INTERNATIONAL STANDARD

IEC 60068-2-29

Second edition
1987

Basic environmental testing procedures –

Part 2:
Tests – Test Eb and guidance: Bump

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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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 Sub-Committee 50A: Shock and Vibration Tests, of IEC Technical Committee No. 50: Environmental Testing.

This second edition of IEC Publication 68-2-29 replaces the first edition issued in 1968, Amendment No. 1 (1982) and Amendment No. 2 (1983).

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

Six Months' Rule	Report on Voting
50A(CO)163 50A(CO)171	50A(CO)170 50A(CO)174

Further information can be found in the relevant Reports on Voting indicated above.

The following IEC publications are quoted in this standard:

Publications Nos. 68-1 (1982): Basic Environmental Testing Procedures, Part 1: General and Guidance.

68-2: Part 2: Tests.

68-2-27 (1986): Test Ea and Guidance: Shock.

68-2-31 (1969): Test Ec: Drop and Topple, Primarily for Equipment-type Specimens.

68-2-32 (1975): Test Ed: Free Fall .

68-2-47 (1982): Mounting of components, equipment and other articles for dynamic tests including shock (Ea), bump (Eb), vibration (Fc and Fd) and steady-state acceleration (Ga) and guidance.

68-2-XX: Test Ee and Guidance: Bounce. (In preparation.)

721-3-1: Classification of Environmental Conditions, Part 3: Classification of Groups of Environmental Parameters and Their Severities—Storage. (Under consideration.)

721-3-5 (1985): Part 3: Classification of Groups of Environmental Parameters and Their Severities—Ground Vehicle Installations.

Other publication quoted:

ISO Standard 2041 (1975): Vibration and Shock — Vocabulary.

BASIC ENVIRONMENTAL TESTING PROCEDURES

Part 2: Tests — Test Eb and guidance: Bump

INTRODUCTION

This test is applicable to components, equipments and other electrotechnical products, hereinafter referred to as "specimens", which, during transportation or in use, may be subjected to repetitive shocks. The bump test may also be used as a means of establishing the satisfactory design of a specimen in so far as its structural integrity is concerned and as a means of quality control. It consists basically of subjecting, on a bump tester, a specimen to repetitive shocks of a standard pulse shape with specified peak acceleration and duration.

Note. — The term "bump tester" is used throughout this standard but other means of applying "bumps" are not excluded.

Specification writers will find in Clause 11 a list of details to be considered for inclusion in specifications and in Appendix A the necessary guidance.

1. Scope

To provide a standard procedure for determining the ability of a specimen to withstand specified severities of bump.

2. General description

This standard is written in terms of a prescribed number of repetitive half-sine pulses with given peak acceleration and duration.

The purpose of the test is to reveal the accumulated damage or degradation caused by repetitive shocks, and to use the information, in conjunction with the relevant specification, to decide whether a specimen is acceptable or not. It may also be used, in some cases, to determine the structural integrity of specimens or as a means of quality control (see Clause A3.)

This test is primarily intended for unpackaged specimens and for items in their transport case when the latter may be considered as part of the specimen itself.

The bumps are not intended to reproduce those encountered in practice. Wherever possible, the test severity applied to the specimen should be such as to reproduce the effects of the actual transport or operational environment to which the specimen will be subjected, or to satisfy the design requirements if the object of the test is to assess structural integrity (see Clause A3).

For the purpose of this test the specimen is always fastened to the fixture or the table of the bump tester during conditioning.

In order to facilitate the use of this standard, references are given in the main part where the reader is invited to refer to Appendix A and the clause numbers in the main part are also referred to in Appendix A.

This standard is to be used in conjunction with IEC Publication 68-1: Basic Environmental Testing Procedures, Part 1: General and Guidance.