



# SLOVENSKI STANDARD SIST EN 60952-1:1997

01-februar-1997

## Aircraft batteries - Part 1: General test requirements and performance levels

Aircraft batteries -- Part 1: General test requirements and performance levels

Flugzeug-Batterien -- Teil 1: Allgemeine Prüfverfahren und Leistungsmerkmale

Batteries d'aéronefs -- Partie 1: Procédures générales d'essais et niveaux de performances

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Ta slovenski standard je istoveten z: EN 60952-1:1993

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### ICS:

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UDC 621.355:629.7:620.1

Descriptors: Aircraft batteries, test conditions, electrical tests, qualification

## ENGLISH VERSION

Aircraft batteries  
Part 1: General test requirements and performance levels  
(IEC 952-1:1988)

Batteries d'aéronefs  
Première partie: Procédures générales d'essais et niveaux de performances  
(CEI 952-1:1988)

Flugzeug-Batterien  
Teil 1: Allgemeine Prüfverfahren und Leistungsmerkmale  
(IEC 952-1:1988)

## iTeh STANDARD PREVIEW

This European Standard was approved by CENELEC on 1993-07-06. CENELEC 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 CENELEC 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 CENELEC member into its own language and notified to the Central Secretariat has the same status as the official versions.

CENELEC members are the national electrotechnical committees of Austria, Belgium, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

## CENELEC

European Committee for Electrotechnical Standardization  
Comité Européen de Normalisation Electrotechnique  
Europäisches Komitee für Elektrotechnische Normung

Central Secretariat: rue de Stassart 35, B-1050 Brussels

FOREWORD

At the request of the CENELEC Technical Committee TC 21X, Secondary cells and batteries, the International Standard IEC 952-1:1988 was submitted to the CENELEC Unique Acceptance Procedure (UAP) in April 1992 for acceptance as a European Standard.

The text of the International Standard was approved by CENELEC as EN 60952-1 on 6 July 1993.

The following dates were fixed:

- latest date of publication of an identical national standard (dop) 1993-12-01
- latest date of withdrawal of conflicting national standards (dow) 1993-12-01

For products which have complied with the relevant national standard before 1993-12-01, as shown by the manufacturer or by a certification body, this previous standard may continue to apply for production until 1998-12-01.

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Annexes designated "normative" are part of the body of the standard. In this standard, annex ZA is normative.

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ENDORSEMENT NOTICE

The text of the International Standard IEC 952-1:1988 was approved by CENELEC as a European Standard without any modification.

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## ANNEX ZA (normative)

OTHER INTERNATIONAL PUBLICATIONS QUOTED IN THIS STANDARD  
WITH THE REFERENCES OF THE RELEVANT EUROPEAN PUBLICATIONS

When the international publication has been modified by CENELEC common modifications, indicated by (mod), the relevant EN/HD applies.

IEC Publication	Date	Title	EN/HD	Date
51-1	1984	Direct acting indicating analogue electrical measuring instruments and their accessories - Part 1: Definitions and general requirements common to all parts	EN 60051-1	1989
51-2	1984	Part 2: Special requirements for ammeters and voltmeters	EN 60051-2	1989

## Other publication quoted:

ISO 266 1975 Acoustics - Preferred frequencies for measurements

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# NORME INTERNATIONALE INTERNATIONAL STANDARD

CEI  
IEC  
952-1

Première édition  
First edition  
1988



Commission Electrotechnique Internationale

International Electrotechnical Commission

Международная Электротехническая Комиссия

## Batteries d'aéronefs

Première partie: Procédures générales d'essais et niveaux de performances

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## Aircraft batteries

Part 1: General test requirements and performance levels

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SECTION THREE — ENVIRONMENTAL REQUIREMENTS  
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## INTERNATIONAL ELECTROTECHNICAL COMMISSION

## AIRCRAFT BATTERIES

## Part 1: General test requirements and performance levels

## FOREWORD

- 1) The formal decisions or agreements of the IEC on technical matters, prepared by Technical Committees on which all the National Committees having a special interest therein are represented, express, as nearly as possible, an international consensus of opinion on the subjects dealt with.
- 2) They have the form of recommendations for international use and they are accepted by the National Committees in that sense.
- 3) In order to promote international unification, the IEC expresses the wish that all National Committees should adopt the text of the IEC recommendation for their national rules in so far as national conditions will permit. Any divergence between the IEC recommendation and the corresponding national rules should, as far as possible, be clearly indicated in the latter.

## PREFACE

This standard has been prepared by IEC Technical Committee No. 21: Secondary Cells and Batteries.

The text of this standard is based on the following documents:

Six Months' Rule	Report on Voting
21(CO)295	21(CO)303

Full information on the voting for the approval of this standard can be found in the Voting Report indicated in the above table.

The standard is in two parts: Part I covers general test requirements and minimum performance levels and Part II (in preparation) will cover design and construction requirements.

It is recognized that additional data may be required by other organisations (national standards bodies, AECMA, etc.), and the present standard can be used as a framework to devise tests for generation of the required data.

*The following IEC publications are quoted in this standard:*

- Publications Nos. 51-1 (1984): Direct acting indicating analogue electrical measuring instruments and their accessories.  
 Part 1: Definitions and general requirements common to all parts.  
 51-2 (1984): Part 2: Special requirements for ammeters and voltmeters.

*Other publication quoted:*

ISO 266-1975: Acoustics — Preferred frequencies for measurements.

## AIRCRAFT BATTERIES

## Part 1: General test requirements and performance levels

## SECTION ONE — GENERAL

## 1. Scope

This standard, published in two parts, covers both vented nickel-cadmium and vented lead-acid aircraft batteries containing vented or valve-regulated cells or monoblocs. The batteries are used for general purpose and dedicated applications.

## 2. Object

2.1 The object of Part 1 of this standard is to define test procedures for the evaluation, comparison and qualification of batteries and to state minimum performance levels.

2.2 Where necessary for a particular application, specific performance data may be required. Such data should be based upon the test procedures in this standard but with specific parameters modified to the desired values (see Sub-clause 2.1.2).

## 3. Definitions

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For the purpose of this standard, the following definitions apply:

3.1 *Current values*

All current values throughout this standard shall be expressed in amperes (A).

3.2  $I_1$  rate

The current specified by the manufacturer is that which the battery delivers to give its rated  $C_1$  capacity in 1 h. This shall be the basis on which all other current ratings are defined.

3.3 *Rated capacity  $C_1$* 

The capacity, expressed in Ah, shall be that stated by the manufacturer when discharged at the  $I_1$  rate down to a battery voltage corresponding to a mean voltage per cell of 1.00 V for nickel-cadmium batteries or 1.67 V for lead-acid batteries at an ambient temperature of  $23 \pm 2$  °C.

3.4 *Power rating current  $I_{PR}$* 

The discharge current which the battery delivers at the conclusion of a 15 s power discharge, controlled so as to maintain a constant terminal voltage of half the nominal voltage (1.2 V per cell for nickel-cadmium and 2.0 V per cell for lead-acid batteries).

### 3.5 *Charged battery*

A battery which has been fully charged in accordance with the battery manufacturer's instructions.

### 3.6 *Discharged battery*

A battery which has been discharged at an ambient temperature of  $23 \pm 2$  °C at the  $I_1$  rate down to a battery voltage corresponding to a mean voltage per cell of 1.00 V for nickel-cadmium or 1.67 V for lead-acid batteries.

### 3.7 *Serviced battery*

A battery which has been fully prepared and maintained in accordance with the manufacturer's instructions. These instructions shall not include replacement of any components except water.

### 3.8 *Declared value*

The value of performance certified by the battery manufacturer for a specific type of battery.

## 4. Test conditions and apparatus

### 4.1 *General test conditions*

If specific test conditions are not required for a test, the test shall be carried out under the following general test condition:

air pressure: 85 kPa to 106 kPa (850 mbar to 1 060 mbar)

If definite tolerances have not been specified, a deviation of not more than  $\pm 5\%$  from the given non-electrical values will be permitted.

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### 4.2 *Measuring apparatus*

The measuring method used for the tests shall be selected to suit the magnitude of the parameters to be measured. The apparatus shall be regularly calibrated and shall have at least the degree of accuracy given below:

#### 4.2.1 *Voltage measurement*

The instruments used for measuring voltages shall be voltmeters having an accuracy of Class 0.5 or better, as defined in IEC Publications 51-1 and 51-2. The resistance of the voltmeters shall be at least 1 000  $\Omega/V$ .

#### 4.2.2 *Current measurement*

The instruments used for current measurement shall be ammeters having an accuracy of Class 0.5 or better, as defined in IEC Publications 51-1 and 51-2. This accuracy class shall be maintained for the assembly of ammeter, shunt and leads.

#### 4.2.3 *Temperature measurement*

The instruments used for temperature measurement shall have an accuracy of  $\pm 1$  °C or better.

#### 4.2.4 *Time measurement*

The instruments used for time measurement shall be to an accuracy of 0.5% or better.