

SA/SNZ HB 331:2020
(Incorporating Amendment No. 1)



Handbook

Overhead line design handbook



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SA/SNZ HB 331:2020

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Handbook

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Preface

This Handbook was prepared by the Joint Standards Australia/Standards New Zealand Committee EL-052, Electrical Energy Networks, Construction and Operation, to supersede SA HB 331—2012.

This Handbook incorporates Amendment No. 1 (October 2020). The changes required by the Amendment are indicated in the text by a marginal bar and amendment number against the clause, note, table, figure or part thereof affected.

The objective of this Handbook is to provide guidance for both transmission and distribution lines in relation to the application of AS/NZS 7000:2016. Typical distribution voltages are 230/400 V, 230/460 V [referred to as low voltage (LV)] and 6.6 kV, 11 kV, 12.7 kV, 19.1 kV, 22 kV [referred to as high voltage (HV)]. Typical sub-transmission voltages are 33 kV, 66 kV, 110 kV, 132 kV and transmission voltages are 220 kV, 275 kV, 330 kV, 400 kV and 500 kV.

This Handbook is intended to supplement and be read in conjunction with AS/NZS 7000:2016, *Overhead line design*. This document is informative and the examples given are guidance only.

Standards Australia and the Committee would like to acknowledge the expertise of Working Group EL-052-08 in the revision of this Handbook.

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Handbook

Overhead line design handbook

Section 1 Scope and general

1.1 Scope

This Handbook is a companion to and is intended to be read in conjunction with AS/NZS 7000:2016, *Overhead line design* (referred to as AS/NZS 7000 in this Handbook). AS/NZS 7000 outlines the requirements for the design of overhead power lines.

This edition of the Handbook supersedes the original edition published in 2012.

1.2 Significant changes to this Handbook

Significant enhancements made in this edition of the Handbook include the following:

- (a) Safety in design principles (new).
- (b) Electromagnetic fields (updated and NZ requirements included).
- (c) Earthing guidelines (updated and NZ requirements included).
- (d) Design and construction in bushfire prone areas (new).
- (e) Safety by design for poles in clear zones (new).
- (f) Non-conventional conductors (updated).
- (g) Using computer programs for layout design (updated).
- (h) Concrete poles (updated).
- (i) Stay analysis for variety of stay types (new).
- (j) High voltage live working considerations in design (new).
- (k) Residual static loads (updated with new formulas).
- (l) Vegetation management and clearing (updated with risk included and allowance for reduced wind in dense vegetation).

1.3 Structure of Handbook

This Handbook comprises the following:

[Sections 1](#) to [4](#) are a guideline and commentary on the application of AS/NZS 7000, including commentary on some of the more complex Appendices.

[Sections 5](#) to [13](#) are a guide to the line design process, with key areas covered in more detail.

[Section 14](#) provides worked examples for the line design process for a 132 kV single circuit pole line.

[Section 15](#) contains a number of miscellaneous worked examples for a range of line components.

[Sections 16](#) onwards cover particular topics such as special and covered conductors, line fittings and climbing structures.

1.4 Referenced documents

See Bibliography for a list of informative documents referenced in this Handbook.