



SLOVENSKI STANDARD

SIST EN 2591-214:2006

01-julij-2006

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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 - Prüfverfahren - Teil 214: Blitzschlag, Strom- und Spannungsimpuls

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

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Ta slovenski standard je istoveten z: EN 2591-214:2005

ICS:

49.060

SIST EN 2591-214:2006

en

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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

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

This European Standard was approved by CEN on 19 September 2005.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Central Secretariat or to any CEN member.

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 Central Secretariat has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.

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

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Foreword

This European Standard (EN 2591-214:2005) has been prepared by the European Association of Aerospace Manufacturers - Standardization (AECMA-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 AECMA, 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 2006, and conflicting national standards shall be withdrawn at the latest by April 2006.

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.

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

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1 Scope

This 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 referenced documents are indispensable for the application of this document. 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.*

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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 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

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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

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

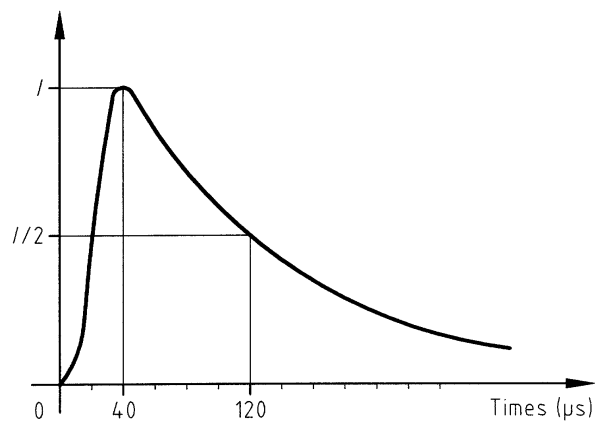


Figure 1 — Typical lightning current pulse form (waveform 1)

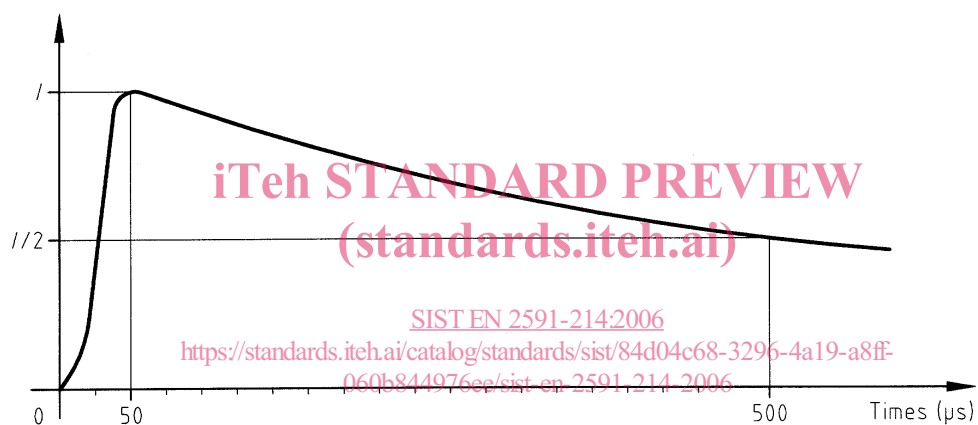
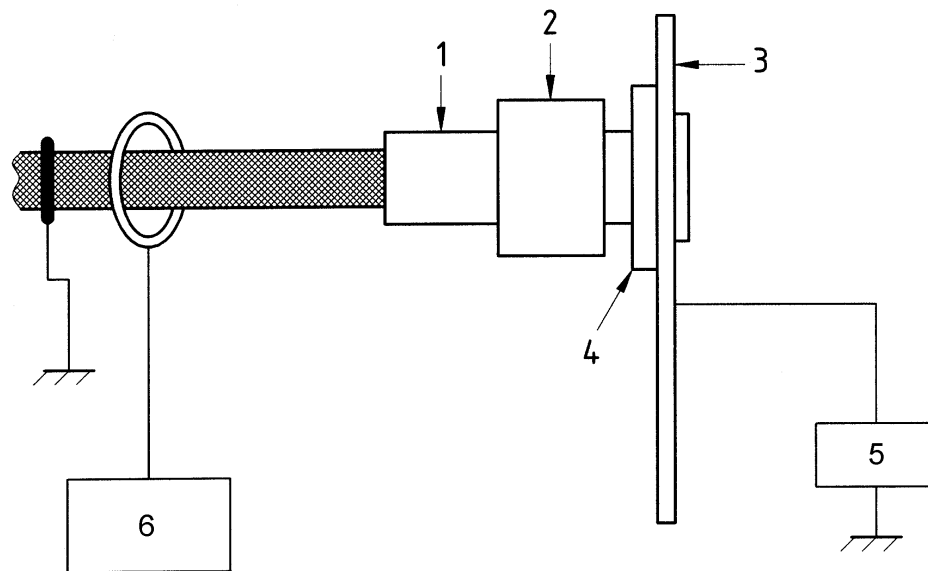


Figure 2 — Typical lightning current pulse form (waveform 2)



Key

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

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

5.2.2 Voltage pulse

The test shall be performed 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.