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Test of Safeclip regarding electrical resistance

1 Client

Safeclip Sweden AB, Umeå, Sweden

2 Test objects

Shoes with type designation "Cros"



Device with type designation "Safeclip" mounted on the shoe.



One pair of shoes (yellow) and one pair of shoes (black) arrived at SP 2007-11-15.
Two "Safeclip" arrived at SP 2007-11-15.

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3 Commission

Tests according to IEC 61340-4-3 first edition 2001(SP-method 2472, rev 2 with appendix 5, issue 3).

Requirements according to IEC 61340-5-1 edition 1.0

The tests shall be performed with the shoes in its basic design.

The tests shall also be performed with the safeclip mounted on the shoes.

4 Performance and result

The measurements were performed 2007-12-11 by Ingvar Karlson according to IEC 61340-4-3, first edition 2001 (SP-method 2472, rev 2 with appendix 5, issue 3).

Environmental class 1 according to IEC 61340-4-3

All test objects were preconditioned 100 h in 40 °C ±2 °C and 12 % RH ±3 % RH.

All test objects were conditioned 100 h in 23 °C ±2 °C and 12 % RH ±3 % RH.

Measurements were performed in 23 °C ±2 °C and 12 % RH ±3 % RH.

4.1 Resistance measurements

Each shoe was placed on a metal plate. A conductive electrode was placed on the inside surface of the shoe. A bag of metal shots was placed on the shoe (loading force 125 N). Resistance measurement was performed from the metal plate to the conductive electrode. Maximum voltage: 100 V DC.

Instrument: SP inv. No. 501419 (instrument uncertainty < 1 %).

The resistance values were registered 15 s after initiation of voltage.

Two shoes were tested in its basic design.

Two shoes were tested with the safeclip mounted on the shoes.

Result, shoe in its basic design

All measured resistance values were higher than $10^{12} \Omega$.

The requirement of resistance between $10^5 \Omega$ and $10^8 \Omega$ for individual shoe was not fulfilled.

Result, safeclip mounted on the shoe.

Minimum measured resistance value: $1.8 \times 10^7 \Omega$

Maximum measured resistance value: $2.3 \times 10^7 \Omega$

Average of measured resistance values: $2.0 \times 10^7 \Omega$

The requirement of resistance between $10^5 \Omega$ and $10^8 \Omega$ for individual shoe was fulfilled.

5 Summary of results

With the safeclip mounted on the shoe, the requirement of resistance between $10^5 \Omega$ and $10^8 \Omega$ was fulfilled.

The shoe in its basic design did not fulfil the requirement of resistance between $10^5 \Omega$ and $10^8 \Omega$.

The test results apply to the tested objects only.

SP Sveriges Tekniska Forskningsinstitut
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