

Method for

Expression of the properties of logic analyzers

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The preparation of this British Standard was entrusted by the Electronic Equipment Standards Committee (EEL/-) to Technical Committee EEL/8 upon which the following bodies were represented:

- British Telecommunications
- Department of Trade and Industry (British Calibration Service)
- Department of Trade and Industry (National Physical Laboratory)
- Electricity Supply Industry in England and Wales
- Electronic Engineering Association
- GAMBICA (BEAMA Ltd.)
- Institution of Electronic and Radio Engineers

The following bodies were also represented in the drafting of the standard, through subcommittees and panels:

- Independent Broadcasting Authority
- Independent Television Companies Association
- International Association of Broadcasting Manufacturers

This British Standard, having been prepared under the direction of the Electronic Equipment Standards Committee, was published under the authority of the Board of BSI and comes into effect on 31 October 1985

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National foreword

This British Standard, which has been prepared under the direction of the Electronic Equipment Standards Committee, is identical with IEC Publication 776:1983 “*Expression of the properties of logic analyzers*”, published by the International Electrotechnical Commission (IEC).

Terminology and conventions. The text of the International Standard has been approved as suitable for publication as a British Standard without deviation. Some terminology and certain conventions are not identical with those used in British Standards; attention is drawn especially to the following.

For the purposes of this British Standard the scope is contained in clauses 1 and 2. The scope of this standard as given in clause 1 excludes signature analyzers for which there is no British Standard.

Where the expression “if agreed between manufacturer and user” appears in clause 13 this should be taken to indicate that the subject matter concerned is not inherently part of the standard but should be included in the contract.

Cross-references

International Standard ^a	Corresponding British Standard
IEC 351-1:1976	BS 4739 <i>Method for expression of the properties of cathode-ray oscilloscopes</i> Part 1:1979 <i>General</i> (Identical)
IEC 359:1971	BS 4889:1973 <i>Method for specifying the performance of electronic measuring equipment</i> (Technically equivalent) BS 5698 <i>Guide to pulse techniques and apparatus</i>
IEC 469-1:1974 ^b	Part 1:1979 <i>Pulse terms and definitions</i> (Identical)
IEC 469-2:1974 ^b	Part 2:1979 <i>Pulse measurement and analysis, general considerations</i> (Identical)

^a Undated in the text.

^b Referred to in clause 2 only.

Additional information. This standard in 5.8 uses the term “memory depth”. The synonymous term “memory length” has been used commonly in the United Kingdom. It is recommended however that the standard term given should prevail.

NOTE *Textual error.* In clause 1, line 4, “representation” should read “representations”.

A British Standard does not purport to include all the necessary provisions of a contract. Users of British Standards are responsible for their correct application.

Compliance with a British Standard does not of itself confer immunity from legal obligations.

Summary of pages

This document comprises a front cover, an inside front cover, pages i and ii, pages 1 to 8, an inside back cover and a back cover.

This standard has been updated (see copyright date) and may have had amendments incorporated. This will be indicated in the amendment table on the inside front cover.

1 Scope

This standard applies to logic analyzers as described in Sub-clause 3.1. Only a few test procedures are required to verify the proper operation of a logic analyzer. Features such as triggering capability and data formatting are operations performed internally using digital logic circuitry. Display representation are of pseudo-waveform or formatted word displays; such displays do not require elaborate analogue measurement techniques, as would an oscilloscope display.

This standard does not apply to signature analyzers.

2 Object

To lay down uniform methods of expression of the properties of logic analyzers, and more particularly:

- to define special terminology and catalogue data related to these types of apparatus;
- to specify conditions and methods for testing these types of apparatus in order to verify compliance with properties claimed or specified by the manufacturer.

References

The following publications were used in the preparation of this standard:

- IEC Publication 351-1, *Expression of the Properties of Cathode-ray Oscilloscopes — Part 1: General*.
- IEC Publication 359, *Expression of the Functional Performance of Electronic Measuring Equipment*.
- IEC Publication 469-1, *Pulse Techniques and Apparatus — Part 1: Pulse Terms and Definitions*.
- IEC Publication 469-2, *Part 2: Pulse Measurement and Analysis, General Considerations*.

Section 1. Definitions

For the purpose of this standard, the special meanings contained in the following clauses shall apply.

3 General terms

3.1 Logic analyzer

An instrument, oriented to hardware and software analysis, used to acquire logic signals in real time with respect to a trigger event, and to represent those signals in various ways. Primary features are the ability to record from a single channel (serial mode) or simultaneously from many channels (parallel mode) and to display signals captured before and/or after the trigger event.

4 Terms related to triggering

4.1 Trigger event

An event or sequence of events that controls or references the acquisition of logic signals. The trigger event may originate from internal circuitry, be derived internally from the signal pattern, or be obtained from an external trigger source.

4.2 Word recognition

The matching of pre-set word (data pattern) to the presence or absence of that word in the logic signals acquired by the logic analyzer. A trigger event may be generated if word recognition occurs.

4.3 Don't care

The condition under which the input signal on a given channel is ignored for the purpose of word recognition.

4.4 Trigger qualifier

One or more input channels which serve as an additional condition which must be met simultaneously with an incoming word before word recognition can occur. This signal may be recorded and/or displayed.

4.5 True trigger

The condition under which the specified word will cause word recognition.

4.6 False trigger

The condition under which any word except the one specified will cause word recognition.

NOTE False trigger is sometimes referred to as "Not". This is the opposite of True trigger.

4.7 Synchronous word recognition

A process in which word recognition occurs when the selected word is true at the transition of a clock that is phase-related to that word.