

# INTERNATIONAL STANDARD

AMENDMENT 2

**Household range hoods and other cooking fume extractors – Methods for measuring performance**

IECNORM.COM . Click to view the full PDF of IEC 61591:1997/AMD2:2010

Without watermark



## THIS PUBLICATION IS COPYRIGHT PROTECTED

Copyright © 2010 IEC, Geneva, Switzerland

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from either IEC or IEC's member National Committee in the country of the requester.

If you have any questions about IEC copyright or have an enquiry about obtaining additional rights to this publication, please contact the address below or your local IEC member National Committee for further information.

IEC Central Office  
3, rue de Varembe  
CH-1211 Geneva 20  
Switzerland  
Email: [inmail@iec.ch](mailto:inmail@iec.ch)  
Web: [www.iec.ch](http://www.iec.ch)

### About the IEC

The International Electrotechnical Commission (IEC) is the leading global organization that prepares and publishes International Standards for all electrical, electronic and related technologies.

### About IEC publications

The technical content of IEC publications is kept under constant review by the IEC. Please make sure that you have the latest edition, a corrigenda or an amendment might have been published.

- Catalogue of IEC publications: [www.iec.ch/searchpub](http://www.iec.ch/searchpub)

The IEC on-line Catalogue enables you to search by a variety of criteria (reference number, text, technical committee,...). It also gives information on projects, withdrawn and replaced publications.

- IEC Just Published: [www.iec.ch/online\\_news/justpub](http://www.iec.ch/online_news/justpub)

Stay up to date on all new IEC publications. Just Published details twice a month all new publications released. Available on-line and also by email.

- Electropedia: [www.electropedia.org](http://www.electropedia.org)

The world's leading online dictionary of electronic and electrical terms containing more than 20 000 terms and definitions in English and French, with equivalent terms in additional languages. Also known as the International Electrotechnical Vocabulary online.

- Customer Service Centre: [www.iec.ch/webstore/custserv](http://www.iec.ch/webstore/custserv)

If you wish to give us your feedback on this publication or need further assistance, please visit the Customer Service Centre FAQ or contact us:

Email: [csc@iec.ch](mailto:csc@iec.ch)  
Tel.: +41 22 919 02 11  
Fax: +41 22 919 03 00

IECNORM.COM · Click to view PDF file  
IEC 61557-1997/AMD2:2010

# INTERNATIONAL STANDARD

## AMENDMENT 2

---

**Household range hoods and other cooking fume extractors – Methods for measuring performance**

INTERNATIONAL  
ELECTROTECHNICAL  
COMMISSION

PRICE CODE

**K**

ICS 97.040

ISBN 978-2-88912-074-1

## FOREWORD

This amendment has been prepared by subcommittee 59K: Ovens and microwave ovens, cooking ranges and similar appliances, of IEC technical committee 59: Performance of household and similar electrical appliances.

The text of this amendment is based on the following documents:

FDIS	Report on voting
59K/202/FDIS	59K/207/RVD

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

The committee has decided that the contents of this amendment and the base publication will remain unchanged until the stability date indicated on the IEC web site under "http://webstore.iec.ch" in the data related to the specific publication. At this date, the publication will be

- reconfirmed,
- withdrawn,
- replaced by a revised edition, or
- amended.

A bilingual version of this publication may be issued at a later date.

### Title

*Change the title on the cover page, the title page, on pages 5 and 7, as follows:*

## **HOUSEHOLD RANGE HOODS AND OTHER COOKING FUME EXTRACTORS – METHODS FOR MEASURING PERFORMANCE**

### **1 Scope**

*Add the following new sentence to the second paragraph as a last sentence:*

This standard deals also with **down-draft systems** arranged beside, behind or under the cooking surface.

### **3 Definitions**

*Add the following new definitions:*

#### **3.9**

##### **down-draft system**

cooking fume extractor intended for installation adjacent to household cooking ranges, hobs and similar cooking appliances that draws vapour down into an internal / exhaust duct

NOTE The filtered air may be discharged back into the room or ducted away.

### 3.10

#### **highest setting for normal use**

control setting of blower at highest speed for normal use, excluding the boost position setting

NOTE Setting should be marked on the appliance and described in the instructions for use.

### 3.11

#### **boost position setting**

control setting for occasional use at a higher fan speed

NOTE The setting shall be marked on the appliance and described in the instructions for use.

### 3.12

#### **working point**

intersection point of pressure/air flow curve and flue curve as defined in Clause 11

## 6 General conditions for measurements

### 6.2 Installation

*Add to the first sentence after “the external blower”:*

“or the down-draft system”

### 6.3 Supply voltage

*Add to the first sentence after “the external blower”:*

“or the down-draft system”

*Add to the second sentence after “the external blower”:*

“or the down-draft system”

### 6.4 Filters

*Add to the first sentence after “the range hood”:*

“or the down-draft system”

### 6.5 Fan control

*Replace the existing Note 2 by the following new Note 2:*

NOTE 2 A boost position is a setting for occasional use which results in a temporary higher fan speed. The boost position shall be clearly marked. The boost position shall be described and explained in the user instructions.

*Add after Note 2 the following new paragraph and a new Note 3:*

Range hoods and other cooking fume extractors with a variable speed control shall be tested with the fan control adjusted to 75 % of the maximum airflow. This highest setting of the control for normal use shall be marked on the control panel and described in the instructions.

NOTE 3 The 75% does not include the boost position. The range between 76% and 100% is considered as boost position.

## 7 Overall dimensions

*Add to the first sentence after “the range hood”:*

“or the down-draft system”

*Add to the third sentence after “the range hood”:*

“or the down-draft system”

*Add in the second paragraph after “range hoods”:*

“or the down-draft system”

## 9 Length of the supply cord

*Replace the first sentence in the first paragraph with the following new sentence:*

The distance between the points of entry of the cord into the range hood, the external blower or the down-draft system and the plug is measured and stated in metres rounded downwards to the nearest 0,05 m.

*Replace the second paragraph with the following new paragraph:*

It is stated if the range hood, the external blower or the down-draft system is for direct connection to the fixed wiring.

## 10 Mass of the range hood

*Replace the title of Clause 10 with the following new title:*

## 10 Mass of the range hood or the down-draft system

*Replace the existing text with the following new text:*

The mass of the range hood, the external blower or the down-draft system, including any filters, supply cord and plug, is measured and stated in kilograms, rounded upwards to the nearest 0,1 kg.

## 11 Volumetric airflow

*Replace the first sentence of the second paragraph with the following new sentence:*

The air outlet of the range hood, the external blower or the down-draft system is connected to a pressure compensation chamber (see Figure 1).

*Replace the last sentence of the second paragraph with the following new sentence:*

The grease filter is installed for the test.

*Replace the third paragraph with the following new paragraph:*

The range hood, the external blower or the down-draft system is operated and by suitably adjusting the auxiliary fan or the baffle, the airflow corresponding to various pressures can be determined.

*Replace the fifth paragraph with the following new paragraph:*

The airflow of recirculating-air devices is determined when the pressure in the compensation chamber is at ambient pressure.

*Replace the sixth paragraph with the following new paragraph:*

The airflow of air-extraction devices is determined for discharge into a flue, which has the following pressure drop depending on the diameter of the air outlet orifice

NOTE 1

*Replace “range hood” with “device.”*

## **12 Grease absorption**

*Replace the first sentence of the second paragraph with the following new sentence:*

For range hoods with an external blower and down-draft systems the blower does not need to be mounted during the grease absorption test.

*Replace the first sentence of the third paragraph with the following new sentence:*

The mass of the range hood or down-draft systems is measured without the grease filter and without the odour extraction filter of recirculating-air “devices”.

*Replace the third sentence of the third paragraph with the following new sentence:*

The range hood or the down-draft system is installed in a chamber, the arrangement being such that all the air in the chamber has to pass through the device.

*Replace the sentence of the fourth paragraph with the following new sentence:*

The air outlet of the range hood or the down-draft system is connected to an absolute filter having a collecting efficiency of at least 99,995 %.

*Replace the last sentence of the fourth paragraph with the following new sentence:*

The arrangement is shown in Figure 3 and 3.A.

*Add the following new sentence after the first sentence of the sixth paragraph:*

For down-draft systems the hob element is placed according to Figure 3.A.

*Replace the first sentence of the seventh paragraph with the following new sentence:*

The range hood or the down-draft system is operated at the highest setting of the control, ignoring any boost setting.

*Replace the second sentence of the seventh paragraph with the following new sentence:*

The auxiliary fan is adjusted to the working point linked to the largest diameter the device under test allows in delivery condition (see Figure 2).

*Replace the third sentence of the seventh paragraph with the following new sentence:*

The pressure above the recirculating-air devices is adjusted so that the airflow is that measured during the test of Clause 11.

*Replace the last sentence of the eighth paragraph with the following new sentence:*

The position of the pan and means for supplying the oil and water is also shown Figure 3 and 3.A.

*Replace the last sentence of the ninth paragraph with the following new sentence:*

The device under test and the auxiliary fan are switched off 10 min later.

*Replace the first sentence of the tenth paragraph with the following new sentence:*

The range hood or the down-draft system is weighed again after removal of the grease filter and the mass of oil retained is determined.

*Replace the description of  $w_r$  in the formula of the twelfth paragraph as follows:*

$w_r$  is the mass of oil retained in the airways of the range hood or the down-draft system;

### **13 Odour extraction**

*Replace the first and the second sentences of the first paragraph with the following new sentences:*

This method is used to assess the effectiveness of odour filters of recirculating-air devices.

It is also used to assess the capability of air-extraction devices to remove odours, in which case the airflow is adjusted to the actual working point (see Clause 11 and Figure 2).

*Add the following new sentence after the third sentence of the second paragraph:*

The down-draft system has to be installed according to the manufacturer's instructions.

*Add the following new sentence after the fourth sentence of the second paragraph:*

For testing of down-draft systems all wall cabinets are removed.

*Replace the fifth sentence of the second paragraph with the following new sentence:*

If an air-extraction devices is being tested, it is necessary to provide a ventilating grille which can be closed and an air dispersion screen.

*Replace the seventh sentence of the second paragraph with the following new sentence:*

For range hoods or down-draft systems with an external blower, the external blower does not need to be mounted during the odour extraction test.

## NOTE 2

*Replace “range hoods” with “devices”.*

*Replace the first sentence of the third paragraph with the following new sentence:*

The characteristics of the test room are established without the range hood “or down-draft systems” being operated.

## NOTE 4

*Replace the existing note 4 with the following new note 4:*

The concentration in the test room ( $C_1$ ) can be measured without any range hood or down-draft system being installed.

*Replace the last sentence of the sixth paragraph with the following new sentence:*

They are then fitted into the range hood or down-draft system which is operated for 30 min.

*Replace the first and the second sentences of the seventh paragraph with the following new sentences:*

The device under test is then operated and the MEK solution dripped onto the heated pan so that 312 g has evaporated within  $30 \text{ min} \pm 15 \text{ s}$ . The air-extraction devices are switched off, the ventilating grille closed, the shut-off valve closed and a fan having an airflow of  $250 \text{ m}^3/\text{h} \pm 50 \text{ m}^3/\text{h}$  positioned on the centre of the floor operated.

*Replace the fourth sentence of the seventh paragraph with the following new sentence:*

With the recirculating-air devices still in operation, the time taken for the concentration of MEK to fall from  $C_2$  to 15 % of  $C_1$  is also determined.

## NOTE 7

*Replace the existing note 7 with the following new note 7:*

Recirculating-air devices are not switched off before measuring  $C_2$ .

## NOTE 8

*Replace the existing note 8 with the following new note 8:*

The odour dispersion time is not measured for devices.

*Replace the description of  $C_1$  and  $C_2$  in the formula of the eighth paragraph as follows:*

$C_1$  is the concentration of MEK at the end of application without the device under test operating;

$C_2$  is the concentration of MEK at the end of application with the device under test operating.

## 14 Effectiveness of the hob light

*Replace the second paragraph by the following new paragraph:*

The hob light is switched on and a suitable lux meter is used to measure the luminance at the points on the board described below.

*Replace the third paragraph by the following new paragraphs:*

If the cooker hood is intended to be installed over a 600 mm hob, the measurement points are point 1, 2, 3, 4 and 5. The arithmetic average of the five measurements is calculated and this value is stated as the luminance in lux.

If the cooker hood is intended to be installed over a hob larger than 600 mm, the measurement points are points 1, 2, 3, 4, 5, 6, 7, 8 and 9. The arithmetic average of the nine measurements is calculated and this value is stated as the luminance in lux.

Island range hoods (directly mounted on the ceiling) are mounted above the measurement plane. The centre lines of the hood shall be identical to the centre lines of the measurement plane.

## 15 Maintenance

*Replace the first dashed item with the following new item:*

- the ease of cleaning the “device under test” in comparison with the instructions given by the manufacturer;

## 16 Other features

*Replace the first sentence with the following new sentence:*

Other features of the range hood or down-draft system are stated.

### Figure 1 – Measurement of air flow

*Replace Keys 1, 2, 8, 9 and 11 with the following new keys:*

- 1 Air extraction range hood or down-draft system with internal blower
- 2 Range hood or down-draft system
- 8 Recirculating-air range hood or down-draft system with internal blower
- 9 Range hood or down-draft system with external blower for in-house use
- 11 Range hood or down-draft system with external blower for outside use

*Replace the existing NOTE with the following new note:*

A length of 1 times the diameter of the air-outlet should remain inside the compensation chamber.

**Figure 2 – Pressure/air flow curve**

Replace key number 2 as follows:

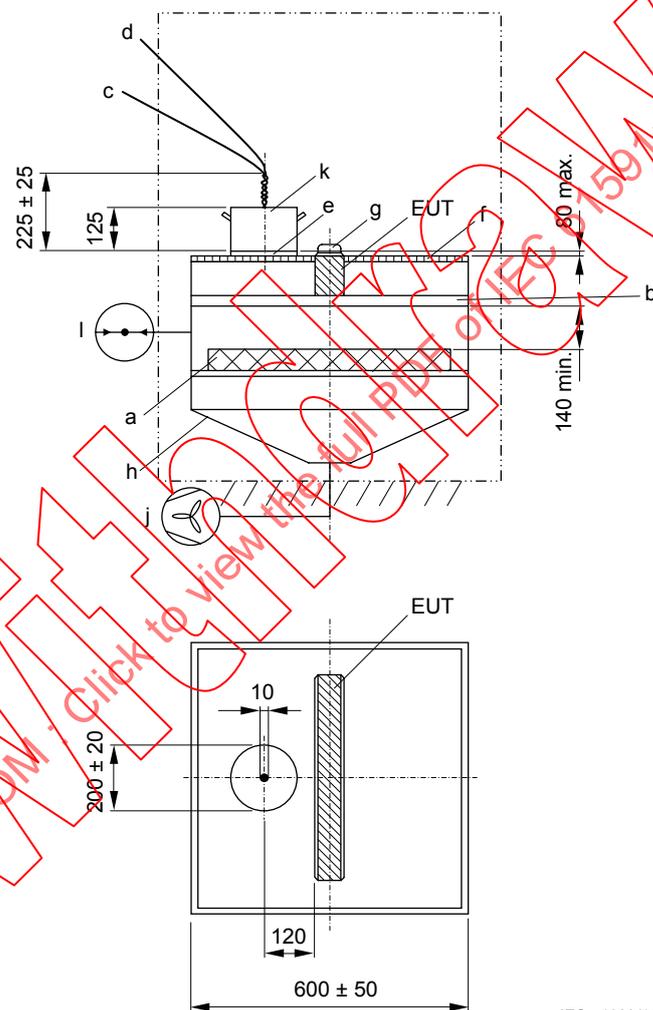
2 Theoretical pressure air flow curve for a flue pipe, pressure  $\sim$  (air flow)<sup>2</sup>

**Figure 3 – Arrangement for the grease absorption test**

Replace the existing title of Figure 3 with the following new title:

**Figure 3 – Arrangement for the grease absorption test for range hoods**

Add the following new Figure 3A:



IEC 1682/10

- |  |                          |
|--|--------------------------|
| a Absolute filter with removable filter insert                   | g Downdraft system (EUT) |
| b Intermediate shelf with opening according to outlet of the EUT | h Compensation chamber   |
| c Dosing pump for adding drops of distilled water                | j External blower        |
| d Dosing pump for adding drops of corn oil                       | k Pan                    |
| e Hob  | l Pressure gauge         |
| f Table  |                          |

**Figure 3.A – Arrangement for the grease absorption test for a down-draft system**