1. Scope

This Technical Specification defines the evaluation and recognition requirements for heat alarm products intended for use as a supplementary part of an automatic smoke alarm systems in household or residential use and products that have been evaluated to BS 5446-2:2003 the purpose of seeking certification by CSIRO's ActivFire® Scheme ("the Scheme").

The current heat alarm standard in Australia is AS 1603.3:2018. This standard defines a heat alarm as a '*device containing within one housing all the components, necessary for detecting temperature and generating an alarm condition, except possibly the power source.*' The standard requires the heat alarms to be interconnected.

2. Referenced Documents

Details of the documents referenced by this Technical Specification are in Table 1.

Table 1 List of documents referenced by this Technical Specification

AS 1603.3:2018	Automatic fire detection and alarm systems Part 3: Heat alarms
BS 5446-2:2003	Fire detection and fire alarm devices for dwellings – Part 2: Specification for heat alarms
AS ISO / IEC 17025:2018	General requirements for the competence of testing and calibration laboratories

3. Pre-evaluation requirements

In addition to the application requirements of CSIRO's ActivFire Scheme document AF-D001, the Applicant wishing to have their product evaluated and certified by CSIRO shall provide the following information and documentation:

1. A completed AF-F005 form for each heat alarm model.
2. The initial bill of materials.
3. Documentation explaining the difference between the heat alarm models in a series (if applicable).
4. Photographs or drawings of both the interior and exterior of the heat alarms covering all angles.
5. Evidence of conformity reports from an accredited laboratory[1] .

[1] An accredited facility is a testing laboratory that holds accreditation to ISO 17025 and the test standard from an organisation recognised by an International Laboratory Accreditation Cooperation Mutual Recognition Arrangement (ILAC-MRA) signatory.

4. Differences between International Standards

AS 1603.3:2018 differs from both BS 5446-2 in several areas, as outlined in Table 2. Evidence of conformity to the specified requirements identified in Table 2 must be sourced from an accredited facility[1]as agreed by CSIRO or CSIRO's Fire System Laboratory.

Table 2 Key difference in requirements of international standards related to AS 1603.3:2018

Clauses	Title	AS 1603.3:2018	BS 5446-2:2003
4.1	General	Required	Not included
4.2	Optional and additional functions	Required	Not included
4.3	Classification	Required	Does not include Class C
4.4	Alarm condition	Required	Not included
4.6	Fault condition visual indicator – optional function	Optional requirement	Not included
4.7	Heat alarm signals – Requirements for heat alarm with additional features	Required	Not included
4.8	Test facility	Required	More stringent requirements.
4.9	Means of calibration	Required	Not included
4.10	User-replaceable components	Required	Not included
4.11	Main power source	Required	Not included
4.12	Standby power source	Required	Only has requirements for monitoring of back-up power source
4.13	Service-disconnect facility	Required	Not included
4.15	User-replaceable battery	Required if provided with user-replaceable battery	Only has requirements for battery removal indication
4.16	Electrical safety	Required	Not included
4.17	Connection of external ancillary devices	Required if connected to external ancillary devices	Not included
4.18	Terminals for external conductors	Required	Does not include requirements for "flying lead" type connector.
4.19	Interconnectable heat alarms	Required	Not included
4.20	Alarm-silence facility – Optional function	Required if alarm silence facility is provided	Not included
4.21	Heat alarms with voice – Optional function	Required if the heat alarm is provided with a voice.	Not included
4.22	Marking	Varied	
4.23	Documentation	Varied	
4.24	Additional requirements for software-controlled heat alarms	Required if the heat alarm is software controlled	Not included
5.9	Damp heat (operational)	Varied	
5.10	Sulfur dioxide (SO_2) corrosion	21 days	4 days
5.11	Impact (operational)	Varied, with additional acceptance criteria in AS 1603.3:2018	
5.12	Vibration, sinusoidal (operational)	Varied, different test procedure and conditioning as well as acceptance criteria.	
5.13	Vibration, sinusoidal (endurance)	Required	Not included

Clauses	Title	AS 1603.3:2018	BS 5446-2:2003
5.14	Electromagnetic compatibility (EMC) immunity tests (operational)	Required	Not included
5.15	Battery-low condition	Varied, different acceptance criteria.	
5.16	85 dBA sound output	Varied, BS 5446-2 does not include requirements for 520 Hz out frequency alarms and that the sound output is to be between 85 dBA and 105 dBA.	
5.17	Sounder durability	Required	Not included
5.18	Interconnectable heat alarms	Varied, 5.18.3 (d) of AS 1603.3:2018 is not included in BS 5446-2	
5.19	Alarm-silence facility	Required	Not included
5.21	Polarity reversal	Varied, different test procedure.	
5.22	Standby power source	Required	Not included
5.23	Electrical safety	Required	Not included
5.24	Sequence timing for heat alarm with voice	Required if the heat alarm is provided with a voice.	Not included

5. Evaluation

5.1. Evaluation activities

Evaluation of the conformity of heat alarms, for the purposes of CSIRO's ActivFire® Scheme, requires the activities detailed in Table 3.

Table 3 Activities required by this Technical Specification to evaluate the conformity of the heat alarms for the purposes of CSIRO's ActivFire® Scheme.

Activity	Description
1	Evaluation selection protocol.
2	Review of design drawings, bill of materials and data sheets.
3	Testing and assessment of the heat alarms in accordance with evaluation schedule.
4	Verification of all relevant marketing material.
5	Identification of any product limitations.

5.2. Activity 1

For this activity, CSIRO's ActivFire® Scheme shall develop an evaluation schedule that is suitable for the heat alarm being evaluated in accordance with AS 1603.3:2018 and Table 4. ActivFire shall modify the testing and assessment requirements detailed in Table 4 according to the heat alarm type, its optional function and prior evaluation to BS 5446-2, and if the heat alarm is a private label of an ActivFire certified heat alarm.

Table 4 Evaluation schedule for a heat alarm.

Standard	Clause	Title	Notes
AS 1603.3:2018	4	General requirements	-
	4.1	General	-

Standard	Clause	Title	Notes
	4.2	Optional and additional functions	• Applicable if the heat alarm has optional and additional functions such as interconnection.
	4.3	Classification	• Prior evaluation by an accredited facility to BS 5446-2 may be accepted except for Class C heat alarms
	4.4	Alarm condition	-
	4.5	Main power source visual indicator	• Prior evaluation by an accredited facility to BS 5446-2 may be accepted.
	4.6	Fault condition visual indicator – optional function	• Applicable If the heat alarm is provided with a visual indicator.
	4.7	Heat alarm signals – Requirements for heat alarm with additional features	-
	4.8	Test facility	• Prior evaluation by an accredited facility to BS 5446-2 may be accepted.
	4.9	Means of calibration	-
	4.10	User-replaceable components	-
	4.11	Main power source	-
	4.12	Standby power source	-
	4.13	Service-disconnect facility	-
	4.14	Battery connections	• Prior evaluation by an accredited facility to BS 5446-2 may be accepted.
	4.15	User-replaceable battery	• Some parts of prior evaluation by an accredited facility to BS 5446-2 may be accepted.
	4.16	Electrical safety	-
	4.17	Connection of external ancillary devices	• Applicable if the heat alarm is connected to an external ancillary device.
	4.18	Terminals for external conductors	• Applicable if the heat alarm is provided with external conductors.
	4.19	Interconnectable heat alarms	-
	4.20	Alarm-silence facility – Optional function	• Applicable if the heat alarm is provided with alarm-silence function.
	4.21	Heat alarms with voice – Optional function	• Applicable if the heat alarm is provided with voice.
	4.22	Marking	• Required for private-labelled heat alarms too.
	4.23	Documentation	• Required for private-labelled heat alarms too.
	4.24	Additional requirements for software-controlled heat alarms	• Applicable if the heat alarm is software-controlled. • Required for private-labelled heat alarms too.
	5.2	Directional dependence	• Prior evaluation by an accredited facility to BS 5446-2 may be accepted.
	5.3	Statis response temperature	• Prior evaluation by an accredited facility to BS 5446-2 may be accepted.
	5.4	Response times from the typical application temperature	• Prior evaluation by an accredited facility to BS 5446-2 may be accepted.
	5.5	Response time from 25 °C	• Prior evaluation by an accredited facility to BS 5446-2 may be accepted.

Standard	Clause	Title	Notes
	5.6	Response times from high ambient temperature, dry heat (operational)	• Prior evaluation by an accredited facility to BS 5446-2 may be accepted.
	5.7	Repeatability	• Prior evaluation by an accredited facility to BS 5446-2 may be accepted.
	5.8	Cold (operational)	• Prior evaluation by an accredited facility to BS 5446-2 may be accepted.
	5.9	Damp heat (operational)	-
	5.10	Sulfur dioxide (SO_2) corrosion	-
	5.11	Impact (operational)	-
	5.12	Vibration, sinusoidal (operational)	-
	5.13	Vibration, sinusoidal (endurance)	-
	5.14	Electromagnetic compatibility (EMC) immunity tests (operational)	-
	5.15	Battery-low condition	-
	5.16	85 dBA sound output	-
	5.17	Sounder durability	-
	5.18	Interconnectable heat alarms	-
	5.19	Alarm-silence facility	-
	5.20	Variation in supply voltage	-
	5.21	Polarity reversal	-
	5.22	Standby power source	-
	5.23	Electrical safety	-
	5.24	Sequence timing for heat alarm with voice	• Applicable if the heat alarm has voice function.

5.3. Activity 2

For this activity, the Test Applicant (“Applicant”) of the heat alarm is required to submit the following documents:

1. Design Drawings: All design drawings of the product.
2. Bill of Materials: A complete bill of materials for the product.
3. Data Sheets: Relevant data sheets including information about the radio frequency link (response time, range and ID code), software/firmware version, battery models, external connectable devices, if applicable.

Each document must be:

- Identifiable
- In English

Mandatory Details:

1. A unique document ID (document name and/or number).
2. Version number.
3. Document issue date

5.4. Activity 3

To meet the requirements of Activity 3 of this Technical Specification, the heat alarm shall undergo testing and assessment to the evaluation schedule provided by ActivFire as part of Activity 1 by CSIRO's Fire Systems Laboratory.

5.5. Activity 4

To meet the requirements of Activity 4of this Technical Specification, the heat alarm shall undergo the assessment requirements detailed in Table 4 by CSIRO.

Table 5 Assessment requirements for the valve monitor.

Title	Notes
Marketing material	• The CSIRO shall assess any marketing material that intends to have the ActivFire® mark (including websites), ensuring that the marketing material contains accurate information of the product.

5.6. Activity 5

CSIRO shall identify any product limitation from their evaluation activities.

5.7. Suitability of external evidence

Assessment of the suitability of evidence from external agencies (laboratories) shall be conducted in accordance with the CSIRO Recognition Framework.

Evidence of conformity, in the form of endorsed test reports written in English, are required to be submitted in full and shall be provided by a National Association of Testing Authorities (NATA) ISO 17025 accredited laboratory and the relevant test standard, or as agreed with CSIRO.

Where test reports were originally produced in a language other than English, suitable translations may be supplied in addition. Submitted external test reports shall provide sufficient detail to describe the product being evaluated in full and in detail and establish that an evaluation schedule was designed and applied to each component submitted to the external agency.

External evidence can only be accepted where verification between the product submitted for evaluation and the specimens in the endorsed test report is considered a critical requirement. Where external reports do not provide sufficient product identification, additional evaluation to specified requirements may be required.

5.8. Reporting

The evaluation of conformity report shall include the following information:

a. A statement of conformity with reference to AS 1603.3:2018, CSIRO Technical Specification TS-009 and unambiguous designation that the product has been evaluated in accordance with this technical specification.
b. A description of the product including photographs of the product.
c. Limitation of the product, if applicable.
d. List of documentation used for the evaluation of conformity including the document ID, version number, and issue date.
e. Software and firmware version, if applicable.
f. All other information in accordance with the reporting requirements of AS ISO/IEC 17025:2018.

6. Ongoing Verification of Conformity

6.1. Ongoing verification of conformity activities

To maintain ongoing certification with CSIRO's ActivFire® Scheme, the heat alarms shall be subject to a post-certification surveillance activity described in AF-D008 and Table 5.

Table 6 Activities required to demonstrate ongoing conformity of the heat alarm.

Activity	Description	Notes
1.	Audit of the Primary Manufacturing Unit (PMU) within the first 6 months of the first issue date of the Certificate of Conformity and every 24 months after.	• Details of the audit activities are described in CSIRO ActivFire® Scheme document AF-D008. • If the Registrant has multiple Certified heat and smoke alarm products with the Scheme that are manufactured at the same PMU, the Scheme shall work with the Registrant to conduct the PMU audit and sensitivity testing within the same period for the Certified heat alarm products.
2.	Repeatability testing of up to 30 heat alarm samples selected from the second PMU audit onwards every 24 months after by a RACE.	• Each heat alarm model shall be selected during the PMU audit after the initial audit. • All 30 heat alarm samples are required to have a satisfactory result from the repeatability test conducted by a RACE. A test report by a RACE shall be provided to the Scheme.

Activity	Description	Notes
3.	Market sampling of heat alarms.	• At CSIRO's discretion, upon the Scheme being notified of product non-conformance, heat alarms may be purchased directly from the market and be subjected to evaluation in accordance with AS 1603.3:2018 and the requirements of AF-D008. • If market sampling for a heat alarm model occurs, CSIRO shall inform the Registrant that CSIRO has purchased the heat alarm model from the market and is scheduled to undergo re-evaluation. • A quote will be issued to the registrant detailing the relevant requirements of the re-evaluation and the cost of the market sampling activity. • If the registrant does not agree to the quote and terms, the product will be deemed non-conforming.

6.2. Reporting

An ongoing verification of conformity report shall be provided by CSIRO's ActivFire® Scheme upon completion of the relevant ongoing verification of conformity activities. If the results of Activity 1 and 2 are successful, the Certificate of Conformity of the heat alarm shall be revalidated.

Document Review

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1	22-Sep-25	• Initial issue
2	24-Sep-25	• Typographical amendments