

AS ISO 19014.3:2020
ISO 19014-3:2018



STANDARDS
Australia



Earth-moving machinery — Functional safety

Part 3: Environmental performance and test requirements of electronic and electrical components used in safety-related parts of the control system



AS ISO 19014.3:2020

This Australian Standard® was prepared by ME-063, Earthmoving Equipment. It was approved on behalf of the Council of Standards Australia on 21 October 2020.

This Standard was published on 13 November 2020.

The following are represented on Committee ME-063:

Australian Industry Group
Better Regulation Division — SafeWork NSW
Construction and Mining Equipment Industry Group
Department of Natural Resources, Mines and Energy, Qld
Department of Regional NSW
Engineers Australia / Mining Electrical and Mining Mechanical Engineering Society
Institute of Instrumentation, Control & Automation Australia
Minerals Council of Australia
University of Queensland

This Standard was issued in draft form for comment as DR AS ISO 19014.3:2020.

Keeping Standards up-to-date

Ensure you have the latest versions of our publications and keep up-to-date about Amendments, Rulings, Withdrawals, and new projects by visiting:

www.standards.org.au

ISBN 978 1 76113 023 6

Earth-moving machinery — Functional safety

Part 3: Environmental performance and test requirements of electronic and electrical components used in safety-related parts of the control system

First published as AS ISO 19014.3:2020.

COPYRIGHT

© ISO 2020 — All rights reserved
© Standards Australia Limited 2020

All rights are reserved. No part of this work may be reproduced or copied in any form or by any means, electronic or mechanical, including photocopying, without the written permission of the publisher, unless otherwise permitted under the Copyright Act 1968 (Cth).

Preface

This Standard was prepared by the Standards Australia Committee ME-063, Earthmoving Equipment.

The objective of this document is to specify the minimum requirements for environmental testing of electronic and electrical components identified as safety-related parts of the control system (SRP/CS) used on earth-moving machinery (EMM) as defined in ISO 6165 and their attachments.

This document is identical with, and has been reproduced from, ISO 19014-3:2018, *Earth-moving machinery — Functional safety, Part 3: Environmental performance and test requirements of electronic and electrical components used in safety-related parts of the control system*.

As this document has been reproduced from an International Standard, a full point substitutes for a comma when referring to a decimal marker.

Australian or Australian/New Zealand Standards that are identical adoptions of international normative references may be used interchangeably. Refer to the online catalogue for information on specific Standards.

The terms “normative” and “informative” are used in Standards to define the application of the appendices or annexes to which they apply. A “normative” appendix or annex is an integral part of a Standard, whereas an “informative” appendix or annex is only for information and guidance.

Contents

Preface	ii
Foreword	v
Introduction	vi
1 Scope	1
2 Normative references	1
3 Terms and definitions	2
4 Functional status classifications	2
4.1 Class A	2
4.2 Class B	2
4.3 Class C	2
4.4 Class D	2
5 Tests and requirements	2
5.1 General	2
5.2 Dust	3
5.2.1 Purpose	3
5.2.2 Test method	3
5.3 Chemical resistance	3
5.3.1 Purpose	3
5.3.2 Test method	3
5.4 Salt spray	4
5.4.1 Purpose	4
5.4.2 Test method	4
5.5 Pressure wash	4
5.5.1 Purpose	4
5.5.2 Test method	4
5.6 Random vibration	4
5.6.1 Purpose	4
5.6.2 Test method	4
5.7 Operating shock	5
5.7.1 Purpose	5
5.7.2 Test method	5
5.8 Temperature cycles	6
5.8.1 Purpose	6
5.8.2 Test method	6
5.9 Thermal shock	7
5.9.1 Purpose	7
5.9.2 Test method	7
5.10 Humidity cycles	7
5.10.1 Purpose	7
5.10.2 Test method	7
5.11 Overvoltage condition	7
5.11.1 Purpose	7
5.11.2 Test method	7
5.12 Undervoltage condition (reset behaviour at voltage drop)	8
5.12.1 Purpose	8
5.12.2 Test method	8
5.13 Electromagnetic compatibility	8
5.13.1 Purpose	8
5.13.2 Test method	8
5.14 Reverse polarity	8
5.14.1 Purpose	8
5.14.2 Test method	8

Annex A (informative) **Test checklist**..... **9**

Bibliography **10**