DOOR OPERATOR & ELECTRONICS DIVISION

DASMA TECHNICAL DATA SHEET

#372

Door & Access Systems Manufacturers Association International

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Rationale Behind Development of Provisions of DASMA 303 Performance Criteria for Accessible Communications Entry Systems

Note: This document is not a part of DASMA 303.

R 1. SCOPE

R 1.1 Access to properties such as apartment houses, condominium complexes, office buildings, and gated communities is often controlled by telephone entry and/or intercom systems. Since visitors to these properties may include the general public, these systems must comply with Federal ADA requirements and 47 CFR Parts 6 and 7. A performance-based standard is required for evaluating these types of communication entry systems.

R 1.2 Public pedestrian access, as used in the context of this standard, would be defined as buildings open to general access by the public in the commonly accepted sense of the term.

R 1.3 The communication entry systems covered by this standard are for access control and are not the primary "emergency" entrance or exit control for the property. Therefore, this standard does not cover emergency communication entry systems.

R 3. GENERAL REQUIREMENTS

Baseline requirements for accessible communications entry systems are found in applicable FCC and UL documents, some or all of which may apply to communications entry systems in general. As with any system that is made up of various components that a manufacturer has specified to create a working assembly, installation in accordance with manufacturer's written instructions is an important provision as part of conformance to a standard. The line of communication provided by the telephone company should not allow any voice messages that can interfere with the call progress tones and thus impede the use of the entry system.

R 4. PERFORMANCE CRITERIA

R 4.1 Location and Placement

Location and placement of an accessible communications entry system are maintained within 36 CFR Part 1191. Installation locations, screen device positioning, mounting height, mounting locations, approach and reach are all taken into consideration. An accessible communications entry system shall be installed on the wall adjacent to the latch side of the door. Where there is no wall space to the latch side of the door, including at double leaf doors, an accessible communications entry system shall be placed on the nearest adjacent wall.

R 4.2 Visual User Directions

Accessible communications entry systems with electronic displays using Liquid Crystal Displays (LCD) are used in a variety of applications and are mounted inside and outside of buildings. The LCD is used for visual direction and instructions as well as an electronic directory and must be readable in bright sunlight and very dark (nighttime) applications. To meet these various applications, the LCD must use transflective technology. Transflective LCDs are designed to use the ambient light as a backlight in high light conditions and an internal backlight in low or no ambient light conditions. This is a compromise between the reflective mode and transmissive mode technologies.

The reflective mode requires front ambient light to go through the front glass of the display and be reflected off a rear reflector at a different angle. It then travels back out through the front of the display showing the characters as they block the reflected light. Reflective mode technology is used in outside lighted applications such as parking meters and public telephones.

The transmissive mode uses an internal backlight to show the characters in low or no ambient light conditions. To allow an LCD to operate in low or no light conditions as well as high or sunlight conditions, a combination of both technologies (transflective mode) is used. Since this is a combination of two technologies, there is a compromise in minimum contrast ratio. The minimum contrast ratio for a transflective mode LCD is approximately 4:1 at night with no external ambient light. Contrast ratio improves with the amount of front ambient light on the display.

The objective of any mode used is readability for the user. Transflective mode LCDs have very good readability in no/low light conditions because of the internal backlight and good readability in high/sunlight conditions because the transmissive mode uses the high ambient light as a reflected light

source. LCDs allow the user to be off axis as much as 45 degrees in all directions with full readability. This automatically compensates for different heights of users.

Most LCDs use LEDs for the backlight. The use of LEDs allows for a backlight life of over 7 years. If EL or CCFL backlight is used, service life is reduced (6 months for EL and 1.5 to 2 years for CCFL).

If other technologies are used, i.e. LED or Plasma, a contrast ratio of 10:1 is possible in nighttime conditions. When using these other display technologies, the display mounting location must be considered. These other technologies are internally lighted. This works well in low/no light conditions, but may become unreadable in a high light/sunlight condition, since such light can be brighter than the lighted display. This condition may be overcome by using a hood to block out the high ambient light, but it requires the user to be directly in front and looking squarely at the display. However, different height users may not be able to read the display. The service life of LED displays are approximately 7 years while the life of the Plasma is 1-2 years. The power consumption for LCDs are approximately a few watts with the backlight, while the power consumption for Plasma will exceed 10 watts. Using the Plasma display will increase the power consumption of the system as well as increase the heat load of the cabinet.

Visual directions on signage should be eggshell, matte or other non-glare finish to prevent a reflection of light and to make the signage more readable to the user.

Using an LCD with a light background and dark characters is easier to read than a dark background with light letters. In the signage industry, using black characters on a yellow background provides the best readability. A character height of 8 mm (.3 inch or 32 point) using a san serif font seems to be acceptable when the user is within 25 inches of the LCD. Printed signage using different sizes is acceptable.

The specifications for visual user directions have been successfully used in commercial displays.

R 4.3 Audible User Instructions

Accessible communications entry systems must have a means for providing audible user instructions for the sight impaired. The unit will have a separate uniquely identifiable button to initiate audible instructions, with Braille or shape to identify the button. There is no ADA standard button available.

Audible directions for use need to be established based on a decibel level at a measured distance from the audio device speaker. The requirements are consistent with those used in other standards.

R 4.4 Volume Level

Since the unit is a telephone entry unit and is connected to the public telephone network, it must comply with 47 CFR Parts 6, 7 and 68, and UL 1950. The handset must have a means to vary the volume for voice communication output. The handset must be hearing aid compatible. If a handset is used, the handset cord should be a minimum of 29 inches in length to allow a person in a wheelchair to use the system. The means of varying the receiver volume in the handset will be in accordance with 47 CFR Part 68 and UL 1950. If the unit is a speakerphone style, it is not required to have a means for the user to vary the volume on the speaker.

R 4.5 Call Status

Audible call status is necessary for persons with sight impairments. A visual call status is necessary for persons with a hearing impairment. A person with a sight impairment can rely on tones generated from the system that can help them recognize the status of the call, while visual feedback to a person with a hearing impairment can help them recognize the status of the call.

Stating that an indication shall be made when a door or a door operating device has been activated allows accessible communications entry systems designers and technicians to innovatively design, manufacture, purchase and install products and systems to meet the objective of visual and audio indications of such activation.

R 4.6 Controls, and R 4.7 Input Devices

The wording and requirements of this section are consistent with the standard for "Accessible and Usable Buildings and Facilities", ICC/ANSI A117.1, with the requirements of the guide to the Americans with Disabilities Act written by The Access Board, and with 47 CFR Parts 6 and 7. The intent is not to install rotary controls unless such controls can be used by the side of the hand or a headstick.