IEC 62841-1

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INTERNATIONAL STANDARD

NORME INTERNATIONALE

AMENDMENT 1
AMENDEMENT 1

Electric motor-operated hand-held tools, transportable tools and lawn and garden machinery – Safety – Part 1: General requirements

Outils électroportatifs à moteur, outils portables et machines pour jardins et pelouses – Sécurité – Partie 1: Règles générales

IEC 62841-1:2014-03/AMD1:2025-03(en-fr)

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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ELECTRIC MOTOR-OPERATED HAND-HELD TOOLS, TRANSPORTABLE TOOLS AND LAWN AND GARDEN MACHINERY – SAFETY –

Part 1: General requirements

AMENDMENT 1

FOREWORD

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Amendment 1 to IEC 62841-1:2014 has been prepared by IEC technical committee 116: Safety of motor-operated electric tools.

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

Draft	Report on voting
116/863/FDIS	116/883/RVD

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 Amendment 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. The main document types developed by IEC are described in greater detail at www.iec.ch/publications/.

A list of all parts of the IEC 62841 series, published under the general title *Electric motor-operated handheld tools, transportable tools and lawn and garden machinery – Safety*, can be found on the IEC website.

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 in the data related to the specific document. At this date, the document will be

- reconfirmed,
- withdrawn, or
- revised.

NOTE The attention of National Committees is drawn to the fact that equipment manufacturers and testing organizations may need a transitional period following publication of a new, amended or revised IEC publication in which to make products in accordance with the new requirements and to equip themselves for conducting new or revised tests.

It is the recommendation of the committee that the content of this publication be adopted for implementation nationally not earlier than 36 months from the date of publication.

FOREWORD

Add, at the end of the Foreword, the following new Note 4:

NOTE 4 In Europe (EN 62841-1), the following additional paragraph applies:

When a relevant Part 2, 3, or 4 does not exist, this document can be used to support the risk assessment process in order to establish requirements for the tool.

2 Normative references

Delete the existing normative reference ISO/TR 11690-3 from the list.

3 Terms and definitions

Add, after 3.63, the following new terms and definitions:

3.64
entity
person, device, tool, product or service that interacts with a tool, **battery** pack or **charger**

3.65
message
data which is transmitted from a sender (data source) to one or more receivers (data sink)

3.66
public network
network carrying digital data or analogue signals or both where access to the data and signals is not restricted by the physical space within the use environment of the tool, **battery** or **charging system**

Note 1 to entry: Determination of confinement to the physical space includes consideration of the network's range of communication, configuration, or construction.

Note 2 to entry: For the purposes of this document, examples of **public networks** include, but are not limited to:

– PAN (personal area network);
– LAN (local area network) connected devices which can or cannot be connected to a gateway, such as BLE (Bluetooth Low Energy), Bluetooth or WLAN (wireless local area network);
– PLC (power line communication);
– SRD (short range devices); and
– WAN (wide area network).

Note 3 to entry: For the purposes of this document, examples of networks which are not considered as being **public networks** include, but are not limited to:

– NFC (near field communication);
– optical communication with line of sight (infra-red rays or visual rays); and
– hardwired configurations constructed of physical media

without connection to a **public network**.

3.67
remote communication
transmission of data between the tool, **battery** pack or **charger** and an **entity** that can be initiated out of sight of the tool, **battery** pack or **charger** using communication means such as radio wave modulation, sound wave modulation or bus systems

Note 1 to entry: Examples of transmission of data include, but are not limited to, remote monitoring, software downloading or control parameter modifications.

Note 2 to entry: Transmission of data can be one-way (simplex) or two-way (duplex).

3.68
authentication
provision for confirming that the **entity** sending or receiving a **message** is what or who it claims to be

3.69
authorization
means to ensure that the authenticated **entity** requesting access to information, functions or services has the required authority

3.70
cryptographic technique
calculation of output data using a mathematical algorithm to encode input data with a key as a parameter

3.71
data integrity protection
protection that enables the tool to confirm the data has not been altered, lost or destroyed

8 Marking and instructions

Replace, in 8.3, the existing text of the sixth dash with the following new text:

– if the mass of the tool is greater than 25 kg: "> 25 kg" or the mass of the tool in kg.

Add, before the last paragraph of 8.3, the following new Note 3:

NOTE 3 In Europe (EN 62841-1), the following additional requirement applies:

Tools shall be additionally marked with the website, e-mail address or other digital contact at which the manufacturer can be contacted. Where the size or nature of the tool does not allow the marking on the product, the required information shall be provided on the packaging or in an accompanying document.

For tools where the instruction manual is provided only in a digital format, the tool shall be marked with information on how to access the digital instructions. Where the size or nature of the tool does not allow the marking on the product, the required information shall be provided on the packaging or in an accompanying document.

Add, after the first paragraph of 8.14, the following new Note:

NOTE 1 In Europe (EN 62841-1), the above paragraph is replaced by the following:

> Except as provided below, an instruction manual and safety instructions shall be provided with the tool and packaged in such a way that is noticed by the user when the tool is removed from the packaging. An explanation of the symbols required by this standard and used on the tool shall be provided in either the instruction manual or the safety instructions.
>
> Instructions may be provided in digital format in accordance with Regulation (EU) 2023/1230.
>
> NOTE If instructions are provided in digital format, the following safety information is regarded as essential in accordance with Regulation (EU) 2023/1230:
>
> – safety instructions in accordance with 8.14.1, Annex K and Annex L, as applicable and
> – additional safety instructions related to assembly, start-up, operation, maintenance and transport of the tool that is deemed necessary by the manufacturer.

Renumber the existing Note as Note 2.

Add, at end of 8.14.1.1 2), the following new Note 2 and renumber the existing Note as Note 1:

NOTE 2 The warnings in items a), b), d), e) and f) above can be omitted for tools covered by Annex K.

Add, at the end of 8.14.2 a), the following new text:

9) For **hand-held tools** and **transportable tools** that produce a considerable amount of dust in accordance with 21.35, instructions how to properly connect the dust extraction system to the tool including any associated devices.

Replace the existing text of 8.14.2 b) 7) with the following new text:

7) For tools with electronic speed or load regulators that reduce the output spindle torque of the tool during a stalled condition and will increase the output spindle torque after the stalled condition is removed: a warning that the tool will resume **normal operation** immediately after the stalled condition is removed;

Add, at the end of 8.14.2 c), the following new text:

8) For **hand-held tools** and **transportable tools** that produce a considerable amount of dust as specified in 21.35:
   – information when to empty, change or maintain an integral dust collection/suction device, if any, in order to keep its effectiveness; and
   – information to read the instruction manual of the connected external suction device, if any, in order to keep its effectiveness.

Replace the existing text of the Note in 8.14.2 with the following new text:

NOTE In Europe (EN 62841-1), the following additional requirements apply:

8.14.2 Za)

Noise emissions:

1) The noise emission, measured in accordance with Clause I.2, as follows:
   - A-weighted emission sound pressure level L_{pA} and its uncertainty K_{pA}, where L_{pA} exceeds 70 dB(A). Where L_{pA} does not exceed 70 dB(A), this fact shall be indicated, either by a statement or by listing the actual measured value;
   - A-weighted sound power level L_{WA} and its uncertainty K_{WA}, where the A-weighted sound pressure level L_{pA} exceeds 80 dB(A);
   - C-weighted peak emission sound pressure value $L_{pC,peak}$, where this exceeds 130 dB in relation to 20 µPa.
2) Recommendation for the operator to wear hearing protection.

Continuous vibration:

3) For **hand-held tools** and **lawn and garden machinery** where Clause I.3 is applicable, the following applies: The vibration total value and its uncertainty measured in accordance with I.3.

Information and warnings on noise and vibration emissions:

4) The following information:
   - that the declared vibration total value and declared noise emission values have been measured in accordance with a standard test method and can be used for comparing one tool with another;
   - that the declared vibration total value and declared noise emission values can also be used in a preliminary assessment of exposure.
5) A warning:
   - that the vibration emission and noise emission during actual use of the power tool can differ from the declared total value depending on the ways in which the tool is used; and
   - of the need to identify safety measures to protect the operator that are based on an estimation of exposure in the actual conditions of use (taking account of all parts of the operating cycle such as the times when the tool is switched off and when it is running idle in addition to the trigger time).

8.14.2 Zb)

For **hand-held tools** and **lawn and garden machinery** where Clause I.3 is applicable, the mean value of the peak amplitude of the acceleration from repeated shock vibrations and its uncertainty shall be specified in the instructions based on the vibration raw data determined by the vibration measurement in accordance with Clause I.3.

NOTE 1 A new standard ISO 5349-3[1] is currently in development that will specify the calculation method to determine the mean value of the peak amplitude of the acceleration, expressed as p_F.

NOTE 2 Vibration raw data could show significantly higher shocks at the beginning or at the end of the measured work cycle. These peaks are not correlated to the repeated shock behaviour of a tool. Therefore, these shocks are disregarded for the calculation in accordance with ISO 5349-3[1].

8.14.2 Zc)

Hazardous dust emissions:

1) For tools equipped with dust outlet(s) to connect an external suction device as specified in 21.35, information indicating the characteristics and at least the recommended filtration efficiency of the external suction device considering the **normal use** of the tool.

   NOTE 1 An example of filtration efficiency is the dust class in accordance with IEC 60335-2-69.

   NOTE 2 Examples for characteristics to connect an external suction device to the tool are the appropriate connecting dimensions for the suction hose, the minimum required volume flow in m^3/h and the resulting underpressure (negative pressure) at the tool interface with the external suction device in hPa necessary for **normal use**.

[1] Under preparation. Stage at the time of publication: ISO/DIS 5349-3:2024.

2) For tools equipped with a **liquid system** for suppressing the released dust, information indicating the required technical characteristics of the **liquid system**.

Add, at the end of 8.14.3, the following new Note:

NOTE In Europe (EN 62841-1), the first paragraph is replaced by the following text:

8.14.3 Information about the mass of the tool shall be provided in the instructions. An explanatory note shall be given regarding any **attachments** or interchangeable parts in accordance with 8.14.2 a) 2) that have been included to determine the mass.

21 Construction

Replace, at the end of 21.18.1.2, the existing Note with the following new Note:

NOTE In Europe (EN 62841-1), the following additional requirement applies:

Unless **hand-held tools** are equipped with a **momentary power switch** without a lock-on device, voltage recovery following an interruption of the supply shall not give rise to a hazard. The relevant part of IEC 62841-2 specifies if this subclause applies and gives specific requirements.

Compliance is checked by inspection and by practical test.

21.35 Dust collection

Replace the existing title and text of 21.35 with the following new text:

21.35 Tools as identified in the relevant part of IEC 62841-2 or IEC 62841-3, which produce a considerable amount of dust and are not equipped with a **liquid system** for suppressing the released dust, shall be

– provided with an integral dust collection/suction device; or
– provided with a dust outlet(s) for the connection of external suction device(s) which direct the discharge away from the operator; or
– designed to be used with a device provided separately by the manufacturer for the collection of dust or the connection of external suction device(s)

for minimizing the by-products of the working process from entering the air.

These devices, along with any external suction device(s) for evacuating the by-products of the working process, shall not impede the **normal use** of the tool.

Compliance is checked by inspection.

Add, after 21.35, the following new subclauses:

21.36 Remote communication through **public networks** shall not impair the safety of the tool.

This requirement is only applicable if **remote communication** includes the download of software or the exchange of data that:

a) could affect software relied upon to provide a **safety critical function** or software, the impairment of which could cause the failure of a lithium-ion **charging system**; or

b) only affects that part of software that is not covered by the above item a), but where software as identified in item a) above could be impaired due to inadequate separation or partitioning from the software in item a) above.

Measures to ensure separation and partitioning are considered adequate if:

- incorrect transmission of remotely communicated parameters, or
- consumption of available processor time by downloaded software, or
- use of processor infrastructure by downloaded software, or
- data corruption due to a failure of downloaded software, such as recursion beyond available stack memory or incorrect pointer calculation

cannot impair a **safety critical function** or the safety of a lithium-ion **charging system**.

NOTE 1 An example for a measure to ensure adequate separation and partitioning is the use of two independent processors, one for the management of **remote communication** and one for operation of functions relied for compliance with this document. Communication between those two processors is based on a protocol providing limitations to avoid interference with the functions relied on for compliance with this document.

NOTE 2 Another example for measures to ensure adequate separation and partitioning is the use of:

– time fences which will terminate the execution of downloaded software if it overruns the available execution time, and

– software protection of data, corruption of which can impair compliance with this document.

This requirement is not applicable to tools

– where all measures to comply with this document are independent of software;
– where software is located on a separate microprocessor from the main microprocessor
  - which contains the software responsible for the **SCF** or the safety of a lithium-ion **charging system**; and
  - where the separate microprocessor is not capable of altering code on the main microprocessor;

NOTE 3 An example are specialized Bluetooth modules which communicate with the host processor but are only capable of passing data, not relied upon for correct operation of any **SCF** or a lithium-ion **charging system**. The Bluetooth module can be accessible to the **public network**, but there is no path to corrupt code on the host.

– using **remote communication** through **public networks** for the send-only transmission of data; or
– that only provide event driven **messages** or push remote monitoring.

Compliance is checked by inspection of the tool, inspection of the technical documentation of the software, and by the requirements of Annex M.

21.37 Tools provided with interface(s) other than for **remote communication** through **public networks**, that can be used to modify settings, data or software, the corruption of which could impair an **SCF** or the safety of a lithium-ion **charging system**, shall either require the use of

– a tool for access to the interface(s); or
– specialized equipment in order to modify settings, data or software; or
– a password or similar method before settings, data or software can be altered.

Compliance is checked by inspection.

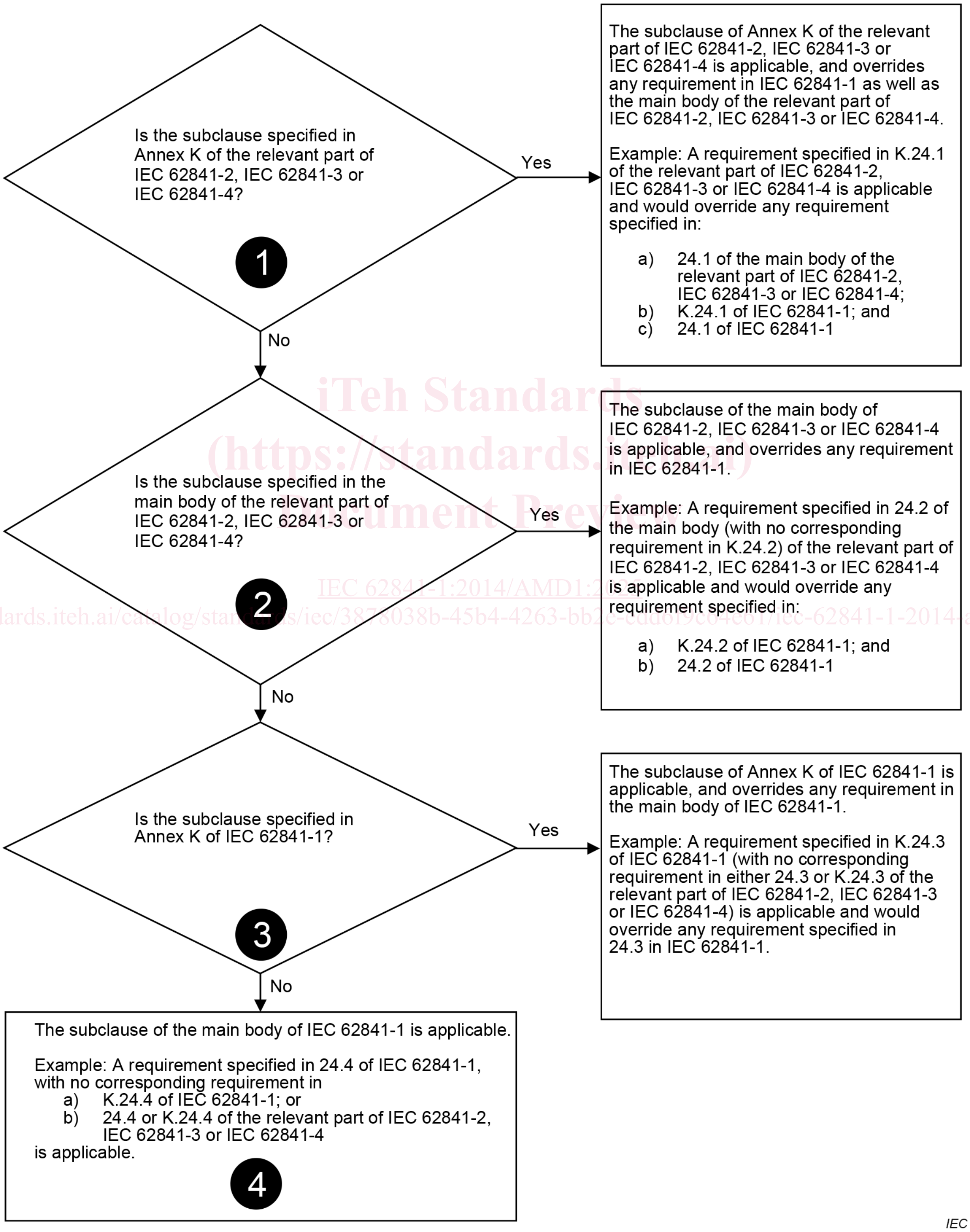
Annex G – Void

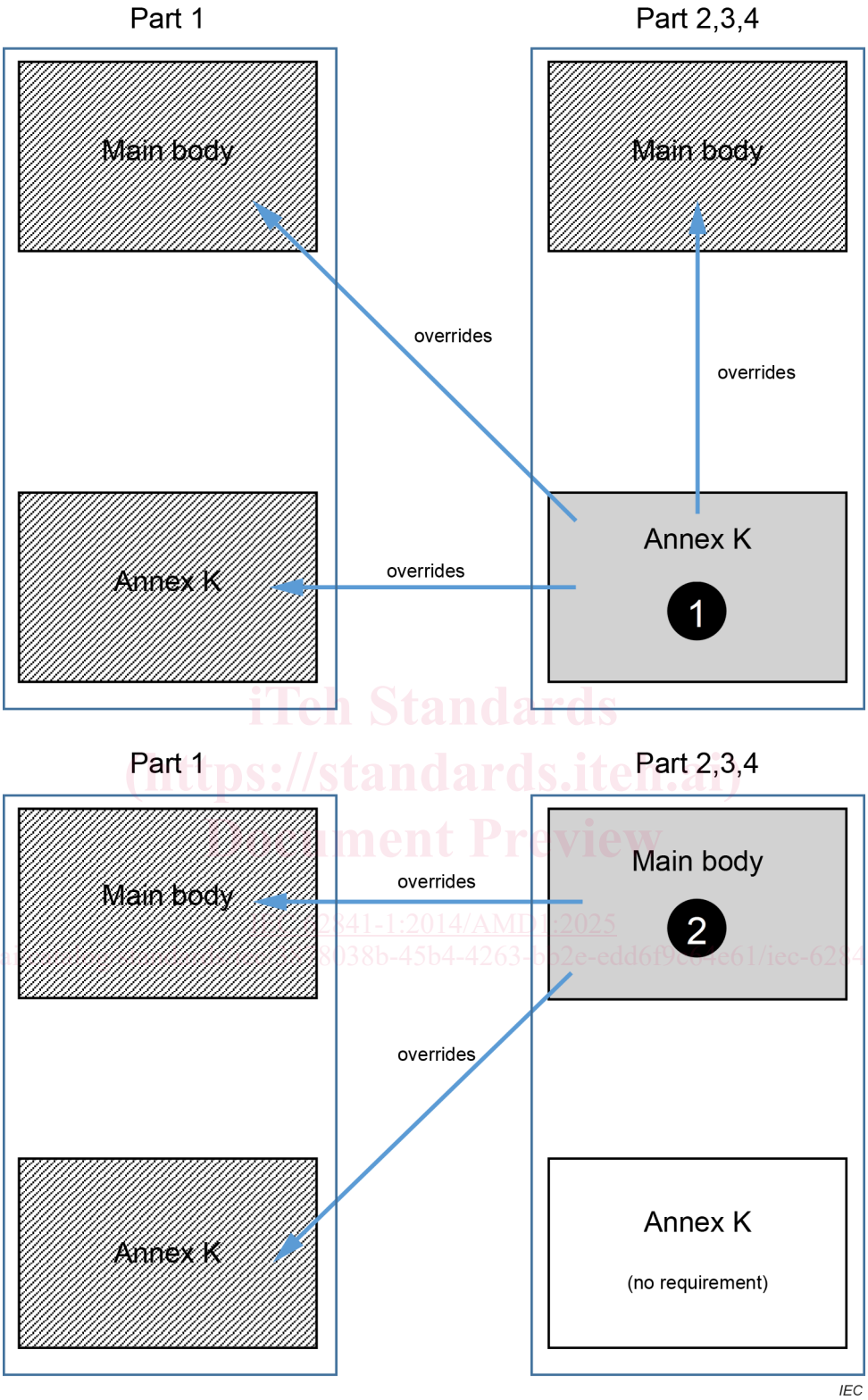
Replace the existing Annex G with the following new annex:

Annex G
(informative)

Determination of applicable requirements for tools covered by Annex K

Figure G.1 provides information for the determination of applicable requirements for tools covered by Annex K.





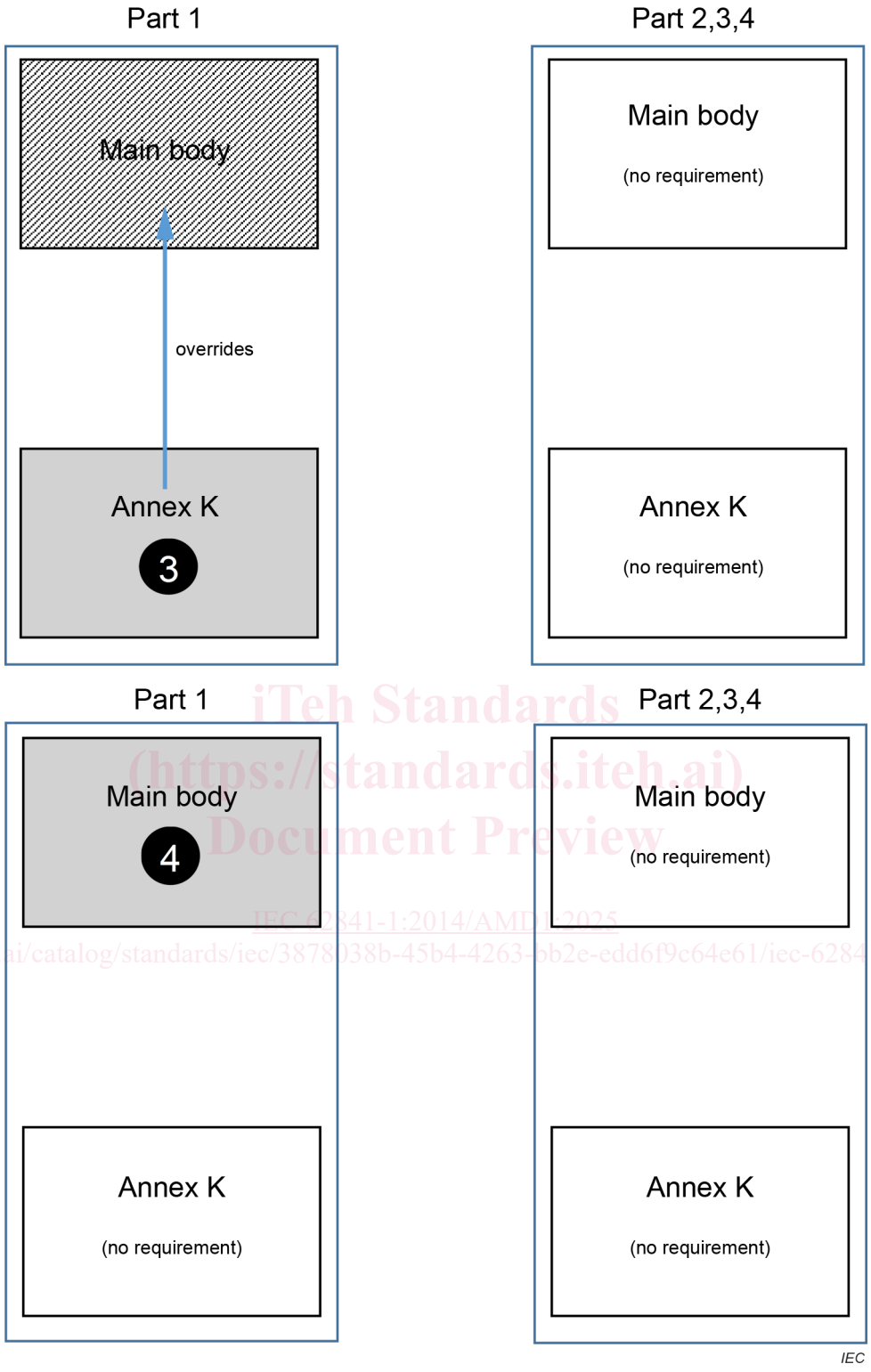


Figure G.1 – Determination of applicable requirements for tools covered by Annex K

Annex I − Measurement of noise and vibration emissions

Replace the existing text of I.2.3.1 with the following new text:

I.2.3.1 Hand-held tools

The A-weighted emission sound pressure level at the workstation, L_{pA}, shall be determined in accordance with ISO 11203 as follows:

$$L_{pA} = L_{WA} - Q$$

where Q = 8 dB.

NOTE 1 This value of Q has been determined, during experimental investigations, to be applicable to **hand-held tools**. The resulting A-weighted emission sound pressure level at the workstation is equivalent to the value of the surface sound pressure level at a distance of 0,7 m from the power tool. This distance has been chosen to give satisfactory reproducibility of results, and to permit comparison of the acoustic performance of different **hand-held tools** which do not, in general, have uniquely defined workstations. Under free field conditions, where it can be required to estimate the emission sound pressure level, $L_{pA,r1}$, at a distance r_1 in m from the geometric centre of the power tool, this can be done by applying the formula:

$$L_{pA,r1} = L_{pA} + 20 \lg \left(\frac{0,7}{r_1}\right) \text{ dB}$$

NOTE 2 At any given position in relation to a particular power tool, and for given mounting and operating conditions, the emission sound pressure levels determined by the method of this standard will in general be lower than the directly measured sound pressure levels for the same power tool in the typical workroom where it is used. This is due to the influence of sound reflecting surfaces in the workroom compared to the free field conditions of the test specified here. A method of calculating the sound pressure levels in the vicinity of a power tool operating alone in a workroom is given in ISO/TR 11690-3. Commonly observed differences are 1 dB to 5 dB, but in extreme cases the difference can be even greater.

If required, the C-weighted peak emission sound pressure level $L_{pC,peak}$ shall be measured at each of the five measurement positions specified in I.2.2. The C-weighted peak emission sound pressure level at the workstation is the highest C-weighted peak emission sound pressure level measured at any of the five microphone positions; no corrections are permitted.

I.2.4 Installation and mounting conditions of the power tools during noise tests

Replace the existing text of the third paragraph with the following new text:

A **hand-held tool** is held by the operator or suspended in such a way as to correspond to **normal use**, as specified in the relevant part of IEC 62841-2. If the **hand-held tool** is used horizontally, it shall be positioned so that its axis is at 45° between the microphone positions 1 and 4 and 2 and 3 (see Figure I.2); its geometrical centre shall be (1 ± 0,05) m above the ground (reflecting plane). If these requirements are impracticable or the tool is not used horizontally, the adopted positions shall be recorded and described in the test report.

I.2.5 Operating conditions

Add, at the end, the following new text:

The temperature requirements in accordance with 5.6 are not applicable.