Australian/New Zealand Standard™

Interactive voice response systems—User interface—Dual tone multi frequency (DTMF) signalling

Standards Australia

STANDARDS NEW ZEALAND
Paerewa Aotearoa

This Joint Australian/New Zealand Standard was prepared by Joint Technical Committee IT-022, Interactive Voice Response Systems User Interface. It was approved on behalf of the Council of Standards Australia on 3 December 2002 and on behalf of the Council of Standards New Zealand on 24 January 2003. It was published on 3 March 2003.

The following are represented on Committee IT-022:

Australian Information Industry Association
Association of Consultants in Access Australia
Australia Post
Australian Bankers Association
Australian Electrical and Electronic Manufacturers Association
Australian Telecommunications Users Group
Australian Teleservices Association
Consumers Telecommunications Network
Small Enterprise Telecommunications Centre, Australia
Telstra Corporation, Australia

Additional interests participating in the preparation of this Standard:

St George Bank

Keeping Standards up-to-date

Standards are living documents which reflect progress in science, technology and systems. To maintain their currency, all Standards are periodically reviewed, and new editions are published. Between editions, amendments may be issued. Standards may also be withdrawn. It is important that readers assure themselves they are using a current Standard, which should include any amendments which may have been published since the Standard was purchased.

Detailed information about joint Australian/New Zealand Standards can be found by visiting the Standards Australia web site at www.standards.com.au or Standards New Zealand web site at www.standards.co.nz and looking up the relevant Standard in the on-line catalogue.

Alternatively, both organizations publish an annual printed Catalogue with full details of all current Standards. For more frequent listings or notification of revisions, amendments and withdrawals, Standards Australia and Standards New Zealand offer a number of update options. For information about these services, users should contact their respective national Standards organization.

We also welcome suggestions for improvement in our Standards, and especially encourage readers to notify us immediately of any apparent inaccuracies or ambiguities. Please address your comments to the Chief Executive of either Standards Australia International or Standards New Zealand at the address shown on the back cover.

This Standard was issued in draft form for comment as DR 02241.

Australian/New Zealand Standard™

Interactive voice response systems—User interface—Dual tone multi frequency (DTMF) signalling

Originated as AS 4263 (Int)—1994.
Previous edition AS/NZS 4263:1997.
Third edition 2003.

Jointly published by Standards Australia International Ltd, GPO Box 5420, Sydney, NSW 2001 and Standards New Zealand, Private Bag 2439, Wellington 6020

ISBN 0 7337 4991 7

PREFACE

This Standard was prepared by the Joint Standards Australia/Standards New Zealand Committee IT-022, Interactive Voice Response Systems User Interface, to supersede AS/NZS 4263:1997 and its Amendment 1:1999.

The objective of this Standard is to provide telephone users who have DTMF facilities with a user friendly interface to interactive voice response (IVR) systems in order to promote ease of use in Australia and New Zealand.

The objective of this revision is to provide an improved interface based on some five years experience with practical implementations.

In preparing this Standard, account was taken of—

(a) the *Voice Messaging User Interface Specification* completed by the Voice Messaging User Interface Forum (VMUIF) under the sponsorship of the Information Industry Association of Washington, DC;

(b) ISO/IEC 13714, *Information technology—Document processing and related communications—User interface to telephone-based services—Voice messaging applications*;

(c) *Ameritech phone-based user interface standards and design guidelines*;

(d) HFES 200.5: *Software user interfaces—Interactive Voice Response (IVR) and telephony;* Draft issue date 4/12/2001; and

(e) the Australian Bankers' Association Industry Standard, *Automated telephone banking*.

This Standard is within the framework of Standards for Open Systems Interconnection (OSI) as defined by ISO/IEC JTC1.

The term 'informative' has been used in this Standard to define the application of the appendix to which it applies. An 'informative' appendix is only for information and guidance.

CONTENTS

Page

FOREWORD

Telephone-based user-system applications can be classified as shown in Figure 1.

Interactive Voice Response (IVR) systems allow users to interact with a computer by using their telephones as terminals. While this Standard focuses on IVR functionality which may be incorporated in any of the applications shown in Figure 1, it does not cover those functions which are specific to voice messaging. Examples of such functions are the ability to record, send, store and listen to voice messages and the assignment of keys to control the functions of a voice mailbox. Particular requirements for voice messaging applications are covered in ISO/IEC 13714.

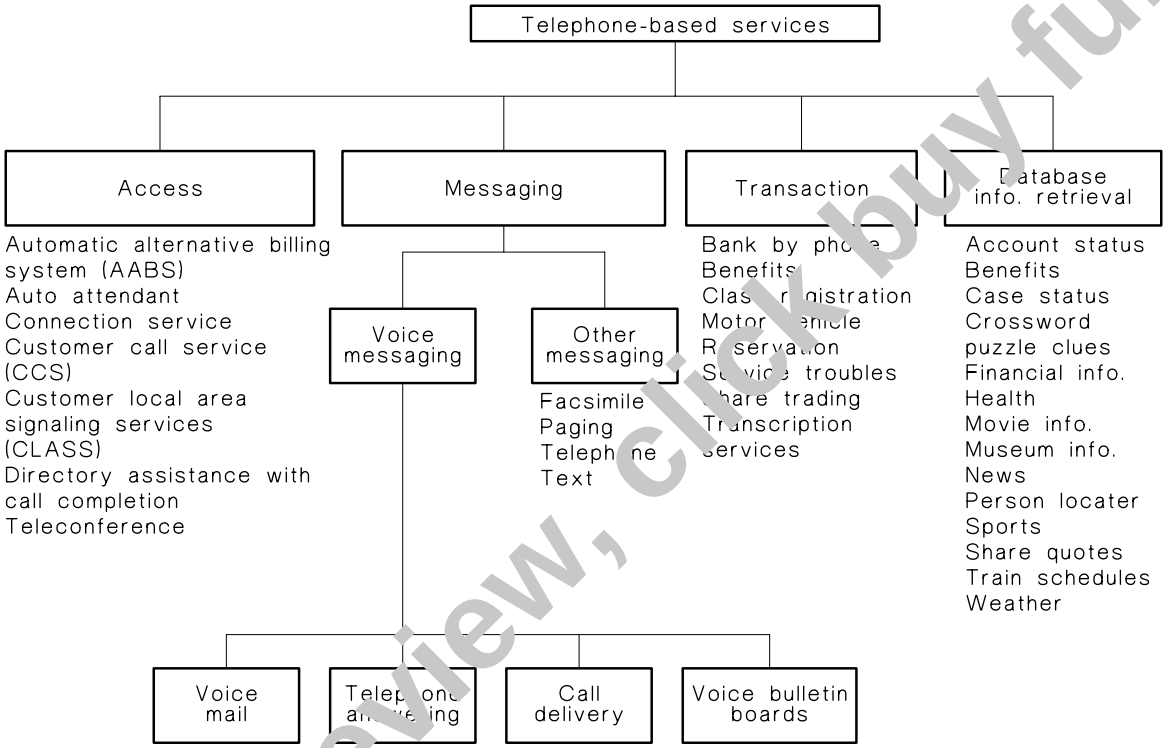

FIGURE 1 CLASSIFICATION OF USER-SYSTEM APPLICATIONS

There are three modes for accessing IVR systems. These are the following:

(a) DTMF tone signalling.

(b) Detection of energy (commonly known as 'grunt detection').

(c) Recognition of human speech (commonly known as 'speech recognition').

DTMF signalling is used to send switching information to a telephone exchange (e.g. the network address of the B Party). Once that connection is established, DTMF signalling may be utilized by the A Party or the B Party, or both (and C, D, and similar, parties if the call is forwarded). IVR systems commonly utilize DTMF signalling from the user, usually the A Party, to the system (usually the B or C Party).

Experience has shown that consistent and predictable human interfaces benefit users. The benefits can include faster learning, greater productivity, fewer errors and greater satisfaction.

Consistent interfaces also benefit the industry by promoting greater acceptance of products and services. Standardization of the user-to-system interface can deliver these benefits.

Standardization of IVR systems is particularly important because users do not have the opportunity to read an instruction manual each time they access a different IVR service. As IVR technology becomes more prevalent, users will become extremely frustrated if they encounter systems with varying design principles.

While a Standard cannot address every aspect of the interface—since each IVR application is unique and requires a customized interface—there are logical ways to handle common IVR situations. This Standard addresses such situations.

STANDARDS AUSTRALIA/STANDARDS NEW ZEALAND

Australian/New Zealand Standard

Interactive voice response systems—User interface—Dual tone multi frequency (DTMF) signalling

SECTION 1 SCOPE AND GENERAL

1.1 SCOPE

This Standard specifies requirements for the design of the user interface in Interactive Voice Response (IVR) systems where the user input to the system is signalled by DTMF tones.

NOTES:

1 The committee responsible for this Standard has commenced work on the preparation of a separate standard for IVR systems–user interface, where the user input is by means of human speech.

2 While this Standard does not incorporate requirements for IVR systems where the user interacts with the IVR using a TTY device and not a telephone, it is recommended that organizations commissioning IVR systems give consideration to enabling their IVR systems to be accessed directly via a TTY device. Users of this Standard who are installing IVR systems are also urged to take into consideration that IVR systems are accessed by some users via a telephone relay service operator who will need to listen to prompts and then type the prompts to the user and obtain responses by the same means prior to making a selection or entering data. The ability to pause the IVR would be of significant assistance to the relay operator in these circumstances and it is recommended that such a facility is included.

The IVR system output is presented as audible signals or voice (whether live, recorded, digitized or synthesized) carried over an interactive telecommunications medium (whether public or private or a combination of both, or whether wired or wireless) including the PSTN or ISDN.

This Standard does not cover application, processing and service content.

1.2 APPLICATION

This Standard is intended for use by developers and owners of IVR systems.

1.3 REFERENCED AND RELATED DOCUMENTS

1.3.1 Referenced documents

The following documents are referred to in this Standard:

ISO/IEC
13714 Information technology—Document processing and related communication—User interface to telephone-based services—Voice messaging applications

AS/ACIF
S002 Analogue interworking and non-interference requirements for Customer Equipment for connection to the Public Switched Telephone Network

NOTE: References to AS/ACIF documents are only applicable in Australia.