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Plasma display panels – Part 1: Terminology and letter symbols (IEC 61988-1:2003)

ICS 31.120

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EUROPEAN STANDARD **EN 61988-1**

NORME EUROPÉENNE

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ICS 31.260

English version

Plasma display panels
Part 1: Terminology and letter symbols
(IEC 61988-1:2003)

Panneaux d'affichage à plasma
Partie 1: Terminologie et
symboles littéraux
(CEI 61988-1:2003)

Plasmabildschirme
Teil 1: Terminologie und
Buchstabensymbole
(IEC 61988-1:2003)

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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

Ref. No. EN 61988-1:2003 E

Foreword

The text of document 47C/289/FDIS, future edition 1 of IEC 61988-1, prepared by SC 47C, Flat panel display devices, of IEC TC 47, Semiconductor devices, was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as EN 61988-1 on 2003-05-01.

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) 2004-02-01
- latest date by which the national standards conflicting with the EN have to be withdrawn (dow) 2006-05-01

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

Endorsement notice

The text of the International Standard IEC 61988-1:2003 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 61988-2-1	- [1)]	Plasma display panels Part 2-1: Measuring methods – Optical	EN 61988-2-1	2002 [2)]
IEC 61988-2-2	- [1)]	Part 2-2: Measuring methods - Optoelectrical	EN 61988-2-2	2003 [2)]
CIE 15.2	1986	Colorimetry	-	-

1) Undated reference.

2) Valid edition at date of issue.

NORME INTERNATIONALE

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Panneaux d'affichage à plasma –

Partie 1:
Terminologie et symboles littéraux

Plasma display panels –

Part 1:
Terminology and letter symbols

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

PLASMA DISPLAY PANELS –

Part 1: Terminology and letter symbols

FOREWORD

1) The International Electrotechnical Commission (IEC) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of 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, IEC publishes International Standards, Technical Specifications, Technical Reports, and Guides (hereafter referred to as "IEC Publication(s)"). 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. IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.

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International Standard IEC 61988-1 has been prepared by subcommittee 47C: Flat panel display devices[1], of IEC technical committee 47: Semiconductor devices.

This bilingual version (2003-08) replaces the English version.

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

FDIS	Report on voting
47C/289/FDIS	47C/296/RVD

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

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[1] Subcommittee 47C has been converted into committee 110: Flat panel display devices.

The French version of this standard has not been voted upon.

This publication has been drafted in accordance with the ISO/IEC Directives, Part 2.

IEC 61988 will consist of the following parts, under the general title *Plasma display panels*:

Part 1: Terminology and letter symbols;
Part 2-1: Measuring methods – Optical;
Part 2-2: Measuring methods – Optoelectrical;
Part 3: Guidelines of mechanical interface;
Part 4: Environmental, endurance and mechanical test methods.

The committee has decided that the contents of this publication will remain unchanged until 2008. At this date, the publication will be

- reconfirmed;
- withdrawn;
- replaced by a revised edition, or
- amended.

PLASMA DISPLAY PANELS –

Part 1: Terminology and letter symbols

1 Scope

This part of IEC 61988 gives the preferred terms, their definitions and symbols for colour AC plasma display panels (AC PDP); with the object of using the same terminology when publications are prepared in different countries. Guidance on the technology is provided in the annexes.

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.

IEC 61988-2-1, *Plasma display panels – Part 2-1: Measuring methods – Optical*

IEC 61988-2-2, *Plasma display panels – Part 2-2: Measuring methods – Optoelectrical*

CIE 15.2:1986, *Colorimetry, 2nd Edition*

3 Terms and definitions

For the purposes of this document, the following definitions apply.

3.1
AC PDP
NOTE See AC plasma display panel.

3.2
AC plasma display panel
AC PDP
plasma display panel in which the gas discharge region is insulated from the electrodes that are driven with AC voltage pulses

3.3
address bias
Vba
data bias
common voltage applied to all address electrodes during addressing

3.4
address cycle period
time interval between initiation of the closest spaced successive address pulses

3.5
address discharge
discharge that changes the state of a PDP subpixel

3.6
address electrode
data electrode
electrode, orthogonal to the scan electrode, that is used in driving the subpixels with the image data

3.7
address pulse
data pulse
incremental voltage pulse applied to a single address (data) electrode for addressing, to select a subpixel according to an image to be displayed

NOTE See scan pulse.

3.8
address voltage
Va
data voltage
amplitude of the voltage pulses applied to the address (data) electrode during addressing (excludes the address bias on the electrode)

3.9
address while display method

AWD method
grey scale drive technique that addresses only a portion of the pixels of the panel in any time within a sustain period

NOTE See also ADS.

3.10
addressability
number of pixels in the horizontal and vertical directions, that can have their luminance changed

NOTE Usually expressed in the number of horizontal pixels by the number of vertical pixels. This term is not synonymous with resolution. See resolution.

3.11
addressing
setting or changing the state of a subpixel with an address pulse

3.12
ADS method
address, display-period separation method
grey scale drive technique that consists of addressing all the pixels in the panel in one time period and sustaining all the pixels in the panel in a separate time period

3.13
ageing
manufacturing process consisting of operating the panel under conditions that stabilize its performance

3.14
annealing
process of heating the glass above its annealing point and cooling at a controlled rate to minimize dimensional changes during subsequent high temperature cycles

3.15
anode
positively charged surface of a device that collects electrons from the discharge

NOTE In an AC PDP, the cathode and anode exchange their roles on alternate half-cycles.

3.16
aspect ratio
ratio of screen width to screen height

3.17
auto power control
APC
circuit means to control the peak and/or average power of the display

3.18
auxiliary anode
anode in a DC PDP whose discharge contributes to supply priming particles to ignite a discharge in a cell

3.19
back plate
rear plate
plate furthest from the viewer

3.20
back-filling

NOTE See filling.

3.21
bake

NOTE See bakeout, baking.

3.22
bakeout
high temperature processing of a vacuum system and/or PDP to assist in achieving low pressures

3.23
baking
high temperature process used to evaporate water and decompose organic materials

NOTE Baking is used to clean the parts by dispersing unwanted material into the atmosphere.

3.24
barrier rib
rib that separates the cells of the panel, electrically, optically and physically

NOTE The barrier ribs may extend from the front plate to the back plate and control the spacing between the plates.

3.25
binder burnout
process during which organic binders are remove by decomposition and/or oxidation

3.26
black level luminance
luminance of the panel in its minimum luminance state in a dark ambient

NOTE See 6.3.3.b of IEC 61988-2-1.

3.27
black matrix
black material placed in the space between subpixel areas in order to improve contrast by reducing reflectivity

3.28
black stripe
black material placed in the space between subpixel areas in order to improve contrast by reducing reflectivity, having the form of stripes

NOTE Black stripe is a specific type of black matrix contrast enhancement.

3.29
black uniformity, sampled
uniformity of the black level luminance expressed in terms of the percentage non-uniformity (difference in luminance between measuring points divided by the average black level luminance) at the specified measuring points

3.30
***BRCR*-#/#**

NOTE See bright room contrast ratio #/#.

3.31
breakdown voltage
smallest voltage between the cathode and the anode causing a gas discharge to grow to a breakdown condition

3.32
bright defect
defect in the image reproduction that appears brighter than the correct image

3.33
bright room contrast ratio #/#
***BRCR*-#/#**
contrast ratio with ambient illumination on the screen other than the nominal 100/70 levels

NOTE The symbol #/# describes the ambient illumination on the vertical plane/horizontal plane (see 6.1 of IEC 61988-2-2).

3.34
bright room contrast ratio 100/70
***BRCR*-100/70**
contrast ratio with an ambient illumination on the screen of 100 lx on the vertical plane and 70 lx on the horizontal plane

NOTE See 6.1 of IEC 61988-2-2.

3.35
brightness
visual and subjective quality of how bright an object appears, or how much visible light is coming off the object being perceived by the eye

NOTE See luminance.

3.36
bulk erase
operation of applying a voltage pulse to the panel that switches all of the cells in the panel to the off-state

3.37
bulk write
operation of applying a voltage pulse to the panel that switches all of the cells in the panel to the on-state

3.38
burn-in
process of increasing the reliability performance of hardware employing functional operation of every item in a prescribed environment with successive corrective maintenance at every failure during the early failure period

3.39
bus electrode
high conductivity electrode intimately connected along its length to the transparent electrode in order to reduce total resistance

3.40
cathode
negatively charged surface of a device that emits secondary electrons to the discharge

NOTE In an AC PDP, the cathode and anode exchange their roles on alternate half-cycles.

3.41
cell
physical structure of a subpixel or a subpixel itself (adjective – referring to the characteristics of a single cell)

3.42
cell pitch
subpixel pitch

3.43
cell voltage
Vc
time-dependent voltage across the gas in a plasma display cell

3.44
centre firing voltage
average of the first-on voltage and the last-on voltage

3.45
centre minimum sustain voltage
average of the first-off voltage and the last-off voltage