AS 5061—2008

Australian Standard®

Interactive voice response systems user interface—Speech recognition

STANDARDS Australia

This Australian Standard® was prepared by Committee IT-022, Interactive Voice Response Systems User Interface. It was approved on behalf of the Council of Standards Australia on 13 February 2008.
This Standard was published on 19 March 2008.

The following are represented on Committee IT-022:

- Association of Consultants in Access Australia
- Australia Post
- Australian Bankers Association
- Australian Electrical and Electronic Manufacturers Association
- Australian Information Industry Association
- Australian Telecommunications Users Group
- Australian Teleservices Association
- Small Enterprise Telecommunications Centre (SETEL)
- Telstra Corporation Limited

This Standard was issued in draft form for comment as DR 05470.

Standards Australia wishes to acknowledge the participation of the expert individuals that contributed to the development of this Standard through their representation on the Committee and through the public comment period.

Keeping Standards up-to-date

Australian Standards® are living documents that 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Standards may also be withdrawn.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 that may have been published since the Standard was published.

Detailed information about Australian Standards, drafts, amendments and new projects can be found by visiting www.standards.org.au

Standards Australia welcomes suggestions for improvements, and encourages readers to notify us immediately of any apparent inaccuracies or ambiguities. Contact us via email at mail@standards.org.au, or write to Standards Australia, GPO Box 476, Sydney, NSW 2001.

Australian Standard®

Interactive voice response systems user interface—Speech recognition

First published as AS 5061—2008.

COPYRIGHT

© Standards Australia

All rights are reserved. No part of this work may be reproduced or copied in any form or by any means, electronic or mechanical, including photocopying, without the written permission of the publisher.

Published by Standards Australia GPO Box 476, Sydney, NSW 2001, Australia

ISBN 0 7337 8600 6

PREFACE

This Standard was prepared by the Australian members of the Joint Standards Australia/Standards New Zealand Committee IT-022, Interactive Voice Response Systems User Interface. After consultation with stakeholders in both countries, Standards Australia and Standards New Zealand decided to develop this Standard as an Australian Standard rather than an Australian/New Zealand Standard.

This Standard is intended to complement AS/NZS 4263:2003, *Interactive voice response systems—User interface—Dual tone multifrequency (DTMF) signalling.*

The objective of this Standard is to provide telephone users with a user friendly interface to interactive voice response systems, which use speech as the mode of input, in order to promote the ease of use of Interactive Voice Response (IVR) systems in Australia. This Standard also provides an improved and consistent interface based on several years' experience with practical implementations of IVR systems which use speech recognition as the primary input mode.

Much of the technical content of this Standard has been reproduced from ETSI ES 202 076 V1.1.2, ETSI Standard Human Factors (HF); User Interfaces; Generic spoken command vocabulary for ICT devices and services.

In preparing this Standard, account was taken of:

Bednall, E.S. and Rogers, C.T. (2003). Telstra User Interface Guidelines for Speech Applications. *Telstra Research Laboratories, Report Number 8546.*

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 4

SECTION 1 SCOPE AND GENERAL
1.1 SCOPE 6
1.2 APPLICATION 6
1.3 REFERENCED DOCUMENTS 6
1.4 DEFINITIONS 6

SECTION 2 NAMING CONVENTIONS
2.1 GENERAL 12
2.2 TERMINOLOGY IN SYSTEM PROMPTS AND SPOKEN COMMANDS 12

SECTION 3 SYSTEM INPUT
3.1 GENERAL 19
3.2 BARGE-IN 19
3.3 DTMF INPUT IN SPEECH RECOGNITION APPLICATIONS 19

SECTION 4 SYSTEM OUTPUT
4.1 GENERAL 20
4.2 PROMPT CHARACTERISTICS 20
4.3 OUTPUT OF DIGIT STRINGS 21
4.4 CALL RECORDING 21
4.5 MENUS 21
4.6 NON-SPOKEN OUTPUT 22

SECTION 5 ERRORS AND TIMEOUTS
5.1 GENERAL 24
5.2 TIMEOUTS 24
5.3 TRANSFER TO AN OPERATOR 24
5.4 UNAVAILABILITY OF SERVICE 25
5.5 ERROR HANDLING 25

SECTION 6 HELP AND TUTORIALS
6.1 GENERAL 27
6.2 HELP 27
6.3 TUTORIAL 27

APPENDIX A TIPS FOR DESIGNERS 28

FOREWORD

Automated Telephone services can be classified as shown in Figure 1.

Interactive Voice Response (IVR) systems allow callers 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.

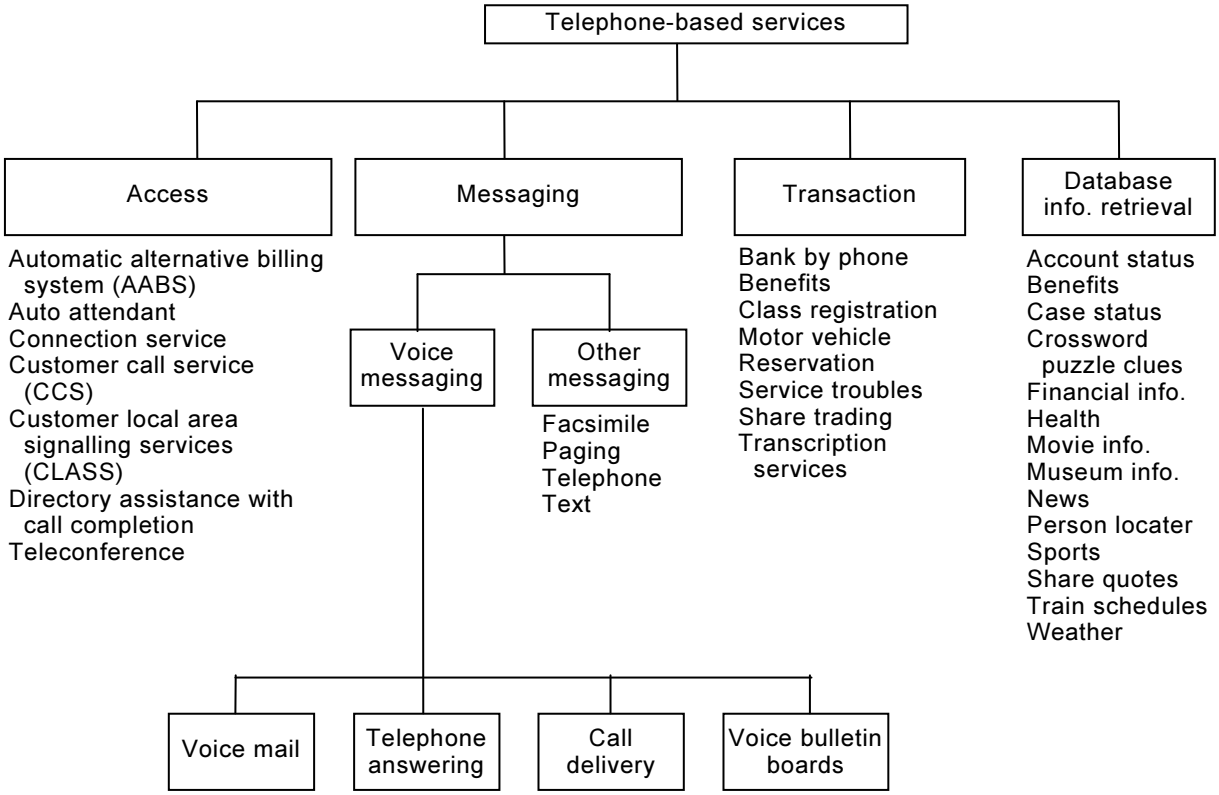

FIGURE 1 CLASSIFICATION OF USER-SYSTEM APPLICATIONS

DTMF signalling is used to send switching information to a telephone exchange. Once a connection is established, the automated telephone service interprets DTMF tones or human speech as commands or system input.

The two input modes addressed in this Standard are—

(a) DTMF tones; and

(b) speech.

Systems can be configured to use both DTMF and speech recognition in parallel. This Standard is a companion document to AS/NZS 4263, which deals with DTMF-based IVR services. This Standard addresses applications which also incorporate speech recognition input.

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 callers do not have the opportunity to read an instruction manual each time they access a different IVR service.

As IVR services incorporating speech recognition continue to become more prevalent, users will become extremely frustrated if they encounter systems with varying design principles.

In practice, a speech recognition system has a limit on the number of words that it can recognize. The design of a good user interface is therefore dependent on how well the designer has predicted the words a user is likely to utter.

In human-to-human communication, people tend to mirror the vocabulary of the person with whom they are speaking. In a similar way, IVR systems can guide users to use certain preferred expressions by including those expressions in system prompts.

This Standard contains a core vocabulary of natural and intuitive words and phrases. The vocabulary has been derived from international guidelines, and takes account of the Australian context and vernacular. A key benefit of this common set of terms is that it can be adopted across diverse services and domains, thereby minimizing the time to learn and use new speech-based applications.

STANDARDS AUSTRALIA

Australian Standard
Interactive voice response systems user interface—Speech recognition

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 primary user input is by speech.

User input by Short Message Service, Wireless Application Protocol and General Packet Radio Service is outside the scope of this document.

NOTE: Where the user interface allows input by means of both DTMF and speech, the requirements of AS/NZS 4263 should apply to DTMF input except where this Standard includes specific requirements for multi-mode input.

While this Standard does not specifically address issues concerned with accessibility by people with disabilities, attention is drawn to the *Australian Disability Discrimination Act 1992* which makes it unlawful for a person or organization who provides IVR services, to discriminate against another person on the grounds of the other person's disability.

Of importance is that any service accessible by the public should be able to be accessed without discrimination unless making the service available would impose unjustifiable hardship on the person or organization providing the service, would be technically impossible, would impose major difficulties or involve unreasonable costs.

1.2 APPLICATION

This Standard is intended for use by user interface designers and developers of IVR systems which incorporate speech recognition.

1.3 REFERENCED DOCUMENTS

The following documents are referred to in this Standard:

AS/NZS
4263 Interactive voice response systems—User interface—Dual tone multifrequency (DTMF) signalling

Australian Disability Discrimination Act 1992

ETSI ES

ITU-T Rec.
E.183 Guiding principles for telephone announcements

ACIF
G516 Industry Guideline—Participant monitoring of voice communications

1.4 DEFINITIONS

For the purposes of this Standard the definitions below apply.

1.4.1 Application

Computer software which is designed for a specific business area or purpose.