

## LRAD system can thwart attackers

Pirates operating off the coast of Somalia who tried to take control of the Princess line cruise ship *Seaborn Spirit* in November 2005 were probably stunned when their attack was repelled by an ear-splitting beam of sound directed at them from an innovative less-than-lethal piece of equipment, known as a Long Range Acoustic Device, or LRAD, mounted on the cruise ship.

This extraordinary device, which was developed by Woody Norris, now the chairman of **American Technology Corp.**, of San Diego, CA, and has been packaged into a larger and more capable system by **Moog Inc.**, of East Aurora, NY, is already seeing action in Iraq and Afghanistan, where more than 400 units are helping the U.S. military to flush insurgents out of mosques and from inside caves.

The remotely controlled version of the bowl-shaped L-RAD device consists of an acoustic emitter, a pan/tilt device for precise audio targeting, an on-board camera to aid in the tracking and aiming of the acoustic energy and software with a graphical user interface. Additional accessories, such as daytime cameras, night-vision and high-powered spot lights, are also available, according to Moog, which is acting as systems integrator.

LRAD is designed to deliver loud and clear audible messages in English and dozens of other languages to unidentified individuals approaching a ship, vehicle or fixed location with unknown intent.

Because its sound can be tightly focused on the target intruders and can be ratcheted up to more than 150 decibels (120 decibels is the “threshold of pain” for human beings, said Norris) it can communicate warnings or commands that the intruders will undoubtedly hear.

If these warnings are not heeded, the volume can be cranked up further to the point where most human beings will be incapacitated.

The catalyst for this development was the terrorist attack on the *USS Cole* in the port of Aden in Yemen in October 2000, when water-borne strangers attacked the U.S. Navy vessel without warning.

Sailors aboard the *Cole* reportedly warned the approaching small craft to turn back, but were unsure if their warnings were heard – much less understood – and were unwilling to fire upon the intruders who might have been innocent civilians.

Since then, the U.S. Navy and U.S. Coast Guard have been keenly interested in deploying systems that can deliver what are termed “unambiguous warnings” to approaching strangers.





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During a brief demonstration at the recent ASIS security conference in San Diego, attended by a **GSN** reporter, an LRAD system was set up a few hundred yards from a small group of observers. As the beam of sound was panned across, it became nearly ear-splitting when it was pointed directly at the group, but was significantly softer when it was directed to the group's left or right.

A few employees with security responsibilities at the U.S. Nuclear Regulatory Commission, who were among the observers, said the LRAD device might provide a useful deterrent that was stronger than a bullhorn, but less lethal than opening fire upon an intruder.

"Unlike a bullet, it has a volume control," noted Norris.

LRADs have already been used by local police departments in the U.S. to issue arrest warrants verbally, at a safe distance.

The sound can be heard clearly across one-half mile on land and one mile over water, said Norris. It runs on 200 watts of power, he noted at the demonstration.

The LRAD device costs between \$35,000 and \$100,000, depending upon the extra pan/tilt controls, cameras and other bells-and-whistles that might be added.