SLOVENSKI STANDARD
SIST EN 2591-214:2014

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Nadomešča:
SIST EN 2591-214:2006

Aeronavtika - Elementi električnih in optičnih povezav - Preskusne metode - 214. del: Udar strele ter tokovni in napetostni udar

Aerospace series - Elements of electrical and optical connection - Test methods - Part 214: Lightning strike, current and voltage pulse

Luft- und Raumfahrt - Elektrische und optische Verbindungselemente - Prüverfahren - Teil 214: Blitzschlag, Strom- und Spannungsimpuls

Série aérospatiale - Organes de connexion électrique et optique - Méthodes d'essais - Partie 214 : Tenue à la foudre, impulsion de tension et de courant

Ta slovenski standard je istoveten z: **EN 2591-214:2012**

ICS:

49.060	Letalska in vesoljska električna oprema in sistemi	Aerospace electric equipment and systems

SIST EN 2591-214:2014 **en**

EUROPEAN STANDARD

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English Version

Aerospace series - Elements of electrical and optical connection - Test methods - Part 214: Lightning strike, current and voltage pulse

Série aérospatiale - Organes de connexion électrique et optique - Méthodes d'essais - Partie 214: Tenue à la foudre, impulsion de tension et de courant

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This European Standard was approved by CEN on 25 February 2012.

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This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the CEN-CENELEC Management Centre has the same status as the official versions.

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EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

Management Centre: Avenue Marnix 17, B-1000 Brussels

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Foreword

This document (EN 2591-214:2012) has been prepared by the Aerospace and Defence Industries Association of Europe - Standardization (ASD-STAN).

After enquiries and votes carried out in accordance with the rules of this Association, this Standard has received the approval of the National Associations and the Official Services of the member countries of ASD, prior to its presentation to CEN.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by April 2013, and conflicting national standards shall be withdrawn at the latest by April 2013.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN [and/or CENELEC] shall not be held responsible for identifying any or all such patent rights.

This document supersedes EN 2591-214:2005.

According to the CEN/CENELEC Internal Regulations, the national standards organisations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

1 Scope

This European Standard specifies a method of measuring the ability of an element of connection to withstand specified severities of simulated lightning strikes, both current pulse and voltage pulse.

It shall be used together with EN 2591-100.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 2591-100, *Aerospace series — Elements of electrical and optical connection — Test methods — Part 100: General*

EN 2591-101, *Aerospace series — Elements of electrical and optical connection — Test methods — Part 101: Visual examination*

EN 2591-205, *Aerospace series — Elements of electrical and optical connection — Test methods — Part 205: Housing (shell) electrical continuity*

EN 2591-206, *Aerospace series — Elements of electrical and optical connection — Test methods — Part 206: Measurement of insulation resistance*

EN 2591-408, *Aerospace series — Elements of electrical and optical connection — Test methods — Part 408: Mating and unmating forces*

3 Preparation of specimens

3.1 High current pulse test

Connectors shall be unwired, mated and fitted with their accessories. They shall be mounted as detailed in Figure 3. It is recommended that the accessory be fitted with the largest diameter braid allowable.

3.2 Voltage pulse test

Connectors shall be wired, mated and fitted with their accessories, they shall be tested as detailed in Figure 6.

Unless indicated in the technical specification, the following details shall be specified in the product standard:

— Mounting and wiring of the specimen, if different.

— Peak voltage for voltage pulse (V), if different.

— Peak current for current pulse (I), if different.

— Pre-conditioning.

— Final requirements.

— Number size and type of specimens.

4 Apparatus

A power generator capable of producing the current and/or the voltage as specified in the technical specification and characteristics of Figures 1 and 3 or Figures 2 and 5 depending on severity or product standard.

A measuring device shall be provided for the test to record current and voltage (see Figures 3 and 6 for set up).

5 Method

5.1 Pre-conditioning

The specimen shall be subjected to following tests, unless otherwise specified by the technical specification.

EN 2591-101 Visual examination

EN 2591-205 Housing (shell) electrical continuity

EN 2591-408 Mating and unmating forces

Therefore the mating forces shall be made at specified value in the product standard.

Resistance between receptacle and mounting plate shall be as low as possible and recorded before test.

5.2 Procedure

5.2.1 Current pulse

The current pulse amplitude shall be, as specified in the product standard, according to the following class:

A = 1 KA Waveform as Figure 1

B = 3 KA Waveform as Figure 2

C = 5 KA Waveform as Figure 2

D = 10 KA Waveform as Figure 2

E = 30 KA Waveform as Figure 1

F = 15 KA Waveform as Figure 1

Ten pulses are made on the same sample without any removing or unmating.

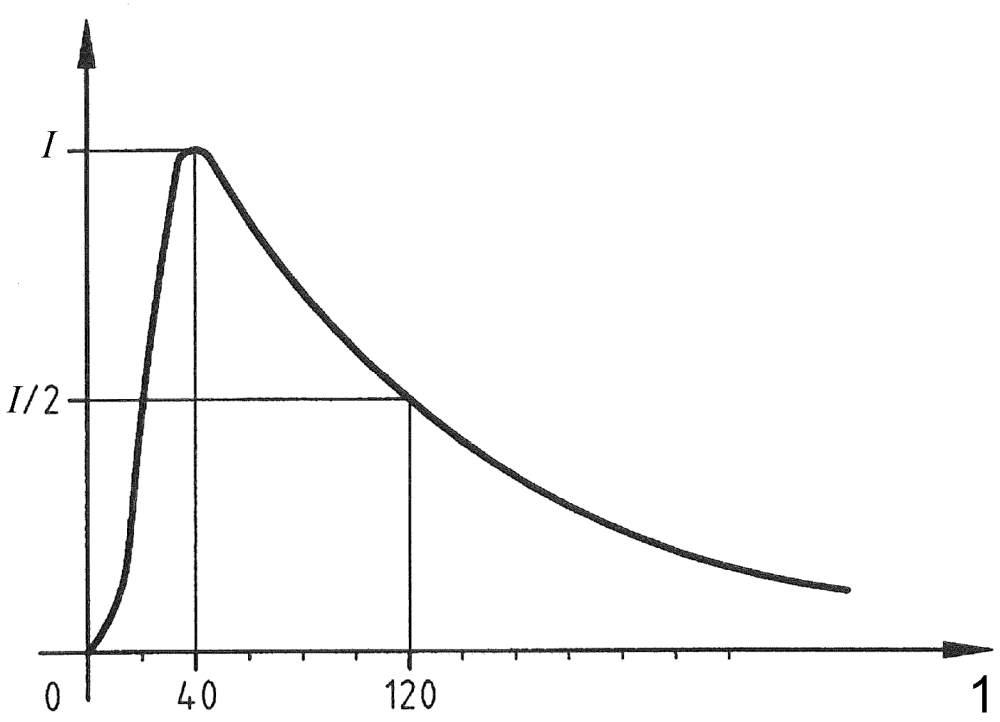
Minimum time between each pulse is 1 min.

Final measurements.

EN 2591-101 Visual examination

EN 2591-205 Housing (shell) electrical continuity, as specified in product standard

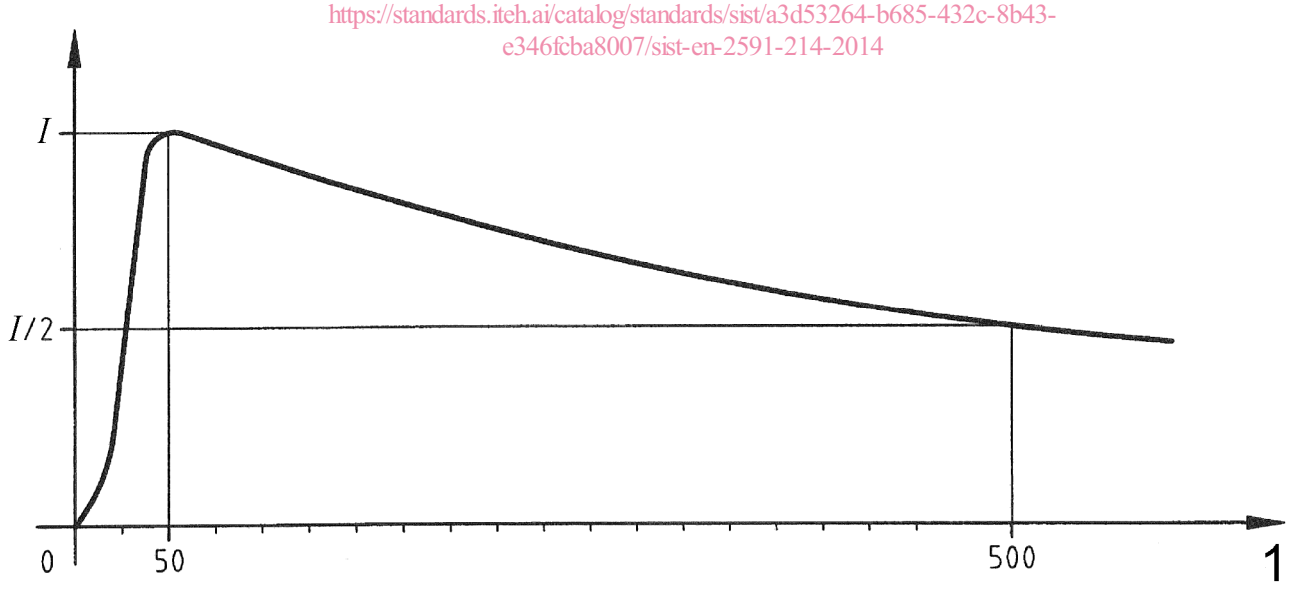
EN 2591-408 Mating and unmating forces, as specified in product standard



Key

1 Times (μs)

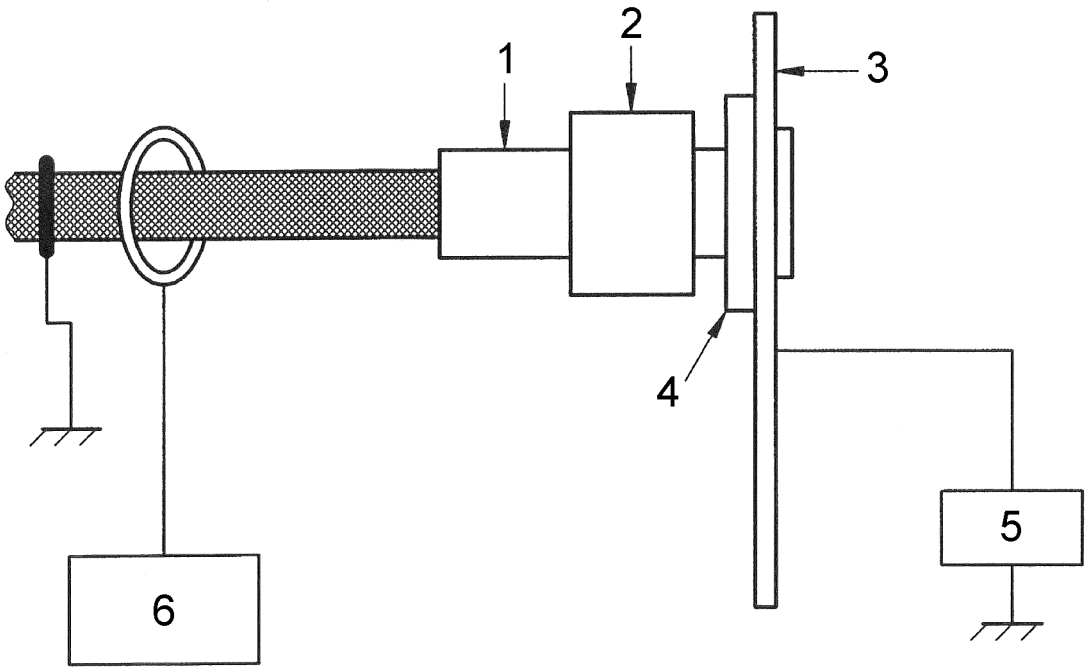
Figure 1 — Typical lightning current pulse form (waveform 1)



Key

1 Times (μs)

Figure 2 — Typical lightning current pulse form (waveform 2)



Key

1 Accessory
2 Plug
3 Mounting - Plate
4 Wall mounted receptacle
5 Power generator
6 Current measurement probe

Figure 3 — Typical arrangement for free plug/wall mount receptacle

5.2.2 Voltage pulse

The test shall be performed on contacts and between contacts and shell for both mated and unmated connectors. It is not necessary to test every combination which this could produce. For contact to contact test, only two adjacent contacts that are closest together shall be tested. If there is no difference in the contact spacing, any selection is acceptable.

The voltage signal amplitude shall be, as specified in the product standard, according to the following class:

A = 800 V Waveform as Figure 4

B = 1 600 V Waveform as Figure 4

C = 2 000 V Waveform as Figure 5

D = 3 200 V Waveform as Figure 4

Ten pulses are made on the same sample, no mating is permissible when connectors are tested in the mated conditions, without any removing or unmating.

Minimum time between each pulse is 1 min.