AS 2606—1983

Australian Standard®

# VIBRATION AND SHOCK—VOCABULARY

This Australian standard was prepared by Committee ME/41, Vibration and Shock. It was approved on behalf of the Council of the Standards Association of Australia on 7 December 1982 and published on 5 April 1983.

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## PREFACE

This standard was prepared by the Association's Committee on Vibration and Shock as one of a series relating to mechanical vibration and shock. It is based on, and is substantially in agreement with, the corresponding International Standard ISO 2041, Vibration and Shock—Vocabulary.

The aim is to provide a common language for those working in the field of mechanical vibration and shock, with a view to eliminating ambiguities and misunderstanding.

Except as indicated in this preface, the entries in this standard are identical with those of ISO 2041. A few of the entries in ISO 2041 have been omitted as they are not directly applicable to vibration and shock (most of the terms omitted are applicable to acoustics and are covered in AS 1633), and a few of the definitions in ISO 2041 have been altered in meaning where this was considered to be essential to conform to accepted Australian usage.

A few of the definitions common to acoustics have been presented in a different form, using the definitions already available in AS 1633. To facilitate cross–reference between this standard and ISO 2041, the numbering of the entries in ISO 2041 has been retained, despite the omission of some of the entries of the ISO text.

ISO 2041 contains two annexes, Annex A giving definitions of certain mathematical terms, and Annex B giving definitions of certain auxiliary terms. The definitions of the mathematical terms have been omitted from this standard as they are not particular to vibration and shock technology and are already well established. The definitions of the auxiliary terms have been retained where those terms are essential for use in vibration and shock technology (see Appendix B).

A constant length of four digits has been used for the entry numbers in this standard but it should be noted that, except in Section 2, the entry numbers in ISO 2041 have only three digits, i.e. 1.01..., 2.01..., 3.01..., 4.01... .

The following standards were referred to in the preparation of this standard:

| | |
|---|---|
| AS 1633 | Glossary of Acoustic Terms |
| ISO 2041 | Vibration and Shock—Vocabulary |
| ISO 1925 | Balancing—Vocabulary |
| BS 3015 | Glossary of Terms Relating to Mechanical Vibration and Shock |

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## CONTENTS

STANDARDS ASSOCIATION OF AUSTRALIA

# Australian Standard
# for
# VIBRATION AND SHOCK—VOCABULARY

## SECTION 1. GENERAL

| *No* | *Term* | *Definition* |
|---|---|---|
| 1.001 | **displacement**<br>**relative displacement** | A vector quantity that specifies the change of position of a body, or particle, with respect to a reference frame.<br>NOTES:<br>1. The reference frame is usually a set of axes at a mean position or a position of rest. In general, the displacement can be represented by a rotation vector, a translation vector, or both.<br>2. A displacement is designated as relative displacement if it is measured with respect to a reference frame other than the primary reference frame designated in the given case. The relative displacement between two points is the vector difference between the displacement of the two points.<br>3. Various modifiers such as peak, r.m.s., and average or mean, are often used. The time intervals over which these modifier values are taken should be indicated or implied. |
| 1.002 | **velocity**<br>**relative velocity** | A vector that specifies the time-derivative of displacement.<br>NOTES:<br>1. The reference frame is usually a set of axes at a mean position or a position of rest. In general, the velocity can be represented by a rotation vector, a translation vector, or both.<br>2. A velocity is designated as relative velocity if it is measured with respect to a reference frame other than the primary reference frame designated in a given case. The relative velocity between two points is the vector difference between the velocities of the two points.<br>3. Various modifiers such as peak, r.m.s., and average or mean, are often used. The time intervals over which these modifier values are taken should be indicated or implied. |
| 1.003 | **acceleration** | A vector that specifies the time-derivative of velocity.<br>NOTES:<br>1. The reference frame is usually a set of axes at a mean position or a position of rest. In general, the acceleration can be represented by a rotation vector, a translation vector, or both.<br>2. An acceleration is designated as relative acceleration if it is measured with respect to a reference frame other than the primary reference frame designated in a given case. The relative acceleration between two points is the vector difference between the accelerations of the two points.<br>3. Various modifiers such as peak, r.m.s. and average or mean, are often used. The time intervals over which these modifier values are taken should be indicated or implied.<br>4. Acceleration may be oscillatory, in which case simple harmonic components can be defined by the acceleration amplitude (and frequency), or random, in which case the r.m.s. acceleration (and bandwidth and probability density distribution) can be used to define the probability that acceleration will have values within any given range. Accelerations of short time duration are defined as transient accelerations. Non-oscillatory accelerations are defined as sustained accelerations if of long duration, or, if of short duration, as acceleration pulses. |
| 1.004 | **acceleration of gravity, *g*** | The acceleration produced by the force of gravity at the surface of the Earth. It varies with the latitude and elevation of the point of observation.<br>NOTES:<br>1. By international agreement, the value 9.806 65 $m/s^2$ has been chosen as the standard acceleration due to gravity ($g_n$).<br>2. Acceleration magnitude is frequently expressed as a multiple of $g_n$. |
| 1.005 | **jerk** | A vector that specifies the time-derivate of acceleration. |
| 1.006 | **inertial reference system**<br>**inertial reference frame** | A coordinate system in which the laws of inertia (classical mechanics) are valid.<br>NOTE: An inertial reference systems signifies a coordinate system which is not accelerating. |
| 1.007 | **inertia force**<br>**inertial force** | The reaction force exerted by a mass when it is being accelerated. |
| 1.008 | **oscillation** | The variation, usually with time, of the magnitude of a quantity with respect to a specified reference when the magnitude is alternately greater and smaller than some mean value. |