

# JRC Electronic Seal - JES

## Scope of the project

The JRC electronic seal is being developed to fill a gap in current sealing technologies in nuclear safeguards. The most widely used seals are currently passive seals which have a low cost, but are complex to verify and cannot provide any information on the wire integrity.

Existing electronic seals perform a large number of functions, not all essentials, and are quite expensive.

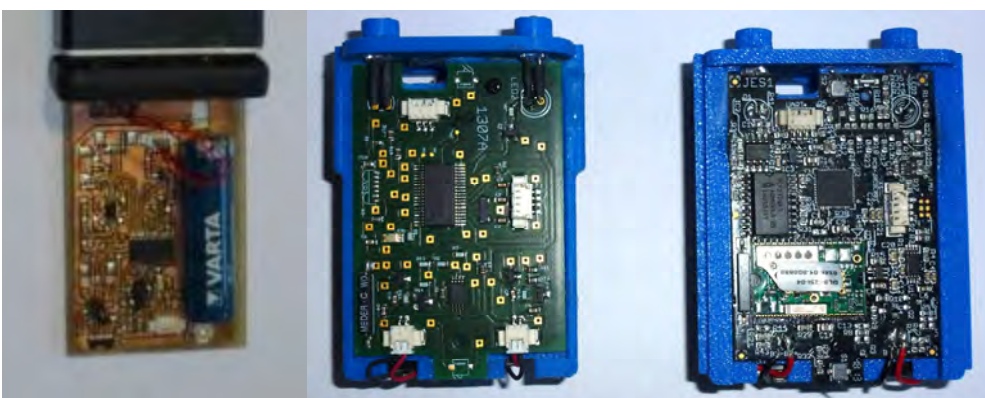
The JRC electronic seal aims at combining the simplicity of a passive seals with the core advantages of electronic seals, namely the continuous monitoring of the wire and the possibility to interact with the seal through a reader, simplifying the inspector's work and providing more complete information.

## Key requirements (IAEA EC-SP: EC-E-01849)

- Low Cost
- Low power consumption
- Wire integrity monitoring
- Authentication
- Security / Data encryption
- Simple communication
- Event logging
- Anti-tampering
- Harsh environment
- Single event upset



**EURATOM  
Safeguards**



## 2011-2013

- Feasibility study
- Design & Development (HW & SW)
- First prototype 2012
- Preliminary tests
- Prototypes delivered to Customers in Sept 2013

## 2014

- Pre-industrial prototype delivered to customers on May 20124 for feedbacks and preliminary VA
- Finalize project according to feedbacks

## Next

- **AOLS - Advanced Optical Loop Seal**
- New project for more powerful seal with additional functions (remote interrogation, public key infrastructure ...)

