



IEC 62629-1-2

Edition 2.0 2021-09
REDLINE VERSION

INTERNATIONAL STANDARD



**3D display devices –
Part 1-2: Generic – Terminology and letter symbols**

INTERNATIONAL
ELECTROTECHNICAL
COMMISSION

ICS 31.120; 31.260

ISBN 978-2-8322-5344-1

Warning! Make sure that you obtained this publication from an authorized distributor.

CONTENTS

FOREWORD.....	3
1 Scope.....	5
2 Normative references.....	5
3 Terms and definitions	5
3.1 General terms	5
3.2 Terms related to components	7
3.3 Terms related to performance specifications	9
Annex A (informative) Definition guidelines for terms which include "image", "view" or "vision".....	10
A.1 General.....	10
A.2 Definition guidelines.....	10
A.2.1 Stereoscopic image and stereoscopic view	10
A.2.2 Convention in using the plural form of stereoscopic image and stereoscopic view.....	11
A.2.3 Viewing angle and binocular vision	12
A.2.4 Integral imaging display Imaging and vision	12
Annex B (informative) Classification of 3D display types	13
B.1 General.....	13
B.2 Classification	13
B.2.1 3D display.....	13
B.2.2 Stereoscopic display	13
B.2.3 Autostereoscopic display.....	13
Annex C (informative) Relation between depth perception and 3D display	15
C.1 General.....	15
C.2 Relation between depth perception and 3D display	15
C.2 Depth perception by binocular parallax when viewing a 3D display	15
C.3 Convergence accommodation conflict when viewing a 3D display.....	16
C.4 Horizontal-parallax-only and full-parallax 3D display	17
Annex D (informative) Lobe.....	18
Annex E (informative) Relationship between integral imaging display and light field display.....	19
Bibliography	21
Figure A.1 – Difference between "image" and "view".....	10
Figure A.2 – Structure of multi-view display	11
Figure A.3 – Stereoscopic images and stereoscopic views.....	12
Figure B.1 – Classification of 3D displays	14
Figure C.1 – Depth perception and 3D display	15
Figure C.1 – Depth perception by convergence when viewing a 3D display	16
Figure C.2 – Vergence-accommodation conflict	17
Figure C.3 – Horizontal and vertical parallax	17
Figure D.1 – Lobe of autostereoscopic display.....	18
Figure E.1 – Display configurations that reproduce the light field	20

INTERNATIONAL ELECTROTECHNICAL COMMISSION

3D DISPLAY DEVICES –

Part 1-2: Generic – 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, Publicly Available Specifications (PAS) 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.
- 2) The formal decisions or agreements of 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 IEC National Committees.
- 3) IEC Publications have the form of recommendations for international use and are accepted by IEC National Committees in that sense. While all reasonable efforts are made to ensure that the technical content of IEC Publications is accurate, IEC cannot be held responsible for the way in which they are used or for any misinterpretation by any end user.
- 4) In order to promote international uniformity, IEC National Committees undertake to apply IEC Publications transparently to the maximum extent possible in their national and regional publications. Any divergence between any IEC Publication and the corresponding national or regional publication shall be clearly indicated in the latter.
- 5) IEC itself does not provide any attestation of conformity. Independent certification bodies provide conformity assessment services and, in some areas, access to IEC marks of conformity. IEC is not responsible for any services carried out by independent certification bodies.
- 6) All users should ensure that they have the latest edition of this publication.
- 7) No liability shall attach to IEC or its directors, employees, servants or agents including individual experts and members of its technical committees and IEC National Committees for any personal injury, property damage or other damage of any nature whatsoever, whether direct or indirect, or for costs (including legal fees) and expenses arising out of the publication, use of, or reliance upon, this IEC Publication or any other IEC Publications.
- 8) Attention is drawn to the Normative references cited in this publication. Use of the referenced publications is indispensable for the correct application of this publication.
- 9) Attention is drawn to the possibility that some of the elements of this IEC Publication may be the subject of patent rights. IEC shall not be held responsible for identifying any or all such patent rights.

This redline version of the official IEC Standard allows the user to identify the changes made to the previous edition IEC 62629-1-2:2013. A vertical bar appears in the margin wherever a change has been made. Additions are in green text, deletions are in strikethrough red text.

IEC 62629-1-2 has been prepared by IEC technical committee 110: Electronic displays. It is an International Standard.

This second edition cancels and replaces the first edition published in 2013. This edition constitutes a technical revision.

This edition includes the following significant technical changes with respect to the previous edition:

- a) added new terms related to holographic display and light field display;
- b) added new terms on the performance specifications used in other IEC 62629 series documents;
- c) added Annex C to explain the depth perception in 3D displays in more detail.

The text of this International Standard is based on the following documents:

Draft	Report on voting
110/1287/CDV	110/1330/RVC

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

The language used for the development of this International Standard is English

This document was drafted in accordance with ISO/IEC Directives, Part 2, and developed in accordance with ISO/IEC Directives, Part 1 and ISO/IEC Directives, IEC Supplement, available at www.iec.ch/members_experts/refdocs. The main document types developed by IEC are described in greater detail at www.iec.ch/standardsdev/publications.

In this standard, the following print types are used:

- *Terms defined within Clause 3: in italics type.*

A list of all the parts in the IEC 62629 series, under the general title *3D display devices*, can be found on the IEC website.

The committee has decided that the contents of this document will remain unchanged until the stability date indicated on the IEC website under webstore.iec.ch in the data related to the specific document. At this date, the document will be

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

IMPORTANT – The "colour inside" logo on the cover page of this document indicates that it contains colours which are considered to be useful for the correct understanding of its contents. Users should therefore print this document using a colour printer.

3D DISPLAY DEVICES –

Part 1-2: Generic – Terminology and letter symbols

1 Scope

This part of IEC 62629 provides a list of the terminologies that are frequently used in describing 3D display technologies in the IEC 62629 series. Terms for various 3D display technologies on stereoscopic, autostereoscopic, volumetric, and holographic displays are included.

2 Normative references

There are no normative references in this document.

INTERNATIONAL STANDARD



3D display devices – Part 1-2: Generic – Terminology and letter symbols

CONTENTS

FOREWORD.....	3
1 Scope.....	5
2 Normative references.....	5
3 Terms and definitions	5
3.1 General terms	5
3.2 Terms related to components	8
3.3 Terms related to performance specifications	9
Annex A (informative) Definition guidelines for terms which include "image", "view" or "vision".....	10
A.1 General.....	10
A.2 Definition guidelines.....	10
A.2.1 Stereoscopic image and stereoscopic view	10
A.2.2 Convention in using the plural form of stereoscopic image and stereoscopic view.....	11
A.2.3 View and vision.....	12
A.2.4 Imaging and vision	12
Annex B (informative) Classification of 3D display types	13
B.1 General.....	13
B.2 Classification	13
B.2.1 3D display.....	13
B.2.2 Stereoscopic display	13
B.2.3 Autostereoscopic display.....	13
Annex C (informative) Relation between depth perception and 3D display	15
C.1 General.....	15
C.2 Depth perception by binocular parallax when viewing a 3D display	15
C.3 Convergence accommodation conflict when viewing a 3D display.....	15
C.4 Horizontal-parallax-only and full-parallax 3D display	16
Annex D (informative) Lobe.....	18
Annex E (informative) Relationship between integral imaging display and light field display.....	19
Bibliography	21
Figure A.1 – Difference between "image" and "view".....	10
Figure A.2 – Structure of multi-view display	11
Figure A.3 – Stereoscopic images and stereoscopic views.....	12
Figure B.1 – Classification of 3D displays.....	14
Figure C.1 – Depth perception by convergence when viewing a 3D display	15
Figure C.2 – Vergence-accommodation conflict	16
Figure C.3 – Horizontal and vertical parallax	17
Figure D.1 – Lobe of autostereoscopic display.....	18
Figure E.1 – Display configurations that reproduce the light field	20

INTERNATIONAL ELECTROTECHNICAL COMMISSION

3D DISPLAY DEVICES –**Part 1-2: Generic – 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, Publicly Available Specifications (PAS) 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.
- 2) The formal decisions or agreements of 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 IEC National Committees.
- 3) IEC Publications have the form of recommendations for international use and are accepted by IEC National Committees in that sense. While all reasonable efforts are made to ensure that the technical content of IEC Publications is accurate, IEC cannot be held responsible for the way in which they are used or for any misinterpretation by any end user.
- 4) In order to promote international uniformity, IEC National Committees undertake to apply IEC Publications transparently to the maximum extent possible in their national and regional publications. Any divergence between any IEC Publication and the corresponding national or regional publication shall be clearly indicated in the latter.
- 5) IEC itself does not provide any attestation of conformity. Independent certification bodies provide conformity assessment services and, in some areas, access to IEC marks of conformity. IEC is not responsible for any services carried out by independent certification bodies.
- 6) All users should ensure that they have the latest edition of this publication.
- 7) No liability shall attach to IEC or its directors, employees, servants or agents including individual experts and members of its technical committees and IEC National Committees for any personal injury, property damage or other damage of any nature whatsoever, whether direct or indirect, or for costs (including legal fees) and expenses arising out of the publication, use of, or reliance upon, this IEC Publication or any other IEC Publications.
- 8) Attention is drawn to the Normative references cited in this publication. Use of the referenced publications is indispensable for the correct application of this publication.
- 9) Attention is drawn to the possibility that some of the elements of this IEC Publication may be the subject of patent rights. IEC shall not be held responsible for identifying any or all such patent rights.

IEC 62629-1-2 has been prepared by IEC technical committee 110: Electronic displays. It is an International Standard.

This second edition cancels and replaces the first edition published in 2013. This edition constitutes a technical revision.

This edition includes the following significant technical changes with respect to the previous edition:

- a) added new terms related to holographic display and light field display;
- b) added new terms on the performance specifications used in other IEC 62629 series documents;
- c) added Annex C to explain the depth perception in 3D displays in more detail.

The text of this International Standard is based on the following documents:

Draft	Report on voting
110/1287/CDV	110/1330/RVC

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

The language used for the development of this International Standard is English

This document was drafted in accordance with ISO/IEC Directives, Part 2, and developed in accordance with ISO/IEC Directives, Part 1 and ISO/IEC Directives, IEC Supplement, available at www.iec.ch/members_experts/refdocs. The main document types developed by IEC are described in greater detail at www.iec.ch/standardsdev/publications.

In this standard, the following print types are used:

- *Terms defined within Clause 3: in italics type.*

A list of all the parts in the IEC 62629 series, under the general title *3D display devices*, can be found on the IEC website.

The committee has decided that the contents of this document will remain unchanged until the stability date indicated on the IEC website under webstore.iec.ch in the data related to the specific document. At this date, the document will be

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

IMPORTANT – The "colour inside" logo on the cover page of this document indicates that it contains colours which are considered to be useful for the correct understanding of its contents. Users should therefore print this document using a colour printer.

3D DISPLAY DEVICES –

Part 1-2: Generic – Terminology and letter symbols

1 Scope

This part of IEC 62629 provides a list of the terminologies that are frequently used in describing 3D display technologies in the IEC 62629 series. Terms for various 3D display technologies on stereoscopic, autostereoscopic, volumetric, and holographic displays are included.

2 Normative references

There are no normative references in this document.