



Center for National Response  
Operational Test Report  
for the  
DKL International, Incorporated  
*LifeGuard<sup>TM</sup>*

Test Series CNR03-04-02

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## Executive Summary

The Center for National Response (CNR) at the West Virginia Memorial Tunnel is a National Guard Bureau (NGB) training and testing facility. **The CNR** Operational Test and Evaluation Program (OTEP) tests and evaluated equipment, technology, and apparatus deemed suitable for meeting the needs of military and civilian emergency personnel responding to acts of terrorism involving the use of weapons of mass destruction (WMD).

The OTEP conducted Test Series CNR03-04-02 on 24 April 2003. The unit under test (UUT) for this series consisted of the DKL International, Incorporated *LifeGuard*<sup>TM</sup>. DKL states the *LifeGuard* detects and tracks any living human being, moving or stationary, through concrete walls, steel bulkheads, heavy foliage, earthworks, and water. Objectives for this series were to: (1) examine the utility of the *LifeGuard*<sup>TM</sup> to materially aid emergency response in a WMD incident and (2) examine the ability of the UUT to detect human subjects through various barriers.

The operator for this test series was a firefighter from Stonewall Jackson Volunteer Fire Department (SJVFD), Manassas, Virginia. The UUT operator had gone through DKL's *LifeGuard*<sup>TM</sup> operator training program and was familiar with the UUT.

Overall, the operator was pleased with the functionality of the UUT. Throughout testing, the UUT adequately demonstrated its ability to detect the presence of living human subjects in a variety of situations, both with and without barriers. The UUT operator felt that the UUT provided a good "yes or no" feature for search and rescue situations, although he would use it in conjuncture with types of equipment.

## 4.0 Conclusions

### 4.1 UUT's Demonstrated Capabilities and Limitations

#### 4.1.1 Capabilities

The operational test and evaluation revealed the following UUT capabilities:

The UUT allows users to detect a living human through variety of barriers. This ability proved useful to detect living humans over a large area and whether or not a living human was located within various facility. Within reasonable distances, the UUT is able to locate a subject above or below the operator. The UUT was able to penetrate all barriers it encountered without tremendous offset. The UUT is lightweight and except for the laser pointer, the UUT does not require a power source. Within reason, the UUT is able to track a moving human subject.

#### 4.1.2 Limitations

The operational test and evaluation revealed the following UUT limitations:

The UUT works only on a horizontal plane. The UUT will be offset by wind and other outside factors, as well as any illicit movement by the operator. When conducting searches, the UUT cannot filter between target subjects and other subjects. In order to conduct searches, the area must be free of other human subjects to be effective. Extensive training and use are required for the operator to become proficient in the nuances of the product's detection indicators.

## 4.2 Suggested Refinements

Based on observations, the data collected, and UUT Operator feedback, the CNR OTEP recommends the following refinements:

- ✍ The design of the UUT should be modified so outside forces such as wind sheer do not interfere with detection.
- ✍ Develop a self-contained unit with a liquid crystal display (LCD) screen enabling the user to focus the unit in the direction of the strongest electrical field. This would eliminate the need for a free-swinging arm that is capable of being skewed.
- ✍ Careful consideration should be given to developing improved SOPs based on known limitations of the UUT. These SOPs would ensure that operators conduct as thorough a search as possible (e.g. rescanning area once one victim is found).