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CONEBI Comments on LMT Common Chargers Ramboll & Öko Institut Study

CONEBI, the Confederation of the European Bicycle Industry, welcomes the study commissioned by the European Commission regarding the assessment of harmonised standards for 'common chargers' for rechargeable batteries powering light means of transport and specific categories of electrical and electronic equipment covered by Directive 2012/19/EU as part of the review clause of Battery Regulation (EU) 2023/1542, and conducted by Ramboll and Öko Institut.

CONEBI would like to comment on statements given regarding the legal interpretation and status of the mandatory use of connectors specified in IEC TS 62196-4 and communication protocol specified in IEC TS 61851-3 series.

Excerpt from the above study, page 15:
"A first standard (EnergyBus) for public charging stations was launched in 2011 and the communication protocol has been adopted in IEC TS 62196-4 II and IEC TS 61851-3-(4/5/6/7). The standard is taking steps towards wider deployment in several cities but has so far seen limited uptake in the consumer market and didn't have buy-in from the majority of the EPAC market at launch. ***There is a legal interpretation that after a transition period of two years for adoptions in EN 15194:2017-A1:2023, from September 2025 on, the connectors specified in IEC TS 62196-4 I and II would be mandatory via harmonisation of EN 15194 in the Machinery Regulation.*** *"*

In addition, that statement is made in 3.1.7 (page 69), 3.3.2 (page 80), 4.2.1.3 (page 110), 4.2.1.5 A) (page 112), 4.2.2.3 A) (page 122) and 7.1 (page 159).

It is important to highlight that the issue of the relation between EN 15194:2017-A1:2023, EN 50604-1:2016 /A1:2021, IEC TS 62196-4 and IEC TC 61851-3 series has also been dealt with in the European standardization committee responsible for electric bicycles (CEN/TC 333/WG 5 "Electric power assisted cycles") during the meeting on 24 June 2024. The topic was discussed and then distributed as official document N 309 as well as in the meeting minutes N 310.
It agrees with the interpretation of CONEBI which is given in the following pages of this document.

CONEBI statement

Standards are generally not legally binding but are often used to determine if a manufacturer has fulfilled its duty of care. It is rightly stated that the European standard EN 15194:2017+A1:2023 for Electrically power assisted cycles (EPAC) is listed as a harmonised standard under the Machinery Directive and will most likely also be referenced for the incoming Machineries Regulation.
EN 15194:2017+A1:2023 defines safety requirements for EPAC batteries by requiring compliance with EN 50604-1:2016 and EN 50604-1:2016 /A1:2021 While it is true that the EN 15194:2017 references the EN 50604-1 which then lists the mentioned IEC TS, it is incorrect that this establishes a legal requirement for the connector and communication protocol.
The first thing to consider is that technical specifications (TS) are different from European Standards (EN), in so far as they are not standards but are only a normative document, often due to the fact that there was not enough agreement for a European Standard (EN).
Furthermore, EN 50604-1 is not harmonised. In addition, the reference in EN 15194:2017 to EN 50604-1 is only important in the context of the harmonisation with the Machinery Directive in relation to the therein listed health and safety requirements pertaining to the EPAC (fire, explosion and emission of hazardous materials and substance).
Therefore, the **reference** in EN 15194:2017+A1:2023 **to EN 50604-1:2016+A1:2021 refers only to battery safety**, but not to the charging communication, adapter or charging infrastructure. **As a result, the IEC TS 61851-3-x and IEC TS 62196-4 series are not legally binding**.

Detailed clarification

- The requirements for the interoperable solution defined in the series IEC TS 61851-3-x and IEC TS 62196-4 only apply **if** the interoperable solution CANopen is used.
- It is also **possible to use other interoperable solutions** that do not use CANopen and are not in compliance with IEC TS 61851-3-x and IEC TS 62196-4.
- EN 50604-1 is not harmonised, only EN 15194 is harmonised under the Machinery Directive. The directive under which a standard is listed defines the essential health and safety requirements for which the standard provides the technical requirements. For section 4.2.3 (which has been amended by A1) these are 'fire', 'explosion', 'emission of hazardous materials and substances' and 'batteries'. Therefore, the reference from EN 15194:2017+A1:2023 to EN 50604-1:2016+A1:2021 refers to battery safety, but not to charging communication, adapters or charging infrastructure.
- When an adapter is used (such as a Charge2Bike EPAC connection box), the EPAC has a manufacturer-specific solution and is not affected by the requirements for interoperable solutions with CANopen, meaning IEC TS 61851-3-x does not apply.
- A manufacturer-specific solution is compliant and even listed as the first option in EN 50604-1:2016+A1:2021 for the BMS and the mounted removable battery system.

Please find below the extended explanation on the legal significance of standards and harmonised standards, particularly in the context of electrically assisted bicycles (EPACs) and their batteries and chargers.

Legal significance of standards in general

A standard is an agreed way of doing something in a consistent and repeatable way. Standards set minimum requirements in terms of safety, reliability, efficiency and trust. Unlike laws, standards are generally not legally binding. Their application is voluntary or only becomes binding when stipulated in laws or contracts. However, they are recognised rules of technology and are often used to decide whether a manufacturer has fulfilled its duty of care.

Legal significance of harmonised standards

The European Commission states the following:

"A harmonised standard is a European standard developed by a recognised European Standards Organisation: CEN, CENELEC, or ETSI. It is created following a request from the European Commission to one of these organisations. Manufacturers, other economic operators, or conformity assessment bodies can use harmonised standards to demonstrate that products, services, or processes comply with relevant EU legislation. The references of harmonised standards must be published in the Official Journal of the European Union (OJEU). The use of these standards remains voluntary. […] Manufacturers, other economic operators, or conformity assessment bodies are free to choose another technical solution to demonstrate compliance with the mandatory legal requirements." Another very detailed analysis of the legal significance of harmonized standards comes to the conclusion "the essential requirements of harmonisation legislation are specified by harmonised standards of the private standardisation organisations, the application of which is voluntary"'.

Despite their 'voluntary nature', we consider compliance with standards to be very important. In particular, the presumption of conformity of harmonised standards in Europe and the fact that standards are frequently used in contracts demonstrate the great importance of standards. We therefore describe the context and applicability in more detail below.

Interaction of different standards and impact of amendment A1 to DIN EN 15194

EPACs fall within the scope of the Machinery Directive (2006/42/EC). The European standard EN 15194 for electrically assisted bicycles (EPACs) is listed as a harmonised standard under this directive. Due to a formal objection, the listing in the Official Journal of the European Union (OJEU) contained restrictions regarding batteries and vibrations. With amendment A1 to EN 15194, which was published in 2023, the restriction for batteries could be lifted with the new listing from May 2024. For the new EN 15194:2017+A1:2023, the presumption of conformity began on 15 May 2024, for EN 15194:2017 (including restrictions) it ends on 15 May 2026. The transition period for EN 15194:2017 without A1 ends in August 2025. EN 15194:2017+A1:2023 defines safety requirements for EPAC batteries by requiring compliance with EN 50604-1:2016 and EN 50604-1:2016 /A1:2021.

Requirements for charging EPAC batteries in connection with EN 15194 and EN 50604-1

The requirements for EPAC batteries are specified in section 4.2.3 of EN 15194 Amendment A1.

Unlike the old version of EN 15194 from 2017, no specific requirements are defined in this section. It now refers exclusively to EN 50604-1:2016 and EN 50604-1:2016/A1:2021. In addition, there is no longer a reference to EN 62133.
For section 4.2.3 (which has been amended by A1) the essential health and safety requirements - for which the standard provides the technical requirements - are 'fire', 'explosion', 'emission of hazardous materials and substances' and 'batteries'. Therefore, the reference from EN 15194:2017+A1:2023 to

EN 50604-1:2016+A1:2021 refers to battery safety, but not to charging communication, adapters or charging infrastructure.

Contents of EN 50604-1

EN 50604-1:2016/A1:2021 specifies the requirements for various subsystems in Table 1.

For the battery management system (BMS), the manufacturer can choose between the following solutions in accordance with EN 50604-1:2016/A1:2021:

- Manufacturer-specific solution
- Interoperable solution with CANopen communication
- Interoperable solution using another, equally suitable communication solution

If the manufacturer uses a **manufacturer-specific solution** for the BMS that fulfils the requirements for connectors and compatibility, it is compliant with EN 50604-1:2016 + A1:2021.

If an interoperable solution is used for the BMS, there are two options:
If the **communication** is based on **CANopen**, a compatibility test must be carried out in accordance with IEC/TS 61851-3-4 (section 8.2.3.4).
However, it is also possible to use an interoperable solution with equally suitable communication that is not based on CANopen.

There are also several options for the mounted removable battery system:

- Manufacturer-specific solution
- Interoperable solution using CANopen
- Interoperable solution using a different communication solution (not further specified in EN 50604-1:2016/A1:2021)

For the first two there are requirements specified in EN 50604-1:2016/A1:2021. The third option is not further defined in the standard.

Binding nature of the IEC TS 61851-3-x and IEC TS 62196-4 series

The IEC TS 61851-3-x and IEC TS 62196-4 series are international documents but are not legally binding. Furthermore, they do not have the status of an international standard, but only that of a technical specification.

A technical specification is normative in nature and is drawn up by consensus. It therefore approximates an international standard in terms of detail and completeness, but has not yet passed through all approval stages, either because no consensus has been reached or because standardisation is considered premature.

Sources

Directive 2006/42/EC on Machinery – summary list as pdf document
https://ec.europa.eu/docsroom/documents/55576

The legal significance of standards
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