



AUSTRALIAN BANKERS' ASSOCIATION

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Australian Bankers' Association Industry Standard

The attached Industry Standard is today released for adoption by members of the ABA and other financial institutions.

The Standard has been developed for improvement of accessibility of electronic banking services. The Australian Bankers' Association and its members are working together with the community to improve accessibility and are contributing to efforts to narrow the digital divide.

Under the leadership of the ABA, representatives from the banks, other financial institutions, community groups and retailers have developed Industry Standards for:

- Electronic Funds Transfer at the Point of Sale (EFTPOS);
- Automated Telephone Banking;
- Internet Banking;
- Automatic Teller Machines (ATMs).

Our industry is committed to developing industry-wide best practice standards and protocols for voluntary adoption by the banks. Banks can use these standards to develop their own action plans.

The ABA is lodging a new Disability Action Plan with the Human Rights and Equal Opportunity Commission, with objectives essentially concerned with supporting and reviewing the implementation of the Industry Standards. Review and revision processes, and monitoring and reporting issues are also addressed in the Plan.

All Industry Standards can be found at:

- ABA website: www.bankers.asn.au
- HREOC website: www.hreoc.gov.au

Copies of the Standards are also available from the ABA, including alternate formats eg braille and large print. Telephone ABA on (02) 8298 0417.

Any comments on the Standards should be sent to reception@bankers.asn.au or posted to Australian Bankers' Association, Level 3, 56 Pitt St, Sydney 2000.

Yours sincerely

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Industry Standard

Automatic Teller Machines (ATM)

1 Preface

The Australian Banking Industry lodged an Industry Action Plan with the Human Rights and Equal Opportunity Commission (HREOC) on 30 April 2001. The stated aim of the plan was to contribute to the process of eliminating the 'Digital Divide' by implementing the recommendations in the HREOC report, 'Accessibility of Electronic Commerce and New Service and Information Technologies for Older Australians and People with a Disability', principally through the development of industry best practice standards and guidelines.

This document addresses Automatic Teller Machine (ATM) technologies and provides a set of standards for their design, deployment and operation.

2 Contents

Table with 2 columns: Section Number and Page Number. Includes sections for Preface, Contents, Introduction, References, Disclaimers, Disability Discrimination Act, Force of Document, Definitions, Scope, Notes, and Requirements (Access and Location, Signage, Lighting).

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3 Introduction

This Standard has been developed by a Working Group comprising financial services industry and community representatives, and has been subject to an extensive community consultation process.

The Standard was funded and developed under the sponsorship of the Australian Bankers' Association (ABA). The ABA appreciates and acknowledges the input and assistance provided by the Human Rights and Equal Opportunity Commission (HREOC), financial institutions, Working Group members and organisations of and for older Australians and people with disabilities.

In particular, the work conducted by the Centre for Accessible Environments in the United Kingdom, the Canadian Standards Association, Standards Australia and the US Access Board has assisted in the formulation of the content of this document.

In formulating these guidelines, the ATM Working Group has sought to incorporate the best information and guidance from available sources, as well as new research.

4 References

This Standard refers to and has considered the following publications, and where references are made they are to the editions listed below:

1. "Access Prohibited?" Information for Designers of Public Access Terminals, John Gill, Royal National Institute for the Blind (RNIB), United Kingdom, <http://www.tiresias.org/pats/index.htm>
2. "Telephones for All", Nordic Committee on Disability
3. Access to ATMs: UK design guidelines (revised) 2001 (yet to be published) produced by the Centre for Accessible Environments (CAE) London UK
4. Accessible E-Commerce in Australia: A discussion paper about the effects of electronic commerce developments on people with disabilities. (1999), Blind Citizens Australia <http://www.bca.org.au/ecrep.htm>
5. AS 1088.4 Hearing Aids – Magnetic field strength in audio–frequency induction loops for hearing aid purposes.
6. AS 1428 (set) Design for access and mobility
7. AS 1428.1-2001 Design for access and mobility – General requirements for access – New building work
8. AS 1428.2 Part 2: Design for access and mobility – Enhanced and additional requirements - Buildings and facilities
9. AS 1428.4 Design for access and mobility – Tactile ground surface indicators for the orientation of people with a vision impairment
10. AS 1680 (set) Interior lighting
11. AS 1680.1 –1990/Amdt 1 Interior lighting - General principles and recommendations
12. AS 1680.2.2 Interior lighting – Office and screen-based tasks

13. AS 1735.12 – 1999 Lifts, escalators and moving walks – Facilities for persons with disabilities
14. AS 3769 1990/Amdt 1 Automatic Teller Machines – User access
15. AS/NZS 4263: 1997/Amdt 1 – 1999 Interactive voice systems – User interface – Dual tone multi frequency (DTMF)
16. Barriers to using Automatic Teller Machines: A review of the usability of self-service banking facilities for Australians with disabilities. (2000) Human Rights & Equal Opportunity Commission, Australia.
http://www.humanrights.gov.au/disability_rights/inquiries/ecom/atmpaper.htm
17. BS EN 1332-3: 1999 Identification card systems – Man-machine interface
18. Building Code of Australia
19. CSA B651.1-01 Barrier-free design for automated banking machines
20. EFT Code of Conduct
21. ISO 1000 – 1998 The international system of units (SI) and its application
22. Smart Cards in Australia: The Impact of Smart Cards on People with Disabilities. (2000) Blind Citizens Australia. <http://www.bca.org.au/screp.htm>
23. Text Display Preferences on Self-Service Terminals – Research conducted by the Royal National Institute for the Blind. <http://www.tiresias.org/reports/atm.htm>
24. US Public Law 508 rules, published by the United States Access Board in December 2000

5 Disclaimers

This document is based in part on the local and international research on best practice in the design, deployment and operation of ATM solutions which was available as at the time of publication. Future versions of the document will incorporate the latest research.

As material in this document was both developed by the Working Group and drawn from a number of other sources, it must not be cited or reproduced in any form or by any means without permission from the ABA. It may however be referred to in tenders, requests for expressions of interest and requests for proposals without permission, where interested organisations are seeking to adopt its requirements.

There are many liability and other legal issues relating to matters covered in this Standard, the resolution of which falls outside the scope of the document. These include:

- Conditions of use (eg, proxy relationships, determinations of breaches)
- PIN entry (eg, inability to enter PIN, PIN replacing signature)
- PIN disclosure
- Handing over card to another party (eg, family member or shop staff)
- Physical signatures (eg, inability to sign)
- Electronic signatures
- Disclosure of user IDs and passwords
- Strategies for avoidance of fraud
- Compliance with Commonwealth *Electronic Transactions Act*
- Compliance with the Commonwealth *Privacy Act 1988* (which incorporates the amendments made to it by the *Privacy Amendment (Private Sector) Act 2000*)
- Environmental, occupational health and safety issues not pertaining to the technology.

Although the intended primary application of this Standard is stated in its Scope (see below, Section 9), it is important to note that it remains the responsibility of the users of the Standard to judge its suitability for their particular purpose.

The Standard ought not be relied upon as a substitute for professional advice in complying with the law, and should be implemented only after relevant professional advice has been obtained.

The Australian Bankers' Association, the Human Rights and Equal Opportunity Commission, and all other parties associated with the publication of this document, have made every effort

to ensure the accuracy of information, but accept no responsibility for any loss or damage occasioned by any party in its seeking to implement any provision of the Standard.

6 Disability Discrimination Act

The Commonwealth *Disability Discrimination Act 1992* (DDA) makes it unlawful to discriminate against a person on the grounds of a disability. The objects of the DDA include eliminating, as far as possible, discrimination against people with disabilities and promoting recognition and acceptance within the community that people with disabilities have the same fundamental rights as the rest of the community.

The DDA uses a broad definition of “disability” that includes:

- Physical
- Intellectual
- Psychiatric
- Sensory
- Neurological, and
- Learning disabilities, as well as
- Physical disfigurement, and
- The presence in the body of disease-causing organisms.

The law is administered by the Human Rights and Equal Opportunity Commission (HREOC) and sets out specific areas in which it is unlawful to discriminate. These areas include accommodation, employment, access to premises, and the provision of goods, services and facilities. The definition of ‘services’ in the DDA includes financial and information services provided, for example, through websites, telephones, ATMs and EFTPOS sites. An organisation that provides such services is liable for complaint if those services are not accessible to people with disabilities.

The DDA recognises, however, that in certain circumstances, providing equitable access for people with disabilities could cause ‘unjustifiable hardship’ for an individual or organisation providing goods or services.

Where a person with a disability believes they have been discriminated against they can complain to the Commission who will investigate the complaint and, where appropriate, attempt to conciliate a solution between the two parties. Where conciliation is not possible the complainant may take their complaint to the Federal Court or Federal Magistrates Service who have the authority to determine whether unlawful discrimination has occurred and what constitutes ‘unjustifiable hardship’.

The Commission also has a role in assisting organisations understand their responsibilities and supporting initiatives aimed at promoting compliance through best practice. While these Industry Standards have no force in law the Commission has supported their development in the hope that they will provide a level of access consistent with the requirements of the DDA.

7 Force of Document

This document is an Industry Standard: a set of standards and guidelines for the design, deployment and use of ATMs in the financial services industry. The adoption of Industry Standards is voluntary.

This Standard does not have the force of law, and adopting the Standard does not guarantee fulfilment of legal responsibilities under the DDA, nor does it remove from any institution their obligation to comply with the requirements of that Act or any other relevant legislation.

The Standard has been developed in consultation with interested parties, including the Human Rights and Equal Opportunity Commission (HREOC), with the objective of describing best practice in accessibility consistent with the DDA. An organisation choosing to adopt the Standard may therefore have some confidence that they are implementing requirements

which have evolved from community consultation with interested parties, and that adoption of the Standard will carry some weight as a defence against a complaint lodged under the DDA.

It is expected that banks and other financial institutions deciding to adopt this Standard will develop and lodge with HREOC Disability Action Plans which rely in large part on this and other Industry Standards.

A financial institution may also seek protection from complaint under the DDA during implementation of the Industry Standard by lodging a temporary exemption application with HREOC on the basis of its commitment.

Where a financial institution commits to implementing the Industry Standard through an action plan, any individual or group may monitor implementation. Any individual or group covered by the DDA retains the right to lodge complaints with HREOC for perceived breaches of the DDA.

Institutions should also refer to any relevant Australian and Australia/New Zealand Standards.

8 Definitions

For the purpose of this Industry Standard, the following definitions apply:

Accessible - meeting the functional needs of all people to the greatest extent possible by the design and/or adaptation of ATMs, sites, and exterior spaces.

Alternative (alternate) format - information presented in braille, in large print, tape, electronically (eg, CD-ROM, diskette), or in Auslan.

ATM deployer - an organisation which installs and operates ATMs.

ATM Task Area – see Interface.

Automatic teller machine (ATM) - a wall-mounted, stand-alone or semi-secure electronic terminal that is customer-activated and designed to perform basic transactions such as cash withdrawal and balance inquiry, and advanced transactions such as cheque deposit, bill payment, and transfer between accounts.

Biometrics - the use of technologies which can 'read' and match a person's physical characteristics in order to establish reliably a person's identity. Examples include iris or retinal scans, finger and thumb print scans, voice print registration and facial recognition.

Braille - a system of touch reading for the blind, which employs embossed dots, evenly arranged in quadrangular letter spaces or cells. Braille can be written using 'grade 1' where there is a close correspondence between print symbols and braille equivalents, or 'grade 2' which employs extensively word abbreviations and braille symbols representing contractions of words and parts of words.

Circulation space - the net unobstructed area for a minimum height of 2000 mm above the finished floor or ground surface (unless otherwise specified in this Standard), which is that space surrounding built elements, landscape elements, and fixtures and fittings required for movement into and within buildings.

Continuous accessible path of travel (accessway) - a clearly discernible, uninterrupted path of travel in an external built environment, or within a building, providing access to all required facilities. For people who use a wheelchair, this accessible path should not incorporate any step, stairway, turnstile, revolving door, escalator or other impediment, which would prevent it from being safely negotiated by people with disabilities. Included are pedestrian routes: areas such as walkways, halls, corridors, passageways, or aisles. (See AS 1428.1 and 1428.2)

Contrast - a juxtaposition of tones, textures, colours, and/or brightness to create striking differences.

Decision-making location – includes street crossings and intersections and building foyers.

Dip Reader – a type of non-motorised card reader into which a magnetic stripe or contact card can be inserted and withdrawn. This type of card reader is contrasted with swipe readers.

Disability – the use of this term in the Standard relies on the DDA definition which, as noted above includes:

- Physical
- Intellectual
- Psychiatric
- Sensory
- Neurological, and
- Learning disabilities, as well as
- Physical disfigurement, and
- The presence in the body of disease-causing organisms.

Easy reach - not requiring a person to lean or twist their body unduly in order to reach the ATM interface.

Enclosed ATM – an ATM that is built into a semi-secure enclosure, where the back of the machine is secured.

Feedback - information supplied by the system to indicate that user actions have had their intended effects. Typically, feedback consists of a prompt indicating that an action has had its intended effect, but feedback also includes error indications and tones.

Glare - luminance within the visual field that is sufficiently greater than the luminance to which the eyes have adapted, and is liable to cause annoyance, discomfort, or diminished visual performance and visibility.

Hazard - any object in or immediately adjacent to a path of travel, which may place people at risk of injury.

HREOC - Human Rights and Equal Opportunity Commission - The Australian Human Rights and Equal Opportunity Commission administers federal legislation in the area of human rights, anti-discrimination, social justice and privacy. This includes complaint handling, public inquiries, policy development and education and training.

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

Interactive voice response (IVR) system or service - an automated telephone-based system or service that allows users to enter information and make menu selections using DTMF or speech recognition, and to receive audible information. Examples include automated telephone banking and bill pay (Bpay) services.

Interface - the location at which the user interacts with the ATM.

Interrupt capability - the ability to interrupt system output with valid input.

ISA – International Symbol of Access - the ISA provides a consistent international designation of accessible entrances, information, facilities, transportation and amenities. Other symbols to assist people with sensory impairments may be used in conjunction with the ISA.

Large print signage – signage which contains printing optimised for reading by people with a vision impairment. Refer to the Building Code of Australia for guidance.

Luminance - the intensity of light emitted from a surface, per unit area, in a given direction.

Magstripe card - Magnetic Stripe Card - the credit and debit cards which are in common use in Australia are magnetic stripe cards. Because the magnetic stripe on such cards has very limited storage capabilities, there is little if any space available to store information in addition to the card owner's ID and PIN information.

May – indicates the relative importance of a requirement. “Mays” follow “shoulds” in importance in this Standard, and carry a priority rating of “3” in the specification checklist in Section 12 of this document.

Menu - the presentation to the user of a list of possible actions. A menu typically comprises a set of prompts each describing an available function and the user action necessary to invoke that function.

People of non-English speaking background (NESB) – Anyone for whom English is not their first spoken or written language.

Personal identification number (PIN) - a numeric or alphanumeric code or password made up of between 4 and 12 characters that the cardholder possesses for the purpose of identification.

Plain English – language that is written as clearly and simply as is appropriate for the content. Clear and simple writing will aid all users, especially those with cognitive, learning, and/or reading disabilities. This should not discourage the writer from expressing complex or technical ideas. Using clear and simple English also benefits people whose first language is not English, including those people who communicate primarily in sign language.

Screen transaction area - a clearly defined portion of the screen that presents information and instructions relating to a user's transactions.

Shall – indicates the relative importance of a requirement. “Shalls” are of the highest importance in this Standard, and carry a priority rating of “1” in the specification checklist in Section 12 of this document.

Should – indicates the relative importance of a requirement. “Shoulds” follow “shalls” in importance in this Standard, and carry a priority rating of “2” in the specification checklist in Section 12 of this document.

Stand-alone ATM – an ATM installed in an area with no additional enclosure.

Swipe reader – a card reader for magnetic stripe cards that requires the card to be held by the user and slid (swiped) past the reader. Swipe readers can be horizontal or vertical, and can allow swiping in only one, or two directions.

Tactile ground surface indicators (TGSIs) - areas of raised ground surface texture treatment, designed to provide people who are vision-impaired with warning and/or directional orientation information. (See AS 1428.4)

Tactile indicators - cues designed to provide people who are blind or vision-impaired with orientation information by means of tactile perception.

Tactile signs - signage incorporating raised text, braille and/or symbols, to enable touch reading by people who are blind, and touch enhancement or visual perception for people who are vision-impaired.

Tiresias - the Tiresias Screenfont (<http://www.jaura.freeseerve.co.uk/tiresias.htm>) is designed to have characters that are easy to distinguish from each other. The design was carried out, with specific reference to people who are vision-impaired, on the philosophy that good design for visually impaired persons is good design for everybody. Throughout the design process, the key factors that affect legibility were studied. These factors include:

- Character shapes
- Relative weight or thickness of the character shapes
- Inter-character spacing
- Aspect ratios that affect the maximum size at which the type could be used

Universal design - the design of products and environments capable of being used by all people, to the greatest extent possible, without the need for adaptation or specialised design.

User Interface - the term used to describe the methods by which people and computers interact. User interface includes the output and input formats that programs and technology generate and recognise. Depending on the user interface design of a device or program, systems can be easy, difficult or even impossible to access for various groups of people with disabilities.

User operating space - the area directly in front of the ATM, where the user operates the ATM, including the queuing area.

Wall-mounted ATM – an ATM installed in a wall opening of an existing structure or a structure built to house the ATM.

9 Scope

The purpose of the Standard is to define accessibility requirements for Automatic Teller Machines (ATMs) and ATM sites. It is intended for use by manufacturers, suppliers, designers and users of ATMs. Although its primary application is for financial institutions deploying ATMs, it is strongly recommended that manufacturers, suppliers and designers work closely with their customers in providing advice and guidance on adoption of the Standard.

While the purpose of the Standard is to make the product or environment more usable, there may be some people with disabilities who have requirements unable to be met within this Standard.

This Industry Standard specifies requirements, guidelines, recommendations and suggestions for the design, manufacture, installation and configuration of wall-mounted, stand-alone and enclosed ATMs and for ATM sites. Certain requirements also apply to drive-through ATM sites.

While it is acknowledged that a number of entities are involved in the chain from design, manufacture, installation and usage of ATM equipment, this document specifies the levels of performance required to make such facilities usable by people with a range of access needs. It also specifies guidelines for installers and strategies that can be employed to meet users' requirements, and contains recommendations applicable to other parties who provide provisioning and support services to financial institutions.

Many of the recommendations relate to the physical facilities of the ATM, but others extend to server-side back end processes and software modifications that would be necessary to provide specific levels of functionality.

Nothing in this document is intended to prevent the use of designs or technologies as alternatives to those prescribed below provided they result in substantially equivalent or greater access to and use of a product for older Australians and people with disabilities.

10 Notes

10.1 Performance Objectives

There are instances in this document where a requirement is expressed as a performance objective rather than as an exact technical specification. In many cases this is because it is the most appropriate way to express the requirement. In the remainder, it is because no suitable published or de facto standard has been identified nor has any credible research been uncovered which would support the determination of a specification. In these instances, the ABA will wait for a suitable standard to emerge or adequate research to become available before adding a specification to this document.

10.2 Unit of measure

Throughout this Standard the International System (SI) of units and symbols is used in accordance with ISO 1000.

11 Requirements

The wording of requirements as “shall”, “should” or “may” clauses indicates the relative importance of each requirement.

Unless otherwise indicated (see checklist in section 12), where requirements entail physical changes to an ATM or to the site at which it is installed, the requirements may be interpreted as applying only to programmes for new, replacement or substantially upgraded ATMs. An ATM deployer may however choose to implement changes immediately.

In many cases however, the ATM deployer will need to negotiate with other parties such as lessors, property managers and local government authorities before implementing changes to an installation. This Standard is not binding on these stakeholders and it may not be possible in all instances to secure agreement from all parties involved, but the ATM deployer shall use reasonable endeavours to do so.

During design, and prior to implementation, it is strongly recommended that users of varying ages, and with a range of capabilities and limitations be engaged to trial the ATM and provide feedback.

There are significant benefits to consulting with users from the beginning of the project (for example through focus groups at the initial planning stages) and at key stages within the project. Feedback from users can then be incorporated into the business/user requirements that create a framework for the development of technical and design specifications. This helps minimise accessibility problems after implementation.

It is also important that accessibility considerations are understood prior to testing for wider usability. Decisions concerning accessibility are unlikely to adversely affect overall usability (in fact they often enhance usability for all customers). However, if changes are made for accessibility then the revised design will need to be tested again for general acceptance.

11.1 Access and Location

It is acknowledged that in many cases, ATM deployers do not have control over the environment in which the ATMs are installed. The deployer shall use reasonable endeavours in liaising and negotiating with the other parties involved in the installation to ensure that installation meets the requirements of this Standard and any relevant legislation.

Those users who are blind, have a vision impairment or use a wheelchair should not be disadvantaged in locating the ATM in the environment. Some ways to facilitate locating the ATM include tactile, audio and large print signage, tactile ground surface indicators and provision of accessible information about locations of ATMs which are accessible.

11.1.1 Exterior Route

Exterior routes shall conform to AS 1428.1 and 1428.2.

ATM deployers' normal maintenance programs should include removal of obstructions.

11.1.2 Interior Route

Interior routes shall also conform to AS 1428.1 and 1428.2.

11.1.3 Site

The choice of a site for the installation of an ATM will be influenced by such factors as the design, structure and location of an existing building, proximity to passing trade, security aspects, environmental noise, surrounding lighting, direct light, weather protection and laws governing the use of public walkways.

ATMs should be sited in proximity to accessible parking bays, with a continuous accessway between the ATM and the parking bay. Access should be provided in accordance with AS 1428.1.

The area should be free of building stanchions, street utilities, and the like. This will not only assist people who use wheelchairs, and people who are blind or vision impaired, but will also facilitate the queuing of users, so that more privacy can be obtained.

Bollards may be an obstruction or potential hazard for people who are blind or vision-impaired, even if they do not hinder people who use a wheelchair. Refer to AS 1428.1 in relation to provision of an adequate clear path of travel.

If there are obstacles or hazards, then tactile ground surface indicators may be required, in accordance with AS 1428.4.

11.1.4 Doors & Entrances to Interior ATMs

Where doors lead into the ATM user space, they shall comply with AS 1428.1 and 1428.2.

For the entrance door, the preferred clear opening width is 900 mm and shall not be less than 800mm.

Door-closing mechanisms shall be set so that the force required to open the door (measured at the opening edge) does not exceed 19.5 N. Doors that open automatically or are power assisted are strongly preferred by many people.

Any user-operated door opening controls, access control systems or lever handles should be within a height range of between 900 mm and 1100 mm (1000 mm is preferred). A left hand placement is recommended.

11.1.5 Signage

ATM deployers should refer to Specification D, 3.6 in volume 1 of the Building Code of Australia (BCA) in relation to signage and AS 1428.4 in relation to tactile ground surface indicators.

11.1.5.1 Location Signs

In order to facilitate the locating process for accessible ATMs, signage pertaining to ATMs should be located at decision-making locations. Decision-making locations include street crossings and intersections and building foyers.

Where applicable, location signage should include the International Symbol of Access (ISA, refer to Appendix A2) for identification of ATMs which conform to this Standard.

Deployers may wish to provide additional signage to assist in locating ATMs which have audio capability. Such signs would need to include a suitable symbol, such as the headphone symbol listed in Appendix 2.

11.1.5.2 Door Signs (room identification)

Signs shall be located on the wall on the side closest to the leading edge of the door and in close proximity to the card access slot (where installed).

The leading edge of the sign shall be a minimum of 50 mm from the architrave and a maximum of 100 mm, and be fixed at a height of between 1200 mm and 1600 mm above the floor.

In the event of insufficient latch side space (doorway not complying with AS 1428.1 and 1428.2), a sign may be placed near the leading edge of the door, or if this is not possible, may be placed on the door itself.

Where ATMs are installed in an interior space and door signs are provided, signage should include name of deployer.

Note: Location and placement of signs may be subject to building owner and council approvals.

11.1.5.3 Braille, Tactile and Visual Signs

Braille, tactile and bold print signs assist customers to find, identify and use ATM facilities.

Way-finding signs may be placed on or near ATMs, or near doorways to interior ATM user areas. Signs may also direct people to areas where accessible ATMs are located and identify, in a bank of machines, which ATMs are accessible.

Tactile signs, if provided, shall:

- (a) comply with Specification D, 3.6 of the BCA;
- (b) where applicable, be located at the entrance to indoor foyers/areas where ATMs are located;
- (c) where applicable, be located on the wall, on the side closest to the leading edge of the card access slot (where installed), or adjacent to the ATM.

11.1.5.4 Interface Component Signs and Labels

Components of the ATM interface should be identified by use of appropriate tactile and/or braille signs or labels.

A visual and tactile symbol should be adopted to indicate the availability of voice output on an ATM. This would enable easy visual identification of ATMs that can be used by people who are blind or have a vision impairment.

Suggested symbols for tactile signage are included at Appendix A2.

11.1.6 Lighting

11.1.6.1 Lighting - General

Task lighting and ambient lighting are important, particularly for people with a vision impairment. Appropriate lighting enables users to find their way to the ATM, identify the operating features, and interpret any instructions or graphics easily, with minimal glare or unwanted reflections.

Lighting shall conform to applicable standards (the AS 1680 set is most relevant), legislation or conventions.

If fluorescent lights are used in close proximity to the user, then the hum that is sometimes present can create interference problems for people who use hearing aids. Maintenance programs should ensure that the lights are changed as soon as the hum occurs.

Lights should also be changed if they flicker.

11.1.6.2 ATM Approach Lighting

Lighting should be adequate for safe mobility and should provide good visibility.

Lighting should be designed to avoid misleading shadows and to highlight obstacles such as stairs, curbs, and ramps.

It should provide a consistent distribution and level of illumination, particularly in the absence of natural light.

ATM approach lighting should be at least 200 lux at floor level in the area leading up to and around the ATM.

11.1.6.3 ATM Task Area Lighting

Lighting (natural and artificial) in the user operating space shall be designed to provide high levels of illumination without creating glare, reflections, or reduced contrast on the screen of the ATM.

There should be a uniform distribution of lighting over the keyboard and other features.

Task lighting should be at 200-300 lux.

The lighting should be installed to avoid reflections from the screen, keyboard or surrounding areas for users of different heights.

Lighting on the panel of the ATM should be carefully designed to preserve high contrast on the screen.

Glare from illuminated signs (such as the deployer's name, which is usually on the top of the ATM) should be avoided.

11.1.6.4 ATM Display Lighting

Direct sunlight can degrade the legibility of the display for all users by causing glare and lowering the contrast of the text on the screen. ATMs should be sited in such a way that direct or reflected sunlight or other bright lighting is prevented from striking the ATM display, for example, through the use of overhead awnings.

Note: Deployers may also use sunlight readable colour displays to minimise washout.

11.1.7 User Operating Space

11.1.7.1 General

Clearance from obstructions shall conform to AS 1428.1.

To allow people who use wheelchairs to approach an ATM from the side or front, the unobstructed area immediately in front of the ATM shall be at least 1550 mm by 1550 mm, with a maximum crossfall in all cases of 1:40.

If the ATM is indoors, additional space for the door swing shall be provided.

11.1.7.2 Card Access Slot

Where a card is required to gain entry to the ATM user space, the swiping of the card, or the insertion of the card into the slot, shall initiate the opening of the doors. The swipe direction required shall be visually and tactilely indicated.

Card-swiping slots may be oriented vertically or horizontally facing the operator. Vertically oriented swiping slots are preferred.

A height of 900 mm to 1100 mm (preferably 1000 mm) is recommended, and shall be provided for new installations.

The slot should be on the side closest to the leading edge of the door.

Insertion or swiping of cards should be able to be accomplished with one hand. This should be either hand.

11.1.7.3 Floor Surfaces

Floor surfaces shall comply with applicable Australian Standards. Spatial orientation can be aided through a selection of colours or textures that clearly distinguishes the division between the floor and walls or other obstacles.

The floor surface shall have a matte finish and a slope (in any direction) of not more than 1 in 40.

11.1.7.4 Ambient Noise

Ambient noise levels should be controlled to ensure a quiet area

11.2 ATM Operation

All users of ATMs will benefit from consistency in layout and operation. Examples where consistency is important include:

- Keypad layout
- PIN entry procedure
- Display sequence
- The order of steps for a withdrawal
- The order of steps for a deposit
- Position of cash dispenser

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.

Deployers may wish to offer the facility for users to register a “favourite transaction” for frequently used input steps, for example via automated telephone banking, internet banking or a human operator.

Provision of handsets in proximity to ATMs for communication with staff or automated telephone banking systems should be considered.

11.2.1 Input Controls

Each control or operating mechanism shall be able to be differentiated by sound or touch from other controls and operating mechanisms, and from the fascia of the ATM.

All controls and operating features shall be operable with one hand.

11.2.2 Cash Dispenser

Notes, receipts and/or other media to be dispensed shall:

- (a) protrude a minimum of 25 mm;
- (b) require a maximum force of 22 N for removal.

Notes should be dispensed in a single denomination or with the lowest denomination on the top.

If notes are dispensed into a tray, pocket, or bin, it should have:

- (a) a maximum depth of 70 mm;
- (b) an opening that allows a person with limited dexterity to withdraw the notes;
- (c) if a cover is provided, cover operation that does not impede the removal of notes by a person with limited dexterity and/or strength.

The tray, pocket or bin should have a minimum width of 70 mm and a minimum height of 70 mm.

Indicators that mark dispensers shall be:

- (a) visually contrasted and tactile,
- (b) optionally labelled in braille, or
- (a) by other suitable means, effectively identify the dispenser location (See Appendix A2 for a suggested symbol).

11.2.3 Speech Input

Where the technology is available, ATM deployers should consider installing speech input features. For people who have impaired vision, limited dexterity or reach, or who have dyslexia, a facility for the ATM to accept spoken instructions is desirable.

ATMs with this functionality should be identified by appropriate signage.

Numeric keypads should however be retained where speech input is enabled.

11.2.4 User Identification/Verification

While this document does not otherwise address biometric identification, the deployer shall ensure that where biometric forms of user identification are used (iris scanning, voiceprint identification, fingerprint scanning etc), an alternative form of identification that does not require the user to possess particular anatomical characteristics is provided.

The deployer may wish to consider the implementation of settings profiles for users, so that preferred settings such as screen colour, font style and size, text or graphics layout, audio settings and other parameters are linked to an account or user identification number.

11.2.5 Audio

Audio output will enable people who are unable to read the screen to operate the ATM independently, and may also assist people with other cognitive or perceptual disabilities, or people of a non-English speaking background.

ATMs with this functionality should be identified by appropriate signage and tactile ground surface indicators.

11.2.5.1 Audio Hardware

Voice guidance for ATM operation is achieved through a combination of 'back end' ATM software functionality, and the availability of appropriate audio hardware in the ATM.

When purchasing new ATMs, ATM deployers shall specify audio features including headset jack, in readiness for providing voice output facilities from the ATM.

Where available, the audio interface shall be provided through a standard 3.5 mm stereo audio mini jack that:

- (a) is located to the right of the screen or keyboard;
- (b) is operable with one hand;
- (c) has a socket that is easily discernible by tactile means, for example, a raised ridge surround with a funnel shape.

If an audio voice output facility is provided, a method for allowing the user to adjust the volume for at least two, and ideally 4 volume levels should be provided. This may be via dedicated volume buttons in the vicinity of the audio jack, or via keypad or function buttons. Volume adjustment is important to ensure clarity of instructions and to maintain user security of information.

In relation to volume levels, the guidelines which follow were recommended specifically for telephone handsets, and may not be entirely suitable for earplug or headphone use. Although testing can be conducted using a particular earphone or headset, it needs to be recognised that users may choose to use a range of earphones, each with different electrical sensitivities, impedance and other factors:

- (a) the sound must be sufficiently loud so that people with a moderate hearing loss can hear it;
- (b) it must be able to be amplified and adjusted so that a user can make any necessary individual adjustments;
- (c) as a guide, the volume from the earphone should be between 95 and 120 dB SPL. It should be possible to amplify and adjust the volume within the range of ± 10 dB SPL (with a tolerance of ± 2 dB), to a maximum level of 120 dB SPL.

Voice instructions should inform the user about how the volume can be adjusted.

11.2.5.2 Audio Scripts

Voice output may be implemented using either recordings of a human voice or through use of computer-generated synthetic speech (text to speech technology). The former is likely to be understood more effectively by infrequent users, but both approaches have advantages.

If voice output is provided, all instructions required for using the ATM shall be included in the scripts.

Scripts for audio should conform to the guidelines which appear below.

These scripting principles should also be employed for information displayed on the ATM screen in order to make content accessible to the largest range of users:

- (a) Sentences should be short and simple in structure, and only the simplest vocabulary used. Care however should be taken to avoid patronising messages;
- (b) Informative messages which advise the user of the progress of the transaction and inform the user when or how to perform a step in the transaction should be clear and to the point;
- (c) Audible prompts, messages and instructions require excellent audio quality. They should be without distortion or interference, moderately paced, and be played at optimal volume and clarity. Audio quality should be comparable to the recordings developed for use in IVR telephone services;
- (d) Similar sounding numbers, such as five and nine, need to be enunciated precisely. Female modulation is often received more easily by people who use hearing aids and tends to be perceived as more friendly. However, all audio output should be within the lower frequency ranges of human hearing, for example, through use of medium or lower pitched voices;

- (e) Where applicable, scripts should use terms as recommended in AS/NZS 4263, for example, in relation to the preferred spoken names of digits;
- (f) Users' confidential information must not be heard by others. The user's PIN shall not be spoken or echoed in audio by the ATM;
- (g) Screen text and audio text should match closely in order to assist those with a vision impairment and those who have cognitive disabilities or are slow readers;
- (h) So that experienced readers are able to key ahead the current message (with the exception of error messages or critical announcements) shall be able to be interrupted;
- (i) All visual error messages should be accompanied by an equivalent audio message.

11.2.5.3 Initiating Audio

After the insertion of the headset plug, the ATM shall speak audio instructions stating the name of the ATM deployer, followed by (as applicable):

- (a) if more than one language is available, selection of spoken language;
- (b) orientation and assistance for unfamiliar users to the physical features of the ATM;
Note: The ATM deployer may also choose to provide an audio tutorial on the use of the system.
- (c) means of activation of accessibility features, for example the user display selection;
- (d) upon successful card insertion, immediate prompting for PIN.

Some manufacturers' audio facilities cannot detect insertion of the headset plug. In such cases, introductory audio information should be played continuously until the user inserts their card.

For those machines which have audio capability, error messages relating to machine operation or unavailability should be provided after audio is initiated.

11.2.5.4 Audio Operation

When an audio facility is activated, an option to blank out the screen may be provided. This is an important feature for people with vision impairment who cannot monitor the position of others in the ATM user space and detect the presence of people who could be viewing their transaction.

Upon no input from the user at any step in the transaction, the system should repeat the last message spoken, and a pause of at least 2 seconds should be provided between repeated instructions

Audio advertising shall not occur during input steps in the transaction, and from the time that any transaction result message is given until the transaction is concluded.

All instructions shall be accompanied by visual cues.

11.2.5.5 AS/NZS 4263

Guidance on audio scripts, preferred terminology, timeouts and other audio-related matters is also available in AS/NZS 4263, which deals with user interface specifications for IVR telephone services. Many of these principles may be applicable to implementing voice output on ATMs.

11.2.6 Operating Instructions

Audio and written instructions shall use plain English.

Note: Simple graphics or symbols can be helpful to enhance on-screen instructions.

11.2.7 Auslan

ATM deployers may wish to incorporate video clips to inform and assist people who employ Australian Sign Language (Auslan).

11.2.8 Transaction Time

Provision shall be made for extending the time needed to perform a specific step by presenting a question, such as, "Do you need more time?".

11.2.9 Supporting Documentation

The ATM deployer shall make available to users on request a 'package' of information such as a list of accessible ATMs, and a 'help' telephone number where enquiries can be answered regarding the ATM or its use.

All text based information shall be in plain English, and available in accessible formats.

11.3 Card Swiping, Insertion and Withdrawal

11.3.1 Card Reader/ATM Activation

11.3.1.1 Card Reader General

The initial activation or interface point shall be located to the right of the screen.

11.3.1.2 Card Reader Signage

Card readers shall be identified by a tactile graphic symbol that:

- (a) is easily seen and understood;
- (b) represents the card;
- (c) identifies the orientation of the card for insertion into the reader.

See Appendix A2 for a suggested symbol.

11.3.1.3 Card Slot Orientation

Where a motorised or dip card reader is used, the slot should be oriented horizontally.

For all new ATMs and when motorised or dip readers are replaced, ATMs shall accept the card horizontally with the magnetic stripe downwards and to the right, and with the embossing on the top surface of the card and to the left hand edge.

Where swipe readers are used, the slot should be oriented vertically. When swipe readers are replaced, ATMs shall accept the card vertically, with the magnetic stripe to the left and the embossing to the right.

Motorised readers are preferred. The reader used for ATM activation should be of the same type as that used for entry to the ATM user space (if card entry is required).

11.3.1.4 Card Slot Identification

The slot of the card reader shall:

- (a) be bevelled at its edge or have a funnel-shaped opening;
- (b) have a high colour contrast (for example, 30% luminance contrast) with the surrounding area;
- (c) have an indicator light provided at the slot.

11.3.2 Card Removal

For removal, the card shall:

- (a) protrude a minimum of 25 mm;
- (b) require a maximum force of 22 N.

11.4 ATM Display

11.4.1 Colour and Contrast

Transaction text should contrast with the background at a minimum of 30% luminance contrast.

11.4.2 Text

11.4.2.1 Background

Transaction text should not be superimposed on watermarked, patterned, or picture backgrounds.

11.4.2.2 Font and Case

Transaction text characters should have a sans serif font (for example, Helvetica or Tiresias).

Transaction text shall be a mix of upper and lower case letters.

Columns of numbers shall be aligned by the decimal point.

Periods and decimals should be 50% larger than normal.

11.4.3 Advertising

There shall be no advertising during input steps in the transaction, and from the time any transaction result message is displayed until the dispensing of cash and/or receipt or statement.

11.4.4 User Display Selection

All ATM displays are to meet the above requirements (11.4.1, 11.4.2 and 11.4.3) as they are specified. In order to enable the greatest number of people to use the ATM, there should also be available an "easy-to-read" set of options, including the following:

- (a) Font size – average 16 point;
- (b) Font style – sans serif (for example, Helvetica or Tiresias);
- (c) Background/foreground contrast – high contrast (for example, 30% luminance contrast), plain background;
- (d) Colours – light text, dark background is preferred;
- (e) Moving text – none;
- (f) Audio prompt synchronisation – prompting synchronised with and closely matching display information.

Notes:

- 1. Provision of audio capability is not sufficient to meet the needs of those with a vision impairment. ATM displays must have suitable viewing characteristics.
- 2. Of the above, it is considered that font size is of the highest priority.

11.4.5 User Screen Settings

ATM deployers may wish to offer a means for the user to select screen parameters which best suit their requirements.

11.5 Keypad

11.5.1 Characteristics of Keys

The surface of the keys shall:

- (a) have a minimum dimension of 15 mm;
- (b) be flat or concave and non-slip;
- (c) be raised at least 1 mm above the surrounding surface;
- (d) be separated by at least 15 mm from any raised surround or other adjacent components (as measured from the edge of the key);
- (e) not be below the surrounding surface when keys are depressed.

Key tops should be made of a rigid substance that does not retain excessive heat.

The characters or symbols on the keys shall:

- (a) if not tactile, visually contrast with the background (for example, 30% luminance contrast);
- (b) be as large as the surface area of the key top permits, using a broad stroke (as for bold text);
- (c) have a sans serif font (for example, Helvetica or Arial).

Note: Braille symbols on the numeric keys are considered unnecessary if a dot is provided on the five key.

11.5.2 Keypad Mapping

In addition to the conventional approach of using function display keys or a touch-screen to select menu choices and answer questions, ATM deployers should enable the numeric keypad to be used for these tasks.

This makes using the ATM analogous to interacting with an automated telephone banking application. For touch screen ATMs which may only have a keypad, this approach may be the only viable means of interacting with the ATM for people who are blind or vision-impaired, or who are unable to reach the function display keys or touch screen buttons.

11.5.3 Keypad Layout

The keypad shall:

- (a) be telephone-style with the number 1 at the top left and the number 5 in the centre;
- (b) have the number 5 marked with a raised dot;
- (c) have the number 0 located beneath the number 8;
- (d) have numeric keys separated by at least 3.2 mm;
- (e) have function keys to the right of the numeric keys and separated from numeric keys by at least three times the distance between numeric keys;
- (f) have a surface that minimises glare.

Every key press shall be acknowledged visually, audibly, and by tactile registration.

Note: Tactile indication can be provided by a gradual increase in the force, followed by a sharp decrease in the force required to actuate the key, and a subsequent increase in force beyond this point of cushioning.

The force required to activate the key shall not exceed 7N.

11.5.4 Function Keys

The function keys shall be:

- (a) located to the right of the numeric keys;
- (b) arranged vertically, top to bottom, in the order: Correction or Clear, Cancel, OK or Enter; or the order, Cancel, Correction or Clear, OK or Enter;

Notes:

1. 'Clear' is the preferred signifier, as this allows a larger font size on the key or surround.
2. The preferred sequence is Cancel, Clear, Enter, as this conforms to international standards.

The top key should be in alignment with the top row of the numeric keypad. If there is a fourth function key, it shall be blank.

The function keys shall have raised tactile markings, as follows:

- (a) Cancel - cross (X);
- (b) Correction/Clear - vertical line (|);
- (c) OK/Enter - raised circle (O)

The keys shall be coloured as follows:

- (a) Cancel -red;
- (b) Correction/Clear - yellow;
- (c) OK/Enter - green.

11.5.5 Function Display Keys

Function display keys (which are found either side of the ATM display) shall:

- (a) correspond with on screen instructions;
- (b) have extended leader lines that contrast with their background, and allow for a wide range of viewing angles;
- (c) have a surface that minimises glare.

11.6 Outputs

11.6.1 Beep Feedback

Beep volume on ATMs should be adjusted at installation and maintenance times to ensure that users can hear the feedback, but also to minimise disruption to those not using the ATMs.

Beeps used for feedback (for example, the correct operation of a key) might not be audible where there is heavy traffic or other noise, especially by people with hearing aids. There should therefore be a simultaneous visual acknowledgement of a beep. This may be an icon on the screen or a flashing light.

Note: If audio is enabled, beeping can be intrusive to the user in cases where, for example, the user is prompted about needing more time.

11.6.2 Printed Text

Information printed by the ATM on the transaction records, statements or receipts at the time of the transaction should:

- (a) have upper and lower case text;
- (b) have a sans serif font (for example, Helvetica) with a minimum 12 point size;

(c) be well contrasted (for example, black on white).

Printers should be regularly checked to maintain high quality output.

11.7 Security and Privacy

Information that is sensitive and private to the cardholder should not be visible to any other person (refer to the EFT Code of Conduct). For example, a bystander should not be able to observe the key operations used to enter a PIN.

Privacy shall be provided by the design and installation features of the ATM itself, so that in normal use the cardholder does not have to consciously take any protective action.

Information sufficient to construct a usable card should not be displayed on the screen or printed on a transaction record. This will guard against the possibility that such information may become accessible to another person should the cardholder leave the ATM while a transaction is displayed, or abandon a printed transaction record.

Precautions should be taken to minimise the possibility of a card being left at an ATM by the cardholder and being retrieved by another person, by means of both audible and visible warnings.

11.8 Installation, Maintenance and Operating Instructions

11.8.1 Height and Approach - General

The height of the installation of an ATM is dictated by the design of the ATM, the physical location and by the physical characteristics of those who will operate it. Because of the range of physical differences in the users of the ATM, some degree of difficulty will be encountered by some users even if the design and installation of the ATM are based on thoroughly researched ergonomic data.

The diagrammes included at Appendix A3 illustrate the installation dimensions specified below.

11.8.2 Installation Height and Knee Clearance Zone

ATMs should be installed such that a forward, angled (45 degrees) or side approach is available. A forward or angled approach requires a minimum combined clear knee and toe space of at least 800 mm wide (1000 mm preferred), with 200 mm minimum clearance either side of unit/operating features, 350 mm deep measured from the wall, and 750 mm minimum knee clearance height measured from the floor.

A forward or angled approach is preferred and will increase the percentage of people that can be accommodated. It shall be enabled in completely new installations.

11.8.3 Height & Reach for User Interface Components.

The user interface of the ATM should be located within a zone which is not less than 750mm and not more than 1100mm to 1200mm from the finished floor, depending on the function of the feature.

The interface shall be not less than 500 mm from an internal corner.

If the keypad is provided on a horizontal plane (in a range of 0-30 degrees, 15 degrees preferred) then the height of the keypad shall not exceed 950mm above the floor. Keypad height is measured from the centre of the number 5 key in the numeric key section.

If the keypad is provided on a vertical plane (in a range of 60-90 degrees, 75 degrees preferred) then the height of the keypad shall not exceed 1100mm above the floor.

There should be a minimum of 75 mm clear vertical space above the keyboard, for its entire expanse.

The card slot and cash dispenser should be installed at a maximum height of 1100 mm, with a maximum reach of 200 mm. A primary control like the card slot must be more than or at 750 mm above the floor (measured at the interface), and less than or at 1100 mm above the floor. It must also not be inset more than 200 mm from the fascia or surround, measured in the same horizontal plane as the slot (a reach measurement).

Other operating features should be installed at a maximum height of 1200 mm with a maximum reach of 300 mm.

11.8.4 Display

To allow people who use wheelchairs and those of tall stature to view the display it should be installed at 55-70° to the horizontal. If a touch screen is provided the screen must be positioned to allow easy reach to touch-sensitive parts of the screen.

11.8.5 Grab Bar

At least one vertical grab bar should be provided for wall-mounted ATMs, and if provided should conform to the following guidelines:

- (a) contrast visually with the background (minimum 30% luminance contrast);
- (b) be a minimum of 600 mm in length;
- (c) be mounted in a range (measured from the midpoint of the bar) of 800 – 1400 mm from the floor;
- (d) be at a maximum distance of 600 mm measured from the midpoint of the screen to the centre of the grab bar.

11.8.6 Parcel Shelf

Where provided, a parcel shelf should:

- (a) contrast visually with the ATM or surrounding structure (minimum 30% luminance contrast);
- (b) have bevelled edges;
- (c) have a maximum depth of 250 mm, and a minimum depth of 150 mm;
- (d) be at a maximum height of 900 mm from the floor, and a minimum of 750 mm;
- (e) not protrude more than 100 mm into the circulation space.

Parcel shelves provide assistance to persons who use canes, umbrellas, grab bars, or guide dogs, and are useful in other situations that might arise, for example, where the person has only one hand available to perform a transaction.

11.8.7 Walking Stick Notch

ATMs should provide a notch in the parcel shelf or adjacent to the ATM to allow the user to stand a walking stick or cane within easy reach. This may be more useful if placed on the left side of the ATM.

11.8.8 Waste Receptacle

If provided, waste receptacles shall be marked with a high contrast (for example, 30% luminance contrast) visual and tactile graphic symbol or be otherwise effectively identified.

Depending on site restrictions, waste receptacles should not obstruct front-on access to the ATM.

12 Specification Checklist

Notes

1. The first column in the table below, "Requirements", reproduces the headings (level H2, H3 and H4) in Section 11 above.
2. The second column, "Specifications", reproduces the specifications stated in the text of Section 11.
3. Column 3, "Application", indicates whether the requirement/specification applies to all equipment, services or installations (A) or only to programmes new or substantially upgraded equipment, services or installations (N)
4. Column 4, "Priority Level", gives the implementation priority of the requirement/specification, as expressed in the Requirements section above. Level 1 corresponds to "shall", Level 2 corresponds to "should", and Level 3 corresponds to "may".
5. Column 5, "Achieved" is left blank to allow the user of the Standard to insert Y(yes), N(no) or NA(not applicable).

Requirements	Specifications	Application (A,N)	Priority Level (1,2,3)	Achieved (Y,N,NA)
11 Requirements	1. In many cases however, the ATM deployer will need to negotiate with other parties such as lessors, property managers and local government authorities before implementing changes to an installation. This Standard is not binding on these stakeholders and it may not be possible in all instances to secure agreement from all parties involved, but the ATM deployer shall use reasonable endeavours to do so.	N	1	
	2. During design, and prior to implementation, it is strongly recommended that users of varying ages, and with a range of capabilities and limitations be engaged to trial the ATM and provide feedback.	N	2	
11.1 Access and Location	1. It is acknowledged that in many cases, ATM deployers do not have control over the environment in which the ATMs are installed. The deployer shall use reasonable endeavours in liaising and negotiating with the other parties involved in the installation to ensure that installation meets the requirements of this Standard and any relevant legislation.	A	1	

Requirements	Specifications	Application (A,N)	Priority Level (1,2,3)	Achieved (Y,N,NA)
11.1.1 Exterior Route	1. Exterior routes shall conform to AS 1428.1 and 1428.2.	N	1	
	2. ATM deployers' normal maintenance programs should include removal of obstructions.	A	2	
11.1.2 Interior Route	1. Interior routes shall also conform to AS 1428.1 and 1428.2.	A	1	
11.1.3 Site	1. ATMs should be sited in proximity to accessible parking bays, with a continuous accessway between the ATM and the parking bay. Access should be provided in accordance with AS 1428.1.	N	2	
	2. The area should free of building stanchions, street utilities, and the like.	A	2	
	3. If there are obstacles or hazards, then tactile ground surface indicators may be required, in accordance with AS 1428.4.	A	3	
11.1.4 Doors & Entrances to Interior ATMs	1. Where doors lead into the ATM user space, they shall comply with AS 1428.1 and 1428.2.	N	1	
	2. For the entrance door, the preferred clear opening width is 900 mm	N	2	
	3. and shall not be less than 800mm.	N	1	
	4. Door-closing mechanisms shall be set so that the force required to open the door (measured at the opening edge) does not exceed 19.5 N.	N	1	
	5. Any user-operated door opening controls, access control systems or lever handles should be within a height range of between 900 mm and 1100 mm (1000 mm is preferred).	N	2	
	6. A left hand placement is recommended	N	3	
11.1.5 Signage	1. ATM deployers should refer to Specification D, 3.6 in volume 1 of the Building Code of Australia (BCA) in relation to signage and AS 1428.4 in relation to tactile ground surface indicators.	N	2	

Requirements	Specifications	Application (A,N)	Priority Level (1,2,3)	Achieved (Y,N,NA)
11.1.5.1 Location Signs	1. In order to facilitate the locating process for accessible ATMs, signage pertaining to ATMs should be located at decision-making locations.	A	2	
	2. Where applicable, location signage should include the International Symbol of Access (ISA, refer to Appendix A2) for identification of ATMs which conform to this Standard.	N	2	
	3. Deployers may wish to provide additional signage to assist in locating ATMs which have audio capability.	N	3	
11.1.5.2 Door Signs (room identification)	1. Signs shall be located on the wall on the side closest to the leading edge of the door and in close proximity to the card access slot (where installed).	N	1	
	2. The leading edge of the sign shall be a minimum of 50 mm from the architrave and a maximum of 100 mm, and be fixed at a height of between 1200 mm and 1600 mm above the floor.	N	1	
	3. Where ATMs are installed in an interior space and door signs are provided, signage should include name of deployer.	N	2	
11.1.5.3 Braille, Tactile and Visual Signs	1. Way-finding signs may be placed on or near ATMs, or near doorways to interior ATM user areas. Signs may also direct people to areas where accessible ATMs are located and identify, in a bank of machines, which ATMs are accessible.	N	3	
	2. Tactile signs, if provided, shall: (a) comply with Specification D, 3.6 of the BCA; (b) where applicable, be located at the entrance to indoor foyers/areas where ATMs are located; (c) where applicable, be located on the wall, on the side closest to the leading edge of the card access slot (where installed), or adjacent to the ATM.	N	1	

Requirements	Specifications	Application (A,N)	Priority Level (1,2,3)	Achieved (Y,N,NA)
11.1.5.5 Interface Component Signs	1. Components of the ATM interface should be identified by use of appropriate tactile and/or braille signs or labels.	N	2	
	2. A visual and tactile symbol should be adopted to indicate the availability of voice output on an ATM.	N	2	
11.1.6 Lighting				
11.1.6.1 Lighting - General	1. Lighting shall conform to applicable standards (the AS 1680 set is most relevant), legislation or conventions.	N	1	
	2. Maintenance programs should ensure that fluorescent lights are changed as soon as they hum or flicker.	A	2	
11.1.6.2 ATM Approach Lighting	1. Lighting should be adequate for safe mobility and should provide good visibility.	A	2	
	2. Lighting should be designed to avoid misleading shadows and to highlight obstacles such as stairs, curbs, and ramps.	N	2	
	3. Lighting should provide a consistent distribution and level of illumination, particularly in the absence of natural light.	A	2	
	4. ATM approach lighting should be at least 200 lux at floor level in the area leading up to and around the ATM.	N	2	
11.1.6.3 ATM Task Area Lighting	1. Lighting (natural and artificial) in the user operating space shall be designed to provide high levels of illumination without creating glare, reflections, or reduced contrast on the screen of the ATM.	N	1	
	2. There should be a uniform distribution of lighting over the keyboard and other features.	N	2	
	3. Task lighting should be at 200-300 lux.	N	2	

Requirements	Specifications	Application (A,N)	Priority Level (1,2,3)	Achieved (Y,N,NA)
	4. The lighting should be installed to avoid reflections from the screen, keyboard or surrounding areas for users of different heights.	N	2	
	5. Lighting on the panel of the ATM should be carefully designed to preserve high contrast on the screen.	N	2	
	6. Glare from illuminated signs (such as the deployer's name, which is usually on the top of the ATM) should be avoided.	N	2	
11.1.6.4 ATM Display Lighting	1. ATMs should be sited in such a way that direct or reflected sunlight or other bright lighting is prevented from striking the ATM display, for example, through the use of overhead awnings.	N	2	
11.1.7 User Operating Space				
11.1.7.1 General	1. Clearance from obstructions shall conform to AS 1428.1.	A	1	
	2. The unobstructed area immediately in front of the ATM shall be at least 1550 mm by 1550 mm	N	1	
	3. with a maximum crossfall in all cases of 1:40	N	1	
	4. If the ATM is indoors, additional space for the door swing shall be provided.	N	1	
11.1.7.2 Card Access Slot	1. Where a card is required to gain entry to the ATM user space, the swiping of the card, or the insertion of the card into the slot, shall initiate the opening of the doors.	A	1	
	2. The swipe direction required shall be visually and tactilely indicated.	N	1	
	3. Card-swiping slots may be oriented vertically or horizontally facing the operator. Vertically oriented swiping slots are preferred.	A	3	
	4. A height of 900 mm to 1100 mm (preferably 1000 mm) is recommended, and	N	2	

Requirements	Specifications	Application (A,N)	Priority Level (1,2,3)	Achieved (Y,N,NA)
	5. shall be provided for new installations.	N	1	
	6. The slot should be on the side closest to the leading edge of the door.	N	2	
	7. Insertion or swiping of cards should be able to be accomplished with one hand.	A	2	
	8. This should be either hand.	A	2	
11.1.7.3 Floor Surfaces	1. Floor surfaces shall comply with applicable Australian Standards.	A	1	
	2. The floor surface shall have a matte finish and a slope (in any direction) of not more than 1 in 40.	N	1	
11.1.7.4 Ambient Noise	1. Ambient noise levels should be controlled wherever possible to ensure a quiet area	A	2	
11.2 ATM Operation	1. All users of ATMs will benefit from consistency in layout and operation. Examples where consistency is important include: <ul style="list-style-type: none"> Keypad layout PIN entry procedure Display sequence The order of steps for a withdrawal The order of steps for a deposit Position of cash dispenser 	N	3	
	2. Deployers may wish to offer the facility for users to register a "favourite transaction" for frequently used input steps.	N	3	
	3. Provision of handsets in proximity to ATMs for communication with staff or automated telephone banking systems should be considered.	N	3	
11.2.1 Input Controls	1. Each control or operating mechanism shall be able to be differentiated by sound or touch from other controls and operating mechanisms, and from the fascia of the ATM.	N	1	
	2. All controls and operating features shall be operable with one hand.	N	1	

Requirements	Specifications	Application (A,N)	Priority Level (1,2,3)	Achieved (Y,N,NA)
11.2.2 Cash Dispenser	1. Notes, receipts and/or other media to be dispensed shall: (a) protrude a minimum of 25 mm; (b) require a maximum force of 22 N for removal.	N	1	
	2. Notes should be dispensed in a single denomination or with the lowest denomination on the top.	N	2	
	3. If notes are dispensed into a tray, pocket, or bin, it should have: (a) a maximum depth of 70 mm; (b) an opening that allows a person with limited dexterity to withdraw the notes; (c) if a cover is provided, cover operation that does not impede the removal of notes by a person with limited dexterity and/or strength.	N	2	
	4. The tray, pocket or bin should have a minimum width of 70 mm and a minimum height of 70 mm.	N	2	
	5. Indicators that mark dispensers shall be either: (a) visually contrasted and tactile, in braille, or (b) by other suitable means, effectively identify the dispenser location.	N	1	
11.2.3 Speech Input	1. Where the technology is available, ATM deployers should consider installing speech input features.	N	2	
	2. ATMs with this functionality should be identified by appropriate signage.	N	2	
	3. Numeric keypads should however be retained.	N	2	
11.2.4 User Identification/Verification	1. The deployer shall ensure that where biometric forms of user identification are used, an alternative form of identification that does not require the user to possess particular anatomical characteristics is provided.	N	1	

Requirements	Specifications	Application (A,N)	Priority Level (1,2,3)	Achieved (Y,N,NA)
	2. The deployer may wish to consider the implementation of settings profiles for users, so that preferred settings such as screen colour, font style and size, text or graphics layout, audio settings and other parameters are linked to an account or user identification number.	N	3	
11.2.5 Audio	1. ATMs with audio functionality should be identified by appropriate signage and tactile ground surface indicators.	N	2	
11.2.5.1 Audio Hardware	1. When purchasing new ATMs, ATM deployers shall specify audio hardware including headset jack, in readiness for providing voice output facilities from the ATM.	N	1	
	2. Where available, the audio interface shall be provided through a standard 3.5 mm stereo audio mini jack that: (a) is located to the right of the screen or keyboard; (b) is operable with one hand; (c) has a socket that is easily discernible by tactile means	N	1	
	3. If an audio voice output facility is provided, a method for allowing the user to adjust the volume for at least two, and ideally 4 volume levels should be provided.	N	2	
	4. Voice instructions should inform the user about how they can adjust the volume.	N	2	
11.2.5.2 Audio Scripts	1. If voice output is provided, all instructions required for using the ATM shall be included in the scripts.	N	1	
	2. Scripts for audio should conform to the guidelines which appear at 11.2.5.2 above.	N	2	

Requirements	Specifications	Application (A,N)	Priority Level (1,2,3)	Achieved (Y,N,NA)
11.2.5.3 Initiating Audio	1. After the insertion of the headset plug, the ATM shall speak audio instructions stating the name of the ATM deployer, followed by (as applicable): (a) if more than one language is available, selection of spoken language; (b) orientation and assistance for unfamiliar users to the physical features of the ATM; (c) means of activation of accessibility features, for example the user display selection; (d) upon successful card insertion, immediate prompting for PIN.	N	1	
	2. Some manufacturers' audio facilities cannot detect insertion of the headset plug. In such cases, introductory audio information should be played continuously until the user inserts their card	N	2	
	3. For those machines which have audio capability, error messages on machine operation should be provided after audio is initiated.	N	2	
11.2.5.4 Audio Operation	1. When an audio facility is activated, an option to blank out the screen may be provided.	N	3	
	2. Upon no input from the user at any step in the transaction, the system should repeat the last message spoken, and a pause of at least 2 seconds should be provided between repeated instructions.	N	2	
	3. Audio advertising shall not occur during input steps in the transaction, and from the time that any transaction result message is given until the transaction is concluded.	N	1	
	4. All instructions shall be accompanied by visual cues.	N	1	
11.2.6 Operating Instructions	1. Audio and written instructions shall use plain English.	A	1	

Requirements	Specifications	Application (A,N)	Priority Level (1,2,3)	Achieved (Y,N,NA)
11.2.7 Auslan	1. ATM deployers may wish to incorporate Auslan video clips.	N	3	
11.2.8 Transaction Time	1. Provision shall be made for extending the time needed to perform a specific step by presenting a question, such as, "Do you need more time?".	N	1	
11.2.9 Supporting Documentation	1. The ATM deployer shall make available to users a 'package' of information such as a list of local ATMs, and a 'help' telephone number where enquiries can be answered regarding the ATM or its use.	A	1	
	2. All text based information shall be in plain English, and available in accessible formats.	A	1	
11.3 Card Swiping, Insertion and Withdrawal				
11.3.1 Card Reader/ATM Activation				
11.3.1.1 Card Reader General	1. The initial activation or interface point shall be located to the right of the screen.	N	1	
11.3.1.2 Card Reader Signage	1. Card readers shall be identified by a tactile graphic symbol that: (a) is easily seen and understood; (b) represents the card; (c) identifies the orientation of the card for insertion into the reader.	N	1	
11.3.1.3 Card Slot Orientation	1. Where a motorised or dip card reader is used, the slot should be oriented horizontally.	A	2	
	2. For all new ATMs and when motorised or dip card readers are replaced, ATMs shall accept the card horizontally with the magnetic stripe downwards and to the right, and with the embossing on the top surface of the card and to the left hand edge.	N	1	
	3. Where swipe readers are used, the slot should be oriented vertically.	A	2	

Requirements	Specifications	Application (A,N)	Priority Level (1,2,3)	Achieved (Y,N,NA)
	4. When swipe card readers are replaced, ATMs shall accept the card vertically, with the magnetic stripe to the left and the embossing to the right.	N	1	
	5. Motorised readers are preferred.	N	2	
	6. The reader used for ATM activation should be of the same type as that used for entry to the ATM user space (if card entry is required).	N	2	
11.3.1.4 Card Slot Identification	1. The slot of the card reader shall: (a) be bevelled at its edge or have a funnel-shaped opening; (b) have a high colour contrast (for example, 30% luminance contrast) with the surrounding area; (c) have an indicator light provided at the slot.	N	1	
11.3.1.5 Card Removal	1. For removal, the card shall: (a) protrude a minimum of 25 mm; (b) require a maximum force of 22 N.	N	1	
11.4 ATM Display				
11.4.1 Colour and Contrast	1. Transaction text should contrast with the background at a minimum of 30% luminance contrast.	N	2	
11.4.2 Text				
11.4.2.1 Background	1. Transaction text should not be superimposed on watermarked, patterned, or picture backgrounds.	A	2	
11.4.2.2 Font and Case	1. Transaction text characters should have a sans serif font (for example, Helvetica or Tiresias).	A	2	
	2. Text shall be a mix of upper and lower case letters.	A	1	
	3. Columns of numbers shall be aligned by the decimal point.	A	1	
	4. Periods and decimals should be 50% larger than normal.	A	2	

Requirements	Specifications	Application (A,N)	Priority Level (1,2,3)	Achieved (Y,N,NA)
11.4.3 Advertising	1. There shall be no advertising during input steps in the transaction, and from the time any transaction result message is displayed until the dispensing of cash and/or receipt or statement.	A	1	
11.4.4 User Display Selection	1. All ATM displays shall meet the above requirements (11.4.1, 11.4.2 and 11.4.3) as they are specified.	A	1	
	2. All ATM displays are to meet the above requirements (11.4.1, 11.4.2 and 11.4.3) as they are specified. In order to enable the greatest number of people to use the ATM, there should also be available an "easy-to-read" set of options, including the following: (a) Font size –average 16 point; (b) Font style – sans serif (for example, Helvetica or Tiresias); (c) Background/foreground contrast – high contrast (for example, 30% luminance contrast), plain background; (d) Colours – light text, dark background is preferred; (e) Moving text – none; (f) Audio prompt synchronisation – prompting synchronised with and closely matching display information.	N	2	

Requirements	Specifications	Application (A,N)	Priority Level (1,2,3)	Achieved (Y,N,NA)
11.5 Keypad 11.5.1 Characteristics of Keys	1. The surface of the keys shall: (a) have a minimum dimension of 15 mm; (b) be flat or concave and non-slip; (c) be raised at least 1 mm above the surrounding surface; (d) be separated by at least 15 mm from any raised surround or other adjacent components (as measured from the edge of the key); (e) not be below the surrounding surface when keys are depressed.	N	1	
	2. Key tops should be made of a rigid substance that does not retain excessive heat.	N	2	
	3. The characters or symbols on the keys shall: (a) if not tactile, visually contrast with the background (for example, 30% luminance contrast); (b) be as large as the surface area of the key top permits, using a broad stroke (as for bold text); (c) have a sans serif font (for example, Helvetica or Arial).	N	1	
11.5.2 Keypad Mapping	1. In addition to the conventional approach of using function display keys or a touch-screen to select menu choices and answer questions, ATM deployers should enable the numeric keypad to be used for these tasks.	N	2	

Requirements	Specifications	Application (A,N)	Priority Level (1,2,3)	Achieved (Y,N,NA)
11.5.3 Keypad Layout	1. The keypad shall: (a) be telephone-style with the number 1 at the top left and the number 5 in the centre; (b) have the number 5 marked with a raised dot; (c) have the number 0 located beneath the number 8; (d) have numeric keys separated by at least 3.2 mm; (e) have function keys separated from numeric keys by at least three times the distance between numeric keys; (f) have a surface that minimises glare.	N	1	
	2. Every key press shall be acknowledged visually, audibly, and by tactile registration.	N	1	
	3. The force required to activate the key shall not exceed 7N.	N	1	
11.5.4 Function Keys	1. The function keys shall be: (a) located to the right of the numeric keys; (b) arranged vertically, top to bottom, in the order: Correction or Clear, Cancel, OK or Enter; or the order, Cancel, Correction or Clear, OK or Enter.	N	1	
	2. The top key should be in alignment with the top row of the numeric keypad.	N	2	
	3. If there is a fourth key, it shall be blank.	N	1	
	4. The function keys shall have raised tactile markings, as follows: (a) Cancel - cross (X); (b) Correction/Clear - vertical line (); (c) OK/Enter - raised circle (O).	N	1	
	5. The keys shall be coloured as follows: (a) Cancel -red; (b) Correction/Clear - yellow; (c) OK/Enter - green.	N	1	

Requirements	Specifications	Application (A,N)	Priority Level (1,2,3)	Achieved (Y,N,NA)
11.5.5 Function Display Keys	1. Function display keys (which are found either side of the ATM display) shall: (a) correspond with on screen instructions; (b) have extended leader lines that contrast with their background, and allow for a wide range of viewing angles; (c) have a surface that minimises glare.	N	1	
11.6 Outputs				
11.6.1 Beep Feedback	1. Beep volume on ATMs should be adjusted at installation and maintenance times to ensure that users can hear the feedback, but also to minimise disruption to those not using the ATMs.	A	2	
	2. There should be a simultaneous visual acknowledgement of a beep.	A	2	
11.6.2 Printed Text	1. Information printed by the ATM on the transaction records, statements or receipts at the time of the transaction should: (a) have upper and lower case text; (b) have a sans serif font (for example, Helvetica or Arial) with a minimum 12 point size; (c) be well contrasted (for example, black on white).	N	2	
	2. Printers should be regularly checked to maintain high quality output.	A	2	
11.7 Security and Privacy				
	1. Information that is sensitive and private to the cardholder should not be visible to any other person.	A	2	
	2. Privacy shall be provided by the design and installation features of the ATM itself.	N	1	
	3. Information sufficient to construct a usable card should not be displayed on the screen or printed on a transaction record.	A	2	

Requirements	Specifications	Application (A,N)	Priority Level (1,2,3)	Achieved (Y,N,NA)
	4. Precautions should be taken to minimise the possibility of a card being left at an ATM by the cardholder and being retrieved by another person, by means of both audible and visible warnings.	N	2	
11.8 Installation, Maintenance and Operating Instructions				
11.8.2 Installation Height and Knee Clearance Zone	1. ATMs should be installed such that a forward, angled (45 degrees) or side approach is available. A forward or angled approach requires a minimum combined clear knee and toe space of at least 800 mm wide (1000 mm preferred), with 200 mm minimum clearance either side of unit/operating features, 350 mm deep measured from the wall, and 750 mm minimum knee clearance height measured from the floor.	N	2	
	2. A forward approach shall be enabled in completely new installations.	N	1	
11.8.3 Height & Reach for User Interface Components.	1. The user interface of the ATM should be located within a zone which is not less than 750mm and not more than 1100mm to 1200mm from the finished floor, depending on the function of the feature.	N	2	
	2. The interface shall be not less than 500 mm from an internal corner.	N	1	
	3. If the keypad is provided on a horizontal plane (in a range of 0-30degrees, 15 degrees preferred) then the height of the keypad shall not exceed 950mm above the floor.	N	1	
	4. If the keypad is provided on a vertical plane (in a range of 60-90 degrees, 75 degrees preferred) then the height of the keypad shall not exceed 1100mm above the floor.	N	1	

Requirements	Specifications	Application (A,N)	Priority Level (1,2,3)	Achieved (Y,N,NA)
	5. There should be a minimum of 75 mm clear vertical space above the keyboard, for its entire expanse.	N	2	
	6. The card slot and cash dispenser should be installed at a maximum height of 1100 mm, with a maximum reach of 200 mm.	N	2	
	7. Other operating features should be installed at a maximum height of 1200 mm with a maximum reach of 300 mm.	N	2	
11.8.4 Display	1. To allow people who use wheelchairs and those of tall stature to view the display it should be installed at 55-70° to the horizontal.	N	2	
	2. If a touch screen is provided the screen must be positioned to allow easy reach to touch-sensitive parts of the screen	N	2	
11.8.5 Grab Bar	1. At least one vertical grab bar should be provided for wall-mounted ATMs where practicable, and if provided should conform to the following guidelines: (a) contrast visually with the background; (b) be a minimum of 600 mm in length; (c) be mounted in a range (measured from the midpoint of the bar) of 800 – 1400 mm from the floor; (d) be at a maximum distance of 600 mm measured from the midpoint of the screen to the centre of the grab bar.	N	2	

Requirements	Specifications	Application (A,N)	Priority Level (1,2,3)	Achieved (Y,N,NA)
11.8.6 Parcel Shelf	1. Where provided, a parcel shelf should: (a) contrast visually with the ATM or surrounding structure; (b) have bevelled edges; (c) have a maximum depth of 250 mm, and a minimum depth of 150 mm; (d) be at a maximum height of 900 mm from the floor, and a minimum of 750 mm; (e) not protrude more than 100 mm into the circulation space.	N	2	
11.8.7 Walking Stick Notch	1. ATMs should provide a notch in the parcel shelf or adjacent to the ATM to allow the user to stand a walking stick or cane within easy reach.	N	2	
11.8.8 Waste Receptacle	1. If provided, waste receptacles shall be marked with a high contrast (for example, 30% luminance contrast) visual and tactile graphic symbol or be otherwise effectively identified.	N	1	
	2. Depending on site restrictions, waste receptacles should not obstruct front-on access to the ATM.	N	2	

13 Document Revision

Other documents may supersede this document. The latest status of this document series is maintained at the ABA.

It is the intention of the Working Group to continue to work with service providers and manufacturers to further improve the accessibility of ATM solutions. The Working Group will continue to keep the Standard current and technically valid in so far as is practicable and, as a minimum, will review the Standard annually.

A detailed list of changes to this document will be maintained at the ABA.

14 Appendices

A1. Disability Needs

This 'informative' appendix only contains additional information and guidance. It in no way indicates requirements to be met by those choosing to adopt this Standard.

Types of disability that are among the most common and relevant to ATM design, deployment and operation are described in this appendix.

According to the Australian Bureau of Statistics (ABS) 18.4 per cent of the Australian population can be categorised as having a disability. An even larger proportion is older and, while not defined as disabled, may have general reduced ability associated with age. Some hidden disabilities (such as heart impairment, breathing difficulties and psychological dysfunction, including stress) can make it difficult for people to cope with electronic banking services.

Problems that arise are mainly concerned with getting about, gaining access to buildings and transport, using products and equipment and carrying out the activities of daily life. Such difficulties are also faced by people who experience temporary or event-related access challenges: those who are temporarily ill or impaired, pregnant women, parents accompanied by children, and people of short and tall stature. If ATM solutions are not designed and deployed in a way that addresses their characteristics and capabilities they are disadvantaged.

A1.1 Sensory

A1.1.1 Vision

People who are blind have a total or near-total loss of vision. They rely more heavily on information from other senses.

Colours should never be used alone to indicate vital functions, but always in addition to other modes of information such as the location and shape of the keys. All colours should transform into clearly discernible grey-tones on the monochrome grey-scale.

Signage should be tactile and there should be ways to locate accessible ATMs.

For some people who are blind it is an advantage if the directions for use are available on audio tape, CD, online or in braille.

For users who have reduced vision, on-screen and printed information should be available in large print format.

A1.1.2 Hearing

Hearing impairment usually affects only part of the range of auditory frequencies. In some cases it affects the whole range. The higher frequencies are usually lost first with age.

Deaf people have little or no hearing and are much more reliant on visual cues and information. They may use Sign Language with English as their second language.

For people who are deaf or hearing impaired, written and spoken information should be in plain English.

A1.2 Physical

A1.2.1 Mobility

Reduced function in the lower limbs - due to disease, accidents or age - often leads to poor mobility. Poor mobility can result in people having to use wheelchairs, and steps or uneven surfaces create difficulties.

A1.2.2 Dexterity

Reduced function in the upper limbs, as a result of reduced strength or coordination, can make the operation of keys, knobs, handles and everyday utensils extremely difficult. Unless carefully designed, electronic devices are difficult or impossible to use by people with poor dexterity or grip.

For people with uncoordinated arm movements it is important that the keys on the keypad are sufficiently large so that it is easy to press the right keys. It is also important that keys on the keypad are well spaced in order to avoid pressing two keys at the same time.

For people with coordination difficulties of the arms and hands it is a problem if keys are activated too easily. If only little pressure is required, it is easy to activate keys by mistake. However, people with reduced strength in their arms and hands may find it difficult to activate keys if too much pressure is needed.

A1.2.3 Reaching and stretching

Almost all manual tasks involve an element of reaching and stretching. People with musculoskeletal disorders such as arthritis have difficulty reaching and stretching. The extent of effective reach is often determined by the amount of force to be applied by the hand and the posture that is adopted.

If the tops of the keys have a convex curvature or shiny surface, people using a headstick or mouthstick and other people who have motor impairments may have difficulty activating the keys as the fingers/stick tend to slip off easily.

People with reduced muscular strength and/or reduced movement capability in their arms and hands often need to rest their hands on in front of the keypad or on the front of the keypad itself. Consequently, it is important that the front of the keypad is not too high and the keypad is not too tilted. If the keypad is horizontal, however, most people find it more difficult to read the characters on the keypad.

Headstick and mouthstick users, and people who can use only one hand, are unable to press more than one key at a time. Consequently, it must not be necessary to press two keys simultaneously in order to activate any features and facilities.

A1.3 Information

A1.3.1 Cognitive impairment

People with cognitive disabilities sometimes have poor memory, poor processing time or difficulty with complex messages. If instructions and assistance are given in an appropriate way, compensation for cognitive impairment can often be achieved.

The use of different colours greatly helps older people and people with learning difficulties to familiarise themselves with the layout of the ATM.

A1.3.2 Speech disabilities

Speech disabilities create most difficulty in unfamiliar surroundings. Pronunciation difficulties, fluency or loudness are the most common manifestations. These may be a problem where speech-input technologies or devices are used.

A1.3.3 Age-related impairments

Older Australians may have any (or none) of the impairments described above.

From a vision standpoint the process of ageing can result in:

- Decrease in visual acuity: Many 60-year-olds require three times as much light as 20-year-olds to see an object.
- Reduced powers of accommodation: The older eye loses its ability to focus on near objects. The average distance of near point accommodation is 8 cm at age 16 and 100 cm at age 60.
- Decrease in contrast sensitivity: From age 20 to age 80 there is a progressive decrease in the ability to distinguish gradations of visual contrast so that greater contrast between information and background is needed to see an object, with the main decline beginning around age 40 or 50.
- Increased sensitivity to glare: The vision of individuals over 40 is more impaired by glare than is the vision of younger individuals.
- Longer dark adaptation times: It takes longer for an older person to become accustomed to seeing in a dark environment after coming from a bright environment.
- Decline of colour vision and discrimination: Colour vision and discrimination improves until age 30, then gradually declines from the ages of 30-40.
- Decline of binocular depth perception (Stereopsis): The ability to perceive depth by using both eyes remains constant until age 40, then declines until age 70.
- Glaucoma: Leading to loss of peripheral vision
- Macular degeneration: Loss of central vision

From a hearing standpoint the process of ageing can result in:

- Onset of many auditory disorders. The most common among these disorders is Presbycusis.

Age-related cognitive impairments include Alzheimer's disease and dementia. Individuals with Alzheimer's disease experience progressive intellectual decline, confusion, and disorientation. Individuals with dementia experience progressive loss of mental functions.

Most perceptual and cognitive limitations can be categorised as:

- Memory limitations: difficulty recognising and retrieving information;
- Perceptual limitations: difficulty taking in, attending to, and discriminating sensory information;
- Problem-solving limitations: difficulty recognising a problem; identifying, choosing, and implementing solutions; and evaluating outcomes;
- Conceptualising limitations: trouble with sequencing, generalising, categorising, cause and effect, abstract concepts, and comprehension; and,
- Language limitations: described separately in the following section.

Individuals with perceptual and cognitive limitations generally benefit from simple displays, low language loading, simple obvious sequences, and cued sequences. These individuals have difficulty understanding audio instructions, using written or electronic documentation, using automated systems, and/or using visual displays, depending on the type of limitation. Methods of improving designs to make them more accessible to this population include the

use of voice prompts, increased size of print, simple fonts, high contrast, labels with icons or graphics, and progress displays.

Designing system interfaces that accommodate the deteriorating abilities of persons 65+ years of age has the potential to reach nearly half-a-billion consumers worldwide.

A1.3.4 Intellectual Disability

The primary reason for knowing someone's "type" or "level" of intellectual disability is to identify suitable ways of providing support for this person. Therefore, the "levels" are defined according to the support needs of the person:

- The characteristics of support for people with intermittent support needs would be: episodic, not ongoing, every now and then depending on what's happening for that person. For example, support may be suitable at times of significant change, such as when someone starts a new job. However, support is not required on a daily basis for the whole of someone's life.
- The characteristics of support for people with low or limited support needs are: minimal support is provided on an ongoing, life long basis.
- The characteristics of support for people with medium or extensive support needs are that more substantial amounts of support are provided on an ongoing basis
- The characteristics of support for people with high or pervasive support needs are that this support is ongoing and provided for all daily living activities, including all personal care and self maintenance activities (such as bathing and eating).

The needs of the Intellectually Disabled have to be recognised in the provision of banking services that are within the capabilities of the person to manage. This Standard has as its core the simplification and standardisation of processes that will help people with minor intellectual disabilities. The standard does rely, however, on the presumption that those people provided with ATM banking services have the capability to use those services without being in breach of the Conditions of Use that govern account operation. This requires as a minimum the ability to understand their rights and obligations, card and PIN security and usage, and the ability to correctly recognise transaction amounts presented for authorisation. Any lesser requirement would expose to exploitation those intellectually disabled persons with higher support needs.

A2. Symbols



International Symbol of Access

A	B	C	D	E	F
Statement	Display	Cash Exit	No. 5 Key	Envelope Depository /Dispenser	Audio Jack Plug

G	H	I	J	K	L
Coin Exit	Card Reader Motorised	Card Reader Dip	Camera Window	Receipt	Speaker

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A3. Diagrammes

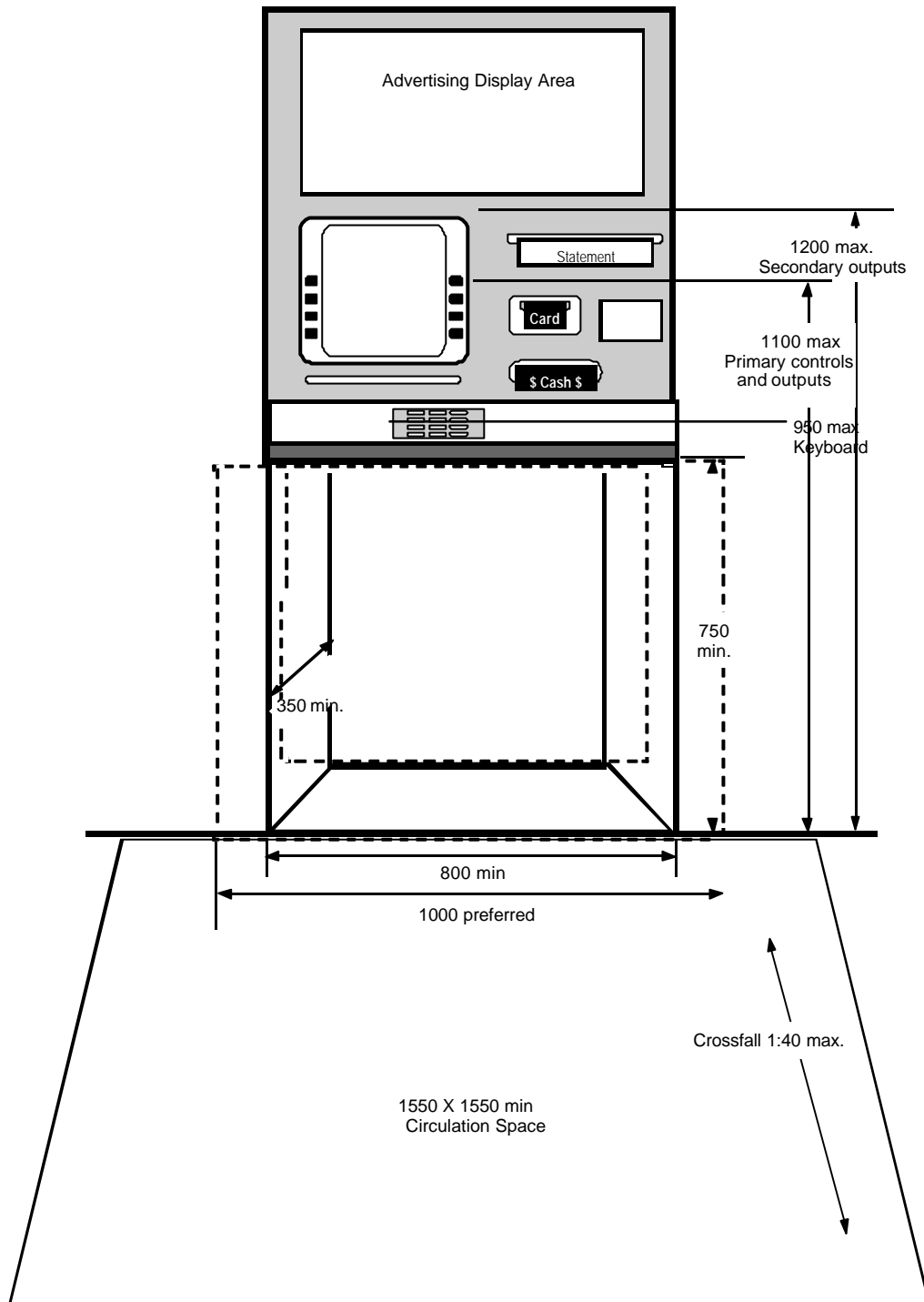


Figure 1: Front-on view of ATM installation, and knee clearance zone, with dimensions (see 11.1.7, 11.8.2 and 11.8.3 above)

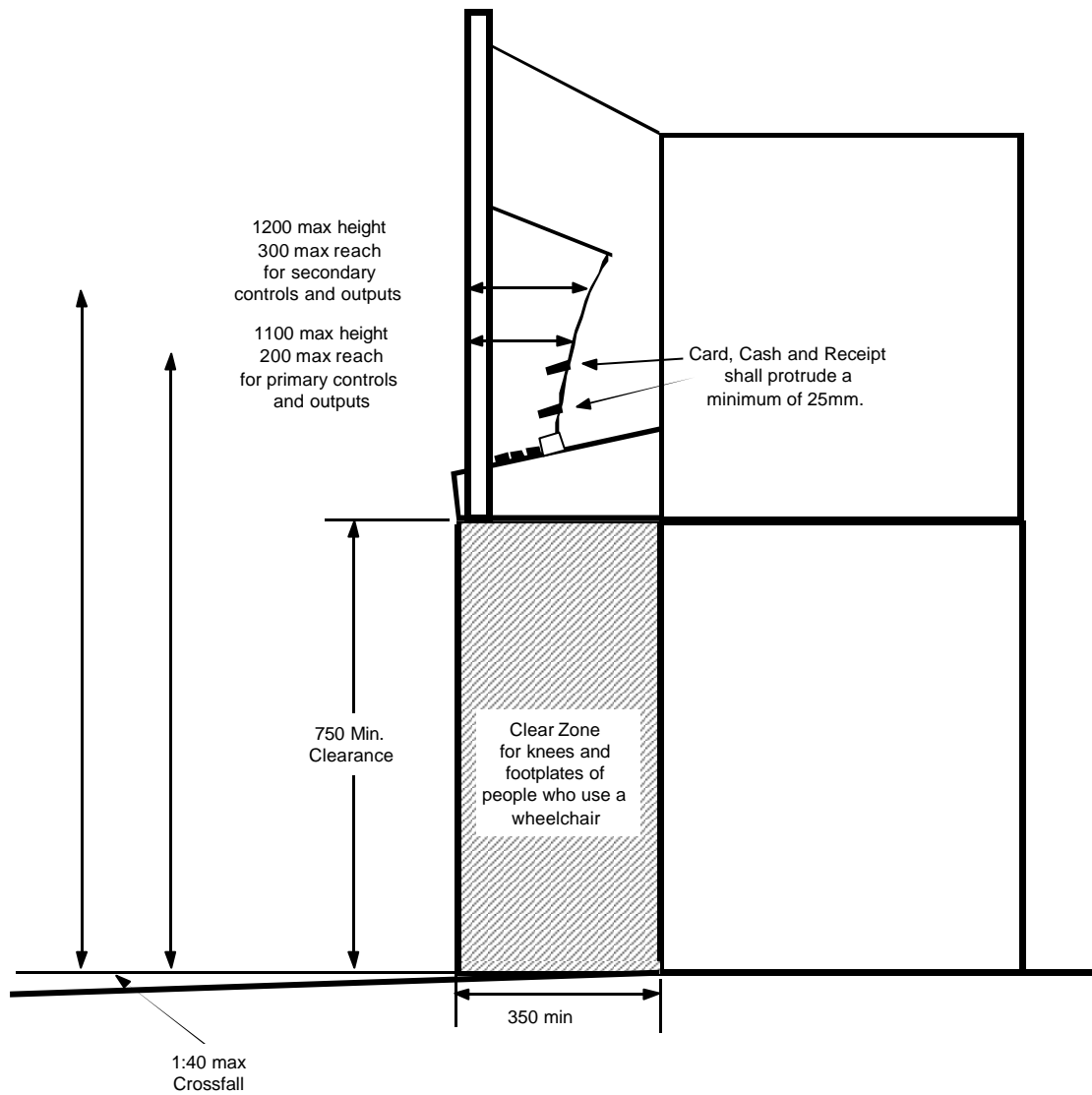


Figure 2: Side-on view of ATM interface, with dimensions (see 11.1.7, 11.8.2 and 11.8.3 above)