Effective Container Inspection at BORDer Control Points

Standards, Technology Assessment and System Validation

Objectives

Within the project, the assessment of the following five technologies as well as of the combined C-BORD system is planned regarding radiation portal monitors (RPM) as passive scanning technologies for radioactive materials, next generation X-ray scanning, Rapidly Re-locatable Tagged Neutron Inspection System (RRTNIS) utilizing a neutron generator as an active method of detection, Photofission, and evaporation based detection technologies.

The assessment and validation process of the technologies is meant to demonstrate:

- The suitability of the modified and enhanced technologies for deployment in the container freight context.
- The combination of several technologies for reliable detection of radioactive material, explosives, chemicals, drugs, and tobacco hidden in cargo containers.

Particular attention is given to active detection methods which cannot be applied to pedestrians or vehicles for health and ethical reasons and are only be used with regard to objects. As such, it must be ensured that no danger is posed to the public when applying these methods.

Assessment Activities

During the assessment the current characteristics of the integrated NII detection systems based on different technologies will be compared with the defined requirements which were developed at the beginning of the project in cooperation with end users. This will be done by a comprehensive analysis of the different C-BORD NII technologies, the results of the performed test measurements, field validation trials under real life conditions, and end user input.

- **End user input:** The end user perspective will be taken into account via interviews and questionnaires with customs partners and Advisory Group members. A standard approach for all tasks concerning Standards, Technology Assessment and System Validation will be elaborated.
- **Test measurements:** Results from tests performed during the technical development as well as different test measurements performed directly in cooperation with the technology developers are considered to check if the specific end user requirements defined in the beginning of the project are

Grant n°: 653323
Duration: 42 months
Start date: 1 June 2015
Website: www.cbord-h2020.eu
Contact: cbord-coordinator@eurtd.com

fulfilled. The technology's ability to detect, to identify or at least categorise different kinds of agents/material and the time needed for this will be important aspects to assess.

- **Field validation trials under real life conditions:** Results from the Use Case field trials will be used as an important basis for the overall assessment of the technologies as well as for the full C-BORD solution. There will be three field validation trials performed: NII scanning for big automated terminals in Rotterdam seaport, for relocatable installations in Gdańsk seaport, and mobile installations for road checks at a land border in Hungary. These trials will be run both to assess and evaluate the project results in a realistic environment.

Assessment results obtained from laboratory testing in the earlier stages of the C-BORD project will be fed back to developers for making further improvements and will be used to support the planning and execution of the field validation trials to test the C-BORD system's ability to detect the materials and substances targeted.

Furthermore, based on the results from the assessment activities during the project, recommendations on existing standards applied to the assessed technologies will be collected and suggestions for modifications of these standards to meet the demands of end users will be elaborated.

Expected Results

- The evaluation process of the technologies and the entire C-BORD system according to current European and American standards will result in specific statements about the reliability of the system and its components to detect to the material in question in cargo containers.
- In this context, the licensing procedure for the deployment of technologies in the use case trials will serve as a best case approach to take into consideration all safety and health risks.

Partners Involved

BRSU	HOCHSCHULE BONN-RHEIN-SIEG
Fraunhofer	FRAUNHOFER GESELLSCHAFT ZUR FORDERUNG DER ANGEWANDTEN FORSCHUNG EV
MTAEK	MAGYAR TUDOMANYOS AKADEMIA ENERGIATUDOMANYI KUTATOKOZPONT
OCSS	OSLO CENTRE FOR SCIENCE IN SOCIETY
SmithsD	SMITHS HEIMANN SAS
JRC	JRC -JOINT RESEARCH CENTRE EUROPEAN COMMISSION

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 653323.