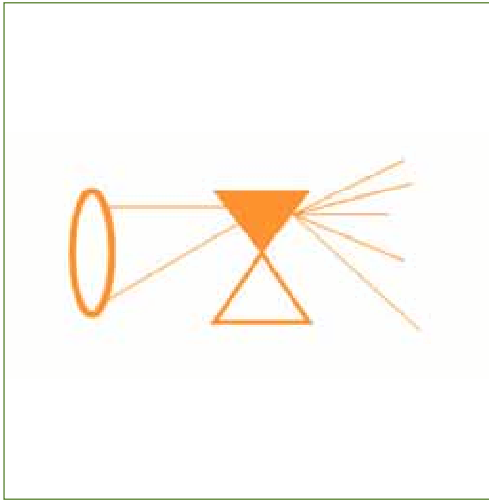


# OPTIX

## Optical Technologies for Identification of Explosives



### Project objectives

Terrorism, as evidenced by recent tragic events (Madrid 2004, London 2005, New York 2001), is a real and growing threat to Europe and the world. Attacks using Improvised Explosive Devices (IEDs) appear in the news every day. More than 60% of terrorist attacks are carried out by the use of such explosive devices.

Security forces demand new tools to fight against this threat. One of the most demanded capabilities by end users is that of standoff detection and identification of explosives. Today's technologies are not able to provide these capabilities with the required minimum reliability.

The objective of the project is to contribute to increasing the security of the European citizens by the development of a transportable system for the standoff detection and identification of explosives in real scenarios at distances of around 20 metres (sensor to target), using alternative or simultaneous analysis by three different complementary optical technologies (LIBS, RAMAN, IR).

### Description of the work

The project activities of OPTIX have been broken down in ten work packages and distributed along 42 months.

OPTIX will perform important progress beyond the state of the art in three different ways:

- » Specific developments regarding the individual core technologies (LIBS, RAMAN and

IR) for standoff detection and identification of explosives

- » Specific developments of the enabling technologies being addressed in the project: lasers, spectrometry, optics and data fusion and analysis
- » Integration of all technological developments onto a single system to leverage and enhance the individual capabilities for the standoff detection and identification of explosives

First stage will be dedicated to the System Definition. The project consortium will perform a focused research on the core optical technologies addressed by the project. Scenarios and system requirements will be defined. This is a key stage for the success and final usefulness of the system from the end user's point of view. Workshops with end users will be organised.

Technology development of LIBS, RAMAN, IR (core technologies) and laser, spectrometry, optics and data fusion (enabling technologies) will follow.

Phase three is System Integration, where a single platform will be developed.

Testing will be carried out in laboratories and also in real environment scenarios, adequately supported by end users. Evaluation of results will follow.

Dissemination and Exploitation will provide information of the project's activities, performance and results both at public and restricted levels, as well as definition and carrying out the initial

exploitation of the outcomes and foreground of OPTIX. Workshops with end users and other potential stakeholders will take place.

### Expected results

- » Improved capabilities of LIBS, RAMAN and IR for the detection of explosives at standoff distances
- » Enhanced spectrometrics for an Integrated OPTIX system.
- » Advanced data fusion and chemometrics algorithms.
- » A technology demonstrator capable of detecting explosive traces at distances of 20 metres.
- » Demonstrated capabilities of the developed system to end users and to additional stakeholders as needed.

# INFORMATION

**Acronym :**  
OPTIX

**Grant Agreement N° :**  
218037

**Total Cost :**  
€ 3,289,855

**EU Contribution :**  
€ 2,487,556

**Starting Date :**  
01/11/2008

**Duration :**  
42 months

**Coordinator :**

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