

*Draft Order in Council laid before Parliament under section 102(3) of the Civil Aviation Act 1982, for approval by resolution of each House of Parliament.*

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DRAFT STATUTORY INSTRUMENTS

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**2008 No. 000**

**CIVIL AVIATION**

**The Air Navigation (Environmental Standards  
For Non-EASA Aircraft) Order 2008**

*Made - - - - 2008*

*Coming into force in accordance with article 1*

At the Court at Buckingham Palace, the day of  
Present,  
The Queen's Most Excellent Majesty in Council

In accordance with section 102(3) of the Civil Aviation Act 1982(1) a draft of this Order has been laid before and approved by a resolution of each House of Parliament.

Her Majesty, in exercise of the powers conferred upon Her by sections 60(1), (2)(a) and (b) and (3) (q) and (r), 61(1), 101(1)(a) and 102(2) of and Schedule 13 to that Act, is pleased, by and with the advice of Her Privy Council, to order as follows.

**PART 1**

**Preliminary**

**Citation and Commencement**

**1.** This Order may be cited as the Air Navigation (Environmental Standards for Non-EASA Aircraft) Order 2008 and comes into force on the tenth day after the day on which it is made.

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(1) 1982 c.16, sections 60 and 61 have been amended by the Airports Act 1986 (c.31) Schedule 6 Part 11, and section 60 was further amended by the Aviation and Maritime Security Act 1990 (c.31), section 47 and Schedule 4 and Schedule 13 has been amended by the Energy Act 2004 c.20, section 101.

## Revocation

2. The Air Navigation (Environmental Standards) Order 2002(2) is revoked.

## Interpretation

- 3.—(1) In this Order —

‘adversely’ means, for the purpose of the definition of ‘derived version’, an increase by more than 0.3dB to any one of the noise certification levels specified in the noise type certificate;

‘authorised person’ means any constable and any person authorised by the CAA (whether by name or by class or description) either generally or in relation to a particular case or class of cases;

‘Basic EASA Regulation’ means Regulation (EC) No. 216/2008 of the European Parliament and of the Council of 20th February 2008 on common rules in the field of civil aviation and establishing a European Aviation Safety Agency, and repealing Council Directive 91/670/EEC, Regulation (EC) No 1592/2002 and Directive 2004/36/EC(3);

‘derived version’ means, for the purposes of paragraph (2), an aircraft which is similar to the aircraft in respect of which a noise type certificate has been granted but incorporates changes in type design which may affect its noise characteristics adversely;

‘EASA’ means the European Aviation Safety Agency established under the Basic EASA Regulation;

‘EASA aircraft’ means an aircraft which is required by virtue of the Basic EASA Regulation and any implementing rules adopted by the Commission in accordance with that Regulation to hold an EASA certificate of airworthiness, an EASA restricted certificate of airworthiness or an EASA permit to fly;

‘EASA certificate of airworthiness’ means a certificate of airworthiness issued in respect of an EASA aircraft under and in accordance with subpart H of Part 21;

‘EASA permit to fly’ means a permit to fly issued in respect of an EASA aircraft under and in accordance with subpart P of Part 21;

‘EASA restricted certificate of airworthiness’ means a restricted certificate of airworthiness issued in respect of an EASA aircraft under and in accordance with subpart H of Part 21;

‘Microlight aeroplane’ means an aeroplane designed to carry not more than two persons which has—

- (a) a maximum total weight authorised not exceeding—
  - (i) 300 kg for a single seat landplane (or 390 kg for a single seat landplane in respect of which a United Kingdom permit to fly or certificate of airworthiness was in force prior to 1st January 2003);
  - (ii) 450 kg for a two seat landplane;
  - (iii) 330 kg for a single seat amphibian or floatplane; or
  - (iv) 495 kg for a two seat amphibian or floatplane; and
- (b) either a wing loading at the maximum total weight authorised not exceeding 25 kg per square metre or a stalling speed at the maximum total weight authorised not exceeding 35 knots calibrated airspeed;

‘noise certificate’ means a certificate issued by the CAA in accordance with article 8, 9 or 10 or a certificate or other document issued or validated in accordance with article 4(3);

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(2) S.I. 2002/798.

(3) O.J. No. L 79 of 19.03.2008, p.1.

‘noise type certificate’ means a certificate indicating that the type of aircraft to which the certificate refers is acceptable for noise certification;

‘non-EASA aircraft’ means an aircraft which is not required by virtue of the Basic EASA Regulation and any implementing rules adopted by the Commission in accordance with that Regulation to hold an EASA certificate of airworthiness, an EASA restricted certificate of airworthiness or an EASA permit to fly;

‘Part 21’ means the annex so entitled to [Commission Regulation \(EC\) No. 1702/2003](#) of 24<sup>th</sup> September 2003 laying down implementing rules for the airworthiness and environmental certification of aircraft and related products, parts and appliances, as well as for the certification of design and production organisations(4);

‘prescribed’ means prescribed by regulations made by the Secretary of State under this Order;

‘rated output’ has the meaning specified in Part I, Chapter 1 of Volume II of Annex 16;

‘Research aircraft’ means an aircraft which falls in category (b) of Annex II to the Basic EASA Regulation(5);

‘smoke’ means the carbonaceous materials in exhaust emissions which obscure the transmission of light;

‘State aircraft’ means an aircraft engaged in military, customs, police or similar services;

‘subsonic aeroplane’ means an aeroplane which is incapable of sustaining level flight at a speed in excess of flight mach 1.0;

‘supersonic aeroplane’ means an aeroplane which is capable of sustaining level flight at a speed in excess of flight mach 1.0;

‘Volume I of Annex 16’ means the fourth edition July 2005 - of Volume I of Annex 16 to the Chicago Convention as amended by the Supplement to the third edition dated 3rd March 2003(6);

‘Volume II of Annex 16’ means the second edition July 1993 - of Volume II of Annex 16 to the Chicago Convention as amended by Amendment 3 dated 20th March 1997, Amendment 4 dated 19th July 1999, Amendment 5 dated 11th July 2005, the Supplement dated 3rd March 2003 and the Amendment to the Supplement dated 22nd October 2003.

(2) An aircraft is one for which there is an EASA equivalent type if, in the reasonable opinion of the CAA, it is of the same type as any EASA aircraft or is a derived version of such a type.

(3) Other expressions used in this Order and in the Air Navigation Order 2005(7) have the same meaning in this Order as they have in the Air Navigation Order 2005.

## PART 2

### Noise Certification for Non-EASA aircraft

#### **Requirement for a noise certificate for a microlight aeroplane**

4.—(1) Subject to article 5, a microlight aeroplane must not land or take off in the United Kingdom unless—

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(4) O.J. No. L 243, 27.9.2003 p.6, amended by [Commission Regulation \(EC\) No 357/2007](#) O.J. No. L 94, 4.4.2007 p.3 and to which there are other amendments not relevant to this Order.

(5) Category (b) of Annex II to the Basic EASA Regulation comprises aircraft specifically designed or modified for research, experimental or scientific purposes, and likely to be produced in very limited numbers.

(6) This Annex was published by the International Civil Aviation Organisation.

(7) [S.I. 2005/1970](#), to which there are amendments not relevant to this Order.

- (a) there is in force for that aeroplane a noise certificate; and
  - (b) any conditions subject to which the certificate was issued or validated are complied with.
- (2) In the case of a microlight aeroplane registered in the United Kingdom, a noise certificate required by paragraph (1) is issued by the CAA in accordance with article 8.
- (3) In the case of a microlight aeroplane registered elsewhere than the United Kingdom, a noise certificate required by paragraph (1) is issued or validated by the competent authority of the country in which the aircraft is registered, if that country is—
- (a) an EEA State which applies standards which are substantially equivalent to those required for the issue of a noise certificate by the CAA; or
  - (b) a country prescribed as one which applies standards which in the opinion of the Secretary of State are substantially equivalent to those required for the issue of a noise certificate by the CAA.

**Exceptions to the requirement for a noise certificate for a microlight aeroplane**

5. The prohibition in article 4(1) does not apply to a microlight aeroplane—
- (a) flying in accordance with the ‘A Conditions’ or the ‘B Conditions’ in Part A of Schedule 3 to the Air Navigation Order 2005;
  - (b) landing or taking off at a prescribed place;
  - (c) which is a self-propelled hang-glider; or
  - (d) for which a permit to fly was first in force prior to 1<sup>st</sup> July 1999 and which has a maximum authorised weight greater than 390 kg.

**Requirement for a noise certificate for United Kingdom registered State aircraft and Research aircraft for which there is an EASA equivalent type**

- 6.—(1) This article applies to any aircraft registered in the United Kingdom which is either a State aircraft or a Research aircraft for which there is an EASA equivalent type.
- (2) Subject to paragraph (3), an aircraft to which this article applies must not land or take off in the United Kingdom unless—
- (a) there is in force for that aircraft a noise certificate issued by the CAA in accordance with article 9; and
  - (b) any conditions subject to which the certificate was issued are complied with.
- (3) The prohibition in paragraph (2) does not apply to—
- (a) an aircraft flying in accordance with the ‘A Conditions’ or the ‘B Conditions’ in Part A of Schedule 3 to the Air Navigation Order 2005; or
  - (b) an aircraft landing or taking off at a prescribed place.

**Requirement for a noise certificate for United Kingdom registered State aircraft and Research aircraft for which there is no EASA equivalent type**

- 7.—(1) This article applies to any aircraft registered in the United Kingdom which is either a State aircraft or a Research aircraft for which there is no EASA equivalent type.
- (2) Subject to paragraph (3), an aircraft to which this article applies must not land or take off in the United Kingdom unless—
- (a) there is in force for that aircraft a noise certificate issued by the CAA in accordance with article 10; and

- (b) any conditions subject to which the certificate was issued are complied with.
- (3) Paragraph (2) does not apply to—
  - (a) an aircraft flying in accordance with the ‘A Conditions’ or the ‘B Conditions’ in Part A of Schedule 3 to the Air Navigation Order 2005; or
  - (b) an aircraft landing or taking off at a prescribed place.

**Issue of noise certificate by the CAA for United Kingdom registered microlight aeroplanes**

**8.—**(1) The CAA must issue a noise certificate in respect of any microlight aeroplane registered in the United Kingdom if it is satisfied that the aeroplane complies with the standards specified in the Schedule.

(2) For the purposes of paragraph (1) an applicant for a certificate must furnish such evidence and submit the aircraft to such flying trials and other tests as the CAA may require.

**Issue of noise certificate by the CAA for United Kingdom registered State aircraft or Research aircraft for which there is an EASA equivalent type**

**9.—**(1) The CAA must issue a noise certificate in respect of any State aircraft or Research aircraft registered in the United Kingdom for which there is an EASA equivalent type if it is satisfied that the aircraft complies with the noise standards with which the aircraft would be required to comply if it were an EASA aircraft.

(2) For the purposes of paragraph (1) an applicant for a certificate must furnish such evidence and submit the aircraft to such flying trials and other tests as the CAA may require.

(3) The CAA must issue every noise certificate subject to a condition as to the maximum total weights at which the aircraft may land or take off and may issue such a certificate subject to such other conditions relating to standards as to noise as it thinks fit.

**Issue of noise certificate by the CAA for United Kingdom registered State aircraft or Research aircraft for which there is no EASA equivalent type**

**10.—**(1) The CAA must issue a noise certificate in respect of any State aircraft or Research aircraft registered in the United Kingdom—

- (a) for which a noise standard is included in Volume 1 of Annex 16; and
- (b) for which there is no EASA equivalent type,

if it is satisfied that the aircraft complies with the applicable noise standard in Volume 1 of Annex 16.

(2) For the purposes of paragraph (1) the applicant for a certificate must furnish such evidence and submit the aircraft to such flying trials and other tests as the CAA may require.

(3) The CAA must issue every noise certificate subject to a condition as to the maximum total weights at which the aircraft may land or take off and may issue such a certificate subject to such other conditions relating to standards as to noise as it thinks fit.

(4) For the purposes of determining the noise standard applicable to an aircraft where the interval between—

- (a) the application for a type certificate and the first issue of a certificate of airworthiness for an aircraft of that type; or
- (b) the application for a change of type design and the first issue of a certificate of airworthiness for an aircraft of that type as modified,

exceeds 5 years, the date on which the application for a type certificate or a change of type design was made is, unless the CAA in a particular case otherwise directs, deemed to be 5 years before the date of the first issue of the certificate of airworthiness.

#### **Validity of noise certificate**

**11.**—(1) Subject to paragraph (2) and article 22, a noise certificate issued under article 8, 9 or 10 remains in force without limit of time.

(2) A noise certificate issued under article 8, 9 or 10 ceases to be valid for the purposes of article 4, 6 or 7—

- (a) if the aircraft or any part of it is modified in any way which affects the ability of the aircraft to comply with the noise standards required by this Order, unless such modification is in a manner and with material of a type approved by the CAA for the purposes of this Part either generally or in relation to a class of aircraft or to a particular aircraft;
- (b) until the satisfactory completion of any inspection or test of the aircraft required by the CAA to be made for the purpose of ascertaining whether the aircraft continues to comply with the noise standards required by this Order.

#### **Information to be included in flight manual**

**12.**—(1) This article applies to any aircraft first registered in the United Kingdom on or after 1st August 1986 (other than a microlight aeroplane) in respect of which by virtue of article 20 a noise certificate is required to be carried.

(2) An aircraft to which this article applies must not fly unless the flight manual in respect of that aircraft includes the information specified in Part II, Chapter 1 of Volume I of Annex 16.

#### **Exemptions in respect of Part 2 of this Order**

**13.** The CAA, after consultation with the Secretary of State, may exempt from any of the provisions of this Part any aircraft or persons or classes of aircraft or persons, either absolutely or subject to such conditions as it thinks fit.

## **PART 3**

### **Emissions Certification for Non-EASA aircraft**

#### **Fuel venting requirements**

**14.**—(1) This article applies to—

- (a) every non-EASA jet aircraft in respect of which a certificate of airworthiness was first issued on or after 18th February 1982; and
- (b) every other non-EASA aircraft which is powered by one or more turbojet engines or turbofan engines where the date of manufacture of any such engine was on or after 18th February 1982.

(2) Subject to article 18, an aircraft to which this article applies must not land or take off in the United Kingdom unless—

- (a) it has individually been certified or is of a type which has been certified, in accordance with article 17, as complying with the requirements relating to fuel venting specified in paragraph (3); and

(b) it is fitted with the engines specified in the emissions certification issued under article 17.

(3) The requirements referred to in paragraph (2) are that when fitted with the type of engine specified in the emissions certification issued under article 17, the aircraft is designed and constructed to prevent the intentional discharge into the atmosphere of liquid fuel from the fuel nozzle manifolds resulting from the process of engine shutdown following normal flight or ground operations.

### **Smoke emission requirements**

**15.**—(1) This article applies to—

- (a) every non-EASA subsonic aeroplane powered by one or more turbojet engines or turbofan engines where the date of manufacture of any such engine was on or after 1st January 1983; and
- (b) every non-EASA supersonic aeroplane powered by one or more turbojet engines or turbofan engines where the date of manufacture of any such engine was on or after 18th February 1982.

(2) Subject to article 18, an aeroplane to which this article applies must not land or take off in the United Kingdom unless every engine fitted to the aeroplane is of a type which has been certified in accordance with article 17 as complying with the requirements relating to smoke emission specified in paragraph (3).

(3) The requirements referred to in paragraph (2) are—

- (a) for turbojet engines or turbofan engines fitted to subsonic aeroplanes, those specified in Part III, Chapter 2 of Volume II of Annex 16; and
- (b) for turbojet engines or turbofan engines fitted to supersonic aeroplanes, those specified in Part III, Chapter 3 of Volume II of Annex 16.

### **Unburned hydrocarbons, carbon monoxide and oxides of nitrogen emission requirements**

**16.**—(1) This article applies to every non-EASA aeroplane which is powered by one or more turbojet engines or turbofan engines referred to in paragraph (2).

(2) The engines referred to in paragraph (1) are those intended—

- (a) for the propulsion of aeroplanes only at subsonic speeds, the rated output of which is greater than 26.7 kilonewtons and the date of manufacture of which was on or after 1st January 1986; and
- (b) for the propulsion of aeroplanes at supersonic speeds, the date of manufacture of which was on or after 18th February 1982.

(3) Subject to article 18, an aeroplane to which this article applies must not land or take off in the United Kingdom unless every engine referred to in paragraph (2)(a) or paragraph (2)(b) which is fitted to the aeroplane is of a type which has been certified in accordance with article 17 as complying with the requirements specified in paragraph (4) relating to the emission of unburned hydrocarbons, carbon monoxide and oxides of nitrogen.

(4) The requirements referred to in paragraph (3) are—

- (a) for turbojet engines or turbofan engines intended for propulsion of aeroplanes only at subsonic speeds, the requirements specified in Part III, Chapter 2 of Volume II of Annex 16;
- (b) for turbojet engines or turbofan engines intended for propulsion of aeroplanes at supersonic speeds, the requirements specified in Part III, Chapter 3 of Volume II of Annex 16.

### **Emissions certification**

17.—(1) Certification required by this Part is issued—

- (a) in the case of a non-EASA aircraft registered in the United Kingdom, by the CAA in accordance with paragraph (2); or
- (b) in the case of any other non-EASA aircraft, by the competent authority of the Contracting State in which the aircraft is registered in accordance with the Chicago Convention.

(2) The CAA must certify a type of aircraft, turbojet engine or turbofan engine if it is of the opinion that the type in question complies with the requirements specified in article 14(3), 15(3) or 16(4).

(3) An applicant for certification to be issued by the CAA pursuant to paragraph (1)(a) must furnish such evidence and submit aircraft or engines of the type in respect of which the application has been made to such tests as the CAA may require.

### **Exceptions to requirement to be certified**

18. The requirement to be certified in accordance with this Part does not apply to—

- (a) an aircraft flying in accordance with the ‘A Conditions’ or the ‘B Conditions’ in Part A of Schedule 3 to the Air Navigation Order 2005; or
- (b) an aircraft landing or taking off at a prescribed place.

### **Exemptions in respect of Part 3**

19. The CAA, after consultation with the Secretary of State, may exempt from any of the provisions of this Part any aircraft or engine or persons or classes of aircraft or engine or persons, either absolutely or subject to such conditions as it thinks fit.

## **PART 4**

### **Carriage of and Production and Revocation of Noise Certificate for Non-EASA aircraft**

#### **Noise certificate to be carried**

20.—(1) A non-EASA aircraft must not land or take off in the United Kingdom unless it carries every noise certificate which it is required to carry under the law of the country in which it is registered.

(2) Subject to paragraph (3), a non-EASA aircraft registered in the United Kingdom must, when in flight, carry every noise certificate which is required by this Order to be in force in respect of that aircraft.

(3) If a flight by a non-EASA aircraft registered in the United Kingdom is intended to begin and end at the same aerodrome in the United Kingdom, the certificate which is required by this Order to be in force in respect of that aircraft may be kept at that aerodrome instead of being carried in the aircraft.

#### **Production of noise certificate**

21.—(1) Within a reasonable time after being requested to do so by the CAA or by an authorised person, the commander of an aircraft must cause to be produced to the CAA or to that person every noise certificate in force in respect of that aircraft which is required to be carried under this Order.



(2) Within a reasonable time after being requested to do so by the CAA or by an authorised person, the operator of an aircraft must cause to be produced to the CAA or to that person every noise certificate in force in respect of that aircraft which is required to be carried under this Order.

#### **Revocation, suspension and variation of noise certificate or exemption**

**22.**—(1) The CAA may, if it thinks fit, provisionally suspend any noise certificate or exemption issued under Part 2 pending inquiry into or consideration of the case.

(2) The CAA may, after sufficient ground being shown to its satisfaction after due inquiry, revoke, suspend or vary any such certificate or exemption.

(3) The holder or any person having the possession or custody of any noise certificate or exemption which has been revoked, suspended or varied under paragraph (2) must surrender it to the CAA within a reasonable time after being required to do so by the CAA.

(4) The breach of any condition subject to which any noise certificate or exemption has been issued under Part 2 renders the certificate or exemption invalid during the continuance of the breach.

## **PART 5**

### **Offences, Penalties and General**

#### **Prohibitions in relation to noise certificates and emissions certification**

**23.**—(1) A person must not with intent to deceive—

- (a) use any noise certificate issued under Part 2 which has been revoked or suspended, or to which he is not entitled;
- (b) lend any such certificate to, or cause or permit it to be used by, any other person; or
- (c) make any false representation for the purpose of procuring for himself or any other person the issue, renewal or variation of any such certificate or of emissions certification issued in accordance with article 17.

(2) A person must not purport to issue any noise certificate or emissions certification under this Order unless he has been authorised to do so by the CAA.

#### **Power to prevent aircraft flying**

**24.**—(1) If it appears to the CAA or to an authorised person that any aircraft is intended or likely to be flown in such circumstances that article 4(1), 6(2), 7(2), 14(2), 15(2) or 16(3) would be contravened, the CAA or that authorised person may direct the operator or the commander of the aircraft or both of them that he or they must not permit the aircraft to make the flight or any other flight of such description as may be specified in the direction, until the direction has been revoked by the CAA or by an authorised person.

(2) If the aircraft is in the United Kingdom, the CAA or that authorised person may take such steps as are necessary to detain the aircraft.

(3) The operator and the commander of an aircraft must comply with any direction given to him or them pursuant to paragraph (1), unless he has or they have reasonable excuse.

(4) For the purposes of paragraph (1), the CAA or any authorised person may enter upon and inspect any aircraft.

### **Right of access to aerodromes and other places**

**25.**—(1) Subject to paragraph (2), for the purpose of ascertaining whether the provisions of this Order are being complied with, the CAA and any authorised person has the right of access at all reasonable times to any aerodrome or any other place in the United Kingdom where an aircraft has landed for the purpose of inspecting that aircraft or inspecting any noise certificate which it, or he, has power to demand under article 21, and for the purpose of detaining that aircraft under article 24(2).

(2) In relation to any Government aerodrome the CAA or the authorised person (as the case may be) must obtain the permission of the person in charge of that aerodrome before exercising the right of access to it referred to in paragraph (1).

### **Obstruction of persons**

**26.** A person must not intentionally obstruct or impede any person acting in the exercise of his powers or the performance of his duties under this Order.

### **Offences and penalties**

**27.**—(1) If any provision of this Order is contravened in relation to an aircraft, the operator and the commander of that aircraft is (without prejudice to the liability of any other person under this Order for that contravention) deemed for the purposes of the following provisions of this article to have contravened that provision unless he proves that the contravention occurred without his consent or connivance and that he exercised all due diligence to prevent the contravention.

(2) If it is proved that an act or omission of any person which would otherwise have been a contravention by that person of a provision of this Order was due to any cause not avoidable by the exercise of reasonable care by that person, the act or omission is deemed not to be a contravention by that person of that provision.

(3) If any person contravenes any provisions of this Order, not being a provision referred to in paragraph (4), he is guilty of an offence and liable on summary conviction to a fine not exceeding level 3 on the standard scale.

(4) If any person contravenes article 4(1), 6(2), 7(2), 14(2), 15(2), 16(3), 23, 24(3) or 26 he is guilty of an offence and liable on summary conviction to a fine not exceeding level 5 on the standard scale.

### **Liability of persons other than principal offender**

**28.**—(1) Where a body corporate is guilty of an offence under this Order, and that offence is proved to have been committed with the consent or connivance of, or to be attributable to any neglect on the part of—

- (a) any director, manager, secretary or other similar officer of the body corporate, or
- (b) any person who was purporting to act in any such capacity,

he, as well as the body corporate, shall be guilty of the offence and be liable to be proceeded against and punished accordingly.

(2) For the purposes of paragraph (1) “director”, in relation to a body corporate whose affairs are managed by its members, means a member of the body corporate.

(3) Where an offence under this Order is committed in Scotland by a Scottish partnership and is proved to have been committed with the consent or connivance of, or to be attributable to any neglect on the part of, a partner, he as well as the partnership shall be guilty of the offence and be liable to be proceeded against and punished accordingly.

### **Application of the Order to the Crown and visiting forces**

**29.**—(1) Subject to paragraphs (2), (3) and (4), the provisions of this Order apply to, or in relation to, aircraft belonging to or exclusively employed in the service of Her Majesty, as they apply to or in relation to other aircraft.

(2) For the purposes of such application the Department or other authority for the time being responsible on behalf of Her Majesty for the management of the aircraft is deemed to be the operator of the aircraft.

(3) Nothing in this article renders such Department or other authority liable to any penalty.

(4) The naval, military and air force authorities and members of any visiting force and any international headquarters and the members thereof and property held or used for the purpose of such a force or headquarters are exempt from the provisions of this Order to the same extent as if that force or headquarters formed part of the forces of Her Majesty raised in the United Kingdom and for the time being serving there.

(5) Nothing in this Order applies to or in relation to any military aircraft.

### **Extra-territorial effect of the Order**

**30.**—(1) The provisions of this Order—

- (a) in so far as they apply to aircraft registered in the United Kingdom, apply to such aircraft wherever they may be;
- (b) in so far as they apply to other aircraft apply to such aircraft when they are within the United Kingdom;
- (c) in so far as they prohibit, require or regulate the doing of anything by the commander of any aircraft registered in the United Kingdom, apply to him wherever he may be; and
- (d) in so far as they prohibit, require or regulate the doing of anything in relation to any aircraft registered in the United Kingdom by other persons, where such persons are Commonwealth citizens, British protected persons or citizens of the Republic of Ireland, apply to them wherever they may be.

(2) Nothing in this article is to be construed as extending to make any person guilty of an offence in any case in which it is provided by section 3(1) of the British Nationality Act 1948<sup>(8)</sup> that that person is not to be guilty of an offence.

### **Acceptance of reports**

**31.** The CAA may, for the purposes of this Order, accept reports furnished to it by a person whom it may approve, either absolutely or subject to such conditions as it thinks fit, as qualified to furnish such reports.

Signatory text

Date

Clerk to the Privy Council

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(8) 1948 c.56. Section 3(1) limits the criminal liability of certain persons who are not citizens of the United Kingdom and colonies.

## SCHEDULE

Article 8

## Microlight noise standards

*SECTION 1**MAXIMUM NOISE LEVELS*

1. For microlight aeroplanes first registered in the United Kingdom or elsewhere before 1st April 1986 the maximum noise levels, when determined in accordance with the noise evaluation method specified in Section 2, must not exceed the following—

- (a) single seat microlight aeroplanes –  $80L_{AE}$  (dB(A));
- (b) two seat microlight aeroplanes –  $84L_{AE}$  (dB(A)).

2. For microlight aeroplanes first registered in the United Kingdom or elsewhere on or after 1st April 1986 and before 5 April 2002 the maximum noise levels, when determined in accordance with the noise evaluation method specified in Section 2, must not exceed the following—

- (a) single seat microlight aeroplanes –  $76L_{AE}$  (dB(A));
- (b) two seat microlight aeroplanes –  $80L_{AE}$  (dB(A)).

3. For microlight aeroplanes first registered in the United Kingdom or elsewhere on or after 5 April 2002 the maximum noise levels, when determined in accordance with the noise evaluation method specified in Section 2, must not exceed  $80L_{AE}$  (dB(A)).

*SECTION 2**NOISE EVALUATION METHOD FOR NOISE CERTIFICATION OF MICROLIGHT AEROPLANES***Introduction**

1. This noise evaluation method includes—
- (a) noise certification test and measurement conditions;
  - (b) computation of the noise evaluation measure,  $L_{AE}$ ;
  - (c) reporting of data to the CAA and correction of measured data.

**Test procedures**

2.—(1) All flight test procedures used in demonstrating compliance with the noise certification requirements must be consistent with the airworthiness certification basis of the aeroplane.

- (2) The tests must be carried out under the following atmospheric conditions—
- (a) no precipitation;
  - (b) ambient temperature not above 35°C and not below 2°C at 1.2m above ground;
  - (c) relative humidity not higher than 95 per cent and not below 20 per cent at 1.2m above the ground;
  - (d) on a diagram of relative humidity plotted against temperature, combinations of relative humidity and temperature which fall below a straight line between (60 per cent, 2°C) and (20 per cent, 35°C) are unacceptable;
  - (e) reported wind speed, when measured at 1.2m above the ground, must not exceed 19 km/hr (10 knots) and cross wind component must not exceed 9 km/hr (5 knots);

- (f) no temperature inversion or anomalous weather conditions that would significantly affect the noise levels of the microlight aeroplane observed at the specified measurement position.
- (3) Flights must be made in equal numbers with tail and head wind components.
- (4) Subject to subparagraph (5) the microlight aeroplane must pass overhead the noise measurement position within  $\pm 10^\circ$  of the vertical at a height of 150 (+10/-70) m (490 (+33/-230) ft).
- (5) The CAA may, having regard to the poor definition, in some circumstances, of the noise field shape for microlight aeroplanes at 150m determine that the test be undertaken at a height of 100 (+60/-20) m (328 (+197/-60) ft).
- (6) Overflights must be performed at stabilised speed in the cruise configuration, except that where the speed at take-off power would exceed the maximum speed authorised in level flight, climbing flight is acceptable.
- (7) The maximum static propeller speed must be measured using a device accurate to within  $\pm 1$  per cent.
- (8) When requested in advance by the CAA, tape recordings of the noise tests must be provided. In such cases the instrumentation standards and procedures must be those described in paragraph 4.

### Calculation of sound exposure level $L_{AE}$ from measured noise data

3.—(1) The sound exposure level  $L_{AE}$  is defined as the level, in decibels, of the time integral of squared ‘A’-weighted sound pressure ( $P_A$ ) over a given time period or event, with reference to the square of the standard reference sound pressure ( $P_0$ ) of 20 micropascals (P) and a reference duration of one second.

(2) This unit is defined by the expression—

$$L_{AE} = 10 \log \frac{1}{T_0} \int_{t_1}^{t_2} \left( \frac{P_A(t)}{P_0} \right)^2 dt$$

where  $T_0$  is the reference integration time of one second and  $(t_2 - t_1)$  is the integration time interval.

(3) The above integral can also be expressed as—

$$L_{AE} = 10 \log \frac{1}{T_0} \int_{t_1}^{t_2} 10^{L_A(t)/10} dt$$

where  $L_A(t)$  is the time varying ‘A’-weighted sound level.

(4) The integration time  $(t_2 - t_1)$  in practice must not be less than the time interval during which  $L_A(t)$  first rises to within 10dB(A) of its maximum value ( $L_{Amax}$ ) and last falls below a level of 10dB(A) less than its maximum value.

(5) The  $L_{AE}$  may be approximated by the following expression for  $L_{Amax}$ —

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$$L_{AE} = L_{Amax} + \Delta A$$

where  $\Delta A$  is the duration allowance given by  $\Delta A = 10 \log \tau$  where  $\tau = (t_2 - t_1)/2$ .

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### Measurement system

4.—(1) The measurement system must consist of equipment equivalent to the following—

- (a) A microphone, amplifier and indicating instrument having frequency response characteristics compatible with the measurement and analysis system accuracy required by sub-paragraph (2).
- (b) Tripods or similar microphone mountings that minimise interference with the sound being measured.
- (c)
  - (i) Subject to sub-paragraph (ii), recording and reproducing equipment (when used) having frequency response and dynamic range characteristics compatible with the measurement and analysis system accuracy required by sub-paragraph (2).
  - (ii) The CAA may require that the sound produced by the microlight aeroplane must be recorded in such a way that complete information, including time history, is retained.
- (d)
  - (i) Acoustic calibrators using sine wave or broadband noise of known sound pressure level.
  - (ii) If broadband noise is used, the signal must be described in terms of its average and maximum root-mean-square (rms) value for non-overload signal level.
- (e) A graphic level recorder or tape recorder may be used to record the noise time history.

*Sensing, Recording and Reproducing Equipment for Aeroplanes*

- (a) (2) (a) The sound level produced by the aeroplane must be recorded, for which purpose a magnetic tape recorder, graphic level recorder or sound level meter may be used at the option of the CAA.
- (b) When a tape recorder is used it must form part of the complete system complying with International Electrotechnical Commission (IEC) Publication No. 1265(9) or an equivalent standard.
- (c) The response of the complete system to a sensibly plane progressive sinusoidal wave of constant amplitude must lie within the tolerance limits specified in Table IV and Table V for Type 1 instruments in IEC Publication No. 60651 or an equivalent standard for weighting curve 'A' over the frequency range 40 to 12 500 Hz.
- (d)
  - (i) The recorded noise signal must be read, over the frequency range 40 to 12 500 Hz through an 'A' weighting network as defined in IEC Publication No. 60651 or an equivalent standard with time weighting designated 'S' (SLOW)(10).
  - (ii) With the agreement of the CAA, during tests with high flight speeds, the 'F' (FAST) time weighting may be applied to obtain the true level.
- (e)
  - (i) A windshield must be employed with the microphone during all measurements of microlight aeroplane noise.
  - (ii) Its characteristics must be such that, when it is used, the complete system, including the windshield, will meet the specifications of sub-paragraph (c).
  - (iii) Its insertion loss at the frequency of the acoustic calibrator must also be known and included in the provision of an acoustic reference level for the analysis of the measurements.

(9) International Electrotechnical Commission Publications are available at [www.iec.ch/](http://www.iec.ch/).

(10) F(FAST) time weighting refers to the simulated linear response of the sound level analysers to an actual change in Sound Pressure Level (SPL) readings. The normal procedure, designated S(SLOW), takes four half second SPL readings and uses 13% from the initial half second interval, 21% from the second, 27% from the third and 39% from the fourth to calculate an equivalent SPL for a point in time at 1.25 seconds. This method is used in modern day analysis to simulate the performance of the old analogue analysers and maintain a constant data processing methodology. The F(FAST) time weighting response uses the same procedure as S(SLOW) but is performed over a short duration and is equivalent to the performance of a digital analyser. This method is sometimes used in tests with high flight speeds in order to obtain a clearer and more accurate noise profile.

- (f) (i) The overall sensitivity of the measuring system must be checked before and after the measurement of the noise level for a sequence of tests, using an acoustic calibrator generating a known sound pressure level at a known frequency.
- (ii) The output of the acoustic calibrator must have been certified by a standardising laboratory<sup>(11)</sup> within 6 months of the test series.
- (iii) Tolerable deviation in output from the manufacturer's stated level must be not more than 0.2dB.

### **Noise measurement procedures for microlight aeroplanes**

5.—(1) For demonstrating compliance with this Section the microphone must be oriented in a known direction so that the maximum sound received arrives as nearly as possible in the direction for which the microphones are calibrated.

(2) The microphones must be placed so that their sensing elements are approximately 1.2m (4ft) above the ground.

(3) Immediately prior to and after each test, a recorded acoustic calibration of the system must be made in the field with an acoustic calibrator for the purposes of checking system sensitivity and providing an acoustic reference level for the analysis of the sound level data.

(4) The ambient noise, including both acoustical background and electrical noise of the measurement systems, must be recorded and determined in the test area with the system gain set at levels which will be used for aeroplane noise measurements.

(5) If aeroplane sound pressure levels do not exceed the background sound pressure levels by at least 10dB(A), approved corrections for the contribution of background sound pressure level to the observed sound pressure level must be applied.

### **Adjustment of flight test results**

6.—(1) Differences between test conditions and reference conditions must require that adjustments be made to the measured  $L_{AE}$  figures for two different effects—

- (a) variations in propeller tip Mach number and hence source noise;
- (b) variations in microlight aeroplane height over the noise measurement position and hence in noise path length.

(2) The adjustments must be made in accordance with sub-paragraphs (3), (4), (5) and (6).

#### *Adjustment for Propeller Tip Mach Number*

(3) An adjustment for propeller source noise  $\Delta m$  must be added to the measured sound exposure level  $L_{AEmeas}$  where—

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$$\Delta m = 85 \log((T - 0.0065H) / 298)$$

and T is the absolute temperature in degrees Kelvin at the height of the microphone on the test day, and H is the height in metres of the microlight aeroplane over the microphone.

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(4) For microlight aeroplanes described in paragraph 1 of Section 1, if the propeller tip Mach number measured statically is less than 0.7, the adjustment  $\Delta m$  must be taken to be zero.

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(11) A "standardising laboratory" refers to a technical laboratory which has acoustic equipment calibrated against a "gold" national standard and which is licensed to calibrate other external acoustic equipment against this "gold" standard. This is a well known and documented technical term quoted in ICAO Annex 16, Volume 1, Appendix 2, Paragraph 3.5.5.

#### *Adjustment for Noise Path Difference*

(5) Noise measurements made for microlight aeroplane heights over the noise measurement position different from 150m (492 ft) must be adjusted to 150m (492 ft) by adding a correction  $\Delta H1$  to the measured sound exposure level  $L_{AE}$  where—

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$$\Delta H1 = 14 \log(H / 150)$$

and H is the height in metres of the microlight aeroplane over the microphone.

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(6) Reference day sound exposure level ( $L_{AEref}$ ) must be obtained from—

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$$L_{AEref} = L_{AEmeas} + \Delta m + \Delta H1$$

where  $L_{AEmeas}$  is the measured value of  $L_{AE}$ .

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#### **Noise evaluation measure**

7. The noise evaluation measure must be the sound exposure level  $L_{AE}$  as defined in this Section.

#### **Noise certification reference procedures**

8.—(1) The reference procedure must be calculated under the following atmospheric conditions—

- (a) sea level atmospheric pressure of 1013.25 hPa;
- (b) ambient temperature of 25°C at 1.2m above ground.

(2) The reference flight procedure must comprise a series of level flights overhead the noise measurement position at a height of 150m (492 ft) and at maximum take-off power.

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### **EXPLANATORY NOTE**

*(This note is not part of the Order)*

1. This Order revokes and replaces the Air Navigation (Environmental Standards) Order 2002.

2. This Order sets out the environmental standards (noise and emissions) with which specified categories of United Kingdom registered aircraft which are not subject to the Basic EASA Regulation (O.J. No. L 240 of 7.09.2002, p.1) must comply. The Basic EASA Regulation establishes the European Aviation Safety Agency, sets out essential requirements for environmental protection and provides for the making of implementing rules in support of those essential requirements. The aircraft which are not subject to the Basic EASA Regulation are State aircraft and those coming within one of the categories listed in Annex II to that Regulation. United Kingdom registered aircraft which are subject to the Basic EASA Regulation must comply instead with the environmental standards provided for in that Regulation and in [Commission Regulation \(EC\) No 1702/2003](#) (O.J. No. L 243, 27.9.2003, p.6).



3. Apart from minor drafting changes no changes are made to the requirements for those aircraft which are subject to this Order.

4. Copies of Annex 16 to the Convention on International Civil Aviation (Volume 1 Aircraft Noise, 4th edition and Volume II Aircraft Engine Emissions, 2nd edition, both published by the International Civil Aviation Organisation) may be obtained from—

(a) Airplan Flight Equipment Ltd, 1A Ringway Trading Estate, Shadowmoss Road, Manchester M22 5LH; or

(b) Labeline (Air, Sea and Road), Holly House, 14 Tenby Road, Frimley, Surrey GU16 5UT.

5. A Regulatory Impact Assessment has not been produced for this instrument as it has no new impacts on business, charities or voluntary bodies.