Australian Standard®

INFORMATION PROCESSING—

ISO 7-BIT AND 8-BIT CODED CHARACTER SETS— CODE EXTENSION TECHNIQUES

This Australian standard was prepared by Committee IS/1, Information Processing Systems. It was approved on behalf of the Council of the Standards Association of Australia on 2 March 1987 and published on 6 April 1987.

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PREFACE

This standard was prepared by the Association's Committee on Information Processing Systems. It is identical with and has been reproduced from International Standard ISO 2022—1986, drawn up by ISO TC 97, Information Processing Systems. It supersedes AS 1953—1977 which was based on ISO 2022—1973. ISO 2022 was revised in 1982 and again in 1986.

Annex D of this document contains a consolidated list of the major changes which have occurred between the 1973 and 1986 editions.

The purpose of this standard is to specify methods of extending the 7-bit code, remaining in a 7-bit environment or increasing to an 8-bit environment. These techniques are described in four interrelated clauses dealing respectively with the extension of the 7-bit code remaining in a 7-bit environment, the structure of a family of 8-bit codes, the extension of an 8-bit code remaining in an 8-bit environment, and the relationship between the 7-bit code and an 8-bit code.

It also describes the structure of families of codes which are related to the code of AS 1776 by their structure.

For the purpose of this Australian standard, the text of the ISO standard given 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 interchange	AS 1776, Information processing—ISO 7-bit coded character set for information interchange
ISO 4873, Information processing—ISO 7-bit code for information interchange—Structure and rules for implementation	AS XXXX, Information processing—ISO 8-bit code for information interchange—Structure and rules for implementation*
ISO 6429, Information processing—ISO 7-bit and 8-bit coded character sets—Additional control functions for character-imaging devices	AS 2761, Information processing—ISO 7-bit and 8-bit coded character sets—Additional control functions for character-imaging devices

* In the course of preparation.

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Information processing — ISO 7-bit and 8-bit coded character sets — Code extension techniques

1 Scope

This International Standard specifies methods of extending the 7-bit code, remaining in a 7-bit environment or increasing to an 8-bit environment. These techniques are described in four interrelated clauses dealing respectively with

— the extension of the 7-bit code remaining in a 7-bit environment;

— the structure of a family of 8-bit codes;

— the extension of an 8-bit code remaining in an 8-bit environment;

— the relationship between the 7-bit code and an 8-bit code.

This International Standard also describes the structure of families of codes which are related to the code of ISO 646 by their structure.

Code extension techniques are classified and some classes are given a structure in this International Standard. Specific assignments of bit combinations to relate individual character sets and control functions with their invocation or designation are to be made in accordance with ISO 2375 (see annex A).

2 Field of application

While the 7-bit code of ISO 646 is the agreed code for information interchange, an 8-bit code as described in this International Standard is provided for information interchange within an 8-bit environment.

The 7-bit code of ISO 646 allows the representation of up to 128 characters. Additionally, ISO 646 allows the representation of other graphic characters by the combination of two or more graphic characters with the control characters BACKSPACE or CARRIAGE RETURN. In some instances, the character set of ISO 646 lacks sufficient control functions or graphic characters to satisfy the needs of an application. These needs may be satisfied by means of code extension which is the subject of this International Standard.

The principles established in this International Standard may be utilized to form supplementary code extension facilities. For example ISO 6429 has followed such a procedure to formulate some parameterized control functions.

This International Standard presents a review of the salient structure of the 7-bit code and then builds upon that structure to specify various means of extending the control function and graphic sets of the code. It also specifies structures and techniques to construct and formalize codes related to the 7-bit code. These related codes are structured so as to allow application-dependent usage without preventing the interchangeability of data employing them. It describes

a) the structure of the 7-bit code;

b) the extension of the 7-bit code, remaining in a 7-bit environment and making use of code extension techniques;

c) the structure of a family of 8-bit codes, remaining compatible with the 7-bit structure;

d) the extension of an 8-bit code, remaining in a 8-bit environment, and making use of code extension techniques.

In order to use identical techniques in each of the above cases, and to facilitate conversion between them, standard rules for code extension are necessary. This has the advantage of

a) reducing the risk of conflict between systems required to inter-operate;

b) permitting provision for code extension in the design of systems;

c) providing standardized methods of calling into use agreed sets of characters;

d) allowing the interchange of data between 7-bit and 8-bit environments, etc.

Code extension techniques are designed to be used for data to be processed serially in a forward direction. Use of these techniques in strings of data which are processed other than serially in a forward direction or included in data formatted for fixed-length record processing may have undesirable results or may require additional special treatment to ensure correct interpretation.

3 Conformance

Full conformance to a standard means that all its requirements are met. For such conformance to be unique the standard must contain no options. This is typically the case for hardware standards.

This International Standard is of a different nature and as a result, it is only practicable to envisage limited conformance to it, as defined hereunder.

This International Standard addresses whole classes of provisions, and it is not intended that they are all implemented in all instances.