

Safety and Security Interface of RPMs use to Broaden Radiological Protection in Albania

D.Prifti¹, Ch.Massey², E.Bylyku¹, B.Daci¹, K.Tushe¹

¹Institute of Applied Nuclear Physics, (IANP), Tirana, Albania

²International Atomic Energy Agency, (IAEA) Vienna, Austria

Contact address: email: berati77@yahoo.com

Abstract

The basic law for radiation protection in the Republic of Albania is Law no. 8025, dated 11.01.1995 "On protection against ionizing radiation" amended No. 9973, July 28-th 2008, which establishes basic safety standards to protect health of workers and the general public environment against the dangers arising from the ionizing radiation. Regulation on Physical Protection of Radioactive Material in Albania has the objective to establish the basic requirements for physical protection of radioactive sources, and apply to all activities relating to the possession, use, storage and transportation of radioactive sources. Physical protection of radioactive sources aims to protect persons, property, society, and the environment from malicious acts, such as theft or unauthorized removal and sabotage involving radioactive sources.

1. Introduction

The main purpose is to assess the present situation on safety and security interface of radioactive materials in Albania, in respect to the current management practices and regulatory control for the safety and security of both authorized and unauthorized radioactive material shipments. The assessment is focused on the safety and security of high-activity sealed sources and orphan sources, as defined by IAEA categorization of Sources and also in the detection of illicit trafficking of nuclear and other radioactive materials out of regulatory control. In support of safe radioactive material transport oversight, a Memorandum of Understanding (MOU) has been signed by the Albanian General Custom Directorate (GCD and the Institute of Applied Nuclear Physics (IANP). IANP is responsible for the safe and secure management of radioactive waste and DSRS at the national level, and is involved in the detection and management of unauthorized radioactive material shipments. To address the security risks associated with illicit trafficking of nuclear and other radioactive materials out of regulatory control, Albania has undertaken significant effort to equip the main border points (BPs) with radiation portal monitors (RPMs). While the main purpose of the RPM at the different BPs in Albania is related to nuclear security and the detection of illicit trafficking of nuclear materials, the RPMs can serve other vital safety roles. First, the RPMs can detect unauthorized shipments of radioactive materials and their transit through Albanian territory, thereby increasing the radiological protection for the people and the environment. Secondly, the RPMs can detect consumer goods, such as food stuffs, that may be contaminated with radioactive materials above safety/regulatory limits..

Decision No 877, date 30.10.2015 of Council of Minister for the approval of the new regulation "On the physical security of radioactive sources in the Republic of Albania" cover main aspects related to security. The object of this regulation is the determination of measures on the physical protection of radioactive materials, transportation, and the requirements to keep the radioactive sources in secure places and their use only by the physical/legal persons licensed for the relevant activities according to the legal acts and regulations.

Meanwhile Decision no. 638, date 07.09.2016, of the Council of Ministers for the approval of the new regulation "On the approval of the regulation on the safe handling of radioactive waste in the Republic of Albania" and Decision No.815, dated 16.11.2016 on the adoption of the regulation "On the safe transport of radioactive materials cover main aspects related to safety of radioactive materials.

Radiation Protection Commission (RPC) takes the appropriate measures to ensure that all radioactive sources in the Republic of Albania of categories 1, 2 and 3 are registered, controlled and securely protected during and at the end of their useful lives.

2. RPM types used in Albania

First RPMs in Albania are installed in 2004 of type YANTAR 1-U and 2 U in five BCP which actually are not working and needs upgrade.

In 2014 are installed by a private Company "S2 Albania" 5 new RPMs type Rapiscan-TSA TM850 from which 2 are Mobile RPMs in the same BCP where were installed the YANTAR RPMs.

In 2016 are installed 2 other new RPMs of type YANTAR 1-A-02 in Durres Sea Port from the Russian Company ASPECT in the frame of the IAEA Project "Implementation of an alarm system and installation of radioactive detection equipment "Setting an alarm scheme and installation of radiation detection equipment to control radioactive materials in the Republic of Albania" of the General Custom Directorate in Cooperation with IANP. Two others of the same type are going to be installed in the Hani-Hotit Border Point which is in the reconstruction phase.

Since 2016 Albania is participating in a Coordinated Research Project titled "Improved Assessment of Initial Alarms from Radiation Detection Instruments" with the Research Contact Title "Collection and Analysis of Radiation Detection Data for Alarming Containers. The Scientific scope of this CRP is to develop technical documents and tools that can be used by FLOs and expert organizations to enhance the ability to make high confidence assessments on whether or not nuclear and other radioactive material out of regulatory control is present when an initial alarm occurs. To achieve the above scope in this project is made the collection and analysis of radiation alarm data from various geographic areas to account for variability in background radiation, equipment types, and cargo commodities which is required to develop best practices for such data collection and to support the development of algorithms to automatically perform an assessment of the alarms to determine if they are within acceptable limits for categorizing an alarm as being the result of Naturally Occurring Radioactive Materials (NORM).

3. Memorandum of Understanding: GCD&IANP

Memorandum of Understanding no.419 dated 14.01.2009 has been signed between GCD and IANP with the aim "For detection and combating of illicit trafficking of radioactive materials" where the following ways of collaboration are reflected:

- Co-operation, when radioactive materials beyond prescribed norms are determined;
- Technical assistance for the control and prevention of illicit trafficking of radioactive materials;
- The continuous training of FLO, etc.

4. Equipment used in different BPs in Albania

Radiation detection equipments used in different BPs includes:

- Personal radiation detector (PRD) MiniRad or Polimaster that detect gamma radiation. This devices are primarily used to determine a safety zone for Officer safety during operations.
- Radiation Isotope Identification Device (RID- Identifinder Flir 2) which is handheld and used by FLO for locating a radiation source and determining the specific isotope encountered. It is capable of transferring the isotope information to off-site technical experts via computerized data transfer.
- Radiation Portal Monitors (RPM) which is a large emplaced system, located at primary screening areas, used to detect gamma and neutron radiation. The operation of the RPM is typically controlled via a computer.
- On 2009 the Albanian Customs assumed immediate actions to protect the national borders, environment and society from illicit traffics and smuggling of nuclear and other radioactive materials at the border check points, and to keep under full control their legal traffics. Albania has signed INSSP with IAEA.

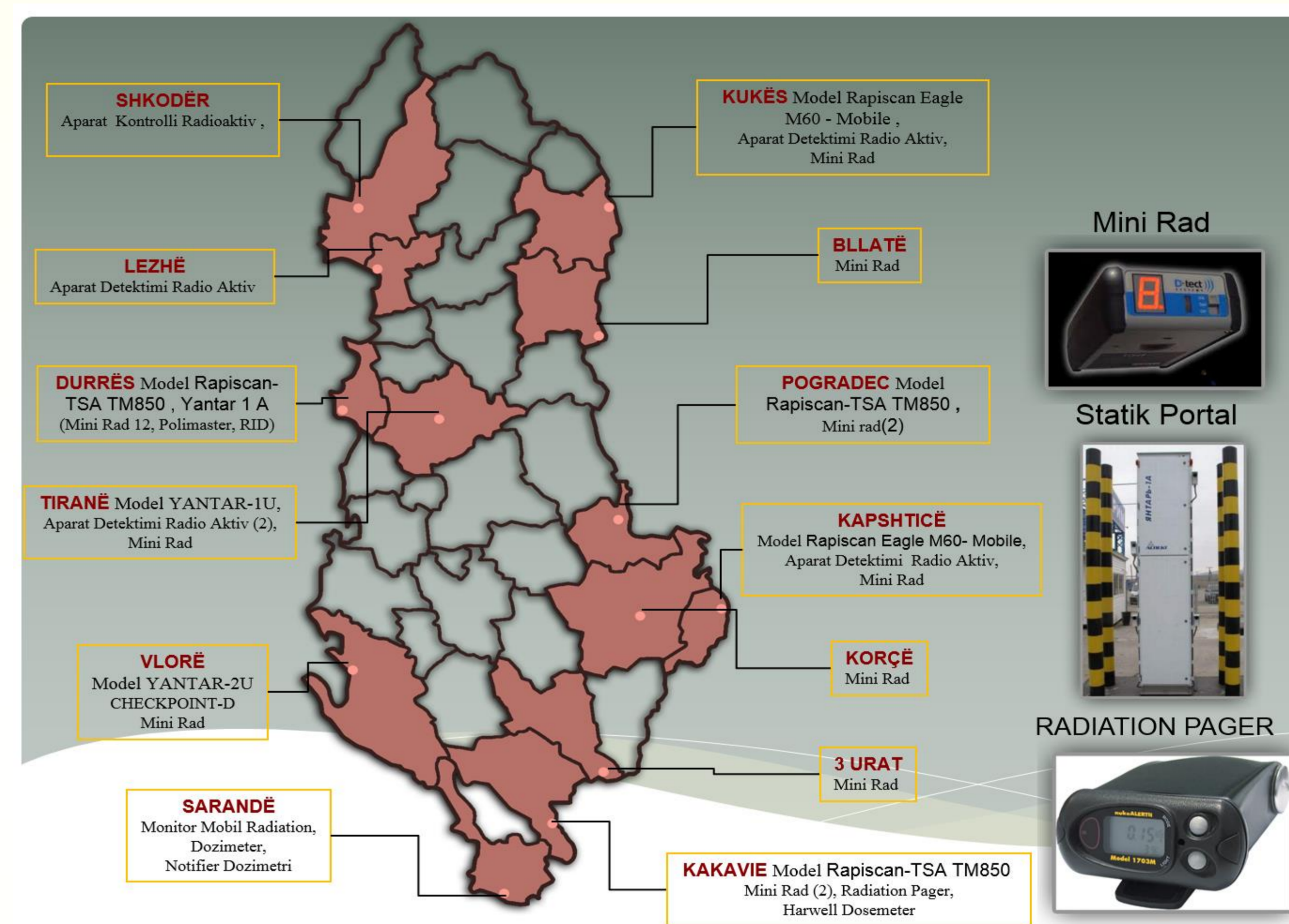


Figure Nr.1 Equipment used in different BP in Albania

5. Orphan sources

RPC has the support of IANP to take under control of all orphan sources and of the radioactive materials in case of illicit trafficking of nuclear and other radioactive materials out of regulatory control. IANP performs all procedures for the safety and security of the sources with orphan status to the storage of this Institute. The expenses in case that the owner of the orphan sources is not identified are covered by State. The RPC has established and implemented written procedures that address the actions to be taken in respect of sources that have been found or lost from authorized control. Also these are treated as a part of emergency procedures.

6. Cooperation with law enforcement & custom authorities

In order to secure the border to prevent the unauthorized entrance - exit and transit of the radioactive sources and of any illicit trafficking of nuclear and other radioactive materials out of regulatory control in the Republic of Albania, the Albanian Customs Service should take all the due measures to place the necessary devices for automatic and/or manual detection of the radioisotopes in border crossing points. The allocation of such devices should make possible to detect and/or identify strength/nature of source and should be realized in line with the establishment of functional response plans/ procedures prepared by the Customs Service in cooperation with RPC and IANP.

7. Conclusions & Acknowledgment

Albania has been working closely with the IAEA in the field of security of radioactive sources. Together we have been preparing and approved the INSSP. In this framework Albania's has reviewing the existing laws and have in process the regulations to determine where provisions specifically related to nuclear security issues (physical protection, illicit trafficking, import-export, border control, waste management, penalties), taking into account international legal instruments, recommendations and IAEA guidelines (gap analysis).

Role of Radiation Protection Commission is very important in implementing the requirements for the safety and security of radioactive materials in Albania. Considerable IAEA support has been provided to Albania in relation to border monitoring and illicit trafficking of nuclear and other radioactive materials out of regulatory control.