aspects of the regime in light of the publication of various technical documents[1], and in statements made in the decision letter on Heathrow Terminal 5[2].

7. In April 2003 we published a consultation document proposing to extend the existing restrictions for a further year. This reflected the fact that consultation was under way on a document about The Future of Air Transport in the United Kingdom: South East, which led to the White Paper, *The Future of Air Transport*, published in December 2003. The Government also wanted to await the judgment from the Grand Chamber of the European Court of Human Rights on an action brought by 8 individuals against the 1993 night restrictions regime at Heathrow. The April 2003 consultation document also explained how the policy environment was changing in relation to European legislation and how the introduction of two new European Directives, on Noise Related Operating Restrictions and on the Assessment and Management of Environmental Noise, were going to affect the night restrictions regime.

8. Following consultation the Government announced that it would extend the current night flying restrictions to October 2005. *The Future of Air Transport* White Paper published in December 2003 stated that we would begin consultation on a new night noise regime in 2004. As discussed in the consultation paper, the current regime will be extended for a further year from October 2005 to October 2006. We consider this rollover to be unavoidable and therefore the Regulatory Impact Assessment discusses proposed changes to the night restrictions regime which would commence in October 2006.

9. The night noise regime consultation is being conducted in two stages, as described in more detail below. The Stage 1 consultation paper, issued in July 2004, explained how we intend to carry out assessments to comply with European Directive 2002/30/EC on noise related operating restrictions (see further note below) and produce a draft Regulatory Impact Assessment. The Government is now proceeding with Stage 2 which involves detailed proposals for the operational controls and invites comments on the costs and benefits of these proposals.

The Hatton case

10. On the 8 July 2003 the European Court of Human Rights, sitting as a Grand Chamber, delivered its verdict in the case of *Hatton and Others v. the United Kingdom*.

11. This case was brought in 1997 by eight residents living in the vicinity of Heathrow who alleged that Government policy on night flights at Heathrow (in the form of the night noise regime introduced in 1993) gave rise to a violation of their rights under Article 8 of the Convention for the Protection of Human Rights and Fundamental Freedoms. The court decided that there had been no violation of Article 8. The Court found that the decision taken by Government establishing the night noise regime of 1993-1998, was taken

1 *Quota Count validation study; Noise Measurement and Analysis*: ERCD Report 0205, April 2003.
A Practical Method for Estimating Operational Lateral Noise Levels: ERCD Report 0206, April 2003.
Review of the Quota Count System used for administering the night noise quotas at Heathrow, Gatwick and Stansted Airports. DfT administrative report, 2003.
Review of the Quota Count (QC) System: Re-analysis of the differences between Arrivals and Departures: ERCD Report 0204, November 2002.

2 Decision letter of 20 November 2001.

properly and struck a fair balance between the rights and interests of the individuals affected by the night noise and the conflicting rights and interests of others and the community as a whole. This judgement has cleared the way for a thorough review of policy on night flights at Heathrow, Gatwick and Stansted Airports.

European Directives

Directive 2002/30/EC: Noise Related Operating Restrictions

12. European Directive 2002/30/EC of 28 March 2002 reflects the 'balanced approach' to aircraft noise management recommended in October 2001 in Resolution A33-7 of the 33rd Assembly of the International Civil Aviation Organisation (ICAO). Under the Directive, any operating restrictions at the largest airports (including Heathrow, Gatwick and Stansted) have to take into account costs and benefits of measures, be non-discriminatory on grounds of nationality or identity of air carrier or aircraft manufacturer and be no more restrictive than necessary in order to achieve the environmental objectives for a specific airport. Performance-based operating restrictions must be based on the noise performance of the aircraft as determined by ICAO certification procedures (*i.e.* all types of aircraft must be treated consistently according to their performance in certification, and the certification values may not be amended for particular types of aircraft based on operational noise levels). The Directive has been incorporated into UK legislation by The Aerodromes (Noise Restrictions) (Rules and Procedures) Regulations 2003.[3]

Directive 2002/49/EC: Assessment and Management of Environmental Noise

13. This is a measure that refers to noise from all transport modes (including major roads, railways and airports), industry and significant population clusters ('agglomerations'). The Directive was published on 25 June 2002 and the Government is in the process of transposing it into UK law. The Directive seeks to harmonise the measurement and assessment of noise, principally by requiring a programme of strategic noise maps with the first round to be completed by 2007. The Government is also currently developing a separate National Ambient Noise Strategy for England, which will build on the requirements of Directive 2002/49/EC. The Department for Transport is working with the Department for Environment, Food and Rural Affairs on this subject.

Background position at the airports concerned

The Pattern of Night Flights

14. The contribution of aviation to GDP is about 2%. Passengers on night flights at Heathrow, Gatwick and Stansted accounted for about 10% of passengers at these airports which, in turn, accounted for more than half of passengers at UK airports in 2003. If one were to assume that the value of these night flights was in proportion to passenger shares, this would imply a value of about £700million.

3 SI 2003 No.1742.

15. Clearly, this would be a crude assumption. Value added per passenger may not be the same as at other airports and other times, and the economic benefits of night flights in overall terms may (for example) encompass economies in asset utilization. Comments of consultees on these issues, either at a general level or in relation to their particular circumstances, will be welcome.

Heathrow

16. At Heathrow Airport, traffic during the night is predominantly **long haul** arrivals, mostly from the Far East and North America. There are operational constraints relating to these aircraft which must be taken into account: for example, flight-time, stop-overs and time-zones. In some cases reciprocal arrangements are in place. Some of the flights that take off from Heathrow in the late evening before the night restrictions apply are allowed to land at other airports, *e.g.* Sydney, in their night period.

17. Almost 40% of long-haul flights arrive before 0700, particularly in the hour beginning 0600. They dominate the night period (2300-0700) and, although far less numerously, also the night quota period (2330-0600). Long haul departures occur at the start of the night period but are of greater importance in the hour preceding the night period, when short haul services are also significant. Services from Australia and the Far East are the major generators of flights within the night quota period while North Atlantic flights are the major source of long haul services in the hour beginning 0600. Services from a few countries account for about 60% of night flights and illustrate the different timing of long haul services.

18. The main generator of early morning flights before 0600 is the Far East and these include many Australian flights which fly *via* Bangkok and Singapore in order to provide convenient connections there as well as at Heathrow. The most commercially attractive departures from the Far East are those leaving in the late evening, since this allows business passengers to avoid flying during daylight hours and to connect with the first wave of short-haul departures from Heathrow. With flight-times of about 13 hours and local times about 7 hours ahead of the UK, this implies timetabled flight times of about 6 hours and results in London arrivals clustered around 0500-0600 local time. The transatlantic flights allow for passengers wishing to depart at the end of the working day and mostly reflect East Coast timings of flight times of about 7 hours and, with local times about 5 hours behind the UK, a timetabled flight time of about 12 hours, leading to a concentration of arrivals from the US between 0600 and 0700.

Gatwick

19. **Charter services** accounted for about 60% of the flights operated in the night period in summer 2003 at Gatwick. **Scheduled services** accounted for most of the remainder, with traditional carriers operating twice as many flights as no-frills airlines in the night period but split broadly equally in the night quota period (no-frills carriers have increased their presence at Gatwick since 2003 and these proportions may have since changed). **Freight services** were about 5% of total night flights but about twice this percentage in the night quota period. Scheduled services, overall, were a lower proportion

of flights in the night quota period than in the night period and thus charter and freight services were of slightly greater importance in the night quota period when, together, they accounted for about three-quarters of movements.

20. At Gatwick, night flights allow charter airlines to operate a daily rota of 3 flights per aircraft which allows their aircraft to be intensively used. Civil Aviation Authority (CAA) statistics suggest daily utilisation of about 12 hours compared with about 8 hours for traditional scheduled carriers. The more intensive utilisation allows fixed costs to be spread over more flights and helps to provide competitively priced flights.

21. This pattern tends to imply that starting with a first UK departure at 0600, and a journey time of about 2½ hours to a Mediterranean resort, the start of the third rotation tends to depart the UK at 2100 and to arrive back in the UK at 0300-0400. Charter departures thus tend to be either late evening (mostly outside the night period) or in the early morning at the end of the night period, with arrivals spread throughout the night period.

22. Similar considerations apply to the no-frills carriers which, like charter carriers, utilise their aircraft more intensively than traditional scheduled carriers. The time difference with continental Europe also pushes no-frills carriers flight departures into the early morning in order to provide the possibility of day return business trips. They also operate later departures from Europe than traditional scheduled airlines. These factors lead to a night period pattern at Gatwick of arrivals in the late evening and very early morning, which may reflect the general difficulty of obtaining slots at Gatwick, and of departures in the early morning. The main difference in the pattern between traditional scheduled carriers and no-frills airline night flights lies in the absence of significant very early morning arrivals for the former.

23. Freight services have a peaked pattern of arrivals and departures in the night period, reflecting the pattern of their time-sensitive operations.

Stansted

24. Flights during the night period are largely accounted for by **no-frills carriers**, (which are the main type of passenger airline at Stansted) and by **freight** services, for which Stansted night flights play an important role in the hub operations of the time-sensitive freight and parcels sectors.

25. The pattern of no-frill carriers follow that of Gatwick with a night period pattern of arrivals in the late evening and very early morning. It lacks the pattern of arrivals in the middle of the night period (0100-0400) that was a characteristic of nfc operations at Gatwick in Summer 2003 and is therefore more sharply differentiated between the start and end of the night period than at Gatwick.

26. A broad allocation of freight services between general freight and express parcels services has been made using the airline operator as the identifying factor. This shows that express night flights, although only about 20% of all freight night flights, had an impact broadly equivalent to other freight services. This reflects the size and type of aircraft used by the two freight categories with express flights tending to be noisier than other freight services.

27. Express flights are of greater relative importance in the very early hours of the night quota period and exhibit the pattern that might be expected of a time-sensitive operation of parcels for next day delivery.

28. Other freight services generally follow this broad pattern but arrivals and departures are less sharply differentiated.

Structure of the consultation

29. Consultation is being carried out in two stages. The issues relating to the way aircraft are classified for night restrictions purposes needed to be explored in Stage 1 so that the effects of different options for the length of the night quota period, the size of the noise quotas and movements limits and the ratios between them can be assessed properly in Stage 2.

Stage 1

30. The Stage 1 consultation paper focused on issues around the classification of aircraft, set out the intended length of the next regime, invited suggestions for environmental objectives and explored the contextual framework.

The Quota Count System

31. The Quota Count system of classifying aircraft was introduced in 1993. The system uses information from the aircraft's International Civil Aviation Organisation (ICAO) noise certification data and allocates each aircraft a Quota Count (QC) for arrival and for departure. An aircraft may have a different QC for arrival and departure. The current QC categories are Exempt (zero), 0.5, 1, 2, 4, 8 and 16. The QC categories are in 3dB bands, so that a doubling of QC corresponds to a doubling in noise energy for any given point within the 3dB range. The noisiest aircraft – classified as QC/8 or QC/16 – are not allowed to operate at night (2300-0700) other than in the most exceptional circumstances. The QC system was introduced to encourage the use of quieter aircraft at night. Each airport is allocated a noise quota and movements limit for each season which, after allowing for carry-over provisions, must not be exceeded. Jet aircraft with a maximum certified weight below 11,600 kg and propeller aircraft are exempt from the movements limits and noise quotas if the relevant adjusted noise certification data are less than 87 EPNdB.

Key elements of night restrictions proposals

32. The Stage 1 consultation document contained proposals to retain the QC system but introduce some amendments to current practice as follows:

Proposal to remove the weight limit on jet aircraft able to qualify as exempt but, at the same time, to introduce a new QC/0.25 band, below QC/0.5

33. Benefits: This proposal should strengthen the incentives to use quieter aircraft while preventing a proliferation of exempt jets, in the absence of a weight limit[4]. Removal of the weight limit would simplify the restrictions and relate them more closely to the noise nuisance itself. The proposal has been generally supported by consultees.

34. Costs: It would be difficult (or spuriously precise) to attempt a financial impact assessment for aircraft which were previously exempt now being given a QC weighting. Airlines were asked during stage 1 to provide financial information on the impact of the proposed changes to the QC system but submitted relatively little data. However, it appears that few airlines currently operating at night at any of the airports will be much affected in this way. The main operator whose aircraft are likely to move from the Exempt category to QC/0.25 is at Stansted and the number of movements is modest. We would not envisage the quota limit being set so stringently as to preclude the continued operation of the relevant services. However, operators will have the opportunity to comment on the prospective effect of the change.

35. The removal of the weight limit and the introduction of a new QC band would not – of themselves – have a direct cost. But they will allow Ministers to make final decisions about movements and quota limits more directly related to the noise nuisance caused by aircraft and would give positive signals to the industry about the introduction of quieter aircraft. For the purposes of making a working assumption, we expect that the introduction of these changes would not be used to reduce aircraft movements – rather it will introduce more appropriate regulation. Hence, the net economic and environmental effect of this change in itself should be small. But it will give airlines – especially those operating narrow-bodied aircraft – a stronger incentive than at present to introduce quieter aircraft (which would qualify for QC/0.25 assessment rather than QC/0.5) and should therefore incentivize an increase over time in the modernization of fleets.

Proposal to retain the minus 9 EPNdB adjustment for arrivals which takes account of the difference between the noise impacts of arrivals and departures.

36. The purpose of this adjustment is to take account of the difference between the noise impacts of arrivals and departures, due to the different measurement points and the larger size of departure noise footprints and thus the number of people likely to be affected. It allows departures and arrivals to be counted against the noise quotas on broadly equivalent terms. Further explanation and an assessment of whether the minus 9 EPNdB adjustment is still appropriate is contained in a report by the Environmental Research and Consultancy Department (ERCD) of the Civil Aviation Authority.[5] ERCD's conclusion was that the adjustment remains appropriate.

4 These effects of these proposals were analysed in *Review of the Quota Count (QC) System* amended 2004 (available on the DfT website).

5 *Review of the Quota Count (QC) System:* Re-analysis of the differences between Arrivals and Departures: ERCD Report 0204, November 2002

37. We therefore propose that this adjustment for arrivals will be maintained and that there will be no change between current practice and that applying from October 2006.

Proposal to ban the scheduling/operating of QC/4 aircraft in the current night quota period.

38. A voluntary ban on the scheduling of new services using QC/4 aircraft has applied for a number of years. As airlines have managed their fleet, the number of scheduled QC/4 services in the NQP has now reduced to one – a DAS Air Cargo flight using a DC10-30 from Gatwick Airport.

39. Benefits: The proposal to ban the **scheduling** of QC/4 aircraft will, in the overwhelming majority of cases, simply reflect current practice. It will give residents around all three airports the reassurance that the voluntary arrangements will be given firmer backing to prevent the noisiest types of aircraft currently allowed to fly at night from being scheduled to fly during the NQP. There would be a specific benefit to Gatwick residents from the change necessary to the DAS Air Cargo service.

40. Costs: DAS Air would be unable to continue with its current specific service unless the type of aircraft is changed (and, of course, will prevent any other operators, who might have wished to defy the voluntary ban, from doing so; but we are not aware of any such operators). DAS Air has not indicated exactly what the financial implications of this change are but they have indicated their intention – in any event – to use a different aircraft for this service. This will entail some financial cost to the operator, but there should also be some – at least partially offsetting – potential savings in terms of fuel and maintenance efficiency. The airline industry would lose the option to withdraw from the voluntary ban – there is no sign that any operator is seeking to do so.

41. A further proposal at Stage 1 was to go beyond a scheduling ban and introduce a ban on the **operation** of QC/4 aircraft during the current NQP. An operating ban would prevent QC/4 aircraft which were scheduled to fly before or after the NQP from taking off or landing if they are delayed at night or from arriving (or leaving) early in the morning.

42. The table overleaf shows the number of unscheduled flights by QC/4 aircraft in 2002-03, the latest year for which data is available. Many of these movements would have been delayed departures, early arrivals or emergencies.

Airport	Winter 2002–03		Summer 2003	
	No of movements by QC/4 aircraft	% age of total night movements	No of movements by QC/4 aircraft	% age of total night movements
Heathrow	66	2	159	5
Gatwick	112	3	162	2
Stansted	17	0.5	17	0.5

43. Benefits of a ban on QC/4 operations during the NQP: Enforcing a ban on these aircraft during the NQP might improve the noise environment around the three airports somewhat. We cannot precisely measure the impact, though the above table gives some feel for its order of magnitude – bearing in mind that most of these flights would still occur, but at times outside the NQP. Given that this is a small number of movements in any case, the benefit would be decidedly small.

44. Costs: The proposal to ban the operation of QC/4 aircraft during the NQP could cause serious disruption to individual passengers and airlines. The enforcing of a QC/4 ban at night would result in delayed services being grounded until the next morning when slot availability at each airport is usually scarce. Many of these services at Heathrow and Gatwick are long haul departures and it is not possible to move their schedules further back into the evening due to the destinations they are servicing. Passengers would have to be accommodated in hotels where available, at a cost to the airlines and inconvenience for the passenger.

45. The cost of precluding early arrivals by QC/4 aircraft would be less severe to passengers and airlines, but there would be corresponding costs in terms of time delay and fuel consumed while holding. There are also environmental disbenefits associated with this extra fuel consumption. The scope for adjusting schedules so as to reduce the probability of early arrivals has already been exploited to a significant extent and further re-scheduling far beyond 0600 would tend to affect capacity disproportionately.

46. Example: A number of QC/4 aircraft depart Heathrow between 2130 and 2230 local time. If a QC/4 operational ban were introduced in the NQP and these flights were delayed beyond 2330, taking them into the NQP, there would be a requirement for up to 375 passengers to be accommodated and transported. The cost to the airline would be in excess of £40,000 (this includes hotel accommodation, meals, transportation, communications, fresh on-board catering, administration and staff costs). Applying this cost to the 225 QC/4 movements at Heathrow in 2002/2003 would imply an aggregated cost of about £10million should these delayed departures not be allowed to occur in the future.

47. Risks: There are also operational restrictions to be taken into account, for example crew rest requirements. Airlines without a base at the airport from which they are operating may not have spare crew available to take over the flight. The resulting delay may also cause passengers to miss connecting flights, causing further disruption.

48. Having considered these issues at Stage 1, we do not propose to ban **operating** QC/4 during the NQP but will take into account any further relevant information provided in response to consultation in taking final decisions.

Stage 1 – conclusions

49. We intend to retain the QC system in its essentials. We also intend to remove the weight limit and introduce a new QC band as described above, retain the minus 9 EPNdB and introduce a ban on scheduling, but not on operating, QC/4 aircraft during the current night quota period.

Stage 2 consultation

50. The sections in the RIA below, setting out the options and the factors underpinning them, focus on the issues to be covered in the Stage 2 consultation.

Length of NQP

51. The Stage 2 consultation document will focus on proposals for the length of the night quota period, the movements limits and noise quota to apply during the NQP and any further controls to be introduced during the NQP. Further controls could include measures to prevent bunching (a series of aircraft movements in a short time period). These controls would be particularly relevant at the start and end of the NQP.

Other matters: insulation and noise monitors

52. The Stage 2 consultation document also includes proposals for further noise insulation schemes and the installation of two additional noise monitors at Heathrow.

Environmental objectives

53. The formulation of environmental objectives for each of the three airports was raised in the Stage 1 consultation paper. Directive 2002/30/EC required the designation of 'competent authorities', responsible for setting out the environmental noise objectives for each airport. The Secretary of State for Transport has competent authority status for the purposes of section 78 of the Civil Aviation Act 1982 at the designated airports (Heathrow, Gatwick and Stansted). The Department has set out Ministers' proposed objectives in the Stage 2 consultation paper.

Social and environmental impacts of night flying

54. The obvious impact of night flying is noise and disturbance to residents both in the immediate vicinity of the airport and further out. The proposed changes would not have a different impact on **poorer or richer communities** except by happenstance of geography, and by virtue of the fact that social welfare valuation of noise nuisance is assumed, on the basis of research, to be positively correlated with income and wealth. (However, this postulated correlation does not modify our proposals in any way.)

55. Responses to the Stage 1 consultation were received from around all three airports from a range of communities. For example, close to the airports may be found relatively low-income areas such as Hounslow to the east of Heathrow, and comparatively higher-income areas such as Windsor to the west, or Great Hallingbury near Stansted, or Charlwood near Gatwick. While it is true that there is some tendency for airport-related workers on relatively low incomes to choose to live close to the airports, and while aircraft noise tends to make house prices lower than they would be, ignoring other factors including airport-related influences, neither of these effects is sufficiently pronounced to result in a significant systematic bias of aircraft noise towards low income communities. There is also probably some offset from high income airport-related workers and frequent travellers choosing to locate near the airports.

56. The effects of noise on **wildlife and fauna generally** has been the subject of a limited number of research papers from which we may derive a number of conclusions, though these are based on general noise and not specifically night noise:

- noise which interferes with the specific aural stimuli of species *can* disrupt feeding, territorial and other behaviours, up to and including the abandonment of local habitats;

- sudden noise, such as from low-flying military jets or fast/low helicopters (or of course, in the limiting case, from fireworks or other explosions), can trigger a startle reflex in many species which may normally cause no apparent long-term harm but might possibly cause harm in the breeding season especially, or at other times; and

- civil jet aircraft noise away from the airports themselves does not appear to be a particularly significant likely risk factor. The onset is usually slow, so startle effects are relatively unlikely. (At night the lower ambient might tend to increase them, but the ban on the noisiest types of aircraft reduces this.) The overall noise levels will often not be greatly higher than those encountered from road, rail or other sources – which may be more tonal and in turn more distressing to animals as a result.

57. However, this consultation involves relatively marginal changes, which are highly unlikely to have any perceptible effect on wildlife. If there were ever in recent times any species near the airports which were liable to abandon their habitat in response to aircraft noise at levels currently experienced, it seems safe to assume that they would have done so previously. We are not, however, aware of any specific evidence of such abandonment. Similarly, if there is any startle effect in animals from noisy aircraft at night, it will have been reduced by the QC/8/16 ban and a formal scheduling or operational ban on QC/4 will further reduce such incidents.

Risk assessment

58. In the last 30 years there has been a five-fold increase in air travel and demand is projected to be between two and three times current levels by 2030. Air freight in the UK doubled in the two decades 1969 to 1989, doubled again in the decade to 1999 and is forecast to grow more rapidly over the next 10 years. Although air cargo, at 2.3 million tonnes a year, represents only a small proportion, by weight, of total freight movements, the emphasis on high value goods means that aircraft carry about one fifth of all UK exports of goods, by value.

59. The growth of passenger traffic has led both Heathrow and Gatwick to operate at or near to peak capacity throughout most of the day. This has left little scope for dedicated, all-cargo freighter flights from these two airports (around 70% of all air freight and parcels traffic is contained in the baggage holds of passenger aircraft). Freight traffic is growing rapidly at Stansted Airport. The small package/express parcel sector dominated by the four integrators, DHL, FedEx, TNT and UPS is the fastest growing part of the air freight market.

60. The impact of the current regime has been to control the numbers and types of aircraft which are permitted to fly at night and to encourage the use of quieter types, particularly at Stansted. The controls limit the environmental disbenefits of night flying and ensure an appropriate balance is reached between the environmental and economic considerations. The impact of the regime to apply from 2006 is likely to be assessed using the $L_{6.5}$ and/or L_{night} contours which were produced for Stage 1 of the consultation document. It has been long standing Government practice to produce, on an annual basis, 16 hour average summer daytime contours using the indicator L_{eq}[6]. Directive 2002/30/EC (described above) states that contours should be displayed, where available, using L_{night} described in Directive 2002/49/EC. L_{night} is based on the L_{eq} measurement and is an 8 hour measurement (2300-0700). We have no robust basis on which to interpret these contours in terms of precise levels of annoyance and/or sleep disturbance but they can be used to set objectives and broadly to compare the noise climate across different years. L_{night} contours for 2011 (or 2010) will be required for the second 'wave' of mapping required by Directive 2002/49/EC.

61. The effects of night flying upon individuals relate to sleep disturbance and annoyance. The relationship between these phenomena and aircraft noise levels has been quite extensively researched. Sleep disturbance has been found to occur to a statistically significant extent in response to aircraft noise events above about 90dBA SEL[7]. The incidence and nature of such sleep disturbance, even in comparatively noise-sensitive people, is such that the evidence[8] suggests that the probability of serious sleep deprivation and consequent health effects, purely as a result of aircraft noise events, is very low. Annoyance to those awake is a stressor, but has not been proven to result in any long term physical health effects such as cardio-vascular disease. Nevertheless, sleep disturbance does occur, and there is some very small residual risk that as-yet-undetected long-term effects of arousal from sleep and/or noise-related annoyance could occur. Night noise at Heathrow is, however, less intrusive now than it was 20 or 30 years ago.

62. Effects on property (specifically house) prices are likely to be more influenced by daytime air traffic noise, which is more extensive, than by night time, given the relative preponderance of the two and the fact that most night noise is to a large extent slept through. It is reasonable to suppose that the effects of night and daytime noise on property values are not the same, but the 'hedonic pricing' research from which the scale of such effects has been estimated (in the order of between 0.5 and 1% per dBA L_{eq} permanent change) does not allow the relative contributions of day and night noise to be shown.

6 Further information about L_{eq} is contained in ERCD Report 9023, *The Use of L_{eq} as an Aircraft Noise Indicator*, published 1990.

7 Sound Exposure Level — a measure of the overall level of a noise event standardized by compressing its energy as if it had a duration of exactly one second.

8 In particular, *United Kingdom Aircraft Noise Index Study: main report*, DR Report 8402 published 1985.
Report of a Field Study of Aircraft Noise and Sleep Disturbance, published December 1992.
Adverse Effects of Night-Time Aircraft Noise, DORA R&D Report 9964, published 2000.

Options

63. The fact that the consultation is being undertaken as the current night restrictions regime is due to expire complicates the assessment of options. More detail is given below, but there is not an option to do nothing and leave controls as they are at present.

'Do nothing' option

64. 'Doing nothing' is not realistic in this case. Doing nothing would result in the current restrictions lapsing and no new regime being introduced from October 2006. Although it is not possible to predict the exact demand for night flights (especially at Heathrow) if the restrictions were lifted, it would almost certainly result in a deterioration of the noise climate inconsistent with Government's (albeit qualified) collective policy to 'bear down on night noise' (*The Future of Air Transport,* para 3.12). It would also arguably not be consistent with the principles of the 'balanced approach' in EU Directive 2002/30/EC, nor with the basis of the Government's successful defence in the *Hatton* case determined in the Grand Chamber of the European Court of Human Rights.

Total ban on night flights

65. Introducing a total ban on night flights would also be inconsistent with the principles of the 'balanced approach' and EU Directive 2002/30/EC, unless Ministers were to decide to set environmental objectives for the airports so Draconian as to leave no realistic alternative. We believe, from what we have seen up to and including responses to Stage 1, that such objectives would not be justifiable on the basis of evidence as to the environmental costs and economic benefits. Although many respondents did advocate a ban either 2330-0600 or over the whole night period, in our view these respondents either under-estimated, or did not sufficiently consider, the economic benefits from these operations.

'No change' option

66. The no change option would be effectively to extend the existing regime for a period of at least one season (Winter 2006-07) or longer, without making any reconsideration of the regime as a whole. This option is highly undesirable. The Inspector in the Heathrow Terminal 5 enquiry invited the Government to review the length of the night quota period at the completion of the regime and to consult on options for extending the regime, and the Government agreed to do so in the T5 decision-letter. A full review has been necessary because commitments have been made in response to public inquiries and in *The Future of Air Transport* White Paper that a thorough review of the night restrictions would be carried out. Given the expiry of the current regime and the case for conducting a review before establishing a new regime, the 'no change' option is not one which we believe can be sustained in the medium or longer term.

Benefits of regularly reviewing the night restrictions regime

67. Regular review of the night restrictions regime allows local communities to seek worthwhile improvements in the night noise climate and allows the industry to effectively plan and schedule ahead. The Grand Chamber of the ECtHR, in the *Hatton* judgment, placed some weight on the practice of carrying out a regular review of the balance struck between the conflicting rights and interests involved. The World Health Organisation Guidelines for Community Noise (to which the Government is committed to have regard) also advise that noise standards (or regulations) should be regularly reviewed. Regular review also allows for advances in aviation technology and changes in fleet structure to be taken into account.

68. The consultation paper on *The Future Development of Air Transport: South East* invited views on whether a 5/6 year review cycle remained appropriate. Overall there was a low number of responses but there was no great demand for a change in the length of the night restrictions regime either from industry or local communities. The 5/6 year review cycle introduces stability both for airlines and for local communities, allowing them to plan ahead. Ministers have decided to proceed on the basis of a six-year regime.

69. The outcome of this review process need not result in extensive changes. Various aspects of the restrictions can be considered separately; it is the total impact of the restrictions that needs to be assessed in relation to costs and benefits.

Other options

70. In the light of Stage 1 responses, Ministers have decided to retain the QC system, subject to incorporation of the new QC/0.25 category. Ministers will now determine proposals for the length of the Night Quota Period (NQP), movements limits and quota limits and further controls during the NQP. The following proposals are put forward in Stage 2:

Proposals for consultation in Stage 2

- To extend the length of the night quota period. Ministers are minded to retain the present night quota period but invite views on the alternative scenario of applying L_{night} contour-based noise-abatement objectives for the whole night period and aiming to secure the achievement of these by setting quota and movements limits estimated to achieve that end. The regulatory impact assessment of this overall option entails looking separately at the effects of:

  a) including the half hour from 2300-2330

  b) including the half hours 0600-0630 and 0630-0700

- Further controls in the NQP (which Ministers do not intend to pursue for reasons explained below).

- Changes to the movements limits and noise quotas, taking account of the length of the NQP, identifying options and scenarios for each airport.

- To install two additional noise monitors at Heathrow.

- To introduce a further night noise insulation scheme (or to make non-statutory recommendations for such schemes) at each airport. (Note: recommendations for noise insulation criteria in *The Future of Air Transport* White Paper relate to daytime noise only)

71. Having considered the responses to Stage 1, Ministers are of the opinion that the creation of sub-periods within the NQP (either as it stands or if extended to cover the whole NP) would lead to unacceptable administrative complexity and to the likelihood of consequent delays to aircraft without concomitant environmental benefit.

72. However, the Government remains committed to consult on the option to extend the NQP and now does so in Stage 2, on the basis of an extension to cover the whole NP (2300-0700). Ministers are provisionally minded, on the basis of evidence received to date, to retain the existing NQP; but consultees are invited to comment further on the broad option for extension of the quota period; and on specific proposals for controls in the event that the quota period is extended in this way.

Benefits and costs

[It is simplest to consider benefits and costs together under each item sub-heading.]

The Night Quota Period

73. There has been a commitment outstanding from the decision on the Terminal 5 public inquiry – responding to the Inspector's concerns – that the Government would consult on possible extension to the night quota period. That process began at Stage 1.

74. There have been suggestions from consultees and stakeholders around the three airports that the night quota period should be extended to 8 hours, to accord with the present night period (2300-0700).

75. Air Transport Movements (ATMs) for Heathrow, Gatwick and Stansted during the night and night quota period for 2003 were as follows:

	2300-0700	2330-0600
London Heathrow	25,125	5,969
London Gatwick	25,910	13,155
London Stansted	21,332	9,046

76. At all three airports numerous movements occur just outside the night quota period, particularly at Heathrow between 0600-0700 and at Stansted between 2300-2330. At Heathrow and Stansted there are more ATMs in these two shoulder periods than in the whole night quota period.

77. It is convenient to subdivide RIA consideration of the extension between the evening and morning shoulder periods:

Extend the length of the Night Quota Period (NQP) to include 2300-2330

78. The effect of extending the NQP would, of course, depend on the specific movements limits and noise quotas to be set. The discussion of costs and benefits for each option below should be read bearing this in mind.

Costs

79. Long haul services scheduled to depart Heathrow shortly before 2300 would be at risk of operating in the new NQP should delays occur or being grounded until the following morning when slot availability is scarce. To avoid this, airlines would tend to schedule their departures some time before the start of the NQP and this is reflected in the substantial number of long haul departures in the hour beginning 2200 and relatively few between 2300-2330. Extending the NQP to 2300 would increase the number of scheduled operations at risk of being delayed into the NQP but it would be difficult to move these services further back into the evening to avoid this, due to operational constraints and time zone implications.

80. At Stansted, movements in the period 2300-2330 were equivalent to about one-half of those in the whole NQP in summer 2003. No-frills carriers, which are the dominant passenger operation, typically operate in the shoulder periods rather than in the NQP, and rely on four aircraft rotations per day to minimise their unit costs. An extension of the NQP to 2300 would (depending on the limits set) restrict the ability of low cost airlines to operate at these airports; or (in the alternative) may push up their unit costs if they had to recover the same aircraft costs from fewer services. (Aircraft-related costs might be in the order of 25% of total operating costs.) Such an outcome is likely to result in lower profits or an increase in average fares and affect their ability to compete with airlines at other airports where night noise restrictions had a lesser impact.

81. At Gatwick, the main shoulder usage is in the morning. Flights in the evening shoulder period were equivalent to 15% of those in the NQP compared with 80% for the morning shoulder of 0600-0700 when summer charter departures and scheduled services are the main users. Charter airlines also rely on operating several rotations each day as the basis of their business model but the main impact of extending the NQP is more likely to be felt in relation to its extension to 0600-0700.

Benefits – environmental and social

82. Extending the NQP to include the half hour 2300-2330 would result in a small decrease in the 8 hour night time contour and at each airport the population within the contour.

Extend the length of the NQP to include 0600-0630 and/or 0630-0700

Risks

83. Extending the NQP to include the half hours 0600-0630 and 0630-0700 would have a significant impact on airlines (providing there is no substantial increase in the movements limit and noise quota). At all three airports, the extended morning peak (starting at 0600) is the busiest period of day and there is little slot availability. The hour from 0700-0800 is very busy and there is little scope for movements currently scheduled between 0600-0700 to be rescheduled to 0700-0800.

84. Extension of the NQP accompanied by very stringent restrictions would be inconsistent with *The Future of Air Transport* White Paper which concludes that the best possible use should be made of the existing runways at the major South East airports.

85. Example: SAS operates two daily departures 0630-0700 at Heathrow. SAS says it would suffer a potential loss of about £20 million per year in revenue if these two services could not be flown. Later slots would be of less value since this would mean loss of connections at the destinations and loss of aircraft utilisation.

86. Newer carriers at Gatwick often operate between the hours of 0600-0659 as there are no slots available between 0700-1100 due to 'grandfather rights' at this congested airport. One airline has estimated that an extension of the NQP (assuming it would be accompanied by a decrease in actual movements during this time) would result in half of its Gatwick-based fleet becoming uneconomic, as it would not be possible to operate sufficient sectors per day if the first departure could not be scheduled until after the morning peak (1100).

87. Example: First Choice Airways have indicated that whole aircraft would become uneconomic and would probably be withdrawn if they were unable to operate aircraft in the 0600 – 0700 period. First Choice estimates the annual revenue from one of their aircraft to be £18million.

88. Example: Ryanair estimates that extensions of the NQP at Stansted (accompanied by significant reduction in movements) would reduce the efficiency of Stansted-based airlines by 20%.

Benefits – social and environmental associated with extending the Night Quota Period

89. The noise climate in the local community for the time period in questions would clearly improve if the NQP were extended to include these shoulder periods without an equivalent increase in the current movements limits and noise quotas. The 8 hour contour would decrease in area and the number of people within the contour would decrease. However, this would represent a drastic, and effectively arbitrary, reduction in permitted night flying. In the Government's view, the economic costs of pursuing noise abatement objectives, such as which would imply the need for such a reduction, would not be justified by the environmental benefit, substantial though this would be.

90. If the NQP is extended with an equivalent increase in movements limits and noise quotas, it would prevent any increase above current noise levels at the relevant times. Between these two extremes, the costs and benefits would correspondingly vary, but are difficult to quantify for the reasons explained elsewhere in this RIA.

91. There would not be an improvement to the local community if movements limits and noise quota were increased to accommodate current levels of demand or higher. Between these two extremes, the costs and benefits would correspondingly vary, but are difficult to quantify for the reasons explained elsewhere in this RIA. However, extending the NQP and setting movements limits and noise quotas to allow for current traffic would prevent a worsening of the noise climate from the present situation.

92. **Consultees, especially airlines and airport users, are asked to indicate what the financial and other effects on their business if they were no longer able to operate existing services in either the evening or morning shoulder periods, and/or were unable to introduce planned new services for which they might otherwise reasonably expect to obtain slots.**

93. **Consultees are also asked to indicate whether, if the NQP were extended to the whole NP (2300-0700), with an adjustment in the movements and quota allowance broadly reflecting current levels of activity, this would be likely to result in them rescheduling services from the services into the 2330-0600 period.**

Risks associated with extending the Night Quota Period

94. In order to accommodate the current scale and nature of operations during the periods 2300-2330 and 0600-0700 a substantial increase in the night time movements limits and noise quotas would have to be proposed.

Propose further controls in the NQP

95. One further possibility would be to apply separate – for example, hourly – limits, either throughout the night period, or perhaps to cover only the shoulder-hour 0600-0700.

96. Benefits: Introducing an hourly or other sub-period limit through the night period would allow fine tuning of permitted scheduling and operations and could – if very

carefully managed – be operated so as to avoid excessive holding on the approach and on the tarmac.

97. Risks: In general terms, the more the system would be 'compartmentalized', the more difficult it would be for Airport Co-ordination Ltd (ACL), the airports, scheduling committees, air traffic controllers and airlines to administer the system. It could be difficult to realize the potential benefits in avoiding congestion, because of the difficulty in managing (especially long-haul) traffic from gate to gate, in relation to upper airway winds and other operational variables. For this reason the Secretary of State is not proposing to proceed with this option, but will take into account any further relevant information provided in response to consultation in taking final decisions.

Propose changes to the movements limits and noise quotas

98. This section considers in general terms the proposition that the movements limits and noise quotas should be reduced, especially at Gatwick and Stansted where the seasonal limits do not currently bite in most seasons, so as to bring pressure for noise reduction over time and the use of quieter aircraft at night. (It is noted that the QC per movement will already have reduced at Stansted since 2002-03, in particular with the replacement of older Boeing 737 types with more modern, quieter ones.)

	Heathrow	Gatwick	Stansted
Winter	1.65	0.79	0.86
Summer	1.78	0.71	0.84

99. The basis of the QC system is to encourage the use of quieter aircraft by setting noise quotas and movements limits in such a way that it is beneficial for airlines to operate the quietest aircraft at night by allowing more movements of quieter aircraft. The first section below will present options based on the current night quota period (2330-0600) and the second section presents options based on an extended night quota period (2300-0700).

Key proposals for changes to movements limits and noise quotas – Heathrow

100. At Heathrow the movements limit and noise quota are both almost fully utilised, particularly in Winter. Therefore, unless the demand for night movements decreases (which we do not expect) the introduction of the new QC/0.25 band will not (it appears to us) materially incentivize the uptake of quieter aircraft during the NQP unless there is an increase in the movements limit.

101. Increasing the movements limits without an increase in noise quotas or progressively decreasing the noise quota over the course of the regime would encourage operators to use different, quieter aircraft during the NQP. Alternatively, maintaining the movements limits at the current level and progressively reducing the noise quotas over the course of the regime would also encourage the use of quieter aircraft without allowing the total number of movements to increase.

Benefits

102. Encouraging the use of quieter aircraft at Heathrow would help to improve the noise climate. This would also prevent a worsening of the noise climate around Heathrow.

Costs and risks

103. To the extent that airlines would be newly precluded from operating viable services, there would be commensurate disbenefits to passengers and to airline shareholders, and potentially indirect economic disbenefits to other service providers.

104. At the present time there is not a direct substitute for the Boeing 747-400 aircraft which make up most of the movements during the NQP at Heathrow which gives as much capacity and is able to complete the flying distance required. For some routes, it may be possible to operate other types with lesser (e.g. B777, A340) or eventually greater (A380) capacity, but effectively forced substitutions must be assumed to carry some economic cost to the operator at the margin. To replace the 747-400 with a 777 would require the operation of two services for which slots may not be available (especially for the daytime return journey) and would not be environmentally beneficial. There would also have to be an increase in the movements limits to enable the operation of two flights rather than one.

Proposed Movements Limits and Noise Quotas at Heathrow

Proposed movement limit[9]	Proposed quota[9]	Contour used for assessment of changes	Effect on predicted 2012 contour	Summary Noise Abatement Proposal
A. Existing Night Quota Period 2330 – 0600 (preferred option)				
2600 (W 2006/7) gradual increase to **2820** (W 2011/12)	**4080** (W 2006/7-2011/12)	6.5 hour L_{eq} 48dBA	Maintain 2002/3 area (about 55km^2)	Allow a small increase in movements without allowing an increase in total noise
3300 (S 2007) gradual increase to **3600** (S 2012)	5100 (S 2007-2012)			
B. Extended Night Quota Period 2300 – 0700 (alternative option)				
12400 (w 2006/7) gradual increase to **13740** (W 2011/12)	**19840** (W 2005/6-2010/11)	L_{night} (8 hour) 50dBA	Maintain 2003 area (about 92km^2)	Allow a small increase in movements without allowing an increase in total noise
17540 (S 2007) gradual increase to **19820** (S 2012)	**28060** (S 2007-2012)			

9 Actual numbers for each year throughout the regime are available in the main consultation document.

105. **Do you have any comments on the impact of these proposed limits to deliver our noise-abatement objectives and encourage the use of quieter aircraft at Heathrow?**

Alternative options for Heathrow

106. This consultation is undertaken on the basis that Ministers will reassess the proposals for noise-abatement objectives, and for the movements limits and noise quotas flowing from these, in the light of the responses received, final decisions will not be restricted to choices between discrete scenarios. However, it is helpful for illustrative purposes to compare stylized scenarios which can be simply interpreted.

107. An alternative at Heathrow is to retain the current movements limits and gradually to decrease the noise quotas to encourage the use of quieter aircraft. Provisionally this is not our preferred option. But we invite consultees to comment on this scenario and where applicable to indicate what they would expect the impact on their personal or business circumstances to be.

Key proposals for changes to movements limits and noise quotas – Gatwick

108. At Gatwick the movements limit and noise quota have not been fully used since the introduction of the current regime in 1999. The aviation industry experienced a general downturn after the events of 11 September 2001 in the USA and is now starting to recover. However, there is an assumption that the noise quota and movements limits could be reduced, closer to current usage levels, without causing disproportionate loss of net economic benefits.

Proposed movements limits and noise quotas at Gatwick

Proposed movement limits	Proposed quota[9]	Contour used for assessment of changes	Effect on predicted 2012 contour	Summary Noise Abatement Proposal
A. Existing Night Quota Period 2330 – 0600 (preferred option)				
3000 (W) (2006/7-2011/12)	**2500** (W 2006/7) gradual decrease to **1800** (W 2011/12)	6.5 hour L_{eq} 48dBA	Reduce area (to about 40km^2)	Bear down on the 2002/3 contour area to slightly below 2002/3 levels
10000 (S) (2007-2012)	**7000** (S 2007) gradual decrease to **5900** (S 2012)			
B. Extended Night Quota Period 2300 – 0700 (alternative option)				
6760 (w) (2006/7-2012)	**5800** (W 2006/7) gradual decrease to **4060** (S 2012)	L_{night} (8 hour) 50dBA	Reduce area (to about 43km^2)	Bear down on the 2002/3 contour area to slightly below 2002/3 levels
18020 (S) (2007-2012)	**13880** (S 2007) gradual decrease to **10700** (S 2012)			

109. **Do you have any comments on these proposals to reduce the movements limits and noise quotas closer to current usage levels at Gatwick?**

Alternative options for Gatwick

110. An illustrative alternative at Gatwick is to set movements limits and noise quotas at approximately the level of usage in 2002-03 but to spread the allocation more evenly between winter and summer. **We will welcome comments from consultees on this alternative scenario.**

Key proposals for changes to movements limits and noise quotas – Stansted

111. The average QC score at Stansted in summer 2003 was 0.84 and has since decreased, so currently stands at a relatively low level reflecting a preponderance of relatively low-noise, modern short-haul aircraft types. Stansted has grown very rapidly in recent years and this is expected to continue. Some growth at Stansted at night could be achieved by retaining the existing movements limits while maintaining the low average QC score. This allows the existing contour to expand slightly but retains it within the current implied limit.

Proposed movements limits and noise quotas at Stansted

Proposed movement limits	Proposed quota[9]	Contour used for assessment of changes	Effect on predicted 2012 contour	Summary Noise Abatement Proposal
A. Existing Night Quota Period 2330 – 0600 (preferred option)				
5000 (W) (2006/7-2011/12)	**3510** (W 2006/7) gradual decrease to **3310** (W 2011/12)	6.5 hour L_{eq} 48dBA	Allow contour to grow to about 38km^2	Allow opportunity for growth while maintaining low average QC score
7000 (S) (2007-2012)	**4900** (S 2007) gradual decrease to **4650** (S 2012)			
B. Extended Night Quota Period 2300 – 0700 (alternative option)				
7100 (W) (2006/7-2012)	**5700** (W 2006/7) gradual decrease to **4760** (W 2011/12)	L_{night} (8 hour) 50dBA	Allow contour to grow to about 45km^2	Allow opportunity for growth while maintaining low average QC score
14020 (S) (2007-2012)	**10520** (S 2007) gradual decrease to **9390** (S 2012)			

112. **Do you have any comments on these proposals to maintain movements limits at their current levels, which allows growth compared with current actual operations, while limiting the noise quota to produce a noise contour close to 38 km^2.**

Alternative option for Stansted

113. An alternative proposal for Stansted would be to reduce the contour to the present size (around 30km^2). This would require a substantial reduction in the average quota per movement from a present level of about 0.8 to around 0.5. Comments would be welcomed from consultees on this alternative scenario.

Propose the installation of two new noise monitors at Heathrow

114. A report[10] by the Environmental Research and Consultancy Department (ERCD) of the Civil Aviation Authority investigated the efficiency and placement of noise monitors around the three airports. The report identified that the effectiveness of the present monitoring arrangements could be significantly improved by the addition of two fixed monitors at Heathrow at specified locations (and by moving the present Stansted monitor number 7 to a new location closer to the centre line of the relevant noise preferential departure route and to where aircraft actually fly – this is being progressed and is not at issue in this consultation process: negotiations are ongoing with landowners to resite monitor number 7 at Stansted).

115. Benefits: Installing these new noise monitors allows for more effective monitoring of aircraft noise. It will also somewhat increase the incentive to airlines to comply with existing departure noise limits.

116. Moving an existing monitor to another location within the range of the positional adjustments does not require any form of cost benefit assessment or extensive consultation.

117. Costs: The costs of providing and running the noise monitors (including the proposed new monitors) are borne by the airport companies. We expect the cost of installing two new monitors to be in the region of £20,000.

Introduce a further night noise insulation scheme at each airport

118. Proposals for new noise insulation criteria, relating specifically to night noise, were outlined in Stage 1. In Stage 2 we formalise these proposals. The new night-time noise insulation proposals are based on representative aircraft types at each airport. **These proposals are on the basis that a QC/4 operational ban will not be introduced.**

10 *Departure Noise Limits and Monitoring Arrangements at Heathrow, Gatwick and Stansted Airports,* RE Cadoux and JA Kelly, ERCD Report 0207, 2003.

119. Benefits: Acoustic insulation helps to mitigate the scale of impact of aircraft noise, particularly when windows are kept closed. Households benefiting from insulation schemes based on night noise criteria which would not otherwise qualify, will also of course benefit from the effect of the insulation in the daytime to an extent which will depend on whether, for example, the insulation installed is limited to bedrooms.

120. Costs: It has been estimated that such a scheme, depending on the detailed rules, could cost the airport operator (BAA) very roughly in the order of £50 million. This could be taken into account in setting future airport charges, so that the costs would indirectly affect airlines and hence passengers. The cost of the scheme would depend crucially on the nature of the scheme introduced and take-up by affected residents. There is no simple 'right' answer to scheme design. The cost estimated above is based on an assumption that bedrooms of properties of the contour/footprint area would be insulated, that a significant majority of properties would already have insulation or would not take up the scheme and that there would be an average cost of £3,000 per dwelling. Further work would be needed by the airports to develop and implement a scheme if the Secretary of State requested or required it in the light of the consultation responses. This would entail substantial administrative costs for BAA as well as the direct cost of the insulation measures.

121. Although the schemes are not related, BAA intends to provide noise insulation to residential properties to address the impacts of future airport growth. This, BAA intends, will be assessed in 2007 using noise maps for 2006. Some of the dwellings eligible for noise insulation under this daytime-based scheme recommended in the White Paper may, by the time of implementation, already have been offered noise insulation under the night noise scheme.

122. **Do you have any comments about the proposals to introduce a noise insulation scheme?**

Issues of equity and fairness

Rural proofing

123. It has been suggested that there should be fewer night flights at Heathrow Airport because the surrounding area is densely populated and therefore more people will be affected. Some others suggested, on the other hand, that there should be fewer night flights at Stansted because the ambient noise is lower and aircraft noise is therefore more noticeable.

124. At Q8(b) of Stage 1, and paras 8.12-13, we referred to the WHO Guidelines which suggested that responses to aircraft noise were less likely, at the margin, than noise from other sources to be influenced by the level of ambient noise. Responses to this question did not persuade us not to take account of the WHO's view on this point.

125. Broadly, social attitude research does not support the proposition that aversion to aircraft noise is greater in rural than in urban areas, or in areas of low rather than high noise from other sources. Even to the extent that this may be the case, the Department's view is that it is greatly outweighed (when making a comparison of overall impact) by the greater numbers of people affected near Heathrow – justifying, in part, the lower movement and quota limits historically set and proposed to continue there.

126. The fact that the previously-set movements and quota limits at Heathrow are substantially lower than at the other two airports, whose hinterlands are much less densely populated, partly reflects this interpretation of the comparative environmental costs, as well as reflecting the different types of traffic which historically have demanded slots at night at these airports (e.g. the high charter airline presence at Gatwick).

127. It is intended to maintain the policy of common arrangements at the three designated airports – that is to retain a common regime structure but to set different movements limits and noise quota for each to take account of different circumstances at the three airports including traffic mix and the particularly high environmental impact of Heathrow operations.

Race equality impacts

128. Around the three airports the ethnic composition of the population differs. For example, Slough has the highest concentration of (non-white) ethnic minority groups outside London. Ealing, Lambeth, Southwark, Hounslow, Haringey and Lewisham are among the 20 local authority districts (across the UK) with the largest (non-white) minority populations. London contains more than three times the national average population of non-white groups. Sikh concentration is highest in Slough (9%) with similar proportions in Ealing and Hounslow. Although the ethnic population differs around the three airports, there is no evidence that the proposed policy could discriminate unlawfully directly or indirectly against people from some racial groups. The policy is not seen as favouring a particular group or denying opportunities to another.

129. In February 2004, the Department held a forum on night restrictions to enable interested groups to discuss the issues around night flying at Heathrow, Gatwick and Stansted. Representatives from local communities were invited (local authorities, local interest groups, non-governmental organisations, airline industry) to attend, and the forum helped frame proposals for the consultation exercise.

130. No responses to the stage one consultation[11] indicated that the proposals would impact on ethnic minorithy groups, therefore we conclude that there are no direct impacts on specific ethnic minority groups around the three airports.

131. The consultation is being advertised in local newspapers. We have made efforts to advertise in each authority around the three airports and will also advertise in publications aimed specifically at ethnic minority groups. The Commission for Racial

11 Summary of responses to the stage 1 consultation paper can be found on the DfT website at www.dft.gov.uk/aviation

Equality will also be consulted and, as with all stakeholders, their comments will be welcomed on any aspect of the consultation exercise.

Consultation with small business

132. We have consulted the Small Business Service and they concur with our initial view that these proposals will not have a significant impact on small businesses. However, we should of course very much welcome, as part of the consultation process, representations from small businesses and their representative organisations, should they feel there will be direct significant impacts arising from this proposal.

Competition assessment

133. Competition within the industry is affected by several constraints which mainly apply initially to daytime traffic.

Heathrow

134. There are three main factors which limit competition and have a greater influence on airline operations at Heathrow than the night restrictions regime. These are:

Infrastructure constraints – Runway capacity is severely restricted at Heathrow at most times of the day. Airlines need a pair of slots (landing and departure) to operate and, the unavailability of a corresponding daytime slot. The limited availability of corresponding daytime slots therefore restricts the ability of airlines to operate new night time services from Heathrow.

Air service agreements – for example, the bilateral agreement governing air services between the UK and US (Bermuda II) limits these services to only two airlines each from the UK and US at Heathrow. The four airlines with access to Heathrow are BA, Virgin, American Airlines and United. This is an international agreement which has to be adhered to in relation to Heathrow UK-US services which are an important component of night flights.

480,000 ATM limit – As part of the planning agreement for Terminal 5, Heathrow Airport is limited to 480,000 ATM (Air Transport Movements). As the airport is currently operating at approximately 465,000 there is therefore little room for growth in the number of movements even if infrastructure constraints were less severe.

135. The impact of night restrictions on competition, including options to tighten the current regime, need to be seen against the background of these general limitations to competition arising from infrastructure constraints resulting in highly restricted availability of daytime slots and bilateral agreements which limit the number of airlines that can compete on services to many destinations outside the EU.

136. London's huge catchment population means the Heathrow has a strong local base of point-to-point demand which underpins a strong network of short haul and long haul services. Heathrow's position as an international hub means that these services are

augmented by connecting traffic. Although there is a degree of substitution between airports for point-to-point traffic, this is in practice limited by the strong passenger preference for Heathrow which limits the relevant market for direct non-stop flights to Heathrow. The growth of no-frills carriers at other London airports has however begun to undermine Heathrow's past invulnerability to competition, even for time-sensitive short haul passengers. For connecting traffic, however, the relevant market is broader, as Heathrow competes with the major continental hubs (Paris, Amsterdam and Frankfurt), particularly for price-sensitive leisure passengers, but also for more time-sensitive business passengers where competing hubs may be able to offer swifter connections and, because of the time difference between UK and continental Europe, later local arrival times which intrude less into the night period. For example, most Far East arrivals at Heathrow arrive in the hour beginning 0500 but from 0600 at Frankfurt and Paris despite departing at similar times. Long haul services to these hub airports are likely to find it easier to avoid tighter night restrictions by re-timing their arrivals to, say, after 0700.

137. Potential impacts from night noise restrictions on competition can best be considered by looking at an extension of the night quota period from 0600 to 0700 while assuming no compensating increase in the noise quotas. Against the background of severe slot constraints at Heathrow, particularly in the busy early morning period, this would inevitably squeeze services out. For direct point-to-point services on primarily business routes these are less likely to switch to other London airports with the relevant market for local time-sensitive passengers essentially limited to Heathrow. Any substitution to the other London airports that might potentially take place would be limited in any event by a parallel extension of the night quota period (and constraint on available slots) at Gatwick and Stansted and capacity constraints, particularly at Gatwick. For connecting passengers, however, there will be more opportunities to substitute airports. Passengers changing planes at Heathrow would have the option of flying instead to continental hubs to make their connection. Long haul passengers may also have opportunities to substitute an indirect connecting service for a direct flight to the UK. So if a Far East service to Heathrow could no longer be operated, these Heathrow passengers may have the option of using continental hub airports like Paris and Frankfurt for their long haul leg. The effect of fewer long haul services at Heathrow, which are the main component of night flights, would be to diminish Heathrow's status as an international hub.

Gatwick

138. Although the aftermath of the recent downturn in traffic has provided a short breathing space, daytime availability of slots at Gatwick is also limited. Operations at Gatwick are a mixture of long haul services (principally airlines excluded from Heathrow by the Bermuda II agreement), short haul services, charter and increasingly no frills carriers. For all these services Gatwick benefits from the strength of its local catchment area but its services are more subject to competition from other airports than are those which use Heathrow. Although Heathrow competes with Gatwick, this is limited in practice by its severe slot constraints. For charter airlines, there is some competition from Stansted and Luton and with Manchester for some categories of charter traffic which is number two in the UK ranking of charter airports after Gatwick. For no-frills operations there is scheduled service competition from Stansted and Luton, particularly on leisure routes like Malaga. While the proportion of connecting passengers and range of long haul destinations is much smaller than at Heathrow, there will be competition from major continental hubs.

139. A tightening of the night restrictions at Gatwick along the lines of option 1b would result in the loss of a number of services which would not transfer to other London airports because of limited slot availability there. Where the same destinations are served from Heathrow, time sensitive passengers in particular may switch there but will face an increase in air fares as capacity constraints bite harder and prevent additional services being provided to cope with the additional demand. Connecting passengers may have the opportunity to change planes at other hub airports on the continent. If the number of daily rotations made by charter aircraft is reduced, this will increase their unit operating costs, resulting in an increase in the price of charter holidays where operators can pass this on, or lower profits or service withdrawal where they cannot. For some niche services and for passengers with origins to the north-west of London, Manchester may provide an alternative airport for charter passengers.

Stansted

140. Stansted is the major UK base for no-frills carriers which accounts for over 70% of the movements there. In addition freight services operate from Stansted for which night time operations are important. Stansted's position as the major NFC airport in the UK is underpinned by London's huge local catchment, but for this market there is a competition from Gatwick and Luton, and from Birmingham to a lesser degree. For freight, especially express parcels, East Midlands is the main competing UK airport.

141. With a tightening of night restrictions along the lines of option 1b, there is a risk that this will undermine the NFCs' business model and result in a reduction of daily rotations. The strength of Stansted as the main NFC base in the UK may provide some scope for higher average costs being passed on to the passengers through in increased fares. Tightening capacity constraints at South East airports means that the opportunities for NFCs to move out of Stansted are limited, but tighter night noise constraints may result in them operating more new services from Luton and Birmingham than otherwise. (There is no significant capacity for airlines to move services to Heathrow or Gatwick, particularly with an extension of the night quota there). Similarly for freight, there will be some scope for switching operations to East Midlands, subject to the (voluntary self-regulating) night restrictions there.

142. **Are there any further competition issues which you think we should consider when making decisions about the night restrictions regime?**

Enforcement and sanctions

143. The night restrictions regime is published twice a year as a supplement to the UK Aeronautical Information Package (UK AIP).

144. In accordance with the Civil Aviation Act 1982 (Section 78, subsections 3 and 6), the BAA airports are responsible for monitoring the aircraft movements at Heathrow, Gatwick and Stansted to ensure that they comply with the night restrictions regime including departure noise limits and that noise preferential routes are followed. BAA may surcharge

an airline for breaching the departure noise limits (£500 or £1000 depending on the severity) and for flying outside the noise preferential routes. Money raised from these surcharges (the amounts are currently small, as shown in Annex C) is used to support local community projects. The airport operator is better placed to deal with queries concerning noise and noise preferential routes using the data from the Noise and Track Keeping (NTK) system that it operates. BAA is able to follow up any complaints or concerns with the airlines as appropriate and we require them to provide regular reports, in a form approved by the Aircraft Noise Monitoring Advisory Committee, to each airport's Consultative Committee.

Monitoring and review

145. Consultation documents may be subject to judicial review. Permission to seek judicial review of the Stage 1 consultation was granted on a Ground relating to interpretation of article 4.4 of Directive 2002/30/EC. The proceedings were stayed by Court Order, and the consultation can proceed to Stage 2.

146. The night restrictions regime is monitored by the airport operator. BAA provides regular reports to the airport Consultative Committees and the Department for Transport regarding the usage of the movements limit and noise quota. The success of the proposed scheme will be indicated by the ease of administration of the regime and by the airports meeting the noise-abatement objectives, established through the consultation procedure and outlined above, without undue and disproportionate economic cost to the airlines and their customers. The regime is reviewed every 5 or 6 years; this regime will apply from October 2006 to October 2012 and indeed the consultation on new measures arises because of the Government's commitment to keep the regime under review.

Consultation

Within government

147. Defra, DTI, Department of Health and HM Treasury have all been informally consulted on the issues raised during the Stage 1 consultation exercise. The Stage 1 paper reflected input from Defra officials.

Public consultation

148. Stage 1 of the public consultation exercise about the night restrictions regime to apply from October 2005 was carried out from July to October 2004. The consultation document was sent to more than 800 interested parties initially (including airlines, airport users, local authorities, environmental groups and individuals) and more than 450 copies of the paper were sent out on request during the consultation period. More than 1800 responses to the Stage 1 consultation have been received and these responses have helped to form proposals for the second stage consultation.

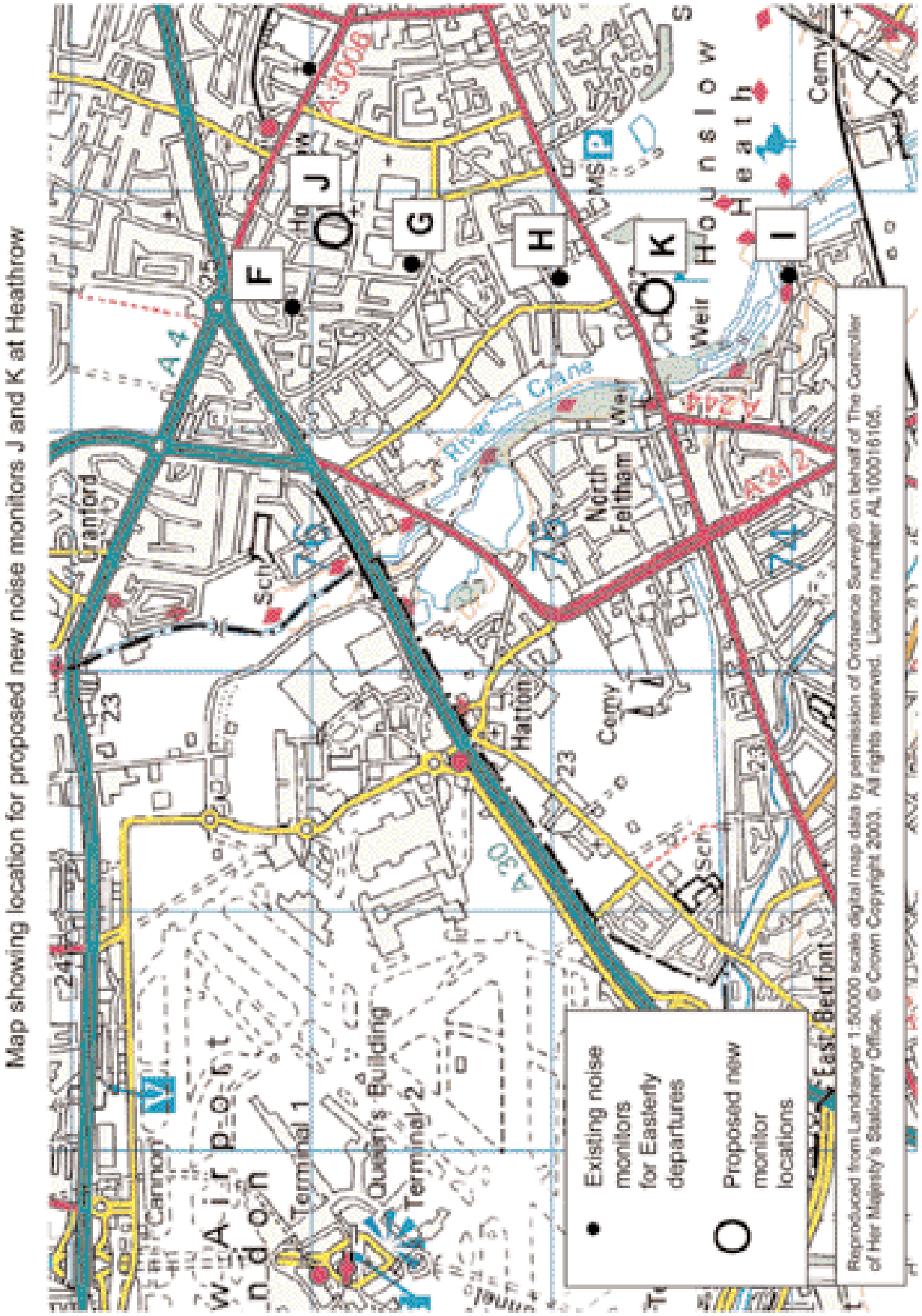
Summary and recommendation

148. This draft RIA does not include final recommendations on the controls, as it is being issued as part of the consultation process on the night noise regime at Heathrow, Gatwick and Stansted. It does, however, endorse the proposals set out in the Stage 2 consultation document as being, subject to consultees' responses, apparently compatible with bearing down on aircraft noise at night while striking a fair balance with social and economic considerations. Recommendations in a final RIA will follow consideration of responses to the consultation.

DfT
June 2005

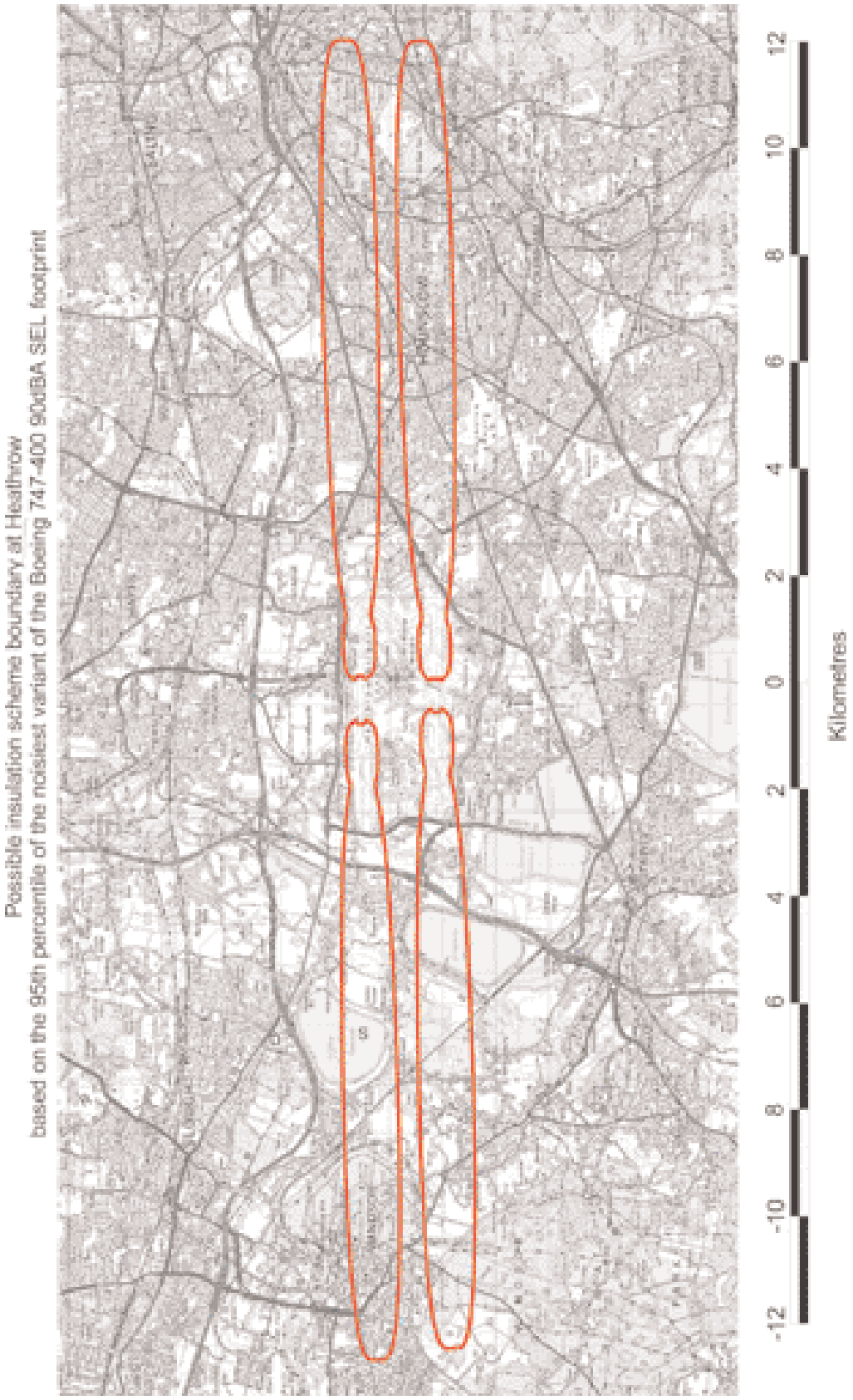
ANNEX F

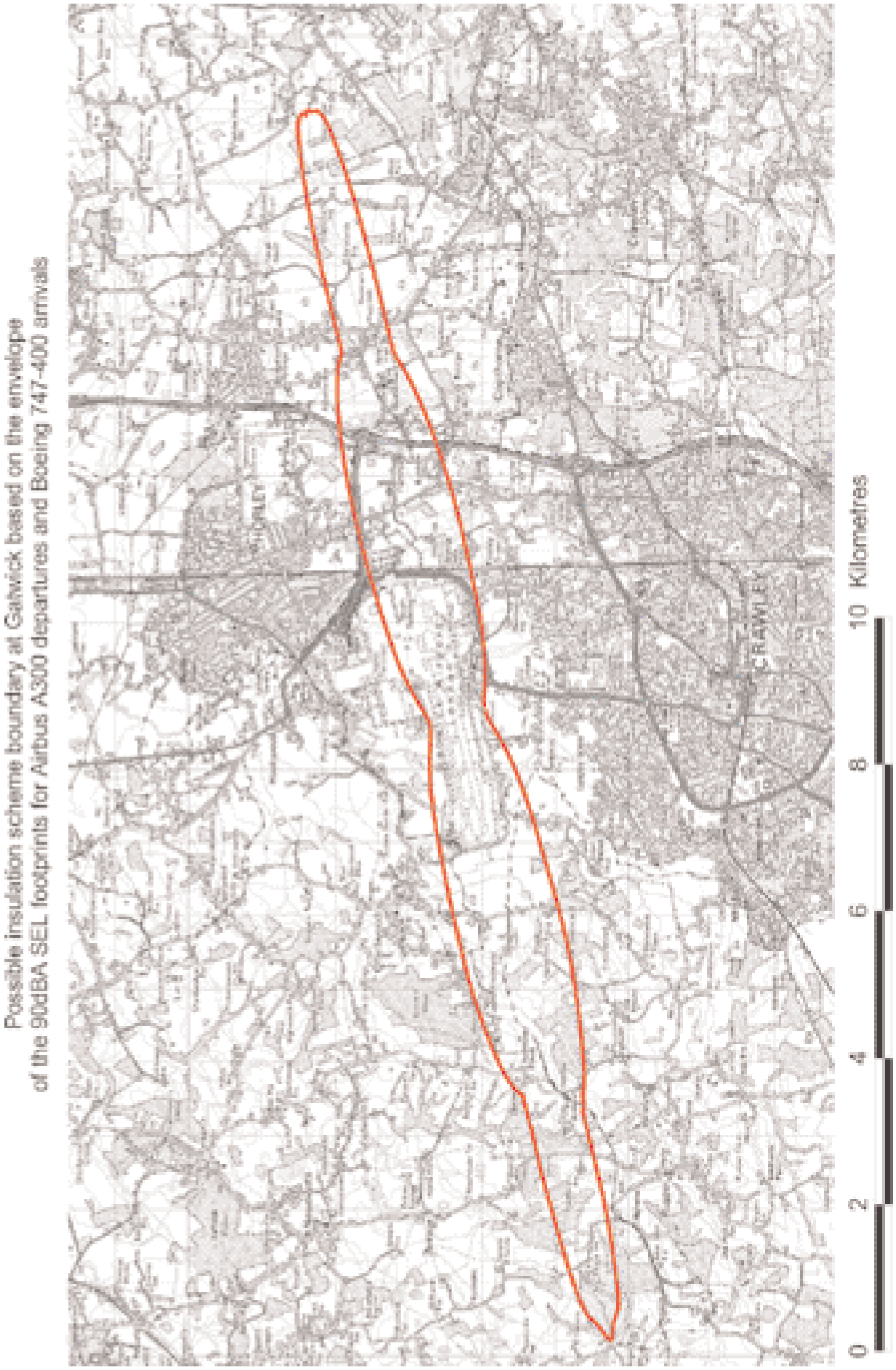
Heathrow Noise Monitors – Proposed sites



ANNEX G

Proposed Insulation Criteria – Footprint Envelopes Boundaries




Possible insulation scheme boundary at Gatwick based on the envelope
of the 90dBA SEL footprints for Airbus A300 departures and Boeing 747-400 arrivals
CRAWLEY
0
2
4
6
8
10 Kilometres

Possible insulation scheme boundary at Stansted
based on the envelope of the 90dBA SEL footprints for MD-11 departures

ANNEX H

List of consultees

Consultation list

Consultative Committees
Gatwick Airport Consultative Committee
Heathrow Airport Consultative Committee
Stansted Airport Consultative Committee

Local authorities

GATWICK

Crawley Borough Council
East Sussex County Council
Horsham District Council
Kent County Council
London Borough of Croydon
Mid Sussex District Council
Mole Valley District Council
Reigate and Banstead Borough Council
Surrey County Council
Tandridge District Council
West Sussex County Council

HEATHROW

Bedfordshire County Council
Bracknell Forest Borough Council
Buckinghamshire County Council
Corporation of London
Elmbridge Borough Council
Guildford Borough Council
Greater London Authority
London Borough of Bexley
London Borough of Bromley
London Borough of Camden
London Borough of Croydon
London Borough of Ealing
London Borough of Greenwich
London Borough of Hammersmith and Fulham
London Borough of Hillingdon
London Borough of Hounslow
London Borough of Kingston-upon-Thames
London Borough of Lambeth
London Borough of Lewisham
London Borough of Merton
London Borough of Newham
London Borough of Richmond upon Thames
London Borough of Southwark
London Borough of Sutton
London Borough of Tower Hamlets
London Borough of Wandsworth
Oxfordshire County Council
Reading Borough Council
Royal Borough of Kensington and Chelsea
Royal Borough of Windsor and Maidenhead
Runnymede Borough Council
Slough Borough Council
South Buckinghamshire District Council
South Oxfordshire District Council
Spelthorne Borough Council
Westminster City Council
West Berkshire District Council
Woking Borough Council
Wokingham District Council
Wycombe District Council

STANSTED

Braintree District Council
Cambridgeshire District Council
East Hertfordshire District Council
Epping Forest District Council
Essex County Council
Harlow District Council
Hertfordshire County Council
Maldon District Council
South Cambridgeshire District Coucil
Suffolk County Council
Uttlesford District Council

Parish and Town Councils

GATWICK

Abinger Parish Council
Betchworth Parish Council
Billingshurst Parish Council
Bletchingley Parish Council
Brockham Parish Council
Buckland Parish Council
Burstow Parish Council
Capel Parish Council
Charlwood Parish Council
Colgate Parish Council
Dormansland Parish Council
Edenbridge Town Council
Felbridge Parish Council
Forest Row Parish Council
Horley Town Council
Horsted Keynes Parish Council
Limpsfield Parish Council
Lingfield Parish Council
Newdigate Parish Council
North Horsham Parish Council
Ockley Parish Council
Outwood Parish Council
Rudgwick Parish Council
Rusper Parish Council
Salford and Sidlow Parish Council
Slinfold Parish Council
Tandridge Parish Council
Twineham Parish Council
Washington Parish Council
Worth Parish Council

HEATHROW

Beaconsfield Town Council
Bix and Assendon Parish Council
Bray Parish Council
Burnham Parish Council
Colnbrook with Poyle Parish Council
Dachet Parish Council
Fulmer Parish Council
Harpsden Parish Council
Henley-on-Thames Town Council
Highmoor Parish Council
Horton and Wraysbury Parish Council
Iver Parish Council
Marlow Town Council
Nuffield Parish Council
Old Windsor Parish Council
Pishill with Stonor Parish Council
Rotherfield Greys Parish Council
Rotherfield Peppard Parish Council
Shinfield Parish Council
Shiplake Parish Council
South Stoke Parish Council
Stanwell Village Hall Council
Stoke Row Parish Council
Sunninghill and Ascot Parish Council
Tilehurst Parish Council
Twyford Parish Council
Waltham St Lawrence Parish Council
White Waltham Parish Council
Wraysbury Parish Council

STANSTED

Bishop's Stortford Town Council
Birchanger Parish Council
Braughing Parish Council
Broxted Parish Council
Bures Hamlet Parish Council
Chickney Parish Council
East Bergholt Parish Council
Elsenham Parish Council
Farnham Parish Council
Felsted Parish Council
Finchingfield Parish Council
Good Easter Parish Council
Great Dunmow Town Council
Great Hallingbury Parish Council
Great Waldham Parish Council
Hatfield Parish Council
Hatfield Broad Oak Parish Council
Hatfield Heath Parish Council
Hellions Bumpstead Parish Council
Henham Parish Council
Hempstead Parish Council
High Ongar Parish Council
High Wych Parish Council
Hormead Parish Council
Hunsdon Parish Council
Leaden Roding Parish Council
Little Canfield Parish Council
Little Easton parish Council

Little Hadham Parish Council
Little Hallingbury Parish Council
Much Hadham Parish Council
Ongar Parish Council
Rivenhall Parish Council
Saffron Walden Town Council
Sawbridgeworth Town Council
Sheering Parish Council
Stansted Parish Council
Stapleford Abbotts Parish Council
Sturmer Parish Council
Takeley Parish Council
Thaxted Parish Council
Thorley Parish Council
Tilty Parish Council
The Sampfords Parish Council
Thorley Parish Council
Wareside Parish Council
White Roothing Parish Council
Widdington Parish Council
Widford Parish Council
Wimbish Parish Council

Environmental groups and residents associations

GATWICK

Cowden Conservation Society
CPRE Surrey
Domewood Private Residents Association
East Grinstead Society
Forest and Riverside Neighbourhood Association
Gatwick Area Conservation Campaign
Haslemere District Aircraft Disturbance Action Group
Hassocks Amenity Association
Hookwood Residents Association
Horley Residents Association
Hurstpierpoint Society
Lingfield Society
Marsh Green Residents Association
Meadvale Village Residents Association
Meath Green Protection Society
Mid Sussex Branch: Council for the Protection of Rural England
Sussex Branch: Council for the Protection of Rural England
Millands Valley Rural Conservation Society
NALCAAN
Warnham Society

HEATHROW

Albert Square and St Stephen's Association
The Alberts Residents Association
Astell Street Residents Association
Aysgarth Road Residents Association
Barnes Community Association Environment Group
The Blackheath Society
The Boltons Association
Brockley Society
The Brompton Association
Butts Society
Camberwell Society
Calton Avenue Residents Association
The Chelsea Society
Chiswick Protection Group
Colnbrook Residents Association
Cranford Cross Residents Association
St John's Resident Association
The Cromwell Road Association
Culverley Green Residents Association
The Dulwich Society
Ealing Aircraft Noise Action Group
East Dulwich Society
Egham Riverside Residents Association
Elm Park & Chelsea Park Residents Association
Friends of the Earth – West London
Fulham Flight Path Comunity
Greenwich Society
Harmondsworth & Sipson Residents Association
HACAN Clearskies
Heston Residents Association
The Kensington Society
The Kew Society
Kingsdown Residents Association
Kingswood Creek Residents Association
Lawn Crescent Residents Association
Longford Residents Association

Poyle Residents Association
Putney Labour Party
The Marlow Society
The Marylebone Association
Normanhurst Residents Association
Oakley Green, Fifield and District Residents Association
Oakley Street Residents Association
Old Chiswick Protection Society
Paddington Resident's Active Concern on Transport – PRACT
Poyle Residents Association
The Putney Society
The Richmond Society
Richmond and Twickenham FOE
Royal Hospital Ward Residents Association
Spring Grove Residents Association
St Margaret's Estate Residents Association
St Mary Cray Action Group
Stanwell Moor Residents Association
Staines Town Society
Sydenham Society
Touchen End & Paley Street Residents Association
The Ladywell Society
The Westminster Society
West Windsor Residents Association
White Hermitage Residents Association

STANSTED

Abbess and White Roding Conservation Society
Bishop's Stortford Civic Society
Broad Oak Aircraft Noise Group
Campaign to Protect Rural England
Hare Street and Little Parndon Neighbourhood Office
Hatfield Broad Oak Branch: CPRE
Mole Hall Wildlife Park
North West Essex and East Herts Preservation Association
Old Thorley and Twyford Residents Association
Parishes for Rural Environment Protection
Parsonage Residents Association
Perry Green and Tye Green Society
Saffron Choral Cassettes
Saffron Walden and District FOE
South Suffolk Air Traffic Action Group
Stop Stansted Expansion
Stour and Colne Action Group Against Aircraft
The Hertfordshire Society
Tilty Parish Meeting
Uttlesford Advisory Group of CPRE

Other local authorities and other representative organisations

ACRE (Association for Communities in Rural England)
Airfields Environment Trust
Airport Pressure Group
Association of County Councils
Association of District Councils
Association of London Authorities
Association of London Borough Planning Officers
Association of London Local Authorities
Association of Metropolitan Authorities
Association of Noise Consultants
Association of Port Health Authorities
Aviation Environment Federation
Babergh District Council
Chartered Institute of Environmental Health
The Council for the Protection of Rural England
Countryside Agency
East of England Local Government Conference
Federation of Airport Noise Groups
Friends of the Earth
Green Skies Alliance
Horsham District Association of Parish Councils
Institute for Public Policy Research
Local Authorities Aircraft Noise Council
Local Government Association
London Boroughs Association
London Chamber of Commerce and Industry
London Planning Advisory Committee
Luton Borough Council

National Society for Clean Air and Environmental Protection
The National Trust
Noise Abatement Society
Strategic Aviation Special Interest Group of Local Government
Surrey County Association of Parish & Town Councils
Suffolk County Council
Sustainable Development Commission
National Trust
Transport 2000
UK Environmental Law Association
Uttlesford Association of Local Councils
Walsall Borough Council
Woodspring District Council

Airports, airline organisations, manufacturers and other business organisations

Aerospace Industries Associations of America Inc
Airbus UK Ltd
Aircraft Owners and Pilots Association
Airline Operators Cargo Committee (Heathrow)
Airline Operators Cargo Committee (Stansted)
Air Transport Association of America
Air Transport Auxiliary Association
Air Transport Operators Association
Air Transport Users' Council
Airport Co-ordination Ltd
Airworld Aviation Ltd
APCO UK
Association of British Travel Agents: ABTA
Association of European Airlines
Association of Independent Tour Operators
Association of International Courier and Express Services
AVRO International Aerospace
BAA plc
BAR-UK
The Boeing Company
British Aerospace – Aerodynamics Department (Acoustics)
British Air Transport Association
British Airline Pilots Association
British Helicopter Advisory Board
British Tourist Authority
Business Aircraft Users Association Ltd
Civil Aviation Authority
Confederation of British Industry
Nottingham East Midlands Airport
Federal Aviation Administration
Freight Transport Association
Gatwick Scheduling Committee
General Aviation Manufactures and Traders Association
General Aviation Awareness Council
GKN Westland Helicopters Ltd
Glasgow International Airport Ltd
Guild of Air Pilots and Air Navigators
Guild of Air Pilots and Air Navigators of London
Guild of Business Travel Agents
Heathrow Scheduling Committee
Helicopter Club of Great Britain
International Air Carriers Association
International Air Transport Association
ICAO
London Chamber of Commerce and Industry
Leyline Helicopters Ltd
Luton Airport
Manchester Airport Consultative Committee
Manchester International Airport
National Air Traffic Services Ltd
Association of Asia Pacific Airlines
Pratt & Whitney
Railtrack Property
Raytheon Corporate Jet Inc
Rolls-Royce International Ltd
Royal Aero Club of the UK
Royal Aeronautical Society
Society of British Aerospace Companies Ltd
Stansted Scheduling Committee
Thames Valley Chambers of Commerce & Industry
The Chartered Institute of Tranport
The Environment ACEU
Royal Mail Group Plc

Tour Operators' Study Group
Trades Union Congress
Universal Aviation (UK) Limited

Airlines

Adria Airways
Aer Arann
Aer Lingus
Aeroflot Russian Airlines
Aerolineas Argentina
African International Airways
Air Algerie
Air Astana
Air Atlanta Europe
Air Berlin
Air Canada
Air China
Air Contractors
Air Europa
Air Foyle Heavylift
Air France
Air Freight Express
Air Gabon
Air India
Air Jamaica
Air Lithuania
Air Malta
Air Maurituis
Air Namibia
Air New Zealand
Air Seychelles
Air Transat
Air Wales
Air Zimbabwe
Airtours International Airways Ltd
Airworld Aviation Ltd
Alitalia
All Nippon Airways
American Airlines
Asiana Airlines
Astar Air Cargo
Astraeus
Atlas Air
Aurigny Air Services
Austrian Airlines
Azerbaijan Airlines
BAC Express Airlines
Belavia Belarusian Airlines
Belavia Belarussian Airlines
Biman Bangladesh Airlines
BMI British Midland
Brit Air
Britannia Airways
British Airways
British Mediterranean Airways
Bulgaria Air
BWIA West Indies Airways
Cathay Pacific
Channel Express (Air Services)
China Eastern Airlines
Cirrus Airlines
CityJet
Continental Airlines, Inc.
Croatia Airlines
CSA Czech Airlines
Cyprus Airways
Daallo Airlines
Dairo Air Services
Das Air Cargo
Delta Airlines
DHL Air UK
East African Safari Air
Easy Jet Switzerland
EasyJet
EgyptAir
El Al
Emerald Airways
Emirates
Estonian Air
Ethihad Airways
Ethiopian Airlines
Eurofly
European Air Express
European Air Transport
European Aviation Air Charter
Eva Air
Excel Airways
FedEx Express
FinnAir
First Choice Airways
Flybe
FlyJet
Futura International Airways

Garuda Indonesia
GB Airways
GermanWings
Ghana Airways
Global Supply Systems
Gulf Air
Helios Airways
Iberia
Icelandair
Iran Air
Japan Airlines
Kenya Airways
Kibris Turk Hava Yollari
KLM
Korean Air
Kuwait Airways
Lauda Air
Libyan Arab Airlines
Lithuanian Airlines
LOT Polish Airlines
Lufthansa
Luxair
Maersk Air
Malaysia Airlines
MALEV
Martinair
Middle East Airlines
Monarch Airlines
Mytravel Airways
Nigeria Airlines.com
Nippon Cargo Airlines
NorthWest Airlines
Norwegian
Nouveliar Tunisie
Olympic Airlines
Pakistan International Airlines
Philippine Airlines
Phuket Airlines
Qantas Airways
Qatar Airways
Royal Air Maroc
Royal Brunei Airlines
Royal Jordanian Airlines
Ryanair
Saudi Arabian Airlines Ltd
Scandinavian Airlines
Scot Airways
Sierra National Airlines
Singapore Airlines ltd
Sky Europe Airlines
Sky Europe Hungary
SN Brussels Airlines
South African Airways
Spanair
Sri Lankan Airlines
Sudan Airways
Swiss International Airlines
Syrian Air
TAAG Angola Airlines
TAP Air Portugal
Thai Airways
Thomas Cook Airlines
THY Turkish Airlines
Titan Airways
TNT
Trans Mediterranean Airways
Transaer
Transavia Airlines
Tunis Air
Turkmenistan Airlines
Ukraine International Airlines
United Airlines
United Parcel Service
US Airways
Uzbekistan Airways
Varig
Virgin Atlantic Airways
Virgin Express
VLM Airlines
WestJet Airlines
Yemenia
Zambian Airways
Zoom Airlines

Others

Individuals
Libraries and Information Centres
Solicitors and Technical Consultants
Commission for Racial Equality