



**Condition monitoring and diagnostics of  
machines—Requirements for  
qualification and assessment of  
personnel**

**Part 6: Acoustic emission**

**STANDARDS**  
Australia



This Australian Standard® was prepared by Committee ME-087, Machine Condition Monitoring. It was approved on behalf of the Council of Standards Australia on 27 November 2014.

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  - Australian Institute for Non-Destructive Testing
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Australian Standard<sup>®</sup>

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## PREFACE

This Standard was prepared by the Standards Australia Committee ME-087, Machine Condition Monitoring.

The objective of this Standard is to specify the requirements for qualification and assessment of personnel who perform machinery condition monitoring and diagnostics using acoustic emission.

This Standard is identical with, and has been reproduced from, ISO 18436-6:2014, *Condition monitoring and diagnostics of machines—Requirements for qualification and assessment of personnel*, Part 6: *Acoustic emission*.

As this Standard is reproduced from an International Standard, the following applies:

- (a) In the source text ‘this part of ISO 18436’ should read ‘this Australian Standard’
- (b) A full point substitutes for a comma when referring to a decimal marker.

References to International Standards should be replaced by references to Australian or Australian/New Zealand Standards, as follows:

<i>Reference to International Standard</i>	<i>Australian Standard</i>
ISO	AS/NZS ISO
17359 Condition monitoring and diagnostics of machines—General guidelines	17359 Condition monitoring and diagnostics of machines—General guidelines

Only normative references that have been adopted as Australian or Australian/New Zealand Standards have been listed.

The term ‘normative’ has been used in this Standard to define the application of the annex to which it applies. A ‘normative’ annex is an integral part of a Standard.

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## INTRODUCTION

The use of acoustic emission technology in condition monitoring is one of the key activities in predictive maintenance programmes for most industries. Other non-intrusive technologies including infrared thermography, vibration analysis, lubricant analysis, wear debris analysis and motor current analysis are used as complementary condition analysis tools. Those in the manufacturing industry who have diligently and consistently applied these technologies have experienced a return on investment far exceeding their expectations. However, the effectiveness of these programmes depends on the capabilities of individuals who perform the measurements and analyse the data.

A programme, administered by an assessment body, has been developed to train and assess the competence of personnel whose duties require the appropriate theoretical and practical knowledge of machinery condition monitoring and diagnostics.

This part of ISO 18436 defines the requirements against which personnel in the non-intrusive machinery condition monitoring and diagnostics technologies associated with acoustic emission for machinery condition monitoring are to be qualified and the methods of assessing such personnel.

## AUSTRALIAN STANDARD

**Condition monitoring and diagnostics of machines—Requirements for qualification and assessment of personnel****Part 6:  
Acoustic emission****1 Scope**

This part of ISO 18436 specifies the requirements for qualification and assessment of personnel who perform machinery condition monitoring and diagnostics using acoustic emission.

A certificate or declaration of conformity to this part of ISO 18436 will provide recognition of the qualifications and competence of individuals to perform acoustic emission measurements and analysis for machinery condition monitoring using acoustic emission equipment. This procedure may not apply to specialized equipment or other specific situations.

This part of ISO 18436 specifies a three-category classification programme that is based on the technical areas delineated herein.

**2 Normative references**

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 13372, *Condition monitoring and diagnostics of machines — Vocabulary*

ISO 13374 (all parts), *Condition monitoring and diagnostics of machines — Data processing, communication and presentation*

ISO 13379-1, *Condition monitoring and diagnostics of machines — Data interpretation and diagnostics techniques — Part 1: General guidelines*

ISO 17359, *Condition monitoring and diagnostics of machines — General guidelines*

ISO 18436-1:2012, *Condition monitoring and diagnostics of machines — Requirements for qualification and assessment of personnel — Part 1: Requirements for assessment bodies and the assessment process*

ISO 18436-3, *Condition monitoring and diagnostics of machines — Requirements for qualification and assessment of personnel — Part 3: Requirements for training bodies and the training process*

ISO 22096:2007, *Condition monitoring and diagnostics of machines — Acoustic emission*

ISO/IEC 17000, *Conformity assessment — Vocabulary and general principles*

ASTM E274-10, *Standard Guide for Acoustic Emission System Performance Verification*

ASTM E1106-12, *Standard Test Method for Primary Calibration of Acoustic Emission Sensors*

ASTM E650-M12, *Standard Guide for Mounting Piezoelectric Acoustic Emission Sensors*

EN 13477-1:2001, *Non-destructive testing — Acoustic emission — Equipment characterization — Part 1: Equipment description*