AS 3547.1:2019
(Incorporating Amendments up to and including No. 4)

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Breath alcohol testing devices

Part 1: Electronic devices for professional use



AS 3547.1:2019

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Breath alcohol testing devices

Part 1: Electronic devices for professional use

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Preface

[A3] This Standard was prepared by Standards Australia Committee CS-077, to supersede in part AS 3547:1997, *Breath alcohol testing devices*.

[A4] *This Standard incorporates Amendment No. 4 (December 2024), Amendment No. 3 (September 2023), and the change to Clause B.3.3 made by Amendment No. 2 (November 2022). The change made to the Title by Amendment No. 3 has been overwritten by the text of Amendment No. 4. The changes made to the Preface by Amendment No. 2 have been overwritten by the text of Amendment No. 3. The start and end of changes introduced by the Amendments are indicated in the text by tags including the Amendment number.* [A4]

The objective of this document is to specify requirements for the performance, testing and marking of breath alcohol testing devices for professional use.

The AS 3547 series of standards defines the minimum technical requirements, and test methods to establish compliance, for breath alcohol testing devices.

The series covers a number of different device types that may be used across a number of different applications. The standards that currently make up AS 3547 are as follows, along with the basic scope of each document:

(a) AS 3547.1, [A4] *Breath alcohol testing devices, Part 1: Electronic devices for professional use* (this document) [A4]

This Standard specifies requirements for the performance, testing and marking of breath alcohol testing devices for uses such as, but not limited to, personal, workplace and medical screening purposes.

It covers electronic portable devices for professional use, fixed installations, and units with basic interlock functions. This relates to type 2, 3 and 4 devices from AS 3547:1997.

The basic functions of an alcohol interlock are covered, with possibility of vehicle interlocks to be specifically covered under a future AS 3547.4. Other non-Australian standards currently exist in this field.

NOTE NMI R126 applies for evidential breath analysers, used specifically for legal evidential purposes.

(b) AS 3547.2, [A4] *Breath alcohol testing devices, Part 2: Electronic devices for personal use* [A4]

This Standard specifies requirements for the performance, testing and marking of breath alcohol testing devices intended for personal use.

It covers electronic portable devices for personal use. This also relates to a type 2 device from AS 3547:1997.

(c) AS 3547.3, [A4] *Breath alcohol testing devices, Part 3: Single-use devices* [A4]

This Standard specifies requirements for the performance, testing and marking of single-use, disposable breath alcohol testing devices. AS 3547.3 is a modified adoption of NF X20-702:2014.

[A4] This relates to a type 1 device from AS 3547:1997. [A4]

Single-use disposable breathalysers are defined as qualitative devices as they are not capable of delivering and recording a quantitative or finite test result. They are personal screening devices which provide guidance to the breath alcohol concentration of a single breath sample against a pre-set indicative measure of BrAC. While adequate accuracy and reliability is ensured through AS 3547.3, they are appropriate for use in circumstances and environments covered by legislation where important personal decisions may be made by the user following assessment of a test result. Such circumstances may include, but not limited to road safety and workplace applications.

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[A4] [Text deleted.] [A4]

Table A.1 of AS 3547:1997 was based on a blood to breath ratio of 2300:1. However, to be compliant with Australian legal units of measurement defined in the National Measurement Regulations, measurement units of grams of alcohol in 210 L of breath (g/210 L) have been used in these standards.

The terms “normative” and “informative” are used in Standards to define the application of the appendices to which they apply. A “normative” appendix is an integral part of a Standard, whereas an “informative” appendix is only for information and guidance.[A3]

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Introduction

[A3] The capabilities of electronic breath testing devices have advanced since the AS 3547:1997 document and consumers should be afforded the increased accuracy and reliability that modern devices can now provide. The devices should be able to perform in a manner that allows the user to make informed decisions. Therefore, this Standard contains current performance and testing requirements of devices intended for professional use.

The committee was aware that recalibration of electronic breath testing devices at regular intervals is vital if accurate results are to be obtained. Provision of recalibration facilities to the general public at a reasonable price, should, in the opinion of the committee, be a prerequisite for the sale of electronic breath alcohol devices. Such a requirement could not be included in an Australian Standard product specification, and it is therefore only included as a recommendation for consideration by the appropriate regulatory authorities and by the suppliers of these devices. Informative sections on the periodic verification and calibration methods have been included as guidance.

Requirements specified for Type 4 breath alcohol testing devices, such as those which are fitted to motor vehicles or machinery relate only to the performance and accuracy of these devices in measuring the alcohol content of expired air and in providing an appropriate output signal to the circuitry which interacts with the vehicle or machine.

Requirements are not included for systems which are designed to ensure that only the driver's or operator's breath is measured, and no other source of air is introduced into the device. The means by which these devices interact with motor vehicles or machinery to inhibit their use are also not specified. In both instances these functions were considered to be beyond the scope of this Standard.

The requirements for a passive testing device are not covered by this Standard, as there are large variants on what may be considered the measured sample and its relation to the subject's breath alcohol concentration. Devices which conform with this Standard may also possess the function for passive testing. [A3]

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Breath alcohol testing devices

Part 1: Electronic devices for professional use

Section 1 Scope and general

1.1 Scope

This Standard specifies requirements for the performance, testing and marking of breath alcohol testing devices for uses such as, but not limited to, personal, workplace and medical screening purposes.

This Standard excludes those devices used by the police, or for, evidential or mandatory interlock purposes.

NOTE 1 Section 4 and Appendix A and Appendix B cover recommended methods of calibration for these devices.

NOTE 2 NMI R 126 applies to evidential breath analysers (EBAs) devices used for the measurement of alcohol in the breath, usable for evidential purposes, see Bibliography.

1.2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. Nominally, the latest edition of the reference document (including any amendments) applies:

NOTE Documents for informative purposes are listed in the Bibliography.

AS 60068.2.1, *Environmental testing, Part 2.1: Tests — Tests A: Cold*

AS 60068.2.2, *Environmental testing, Part 2.2: Tests — Tests B: Dry heat*

AS 60068.2.6, *Environmental testing, Part 2.6: Tests — Test Fc: Vibration (sinusoidal)*

AS 60068.2.30, *Environmental testing, Part 2.30: Tests — Tests Db and guidance: Damp heat, cyclic (12 + 12-hour cycle)*

AS 60068.2.32, *Environmental testing, Part 2.32: Tests — Tests Ed: Free fall*

AS 60068.2.78, *Environmental testing, Part 2.78: Tests — Tests Cab: Damp heat, steady state*

AS/NZS IEC 61000.4.2, *Electromagnetic compatibility (EMC), Part 4.2: Testing and measurement techniques — Electrostatic discharge immunity test*

AS/NZS IEC 61000.4.3, *Electromagnetic compatibility (EMC), Part 4.3: Testing and measurement techniques — Radiated, radio-frequency, electromagnetic field immunity test*

AS ISO 17034, *General requirements for the competence of reference material producers*

AS ISO/IEC 17025, *General requirements for the competence of testing and calibration laboratories*

NZS 3100, *Approval and test specification — General requirements for electrical equipment*

ISO/IEC Guide 99, *International vocabulary of metrology — Basic and general concepts and associated terms (VIM)*

1.3 Terms and definitions

For the purpose of this Standard, the following terms and definitions apply.

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