Standards & Engagement

UL 3300 Helps Account for the Safety of People with Disabilities in Human-Robot Interactions

UL 3300, the Standard for Service, Communication, Information, Education and Entertainment Robots, covers robots for use by, or in close proximity to, the general consumer. SCIEE robots perform various tasks independently in public spaces and commercial spaces, such as restaurants, grocery stores, and banks – interacting with, and working alongside people to help increase convenience, customer service, and efficiency.

UL 3300 includes safety considerations for human-robot interaction, with the goal of being as inclusive as possible. Throughout the standard, considerations are included for "vulnerable persons," which are defined as individuals "at greater risk of harm from products or systems, due to age, level of literacy, physical or mental condition or limitations, or inability to access product safety information."

Since this is the first edition, considerations will be expanded and refined as the standard undergoes continuous maintenance to account for evolving technologies and safety hazards. It is important to note that these steps are only the first steps in helping consider the unique needs, hazards, and usability requirements of people with disabilities.

UL 3300 accounts for interactions with people with disabilities given the following:

- Multifrequency outputs can be considered to account for people who can lose their hearing in particular frequency bands (the most common being high-frequency hearing loss).
- Consideration should be given to flash rates and other thresholds to reduce seizures due to photosensitive epilepsy.
- Having multiple visual indicators can be a better, more accessible strategy if flashing or pulsing light patterns cannot be used.
- Cues/indicators in which the only visual difference is a difference in color that could be missed by some people with color vision deficits.
- Test cases for manufacturers to consider in functional safety verification and validation include obstacles such as wheelchairs, walking canes, and walkers.