AS 2363—1990

Australian Standard®

Acoustics—Assessment of noise from helicopter landing sites

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STANDARDS AUSTRALIA

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The following interests are represented on Committee AV/5:

Association of Consulting Engineers, Australia
Australian Acoustical Society
Australian Institute of Health Surveyors
Australian Institute of Petroleum
Australian and New Zealand Environment Council
Australian and New Zealand Pulp Industry Technical Association
Australian Road Research Board
Bureau of Steel Manufacturers of Australia
CSIRO, Division of Building, Construction and Engineering
Department of Defence
Department of Environment and Planning, S.A.
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Department of Transport and Communication
Institute of Marine Engineers
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National Building Technology Centre
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PREFACE

This Standard was prepared by the Standards Australia Committee on Acoustics—Community Noise in response to a request from government environmental authorities.

The helicopter is typically operated at low altitudes and, as a result, it frequently comes within the audible range of people. Further, helicopters are becoming more widely used in both urban and suburban areas. Therefore, the sound is generated in close proximity to where people live and work. This closeness accentuates the concern associated with the external sound of the helicopter and its acceptability to the communities in which it operates. It is an underlying philosophy of the procedures and recommendations of this guide that each helicopter landing site is a unique situation. Thus the application of any procedure may not necessarily result in a satisfactory solution for every community and operator. In this regard, individual consideration should be given to such factors as ambient noise and the specific nature of the noise sensitive areas which may be impacted by helicopter operations.

General requirements (mainly safety-related) for helicopter landing sites are detailed in the Civil Aviation Authority (CAA) Aeronautical Information Publication on Aerodromes and Ground Aids (AGA—7—1). CAA approval may not be given without the assessment of the environmental significance of the proposal in accordance with the requirements of the Commonwealth Environment Protection (Impact of Proposals) Act. There may also be requirements by the state authorities or local government with respect to development consent, building approval, or approval under the relevant environmental regulatory authority.

This Standard provides technical guidance for local planners, government agencies, and operators in calculating the acoustic environment near existing and proposed helicopter landing sites as a result of helicopter operations.

This Standard provides assistance in the evaluation of the noise compatibility of sites considered for helicopter operation.

This is not a regulatory document. The acceptability criteria set out in Appendix A are recommended levels, but actual noise limits will be as prescribed by the relevant statutory authorities.

It has been assumed that the user of this document will be adequately trained in the science of acoustics and thoroughly experienced in noise measurement and assessment.

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1 SCOPE. This Standard provides guidelines for assessment of the impact of noise from existing or proposed helicopter landing sites on the surrounding community.

2 APPLICATION. This Standard applies to noise generated by helicopters on the ground, on approach and departure, but not en route.

This Standard does not apply to noise generated by helicopters during emergency service operations.

NOTES:

1. Operations of helicopters en route come under the Civil Aviation Regulations (CARs) or Civil Aviation Orders (CAOs).
2. Applications to the Civil Aviation Authorities to approve a variation from the conditions of CARs and CAOs are assessed for environmental effects under the Environment Protection (Impact of Proposals) Act.

3 REFERENCED DOCUMENTS. The following documents below are referred to in this Standard:

AS
1055 Acoustics—Description and measurement of environmental noise
1055.1 Part 1: General procedures

1259 Sound level meters

1633 Acoustics—Glossary of terms and related symbols

2021 Acoustics—Aircraft noise intrusion—Building siting and construction

2659 Guide to the use of sound measuring equipment
2659.1 Part 1: Portable sound level meters
2659.2 Part 2: Portable equipment for integration of sound signals

4 DEFINITIONS. For the purpose of this Standard, the definitions given in AS 1633 and those below apply.

4.1 Most affected premises—premises not associated with the helicopter landing site determined by the relevant authority to be the most affected by the noise generated by the helicopter during approach and departure and while on the landing site.

4.2 En route—the prescribed flight path followed by the helicopter after take-off and before commencing landing.

4.3 Helicopter landing site—the existing or proposed area used for helicopter take-off and landing operations.

4.4 Final approach—reduction of height and airspeed to arrive over a predetermined point, but not including contact with the surface.

4.5 Flight movement—one take-off or one landing.

4.6 Take-off—acceleration to and commencement of safe climb speed including the lift-off manoeuvres.

4.7 Lift-off—the rising of a helicopter in the air.

4.8 Landing—the lowering of a helicopter to bring it in contact with the surface, including the final approach manoeuvres.

4.9 Hover—flight at zero ground speed.

4.10 $L_{Aeq,T}$ (Amb)—the totally encompassing sound at a given site over a period T, composed of sound from all sources near and far, but excluding the helicopter using the site, measured as the equivalent continuous A-weighted sound pressure level.

4.11 $L_{Aeq,T}$ (Hel)—the totally encompassing measured or predicted sound at a given site over a period T, composed of sound from all sources near and far, including the helicopter using the site, measured as the equivalent continuous A-weighted sound pressure level.

4.12 L_{Amax} (Event)—the maximum sound pressure level occurring during a discrete test of a given operational mode, measured as the maximum A-weighted sound pressure level using 'F' time-weighting.

4.13 L_{Amax} (Hel)—the logarithmic average of the L_{Amax} (Event) levels for each mode of operation for each flight path (see Clause 5.5).