SLOVENSKI STANDARD
SIST EN 61747-1:2002

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Liquid crystal and solid-state display devices - Part 1: Generic specification (IEC 61747-1:1998)

Liquid crystal and solid-state display devices -- Part 1: Generic specification

Flüssigkristall- und Halbleiter-Anzeige-Bauelemente -- Teil 1: Fachgrundspezifikation

Dispositifs d'affichage à cristaux liquides et à semiconducteurs -- Partie 1: Spécification générique

Ta slovenski standard je istoveten z: EN 61747-1:1999

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EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 61747-1

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ICS 31.120

Supersedes EN 120000:1996

English version

Liquid crystal and solid-state display devices
Part 1: Generic specification
(IEC 61747-1:1998)

Dispositifs d'affichage à cristaux liquides et à semiconducteurs
Partie 1: Spécification générique
(CEI 61747-1:1998)

Flüssigkristall- und Halbleiter-Anzeige-Bauelemente
Teil 1: Fachgrundspezifikation
(IEC 61747-1:1998)

This European Standard was approved by CENELEC on 1999-08-01. 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, Czech Republic, 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

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Foreword

The text of the International Standard IEC 61747-1:1998, prepared by SC 47C, Flat panel display devices, of IEC TC 47, Semiconductor devices, was submitted to the Unique Acceptance Procedure and was approved by CENELEC as EN 61747-1 on 1999-08-01 without any modification.

This European Standard supersedes EN 120000:1996.

The following dates were fixed:

- latest date by which the EN has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 2000-08-01
- latest date by which the national standards conflicting with the EN have to be withdrawn (dow) 2002-08-01

Annexes designated "normative" are part of the body of the standard.
Annexes designated "informative" are given for information only.
In this standard, annexes C, D and ZA are normative and annexes A and B are informative.
Annex ZA has been added by CENELEC.

Endorsement notice

The text of the International Standard IEC 61747-1:1998 was approved by CENELEC as a European Standard without any modification.

Annex ZA (normative)

Normative references to international publications with their corresponding European publications

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies (including amendments).

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

Publication	Year	Title	EN/HD	Year
IEC 60027	series	Letter symbols to be used in electrical technology Part 1: General	HD 245	series
IEC 60050	series	International Electrotechnical Vocabulary	-	-
IEC 60068	series	Environmental testing	HD 323 EN 60068	series series
IEC 60068-1	1988	Environmental testing Part 1: General and guidance	EN 60068-1[1)]	1994
IEC 60068-2	series	Part 2: Tests	HD 323.2 EN 60068-2	series series
IEC 60191-1	1966	Mechanical standardization of semiconductor devices Part 1: Preparation of drawings of semiconductor devices	-	-
IEC 60191-2	1966	Part 2: Dimensions	-	-
IEC 60191-3	1974	Part 3: General rules for the preparation of outline drawings of integrated circuits	-	-
IEC 60410	1973	Sampling plans and procedures for inspection by attributes	-	-
IEC C0617	series	Graphical symbols for diagrams	EN 60617	series
IEC 60747	series	Semiconductor devices - Discrete devices	-	-
IEC 60747-1	1983	Semiconductor devices - Discrete devices Part 1: General	-	-

1) EN 60068-1 includes the corrigendum October 1988 and A1:1992 to IEC 60068-1.

Publication	Year	Title	EN/HD	Year
IEC 60747-5	1992	Part 5: Optoelectronic devices	-	-
IEC 60747-10	1991	Part 10: Generic specification for discrete divices and integrated circuits	-	-
IEC 60748	series	Semiconductor devices - Integrated circuits	-	-
IEC 60749	1996	Semiconductor devices - Mechanical and climatic test methods	EN 60749	1999
IEC 61747-5	1998	Liquid crystal and solid-state display devices Part 5: Environmental, endurance and mechanical test methods	EN 61747-5	1998
IEC QC 001002	1986	Rules of procedure of the IEC Quality Assessment System for Electronic Components (IECQ)	-	-
ISO 1000	1992	SI units and recommendations for the use of their multiples and of certain other units	-	-
ISO 1101	1983	Technical drawings - Geometrical tolerancing - Tolerancing of form, orientation, location and run-out Generalities, definitions, symbols, indications on drawings	-	-
ISO 2859	series	Sampling procedures for inspection by attributes	-	-
ISO 8601	1988	Data elements and interchange formats Information interchange - Representation of dates and times	EN 28601	1992

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Dispositifs d'affichage à cristaux liquides et à semiconducteurs –

Partie 1: Spécification générique

Liquid crystal and solid-state display devices –

Part 1: Generic specification

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Commission Electrotechnique Internationale
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INTERNATIONAL ELECTROTECHNICAL COMMISSION

LIQUID CRYSTAL AND SOLID-STATE DISPLAY DEVICES –

Part 1: Generic specification

FOREWORD

1) The IEC (International Electrotechnical Commission) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of the IEC is to promote international co-operation on all questions concerning standardization in the electrical and electronic fields. To this end and in addition to other activities, the IEC publishes International Standards. Their preparation is entrusted to technical committees; any IEC National Committee interested in the subject dealt with may participate in this preparatory work. International, governmental and non-governmental organizations liaising with the IEC also participate in this preparation. The IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.
2) The formal decisions or agreements of the IEC on technical matters express, as nearly as possible, an international consensus of opinion on the relevant subjects since each technical committee has representation from all interested National Committees.
3) The documents produced have the form of recommendations for international use and are published in the form of standards, technical reports or guides and they are accepted by the National Committees in that sense.
4) In order to promote international unification, IEC National Committees undertake to apply IEC International Standards transparently to the maximum extent possible in their national and regional standards. Any divergence between the IEC Standard and the corresponding national or regional standard shall be clearly indicated in the latter.
5) The IEC provides no marking procedure to indicate its approval and cannot be rendered responsible for any equipment declared to be in conformity with one of its standards.
6) Attention is drawn to the possibility that some of the elements of this International Standard may be the subject of patent rights. The IEC shall not be held responsible for identifying any or all such patent rights.

International Standard IEC 61747-1 has been prepared by subcommittee 47C: Optoelectronic, display and imaging devices, of IEC technical committee 47: Semiconductor devices.

This part 1 forms the generic specification in the IEC Quality Assessment System for Electronic Components (IECQ) for liquid crystal and solid-state display devices.

The text of this standard is based on amendment 1 to IEC 60747-5 and the following documents:

FDIS	Report on voting
47C/200/FDIS	47C/205/RVD

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

The QC number that appears on the front cover of this publication is the specification number in the IECQ Quality Assessment System for Electronic Components (IECQ).

Annexes C and D form an integral part of this standard.

Annexes A and B are for information only.

LIQUID CRYSTAL AND SOLID-STATE DISPLAY DEVICES –

Part 1: Generic specification

1 Scope

This part of IEC 61747 is a generic specification for liquid crystal and solid-state display devices. It defines general procedures for quality assessment to be used in the IECQ system and gives general rules for measuring methods of electrical and optical characteristics, rules for climatic and mechanical tests, and rules for endurance tests.

2 Normative references

The following normative documents contain provisions which, through reference in this text, constitute provisions of this part of IEC 61740. For dated references, subsequent amendments to, or revisions of, any of these publications do not apply. However, parties to agreements based on this part of IEC 61740 are encouraged to investigate the possibility of applying the most recent editions of the normative documents indicated below. For undated references, the latest edition of the normative document referred to applies. Members of ISO and IEC maintain registers of currently valid International Standards.

IEC 60027 (all parts), *Letter symbols to be used in electrical technology*

IEC 60050 (all parts), *International Electrotechnical Vocabulary*

IEC 60068 (all parts), *Environmental testing*

IEC 60068-1:1988, *Environmental testing – Part 1: General and guidance*

IEC 60068-2 (all parts), *Environmental testing – Part 2: Tests*

IEC 60191 (all parts), *Mechanical standardization of semiconductor devices*

IEC 60191-1:1966, *Mechanical standardization of semiconductor devices – Part 1: Preparation of drawings of semiconductor devices*

IEC 60191-2:1966, *Mechanical standardization of semiconductor devices – Part 2: Dimensions*

IEC 60191-3:1974, *Mechanical standardization of semiconductor devices – Part 3: General rules for the preparation of outline drawings of integrated circuits*

IEC 60410:1973, *Sampling plans and procedures for inspection by attributes*

IEC 60617 (all parts), *Graphical symbols for diagrams*

IEC 60747 (all parts), *Semiconductor devices – Discrete devices*

IEC 60747-1:1983, *Semiconductor devices – Discrete devices and integrated circuits – Part 1: General*

IEC 60747-5:1992, *Semiconductor devices – Discrete devices and integrated circuits – Part 5: Optoelectronic devices*

IEC 60747-10:1991, *Semiconductor devices – Part 10: Generic specification for discrete devices and integrated circuits*

IEC 60748 (all parts), *Semiconductor devices – Integrated circuits*

IEC 60749:1996, *Semiconductor devices – Mechanical and climatic test methods*

IEC 61747-5, — *Liquid crystal and semiconductor devices – Part 5: Environmental, endurance and mechanical test methods*[1)]

QC 001002:1986, *Rules of Procedure of the IEC Quality Assessment System for Electronic Components (IECQ)*

ISO 1000:1992, *SI units and recommendations for the use of their multiples and of certain other units*

ISO 1101:1983, *Technical drawings – Geometrical tolerancing – Tolerancing of form, orientation, location and run-out – Generalities, definitions, symbols, indications on drawings*

ISO 2859 (all parts), *Sampling procedures for inspection by attributes*

ISO 8601:1988, *Data elements and interchange formats – Information interchange – Representation of dates and times*

3 Terminology

For the purpose of standard series IEC 61747, the following terms and definitions apply.

3.1 Physical concepts

3.1.1
alignment layer
a thin layer deposited over the patterned electrodes that determines the direction of the director at the surface. This layer produces the desired ordering. Alignment such as homeotropic alignment (3.1.14) or planar alignment (3.1.15) are achieved by the co-operative ordering of the liquid crystal molecules locally affected by the surface forces. The alignment layer is generating the pretilt angle (3.1.20).

3.1.2
chiral phase
a liquid crystal phase exhibiting a spontaneous twist

3.1.3
cholesteric phase
a liquid crystal phase that exhibits planar nematic ordering in which the directors form a helix that has its axis perpendicular to the plane

3.1.4
clearing point
the phase transition temperature of a liquid crystal for transition toward the isotropic phase

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1) To be published.