

MANSTON AIRPORT

GLOSSARY OF TERMS

Part 1 Legislation and Published Standards

<p>S106 Agreement</p>	<p>Section 106 (S106) of the Town and Country Planning Act 1990 allows a local planning authority (LPA) to enter into a legally-binding agreement or planning obligation with a landowner in association with the granting of planning permission. The obligation is termed a Section 106 Agreement.</p> <p>These agreements are a way of delivering or addressing matters that are necessary to make a development acceptable in planning terms. They are increasingly used to support the provision of services and infrastructure, such as highways, recreational facilities, education, health and affordable housing.</p> <p>The scope of such agreements is laid out in the government's Circular 05/2005. Matters agreed as part of a S106 must be:</p> <ul style="list-style-type: none"> • relevant to planning • necessary to make the proposed development acceptable in planning terms • directly related to the proposed development • fairly and reasonably related in scale and kind to the proposed development • reasonable in all other respects. <p>The original s106 Agreement between Manston Airport and Thanet DC was prepared in 2000 focused on establishing environmental control and management procedures relating to aircraft noise, night time flying, noise preferential routings, noise monitoring and reporting, engine testing, air pollution and surface access strategy.</p>
<p>The Aviation White Paper</p>	<p><i>The Future of Air Transport</i> published in December 2003. This document set out the government's plans for air transport within the UK by proposing a strategic framework for the development of airport capacity in the UK over the next 30 years. It endorsed a balanced approach which recognised the importance of aviation to the national and regional economies, sought to reduce and minimise the impacts of airports on those who live nearby and on the natural environment, whilst ensuring that, over time, aviation would pay its external costs. The White Paper emphasised the importance of making the best use of existing capacity of the London and regional airports. On the question of noise associated with night time flights the document stated in section 3.12:</p> <p><i>"The government recognises that noise from aircraft operations at night is widely regarded as the least acceptable aspect of airport operations. We will bear down on night noise accordingly, but we must strike a fair balance between local disturbance, the limits of social acceptability and the economic benefits of night flights. This should be done on a case by case basis."</i></p>

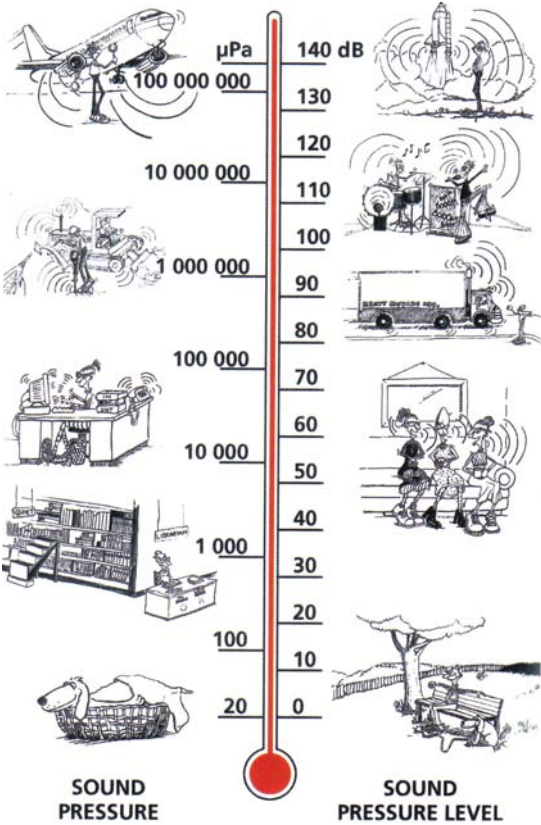
<p>Civil Aviation Act 1982</p>	<p>In respect of noise mitigation measures, there are currently three airports <i>designated</i> under this Act: Heathrow, Gatwick and Stansted. At all other non-designated airports within the UK, the noise impacts associated with their operations can only be controlled through operational restrictions imposed by the planning system and the goodwill of the airport operators.</p> <p>The Department for Transport has overall responsibility for the control of aircraft noise in the UK. Section 76 of this Act states that no action for trespass or nuisance can be taken as long as an aircraft observes the rules of the Air and Air Traffic Control Regulations - which also cover ground movements. This principle dates from 1920 when aircraft were exempted from nuisance legislation to protect a small growing industry.</p>
<p>The Aerodromes (Designation) (Facilities for Consultation) (Amendment) Order 2002</p>	<p>Manston Airport is designated in the Schedule of this Order and is required to establish a formal Consultative Committee.</p> <p>A Consultative Committee only has the power to advise the airport management and to make recommendations which may not be legally binding.</p>
<p>KIACC</p>	<p>Kent International Airport Consultative Committee</p>
<p>The Aerodromes (Noise Restrictions)(Rules and Procedures) Regulations 2003</p>	<p>Implemented, in the UK, EC Directive 2002/30/EC. Under these regulations the Secretary of State for Transport retains responsibility for noise issues at the three designated airports – see Civil Aviation Act 1982 above. At all other airports, including Manston, the airport operator is the competent authority and is responsible for setting out the environmental noise objectives for the airport. Annex II of the regulations sets out the information that needs to be considered in making decisions on operating restrictions. These include: existing noise mitigation methods, forecasts of future noise climate without further noise mitigation measures, and an assessment of the effects and costs of additional measures that could be taken to improve the noise climate. This assessment of noise is also linked to a noise mapping process that is set out in the Environmental Noise Directive (END).</p>
<p>Planning (Environmental Impact Assessment)(England and Wales) Regulations 1999</p>	<p>Implemented, in the UK, EC Directive 85/337 and these regulations require that an Environmental Impact Assessment (EIA) is undertaken for certain types of project before planning consent can be granted. For certain types of project such as those relating to major aerodromes, EIA is mandatory. For a wider range of projects, including new aerodromes, EIA is required if the project is likely to have significant environmental effects. In cases where EIA is required, the likely effects of noise will be one of the issues to be considered and dealt with in the Environmental Impact Assessment report prepared by the developer and submitted to the local planning authority with the planning application.</p>
<p>Scoping Document</p>	<p>This document establishes the full scope of the environmental assessment and should be agreed in writing between the developer and the local planning authority.</p>

<p>PPG 24 Planning and Noise</p>	<p>This statutory guidance issued in 1994 by the former government department the Department of the Environment is still current. The document guides local authorities in England on the use of their planning powers to minimise the adverse impact of noise. It outlines the considerations to be taken into account in determining planning applications both for noise-sensitive developments and for those activities which generate noise.</p> <p>It explains the concept of noise exposure categories for residential development and recommends appropriate levels for exposure to different sources of noise.</p> <p>It also advises on the use of conditions to minimise the impact of noise. Six annexes contain noise exposure categories for dwellings, explain noise levels, give detailed guidance on the assessment of noise from different sources, gives examples of planning conditions, specify noise limits, and advise on insulation of buildings against external noise.</p> <p>As statutory guidance, the advice contained within this document is authoritative and is often referenced in noise impact assessment reports undertaken as part of the EIA process – see above and at planning inquiries, and hence the document carries a lot of weight in the overall planning process.</p>
<p>Airport Master Plan</p>	<p>The government White Paper <i>The Future of Air Transport</i> 2003 (see above) states:</p> <p><i>“Airport operators are recommended to maintain a master plan document detailing development proposals. An airport master plan does not have the status of a development plan, but the level of detail contained within it is essential to inform the content of the Local Development Framework. We will expect airport operators to produce master plans, or where appropriate, to update existing master plans to take account of the conclusions on future development set out in this White Paper.”</i></p> <p>Master plans thus provide a mechanism for airport operators to explain how they propose to take forward this strategic framework in the form of airport-specific proposals, designed to help inform the regional and local planning processes and facilitate engagement with a wide range of stakeholders.</p>
<p>Stakeholder</p>	<p>Put in its simplest terms, anyone with an interest in the development and operation of Manson Airport, be they representatives of airport operator, provider of services, customer, resident, local business, elected representative on council or local community group, local authority officer or representative of aviation bodies.</p>

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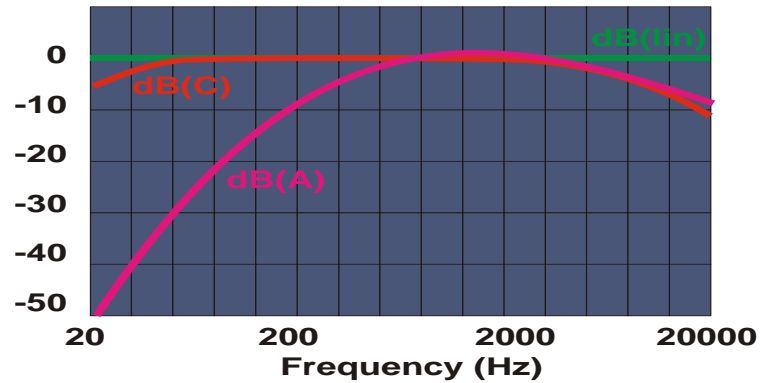
GLOSSARY OF TERMS

Part 2 Acoustic Terminology

<p>Ambient Noise</p>	<p>Totally encompassing sound in a given situation at a given time composed of sound from all sources near and far.</p>
<p>Background Noise</p>	<p>Is the ambient noise, in the absence of the noise under investigation, measured using time weighting “F”, that is equalled or exceeded for 90% of the measurement time interval. Expressed as $L_{A90,T}$, where “T” refers to the measurement time interval in minutes.</p>
<p>Decibel (dB)</p>	<p>The range of sounds capable of being heard by the human ear is literally enormous ranging from the gentlest whisper to the roar of a jet engine. Hence it is not practical to measure noise levels using a standard, linear scale, but rather a logarithmic scale is necessary. The decibel level is derived by multiplying the logarithm of the ratio between the value of a quantity and a reference value by a factor of 10. It is used to describe the level of many quantities, including noise and for sound, where the reference quantity is 20 micropascals, which is the threshold of normal hearing. 0 dB represents the threshold of hearing and 140 dB represents the threshold of pain. A change of 1 dB is just about perceptible to the human ear under controlled conditions.</p> 

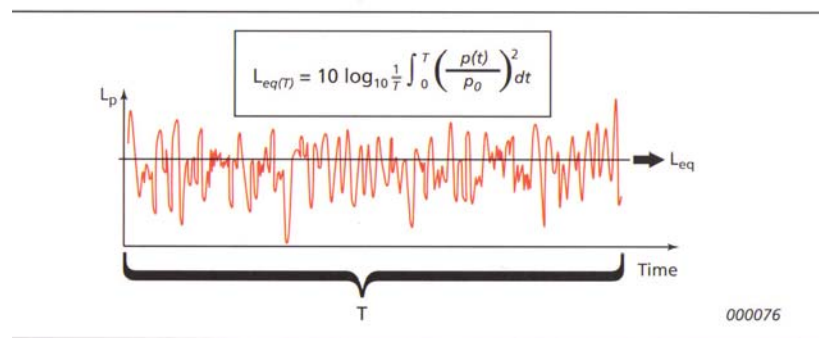
dB(A)

Denotes decibels measured on a sound level meter that incorporates a frequency weighting (the A-weighting) that corrects for the sensitivity of the human ear, as defined in the International standard IEC61672:2003 and various national standards relating to the measurement of sound levels.



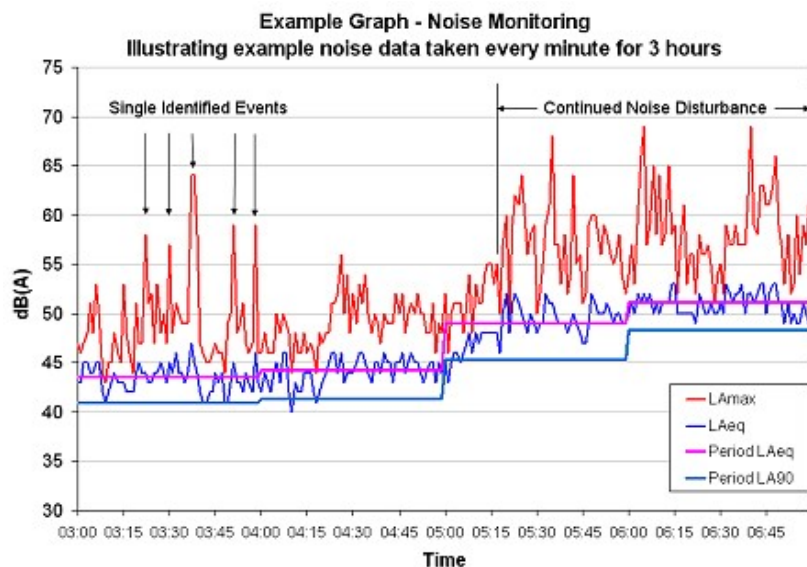
Equivalent Continuous Level
L_{Aeq,t} dB

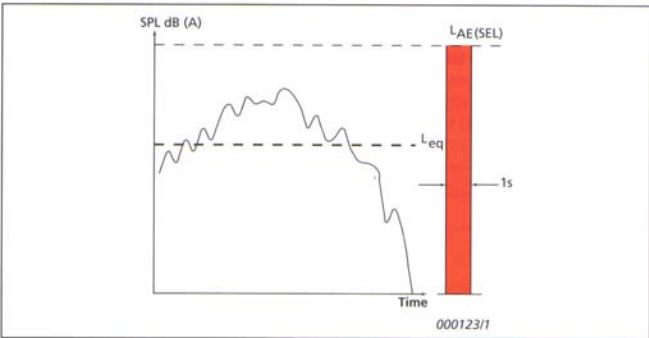
This is the steady notional sound level which contains the same acoustic energy over a specified time period t as the actual time varying sound, measured in dB(A). It represents in a single figure the **average** noise level of the actual varying noise level over the defined time interval (t).



Maximum Sound Pressure Level
(L_{Amax,T}) dB

This is the highest A-weighted noise level recorded during a noise event over the time interval (t). The time weighting used (Fast or Slow) should be stated.



<p>Sound Exposure Level (SEL) or L_{EA} dB</p>	<p>Sound Exposure Level (sometimes called the Single Event Level) is a measure of the total sound energy associated with a noise event or series of events (such as aircraft over-flights). The L_{AE} value contains the same amount of acoustic energy over a 'normalised' 1-second period as the actual noise event under consideration.</p> 
<p>Noise</p>	<p>This was defined in the Wilson report published in 1963 as 'unwanted sound'. Noise includes vibration, except where the context indicates otherwise. Sound is a periodic fluctuation in pressure, typically in air. Noise is classified as a <i>pollutant</i> in the European Directive on Integrated Pollution Prevention and Control.</p>
<p>Noise Nuisance</p>	<p>This has been defined by the World Health Organisation as 'a feeling of displeasure evoked by noise'. Statutory nuisance has a more specific meaning and is subject to legal action under the Environmental Protection Act 1990.</p>
<p>Statutory Nuisance</p>	<p>Statutory nuisance is an act or omission which has been designated a nuisance by parliamentary statute and this includes noise.</p>
<p>Noise Sensitive Location (Receptor)</p>	<p>Any dwelling, hotel or hostel, health building, educational establishment, place of worship or entertainment, or any other facility or area of high amenity, which may be susceptible to noise.</p>
<p>Noise Source</p>	<p>Premises at which an activity or process is undertaken, or the operation of plant, machinery, equipment, vehicles or aircraft that results in the emission of noise.</p>
<p>Aircraft Noise Certification</p>	<p>The International Civil Aviation Organisation (ICAO) Convention Annexe 16 Environmental Protection: Aircraft Noise sets out a series standards for measured noise in technical chapters. The noisiest are early generation Chapter 1 jets right up to the quietest modern Chapter 4 jets. The standard noise certification process measures noise at takeoff and landing on both the landing and approach paths, in addition to the side where takeoff noise was greatest. For certification purposes, the noise measurement index used is the Effective Perceived Noise Level EPN dB, which is analogous to dB(A) + 13. Each aircraft type and sub-type has therefore a recognised and formally certified noise profile.</p>
<p>Noise Impact</p>	<p>This is taken to be the quantification of the noise burden on the community arising from the cumulative level of aircraft noise associated with Manston Airport. It can be quantified in terms of cumulative noise contours or the aggregation over a defined time period of SEL contours associated with individual aircraft types –</p>

	see below.
Noise Footprint	The noise levels generated by individual aircraft can be described as a noise footprint. This is the area on the ground contained within a given SEL contour – see below. The noise from an aircraft during takeoff or landing is highly directional, with most aircraft being noisier to the rear, then the front and then the side. Fixed wing aircraft are usually noisier on takeoff than on landing. The area affected by noise from aircraft movements depends upon many factors, including the type of aircraft, the engines, the weight, the angle of the glide path during landing and any noise abatement procedures employed during takeoff, such as restrictions on the use of full power.
INM Model	Integrated Noise Model computer software used to generate noise exposure contours. The software evaluates aircraft noise in the vicinity of airports using flight track information, aircraft fleet mix, aircraft profiles and terrain.
Noise Contours	<p>Noise contours are a measure of average noise exposure represented on the ground as a series of lines of equal exposure. Two forms of noise contours are used to describe the noise exposure around airports: (i) the cumulative L_{Aeq} (both daytime and night time) and (ii) the SEL – see above for definitions. The historical cumulative L_{Aeq} is calculated based upon aircraft movement schedules and reliable noise measurements experienced over a defined period and the predicted cumulative L_{Aeq} can be derived from a calculation of forecast aircraft movement schedules and the individual aircraft noise characteristics provided by the formal noise certification process.</p> <p>Predicted noise contours can be plotted using the Federal Aviation Administration's computer model - the Integrated Noise Model (INM) Version 7.0b aircraft noise prediction software.</p> <p>$L_{Aeq,8h}$ index is used to describe night time noise exposure since it takes account of the cumulative noise level and the number of aircraft movements during the sensitive night time period between 23.00 hrs and 07.00 hrs.</p>
Noise Epoch	The period during the night time when an aircraft noise event is experienced.
Quiet Epoch	<p>The period during the night time when no aircraft noise is experienced.</p> <p>These epochs are used to describe and quantify the incidence of sleep disturbance and sleep arousal experienced by the local population close to an airport.</p>
Tonal Noise	Noise can be described as tonal if it contains a noticeable or discrete, continuous note. This includes noises such as hums, hisses, screeches, drones, etc. and any such subjective description is open to discussion when reported.

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Part 3 Aviation Terminology

<p>Civil Aviation Authority (CAA)</p>	<p>The CAA is the body that regulates aviation in the UK. Its specific responsibilities include:</p> <ul style="list-style-type: none"> • Air Safety • Economic Regulation • Airspace Regulation • Consumer Protection • Environmental Research & Consultancy <p>The CAA:</p> <ul style="list-style-type: none"> • Ensures that UK civil aviation standards are set and achieved • Regulates airlines, airports and National Air Traffic Services economic activities and encourages a diverse and competitive industry • Manages the UK's principal travel protection scheme, the Air Travel Organisers' Licensing (ATOL) scheme, licenses UK airlines and manages consumer issues • Brings civil and military interests together to ensure that the airspace needs of all users are met as equitably as possible. <p>The UK Government requires that the CAA's costs are met entirely from its charges on those whom it regulates. Unlike many countries, there is no direct Government funding of the CAA's work.</p>
<p>ATC</p>	<p>Air Traffic Control</p>
<p>Air Transportation</p>	<p>The movement of passengers and cargo by aircraft such as aeroplanes and helicopters.</p>
<p>Air Traffic Movements ATM</p>	<p>The aggregate number of aircraft flights (cargo and passenger) into and out of the airport over a given period of time.</p>
<p>Arrival and Departure Flight Paths</p>	<p>Routes flown by aircraft departing or arriving at an airport are dependent on other air traffic routes above or adjacent to the airport, location of sensitive land uses such as housing and the performance capabilities of the aircraft in terms of rate of climb or rate of turn.</p>
<p>Flight Tracks</p>	<p>At Manston Airport, standardised flight tracks such as Standard Instrument Departure (SID) and Standard Terminal Arrival Route (STAR) are not available. As a consequence, flight tracks required for the generation of noise contours (see Part 2), have been developed based on the airport's current noise abatement procedures</p> <p>Aircraft departing Runway 10 climb straight ahead until passing 4 DME (Distance Measuring Equipment), where they are directed by</p>

	Air Traffic Control (ATC). Aircraft departing Runway 28 climb straight ahead to 1.5 DME where they then turn right onto a bearing of 3100 (magnetic) until they pass 5 DME where they are then directed by ATC.
Flight Profiles	The flight path of an aircraft expressed in terms of altitude, speed, departure weight including fuel load, range, and manoeuvre. Flight profile data can be entered into computer programmes such as the Integrated Noise Model (INM) software model in order to generate noise exposure contours.
Dispersion of Aircraft Movements	Aircraft departing an airport are given a departure route to follow. In practice, such routes are not followed precisely by all aircraft allocated to the route, since the actual pattern of departing aircraft is dispersed about the route's main track. The degree of dispersion is normally a function of the distance travelled by an aircraft along the route after takeoff and also on the form of the route. The spread of aircraft approximates to a 'normal distribution pattern,' the shape and spread of which will vary with distance along the route and this normal distribution can be mathematically modelled. Airport noise modelling normally assumes there are five 'dispersed' tracks associated with each departure route; these comprise the main track and two sub tracks either side.
ILS	Instrument Landing System
Noise Preferential Routes	There are several airport-specific procedures that can be implemented to reduce the impact of aircraft noise on the population. The standard flight paths around many airports are chosen to be Minimum Noise Routes (MNR), now more commonly referred to as Noise Preferential Routes (NPR). This means that flight paths are contrived, as far as possible, to lie over sparsely populated areas. A NPR is a corridor some 3 km wide, and it is important to understand that deviation from the NPR can occur for a variety of reasons, such as the need to maintain safety separation from other aircraft, adverse weather conditions or airways congestion near to navigational beacons. Adherence to a NPR is further limited since at altitudes of between 3,000 ft and 7,000 ft the CAA's National Air Traffic Service (NATS) takes over control of the aircraft. NATS recognises environmental objectives, including noise, as part of its exercise of air navigation functions. NPRs have been established at Manston Airport.
Noise Monitoring and Reporting	Noise monitoring has become an essential requirement for airports in the UK as a prerequisite to the development of noise mitigation strategies for both the short and long terms. The essential features of a modern noise monitoring system are a series of remote sensors/microphones (Noise Monitoring Terminals) located at strategic positions around an airport, eg under flight paths or in the vicinity of residential or other noise sensitive areas. These sensors collect and transmit data on individual noise events to a central computing and reporting system. Such systems can also be designed to receive air traffic movement data, enabling each individual aircraft to be identified with the recorded noise events. In this way, in real time, an immediate comparison against noise and flight path standards relating to takeoff and landing can be made.
Noise Complaints Procedure	The 2003 Department for Transport Guidelines for Airport Consultative Committees (see Part 1 of Glossary) encourage

	<p>formal monitoring and reporting practices. Telephone, e-mail and website contact details should be widely publicised, identifying the responsible manager at the airport, together with guidance on how the complaints procedure operates. Targets for a response by the airport, including the necessary follow-up action, should be established and the airport's performance in this regard should be monitored by the local authority and the Consultative Committee. The Environmental Information Regulations 2004 serve as a further pressure upon the airport to disclose the necessary environmental and operational information in order to keep the council and the public properly informed about the airport's activities.</p>																		
Night time Flying	<p>Relates to all aircraft arriving at or departing from the airport between the eight-hour period between 23.00 hrs and 07.00 hrs. Hence $L_{Aeq,8h}$ noise exposure contours are developed to describe the noise impact of night time flying.</p>																		
Shoulder Periods	<p>These are the two short time periods at the beginning and end of the night time period taken to be between 23.00 hrs to 23.30 hrs and from 06.00 hrs to 07.00 hrs.</p>																		
Night Quota Counts	<p>These have their origins in the night flying movement and night quota system formally operated at the three designated airports of Heathrow, Gatwick and Stansted. Nowadays a quota count system is operated informally at other UK airports. The Quota Count score is shorthand for the degree of noise created by aircraft both at takeoff and landing, where the Quota Count is based upon the certified noise levels (see Part 2) according to the following table:</p> <table border="1" data-bbox="603 1137 1278 1653"> <thead> <tr> <th colspan="2">Quota Count Scoring System</th> </tr> <tr> <th>Certified Noise Level (EPNdB)</th> <th>Quota Count</th> </tr> </thead> <tbody> <tr> <td>> 101.9</td> <td>16</td> </tr> <tr> <td>99 - 101.9</td> <td>8</td> </tr> <tr> <td>96 - 98.9</td> <td>4</td> </tr> <tr> <td>93 - 95.9</td> <td>2</td> </tr> <tr> <td>90 - 92.9</td> <td>1</td> </tr> <tr> <td>< 90</td> <td>0.5</td> </tr> <tr> <td></td> <td></td> </tr> </tbody> </table> <p>Hence the control of noise arising from night time flights can be controlled by setting a limit on the total number of allowable night time movements, in addition to setting a maximum quota allowance based upon the noise generated by any aircraft type. In theory, this encourages the use, at night, of the quieter aircraft, where, for example, 8 movements of QC 0.5 aircraft would 'use up' the same quota allowance as a single Q4 aircraft.</p>	Quota Count Scoring System		Certified Noise Level (EPNdB)	Quota Count	> 101.9	16	99 - 101.9	8	96 - 98.9	4	93 - 95.9	2	90 - 92.9	1	< 90	0.5		
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< 90	0.5																		
MTOW	<p>Maximum Take Off Weight of aircraft</p>																		

Nm	Nautical Miles
SIGS	Sound Insulation Grant Scheme
SID	<p>Standard Instrument Departure</p> <p>A SID is usually assigned by air traffic control to the pilot based on the destination (or actually, the first waypoint in the flight plan) and the active runway. A standard instrument departure procedure consists of a number of waypoints or fixes, which may either be given by their longitudinal and latitudinal coordinates or which may be radio beacons.</p>
STAR	<p>Standard Terminal Arrival Route</p> <p>A STAR usually covers the phase of a flight that lies between the top of descent from cruise or en-route flight and the final approach to a runway for landing.</p>
DME	<p>Distance Measuring Equipment.</p> <p>Aircraft use DME to determine their distance from a land-based transponder by sending and receiving pulse pairs - two pulses of fixed duration and separation.</p>
Airport Service Access Strategy	<p>All airports in England and Wales with aggregate annual air transport movements in excess of 1000 are required to prepare an Airport Service Access Strategy which sets short term and long term targets for decreasing the proportion of journeys by workers and passengers to and from the airport by car and which increases the proportion of the same journeys using public transport.</p>