

BRITISH STANDARDS INSTITUTION

BS 4727 : Part 3 : Group 05 : 1971

GLOSSARY OF ELECTROTECHNICAL, POWER, TELECOMMUNICATION, ELECTRONICS, LIGHTING AND COLOUR TERMS

PART 3. TERMS PARTICULAR TO TELECOMMUNICATIONS AND ELECTRONICS

Group 05. Propagation and media terminology

Incorporated by Royal Charter

THIS BRITISH STANDARD, having been approved by the Electrical Industry Standards Committee and the Telecommunication Industry Standards Committee, was published under the authority of the Executive Board on 27th August, 1971.

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The Institution desires to call attention to the fact that this British Standard does not purport to include all the necessary provisions of a contract.

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British Standards are revised, when necessary, by the issue either of amendment slips or of revised editions. It is important that users of British Standards should ascertain that they are in possession of the latest amendments or editions.

The following BSI references relate to the work on this standard:
Committee references ELE/TLE/1 ELE/TLE/1/9

CO-OPERATING ORGANIZATIONS

The Electrical Industry Standards Committee and the Telecommunication Industry Standards Committee under whose supervision this British Standard was prepared consist of representatives from the following Government departments and scientific and industrial organizations:

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| Associated Offices' Technical Committee | Engineering Equipment Users' Association |
| *Association of Consulting Engineers | *Institution of Electrical Engineers |
| Association of Manufacturers of Domestic Electrical Appliances | *Institution of Electronic and Radio Engineers |
| Association of Mining Electrical and Mechanical Engineers | Institution of Production Engineers |
| Association of Supervisory and Executive Engineers | *Lighting Industry Federation Limited |
| *British Broadcasting Corporation | *Ministry of Defence |
| *British Electrical and Allied Manufacturers' Association | Ministry of Defence, Army Department |
| *British Radio Equipment Manufacturers' Association | *Ministry of Defence, Navy Department |
| *British Radio Valve Manufacturers' Association | *Ministry of Public Building and Works |
| *British Railways Board | *Ministry of Technology |
| Cable and Wireless Limited | Municipal Passenger Transport Association (Incorporated) |
| Crown Agents for Oversea Governments and Administrations | National Inspection Council for Electrical Installation Contracting |
| Department of Employment and Productivity | National Physical Laboratory (Ministry of Technology) |
| Electric Cable Makers' Confederation | Oil Companies Materials Association |
| Electrical Contractors' Association (Incorporated) | *Post Office |
| Electrical Contractors' Association of Scotland | Public Transport Association (Incorporated) |
| Electrical Research Association | Radio and Electronic Component Manufacturers' Federation |
| *Electricity Council, the Central Electricity Generating Board and the Area Boards in England and Wales | Relay Services Association of Great Britain |
| *Electronic Engineering Association | *Science Research Council—Radio and Space Research Station |
| *Electronic Valve and Semi-conductor Manufacturers' Association | Scientific Instrument Manufacturers' Association |
| | Society of British Aerospace Companies |
| | South of Scotland Electricity Board |
| | *Telecommunication Engineering and Manufacturing Association |

The Government departments and scientific and industrial organizations marked with an asterisk in the above list, together with the following, were directly represented on the committee entrusted with the preparation of this British Standard:

Institute of Physics and the Physical Society	Telephone Manufacturers' Technical Development Committee
Radio and Electronics Technical Press	

GUIDE TO THE GLOSSARY

Part 1. Terms common to power, telecommunications and electronics

- Group 01. Fundamental concepts
- Group 02. General technological terminology
- Group 03. Relay terminology
- Group . Measurement terminology*
- Group . Semiconductor terminology*
- Group . Electronic tube terminology*
- Group . Magnetism terminology*
- Group . Radiological terminology*
- Group . Radio interference terminology*
- Group . Integrated electronic circuit terminology*

Titles to any further groups will be added in due course.

Part 2. Terms particular to power engineering

- Group 01. General power terminology
- Group 02. Static convertor terminology
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- Group 04. Transformer terminology*
- Group 05. Voltage fluctuation terminology*
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- Group . Power systems terminology*
- Group . Systems operation terminology*
- Group . Traction terminology*
- Group . Tariffs terminology*

Titles to any further groups will be added in due course.

* Not yet published, as at August, 1971.

Part 3. Terms particular to telecommunications and electronics

- Group 01. General telecommunication and electronics terminology
- Group 02. Telephony terminology
- Group 03. Telegraphy, including facsimile, terminology.
- Group 04. Broadcasting, radio and television terminology
- Group 05. Propagation and media terminology**
- Group 06. Radio location and navigation terminology.
- Group 07. Radiocommunication terminology

Titles to any further groups will be added in due course.

Part 4. Terms particular to lighting and colour

- Group 01. Radiation and photometry terminology.
- Group 02. Vision and colour terminology
- Group 03. Lighting technology terminology*

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BRITISH STANDARD GLOSSARY OF ELECTROTECHNICAL, POWER, TELECOMMUNICATION, ELECTRONICS, LIGHTING AND COLOUR TERMS

Part 3. Terms Particular to Telecommunications and Electronics

Group 05. Propagation and media terminology

FOREWORD

This Group of Part 3 of this British Standard Glossary, prepared under the authority of the Electrical Industry Standards Committee and the Telecommunication Industry Standards Committee, contains terms and definitions relating to propagation and media and supersedes Subsections 51, 'General', 521, 'Types of transmission line', 522, 'Communication line circuits', and 53, 'Radio-wave propagation', of BS 204*. The terms and definitions are in close agreement with the corresponding terms in the latest edition of the International Electrotechnical Vocabulary prepared by the International Electrotechnical Commission (IEC).

In this new glossary a number of significant changes have been introduced. It has been decided to combine into one glossary the subjects previously covered by BS 204, BS 205†, BS 233‡ and BS 1611§ glossaries. The glossary is divided into four main Parts, each of which is further subdivided into groups. Each group will comprise the terms and definitions used in a particular branch of electrical engineering and will be issued individually as soon as it is completed. This arrangement makes it possible to add new groups, or revise existing groups, at any time without affecting the remainder of the glossary.

The four main Parts of the glossary are as follows:

- Part 1. Terms common to power, telecommunications and electronics.
- Part 2. Terms particular to power engineering.
- Part 3. Terms particular to telecommunications and electronics.
- Part 4. Terms particular to lighting and colour.

As groups of terms within the new framework are published, the corresponding parts of the British Standard glossaries mentioned above will be withdrawn. Ultimately the new glossary will replace these standards completely and they will then be withdrawn.

Fundamental and general terms common to power, telecommunications and electronics, respectively form the first two groups of Part 1. General terms particular to Part 2 and Part 3 similarly form the first groups of their respective Parts. The specialist groups contain only the terms and definitions relating to their subject.

As far as has been practicable all terms and definitions established in current usage and falling within the scope of this glossary have been included. Experience has shown that it is rarely possible to replace, or even to modify, a well established term no matter what the logical or aesthetic shortcomings of that term may be. Current usage has therefore been accepted as the authority for terms and their meanings except where there has been a very good reason for doing otherwise, as, for example, where terms have been considered to be fundamentally wrong, ambiguous, superfluous or in need of standardization. Where two or more synonymous terms are in use those which are deprecated are omitted from the body of the text but are entered in the alphabetical index with a cross reference to the standard term. In cases where it was felt that the time was not yet right to deprecate a synonym,

* BS 204, 'Glossary of terms used in telecommunication (including radio) and electronics'.

† BS 205, 'Glossary of terms used in electrical engineering'.

‡ BS 233, 'Glossary of terms used in illumination and photometry'.

§ BS 1611, 'Glossary of colour terms used in science and industry'.

preferred terms are given first and other terms are printed in less prominent type to indicate the intention to deprecate them in the course of time. Where synonyms are considered of equal value they are shown in the same type.

Where terms are used with somewhat different meanings in different branches of electrical engineering, appropriate definitions are given in the groups of the glossary corresponding to these branches. Such a definition, when taken out of the context of its group, should always be quoted with a preamble indicating its proper context.

It is to be noted that the given definition of a term represents the generally accepted meaning of that term. Under no circumstances should it be regarded as taking the place of a specification.

An effort has been made to arrange the terms in a logical order proceeding from the general to the specific and from the whole to the part and placing allied terms in proximity within a subsection or section of the group. Each term has assigned to it a Part number (one digit) and a Group number of two digits followed by a space and four digits, the first digit of which represents the section, the second digit the subsection and the last two digits the place within the subsection.

A general view of the arrangement of the group in the glossary can be obtained from the Guide to the Glossary. An alphabetical index of the terms of the group is provided at the end to facilitate reference to particular terms. For simplicity, only the last four digits of a term's number are quoted in the index. It is recommended that the user of any group of the glossary should consider the group in association with the groups covering general or fundamental terms within the part, for Parts 2 and 3, and also together with Groups 01 and 02 of Part 1.

In this glossary round brackets () enclose words or phrases which are not part of the term or definition and can be omitted without affecting the meaning.

Square brackets [] enclose words which may replace a preceding part of an expression. The limiting sign ⊐ indicates, if necessary, how many of the preceding words are replaced.

305 1 GENERAL

No.	Term	Definition
305 1001	polarization	That attribute of an electromagnetic wave which describes the direction of the electric field.
305 1002	plane of polarization	<i>In a linearly polarized wave.</i> The fixed plane parallel to the direction of polarization and to the direction of propagation. NOTE. In optics the plane of polarization is normal to the plane defined above.
305 1003	linearly polarized wave; plane polarized wave	A wave in which the direction of the electric field and the direction of propagation are permanently in one plane.
305 1004	elliptically [circularly] polarized wave	A wave which can be resolved into two linearly polarized waves of unequal [equal] amplitude, propagated in the same direction in phase quadrature, with the planes of polarization at right angles to each other. NOTE 1. At any given instant the succession of vectors representing a given component of field (e.g. the electric vectors), in planes normal to the direction of propagation, constitutes a twisted structure moving with the velocity of propagation but not rotating. NOTE 2. In waveguides, rotation of the field in a plane containing the direction of propagation may occur at a fixed point as the wave progresses. Such circular motion is not covered in the foregoing definition.
305 1005	right-hand polarized wave; clockwise polarized wave	An elliptically or circularly polarized wave in which the electric vector in any fixed plane normal to the direction of propagation rotates with time in a right-hand or clockwise direction as seen by an observer looking in (i.e. not against) the direction of propagation. NOTE. The twisted structure referred to in 305 1004, Note 1, has a left-hand twist (that of a left-hand screw thread).
305 1006	left-hand polarized wave; anti-clockwise polarized wave; counter-clockwise polarized wave	An elliptically or circularly polarized wave in which the electric vector in any fixed plane normal to the direction of propagation rotates with time in a left-hand or anti-clockwise direction as seen by an observer looking in (i.e. not against) the direction of propagation. NOTE. The twisted structure referred to in 305 1004, Note 1, has a right-hand twist (that of a right-hand screw thread).