



NSAI
Standards

Irish Standard
I.S. EN 50636-2-107:2015&A1:2018

Safety of household and similar appliances - Part 2-107: Particular requirements for robotic battery powered electrical lawnmowers

I.S. EN 50636-2-107:2015&A1:2018

Incorporating amendments/corrigenda/National Annexes issued since publication:

EN 50636-2-107:2015/A1:2018

The National Standards Authority of Ireland (NSAI) produces the following categories of formal documents:

I.S. xxx: Irish Standard — national specification based on the consensus of an expert panel and subject to public consultation.

S.R. xxx: Standard Recommendation — recommendation based on the consensus of an expert panel and subject to public consultation.

SWiFT xxx: A rapidly developed recommendatory document based on the consensus of the participants of an NSAI workshop.

This document replaces/revises/consolidates the NSAI adoption of the document(s) indicated on the CEN/CENELEC cover/Foreword and the following National document(s):

NOTE: The date of any NSAI previous adoption may not match the date of its original CEN/CENELEC document.

This document is based on:

EN 50636-2-107:2015

Published:

2015-01-23

This document was published under the authority of the NSAI and comes into effect on:

2018-01-30

ICS number:

NOTE: If blank see CEN/CENELEC cover page

NSAI
1 Swift Square,
Northwood, Santry
Dublin 9

T +353 1 807 3800
F +353 1 807 3838
E standards@nsai.ie
W NSAI.ie

Sales:
T +353 1 857 6730
F +353 1 857 6729
W standards.ie

Údarás um Chaighdeán Náisiúnta na hÉireann

National Foreword

I.S. EN 50636-2-107:2015&A1:2018 is the adopted Irish version of the European Document EN 50636-2-107:2015, Safety of household and similar appliances - Part 2-107: Particular requirements for robotic battery powered electrical lawnmowers

This document does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

For relationships with other publications refer to the NSAI web store.

Compliance with this document does not of itself confer immunity from legal obligations.

In line with international standards practice the decimal point is shown as a comma (,) throughout this document.

This page is intentionally left blank

EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN 50636-2-107:2015/A1

January 2018

ICS 65.060.70

English Version

**Safety of household and similar appliances - Part 2-107:
Particular requirements for robotic battery powered electrical
lawnmowers**

Appareils électrodomestiques et analogues - Partie 2-107:
Exigences particulières relatives aux tondeuses à gazon
électriques robotisées alimentées par batteries

Sicherheit elektrischer Geräte für den Hausgebrauch und
ähnliche Zwecke - Teil 2-107: Besondere Anforderungen für
batteriebetriebene Roboter-Rasenmäher

This amendment A1 modifies the European Standard EN 50636-2-107:2015; it was approved by CENELEC on 2017-08-09. CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this amendment the status of a national standard without any alteration.

Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN-CENELEC Management Centre or to any CENELEC member.

This amendment exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CENELEC member into its own language and notified to the CEN-CENELEC Management Centre has the same status as the official versions.

CENELEC members are the national electrotechnical committees of Austria, Belgium, Bulgaria, Croatia, Cyprus, the Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.



European Committee for Electrotechnical Standardization
Comité Européen de Normalisation Electrotechnique
Europäisches Komitee für Elektrotechnische Normung

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

EN 50636-2-107:2015/A1:2018

Contents	Page
European foreword.....	3
1 Modification to 7.12.....	4
2 Modification to 20.102.4.1.....	4
3 Addition of Figure 107	4

European foreword

This document (EN 50636-2-107:2015/A1:2018) has been prepared by CLC/TC 116 “Safety of motor-operated electric tools”.

The following dates are fixed:

- latest date by which this document has (dop) 2018-10-12
to be implemented at national level by
publication of an identical national
standard or by endorsement
- latest date by which the national (dow) 2020-01-12
standards conflicting with this document
have to be withdrawn

This amendment was developed to implement an extra foot probe test for children.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CENELEC shall not be held responsible for identifying any or all such patent rights.

This document has been prepared under a mandate given to CENELEC by the European Commission and the European Free Trade Association, and supports essential requirements of EU Directive(s).

For the relationship with EU Directive(s) see informative Annex ZZ, which is an integral part of EN 50636-2-107:2015.

EUROPEAN STANDARD

EN 50636-2-107

NORME EUROPÉENNE

EUROPÄISCHE NORM

January 2015

ICS 65.060.70

English Version

**Safety of household and similar appliances - Part 2-107:
Particular requirements for robotic battery powered electrical
lawnmowers
(IEC 60335-2-107:2012 , modified)**

This European Standard was approved by CENELEC on 2014-12-01. CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN-CENELEC Management Centre or to any CENELEC member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CENELEC member into its own language and notified to the CEN-CENELEC Management Centre has the same status as the official versions.

CENELEC members are the national electrotechnical committees of Austria, Belgium, Bulgaria, Croatia, Cyprus, the Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.



European Committee for Electrotechnical Standardization
Comité Européen de Normalisation Electrotechnique
Europäisches Komitee für Elektrotechnische Normung

CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels

Contents

Foreword.....	4
Introduction	6
1 Scope	7
2 Normative references	7
3 Definitions	9
4 General requirement	12
5 General conditions for the tests	12
6 Classification	12
7 Marking and instructions	12
8 Protection against access to live parts	16
9 Starting of motor-operated appliances	16
10 Power input and current	16
11 Heating	16
12 Void	16
13 Leakage current and electric strength at operating temperature	16
14 Transient overvoltages	16
15 Moisture resistance	16
16 Leakage current and electric strength	17
17 Overload protection of transformers and associated circuits	17
18 Endurance	17
19 Abnormal operation	17
20 Stability and mechanical hazards	18
21 Mechanical strength	26
22 Construction	29
23 Internal wiring	37
24 Components	37
25 Supply connection and external flexible cords	37
26 Terminals for external conductors	37
27 Provision for earthing	37
28 Screws and connections	37
29 Clearances, creepage distances and solid insulation	37
30 Resistance to heat and fire	37
31 Resistance to rusting	37
32 Radiation, toxicity and similar hazards	38
Annexes	45
Annex B (normative) Appliances powered by rechargeable batteries	45
Annex R (normative) Software evaluation	47
Annex AA (normative) Calculation of kinetic energy of pivoting cutting elements	48
Annex BB (normative) Test enclosure construction	50
Annex CC (normative) Base for thrown object test enclosure	55

Annex DD (normative) Target panel elevation zones and recommended test report for thrown object test	57
Annex EE (normative) Safety signs	59
Annex FF (normative) Noise test code – Engineering method (grade 2)	62
Annex GG (informative) Example of a material and construction fulfilling the requirements for an artificial surface	67
Annex HH (informative) Safety instructions	69
Annex ZZ (informative) Coverage of Essential Requirements of Directive 2006/42/EC	71
Bibliography	72

Figures

Figure 101 – Example of test cycles (see Clause 20.102.2)	38
Figure 102 – Foot probe test (see Clause 20.102.4)	39
Figure 103 – Impact test fixture (see Clause 21.101.1)	40
Figure 104 – Example of structural integrity test fixtures (see Clause 21.101.3.1.1)	42
Figure 105 - Finger probe test - Illustrations showing application of probe, insertion depth limited according to the geometry of the enclosure	43
Figure 106 - Obstruction sensor test - Illustration showing typical arrangement (see Clause 22.105.2)	44
Figure AA.1 – Measurement of the reckonable length L	49
Figure BB.1 – Thrown object test enclosure – General layout	51
Figure BB.2 – Thrown object test enclosure	52
Figure BB.3 – Test enclosure walls and base	53
Figure BB.4 – Test fixture for corrugated fibreboard penetration test	54
Figure CC.1 – Thrown object test enclosure – Base detail	55
Figure CC.2 – Nail plan of test enclosure base	56
Figure DD.1 – Recommended test data sheet	58
Figure EE.1 – Safety sign illustrating – "WARNING – Read user instructions before operating the machine "	59
Figure EE.2 – Alternative safety sign for the supplementary safety information panel of Figure EE.1 (safety sign 1641 of ISO 7000:2014)	59
Figure EE.3 – Alternative safety sign for the supplementary safety information panel of Figure EE.1 (safety sign M002 of EN ISO 7010:2012)	59
Figure EE.4 – Safety sign illustrating – "WARNING – Keep a safe distance from the machine when operating"	60
Figure EE.5 – Safety sign illustrating – "WARNING – Remove the disabling device before working on or lifting the machine"	60
Figure EE.6 – Safety sign illustrating – "WARNING – Operate the disabling device before working on or lifting the machine"	61
Figure EE.7 – Safety sign illustrating – "WARNING – Do not ride on the machine"	61
Figure FF.1 – Microphone positions on the hemisphere (see Table FF.1)	63
Figure GG.1 – Sketch of the measurement surface covered with an artificial surface (not to scale) ..	68

Tables

Table 1 – Sizing of test fixture air inlet holes	28
Table FF.1 – Co-ordinates of microphone positions	64
Table FF.2 – Absorption coefficients	64

Foreword

This document (EN 50636-2-107:2015) has been prepared by CLC/TC 116, "Safety of hand-held motor-operated electric tools".

The following dates are fixed:

- latest date by which the standard has to be implemented
at national level by publication of an identical
national standard or by endorsement (dop) 2015-12-01
- latest date by which the national standards conflicting
with the standard have to be withdrawn (dow) 2017-12-01

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CENELEC shall not be held responsible for identifying any or all such patent rights.

This document has been prepared under a mandate given to CENELEC by the European Commission and the European Free Trade Association, and supports essential requirements of EU Directives.

For the relationship with EU Directive 2006/42/EC, see informative Annex ZZ, which is an integral part of this document.

The text of IEC 60335-2-107:2012 has been revised by CLC/TC 116/WG 5, "Garden appliances", to bring this European Standard in line with the European Machinery Directive 2006/42/EC.

This document was submitted to the UAP under the reference FprEN 60335-2-107:2013. CLC/TC 116 confirmed that EN 60335-1:2012 is Part 1 of this document.

This European Standard is to be used in conjunction with EN 60335-1:2012 "*Household and similar electrical appliances - Safety – Part 1: General requirements*" and its amendments.

When "Part 1" is mentioned in this standard, it refers to EN 60335-1:2012.

This European Standard supplements or modifies the corresponding clauses in Part 1, so as to convert that publication into the European Standard "*Particular requirements for robotic battery powered electrical lawnmowers*".

Where a particular subclause of Part 1 is not mentioned in this European Standard, that subclause applies as far as is relevant. Where this standard states "addition", "modification" or "replacement", the relevant text in Part 1 is to be adapted accordingly.

Compliance with the relevant clauses of Part 1 together with this European Standard provides one means of conforming to the specified essential health and safety requirements of the Directive concerned.

This European Standard follows the overall requirements of EN ISO 12100:2010.

Warning: Other requirements arising from other EU Directives can be applicable to the products falling within the scope of this European Standard.

The following numbering system is used:

- subclauses that are numbered starting from 101 are additional to those in Part 1;
- additional annexes are lettered AA, BB, etc.

NOTE In this European Standard the following print types are used:

- requirements proper: in Roman type;

- *test specifications: in italic type;*
- explanatory matter: in smaller Roman type.

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

Introduction

This document is a type C standard as stated in EN ISO 12100:2010.

The machinery concerned and the extent to which hazards, hazardous situations and events are covered is as indicated in the scope of this document.

When provisions of this type C standard are different from those which are stated in type A or B standards, the provisions of this type C standard take precedence over the other standards, for machines which have been built and designed to the provisions of this type C standard.

1 Scope

This clause of Part 1 is replaced by the following:

This European Standard specifies safety requirements and their verification for the design and construction of **robotic** battery powered electrical **rotary lawnmowers** and their **peripherals** with the **rated voltage** of the battery being not more than 75 V d.c. charged by mains electrical and/or alternative energies, e.g. solar power.

This European Standard does not apply to non-robotic machines such as **lawn trimmers, lawn edge trimmers, lawn edgers, ride-on lawnmowers or pedestrian controlled lawnmowers**.

This European Standard is not applicable to EMC and environmental hazards (except noise).

This European Standard does not apply to internal combustion engine(s), hybrid and fuel cell powered machines and associated charging systems.

This European Standard deals with all the significant hazards presented by battery powered **robotic lawnmowers** and their **peripherals** when they are used as intended and under conditions of misuse which are reasonably foreseeable.

This European Standard is not applicable to machines, which are manufactured before the date of publication of this document by CENELEC.

NOTE This European Standard does not apply to battery chargers (EN 60335-2-29:2004).

2 Normative references

This clause of Part 1 is applicable except as follows.

Addition:

EN 60320-1:2001+ EN 60320-1:2001/A1:2007, *Appliance couplers for household and similar general purposes – Part 1: General requirements (IEC 60320-1:2001 + A1:2007)*

EN 60320-2-1:2000, *Appliance couplers for household and similar general purposes – Part 2-1: Sewing machine couplers (IEC 60320-2-1:2000)*

EN 60320-2-2:1998, *Appliance couplers for household and similar general purposes – Part 2-2: Interconnection couplers for household and similar equipment (IEC 60320-2-2:1998)*

EN 60320-2-4:2006 + EN 60320-2-4:2006/A1:2009, *Appliance couplers for household and similar general purposes – Part 2 -4: Appliance couplers dependent on appliance weight for engagement (IEC 60320-2-4:2005 + A1:2009)*

EN 60335-1:2012, *Household and similar electrical appliances – Safety – Part 1: General requirements (IEC 60335-1:2010, mod.)*

EN 60335-2-29:2004, *Household and similar electrical appliances – Safety – Part 2-29: Particular requirements for battery chargers (IEC 60335-2-29:2002)*

EN 61032:1998, *Protection of persons and equipment by enclosures – Probes for verification (IEC 61032:1997)*

EN 62133:2003, *Secondary cells and batteries containing alkaline or other non-acid electrolytes – Safety requirements for portable sealed secondary cells, and for batteries made from them, for use in portable applications (IEC 62133:2002)*

EN ISO 354:2003, *Acoustics – Measurement of sound absorption in a reverberation room (ISO 354:2003)*

This is a free preview. Purchase the entire publication at the link below:

[Product Page](#)

-
- Looking for additional Standards? Visit Intertek Inform Infostore
 - Learn about LexConnect, All Jurisdictions, Standards referenced in Australian legislation
-