



# Science and Technology

## TRANSPORTATION SECURITY & EXPLOSIVES CHARACTERIZATION

# PORTABLE VAPOR GENERATING DEVICE FOR CANINE TRAINING (E-CANINE NON-DETONABLE TRAINING DEVICE)

### VAPOR-EMITTING DEVICE FOR EXPLOSIVES SCENT DETECTION TRAINING

The technology currently used for working dog training in real-world scenarios is ineffective. Training is expensive, difficult to coordinate, and does not allow for the highly controlled release of various odors. Training materials can also cross contaminate the training setting or not release enough odor for proper detection. Once the training is completed, sample materials often require costly disposal methods since they contain dangerous contraband.

The Portable Vapor Generating Device for Canine Training (e-CNTD) has been designed by researchers at the Transportation Security Administration (TSA) to regulate odor release rates from safe and effective training materials. The innovation provides more control for the trainer and smart heating profiles designed to release the right amount of odor for each training setting. Adding to the ease of use is a remote controller that can be used over 200 feet away from the system. The training materials are also contained within fiberglass sheets, providing safe handling and easy disposal.

### KEY BENEFITS

- + Enables live training scenarios
- + Minimizes sample contamination or handler exposure
- + Spontaneous or on-demand vapor creation
- + Safe disposal

### STAGE OF DEVELOPMENT

Prototype

### PARTNERSHIP SOUGHT

License

### INVENTORS

Inho Cho

### DHS COMPONENT

Transportation Security Administration

The Technology Transfer and Commercialization Branch (T2C) within the Office of Industry Partnerships (OIP) of the Department of Homeland Security (DHS) Science and Technology Directorate (S&T) serves as the centralized point to manage technology transfer activities throughout DHS and the DHS laboratory network. [T2C@hq.dhs.gov](mailto:T2C@hq.dhs.gov)

## THE TECHNOLOGY

The e-CNTD device holds a fiberglass sheet containing trace explosives. A battery-operated pulse generator circuit is configured to activate specific components of the substance depending on their vapor pressures and other gas phase characteristics. A combination of remote and manual switches allows for instant or controlled vapor generation, and a series of double batteries allow the user to adjust the power for varying intensities depending on the substance and application setting.

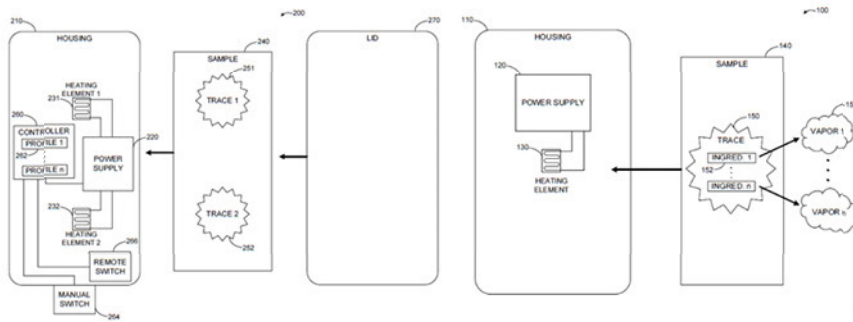


Diagram of an e-CNTD device, showing the contained heating element, power supply and remote or manual switch components.

## APPLICATIONS

The technology has several potential end uses:

- + Border patrol canine teams
- + Transportation security canine teams
- + Search and rescue, and forensics teams
- + Canine-assisted cancer detection
- + Canine-assisted hunting

## PATENT INFORMATION

US Patent number 16/367,782

## CONTACT INFORMATION

+ T2C@hq.dhs.gov

TECHNOLOGY SOLUTIONS

FOR MORE INFORMATION ABOUT THE DHS TECHNOLOGY TRANSFER & COMMERCIALIZATION BRANCH:

<https://www.dhs.gov/science-and-technology/technology-transfer-program>

