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INFORMATION PROCESSING—BASIC MODE CONTROL PROCEDURES FOR DATA COMMUNICATION SYSTEMS

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PREFACE

This standard was prepared by the Association's Committee on Information Processing Systems to supersede AS 1484, Digital Data Transmission, Part 1—1973, Basic Mode Control Procedures for Data Communication Systems. It is identical with and has been reproduced from ISO 1745—1975, drawn up by ISO/TC 97, Information Processing Systems.

The purpose of this standard is to specify the implementation of the Australian standard 7-bit coded character set* for information interchange on data transmission channels. It also defines the formats of the transmitted messages and the supervisory sequences which are part of the transmission control procedures.

For the purpose of this Australian standard, the text of the ISO standard used herein should be modified as follows:

(a) *Terminology:* The words 'Australian Standard' should replace the words 'International Standard' wherever they appear.

(b) *Cross-references:* The references to International Standards should be replaced by references to Australian standards as follows:

Reference to International standard	*Appropriate Australian standard*
ISO 646, Information processing—ISO 7-bit coded character set for information processing interchange	AS 1776, Information processing—7-bit coded character set for information interchange
ISO 1177, Information processing—Character structure for start/stop and synchronous transmission	AS ----, Information processing—Character structure for start/stop and synchronous transmission†
ISO 1155, Information processing, Use of longitudinal parity to detect errors in information messages	AS 2742, Information processing—Use of longitudinal parity to detect errors in information messages
ISO 2111, Basic mode control procedures—Code independent information transfer	AS 1484.5, Digital data transmission—Extensions to basic mode control procedures
ISO 2628, Basic mode control procedures—Complements	
ISO 2629, Basic mode control procedures—Conversational information message transfer	

* See AS 1776—1985, Information Processing—7-bit Coded Character Set for Information Interchange.

† In course of preparation.

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Information processing — Basic mode control procedures for data communication systems

0 INTRODUCTION

0.1 General

A data communication system may be considered as the ensemble of the terminal installations and the interconnecting network that permits information to be exchanged.

A data link concept is identifiable when considering terminal installations connected to the same network, operating at the same speed, in the same code. Whenever actions on the respective transmission control characters take place, a separation of data links is constituted. Typical examples where this applies are: store and forward switching centres, concentrators, intermediate reformatting and speed-change devices.

The information transfer in a data link is monitored by data link control procedures where some characters, selected within a code set, are given particular meanings according to the transmission phase and are used for various purposes such as to delineate information, to reverse the direction of transmission, to ask questions, to answer, etc.

The data link control procedures are categorized in classes which are referred to as modes of operation. The present considerations relate to one class called "basic mode", which is defined as follows:

> In the basic mode all the necessary transmission control information (for example, message framing and supervisory instructions) passing from one station to another is carried over the link by discrete control characters selected from the ten transmission control characters which are defined in the ISO/CCITT 7-bit code (ISO 646). The information exchanges are carried out in the alternate mode on standard communication facilities. The control of the data link is not affected by any characters other than the ten transmission control characters. Other codes than the ISO/CCITT code may therefore be transmitted provided that they do not contain any of the ten transmission control characters in either heading or text. Sequences of transmission control character combinations such as DLE.XXX are not permitted, with the one exception DLE.EOT which is defined as "Disconnect".

Extensions to the basic mode are contained in the following International Standards:

> ISO 2111, *Basic mode control procedures — Code independent information transfer;*
>
> ISO 2628, *Basic mode control procedures — Complements;*
>
> ISO 2629, *Basic mode control procedures — Conversational information message transfer;*

and also in annexes B and C of this International Standard.

The following considerations have been taken into account in developing the rules for the basic mode:

The rules are based on the assumption that one of the stations in each connection would be either a computer or a device capable of handling automatically an exchange of information. The rules are designed to allow the complexity of operation to be increased from a basic level by adding options. These options are designed so that any number of stations can still communicate even though they normally operate at different levels of complexity.

It is desirable to reduce optional features in this International Standard to a minimum, but still retain a balance between an economic solution for the "low cost systems" and extendability for encompassing more complex systems. The rules may be difficult to implement in very simple systems involving low cost devices and human control. On the other hand, in complex high speed computer links, the rules may seriously restrict the throughput of information. These two cases are regarded as the upper and lower fringes of the present International Standard and may be the subject of future International Standards.

With the above considerations, typical limitations of basic mode control procedures are:

— restriction of efficiency by the time delay which is due to the alternate mode of operation;

— single link operation only.

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