

R.A.R. RADIOACTIVITY ALERT NETWORK



Introduction

The RAR is a nationwide network to automatically and continuously measure and analyze the radiation levels.

The object of such network is to detect and follow up the evolution of events that might cause abnormal radiation levels, to determine the radiological risk and to adopt the appropriate protective measures.

Structure of the network

The network is structured in around three levels:

- Measuring Stations
- National Center
- Regional Centers

Measuring stations

There are 902 measuring stations distributed throughout the whole national territory. Their object is to measure the atmospheric gamma radiation levels.

The stations are preferably located at the premises of public bodies such as town halls or governmental offices. They are also distributed so that the whole national territory is covered by a net of at least 50 x 50 Km. with a greater concentration in some strategic locations such as the vicinity of nuclear power plants, large urban centers, coastal fringes, national borders, etc.

The measuring station consists of:

- Geiger-Müller gamma radiation detector.
- Remote data collection unit, manufactured by INDRA, that collects the information supplied by the detector, processes it and automatically relays such information to the National and/or Regional Center.

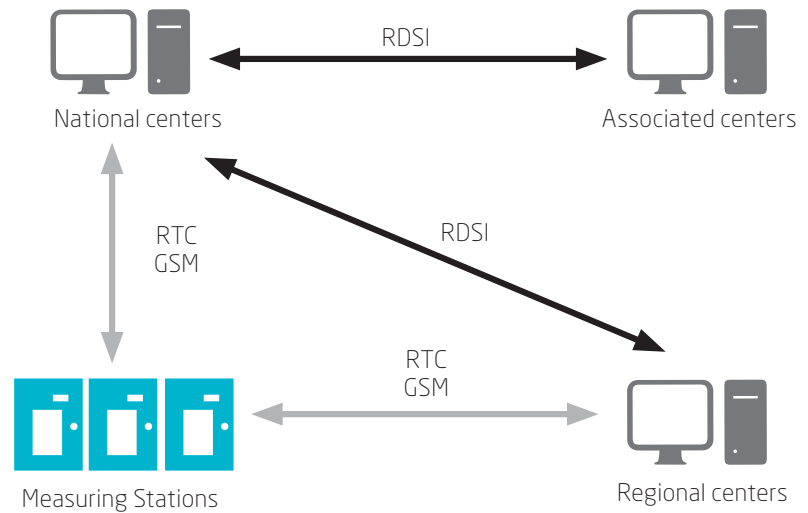
The detector is of an intelligent type, delivers the data processed to the remote station in a digital format through a serial line once a minute, and calculates the average values every 10 minutes and every 2 hours.

The data are processed at the remote unit: detection of alarm levels, definition of thresholds, trends, testing of equipment, etc.

The data are stored and sent to the National Center through Switched Telephone Network or via GSM network. 10% of the strategic stations incorporate GSM methods of transmission.

The interface of the station consists on a LCD display and a keyboard for the in situ display of data.

Architecture of the network



National center

The National Center is located at the headquarters of the General Directorate of the Spanish Civil Protection; serves as a hub for the information received from the measuring stations and distributes the information to the Regional Centers. Its task is to centralize and manage the whole network.

The main functions of the National Center are:

- The collection of data from the measuring stations through STN or GSM network.
- The validation and storage of the information received for later exploitation.

- The forwarding of the information received and processed to the Regional Centers.
- The centralization and manage of the whole network.
- The display and presentation of the information through a graphic and friendly man machine interface based in a Geographic Information System.
- The generation of alarms when the defined thresholds are surpassed.
- The remote command and control of measuring stations.

- The elaboration of graphic and alphanumeric reports based on statistical methods.
- The connection with the others centers is achieved redundantly through RDSI and STN. There are consultation terminals linked with this National Center, also through RDSI, at the Nuclear Security Council and the Ministry of Defense.
- For security reasons, the systems that support the National Center are mirrored.

Regional centers

The functions are similar to those of the National Center, but only for measuring stations that belongs to the geographical area are monitored by the Regional Center.

There is a total of 10 Regional Centers, each one serving on or more Autonomous Communities of Spain.

They can receive the information from the National Center or may connect directly with any measuring station through the same communications facilities.

Associated center

There are six Associated Centers that serve as consultation terminal. They are located at the Nuclear Security Council, Ministry of Defense and four Government Regional Offices.



indra

Avenida Bruselas, 33-35
28108 Alcobendas
Madrid (España)
T. (+34) 91 480 50 01
F. (+34) 91 480 50 58
indracompany.com



Indra reserves the right to modify these specifications without prior notice.