Från: Registrator Elsäkerhetsverket <Registrator@Elsakerhetsverket.se>
Till: MailImport-EV <MailImport-EV@Elsakerhetsverket.se>
Ämne: VB: 22EV1261 Rectification plan for installed base of Easee Home andCharge in Sweden
Skickat: 2023-06-15 07:23:04

Från: Ola Njå Bertelsen <Ola.Bertelsen@easee.com>
Skickat: den 14 juni 2023 19:33
Till: Per Samuelsson <Per.Samuelsson@Elsakerhetsverket.se>; Registrator Elsäkerhetsverket <Registrator@Elsakerhetsverket.se>
Kopia: Frode Andre Sunde Hansen <frodeandresunde.hansen@easee.com>
Ämne: 22EV1261 Rectification plan for installed base of Easee Home and Charge in Sweden

Dear team in Elsäkerhetsverket,

Reference is made to your decision on sales bans, risk elimination requirements, dealer withdrawals and payment obligations dated 14th of March 2023.

Please find attached our rectification plan.

We are looking forward to hearing your thoughts on the proposed plan.

Please do not hesitate to contact us should you have any questions related to our rectification plan and the follow-up of Easee's obligations related to the decision made by Elsäkerhetsverket.

We kindly request that the rectification plan and the attachment are kept strictly confidential due to the nature of the documents (trade secrets) and that these documents are not made publically available.

Ola Njå Bertelsen
Chief Product Officer

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[redacted]

[redacted]

To Mr Ola Njå Bertelsen
Easee ASA
Grenseveien 19
4313 Sandnes
Norway

Your reference/letter of	Our reference/name	Tel. extension/Email	Fax extension	Date	Page
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Statement regarding assumption of conformity to the LVD

Dear Mr. Bertelsen,

as requested by your mail from Monday 12th of June, on the following pages you'll find our statement regarding the assumption of conformity to the LVD of Easee's Wallbox.

Kind regards,

[redacted]

[redacted]

[redacted]

Statement on Easee's declaration of conformity to the Low Voltage Directive

Introduction of companies
Easee ASA is a manufacturer of electric vehicle supply equipment for electric vehicles.

[redacted] is performing product testing and certification and a 100 percent daughter company of [redacted] is one of world's leading companies in the testing, inspection and certification business.

Initial situation
[redacted] was asked by Easee to put the EU declaration of conformity of Easee's wallboxes in the context of "assumption of conformity to the Low Voltage Directive". Prior to that, [redacted] already tested the Easee Wallbox in regard of fulfilling the requirements of standard EN IEC 61851-1:2019, which is listed in the official journal of the EU as harmonized standard for the Low Voltage Directive.

Explanations regarding EU declaration of conformity
An EU declaration of conformity is a legally binding declaration of the responsible manufacturer or his representative (if the manufacturer is located outside the EU) stating that the product offered to the market fulfils the safety goals of the relevant directives and regulations of the European Union.
As an example, the general safety goal of the low voltage directive is protection of electrical hazards while EMC directive has the goal of ensuring safe coexistence of products within their electromagnetic environment.
Fulfilment of these safety goals can be assumed when a product fulfils the requirements stated in its relevant product standard, if the standard was published as a harmonized standard for the relevant regulation or directive in the official journal of the EU.
In addition, there are other ways of proving fulfilment the safety goals, dependent on the directive or regulation. As an example, Annex III of Low Voltage Directive allows for not using the harmonized standard as long as description is given on how the safety goals are fulfilled. For example, other technical specifications as well as national or international standards can be used.

The latter way of declaring conformity to one of the regulations is usually used if the harmonized product standard is incomplete, self-contradictory or hindering innovation. Another possibility is that the product does not have a corresponding product standard yet.
Furthermore, it is also used when harmonized standards are rather old and technically outdated.

Description of the approach of Easees EU declaration of conformity
As described above, the course of action taken by Easee - providing a hazard and risk analysis, deviating from the product standard to a certain extend and describing the equivalence of the own solution in respect of the requirements of the low voltage directive - is a common approach.
Additionally, Easee assigned external companies for cross-checking their documentation and analysis of their approach. the results of these checks back the opinion of the manufacturer.

Background for not being able to fulfil all requirements of the harmonized standard EN IEC 61851-1:2019 are misleading and innovation hindering statements in chapter 8.5 "Residual current protective devices".

[redacted]

The misleading statement is given in NOTE 2. This note reads: "NOTE 2 An example of appropriate equipment that ensures the disconnection of the supply in case of DC fault is expected in the future IEC 62955." This note is often taken as a requirement for an RDC to be completely compliant to IEC 62955, but this is not the case. As it says, it's only an example, mentioned in a normative irrelevant note.
The statement which is hindering innovation is one of the requirements regarding the RCD. It reads: "RCDs shall comply with one of the following standards: IEC 61008-1, IEC 61009-1, IEC 60947-2 and IEC 62423".
This requirement limits the possibilities of use of solutions which are tailored specifically to the use-case EV supply equipment incorporating a Type 2 charging connection and a well-known load to be connected (the EV), in favour of equipment which is used in installation for all types of purposes.
Because of these two items, manufacturers of Mode 3 charging equipment (AC-Wallboxes and charging stations) choose to not stick to the standard completely while performing a risk and hazard analysis as well as developing own solutions to fulfil the safety goal of the LVD.

Explanation of the deviation of Easee's solution

[redacted]

[redacted]

[redacted].

Summary

Examination of the hazard and risk analysis shows no increased danger of electric shock for a single fault. A dormant failure in the RCD switching element is detected faster than on an DIN-rail mounted RCD installed in the installation. Fulfilment of the safety goal in respect of the Low Voltage Directive is given.

Kind regards,

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

Easee ASA
Grenseveien 19
4313 Sandnes
NORWAY

To: Elsäkerhetsverket (ESV)
From: Ola Njå Bertelsen, Easee ASA
Date: 14.06.2023
Reference: 22EV1261
Subject: Rectification plan for installed base of Easee Home and Charge in Sweden

Introduction:

This letter presents an initial remediation plan for the installed products, Easee Home and Charge, in Sweden. As outlined in ESV's Decision of 14.03.2023, which emphasizes the necessity of rectifying installed equipment to mitigate identified risks, Easee acknowledges and fully embraces the objective of eliminating any potential threats to public health and safety arising from the deficiencies identified by ESV.

Deficiencies identified by ESV

Point	Deficiency	Status
1	The instruction manual states that the equipment has an RCD (Residual current device) built in that fulfils the requirements of EN 61008-1 and IEC 62955. However, the equipment is not equipped with an RCD (30 mA AC/6 mA DC) according to EN 61008-1 and IEC 62955, as mentioned in the manual. The installation guide does not indicate whether the equipment should be preceded by an RCD when connected to the mains.	[redacted]
2	The following markings are missing from the equipment: a. Date of manufacture b. Standard IEC 61439-7	[redacted]
3	Some of the markings are placed behind a cover so that they are not legible when the equipment is in use.	[redacted]
4	The EU declaration of the equipment contains several directives that do not apply simultaneously. The Radio Equipment Directive (RED) contains requirements for electrical safety and electromagnetic compatibility and applies instead of the Low Voltage Directive (LVD) and the Electromagnetic Compatibility Directive (EMCD) for radio equipment. An equipment is covered by RED or LVD/EMCD, never under all the directives at the same time.	[redacted]
5	The EU declaration of conformity of the equipment or a simplified EU declaration of conformity is missing from the instructions for use. A simplified EU declaration of conformity shall contain the web address where the full text of the EU declaration of conformity can be obtained, Chapter 3. SECTION 9 PTSFS 2016:5.	[redacted]
6	The test reports submitted by Easee AS show deficiencies against the standards listed in the EU Declaration. If only parts of a harmonised standard are applied, the manufacturer must document how the remaining requirements are met and risks are addressed, and refer	[redacted]

	to that documentation in the EU declaration. No alternative risk assessment is referenced in the EU declaration.	
7	The equipment does not have a residual current device (RCD) type A according to EN 61008-1 and there is no information in the accompanying documentation that this should precede the equipment during installation.	[redacted]
8	The equipment does not fulfil the requirement for DC protection for fault currents above 6 mA according to IEC 62955.	[redacted]
9	The equipment does not pass the overvoltage test up to 7000 V against PELV (LLLN->CP).	[redacted]
10	The equipment has labelling deficiencies.	[redacted]
11	The equipment does not meet the requirements of IP5X.	[redacted]

Deficiencies pertaining to Residual-current Device (RCCB and RDC-DD)

Points 1, 7, and 8 relate to the built-in RCD. The risk posed to the public arise from whether the RCD in the installed base of Easee Home and Charge functions as well as, or better than, the standards. [redacted] The accredited test laboratories found that the built-in RCD solution is safe and provides safety that is in fulfillment of the safety goals of the Low Voltage Directive.

[redacted] Statement regarding assumption of conformity to the Low Voltage Directive page 4:

Summary
Examination of the hazard and risk analysis shows no increased danger of electric shock for a single fault. A dormant failure in the RCD switching element is detected faster than on an DIN-rail mounted RCD installed in the installation. Fulfilment of the safety goal in respect of the Low Voltage Directive is given.

Kind regards,

[redacted]

Statement from the accredited test [redacted]:

[redacted]	[redacted]

Statement in [redacted]

	[redacted]	[redacted]	[redacted]
	[redacted]	[redacted]	[redacted]
	[redacted]		

[redacted]

The following risk assessment addresses the missing test sequences mentioned by [redacted]. As the Easee Home and Charge test the RCD every day and for every charge session, this will mitigate any risk that ageing and reliability in different climatic conditions pose for the RCD function. If errors are identified, the charger will be brought to a safe state and be permanently locked from further use.

Please refer to "Table 1: Risk assessment of the RCD and failure modes related to reliability and ageing of sub-components" at the end of the document.

[redacted]

[redacted]

[redacted]

[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]
[redacted]		[redacted]

Therefore, based on Easee's assessment, the identified deficiencies and where presumption of conformity where not applicable relating to the RCD safety function have been rectified, ensuring that the installed chargers meet the necessary safety requirements outlined in the applicable standards as required from the essential requirements in the LVD. Consequently, no further corrective actions are required for the installed chargers.

Deficiencies in Declaration of Conformity (DoC)

Points 4 and 5 highlight formal errors or deficiencies in the DoC. This was fixed after ESV pointed it out. Easee is working with external experts from [redacted] to assess what changes must be done to the DoC of Easee Home and Charge, and ensure these problems are not repeated for future products placed on the market.

Deficiencies in labelling and markings

Points 2, 3, and 10 highlight insufficient or incorrect labels and markings. The main problems with the labelling pointed to by ESV relate to standards and information, e.g., rated ambient temperature range, which in themselves have value, but not necessarily for the user or electrician to safely attend the charger.

There is a risk from lacking labels that a charger is installed in Swedish places hotter than 50 degrees Celsius or colder than -30 degrees Celsius. [redacted]

[redacted]

Having said that, Easee in recognition of the highlighted risks, has updated manuals and markings, and will make available both information and labels to owners of already installed base of Home and Charge.

The equipment does not pass the overvoltage test up to 7000 V against PELV (LLLN->CP)

Point 9 has been addressed in the updated test report for EN IEC 61851-1 issued by [redacted] This test clause 12.7 is now passed.

Deficiencies in statements of IP class

Point 11 was based in a misunderstanding between Easee and ESV and is recognized by both parties to no longer be an issue.

Initial timeline

Phase 1
- Rectifying lacking documentation by performing planned testing.
- Expected completion 30 September 2023

Phase 2
- Make new stickers and labels available to owners of Easee Home and Charge
- Expected completion 6 months after Phase 1 is completed

Conclusion

Easee acknowledges and appreciates the points raised by ESV, as they align with the objectives of market surveillance activities. These findings have highlighted certain deficiencies in the documentation pertaining to Easee Home and Charge products. However, it is important to emphasize that the existing installed base of chargers does not present any risks to public health and safety, as demonstrated in this correspondence.

Easee is fully committed to ensuring public safety and welcomes a constructive dialogue with Elsäkerhetsverket. By engaging in open communication and collaboration, both parties can work towards the common goal of enhancing safety standards and addressing any identified gaps or concerns.

Furthermore, it is acknowledged that Easee did not fully adhere to the requisite requirements concerning technical documentation during the product's market release. This underscores the need for stringent compliance with regulatory guidelines and standards to ensure the safety and reliability of Easee's offerings. By rectifying these shortcomings and actively cooperating with regulatory authorities, Easee is committed to upholding the highest standards of technical documentation and regulatory compliance in order to safeguard public safety.

Ola Njå Bertelsen
Chief Product Officer
Easee ASA

Stavanger, Norway 14 June 2023

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Table 1: [redacted].

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References

1. [redacted] Statement on Easee's declaration of conformity to the Low Voltage Directive.
2. [redacted] rapport EN61008-1 test report.
3. [redacted] EN IEC 61851-1 test report.

The technical file is also available on request.