



**SLOVENSKI STANDARD**  
**SIST EN 50636-2-107:2015/oprA3:2020**  
**01-oktober-2020**

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**Varnost gospodinjskih in podobnih električnih aparatov - 2-107. del: Posebne zahteve za baterijske robotsko vodene električne vrtno kosilnice - Dopolnilo A3**

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

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

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

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**ICS:**

13.120	Varnost na domu	Domestic safety
65.060.70	Vrtnarska oprema	Horticultural equipment

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## 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 draft amendment prA3, if approved, will modify the European Standard EN 50636-2-107:2015; it is submitted to CENELEC members for enquiry.

Deadline for CENELEC: 2020-10-16.

It has been drawn up by CLC/TC 116.

If this draft becomes an amendment, 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.

This draft amendment was established by CENELEC in three official versions (English, French, German).

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Recipients of this draft are invited to submit, with their comments, notification of any relevant patent rights of which they are aware and to provide supporting documentation.

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

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## 16 European foreword

17 This document (EN 50636-2-107:2015/prA3:2020) has been prepared by CLC/TC 116 “Safety of  
18 motor-operated electric tools”.

19 This document is currently submitted to the Enquiry.

20 The following dates are proposed:

- latest date by which the existence of this (doa) dor + 6 months  
document has to be announced at national  
level
- latest date by which this document has to be (dop) dor + 12 months  
implemented at national level by publication of  
an identical national standard or by  
endorsement
- latest date by which the national standards (dow) dor + 24 months  
conflicting with this document have to be (to be confirmed or  
withdrawn modified when voting)

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

23 For the relationship with EU Directive(s) see informative Annex ZZ, which is an integral part of  
24 EN 50636-2-107:2015/A2:2020. (standards.iteh.ai)

25 This amendment was developed to align the current standard EN 50636-2-107:2015<sup>1</sup> with the major  
26 changes from IEC 60335-2-107:2017+A1:2020.

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<sup>1</sup> As amended by EN 50636-2-107:2015/A1:2018 and EN 50636-2-107:2015/A2:2020.

## EN 50636-2-107:2015/prA3:2020 (E)

27 **1 Addition to Clause 2, “Normative references”**28 *Add the following reference:*29 "EN 61058-1:2002,<sup>2</sup> *Switches for appliances - Part 1: General requirements*"30 **2 Modification to Clause 3, “Definitions”**31 *Replace the existing 3.101 with the following:*32 **“3.101**33 **automatic mode**34 autonomous operation of the machine without the use of a **manual controller**35 Note 1 to entry: Operation of the machine without the use of a **manual controller** and without the **cutting**  
36 **means** operating during set up of the **working area** is considered not to be an automatic operation.”37 **3 Modification to Clause 15, “Moisture resistance”**38 *Replace the existing subclause 15.2 with the following:*39 **“15.2 Addition:**40 Machines or **peripherals** fitted with an appliance inlet or cable coupler shall be tested with the  
41 appropriate mating connector in place.42 *Air filters are not removed.”*43 **4 Modifications to Clause 20, “Stability and mechanical hazards”**44 *Replace the existing first paragraph of subclause 20.2 with the following:*45 “To prevent unexpected operation which may results in a hazard, the **cutting means** shall not start  
46 until either,

47 a) a manual reset; or

48 b) the start-up procedure as described in 22.110 is completed; or

49 c) for manual control, as described in 20.101.3.”

50 *Replace the existing subclause 20.101.3 with the following:*51 **“20.101.3 Manual Controller**52 If a **manual controller** is supplied by the manufacturer, it shall meet the requirements of 22.107.

53 Compliance is checked by inspection and by the tests of 22.107 and 21.101.5.”

54 *Replace the existing subclause 20.101.4 with the following:*55 **“20.101.4 Manual stop**56 A single action clearly identifiable **manual stop** shall be provided on the machine in a prominent  
57 position on the top surface. The actuator of the **manual stop** shall have at least 20 % of its surface  
58 raised at least 5 mm above the immediate surrounding area. The minimum width of the immediate  
59 surrounding area shall be not less than 15 mm. The geometric minor dimension of the actuator of the

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<sup>2</sup> As amended by EN 61058-1:2002/A2:2008.

60 **manual stop** shall be not less than 35 mm and the surface area of the actuator shall be not less than  
61 700 mm<sup>2</sup>.

62 The operating force of the actuator of the **manual stop** shall not exceed 30 N on any part of its  
63 surface that is raised at least 5 mm above the immediate surrounding area.

64 The **manual stop** shall override all other **controls** and cause all moving parts to stop.

65 Restarting of the mower following a **manual stop** shall only be possible following either:

- 66 a) two separate actions; or  
67 b) the introduction of an alpha-numeric code of at least four characters; or  
68 c) multiple key strokes in response to prompts.

69 Compliance is checked by inspection, practical tests and by measurement, and if the compliance  
70 relies on the operation of an **electronic circuit**, it is checked under the following conditions applied  
71 separately:

- 72 1) the fault conditions in a) to g) of 19.11.2 applied one at a time to the **electronic circuit**;  
73 2) the electromagnetic phenomena tests of 19.11.4.1 and 19.11.4.2 applied to the machine.

74 If the **electronic circuit** is programmable, the software shall contain measures to control the fault/error  
75 conditions specified in Table R.1 and is evaluated in accordance with the relevant requirements of  
76 Annex R.”

77 *Replace the existing first paragraph of subclause 20.102.6 with the following:*

78 “When a **tilt sensor** and/or **lift sensor** is activated, the **cutting means** shall stop within 2 s. If the  
79 machine attempts to recover from the condition that caused the activation of the **sensor(s)** the  
80 machine shall move away in a different direction (with the **cutting means** static).”

## 81 **5 Modifications to Clause 21, “Mechanical strength“**

82 *Replace the existing subclause 21.1 with the following:*

### 83 **“21.1 Modification:**

84 The impact energy applied to all enclosures (including the **peripherals**) shall be (1,0 ± 0,05) J.

85 This subclause does not apply to

- 86 — **remote setting device(s)**; and  
87 — **peripherals** that are covered by a separate end product standard, such as power supplies or  
88 battery chargers.”

89 *Replace the heading “21.101.1.2 Imbalance” with “21.101.2 Imbalance”.*

## 90 **6 Modifications to Clause 22, “Construction“**

91 *Add the following new subclause:*

92 **“22.40** This subclause is not applicable.

93 NOTE 101 This requirement is covered by 20.101.1 and 20.101.4.”

94 *Add the following new subclause:*

95 **“22.49** This subclause is not applicable.

96 NOTE 101 This requirement is covered in 20.101.2 for **remote setting devices**.”

## EN 50636-2-107:2015/prA3:2020 (E)

97 **Add the following new subclause:**

98 “**22.50** This subclause is not applicable.

99 NOTE This requirement is covered by 20.101.4.”

100 **Add the following new subclause:**

101 “**22.51** This subclause is not applicable.

102 NOTE 101 This requirement is covered in 22.107 for **manual controllers**.”

103 **Replace the existing first paragraph of subclause 22.103.1 with the following:**

104 “When the **disabling device** is removed, it shall not be possible for the machine to be operable. A  
105 **removable disabling device** may be fulfilled by removal of all detachable battery pack(s), provided

106 — any individual battery pack does not have a mass exceeding 5,0 kg; and

107 — the detachable battery pack(s) are removable without the use of tools.

108 The machine is not considered to be operating when displaying, communicating, transmitting or  
109 storing data (e.g. error codes) whilst the **removable disabling device** is removed or operated.”

110 **Add the following text after the first paragraph of subclause 22.103.2:**

111 “The machine is not considered to be operating when displaying, communicating, transmitting or  
112 storing data (e.g. error codes) whilst the machine is disabled by the **code protected disabling**  
113 **device**.”

114 **Replace the existing subclause 22.104 with the following:**

115 “**22.104 Working area**

116 When the machine is operating **in automatic mode**, the machine shall not be able to leave the  
117 **working area**. It shall not be possible for the machine to cross the boundary of the **working area** by a  
118 distance greater than one full length of the machine when operating in **automatic mode**.

119 The boundary of the **working area** may be established by the use of a **perimeter delimiter** as  
120 specified in 22.104.2 or by a pre-programmed area.

121 If the machine is placed outside the **working area**, it shall not be able to operate at a distance of more  
122 than 1 m from the boundary of the **working area** to the nearest part of the machine, unless under  
123 manual control.

124 If the machine fails to receive any signal that is required to recognize the **working area**, the machine  
125 shall travel not more than 1 m or travel such that it is not displaced by more than 1 m and the **cutting**  
126 **means** shall stop within 5 s from the instant the machine fails to receive any signal that is required to  
127 recognize the **working area** to the time that the **cutting means** stops in accordance with 20.102.2.

128 If the machine regains recognition of the **working area**, the machine may operate in **automatic mode**,  
129 providing the **cutting means** start-up indication procedure in 22.110 is completed.

130 If the **working area** is changed, it shall not be possible for the machine to operate in **automatic mode**  
131 unless the restart procedure in 20.102.6 is completed. This requirement is not applicable for  
132 **perimeter delimiters**.

133 Compliance is checked by inspection, by measurement and by practical tests.

134 If the compliance relies on the operation of an **electronic circuit**, it is checked under the following  
135 condition:

136 1) the fault conditions in a) to g) of 19.11.2 applied one at a time to the **electronic circuit**.

137 The total travelling distance and/or the total **stopping time**, as a result of condition 1), shall not  
138 exceed twice of the values given above. Under this condition, a manual operation shall be required to  
139 restart the **cutting means**, such a restart shall only be allowed for one attempt.



140 If the **electronic circuit** is programmable, the software shall contain measures to control the fault/error  
 141 conditions specified in Table R.1 and is evaluated in accordance with the relevant requirements of  
 142 Annex R.

143 **22.104.1 Void**

144 **22.104.2 Perimeter delimiter**

145 If a **perimeter delimiter** is provided which uses a boundary wire that emits a signal to indicate the limit  
 146 of the **working area**, the maximum voltage shall not exceed **safety extra-low voltage**.

147 Compliance is checked by measurement.”

148 **Replace the existing subclause 22.105.2 with the following:**

149 **“22.105.2 Obstruction sensors**

150 The machine shall be provided with (an) **obstruction sensor(s)**. In **automatic mode**, the **sensor(s)**  
 151 shall be active and capable of performing its intended function in all operating positions and in all  
 152 directions of travel, except those directions of travel where

153 — the **cutting means** is not operating and the distance travelled does not exceed 2,0 times the  
 154 length of the machine; or

155 — the **cutting means** is operating and the distance travelled does not exceed the distance from the  
 156 edge of the machine in the direction of travel to the nearest **cutting means tip circle**.

157 The maximum kinetic energy of a machine that could be imparted to an obstruction upon impact when  
 158 travelling in **automatic mode** shall be 5 J.

159 The maximum force applied by the machine against an obstruction in **automatic mode** shall not be  
 160 greater than

161 — 260 N during the first 0,5 s after impact and a minimum of 50 N is exceeded; and

162 — 130 N thereafter. <https://standards.iteh.ai/catalog/standards/sist/3ab8e8f5-2e77-4072-a078-0fac4508ce88/sist-en-50636-2-107-2015-kfpra3-2021>

163 NOTE ISO/TS 15066:2016 provides guidance on relevant values of maximum force.

164 If an **obstruction sensor** is activated, the **traction drive** in the direction of travel shall stop within

165  $t_{ts} = D/v$ , where

$t_{ts}$  is the **traction drive stopping time**;

$D$  is the distance from the front edge of the machine to the nearest edge of the nearest  
**cutting means tip circle**; and

$v$  is the velocity of the machine upon approach.

166 The machine shall then restart in a different direction to allow the machine to move away from the  
 167 object such that the **sensor** is deactivated within 3 s of initial activation. If the **sensor** is not  
 168 deactivated within 3 s of initial activation, the **cutting means** shall stop as required by 20.102.2.

169 An additional non-contact **sensor**, if relied upon to reduce speed in order to fulfil the requirement for  
 170 maximum force upon impact, is permitted providing that it responds to a rigid non-metallic target of:

171 — cylindrical shape;

172 — (70 ± 2) mm diameter by (400 ± 5) mm high, standing on end;

173 — of a colour or shade that matches the background; and

174 — normalized to the ambient temperature.

175 Compliance is checked by inspection, by measurement, by the following test and by 20.102.2.