

# COMMISSION OF THE EUROPEAN COMMUNITIES

COM(76) 157 final.

Brussels, 20th April 1976.

## PROPOSAL FOR A COUNCIL DIRECTIVE

on the limitation of noise emission from subsonic aircraft

(submitted to the Council by the Commission)

COM(76) 157 final.

## BACKGROUND

This proposal for a directive falls within the Programme of Action of the European Communities on the Environment of 22 November 1973<sup>1</sup>. That programme highlights the urgency of action to deal with emissions from noisy sources and the approximation of relevant national laws. More specifically, the Council, in reply to Written Question No 654/73 put by Members of the European Parliament on the subject of aircraft noise, stated that "the environment programme of the European Communities provides for mounting a campaign against environmental and noise pollution caused by aircraft". In that reply the Council also envisaged standards for aircraft, making use of work done by international organizations.

The aim of this proposal is to establish a uniform system of Community rules to limit noise emissions from subsonic aircraft, bearing in mind the Council's request to take account of what international organizations have done.

### 1. Statement of the problem

The problem of aircraft noise near airports is not new in the Member States of the European Community. Detailed studies have shown that annoyance depends on the nature of the noise (deep or high-pitched sound), its intensity and its duration.

With the advent of subsonic jet aircraft the noise situation around airports changed considerably. Measurements have shown a predominance of high-pitched sounds in their emission spectra. Furthermore, the increase in payload of civil jet aircraft has brought an increase in engine thrust and hence in noise; moreover, the increase in the volume of air traffic has resulted in longer exposure times to noise nuisances.

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<sup>1</sup>OJ No C 112 of 12 December 1973.

And the environmental impact of the fleet of executive aircraft, composed mainly of small subsonic jets (less than 28 500 kg) must not be overlooked. Recent Community statistics show their number increasing annually at a rate of more than 2.3% of the total European civil aircraft fleet.

It is also accepted that the noise of light propeller aircraft is causing serious problems in Europe. Annoyance arises mostly from take-offs, landings and low flying and particularly at weekends and on public holidays.

It is therefore clear that the nature of the noise emitted by aircraft and its intensity, plus growth and changes in air traffic, have led to a steady degradation of the environment around airports.

## 2. International action

The Fifth Air Navigation Conference of ICAO<sup>1</sup> in 1967 made certain recommendations based on the principal conclusions of the International Conference on the reduction of noise and disturbance caused by civil aircraft (London 1966) with the object of reaching international solutions to the problem through the ICAO. This led to the ICAO Council on 2 April 1971 to adopt the first set of standards and recommended practices on aircraft noise, known as "Annex 16 to the International Convention on Civil Aviation".

Among other things Annex 16 contains international standards and recommended practices relating to the noise certification of various categories of aircraft.

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<sup>1</sup>International Civil Aviation Organization.

The first amendment to Annex 16, adopted by the ICAO Council on 6 April 1973, became operative on 16 August 1973. It covered subsonic jet aircraft with a maximum take-off weight greater than 5 700 kg, powered by engines with a bypass ratio greater than two and which received their first individual certificate of airworthiness after 1 March 1972, or aircraft powered by other categories of engine and which were granted their type certificate of airworthiness after 1 January 1969. The same standards applied to subsonic jet aircraft with a maximum take-off weight exceeding 23 500 kg and powered by engines with a bypass ratio less than two if the type certificate of airworthiness was issued before 1 January 1969 and their first individual certificate of airworthiness was not issued before 1 January 1976.

The second amendment adopted by the ICAO Council on 3 April 1974 came into force on 27 February 1975. It extended the scope of the Annex to include all recent jet aircraft, irrespective of weight, and introduced recommended practices for the noise certification of light propeller aircraft.

In the light of these developments, and of progress at international level and in view of the opinions expressed by national experts, the Commission believes that the most effective way of reducing aircraft noise is by the uniform application in all the Member States of the European Community of ICAO standards, in particular those set out in the latest version of Annex 16 to the Chicago Convention on International Civil Aviation. Article 37 of this Convention, of which Annex 16 is a part, requires each contracting State to undertake to achieve the greatest possible uniformity in regulations and standards. The latter do not become mandatory in a State until embodied in its (national) laws.

3. Situation of the law in the Member States

The relevant laws of most Member States of the European Community are based on the principles of Annex 16. Nevertheless, there are major discrepancies between them. Italy, for example, has at present only a code of practice which is embodied in the "Registro Aeronautica Italiana" and provides for a system of certification based on the standards of Annex 16, and Luxembourg still has no laws at all in this field.

Of the other Member States, Germany, France, Ireland, the Netherlands and the United Kingdom based their laws on the first amendment to Annex 16.

Belgium and Denmark based their laws on the latest version of Annex 16.

The detailed position is as follows:

### Germany

The problem of aircraft noise is governed by the 'Bundesimmissionsschutzgesetz 1974, paragraph 38 and more particularly by a Regulation (NfL II 65/73 of 30 August 1970) which introduces the standards of Annex 16. There is also a code of practice for light propeller aircraft ('Bekanntmachung des Luftfahrtbundesamtes über Lärmgrenzwerte bei Propellerflugzeugen bis 5 700 kg Höchstgewicht und Motorseglern<sup>1</sup>, of 12 April 1972, page 94).

### France

By Decree No 73256 of 6 March 1973 and a Ministerial Order of 10 April 1974 France introduced a noise certification procedure based on Annex 16.

### Ireland

Irish law reflects the first version of Annex 16 - Air Navigation (Noise Certificate and Limitation) Order 1972 and the Air Navigation (Noise Certificate and Limitation) (Amendment) Order 1973.

### Netherlands

The situation is governed by the 'Luchtverkeerswet' of 1971 which contains a number of provisions for controlling aircraft noise. Under this Law two Regulations have been made (of 15 March 1972 and 18 March 1974) introducing type certification procedure in conformity with Annex 16.

### United Kingdom

Procedure for the noise certification of aircraft was introduced by the Air Navigation (Noise Certification) Order 1970 and Air Navigation (Noise Certification) Amendment Order 1972. This procedure is partly based on the first amendment to Annex 16.

Furthermore, for certain aircraft or categories of aircraft these regulations provide for exemptions from Annex 16 standards.

### Belgium

The Ministerial Order of 2 May 1975 lays down standards for subsonic jet aircraft and thereby Belgian civil airworthiness requirements for all aircraft. Only aircraft complying with the latest version of Annex 16 standards will be certificated.

Article 11 thereof also makes provision from 1980 onwards for flying restrictions on Belgian and foreign aircraft which do not comply. This order was notified to the Commission on 18 July 1975 under the Information Agreement on the Environment.

#### Denmark

Danish law, passed in 1975, is based on the latest version of Annex 16 as regards scope and noise levels but is stricter as regards the operative date which was brought forward to 20 February 1975.

#### Retrofitting

The introduction of turbofan engines with higher bypass ratios has brought a considerable reduction in the noise of subsonic jet aircraft. Similar engines power new generations of aircraft, but not certain older aircraft still in use. Nevertheless, possible ways of converting these aircraft are being investigated. Some nacelle manufacturers have developed quiet-nacelle and refanning kits which reduce noise of aircraft fitted with them. From a Commission study on the current composition of civil airline fleets an assessment can be made of the total cost of retrofitting with quiet nacelles. The total for the entire Community is put at US \$200 million (1974), not including the added operating costs after conversion since the cheapest quiet-nacelle modification increases fuel consumption and degrades performance. Admittedly refanning does not have these disadvantages, but even where practicable it costs far more than quiet nacelles.

It should also be borne in mind that some types of aircraft can be neither retrofitted with quiet nacelles nor refanned and that, given the lead

times for kits, it would be 1982 before even part of the European fleet could be retrofitted. This puts a limit on the effectiveness of a retrofitting policy.

In the present economic climate, these two solutions cannot be contemplated for the time being, particularly as there are some doubts about the actual reduction achieved in the noise perceived on the ground.

Consequently, although it is technically feasible to reduce the noise of the majority of subsonic jets, it does not make economic sense to modify aircraft already in service. On the other hand, there is every justification for taking measures to improve all aircraft (irrespective of their weight) which have not yet been awarded their individual certificates of airworthiness.

#### CONCLUSION

Although the majority of Member States invoke the ICAO's Annex 16, national laws differ in scope. Two States currently have no laws on this subject. Such discrepancies not only run the risk of limiting the effectiveness of the measures to combat aircraft noise, but also of creating distortions in competition between purchasers (airline companies) which would have a direct effect on the functioning of the common market.

There is therefore a need to approximate the laws of the Member States on the basis of Article 100 of the Treaty of Rome.

Under that Article the opinion of the European Parliament and the Economic and Social Committee is required.

COMMENTS ON THE PROPOSAL FOR A DIRECTIVE

Article 1: Scope

This Article defines the scope of this proposal for a directive, namely subsonic jet aeroplanes, irrespective of weight, and light propeller aeroplanes (see Annex 1). It embodies the requirements of the latest version of Annex 16 to the Convention on International Civil Aviation, adopted by the ICAO Council on 3 April 1974 and operative from 27 February 1975.

The ICAO is currently considering other categories, particularly heavy propeller aeroplanes, short take-off aeroplanes and helicopters.

Article 3: EEC noise limitation certificate and issuing procedure

The EEC noise limitation certificate standardized by this directive will facilitate, both administratively and technically, the free movement of aircraft, either by way of sale or hire, between Member States. Thus, if the State of registration is changed, the new EEC noise limitation certificate will be issued by the new State to replace the old certificate. Article 3(3) lays down the requirements for EEC certification and refers to Annex II to the proposal for a directive which specifies the methods of measurement and noise levels to be met.

Article 4: Checks on compliance

The purpose of checking the compliance of an aircraft in use is to uphold the noise standards required by this proposal. Provision is also made for the exchange of information between Member States to make checks easier. The value of the EEC noise limitation certificate is also enhanced by such checks.

Article 5: Obligations

Section 1 concerns only aircraft on the civil aviation registers of Member States. Section 2, however, relates to all civil aircraft of non-member countries landing or taking off in a Member State. In accordance with Article 37 of the Convention on International Civil Aviation, this proposal imposes the latest ICAO standards and recommended practices on aircraft of non-member countries.

The aim of Article 5(3) is to permit a Member State to use a non-certificated aircraft for non-commercial purposes.

A laissez-passer concerning noise nuisance would, for example, be issued to cover the testing of a prototype.

Article 6:

Article 6 requires mutual recognition of an EEC noise limitation certificate issued by a Member State. It leaves Member States free to impose restrictions on aircraft outside the scope of this Directive. It therefore provides an incentive to modernize fleets and consequently reduce noise emission.

Article 7: Committee on Adaptation to Technical Progress

A procedure for the revision of the directive is necessary to enable it to be adapted to the capabilities offered by technical progress<sup>1</sup>. This revision procedure should enable prompt adaptation to technical developments and prevent the process of harmonization provided for in the Directive from becoming a handicap on the Community industry involved.

To this end, the proposal for a directive provides for a Committee on Adaptation to Technical Progress to be set up.

The Committee's powers are confined to the revision of the Annexes and of the date of application of the various versions of Annex 16 of the Convention on International Civil Aviation referred to in Section 2 of the proposal.

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ANNEXES

The Annexes to the proposal for a directive embody the substance of the second part of the ICAO standards and recommended practices (latest version). They refer to Appendix I to Annex 16 as regards the measurement of noise emitted by subsonic jets and to Appendix 4 as regards light propeller aeroplanes.

The amendment of certain provisions of Annex 16, embodied in this proposal for a directive, is now in hand at the ICAO. When these amendments are adopted by the ICAO Council, the Committee on Adaptation to Technical Progress will have to act on them.

PROPOSAL FOR A COUNCIL DIRECTIVE

on the limitation of noise emission from subsonic aircraft

THE COUNCIL OF THE EUROPEAN COMMUNITIES,

Having regard to the Treaty establishing the European Economic Community, and in particular Article 100 thereof,

Having regard to the proposal from the Commission,

Having regard to the Opinion of the European Parliament,

Having regard to the Opinion of the Economic and Social Committee,

Whereas the programme of action of the European Communities on the environment<sup>1</sup> shows clearly the importance of the problem of noise and, in particular, the need to take action against the most offensive sources of noise;

Whereas aircraft noise can be harmful to human health and well-being; whereas consequently it should be reduced;

Whereas national laws on aircraft noise differ from one Member State to another; whereas these disparities are capable of hindering trade within the Community and may therefore directly affect the functioning of the common market;

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<sup>1</sup>OJ No C 112 of 20 December 1973.

Whereas the most effective way of reducing this nuisance is to lay down a limit on noise emissions at source, taking into account particularly the standards and practices recommended by ICAO under Annex 16 to the International Convention on Civil Aviation;

Whereas to achieve this objective an **EMEC** noise limitation certificate should be introduced authorizing take-off and landing in the territory of the Member States;

Whereas this certificate should be issued by the competent authority of the State in which the aircraft is registered, and whereas this certificate could be withdrawn if the aircraft no longer complies with this Directive;

Whereas air traffic to and from airports situated in the territory of the Member States consists partly of aircraft registered in non-member countries, and whereas they too should be subject to the restrictions on the level of emission;

Whereas in order to provide flexibility in the application of this Directive, Member States should have the power to make derogations, these being limited to non-commercial operations;

Whereas technical progress requires prompt adjustment of the requirements laid down in the Annexes hereto; whereas to make it easier to adopt the necessary measures, there should be a procedure to ensure close cooperation between the Member States and the Commission within a Committee on the Adjustment to Technical Progress of this Directive,

**HAS ADOPTED THIS DIRECTIVE:**

## ARTICLE 1

This Directive applies to all subsonic aircraft entered on a civil aviation register, whose characteristics are specified in Annex I and which operate in a Member State.

## ARTICLE 2

For the purposes of this Directive,

1. "Aircraft" means any machine that can derive support in the atmosphere from air reactions other than the thrust of air against the earth's surface;
2. "Aeroplane" means an aircraft fitted with an engine deriving its lift in flight chiefly from aerodynamic reaction against surfaces which remain fixed under given conditions of flight;
3. "EEC noise limitation certificate" means the document by which the Member State which has registered the aircraft recognizes that such aircraft meets the requirements of this Directive;
4. "Laissez-passer" means the provisional document without which an aircraft which is not the subject of an EEC noise limitation certificate shall not fly.

## ARTICLE 3

1. An EEC noise limitation certificate is hereby introduced. This certificate shall contain the following minimum information:

- (a) State of registration;
- (b) Manufacturer's serial number;
- (c) Manufacturer's designation of type and model;
- (d) Details of any additional modification carried out in order to comply with the standards required for noise certification;
- (e) Maximum weights at which it has been shown that the standards applicable for noise certification have been complied with;
- (f) In the case of aircraft in respect of which an application for a certificate has been submitted after (within eighteen months of notification of the Directive): noise levels and 90% probability coefficients for which it has been shown that this Directive has been complied with.

A form of the EEC certificate appears in Annex III.

2. The EEC noise limitation certificate shall be issued by the Member State in which the aircraft is registered.
3. The EEC noise limitation certificate shall not be issued unless the noise level of the aircraft, as determined in accordance with the provisions of Annex II, Chapter A, Sections 1, 2 and 5 and Chapter B, Sections 1 and 3, does not exceed the values laid down in Annex II, Chapter A, Sections 3 and 4, and Chapter B, Section 2.
4. Where the State of registration is changed, a new EEC certificate must be issued by the new State to replace the old certificate.

#### ARTICLE 4

1. The competent authorities of each Member State shall take the necessary measures to ensure that any aircraft entered on its register in respect of which it has previously granted an EEC noise limitation certificate complies with this Directive.

2. Where a Member State finds, after carrying out a check, that an aircraft entered on its register no longer conforms to the requirements of this Directive, it shall take the necessary measures to ensure such conformity.

The competent authorities of that Member State shall, within one month, inform those of the other Member States concerned of any discrepancies found and of the measures taken.

These measures may, where necessary, extend to the suspension or withdrawal of the EEC noise limitation certificate.

3. The Member State which has taken measures in accordance with paragraph 2 above shall notify such measures to the person concerned, together with the full technical grounds on which they are based, the remedies available to him under the laws in force in the Member State concerned, and the time limits allowed for the exercise of such remedies.

#### ARTICLE 5

1. No aircraft referred to in Article 1 may land or take off at an airport situated in the territory of a Member State unless it is in possession of a valid EEC noise limitation certificate.
2. The paragraph 1 above shall not apply to aircraft entered on the civil aviation register of a third country which possess a valid certificate of conformity issued by the competent authority of the State of registration to standards at least as high as those in Annex 16 to the Convention on International Civil Aviation in the version valid on 27 February 1975.

3. The competent authority of each Member State may, for special non-commercial purposes, grant exemptions to paragraph 1 above by issuing a laissez-passer.

The validity thereof shall be restricted to flights above the territory of the Member State issuing the laissez-passer, save where it is endorsed by one or more other Member States or by third countries.

#### ARTICLE 6

No Member State may refuse, on grounds relating to the level of the noise it emits, to allow an aircraft to take off or land on its territory, where the aircraft possesses a valid EEC noise limitation certificate.

#### ARTICLE 7

Annexes I, II and III shall form an integral part of this Directive.

#### ARTICLE 8

Any amendments necessary in order to adjust the Annexes to this Directive and the date laid down in Article 5(2) to take account of technical progress shall be adopted in accordance with the procedure laid down in Article 10.

#### ARTICLE 9

1. There is hereby set up a Committee on the Adjustment to Technical Progress of this Directive, (hereinafter called "Committee"). It shall consist of representatives of the Member States with a representative of the Commission as Chairman.
2. The Committee shall adopt its own rules of procedure.

#### ARTICLE 10

1. Where the procedure laid down in this Article is to be followed, the matter shall be referred to the Committee by its Chairman, either on his own initiative or at the request of a representative of a Member State.

2. The representative of the Commission shall submit to the Committee a draft of the measures to be taken. The Committee shall render its opinion on that draft within a time limit set by the Chairman having regard to the urgency of the matter and to the provisions of Annex 16 of the Convention on International Civil Aviation. Opinions shall be adopted by a majority of 41 votes, the votes of the Member States being weighted as provided in Article 148(2) of the Treaty.

The Chairman shall not vote.

3. (a) Where the measures envisaged are in accordance with the opinion of the Committee, the Commission shall adopt them.  
(b) Where the measures envisaged are not in accordance with the opinion of the Committee, or where no opinion is delivered, the Commission shall forthwith submit to the Council a proposal on the measures to be taken. The Council shall act by a qualified majority.  
(c) If, within three months of the proposal being submitted to it, the Council has not acted, the proposed measures shall be adopted by the Commission.

#### ARTICLE 11

1. Member States shall put into force the laws regulations and administrative provisions needed in order to comply with this Directive within 18 months of its notification and shall forthwith inform the Commission thereof.
2. Member States shall ensure that the text of the main provisions of national law which they adopt in the field covered by this Directive are communicated to the Commission.

#### ARTICLE 12

This Directive is addressed to the Member States.

AIRCRAFT CHARACTERISTICS

1. The provisions of this Directive shall apply to subsonic jet aircraft which are:
  - (a) equipped with engines having a bypass ratio of at least two and which were granted their first individual certificate of airworthiness on or after 1 March 1972;
  - (b) equipped with other classes of engines and in respect of which the request for a certificate of airworthiness for the prototype was accepted, or some equivalent official procedure was carried by the certification authorities, on or after 1 January 1969,  
  
with the exception of aircraft requiring a runway length (excluding the stopway or the clearway) not exceeding 450 metres (1 500 feet) at the maximum weight shown on the certificate of airworthiness.
2. The provisions of this Directive shall also apply to all subsonic jet aircraft equipped with engines having a bypass ratio of less than two, if the request for a certificate of airworthiness for the prototype was accepted, or some equivalent official procedure was carried out by the certification authorities, before 1 January 1969, and if their first individual certificate of airworthiness was not issued after 1 January 1976.
3. The provisions of this Directive shall also apply to all propeller-driven aircraft, with the exception of aircraft which are specially equipped for agricultural or fire-fighting work, whose maximum take-off weight does not exceed 5 700 kg (12 566 lbs) and which comply with one or other of the following conditions:

- (a) the application for a certificate of airworthiness in respect of the prototype was accepted, or some equivalent official procedure was carried out by the certification authorities, on or after 1 January 1975;
- (b) the application for a certificate of airworthiness in respect of the prototype was accepted, or some equivalent official procedure was carried out by the certification authorities, before 1 January 1975, and the first individual certificate of airworthiness was issued on or after 1 January 1980;
- (c) the application in respect of a design modification affecting the noise characteristics of the aircraft was accepted, or some equivalent official procedure was carried out by the certification authorities, on or after (date of entry into force of this Directive).

METHOD OF EVALUATING SUBSONIC AIRCRAFT NOISE

Chapter A.

Method of evaluating subsonic jet aircraft noise

1. The measure for the evaluation of noise shall be the effective perceived noise level expressed in EPNdB, in accordance with Appendix 1 to Annex 16 to the Convention on International Civil Aviation.

2. Measurement points

When carrying out tests in accordance with the flight test procedures laid down in Section 1.5, the noise levels caused by aircraft shall not exceed the levels laid down in Section 1.3, at the following measurement points:

- (a) Sideline measurement point: a point located on a line parallel to the runway axis at 650 m (0.35 NM) from that axis or its projection, where the noise level at take-off is greatest.
- (b) Measurement point overflown at take-off: a point located on the projection of the runway axis, at a distance of 6 500 m (3.5 NM) from the start of the take-off run.
- (c) Measurement point overflown on approach: a point on the ground on the projection of the runway axis, 120 m (394 ft) below a descent axis of 3° originating at a point located 300 m (984 ft) beyond the threshold. On flat ground, this measurement point shall be located 2 000 m (1.08 NM) from the threshold.

3. Maximum noise levels

The maximum noise levels, determined in accordance with the method of noise evaluation set out in Appendix 1 to Annex 16 to the Convention on International Civil Aviation, shall not exceed the values given below:

- (a) At the sideline and approach points of measurement: 108 EPNdB for aircraft whose maximum certification take-off weight is at least 272 000 kg (599 660 lbs), this value being reduced by 2 EPNdB when the maximum weight of 272 000 kg (599 660 lbs) is halved, and so on, reaching 102 EPNdB when the maximum certification weight is 34 000 kg (74 960 lbs) or less.
- (b) At the measurement point overflown at take-off: 108 EPNdB for aircraft whose maximum certification take-off weight is at least 272 000 kg (599 660 lbs), this value being reduced by 5 EPNdB when the maximum weight of 272 000 kg (599 660 lbs) is halved, and so on, reaching 93 EPNdB when the maximum certification weight is 34 000 kg (74 960 lbs) or less.

Note: Within the limits specified above, the maximum noise levels vary in linear relation to the logarithm of the weight of the aircraft.

#### 4. Compensation

If the maximum noise level at one or two measurement points exceeds the maximum permitted level:

- (a) the sum of such excesses shall not be greater than 4 EPNdB; however, in the case of four-engined aircraft powered by engines whose bypass ratio is at least two, and in respect of which the application for a certificate of airworthiness for the prototype was accepted, or some equivalent official procedure carried out by the certification authorities, before 1 December 1969, the sum of the excesses shall not be greater than 5 EPNdB;
- (b) the excess at any one point shall not be greater than 3 EPNdB;

- (c) any excesses shall be offset by a corresponding reduction at the other measurement point(s):

5. Flight test procedure

5.1 Procedure for take-off tests

- (a) The take-off thrust shall be maintained from the start of take-off to the point at which the aircraft reaches a height of at least 210 metres (700 feet) above the runway, and shall not be cut back to a lower value than that required to maintain a climb gradient of at least 4%.
- (b) A speed of at least  $V_2 + 10$  knots shall be attained as soon as possible after take-off, and shall be held throughout the take-off test.
- (c) Except for the position of the landing gear, a constant take-off configuration, selected by the applicant, shall be maintained throughout the certification test for take-off noise.

5.2 Procedure for approach tests

- (a) The aircraft shall be flown at a constant speed at an angle of descent of  $3^\circ \pm 0.5^\circ$ .
- (b) The aircraft shall approach at a constant speed of at least  $1.3 V_5 + 10$  knots during the approach and above the measurement point, and that speed shall be held up to normal landing.
- (c) The configuration of the aircraft shall be that of the maximum permissible deflection of the high-lift flaps.

## Chapter B

Method of evaluation for aircraft noise from propeller-driven  
light aircraft1. Noise evaluation measurement

- (a) The overall weighted acoustic pressure level defined in Publication No 179 of the International Electrotechnical Commission (IEC) will be used for noise evaluation measurements.

The weighting applied to each sinusoidal acoustic pressure component must be shown as a function of frequency by the standard reference curve "A".

- (b) Where the certification authorities so require, the acoustic data will also be expressed in EPNdB in accordance with Appendix 1 to Annex 16 to the Convention on International Civil Aviation mentioned above; in order to calculate the corrected time laid down in Appendix 1, in each case, the time interval must be the period, to the nearest second, during which PNL<sub>T(k)</sub> is higher than PNL<sub>TM</sub> - 10, the lower limit of 90 TPNdB not being applied.

2. Maximum noise levels

- (a) For the aircraft referred to in Annex I (section 3(a)(b)) the maximum noise levels, determined in accordance with the method of noise evaluation set out in Appendix 4 to Annex 16 to the Convention on International Civil Aviation, shall not exceed the following limits:

- a constant limit of 68 dB (A) for aircraft with a weight not exceeding 600 kg (1 323 lbs), this limit varying thereafter in linear relation to the weight up to a weight of 1 500 kg (3 307 lbs), after which the limit remains constant at 80 dB (A) up to 5 700 kg (12 566 lbs).

(b) No modification may be made to propeller-driven light aircraft referred to in Annex I (Section 3(c)) which would have the effect of raising the noise level of such aircraft above the higher of the following two levels:

- limit specified under Section 2 above
- the level which it developed before modification.

3. Flight test procedure

(a) Tests intended to show that an aircraft complies with the maximum noise levels laid down in Section 2 above shall include a number of level flights carried out at a height of 300 metres ± 10 metres (1 000 feet ± 30 feet) vertically above the measurement point.

(b) The overflight shall be executed at maximum continuous power, at a constant speed and in a cruising configuration; if however, the speed at maximum continuous power exceeds the maximum authorized level-flight speed, an accelerating flight will be acceptable.

Specimen

EEC Aircraft Noise Limitation Certificate

It is hereby certified that the above-mentioned aircraft complies with the requirements of the Directive of the Council of the European Communities of ..... concerning aircraft noise.

Certificate No .....

Country of registration .....

Certificate of airworthiness .....

Manufacturer's serial number .....

Type and model .....

Maximum take-off weight .....

Maximum landing weight .....

Modifications carried out in order to comply with the requirements of Council Directive .....

Noise levels:

(a) approach, in EPNdB .....

(b) take-off, " " .....

(c) sideline " " .....

(d) overflight in dB(A) .....

Date: .....

Competent Authority