ISO 5474-4:2025-03 (E)

Electrically propelled road vehicles - Functional and safety requirements for power transfer between vehicle and external electric circuit - Part 4: Magnetic field wireless power transfer

Contents

Page

Foreword ..... **iv**

Introduction ..... **v**

1 Scope **1**

2 Normative references **1**

3 Terms and definitions **2**

4 System structure **4**

5 Requirements regarding environmental conditions **5**

6 Classification **5**

7 MF-WPT power transfer requirements **6**
7.1 General 6
7.2 Frequency 6
7.3 Geometrical operating space 6
7.4 Requirements for output power 7
7.5 Requirements for power transfer efficiency 7
7.6 Requirements for output voltage 8
7.6.1 Performance requirements at different output voltage levels 8
7.6.2 Voltage ripple and voltage overshoot 8
7.7 MF-WPT power transfer test procedure 8
7.7.1 General 8
7.7.2 Test setup 9
7.7.3 Test procedure 10

8 Requirements for communication and MF-WPT activities **13**

9 EMC requirements **13**

10 Safety requirements **14**
10.1 Emergency shutdown triggered by the EV 14
10.2 Protection against electric shock 14
10.2.1 General 14
10.2.2 Insulation coordination 14
10.3 Protection against thermal incidents 15
10.3.1 General 15
10.3.2 Overload protection and short-circuit protection 15
10.4 Protection of people against electromagnetic effects 15
10.4.1 General 15
10.4.2 Protection areas 15
10.4.3 Requirements for protection of people against exposure to hazardous electromagnetic fields 16
10.4.4 Requirements to protect the functionality of CIEDs 16
10.5 Protection against overheating 16

11 Owner's manual and marking **16**
11.1 Owner's manual 16
11.2 Marking 16

Annex A (normative) **Reference supply power circuit for EVPCs with a rated output power ≤ 3,7 kW** **17**

Annex B (normative) **Reference supply power circuit for EVPCs with a rated output power ≤ 11,1 kW** **22**

Annex C (informative) **Example for a different implementation of a supply power circuit** **26**

Annex D (informative) **Conformance demonstration for protection of people against electromagnetic effects** **31**