



ActivFire® Advisory Note AN-009

Certification of smoke alarms to AS 3786:2023

This advisory note provides an explanation, timeline and other important information related to the certification of smoke alarm to AS 3786:2023 which have previously been certified to AS 3786:2014¹. + A1:2015 + A2:2018 by CSIRO's Fire Systems Laboratory and ActivFire® Scheme.

Background

On 17 February 2023, the FP-002 committee of Standards Australia published the updated version of AS 3786, the standard smoke alarms must comply with as stated in the National Construction Code (NCC) of Australia. The standard is a modification of ISO 12239:2021 and contains several changes and additional requirements when compared to the previous version of AS 3786 (AS 3786:2014 + A1:2015 + A2:2018). The certification pathway to AS 3786:2023 for smoke alarms that are currently ActivFire® certified to AS 3786:2014 + A1:2015 + A2:2018 is detailed below.

Changes to the National Construction Code (NCC)

AS 3786 is a referenced document in Australia's National Construction Code (NCC). On 1 May 2024, the Australian Building Codes Board (ABCB) published the Public Comment Draft (PCD) of NCC 2025 which includes proposed changes to NCC referenced documents. One of the proposed changes is to reference the 2023 revision of AS 3786 in-place of the 2014 revision currently referenced (see <https://www.abcb.gov.au/pcd/pcd-2025-ncc-referenced-documents>).

The ABCB does note that this is subject to further changes and that final confirmation will not come until closer to the finalisation of the 2025 edition of the NCC.

¹ Certification criteria may have included Amendment 1 (2015) and Amendment 2 (2018) of AS 3786:2014.

Changes to AS 3786

The significant changes and additional requirements of AS 3786:2023, when compared with AS 3786:2014 +A1:2015 +A2:2018, are detailed in Table 1 below.

Table 1 Changes and additional requirements of AS 3786:2023

Clause	Heading	Note
4.4	Response threshold value of detectors using scattered or transmitted light	New requirement with new band classification and test fires end of test conditions.
4.5.2	Visual indicators	Different sections for interconnectable and non-interconnectable smoke alarms.
4.8	Visual indicator visibility	New requirement that all visual indicators shall be visible from a distance of at least 1 m and from at least one point when the smoke alarm is mounted in an ambient light intensity of 500 lux.
4.10	Test facility	New requirement for test facilities to be accessible from outside the smoke alarm when installed as specified in the installation instruction and remote test facility.
4.13	Main power source	<ul style="list-style-type: none"> Clause 4.13.2 b) now allows for the indication of the battery-low condition to occur at least once every 120 s. Clause 4.13.2 c) now requires for smoke alarms with radio frequency to be able to transmit at least one radio frequency alarm signal in the event of a fire.
4.14	Standby power source	<ul style="list-style-type: none"> Clause 4.14.1.1 b) now requires for smoke alarms with radio frequency to be able to transmit at least one radio frequency alarm signal in the event of a fire. New requirement in clause 4.14.1.2 for when there are no suitable test procedures to verify standby power source that data concerning the smoke alarm loads and standby facility shall be provided by the manufacturer. Documented data concerning the smoke alarm loads has been a requirement in AS 3786:2014 + A1:2015 + A2:2018.
4.15	External power supply equipment	New requirement.
4.22	Protection against the ingress of foreign bodies	Additional requirement to prevent rectangular probes from passing into the smoke chamber.
4.24	Alarm-silence facility – optional function	Additional requirement for interconnected smoke alarm and manual control of smoke alarm.
4.25	Temporary disablement – optional function	New requirement.
4.28	Smoke alarms using radio frequency links – optional function	New requirement for smoke alarms with radio frequency links. Please note that this clause requires that radio frequency interconnected smoke alarms to be tested to the environmental requirements of AS 3786:2023 (e.g. dry heat, cold, damp heat, sulfur dioxide corrosion, impact, vibration, extended temperature and electromagnetic compatibility) and function correctly. Previous
4.29	Response to slowly developing fires (drift compensation) – optional function	New requirement.
4.30	Marking	<p>New requirements including the following:</p> <ol style="list-style-type: none"> Explanation of the type designation. Nominal sound level output. Extended temperature range of the smoke alarm if applicable. All battery types shall be listed for user-replaceable battery smoke alarms. Visible information for class I apparatus in accordance with IEC 60065. Scattered threshold value band for smoke alarms using scattered and transmitted light.
4.31	Packaging	<p>New requirements include the following:</p> <ol style="list-style-type: none"> Number and date of the standard. Additional markings for type B smoke detectors as required by national regulations.

Clause	Heading	Note
5.1.8	Test schedule	Additional test requirements in Table 2 of AS 3786:2022 as described below: <ol style="list-style-type: none"> Smoke alarms using radio frequency links (5.22). Temporary disablement facility (5.24).
5.4	Repeatability	Clause 5.4.3 – Has additional requirements for the lower threshold value m_{min} and higher response threshold m_{max} .
5.12	Vibration, sinusoidal (operational)	New requirement for the specimen to be monitored during the conditioning period.
5.22	Smoke alarms using radio frequency links	New requirement for smoke alarms using radio frequency (RF) links. This clause requires that RF link (i.e. interconnection) function of this type of smoke alarms is required to be tested following each of the operational and endurance environmental tests of AS 3786:2023 (e.g. dry heat, cold, damp heat, sulfur dioxide corrosion, impact, vibration, extended temperature and electromagnetic compatibility) and function correctly. Post-environmental testing of this functionality was not previously required.
5.23	Alarm-silence facility	Minor changes to the test procedure and requirements.
5.24	Temporary disablement facility	New requirement with minor similarities to the test procedure and requirements of Alarm-silence facility test of AS 3786:2014.
5.25	Variation in supply voltage	New requirements for band 2 smoke alarms and the high respond threshold value m_{max} .
5.26	Polarity reversal	Changes to the test procedure for externally powered smoke alarm require testing when the polarity of the supply lines are reversed.
5.28	Electrical safety	The reference test standards in AS 3786:2023 are IEC 60065:2005 and IEC 60950-1:2005 compared to AS 3786:2014 which refers to the more recent revisions AS/NZS 60065:2012 and AS/NZS 60950.1:2011. CSIRO ActivFire Scheme regards AS/NZS 60065:2012 and AS/NZS 60950.1:2011 as the latest and current revisions of these standards and will therefore continue to accept reports of tests conducted in accordance with AS/NZS 60065:2012 and AS/NZS 60950.1:2011 as suitable evidence. CSIRO ActivFire scheme will therefore require testing of electrical safety of smoke alarms to AS 3786:2023 to be to the relevant clauses of AS/NZS 60065:2012 and AS/NZS 60950.1:2011 in place of IEC 60065:2005 and IEC 60950-1:2005.

Note: Clause 5.19 – 70 dBA sound output – optional function is removed as per Appendix ZZ of AS 3786:2023. The smoke alarm is required to meet Clause 5.18 – 85 dBA sound output, therefore Clause 5.18 is no longer an optional function.

Requirements for certification to AS 3786:2023

Registrants seeking re-certification of existing smoke alarms are required seek re-evaluation by an ActivFire® Recognised Agency for Conformity Evaluation (RACE) to AS 3786:2023 and submit related evidence of conformity. Registrants are required to ensure that any such evaluation adequately covers the changes and additional requirements of AS 3786:2023 as detailed above, in addition to initial sensitivity testing to Clause 5.3 of AS 3786:2023, for re-certification purposes.

Issuing Authorities

Kai Loh, Executive Office, ActivFire Scheme – CSIRO Verification Services

Christopher Preston, Director – Infrastructure Technologies

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Version 2

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Contact us | 1300 363 400 | csiro.au/contact | csiro.au

For further information

ActivFire® Scheme / Fire Systems Laboratory
Infrastructure Technologies
certification@csiro.au / conformity_services@csiro.au
research.csiro.au/infratech/