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THE CIVIL AVIATION ACT,

(Cap. 394)

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AIRCRAFT NOISE) REGULATIONS, 2025

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THE CIVIL AVIATION ACT,

(Cap. 394)

IN EXERCISE of the powers conferred by section 82 of the Civil Aviation Act Cap. 394, the Cabinet Secretary for Transport and Roads, makes the following Regulations—

THE CIVIL AVIATION (ENVIRONMENTAL PROTECTION - AIRCRAFT NOISE) REGULATIONS, 2024

1. These Regulations may be cited as the Civil Aviation (Environmental Protection - Aircraft Noise) Regulations, 2024 Regulations, 2025. Citation.

2. In these Regulations, unless the context otherwise requires— Interpretation.

“adversely” refers to an increase of more than 0.10 dB in any one of the noise certification levels unless the cumulative effects of changes in type design are tracked by an approved procedure in which case “adversely” refers to a cumulative increase in the noise level in any one of the noise certification levels of more than 0.30 dB or the margin of compliance, whichever is smaller;

“aeroplane” means a power-driven heavier-than-air aircraft, deriving its lift in flight chiefly from aerodynamic reactions on surfaces which remain fixed under given conditions of flight;

“aircraft” means a machine that can derive support in the atmosphere from the reactions of the air other than the reactions of the air against the earth’s surface;

“associated aircraft systems” means an aircraft system drawing electrical/pneumatic power from an auxiliary power unit during ground operations;

“auxiliary power unit (APU)” means a self-contained power unit on an aircraft providing electrical/pneumatic power to aircraft systems during ground operations or in flight, separate from the propulsion engine(s);

“bypass ratio” means the ratio of the air mass flow through the bypass ducts of a gas turbine engine to the air mass flow through the combustion chambers calculated at maximum thrust when the engine is stationary in an international standard atmosphere at sea level;

“derived version of a helicopter” means a helicopter which, from the point of view of airworthiness, is similar to the noise certificated prototype but incorporates changes in type design which may affect its noise characteristics adversely;

“derived version of an aeroplane” means an aeroplane which, from the point of view of airworthiness, is similar to the noise certificated prototype but incorporates changes in type design which may affect its noise characteristics adversely;

“external equipment (helicopter)” means an instrument, mechanism, part, apparatus, appurtenance, or accessory that is attached to or extends from the helicopter exterior but is not used nor is intended to be used for operating or controlling a helicopter in flight and is not part of an airframe or engine;

“helicopter” means a heavier-than-air aircraft supported in flight chiefly by the reactions of the air on one or more power-driven rotors on substantially vertical axes;

“human performance” means human capabilities and limitations which have an impact on the safety and efficiency of aeronautical operations;

“powered-lift” means a heavier-than-air aircraft capable of vertical take-off, vertical landing, and low-speed flight, which depends principally on engine-driven lift devices or engine thrust for the lift during these flight regimes and on non-rotating aerofoil(s) for lift during horizontal flight;

“recertification” means a certification of an aircraft with or without a revision to its certification noise levels, to a Standard different to that to which it was originally certificated;

“self-sustaining powered sailplane” means powered aeroplane with available engine power which allows it to maintain level flight but not to take off under its own power;

“State of Design” means the State having jurisdiction over the organization responsible for the type design;

“State of Registry” means the State on whose register the aircraft is entered;

“subsonic aeroplane” means an aeroplane incapable of sustaining level flight at speeds exceeding flight Mach number of 1;

“tilt-rotor” means a powered-lift capable of vertical take-off, vertical landing, and sustained low-speed flight, which depends principally on engine-driven rotors mounted on tiltable nacelles for the lift during these flight regimes and on non-rotating aerofoil(s) for lift during high-speed flight; and

“type certificate” means a document issued by a Contracting State to define the design of an aircraft, engine or propeller type and to certify that this design meets the appropriate airworthiness requirements of that State.

3. These Regulations shall be applicable to all aircraft included in the classifications defined for noise certification purposes where such aircraft are engaged in air navigation. Application.

PART II—AIRCRAFT NOISE CERTIFICATION

4. (1) The Authority may grant or validate a Noise certificate of an aircraft based on satisfactory evidence that the aircraft complies with requirements specified in these regulations. Noise Certificate.

(2) Where a noise recertification is requested, the Authority shall use the date of acceptance of the first application for recertification.

(3) Noise certificate shall be approved by the Authority and shall be carried on the aircraft.

(4) Noise certificate shall be issued in English Language.

(5) Noise certificate for an aircraft shall be in a format and containing information specified in the First Schedule of these regulations.

(6) The Authority may recognize as valid a noise certificate granted by another Contracting State provided that the requirements under which such certification was granted are at least equal to the applicable Standards specified in these Regulations.

(7) The Authority may suspend or revoke the noise certificate of an aircraft on its register if the aircraft ceases to comply with these regulations.

(8) The Authority shall not remove the suspension of a noise certification or grant a new noise certification unless the aircraft is found on reassessment, to comply with these Regulations.

PART III—SUBSONIC JET AEROPLANES

Application for Type Certificate submitted before 6 October 1977

5. (1) In this part shall be applicable to all subsonic jet aeroplanes for which the application for a Type Certificate was submitted before 6 October 1977, except those aeroplanes— Applicability.

- (a) requiring a runway length of 610 m or less at maximum certificated mass for airworthiness;
- (b) powered by engines with a bypass ratio of 2 or more and for which a certificate of airworthiness for the individual aeroplane was first issued before 1 March 1972; or
- (c) powered by engines with a bypass ratio of less than 2 and for which the application for a Type Certificate was submitted before 1 January 1969, and for which a certificate of airworthiness for the individual aeroplane was first issued before 1 January 1976.

(2) The maximum noise levels in regulation 8(1) shall apply except for derived versions for which the application for certification of the change in type design was submitted on or after 26 November 1981, in which case the maximum noise levels in regulation 8(3) shall apply.

(3) Notwithstanding the requirement of sub regulations (1) and (2), the Authority may recognize that the following situations for jet aeroplanes, and propeller-driven aeroplanes over 8 618 kg maximum certificated take-off mass on its registry do not require demonstration of compliance with the provisions of these Regulations—

- (a) gear down flight with one or more retractable landing gear down during the entire flight;
- (b) spare engine and nacelle carriage external to the skin of the aeroplane (and return of the pylon or other external mount); and
- (c) time-limited engine and/or nacelle changes, where the change in type design specifies that the aeroplane may not be operated for a period of more than 90 days unless compliance with these Regulations, is shown for that change in type design. This applies only to changes resulting from a required maintenance action.

6. Noise evaluation measure shall be the effective perceived noise level in EPNdB as described in Second Schedule.

Noise evaluation measure.

7. An aeroplane, when tested in accordance with the flight test procedures in accordance to regulation 10 shall not exceed the noise levels specified in regulation 8 at the following points—

Noise measurement points.

- (a) lateral noise measurement point: the point on a line parallel to and 650 m from the runway centre line, or extended runway centre line, where the noise level is a maximum during take-off;
- (b) flyover noise measurement point: the point on the extended centre line of the runway and at a distance of 6.5 km from the start of roll; and
- (c) approach noise measurement point: the point on the ground, on the extended centre line of the runway, 120 m (394 ft) vertically below the 3° descent path originating from a point 300 m beyond the threshold. On level ground this corresponds to a position 2 000 m from the threshold.

8. (1) The maximum noise levels of those aeroplanes covered by Regulation 5(1), when determined in accordance with the noise evaluation method of Second Schedule, shall not exceed the following—

Maximum noise levels.

- (a) at lateral and approach noise measurement points: 108

EPNdB for aeroplanes with maximum certificated take-off mass of 272 000 kg or over, decreasing linearly with the logarithm of the mass at the rate of 2 EPNdB per halving of the mass down to 102 EPNdB at 34 000 kg, after which the limit remains constant;

- (b) at flyover noise measurement point: 108 EPNdB for aeroplanes with maximum certificated take-off mass of 272 000 kg or over, decreasing linearly with the logarithm of the mass at the rate of 5 EPNdB per halving of the mass down to 93 EPNdB at 34 000 kg, after which the limit remains constant.

(2) Equations for the calculation of maximum permitted noise levels as a function of take-off mass are as described in the Third Schedule of these regulations.

(3) The maximum noise levels of those aeroplanes covered by regulation 5(2), when determined in accordance with the noise evaluation method in the Second Schedule, shall not exceed the following—

- (a) at lateral noise measurement point: 106 EPNdB for aeroplanes with maximum certificated take-off mass of 400 000 kg or over, decreasing linearly with the logarithm of the mass down to 97 EPNdB at 35 000 kg, after which the limit remains constant;
- (b) at flyover noise measurement point—
 - (i) Aeroplanes with two engines or less: 104 EPNdB for aeroplanes with maximum certificated take-off mass of 325 000 kg or over, decreasing linearly with the logarithm of the mass at the rate of 4 EPNdB per halving of mass down to 93 EPNdB, after which the limit remains constant;
 - (ii) aeroplanes with three engines: as regulation 8(3)(a) but with 107 EPNdB for aeroplanes with maximum certificated take-off mass of 325 000 kg or over;

or as defined by regulation 8(1)(b), whichever is the lower;

- (iii) aeroplanes with four engines or more: as regulation 8(3)(a) but with 108 EPNdB for aeroplanes with maximum certificated take-off mass of 325 000 kg or over;

or as defined by regulation 8(1)(b), whichever is the lower

- (c) at approach noise measurement point: 108 EPNdB for aeroplanes with maximum certificated take-off mass of 280 000 kg or over, decreasing linearly with the logarithm of the

mass down to 101 EPNdB at 35 000 kg, after which the limit remains constant.

9. Where the maximum noise levels are exceeded at one or two measurement points— Trade-offs.

- (a) the sum of excesses shall not be greater than 4 EPNdB, except that in respect of four-engined aeroplanes powered by engines with a bypass ratio of 2 or more and for which the application for a certificate of airworthiness for the prototype was accepted, or another equivalent prescribed procedure was carried out by the certificating authority, before 1 December 1969, the sum of any excesses shall not be greater than 5 EPNdB;
- (b) any excess at any single point shall not be greater than 3 EPNdB; and
- (c) any excesses shall be offset by corresponding reductions at the other point or points.

10. (1) Average take-off thrust shall be used from the start of take-off to the point at which a height of at least 210 m (690 ft) above the runway is reached, and the thrust thereafter shall not be reduced below that thrust which will maintain a climb gradient of at least 4 per cent. Test Procedures-
Take-off.

(2) A speed of at least $V_2 + 19$ km/h ($V_2 + 10$ kt) shall be attained as soon as practicable after lift-off and be maintained throughout the take-off noise certification test.

(3) A constant take-off configuration selected by the applicant shall be maintained throughout the take-off noise certification demonstration test except that the landing gear may be retracted.

11. (1) The aeroplane shall be stabilized and following a $3^\circ \pm 0.5^\circ$ glide path. Approach
test
procedure.

(2) The approach shall be made at a stabilized airspeed of not less than $1.3 V_S + 19$ km/h ($1.3 V_S + 10$ kt) with thrust stabilized during approach and over the measuring point and continued to a normal touchdown.

PART IV — SUBSONIC JET AEROPLANES — Application for Type Certificate submitted on or after 6 October 1977 and before 1 January 2006

PROPELLER-DRIVEN AEROPLANES OVER 8 618 kg —
Application for

Type Certificate submitted on or after 1 January 1985 and before 1 January 2006

12. (1). This part shall, with the exception of those propeller-driven aeroplanes specifically designed and used for agricultural or firefighting purposes, be applicable to—

Applicability.

- (a) all subsonic jet aeroplanes, including their derived versions, other than aeroplanes which require a runway with no stopway or clearway length of 610 m or less at maximum certificated mass for airworthiness, for which the application for a Type Certificate was submitted on or after 6 October 1977 and before 1 January 2006; and
- (b) all propeller-driven aeroplanes, including their derived versions, of over 8 618 kg maximum certificated take-off mass, for which the application for a Type Certificate was submitted on or after 1 January 1985 and before 1 January 2006.

(2) Notwithstanding regulation 12(1), the Authority may recognize that the following situations for jet aeroplanes, and propeller-driven aeroplanes over 8 618 kg maximum certificated take-off mass on its registry do not require demonstration of compliance with the provisions of these Regulations—

- (a) gear down flight with one or more retractable landing gear down during the entire flight;
- (b) spare engine and nacelle carriage external to the skin of the aeroplane (and return of the pylon or other external mount); and
- (c) time-limited engine and/or nacelle changes, where the change in type design specifies that the aeroplane may not be operated for a period of more than 90 days unless compliance with the provisions of these Regulations, is shown for that change in type design. This applies only to changes resulting from a required maintenance action.

13. The noise evaluation measure shall be the effective perceived noise level in EPNdB as described in the Third Schedule.

Noise measurements.

14. An aeroplane, when tested in accordance with these Regulations, shall not exceed the noise levels specified in regulation 15 at the following points—

Reference noise measurement points.

- (a) lateral full-power reference noise measurement point—
 - (i) for jet-powered aeroplanes: the point on a line parallel to and 450 m from the runway centre line, where the noise level is a maximum during take-off;

- (ii) for propeller-driven aeroplanes: the point on the extended centre line of the runway 650 m vertically below the climb-out flight path at full take-off power, as defined in Regulation 19, the requirement for lateral noise in in this regulation shall alternatively be permitted;
- (b) flyover reference noise measurement point: the point on the extended centre line of the runway and at a distance of 6.5 km from the start of roll;
- (c) approach reference noise measurement point: the point on the ground, on the extended centre line of the runway, 2 000 m from the threshold. On level ground this corresponds to a position 120 m (394 ft) vertically below the 3° descent path originating from a point 300 m beyond the threshold.

15. (1). Where the test noise measurement points are not located at the reference noise measurement points, any corrections for the difference in position shall be made in the same manner as the corrections for the differences between test and reference flight paths.

Test noise measurement points.

(2) Sufficient lateral test noise measurement points shall be used to demonstrate to the Authority that the maximum noise level on the appropriate lateral line has been clearly determined. For jet-powered aeroplanes simultaneous measurements shall be made at one test noise measurement point at a symmetrical position on the other side of the runway.

(3) In the case of propeller-driven aeroplanes, because of their inherent asymmetry in lateral noise, simultaneous measurements shall be made at each and every test noise measurement point at a symmetrical position (within ± 10 m parallel with the axis of the runway) on the opposite side of the runway.

16. The maximum noise levels, when determined in accordance with the noise evaluation method of the Third Schedule, shall not exceed the following—

Maximum noise levels.

- (a) at the lateral full-power reference noise measurement point: 103 EPNdB for aeroplanes with maximum certificated take-off mass, at which the noise certification is requested, of 400 000 kg and over and decreasing linearly with the logarithm of the mass down to 94 EPNdB at 35 000 kg, after which the limit remains constant
- (b) at flyover reference noise measurement point;
 - (i) aeroplanes with two engines or less: 101 EPNdB for aeroplanes with maximum certificated take-off mass, at which the noise certification is requested, of 385 000 kg and over and decreasing linearly with the logarithm of the

- aeroplane mass at the rate of 4 EPNdB per halving of mass down to 89 EPNdB, after which the limit is constant
- (ii) aeroplanes with three engines under regulation 16(b)(i) but with 104 EPNdB for aeroplanes with maximum certificated take-off mass of 385 000 kg and over;
 - (iii) aeroplanes with four engines or more, under regulation 16(b)(i) but with 106 EPNdB for aeroplanes with maximum certificated take-off mass of 385 000 kg and over;
 - (c) at approach reference noise measurement point 105 EPNdB for aeroplanes with maximum certificated take-off mass, at which the noise certification is requested, of 280 000 kg or over, and decreasing linearly with the logarithm of the mass down to 98 EPNdB at 35 000 kg, after which the limit remains constant; and
 - (d) equations for the calculation of maximum permitted noise levels as a function of take-off Mass are specified under the Third Schedule to these Regulations.

17. Where the maximum noise levels are exceeded at one or two measurement points— Trade-offs.

- (a) the sum of excesses shall not be greater than 3 EPNdB;
- (b) any excess at any single point shall not be greater than 2 EPNdB; and
- (c) any excesses shall be offset by corresponding reductions at the other point or points.

18. (1) The noise certification reference procedures shall comply with the airworthiness requirements as specified by the Authority.

Noise certification
reference
procedures-
General conditions

(2) The calculations of reference procedures and flight paths shall be approved by the Authority.

(3) Except in conditions specified in regulation 18(4), the take-off and approach reference procedures shall be those defined in regulation 19 and regulation 20, respectively.

(4) Where the applicant shows that the design characteristics of the aeroplane would prevent flight being conducted in accordance with regulation 19 and regulation 20, the reference procedures shall—

- (a) depart from the reference procedures defined in regulation 19 and regulation 20 only to the extent demanded by those

design characteristics which make compliance with the procedures impossible; and

(b) be approved by the Authority.

(5) The reference procedures shall be calculated under the following reference atmospheric conditions—

- (a) atmospheric pressure at sea level of 1 013.25 hPa, decreasing with altitude at a rate defined by the ICAO Standard Atmosphere;
- (b) ambient air temperature at sea level of 25°C, decreasing with altitude at a rate defined by the ICAO Standard Atmosphere (i.e. 0.65°C per 100 m);
- (c) constant relative humidity of 70 per cent;
- (d) zero wind;
- (e) for the purpose of defining the reference take-off profiles for both take-off and lateral noise measurements, the runway gradient is zero; and
- (f) the reference atmosphere in terms of temperature and relative humidity is considered to be homogeneous (i.e. ambient temperature 25°C and relative humidity 70 per cent) for the purpose of calculating—
 - (i) the reference sound attenuation rate due to atmospheric absorption; and
 - (ii) the reference speed of sound used in the calculation of the reference sound propagation geometry.

19. Take-off reference flight path shall be calculated as follows—

Take-off reference procedures.

- (a) average engine take-off thrust or power shall be used from the start of take-off to the point where at least the following height above runway level is reached—
 - (i) aeroplanes with two engines or less — 300 m (984 ft);
 - (ii) aeroplanes with three engines — 260 m (853 ft);
 - (iii) aeroplanes with four engines or more — 210 m (689 ft);
- (b) upon reaching the height specified under regulation 19(a), the thrust or power shall not be reduced below that required to maintain—

- (i) a climb gradient of 4 per cent; or
 - (ii) in the case of multi-engined aeroplanes, level flight with one engine inoperative; whichever thrust or power is greater;
- (c) for the purpose of determining the lateral full-power noise level, the reference flight path shall be calculated on the basis of using full take-off power throughout without a thrust or power reduction;
- (d) the speed shall be—
- (i) for aeroplanes which the applicable airworthiness requirements define V_2 , the all-engines operating take-off climb speed selected by the applicant for use in normal operation, which shall be at least $V_2 + 19$ km/h ($V_2 + 10$ kt) but not greater than $V_2 + 37$ km/h ($V_2 + 20$ kt) and which shall be attained as soon as practicable after lift-off and be maintained throughout the take-off noise certification test. The increment applied to V_2 shall be the same for all reference masses of an aeroplane model unless a difference in increment is substantiated based on performance characteristics of the aeroplane;
 - (ii) for aeroplanes which the applicable airworthiness requirements do not define V_2 , the take-off speed at 15 m (50 ft) plus an increment of at least 19 km/h (10 kt) but not greater than 37 km/h (20 kt), or the minimum climb speed, whichever speed is greater. This speed shall be attained as soon as practicable after lift-off and be maintained throughout the take-off noise certification test;
- (e) a constant take-off configuration selected by the applicant shall be maintained throughout the take-off reference procedure except that the landing gear may be retracted. Configuration shall be interpreted as meaning the conditions of the systems and centre of gravity position and shall include the position of lift augmentation devices used, whether the APU is operating, and whether air bleeds and power off-takes are operating;
- (f) the mass of the aeroplane at the brake release shall be the maximum take-off mass at which the noise certification is requested;
- (g) the average engine shall be defined by the average of all the certification compliant engines used during the aeroplane flight tests up to and during certification when operated to the limitations and procedures given in the flight manual. This will establish a technical standard including the relationship

of thrust/power to control parameters (e.g. N1 or EPR). Noise measurements made during certification tests shall be corrected to this standard; and

- (h) take-off thrust/power used shall be the maximum available for normal operations as scheduled in the performance section of the aeroplane flight manual for the reference atmospheric conditions given under regulation 18(5).

20. The approach reference flight path shall be calculated as follows—

Approach
reference
procedures

- (a) the aeroplane shall be stabilized and following a 3° glide path;
- (b) a steady approach speed of $V_{REF} + 19$ km/h ($V_{REF} + 10$ kt), with thrust or power stabilized, shall be maintained over the measurement point;
- (c) the constant approach configuration as used in the airworthiness certification tests, but with the landing gear down, shall be maintained throughout the approach reference procedure;
- (d) the mass of the aeroplane at the touchdown shall be the maximum landing mass permitted in the approach configuration defined under regulation 20 (c) at which noise certification is requested; and
- (e) the most critical (that which produces the highest noise level) configuration with normal deployment of aerodynamic control surfaces including lift and drag producing devices, at the mass at which certification is requested shall be used. This configuration includes all those items listed in 5.2.5 of the Fifth Schedule that will contribute to the noisiest continuous state at the maximum landing mass in normal operation.

21. (1) The test procedures shall be acceptable to the Authority.

Test procedures.

(2) The test procedures and noise measurements shall be conducted and processed in accordance with these regulations to yield the noise evaluation measure designated as effective perceived noise level, EPNL, in units of EPNdB, as described in the Fifth Schedule.

(3) Acoustic data shall be adjusted by the methods outlined in the Fifth Schedule to the reference conditions specified in this chapter. Adjustments for speed and thrust shall be made as described in Section 8 of the Fifth Schedule.

(4) Where the mass during the test is different from the mass at which the noise certification is requested, the necessary EPNL adjustment shall not exceed 2 EPNdB for take-offs and 1 EPNdB for approaches.

(5) In determining the variation of EPNL with mass for both take-off and approach test conditions, data approved by the Authority shall be used.

(6) The necessary EPNL adjustment for variations in approach flight path from the reference flight path shall not exceed 2 EPNdB.

(7) For the approach conditions the test procedures shall be accepted if the aeroplane follows a steady glide path angle of $3^\circ \pm 0.5^\circ$.

(8) Where equivalent test procedures different from the reference procedures are used, the test procedures and all methods for adjusting the results to the reference procedures shall be approved by the Authority. The amounts of the adjustments shall not exceed 16 EPNdB on take-off and 8 EPNdB on approach, and if the adjustments are more than 8 EPNdB and 4 EPNdB, respectively, the resulting numbers shall be more than 2 EPNdB below the noise limits specified under regulation 16.

(9) For take-off, lateral, and approach conditions, the variation in instantaneous indicated airspeed of the aeroplane shall be maintained within

± 3 per cent of the average airspeed between the 10 dB-down points. This shall be determined by reference to the pilot's airspeed indicator. However, when the instantaneous indicated airspeed varies from the average airspeed over the 10 dB-down points by more than ± 5.5 km/h (± 3 kt), and this is judged by the certifying authority representative on the flight deck to be due to atmospheric turbulence, then the flight so affected shall be rejected for noise certification purposes.

**PART IV — SUBSONIC JET AEROPLANES AND PROPELLER-
DRIVEN AEROPLANES WITH MAXIMUM CERTIFICATED
TAKE-OFF MASS 55 000 kg AND OVER**

Application for Type Certificate submitted on or after 1 January 2006
and before 31 December 2017

**SUBSONIC JET AEROPLANES WITH MAXIMUM CERTIFICATED
TAKE-OFF MASS LESS THAN 55 000 kg**

Certificate submitted on or after 1 January 2006 and before 31
December 2020

**PROPELLER-DRIVEN AEROPLANES WITH MAXIMUM
CERTIFICATED TAKE-OFF MASS OVER 8 618 kg AND LESS
THAN 55 000 kg**

Application for Type Certificate submitted on or after 1 January 2006
and before 31 December 2020

22. (1) This part, with the exception of those aeroplanes which require a runway¹ length of 610 m or less at maximum certificated mass

Applicability.

for airworthiness or propeller-driven aeroplanes specifically designed and used for agricultural or firefighting purposes, be applicable to—

- (a) all subsonic jet aeroplanes and propeller-driven aeroplanes, including their derived versions, with a maximum certificated take-off mass of 55 000 kg and over for which the application for a Type Certificate was submitted on or after 1 January 2006 and before 31 December 2017;
- (b) all subsonic jet aeroplanes, including their derived versions, with a maximum certificated take-off mass of less than 55 000 kg for which the application for a Type Certificate was submitted on or after 1 January 2006 and before December 2020;
- (c) all propeller-driven aeroplanes, including their derived versions, with a maximum certificated take-off mass of over 8 618 kg and less than 55 000 kg, for which the application for a Type Certificate was submitted on or after January 2006 and before 31 December 2020; and
- (d) all subsonic jet aeroplanes and all propeller-driven aeroplanes certificated originally in accordance with parts II, IV, and Part VI of this regulations may be requested to be recertificated in accordance with part V of this regulations.

(2) Notwithstanding regulation 21(1), it may be recognized by the Authority that the following situations for jet aeroplanes and propeller-driven aeroplanes over 8 618 kg maximum certificated take-off mass on its registry do not require demonstration of compliance with the provisions of these Regulations.

- (a) gear down flight with one or more retractable landing gear down during the entire flight;
- (b) spare engine and nacelle carriage external to the skin of the aeroplane (and return of the pylon or other external mount); and
- (c) time-limited engine or nacelle changes, where the change in type design specifies that the aeroplane may not be operated for a period of more than 90 days unless compliance with the provisions of these Regulations, is shown for that change in type design. This applies only to changes resulting from a required maintenance action.

23. The noise evaluation measure shall be the effective perceived noise level in EPNdB as described in the Fifth Schedule.

24. (1) An aeroplane, when tested in accordance with these Regulations, shall not exceed the maximum noise level specified in regulation 25 of the noise measured at the points specified under regulation 14 a), b) and c).

Noise measurements.

Reference noise measurement points.

(2) Test noise measurement points, the provisions of regulation 15, relating to test noise measurement points shall apply.

25. The maximum permitted noise levels defined in regulation 16 shall not be exceeded at any of the measurement points— Maximum noise levels.

- (a) the sum of the differences at all three measurement points between the maximum noise levels and the maximum permitted noise levels specified under regulation 16, shall not be less than 10 EPNdB;
- (b) the sum of the differences at any two measurement points between the maximum noise levels and the corresponding maximum permitted noise levels specified under regulation 16, shall not be less than 2 EPNdB.

26. The noise certification reference procedures shall be as specified under regulation 18,19 &20. Noise certification reference procedures.

27. The test procedures shall be as specified under Regulation 21 above. Test Procedures.

28. For aeroplanes specified under Regulation 22(1) (c), recertification shall be granted on the basis that the evidence used to determine compliance with Regulations 22, 23,24, 25, 26, 27 & 28 is as satisfactory as the evidence associated with aeroplanes specified under Regulation 22(1) (a) and (b). Recertification.

29. (1) This part shall be applicable to all propeller-driven aeroplanes, including their derived versions, of over 8 618 kg maximum certificated take- off mass for which either the application for a Type Certificate was submitted on or after 6 October 1977 and before 1 January 1985. Applicability.

(2) These Regulations, with the exception of Sections 2.1 and 2.4.2, shall be applicable to propeller-driven aeroplanes of over 8 618 kg for which the application for a Type Certificate was submitted before 6 October 1977 and which are either—

- (a) derived versions for which the application for certification of the change in type design was submitted on or after 6 October 1977; or
- (b) individual aeroplanes for which a certificate of airworthiness was first issued on or after 26 November 1981.

(3) Notwithstanding regulation 29 (2) and 29(3), the Authority may recognize that the following situations for jet aeroplanes, and propeller-driven aeroplanes over 8 618 kg maximum certificated take-off mass on its registry do not require demonstration of compliance with the provisions of these Regulations—

- (a) gear down flight with one or more retractable landing gear down during the entire flight;
- (b) spare engine and nacelle carriage external to the skin of the aeroplane (and return of the pylon or other external mount); and
- (c) time-limited engine and/or nacelle changes, where the change in type design specifies that the aeroplane may not be operated for a period of more than 90 days unless compliance with these Regulations, is shown for that change in type design. This applies only to changes resulting from a required maintenance action.

30. The noise evaluation measure shall be the effective perceived noise level in EPNdB as described in the Third Schedule.

Noise
measurements-
Noise evaluation
measure.

31. An aeroplane, when tested in accordance with these Regulations, shall not exceed the noise levels specified in regulation 33 at the following points—

Noise
measurement
points- Reference.

- (a) *lateral reference noise measurement point*: the point on a line parallel to and 450 m from the runway centre line, or extended runway centre line, where the noise level is a maximum during take-off;
- (b) *flyover reference noise measurement point*: the point on the extended centre line of the runway and at a distance of 6.5 km from the start of roll; and
- (c) *approach reference noise measurement point*: the point on the ground, on the extended centre line of the runway, 2 000 m from the threshold. On level ground this corresponds to a position 120 m (394 ft) vertically below the 3° descent path originating from a point 300 m beyond the threshold.

32. (1) Where the test noise measurement points are not located at the reference noise measurement points, any corrections for the difference in position shall be made in the same manner as the corrections for the differences between test and reference flight paths.

Test Noise
measurement
points.

(2) Sufficient lateral test noise measurement points shall be used to demonstrate to the certificating authority that the maximum noise level on the appropriate lateral line has been clearly determined. Simultaneous measurements shall be made at one test noise measurement point at a symmetrical position on the other side of the runway.

(3) The applicant shall demonstrate to Authority that during flight test, lateral and flyover noise levels were not separately optimized at the expense of each other.

33. The maximum noise levels, when determined in accordance with the noise evaluation method in Third Schedule, shall not exceed the following—

Maximum noise levels

- (a) *at lateral reference noise measurement point*: 96 EPNdB constant limit for aeroplanes with maximum take-off mass, at which the noise certification is requested, up to 34 000 kg and increasing linearly with the logarithm of aeroplane mass at the rate of 2 EPNdB per doubling of mass from that point until the limit of 103 EPNdB is reached, after which the limit is constant;
- (b) *at flyover reference noise measurement point*: 89 EPNdB constant limit for aeroplanes with maximum take-off mass, at which the noise certification is requested, up to 34 000 kg and increasing linearly with the logarithm of aeroplane mass at the rate of 5 EPNdB per doubling of mass from that point until the limit of 106 EPNdB is reached, after which the limit is constant;
- (c) *at approach reference noise measurement point*: 98 EPNdB constant limit for aeroplanes with maximum take-off mass, at which the noise certification is requested, up to 34 000 kg and increasing linearly with the logarithm of aeroplane mass at the rate of 2 EPNdB per doubling of mass from that point until the limit of 105 EPNdB is reached, after which the limit is constant; and
- (d) equations for the calculation of maximum permitted noise levels as a function of take-off mass are specified in the Third schedule of these Regulations.

34. Where the maximum noise levels are exceeded at one or two measurement points—

Trade-offs.

- (a) the sum of excesses shall not be greater than 3 EPNdB;
- (b) any excess at any single point shall not be greater than 2 EPNdB; and
- (c) any excesses shall be offset by corresponding reductions at the other point or points.

35. (1). The reference procedures shall comply with the airworthiness requirements specified by the Authority.

Noise certification reference procedures- General conditions.

(2) The calculations of reference procedures and flight paths shall be approved by the Authority.

(3) Except in conditions specified under regulation 35(4), the take-off and approach reference procedures shall be those defined in regulation 36 and 37, respectively.

(4) Where an applicant demonstrates that the design characteristics of the aeroplane would prevent flight being conducted in accordance with 36 and 37, the reference procedures shall—

- (a) depart from the reference procedures defined in 36 and 37 only to the extent demanded by those design characteristics which make compliance with the procedures impossible; and
- (b) be approved by the Authority.

(5) The reference procedures shall be calculated under the following reference atmospheric conditions—

- (a) atmospheric pressure at sea level of 1 013.25 hPa, decreasing with altitude at a rate defined by the ICAO Standard Atmosphere;
- (b) ambient air temperature at sea level of 25°C, decreasing with altitude at a rate defined by the ICAO Standard Atmosphere (i.e. 0.65°C per 100 m), except that at the discretion of the certifying authority, an alternative ambient air temperature at sea level of 15°C may be used;
- (c) constant relative humidity of 70 per cent;
- (d) zero wind; and
- (e) the reference atmosphere in terms of temperature and relative humidity is considered to be homogeneous (i.e. ambient temperature 25°C and relative humidity 70 per cent) for the purpose of calculating—
 - (i) the reference sound attenuation rate due to atmospheric absorption; and
 - (ii) the reference speed of sound used in the calculation of the reference sound propagation geometry.

36. The take-off flight path shall be calculated as follows—

Noise certification
reference
procedures- Take-
off.

- (a) average take-off power shall be used from the start of take-off to the point where at least the height above runway level shown below is reached. The take-off power used shall be the maximum available for normal operations as scheduled in the performance section of the aeroplane flight manual for the reference atmospheric conditions given in regulation 35(5)—
 - (i) aeroplanes with two engines or less — 300 m (984 ft);

- (ii) aeroplanes with three engines — 260 m (853 ft);
- (iii) aeroplanes with four engines or more — 210 m (689 ft);
- (b) upon reaching the height specified in a) above, the power shall not be reduced below that required to maintain—
 - (i) a climb gradient of 4 per cent; or
 - (ii) in the case of multi-engined aeroplanes, level flight with one engine inoperative;

whichever power is the greater;

- (c) the speed shall be the all-engines operating take-off climb speed selected by the applicant for use in normal operation, which shall be at least $V_2 + 19$ km/h ($V_2 + 10$ kt) and which shall be attained as soon as practicable after lift-off and be maintained throughout the take-off noise certification test;
- (d) a constant take-off configuration selected by the applicant shall be maintained throughout the take-off reference procedure except that the landing gear may be retracted; and
- (e) the mass of the aeroplane at the brake release shall be the maximum take-off mass at which the noise certification is requested.

37. Approach reference flight path shall be calculated as follows—

Noise certification
reference
procedures-
Approach.

- (a) the aeroplane shall be stabilized and following a 3° glide path;
- (b) the approach shall be made at a stabilized airspeed of not less than $1.3 V_S + 19$ km/h ($1.3 V_S + 10$ kt) with power stabilized during approach and over the measuring point and continued to a normal touchdown;
- (c) the constant approach configuration used in the airworthiness certification test, but with the landing gear down, shall be maintained throughout the approach reference procedure;
- (d) the mass of the aeroplane at the touchdown shall be the maximum landing mass permitted in the approach configuration defined in regulation 37 (c) at which noise certification is requested; and
- (e) the most critical (that which produces the highest noise levels) configuration at the mass at which certification is requested shall be used.

38. (1) The test procedures shall be acceptable to the Authority.

Test procedures.

(2) The test procedures and noise measurements shall be conducted and processed in an approved manner to yield the noise evaluation measure designated as effective perceived noise level, EPNL, in units of EPNdB, as described in the Third Schedule.

(3) Acoustic data shall be adjusted by the methods outlined in the Third Schedule of the reference conditions specified in this chapter. Adjustments for speed and thrust shall be made as described in Section 8 of the Third Schedule.

(4) Where the mass during the test is different from the mass at which the noise certification is requested, the necessary EPNL adjustment shall not exceed 2 EPNdB for take-offs and 1 EPNdB for approaches.

(5) In determining the variation of EPNL with mass for both take-off and approach test conditions, data approved by the Authority shall be used and the necessary EPNL adjustment for variations in approach flight path from the reference flight path shall not exceed 2 EPNdB.

(6) For the approach conditions the test procedures shall be accepted if the aeroplane follows a steady glide path angle of $3^\circ \pm 0.5^\circ$.

(7) Where equivalent test procedures different from the reference procedures are used, the test procedures and all methods for adjusting the results to the reference procedures shall be approved by the certificating authority. The amounts of the adjustments shall not exceed 16 EPNdB on take-off and 8 EPNdB on approach, and if the adjustments are more than 8 EPNdB and 4 EPNdB, respectively, the resulting numbers shall not be within 2 EPNdB of the limit noise levels specified under Regulation 33.

PART V—PROPELLER-DRIVEN AEROPLANES NOT EXCEEDING 8 618 kg

Application for Type Certificate submitted before 17 November 1988

39. (1) This part shall be applicable to all propeller-driven aeroplanes, except those aeroplanes specifically designed and used for aerobatic, agricultural or firefighting purposes, having a maximum certificated take-off mass not exceeding 8 618 kg for which either—

Applicability.

- (a) the application for the Type Certificate was submitted on or after 1 January 1975 and before 17 November 1988, except for derived versions for which the application for certification of the change in type design was submitted on or after 17 November 1988, in which case Part XI of these regulations shall apply; or
- (b) a certificate of airworthiness for the individual aeroplane was first issued on or after 1 January 1980.

40. Noise evaluation measure shall be a weighted overall sound pressure level as defined in International Electrotechnical Commission (IEC) Publication No. 179 as amended. The weighting applied to each sinusoidal component of the sound pressure shall be given as a function of frequency by the standard reference curve called "A".

Noise evaluation measure.

41. For aeroplanes specified in regulation 39 (a) and (b), the maximum noise levels, when determined in accordance with the noise evaluation method specified in the Sixth Schedule of these Regulations, shall not exceed the following— a 68 dB(A) constant limit up to an aeroplane mass of 600 kg, varying linearly with mass from that point to 1 500 kg, after which the limit is constant at 80 dB(A) up to 8 618 kg.

Maximum noise levels.

42. The reference procedures shall be calculated under the following reference atmospheric conditions—

Noise certification reference Procedures.

- (a) atmospheric pressure at sea level of 1 013.25 hPa, decreasing with altitude at a rate defined by the ICAO Standard Atmosphere; and
- (b) ambient air temperature at sea level of 25°C, decreasing with altitude at a rate defined by the ICAO Standard Atmosphere (i.e. 0.65°C per 100 m); and
- (c) details for calculating the variation of reference atmospheric pressure with altitude are specified by the Authority.

43. (1) Either the test procedures described in sub regulations 2 and 3 or equivalent test procedures approved by the Authority shall be used.

Test procedures.

(2) Tests to demonstrate compliance with the maximum noise levels of 6.3 shall consist of a series of level flights overhead the measuring station at a height of

+10–30 m (984 +30 ft)

The aeroplane shall pass over the measuring point within $\pm 10^\circ$ from the vertical.

Overflight shall be performed at the highest power in the normal operating range, stabilized airspeed and with the aeroplane in the cruise configuration.

PART VI—PROPELLER-DRIVEN STOL AEROPLANES

44. This Part applies to all propeller-driven aeroplanes of over 5 700 kg maximum certificated take-off mass intended for operation in the short take-off and landing (STOL) mode, requiring a runway length, compatible with the relevant take-off and landing distance requirements, of less than 610 m at maximum certificated mass for airworthiness, and for which a certificate of airworthiness for the individual aeroplane was first issued on or after 1 January 1976 as specified in the Sixth Schedule to these Regulations.

Applicability.

PART VII—HELICOPTERS

45. (1) This part shall be applicable to all helicopters except those specifically designed and used for agricultural, firefighting or external load- carrying purposes. Applicability.

(2) For helicopters which the application for the Type Certificate was submitted on or after 1 January 1985, except for those helicopters specified in regulation 45(4), the maximum noise levels of Regulation 48 shall apply.

(3) For a derived version of a helicopter which the application for certification of the change in type design was submitted on or after 17 November 1988, except for those helicopters specified in regulation 45(4), the maximum noise levels under regulation 48(1) shall apply.

(4) For all helicopters, including their derived versions, which the application for the Type Certificate was submitted on or after 21 March 2002, the maximum noise levels under regulation 48(1) shall apply

(5) Certification of helicopters which are capable of carrying external loads or external equipment shall be made without such loads or equipment fitted.

(6) An applicant under regulation 45(1) may alternatively elect to demonstrate compliance with Part XII instead of Part IX if the helicopter has a maximum certificated take-off mass of 3 175 kg or less.

46. The noise evaluation measure shall be the effective perceived noise level in EPNdB as described in the Fifth Schedule of these Regulation. Noise evaluation measure.

47. A helicopter, when tested in accordance with these Regulations, shall not exceed the noise levels specified in regulation 48 at the following points— Reference noise measurement points.

(a) take-off reference noise measurement points—

(i) a flight path reference point located on the ground vertically below the flight path defined in the take-off reference procedure and 500 m horizontally in the direction of flight from the point at which transition to climbing flight is initiated in the reference procedure set out in regulation 50;

(ii) two other points on the ground symmetrically disposed at 150 m on both sides of the flight path defined in the take-off reference procedure and lying on a line through the flight path reference point.

(b) overflight reference noise measurement points—

- (i) a flight path reference point located on the ground 150 m (492 ft) vertically below the flight path defined in the overflight reference procedure (see 8.6.3.1);
 - (ii) two other points on the ground symmetrically disposed at 150 m on both sides of the flight path defined in the overflight reference procedure and lying on a line through the flight path reference point.
- (c) approach reference noise measurement points—
- (i) a flight path reference point located on the ground 120 m (394 ft) vertically below the flight path defined in the approach reference procedure (see 8.6.4). On level ground, this corresponds to a position 1 140 m from the intersection of the 6.0° approach path with the ground plane;
 - (ii) two other points on the ground symmetrically disposed at 150 m on both sides of the flight path defined in the approach reference procedure and lying on a line through the flight path reference point.

48. (1). For helicopters specified in regulation 45(2) and 45(3), the maximum noise levels, when determined in accordance with the noise evaluation method under the Third Schedule, shall not exceed the following

Maximum noise levels.

- (a) *for take-off*: 109 EPNdB for helicopters with maximum certificated take-off mass, at which the noise certification is requested, of 80 000 kg and over and decreasing linearly with the logarithm of the helicopter mass at a rate of 3 EPNdB per halving of mass down to 89 EPNdB after which the limit is constant;
- (b) *for overflight*: 108 EPNdB for helicopters with maximum certificated take-off mass, at which the noise certification is requested, of 80 000 kg and over and decreasing linearly with the logarithm of the helicopter mass at a rate of 3 EPNdB per halving of mass down to 88 EPNdB after which the limit is constant;
- (c) *for approach*: 110 EPNdB for helicopters with maximum certificated take-off mass, at which the noise certification is requested, of 80 000 kg and over and decreasing linearly with the logarithm of the helicopter mass at a rate of 3 EPNdB per halving of mass down to 90 EPNdB after which the limit is constant.

(2) For helicopters specified referred to in regulation 45(4), the maximum noise levels, when determined in accordance with the noise evaluation method prescribed in the Third Schedule of these regulations., shall not exceed the following—

- (a) *for take-off*: 106 EPNdB for helicopters with maximum certificated take-off mass, at which the noise certification is requested, of 80 000 kg and over and decreasing linearly with the logarithm of the helicopter mass at a rate of 3 EPNdB per halving of mass down to 86 EPNdB after which the limit is constant;
- (b) *for overflight*: 104 EPNdB for helicopters with maximum certificated take-off mass, at which the noise certification is requested, of 80 000 kg and over and decreasing linearly with the logarithm of the helicopter mass at a rate of 3 EPNdB per halving of mass down to 84 EPNdB after which the limit is constant
- (c) *for approach*: 109 EPNdB for helicopters with maximum certificated take-off mass, at which the noise certification is requested, of 80 000 kg and over and decreasing linearly with the logarithm of the helicopter mass at a rate of 3 EPNdB per halving of mass down to 89 EPNdB after which the limit is constant

49. If the noise level limits are exceeded at one or two measurement points— Trade-offs.

- (a) the sum of excesses shall not be greater than 4 EPNdB;
- (b) any excess at any single point shall not be greater than 3 EPNdB; and
- (c) any excess shall be offset by corresponding reductions at the other point or points.

50. (1) The noise certification reference procedures shall comply with the appropriate airworthiness requirements. Noise certification
reference
procedures-
General
conditions.

(2) The reference procedures and flight paths shall be approved Authority.

(3) Except in conditions specified in regulation 50(4), the take-off, overflight and approach reference procedures shall be those defined under Regulation 51, 52 and 53, respectively.

(4) Where it is shown by the applicant that the design characteristics of the helicopter would prevent flight being conducted in accordance with Regulations 51, 52 or 53, the reference procedures shall—

- (a) depart from the reference procedures defined under Regulations 51, 52 or 53 only to the extent demanded by

those design characteristics which make compliance with the reference procedures impossible; and

(b) be approved by the Authority.

(5) The reference procedures shall be calculated under the following reference atmospheric conditions—

(a) constant atmospheric pressure of 1 013.25 hPa;

(b) constant ambient air temperature of 25°C;

(c) constant relative humidity of 70 per cent; and

(d) zero wind.

(6) The maximum normal operating rpm, under Regulation 51(c), 52 (c) and 53 (c), shall be taken as the highest rotor speed for each reference procedure corresponding to the airworthiness limit imposed by the manufacturer and approved by the certificating authority. Where a tolerance on the highest rotor speed is specified, the maximum normal operating rotor speed shall be taken as the highest rotor speed about which that tolerance is given. If the rotor speed is automatically linked with flight condition, the maximum normal operating rotor speed corresponding with the reference flight condition shall be used during the noise certification procedure. If rotor speed can be changed by pilot action, the maximum normal operating rotor speed specified in the flight manual limitation section for the reference conditions shall be used during the noise certification procedure.

51. The take-off reference flight procedure shall be established as follows—

Take-off reference procedure.

- (a) the helicopter shall be stabilized at the maximum take-off power corresponding to minimum installed engine(s) specification power available for the reference ambient conditions or gearbox torque limit, whichever is lower, and along a path starting from a point located 500 m prior to the flight path reference point, at 20 m (65 ft) above the ground;
- (b) the best rate of climb speed, VY, or the lowest approved speed for the climb after take-off, whichever is the greater, shall be maintained throughout the take-off reference procedure;
- (c) the steady climb shall be made with the rotor speed stabilized at the maximum normal operating rpm certificated for take-off;
- (d) a constant take-off configuration selected by the applicant shall be maintained throughout the take-off reference procedure with the landing gear position consistent with the airworthiness certification tests for establishing the best rate of climb speed, VY;

- (e) the mass of the helicopter shall be the maximum take-off mass at which noise certification is requested; and
- (f) the reference take-off path is defined as a straight line segment inclined from the starting point (500 m prior to the centre microphone location and 20 m (65 ft) above ground level) at an angle defined by best rate of climb and VY for minimum specification engine performance.

52. (1) The overflight reference procedure shall be established as follows—

Overflight
Reference
Procedures.

- (a) the helicopter shall be stabilized in level flight overhead the flight path reference point at a height of 150 m (492 ft);
- (b) a speed of 0.9 VH or 0.9 VNE or 0.45 VH + 120 km/h (0.45 VH + 65 kt) or 0.45 VNE + 120 km/h (0.45 VNE + 65 kt), whichever is the least, shall be maintained throughout the overflight reference procedure;
- (c) the overflight shall be made with the rotor speed stabilized at the maximum normal operating rpm certificated for level flight;
- (d) the helicopter shall be in the cruise configuration; and
- (e) the mass of the helicopter shall be the maximum take-off mass at which noise certification is requested.

(2) The value of VH and/or VNE used for noise certification shall be quoted in the approved flight manual.

53. The approach reference procedure shall be established as follows—

Approach
reference
procedure.

- (a) the helicopter shall be stabilized and following a 6.0° approach path;
- (b) the approach shall be made at a stabilized airspeed equal to the best rate of climb speed, VY, or the lowest approved speed for the approach, whichever is the greater, with power stabilized during the approach and over the flight path reference point, and continued to a normal touchdown;
- (c) the approach shall be made with the rotor speed stabilized at the maximum normal operating rpm certificated for approach;
- (d) the constant approach configuration used in airworthiness certification tests, with the landing gear extended, shall be maintained throughout the approach reference procedure; and

- (e) the mass of the helicopter at touchdown shall be the maximum landing mass at which noise certification is requested.

54. (1) The test procedures shall be acceptable to the Test procedures.
airworthiness and noise certifying authority of the State of design.

(2) The test procedures and noise measurements shall be conducted and processed in an approved manner to yield the noise evaluation measure designated as effective perceived noise level, EPNL, in units of EPNdB, as described in the Fifth Schedule of these Regulations.

(3) Test conditions and procedures shall be closely similar to reference conditions and procedures or the acoustic data shall be adjusted, by the methods outlined in the Fifth Schedule of these Regulations, to the reference conditions and procedures under this part.

(4) Adjustments for differences between test and reference flight procedures shall not exceed—

- (a) *for take-off*: 4.0 EPNdB, of which the arithmetic sum of $\Delta 1$ and the term $-7.5 \log (QK/QrKr)$ from $\Delta 2$ shall not in total exceed 2.0 EPNdB;
- (b) *for overflight or approach*: 2.0 EPNdB.

(5) During the test the average rotor rpm shall not vary from the normal maximum operating rpm by more than ± 1.0 per cent during the 10 dB-down period.

(6) The helicopter airspeed shall not vary from the reference airspeed appropriate to the flight demonstration by more than ± 9 km/h (± 5 kt) throughout the 10 dB-down period.

(7) The number of level overflights made with a headwind component shall be equal to the number of level overflights made with a tailwind component.

(8) The helicopter shall fly within $\pm 10^\circ$ or ± 20 m, whichever is greater, from the vertical above the reference track throughout the 10 dB-down period (see Figure 8-1).

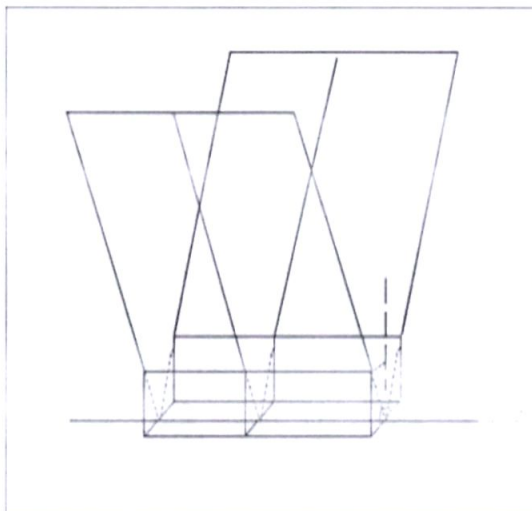


Figure 1.
Helicopter lateral
deviation
tolerances

(9) The helicopter height shall not vary during overflight from the reference height at the overhead point by more than ± 9 m (± 30 ft).

(10) During the approach noise demonstration the helicopter shall be established on a stabilized constant speed approach within the airspace contained between approach angles of 5.5° and 6.5° .

(11) Tests shall be conducted at a helicopter mass not less than 90 per cent of the relevant maximum certificated mass and may be conducted at a mass not exceeding 105 per cent of the relevant maximum certificated mass. For each of the three flight conditions, at least one test shall be completed at or above this maximum certificated mass.

PART VIII—PROPELLER-DRIVEN AEROPLANES NOT EXCEEDING 8 618 kg

Application for Type Certificate or Certification of Derived Version
submitted on or after 17 November 1988

55. (1) This part shall be applicable to all propeller-driven aeroplanes with a certificated take-off mass not exceeding 8 618 kg, except those aeroplanes specifically designed and used for aerobatic, agricultural or firefighting purposes and self-sustaining powered sailplanes. Applicability.

(2) For aeroplanes which the application for the Type Certificate was submitted on or after 17 November 1988, except for those aeroplanes specified under regulation 55(6), the maximum noise levels of 59 (a) shall apply.

(3) For aeroplanes specified under regulation 55(2) where the application for the Type Certificate was submitted before 17 November 1993 and which fail to comply with the regulations under this part, the regulations under part VII shall apply.

(4) For derived versions for which the application for certification of the change in type design was submitted on or after 17 November 1988, except for those derived versions specified under regulation (6), the maximum noise levels of 58 (a) shall apply.

(5) For derived versions specified under regulation 55(4) where the application for certification of the change in type design was submitted before 17 November 1993 and which fail to comply with the regulations under this part, the regulations under part VII shall apply.

(6) For single-engined aeroplanes, except float planes and amphibians—

- (a) the maximum noise levels of 58 (b) shall apply to those aeroplanes, including their derived versions, for which the application for the Type Certificate was submitted on or after 4 November 1999;
- (b) the maximum noise levels of 58 b) shall apply to those derived versions of aeroplanes for which the application for the Type Certificate was submitted before 4 November 1999 and for which the application for certification of the change in type design was submitted on or after 4 November 1999, except for those derived versions described under regulation 55(6)(b) where the application for certification of the change in type design was submitted before 4 November 2004 and which exceed the maximum noise levels of 59 (b), in which case the maximum noise levels of 59(a) shall apply.

56. The noise evaluation measure shall be the maximum A-weighted noise level, LASmax, as defined in the Tenth Schedule of these Regulations.

Noise evaluation measure.

57. (1) An aeroplane, when tested in accordance with these Standards, shall not exceed the noise level specified in 10.4 at the take-off reference noise measurement point.

Reference noise measurement points.

(2) The take-off reference noise measurement point is the point on the extended centre line of the runway at a distance of 2 500 m from the start of take-off roll.

58. The maximum noise levels determined in accordance with the noise evaluation method of the Tenth Schedule shall not exceed the following—

Maximum noise levels.

- (a) for aeroplanes specified under regulation 56(2) and (3), a 76 dB(A) constant limit up to an aeroplane mass of 600 kg varying linearly from that point with the logarithm of aeroplane mass until at 1 400 kg the limit of 88 dB(A) is reached after which the limit is constant up to 8 618 kg; and

- (b) for aeroplanes specified under regulation 56(4), a 70 dB(A) constant limit up to an aeroplane mass of 570 kg increasing linearly from that point with the logarithm of aeroplane mass until at 1 500 kg the limit of 85 dB(A) is reached after which the limit is constant up to 8 618 kg.

59. (1) The calculations of reference procedures and flight paths shall be approved by the certificating authority.

Noise certification
reference
procedures-
General
conditions.

(2) Except in conditions specified under regulation 60(3), the take-off reference procedure shall be that defined under regulation 61.

(3) Where it is shown by the applicant that the design characteristics of the aeroplane would prevent flights being conducted in accordance with regulation 61, the reference procedures shall—

- (a) depart from the reference procedures defined only to the extent demanded by those design characteristics which make compliance with the procedures impossible; and
- (b) be approved by the certificating authority.

(4) The reference procedures shall be calculated under the following atmospheric conditions—

- (a) atmospheric pressure at sea level of 1 013.25 hPa, decreasing with altitude at a rate defined by the ICAO Standard Atmosphere;
- (b) ambient air temperature at sea level of 15°C, decreasing with altitude at a rate defined by the ICAO Standard Atmosphere (i.e. 0.65°C per 100 m);
- (c) constant relative humidity of 70 per cent;
- (d) zero wind; and
- (e) details for calculating the variation of reference atmospheric pressure with altitude are specified by the Authority.

(5) The acoustic reference atmospheric conditions shall be the same as the reference atmospheric conditions for flight.

60. The take-off flight path shall—

Noise certification
reference
procedures- Take-
off.

- (a) For the First phase be calculated taking into account the following—

- (i) take-off power shall be used from the brake release point to the point at which the height of 15 m (50 ft) above the runway is reached;
 - (ii) a constant take-off configuration selected by the applicant shall be maintained throughout this first phase;
 - (iii) the mass of the aeroplane at the brake release shall be the maximum take-off mass at which the noise certification is requested; and
 - (iv) the length of this first phase shall correspond to the length given in the airworthiness data for a take-off on a level paved runway.
- (b) For the second phase be calculated taking into account the following—
- (i) the beginning of the second phase corresponds to the end of the first phase;
 - (ii) the aeroplane shall be in the climb configuration with landing gear up, if retractable, and flap setting corresponding to normal climb throughout this second phase;
 - (iii) the speed shall be the best rate of climb speed, VY ; and
 - (iv) take-off power and, for aeroplanes equipped with variable pitch or constant speed propellers, rpm shall be maintained throughout the second phase. If airworthiness limitations do not permit the application of take-off power and rpm up to the reference point, then take-off power and rpm shall be maintained for as long as is permitted by such limitations and thereafter at maximum continuous power and rpm. Limiting of time for which take-off power and rpm shall be used in order to comply with this chapter shall not be permitted. The reference height shall be calculated assuming climb gradients appropriate to each power setting used.

61. (1) The test procedures shall be acceptable to the airworthiness and noise certificating authorities of the State issuing the certificate.

Test Procedures.

(2) The test procedures and noise measurements shall be conducted and processed in an approved manner to yield the noise evaluation measure in units of LAS_{max} as described in the Tenth Schedule of these Regulations.

(3) Acoustic data shall be adjusted by the methods outlined in the Tenth Schedule of these Regulations to the reference conditions specified in this part.

(4) If equivalent test procedures are used, the test procedures and all methods for correcting the results to the reference procedures shall be approved by the certificating authority.

**PART IX—HELICOPTERS NOT EXCEEDING 3 175 kg MAXIMUM
CERTIFICATED TAKE-OFF MASS**

62. (1) This part shall be applicable to all helicopters having a maximum certificated take-off mass not exceeding 3 175 kg for which regulation 63(2), 3 and (4) apply, except those specifically designed and used for agricultural, firefighting or external load-carrying purposes. Applicability.

(2) For a helicopter which the application for the Type Certificate was submitted on or after 11 November 1993, except for those helicopters specified under sub regulation regulation (4), the maximum noise levels in subregulation (4) shall apply.

(3) For a derived version of a helicopter for which the application for certification of the change in type design was submitted on or after 11 November 1993, except for those helicopters specified under sub-regulation (4), the maximum noise levels specified in subregulation(4) shall apply.

(4) For all helicopters, including their derived versions, for which the application for the Type Certificate was submitted on or after 21 March 2002, the maximum noise levels Specified in sub-regulation (4) shall apply.

(5) Certification of helicopters which are capable of carrying external loads or external equipment shall be made without such loads or equipment fitted.

(6) Notwithstanding regulation 62(5) Helicopters which comply with regulations on internal loads may be excepted when carrying external loads or external equipment, if such operations are conducted at a gross mass or with other operating parameters which are in excess of those certificated for airworthiness with internal loads.

(7) An applicant under regulation 62(1),(2),(3) and (4) may alternatively elect to show compliance with part IX instead of complying with this part.

63. The noise evaluation measure shall be the sound exposure level LAE as described in the Eleventh Schedule of these Regulations. Noise evaluation measure.

64. (1) A helicopter, when tested in accordance with these Regulations, shall not exceed the noise levels specified under Regulation 66 at a flight path reference point located on the ground 150 m (492 ft) vertically below the flight path defined in the overflight reference procedure under regulation 67. Reference noise measurement points.

(2) Acceptable supplemental land-use planning (LUP) data procedures shall be as specified under the Eight Schedule to these Regulations.

65. (1) For helicopters specified in 62(2) and 62(3), the maximum noise levels, when determined in accordance with the noise evaluation method of Appendix 4, shall not exceed 82 dB(A) for helicopters with maximum certificated take-off mass, at which the noise certification is requested, of up to 788 kg and increasing linearly with the logarithm of the helicopter mass at a rate of 3 decibels per doubling of mass thereafter.

Maximum noise level.

(2) For helicopters specified in 62(4), the maximum noise levels, when determined in accordance with the noise evaluation method of Eleventh Schedule, shall not exceed 82 dB(A) for helicopters with maximum certificated take-off mass, at which the noise certification is requested, of up to 1 417 kg and increasing linearly with the logarithm of the helicopter mass at a rate of 3 decibels per doubling of mass thereafter.

66. (1) The reference procedure shall comply with the appropriate airworthiness requirements and shall be approved by the certificating authority.

Noise certification reference procedures- General conditions.

(2) Except as otherwise approved, the overflight reference procedures shall be as defined under regulation 68.

(3) When it is shown by the applicant that the design characteristics of the helicopter would prevent flight being conducted in accordance with regulation 68 the reference procedure shall be permitted to depart from the standard reference procedure, with the approval of the certificating authority, but only to the extent demanded by those design characteristics which make compliance with the reference procedures impossible.

(4) The reference procedures shall be established for the following reference atmospheric conditions—

- (a) constant atmospheric pressure of 1 013.25 hPa;
- (b) constant ambient air temperature of 25°C;
- (c) constant relative humidity of 70 per cent; and
- (d) zero wind.

(5) The maximum normal operating rpm shall be taken as the highest rotor speed corresponding to the airworthiness limit imposed by the manufacturer and approved by the certificating authority for overflight. Where a tolerance on the highest rotor speed is specified, the maximum normal operating rotor speed shall be taken as the highest

rotor speed about which that tolerance is given. If rotor speed is automatically linked with flight condition, the maximum normal operating rotor speed corresponding with the reference flight condition shall be used during the noise certification procedure. If rotor speed can be changed by pilot action, the maximum normal operating rotor speed specified in the flight manual limitation section for the reference conditions shall be used during the noise certification procedure.

67. (1). The reference procedure shall be established as follows—

Noise certification
reference
procedures-

- (a) the helicopter shall be stabilized in level flight overhead the flight path reference point at a height of $150\text{ m} \pm 15\text{ m}$ ($492\text{ ft} \pm 50\text{ ft}$);
- (b) a speed of 0.9 VH or 0.9 VNE or $0.45\text{ VH} + 120\text{ km/h}$ (65 kt) or $0.45\text{ VNE} + 120\text{ km/h}$ (65 kt), whichever is the least, shall be maintained throughout the overflight procedure. For noise certification purposes, VH is defined as the airspeed in level flight obtained using the torque corresponding to minimum engine installed, maximum continuous power available for sea level pressure ($1\,013.25\text{ hPa}$), 25°C ambient conditions at the relevant maximum certificated mass. VNE is defined as the not-to-exceed airworthiness airspeed imposed by the manufacturer and approved by the certifying authority;
- (c) the overflight shall be made with the rotor speed stabilized at the maximum normal operating rpm certificated for level flight;
- (d) the helicopter shall be in the cruise configuration; and
- (e) the mass of the helicopter shall be the maximum take-off mass at which noise certification is requested.

(2) The value of VH and/or VNE used for noise certification shall be quoted in the approved flight manual.

68. (1) The test procedures shall be acceptable to the airworthiness and noise certifying authorities of the State issuing the certificate.

Noise certification
reference
procedures- Test.

(2) The test procedure and noise measurements shall be conducted and processed in an approved manner to yield the noise evaluation measure designated as sound exposure level (LAE), in A-weighted decibels integrated over the duration time, as described in the Eleventh Schedule.

(3) Test conditions and procedures shall be closely similar to reference conditions and procedures or the acoustic data shall be adjusted, by the methods outlined in the Eleventh Schedule, to the reference conditions and procedures specified in this chapter.

(4) During the test, flights shall be made in equal numbers with tailwind and headwind components.

(5) Adjustments for differences between test and reference flight procedures shall not exceed 2.0 dB(A).

(6) During the test, the average rotor rpm shall not vary from the normal maximum operating rpm by more than ± 1.0 per cent during the 10 dB-down period.

(7) The helicopter airspeed shall not vary from the reference airspeed appropriate to the flight demonstration as described in Appendix 4 by more than ± 5.5 km/h (± 3 kt) throughout the 10 dB-down period.

(8) The helicopter shall fly within $\pm 10^\circ$ from the vertical above the reference track through the reference noise measurement position.

(9) Tests shall be conducted at a helicopter mass not less than 90 per cent of the relevant maximum certificated mass and may be conducted at a mass not exceeding 105 per cent of the relevant maximum certificated mass.

PART X—TILT-ROTORS

69. (1) This part shall be applicable to all tilt-rotors, including their derived versions, for which the application for a Type Certificate was submitted on or after 1 January 2018.

Applicability.

(2) Noise certification of tilt-rotors which are capable of carrying external loads or external equipment shall be made without such loads or equipment fitted.

70. The noise evaluation measure shall be the effective perceived noise level in EPNdB as described in the Third Schedule of these Regulations. The correction for spectral irregularities shall start at 50 Hz as prescribed in Third Schedule of these regulations.

Noise evaluation measure.

71. A tilt-rotor, when tested in accordance with the reference procedures these regulations and the test procedures of 13.7, shall not exceed the noise levels specified in 13.4 at the following reference points—

Noise measurement reference points.

(a) take-off reference noise measurement points—

- (i) a flight path reference point located on the ground vertically below the flight path defined in the take-off reference procedure (see 13.6.2) and 500 m (1 640 ft) horizontally in the direction of flight from the point at which transition to climbing flight is initiated in the reference procedure; and

- (ii) two other points on the ground symmetrically disposed at 150 m (492 ft) on both sides of the flight path defined in the take-off reference procedure and lying on a line through the flight path reference point.
- (b) overflight reference noise measurement points—
 - (i) a flight path reference point located on the ground 150 m (492 ft) vertically below the flight path defined in the overflight reference procedure (see 13.6.3); and
 - (ii) two other points on the ground symmetrically disposed at 150 m (492 ft) on both sides of the flight path defined in the overflight reference procedure and lying on a line through the flight path reference point.
- (c) approach reference noise measurement points—
 - (i) a flight path reference point located on the ground 120 m (394 ft) vertically below the flight path defined in the approach reference procedure (see 13.6.4). On level ground, this corresponds to a position 1 140 m (3 740 ft) from the intersection of the 6.0° approach path with the ground plane;
 - (ii) two other points on the ground symmetrically disposed at 150 m (492 ft) on both sides of the flight path defined in the approach reference procedure and lying on a line through the flight path reference point.

72. For tilt-rotors specified under regulation 69, the maximum noise levels, when determined in accordance with the noise evaluation method of the Third Schedule for helicopters, shall not exceed the following—

Maximum noise levels.

- (a) for take-off: 109 EPNdB for tilt-rotors in VTOL/conversion mode with maximum certificated take-off mass, at which the noise certification is requested, of 80 000 kg and over and decreasing linearly with the logarithm of the tilt-rotor mass at a rate of 3 EPNdB per halving of mass down to 89 EPNdB after which the limit is constant.
- (b) for overflight: 108 EPNdB for tilt-rotors in VTOL/conversion mode with maximum certificated take-off mass, at which the noise certification is requested, of 80 000 kg and over and decreasing linearly with the logarithm of the tilt-rotor mass at a rate of 3 EPNdB per halving of mass down to 88 EPNdB after which the limit is constant;
- (c) for approach: 110 EPNdB for tilt-rotors in VTOL/conversion mode with maximum certificated take-off mass, at which the noise certification is requested, of 80 000 kg and over and decreasing linearly with the logarithm of the tilt-rotor mass at a rate of 3 EPNdB per halving of mass down to 90 EPNdB after which the limit is constant.

73. Where the maximum noise levels are exceeded at one or two measurement points— Trade-offs.

- (a) the sum of excesses shall not be greater than 4 EPNdB;
- (b) any excess at any single point shall not be greater than 3 EPNdB; and
- (c) any excess shall be offset by corresponding reductions at the other point or points.

74. (1) The reference procedures shall comply with the appropriate airworthiness requirements. Noise certification
reference
procedures-
General
conditions.

(2) The reference procedures and flight paths shall be approved by the certificating authority.

(3) Except in conditions specified in 13.6.1.4, the take-off, overflight and approach reference procedures shall be those defined in 13.6.2, 13.6.3 and 13.6.4, respectively.

(4) When it is shown by the applicant that the design characteristics of the tilt-rotor would prevent a flight from being conducted in accordance with 13.6.2, 13.6.3 or 13.6.4, the reference procedures shall—

- (a) depart from the reference procedures defined in 13.6.2, 13.6.3 or 13.6.4 only to the extent demanded by those design characteristics which make compliance with the reference procedures impossible; and
- (b) be approved by the certificating authority.

(5) The reference procedures shall be calculated under the following reference atmospheric conditions—

- (a) constant atmospheric pressure of 1 013.25 hPa;
- (b) constant ambient air temperature of 25°C, i.e. ISA + 10°C;
- (c) constant relative humidity of 70 per cent; and
- (d) zero wind.

(6) For the purpose of these regulations, the maximum normal operating rpm shall be taken as the highest rotor speed for each reference procedure corresponding to the airworthiness limit imposed by the manufacturer and approved by the certificating authority.

(7) Where a tolerance on the highest rotor speed is specified, the maximum normal operating rotor speed shall be taken as the highest rotor speed about which that tolerance is given.

(8) Where the rotor speed is automatically linked with the flight condition, the maximum normal operating rotor speed corresponding with the reference flight condition shall be used during the noise certification procedure.

(9) Where the rotor speed can be changed by pilot action, the maximum normal operating rotor speed specified in the flight manual limitation section for the reference conditions shall be used during the noise certification procedure.

75. The take-off reference flight procedure shall be established as follows—

Take-off reference procedure.

- (a) a constant take-off configuration, including nacelle angle, selected by the applicant shall be maintained throughout the take-off reference procedure;
- (b) the tilt-rotor shall be stabilized at the maximum take-off power corresponding to minimum installed engine(s) specification power available for the reference ambient conditions or gearbox torque limit, whichever is lower, and along a path starting from a point located 500 m (1 640 ft) prior to the flight path reference point, at 20 m (65 ft) above the ground;
- (c) the nacelle angle and the corresponding best rate of climb speed, or the lowest approved speed for the climb after take-off, whichever is the greater, shall be maintained throughout the take-off reference procedure;
- (d) the steady climb shall be made with the rotor speed stabilized at the maximum normal operating rpm certificated for take-off;
- (e) the mass of the tilt-rotor shall be the maximum take-off mass at which noise certification is requested; and
- (f) the reference take-off path is defined as a straight line segment inclined from the starting point (500 m (1 640 ft) prior to the centre noise measurement point and 20 m (65 ft) above ground level) at an angle defined by best rate of climb and the best rate of climb speed corresponding to the selected nacelle angle and for minimum specification engine performance.

76. (1) The overflight reference procedure shall be established as follows—

Overflight reference procedure.

- (a) the tilt-rotor shall be stabilized in level flight overhead the flight path reference point at a height of 150 m (492 ft);
- (b) a constant configuration selected by the applicant shall be maintained throughout the overflight reference procedures;

- (c) the mass of the tilt-rotor shall be the maximum take-off mass at which noise certification is requested;
- (d) in the VTOL/conversion mode, the nacelle angle at the authorized fixed operation point that is closest to the lowest nacelle angle certificated for zero airspeed, a speed of 0.9 VCON and a rotor speed stabilized at the maximum normal operating rpm certificated for level flight shall be maintained throughout the overflight reference procedure;
- (e) in the aeroplane mode, the nacelles shall be maintained on the down-stop throughout the overflight reference procedure, with—
 - (i) rotor speed stabilized at the rpm associated with the VTOL/conversion mode and a speed of 0.9 VCON; and
 - (ii) rotor speed stabilized at the normal cruise rpm associated with the aeroplane mode and at the corresponding 0.9 VMCP or 0.9 VMO, whichever is lesser, certificated for level flight.

(2) The values of VCON and VMCP or VMO used for noise certification shall be quoted in the approved flight manual.

77. (1) The approach reference procedure shall be established as follows—

Approach
reference
procedure.

- (a) the tilt-rotor shall be stabilized and follow a 6.0° approach path;
- (b) the approach shall be in an airworthiness approved configuration in which maximum noise occurs, at a stabilized airspeed equal to the best rate of climb speed corresponding to the nacelle angle, or the lowest approved airspeed for the approach, whichever is the greater, and with power stabilized during the approach and over the flight path reference point, and continued to a normal touchdown;
- (c) the approach shall be made with the rotor speed stabilized at the maximum normal operating rpm certificated for approach;
- (d) the constant approach configuration used in airworthiness certification tests, with the landing gear extended, shall be maintained throughout the approach reference procedure; and
- (e) the mass of the tilt-rotor at touchdown shall be the maximum landing mass at which noise certification is requested.

78. (1) The test procedures shall be acceptable to the Authority.

Test procedures.

(2) The test procedures and noise measurements shall be conducted and processed in an approved manner to yield the noise evaluation measure in accordance to subregulation (2)

(3) Test conditions and procedures shall be similar to reference conditions and procedures or the acoustic data shall be adjusted, by the methods outlined in the Third Schedule of these regulations for helicopters, to the reference conditions and procedures specified in this chapter.

(4) Adjustments for differences between test and reference flight procedures shall not exceed—

(a) for take-off: 4.0 EPNdB, of which the arithmetic sum of $\Delta 1$ and the term $-7.5 \log QK/QrKr$ from $\Delta 2$ shall not in total exceed 2.0 EPNdB; and

(b) for overflight or approach: 2.0 EPNdB.

(5) During the test the average rotor rpm shall not vary from the normal maximum operating rpm by more than ± 1.0 per cent throughout the 10 dB- down period.

(6) The airspeed of the tilt-rotor shall not vary from the reference airspeed appropriate to the flight demonstration by more than ± 9 km/h (± 5 kt) throughout the 10 dB-down period.

(7) The number of level overflights made with a headwind component shall be equal to the number of level overflights made with a tailwind component.

(8) The tilt-rotor shall fly within $\pm 10^\circ$ or ± 20 m (± 65 ft), whichever is greater, from the vertical above the reference track throughout the 10 dB- down period (see Figure 8-1).

(9) The height of the tilt-rotor shall not vary during overflight from the reference height throughout the 10 dB-down period by more than ± 9 m (± 30 ft).

(10) During the approach noise demonstration the tilt-rotor shall be established on a stabilized constant speed approach within the airspace contained between approach angles of 5.5° and 6.5° throughout the 10 dB- down period.

(11) Tests shall be conducted at a tilt-rotor mass not less than 90 per cent of the relevant maximum certificated mass and may be conducted at a mass not exceeding 105 per cent of the relevant maximum certificated mass. For each of the flight conditions, at least one test shall be completed at or above this maximum certificated mass.

**PART XII—SUBSONIC JET AEROPLANES AND
PROPELLER-DRIVEN AEROPLANES WITH MAXIMUM
CERTIFICATED TAKE-OFF MASS 55 000kg AND OVER—**
Application for Type Certificate submitted on or after 31 December
2017

**SUBSONIC JET AEROPLANES WITH MAXIMUM CERTIFICATED
TAKE-OFF MASS LESS THAN 55 000 kg —**
Application for Type Certificate submitted on or after 31 December
2020

**PROPELLER-DRIVEN AEROPLANES WITH MAXIMUM
CERTIFICATED TAKE-OFF MASS OVER 8 618 kg AND LESS
THAN 55 000kg —** Application for Type Certificate submitted on or
after 31 December 2020

79. (1) This part shall, with the exception of those aeroplanes which require a runway, with no stopway or clearway, length of 610 m or less at maximum certificated mass for airworthiness or propeller-driven aeroplanes specifically designed and used for agricultural or firefighting purposes, be applicable to— Applicability.

- (a) all subsonic jet aeroplanes and propeller-driven aeroplanes, including their derived versions, with a maximum certificated take-off mass of 55 000 kg and over for which the application for a Type Certificate was submitted on or after 31 December 2017;
- (b) all subsonic jet aeroplanes, including their derived versions, with a maximum certificated take-off mass of less than 55 000 kg for which the application for a Type Certificate was submitted on or after 31 December 2020;
- (c) all propeller-driven aeroplanes, including their derived versions, with a maximum certificated take-off mass of over 8 618 kg and less than 55 000 kg for which the application for a Type Certificate was submitted on or after 31 December 2020; and
- (d) all subsonic jet aeroplanes and all propeller-driven aeroplanes certificated originally under part IV, V and VI of these Regulations, for which recertification to Part XV is requested.

(2) Notwithstanding requirements of sub regulation (1), the Authority may recognize that the following situations for jet aeroplanes and propeller-driven aeroplanes over 8 618 kg maximum certificated take-off mass on its registry do not require demonstration of compliance with these regulations—

- (a) gear down flight with one or more retractable landing gear down during the entire flight;
- (b) spare engine and nacelle carriage external to the skin of the aeroplane (and return of the pylon or other external mount); and
- (c) time-limited engine or nacelle changes, where the change in type design specifies that the aeroplane may not be operated

for a period of more than 90 days unless compliance with the provisions of these regulations, is shown for that change in type design. This applies only to changes resulting from a required maintenance action.

80. The noise evaluation measure shall be the effective perceived noise level in EPNdB as described in the Third Schedule of these Regulations.

Noise evaluation measure.

81. (1) An aeroplane, when tested in accordance with these Regulations, shall not exceed the maximum noise level in accordance with these regulations.

Reference noise measurement points
Test noise measurement points.

(2) The provisions of Regulation 15 relating to test noise measurement points shall be applicable this regulation.

82. The maximum noise levels, when determined in accordance with the noise evaluation method of the Third Schedule, shall not exceed the following—

Maximum noise levels.

- (a) at the lateral full-power reference noise measurement point, 103 EPNdB for aeroplanes with maximum certificated take-off mass, at which the noise certification is requested, of 400 000 kg and over, decreasing linearly with the logarithm of the mass down to 94 EPNdB at 35 000 kg, after which the limit is constant to 8 618 kg, where it decreases linearly with the logarithm of the mass down to 88.6 EPNdB at 2 000 kg, after which the limit is constant;
- (b) at the flyover reference noise measurement point—
 - (i) aeroplanes with two engines or less, 101 EPNdB for aeroplanes with maximum certificated take-off mass, at which the noise certification is requested, of 385 000 kg and over, decreasing linearly with the logarithm of the mass at the rate of 4 EPNdB per halving of mass down to 89 EPNdB, after which the limit is constant to 8 618 kg, where it decreases linearly with the logarithm of the mass at a rate of 4 EPNdB per halving of mass down to 2 000 kg, after which the limit is constant;
 - (ii) aeroplanes with three engines, as (a) but with 104 EPNdB for aeroplanes with maximum certificated take-off mass of 385 000 kg and over;
 - (iii) Aeroplanes with four engines or more, as (a) but with 106 EPNdB for aeroplanes with maximum certificated take-off mass of 385 000 kg and over.
- (c) at the approach reference noise measurement point, 105 EPNdB for aeroplanes with maximum certificated take-off

mass, at which the noise certification is requested, of 280 000 kg and over, decreasing linearly with the logarithm of the mass down to 98 EPNdB at 35 000 kg, after which the limit is constant to 8 618 kg, where it decreases linearly with the logarithm of the mass down to 93.1 EPNdB at 2 000 kg, after which the limit is constant;

- (d) the sum of the differences at all three measurement points between the maximum noise levels and the maximum permitted noise levels specified in 73(a), (b) and (c), shall not be less than 17 EPNdB; and
- (e) the maximum noise level at each of the three measurement points shall not be less than 1 EPNdB below the corresponding maximum permitted noise level specified in 73(a), (b) and (c).

83. The noise certification reference procedures shall be as specified under Regulation 45.

Noise certification
reference
procedures.
Test procedures.

84. The test procedures under this Part shall be as specified under regulation 45.

85. For aeroplanes specified in 79, recertification shall be granted on the basis that the evidence used to determine compliance with this part of the regulation is as satisfactory as the evidence associated with aeroplanes specified in 79(1) (a), (b) and (c).

Recertification.

86. (1) An operator shall not introduce aircraft operating procedures for noise abatement unless, appropriate studies and consultation, determines that a noise problem exists.

Balanced
Approach to Noise
Management.

(2) Aircraft operating procedures for noise abatement shall be developed in consultation with operators that use the aerodrome concerned.

(3) When developing an appropriate aircraft operating procedure for noise abatement, the following factors shall be considered—

- (a) the nature and extent of the noise problem including—
 - (i) the location of noise-sensitive areas; and
 - (ii) critical hours;
- (b) the types of aircraft affected, including aircraft mass, aerodrome elevation, temperature considerations;
- (c) the types of procedures likely to be most effective;
- (d) obstacle clearances construction of visual and instrument flight procedures; and
- (e) human performance in the application of the operating procedures.

Made on the 15th December, 2025.

DAVIS CHIRCHIR,
Cabinet Secretary for Roads and Transport.