CURRENT SMOKE ALARMS UNABLE TO WAKE MILLIONS OF HARD OF HEARING PEOPLE

From Hearing Loss Association of America web site, www.hearingloss.org

August 2, 2007: According to the July 2007 study, "Waking Effectiveness of Alarms for Adults who are Hard of Hearing," the typical audible signal used by smoke alarms failed to wake up 43 percent of tested subjects with mild to moderately severe hearing loss despite the fact that all were able to hear the 3100 Hz tone when awake. Strobe lights woke up only 27 percent of the hard of hearing subjects. In contrast, a specific audible multiple frequency signal consisting of a 520 Hz square wave *successfully alerted 92 percent of the subjects at the benchmark level of 75 dBA and alerted 100 percent at 95 dBA.

The study, authored by Dorothy Bruck and Ian Thomas of Victoria University, Australia, estimated at least 34.5 million people in the United States have partial hearing loss and projected that this number would increase due to the aging of the baby boomer generation.

The Hearing Loss Association of America (HLAA) has long suspected that people have died in fires because they could not hear or wake up to high-frequency smoke alarms, but government investigations of fire fatalities have not inquired into whether the victims had hearing loss. The findings of this study indicate that millions of people with hearing loss will not be wakened from deep sleep by audible alerts which use only one tone in the high frequencies rather than a range of frequencies beginning at approximately 500 Hz.

"This study shows there is a critical need for emergency warning systems to be redesigned or supplemented as soon as technically feasible," said Terry Portis, executive director of the Hearing Loss Association of America. "Millions of people do not and will not know that they will not wake up to the high-pitched tones used by most emergency alerts. We call upon manufacturers of emergency alerting equipment, such as smoke alarms, carbon monoxide alarms, and weather radios, to provide solutions that recognize this reality as soon as possible."

Operators of hotels, motels, college dormitories and many other facilities with sleeping areas must ensure that they provide equally effective communication access for people with hearing loss to the building alarm system, which is required by Title II and III of the Americans with Disabilities Act (ADA).

** A 520 Hz square wave signal contains multiple harmonics of the fundamental 520 Hz frequency, becoming a multiple-frequency signal which is thus more likely to be heard by people with sufficient hearing at one or more of the frequencies in the signal.*