



# TECHNICAL SPECIFICATION



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## Refrigerant detection systems for flammable refrigerants

INTERNATIONAL  
ELECTROTECHNICAL  
COMMISSION

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## INTERNATIONAL ELECTROTECHNICAL COMMISSION

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**REFRIGERANT DETECTION SYSTEMS  
FOR FLAMMABLE REFRIGERANTS****FOREWORD**

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IEC TS 63542 has been prepared by subcommittee 61D: Appliances for air-conditioning for household and similar purposes, of IEC technical committee 61: Safety of household and similar electrical appliances. It is a Technical Specification.

This first edition is based on Annex LL of IEC 60335-2-40:2022:

- Clause 4 – based on Clause LL.1, but without the 1st paragraph. An additional last paragraph has been added to link to relevant application standards;
- Clause 5 – based on Clause LL.2. An introductory sentence has been added to link to test conditions in the relevant application standard;
- Clause 6 – based on Clause LL.3;
- Clause 7 – based on Clause LL.4;
- Clause 8 – based on Clause LL.5;
- Clause 9 – based on Clause LL.6;

- Clause 10 – based on Clause LL.7;
- Clause 11 – based on Clause LL.8;
- Clause 12 – based on Clause LL.9;
- Clause 13 – based on Clause LL.10;
- Clause 14 – based on Clause LL.11;
- Clause 15 – based on Clause LL.12;
- Clause 16 – based on Clause LL.13;
- Clause 17 – based on Clause LL.14.

The text of this Technical Specification is based on the following documents:

Draft	Report on voting
61D/531/DTS	61D/534/RVDTS

Full information on the voting for its approval can be found in the report on voting indicated in the above table.

The language used for the development of this Technical Specification is English.

This document was drafted in accordance with ISO/IEC Directives, Part 2, and developed in accordance with ISO/IEC Directives, Part 1 and ISO/IEC Directives, IEC Supplement, available at [www.iec.ch/members\\_experts/refdocs](http://www.iec.ch/members_experts/refdocs). The main document types developed by IEC are described in greater detail at [www.iec.ch/publications](http://www.iec.ch/publications).

NOTE The following print types are used:

- requirements: in roman type;
- *test specifications: in italic type;*
- notes: in small roman type.

Words in **bold** in the text are defined in Clause 3. When a definition concerns an adjective, the adjective and associated noun are also in bold.

The committee has decided that the contents of this document will remain unchanged until the stability date indicated on the IEC website under [webstore.iec.ch](http://webstore.iec.ch) in the data related to the specific document. At this date, the document will be

- reconfirmed,
- withdrawn, or
- revised.

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## INTRODUCTION

It has been assumed in the drafting of this document that the execution of its provisions is entrusted to appropriately qualified and experienced persons.

A refrigerant detection systems that complies with the text of this document will not necessarily be considered to comply with the safety principles of the document if, when examined and tested, it is found to have other features that impair the level of safety covered by these requirements.

A refrigerant detection systems employing materials or having forms of construction differing from those detailed in the requirements of this document may be examined and tested according to the intent of the requirements and, if found to be substantially equivalent, may be considered to comply with this document.

# REFRIGERANT DETECTION SYSTEMS FOR FLAMMABLE REFRIGERANTS

## 1 Scope

This document applies to **refrigerant detection systems** for use in appliances complying with a relevant standard of the IEC 60335 series using **flammable refrigerants**.

Relevant standards of the IEC 60335-series include:

- IEC 60335-2-40, Household and similar electrical appliances – Safety – Part 2-40: Particular requirements for electrical heat pumps, air-conditioners and dehumidifiers
- IEC 60335-2-89, Household and similar electrical appliances – Safety – Part 2-89: Particular requirements for commercial refrigerating appliances and ice-makers with an incorporated or remote refrigerant unit or motor-compressor
- IEC 60335-2-104, Household and similar electrical appliances – Safety – Part 2-104: Particular requirements for appliances to recover and/or recycle refrigerant from air conditioning and refrigeration equipment
- IEC 60335-2-118, Household and similar electrical appliances – Safety – Part 2-118: Particular requirements for professional ice-cream makers

This document does not take into account refrigerants other than group A2L, A2 and A3 as defined by ISO 817.

## 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. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

IEC 60335-2-40:2022, *Household and similar electrical appliances – Safety – Part 2-40: Particular requirements for electrical heat pumps, air-conditioners and dehumidifiers*

IEC 60335-2-89, *Household and similar electrical appliances – Safety – Part 2-89: Particular requirements for commercial refrigerating appliances and ice-makers with an incorporated or remote refrigerant unit or motor-compressor*

IEC 60335-2-104, *Household and similar electrical appliances – Safety – Part 2-104: Particular requirements for appliances to recover and/or recycle refrigerant from air conditioning and refrigeration equipment*

IEC 60335-2-118, *Household and similar electrical appliances – Safety – Part 2-118: Particular requirements for professional ice-cream makers*

ISO 817, *Refrigerants – Designation and safety classification*

ISO 7000:2004, *Graphical symbols for use on equipment – Registered symbols*