

WITHDRAWN

AS 1099.2.6—1988

SEPT 1996



**Standards
Association of
Australia**



Australian Standard[®] 1099.2.6—1988

**BASIC ENVIRONMENTAL TESTING
PROCEDURES FOR
ELECTROTECHNOLOGY**

**Part 2—TESTS—
TEST Fc: VIBRATION
(SINUSOIDAL)**



This Australian Standard was prepared by Committee ET/5, Environmental Testing Procedures. It was approved on behalf of the Council of the Standards Association of Australia on 12 January 1988 and published on 9 May 1988.

The following interests are represented on Committee ET/5:

Aerospace Technologies of Australia
Confederation of Australian Industry
Department of Defence
Department of Housing and Construction
Electricity Supply Association of Australia
National Association of Testing Authorities
Society of Automotive Engineers—Australasia
Telecom Australia
The University of New South Wales

Review of Australian Standards. To keep abreast of progress in industry, Australian Standards are subject to periodic review and are kept up-to-date by the issue of amendments or new editions as necessary. It is important therefore that Standards users ensure that they are in possession of the latest edition, and any amendments thereto.

Full details of all SAA publications will be found in the Catalogue of SAA Publications; this information is supplemented each month by SAA's journal 'The Australian Standard', which subscribing members receive, and which gives details of new publications, new editions and amendments, and of withdrawn Standards.

Suggestions for improvements to Australian Standards, addressed to the head office of the Association, are welcomed. Notification of any inaccuracy or ambiguity found in an Australian Standard should be made without delay in order that the matter may be investigated and appropriate action taken.

AUSTRALIAN STANDARD

**BASIC ENVIRONMENTAL TESTING
PROCEDURES FOR
ELECTROTECHNOLOGY**

**Part 2
TESTS—
TEST Fc: VIBRATION
(SINUSOIDAL)**

AS 1099.2.6—1988

First published as part of AS C333—1963.
Revised and redesignated AS 1099.2Fc—1971. ✓
Revised and redesignated AS 1099.2.6—1988. ✓

**PUBLISHED BY THE STANDARDS ASSOCIATION OF AUSTRALIA
STANDARDS HOUSE, 80 ARTHUR ST, NORTH SYDNEY, N.S.W.**

ISBN 0 7262 4899 1

PREFACE

This Standard was prepared by the Association's Committee on Environmental Testing Procedures to supersede AS 1099.2Fc—1971, *Vibration (sinusoidal)*.

This edition is identical with IEC 68-2-6(1982) Fifth Edition as amended by Amendments No 1 (1983) and No 2 (1985).

The object of the test is to determine the ability of electronic components and other items and equipment to withstand, during transportation or in service, a sinusoidal vibration over a given frequency range or at discrete frequencies. This is intended to simulate conditions involving vibration of a harmonic pattern such as may be generated by rotating, pulsating or oscillating forces such as occur in land vehicles, aircraft, ships and in space applications. The method of controlling the test at specified points, the testing procedure, frequency ranges, amplitudes and endurance durations are described and guidance on the test procedure given in Appendices A, B and C. For the purposes of this Australian Standard the text of the IEC Publication used herein should be modified as follows:

Terminology: The words 'Australian Standard' should replace the words International Standard wherever they appear.

Cross Reference: The references to International Standards should be replaced by references to the appropriate Australian Standards which apply at the time of publication of this Standard:

<i>Reference to International Publication</i>	<i>Appropriate Australian Standard</i>
IEC 50(55): <i>International electrotechnical vocabulary, Chapter 55, Telegraphy and telephony</i>	AS 1852(55) <i>International electrotechnical vocabulary, Chapter 55, Telegraphy and telephony</i>
IEC 68 <i>Basic environmental testing procedures</i>	AS 1099 <i>Basic environmental testing procedures for electrotechnology</i>
<i>Part 1: General and guidance</i>	<i>Part 1: General (AS 1099.1)</i>
<i>Part 2: Tests</i>	<i>Part 2: Tests (AS 1099.2)</i>
IEC 68-2-47: <i>Mounting of components, equipment and other articles including shock, bump, vibration and steady-state acceleration</i>	(No Australian equivalent in course of preparation) or (SA)
ISO 2041 <i>Vibration and shock—Vocabulary</i>	AS 2606 <i>Vibration and shock—Vocabulary</i>

© Copyright — STANDARDS ASSOCIATION OF AUSTRALIA 1988

Users of Standards are reminded that copyright subsists in all SAA publications. Except where the Copyright Act otherwise allows, no part of this publication may be reproduced, stored in a retrieval system in any form or transmitted by any means without prior permission in writing of the Standards Association of Australia. Requests for permission should be directed to the Head Office of the Association. Where such requests relate to the reproduction of the whole or a substantial part of any Standard, permission may be conditional on an appropriate royalty payment.

CONTENTS

	<i>Page</i>
1 OBJECT	4
2 GENERAL DESCRIPTION	4
3 DEFINITIONS	5
4 DESCRIPTION OF TEST APPARATUS	6
5 SEVERITIES	8
6 PRE-CONDITIONING	11
7 INITIAL MEASUREMENTS	11
8 CONDITIONING	12
9 INTERMEDIATE MEASUREMENTS	13
10 RECOVERY	13
11 FINAL MEASUREMENTS	13
12 INFORMATION TO BE GIVEN IN THE RELEVANT SPECIFICATION	14
 FIGURES	 15
 APPENDICES	
A GUIDE TO TEST F_c	18
B EXAMPLES OF SEVERITIES PRIMARILY INTENDED FOR COMPONENTS	27
C EXAMPLES OF SEVERITIES PRIMARILY INTENDED FOR EQUIPMENT	28

STANDARDS ASSOCIATION OF AUSTRALIA**Australian Standard****BASIC ENVIRONMENTAL TESTING PROCEDURES FOR ELECTROTECHNOLOGY****PART 2: TESTS—TEST Fc: VIBRATION (SINUSOIDAL)****1. Object**

To provide a standard procedure to determine the ability of components, equipment and other articles to withstand specified severities of sinusoidal vibration.

2. General description

The purpose of this test is to determine mechanical weakness and/or degradation in specified performance and to use the information, in conjunction with the relevant specification, to decide whether an equipment or component, hereinafter referred to as a specimen, is acceptable or not. It may be used, in some cases, to determine the structural integrity of specimens and/or to study their dynamic behaviour. Categorization of components can also be made on the basis of a selection from within the severities quoted in the test.

Whether a specimen has to function during vibration or merely to survive conditions of vibration will need to be stated in the relevant specification.

It is emphasized that vibration testing always demands a certain degree of engineering judgement, and both the supplier and purchaser should be fully aware of this fact.

The main part of this standard deals primarily with the methods of controlling the test at specified points, and gives, in detail, the testing procedure. The requirements for the vibration motion, choice of severities including frequency ranges, amplitudes and endurance times are also specified; these severities representing a rationalized series of parameters. The relevant specification writer is expected to choose the testing procedure and values appropriate to the specimen and its use.

Appendices A to C give general guidance and a selection of severities for components and for equipment. In addition, in order to assist users, information is given regarding the correlation between this standard and the previous fourth edition.