

## Phase I Summary Report

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### Award Details

Contract #: M6785404C1012

Topic: N03163

Solicitation: 03.2

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Award Amount: \$99,965.00

Phase: I

Program: Navy SBIR

Start / End Date: 11/19/2003 05/19/2004 FY Reported: 2004

Title: Remote Personnel Incapacitation System

### Summary Information

#### Objective of Phase Effort

The main goal of the Phase I project was to design and build a breadboard prototype of a temporary personnel incapacitation system called MEDUSA (Mob Excess Deterrent Using Silent Audio).

This nonlethal weapon is based on the well-established microwave auditory effect (MAE).

MAE results in a strong sound sensation in the human head when it is irradiated with specifically selected microwave pulses of low energy.

Through the combination of pulse parameters and pulse power, it is possible to raise the auditory sensation to the "discomfort"? level, deterring personnel from entering a protected perimeter or, if necessary, temporarily incapacitating particular individuals.

#### Summary of Results from the Phase I Effort

The major results of the Phase I effort were that an operating frequency was chosen.

Hardware requirements were established (commercial magnetron, high voltage pulse former)

Hardware was designed and built Power measurements were taken and the required pulse parameters confirmed

Experimental evidence of MAE was observed

## Potential Applications and Benefits

Potential applications of the MEDUSA system are as a perimeter protection sensor in deterrence systems for industrial and national sites, for use in systems to assist communication with hearing impaired persons, use by law enforcement and military personnel for crowd control and asset protection.

The system will: be portable, require low power, have a controllable radius of coverage, be able to switch from crowd to individual coverage, cause a temporarily incapacitating effect, have a low probability of fatality or permanent injury, cause no damage to property, and have a low probability of affecting friendly personnel.

Questions or problems? Email [navysbirprogram@qinetiqna.com](mailto:navysbirprogram@qinetiqna.com).

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