

TAMPER INDICATING DEVICES ON GIPP PROJECT

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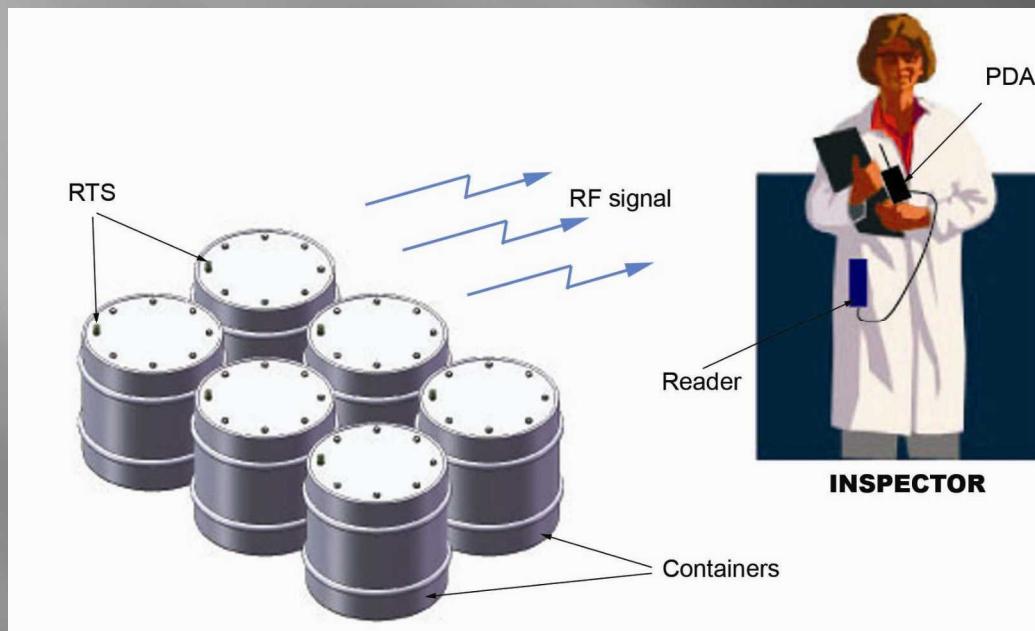
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Introduction

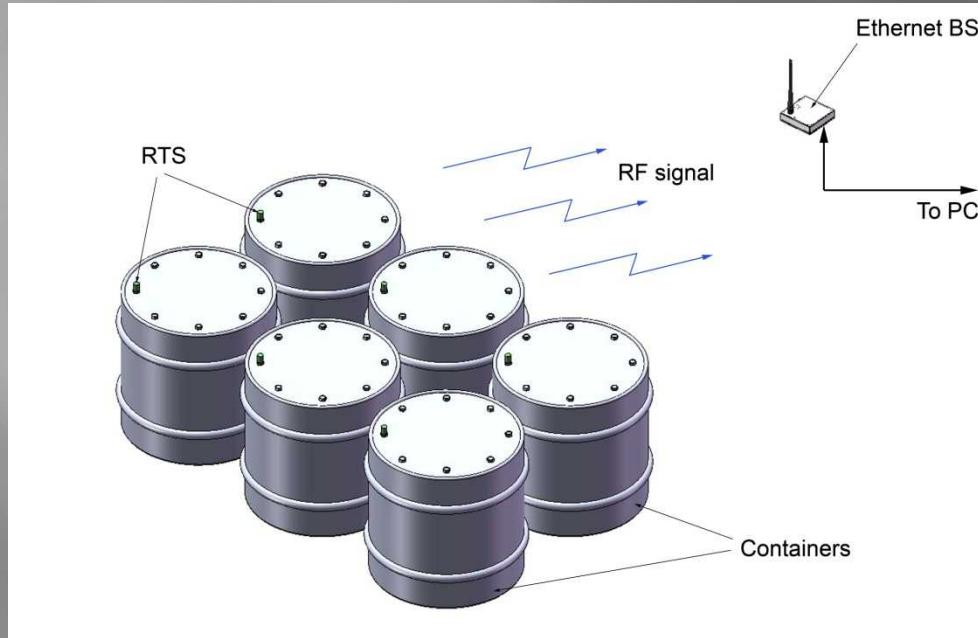
- Tamper-Indicating Devices (TID) serve the purpose of providing reliable and timely detection of any type of access to a containerized cargo or any other protected cargo;
- To provide highly reliable sealing and monitoring of a high-risk cargo container, a new sealing technology that uses a new type of active seals, also known as a Radio-Frequency Seal/Tag (RFST) system, is being developed as part of Project GIPP RUE2-011122-SV-05;
- The RFSTs are free from the limitations inherent in simple basic seals and provide both sealing and container monitoring functions;
- Their handling does not require specially trained personnel.

RFST System Components and Principle of Operation in Intermittent Monitoring Mode



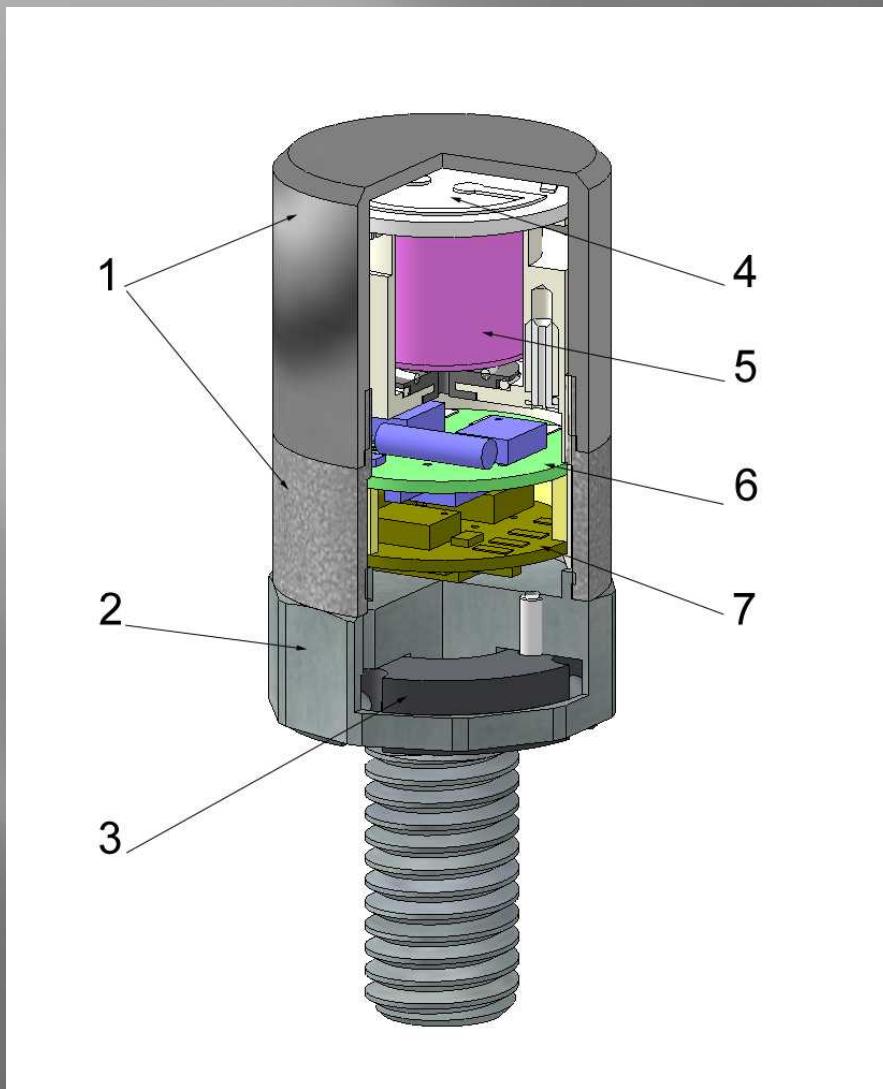
- Container-mounted RFSTs form a local radio network;
- An inspector equipped with a reader and a PDA computer checks the status of the containers;
- Information on the current container status is stored in the PDA computer database.

RFST System Components and Principle of Operation in Continuous Monitoring Mode



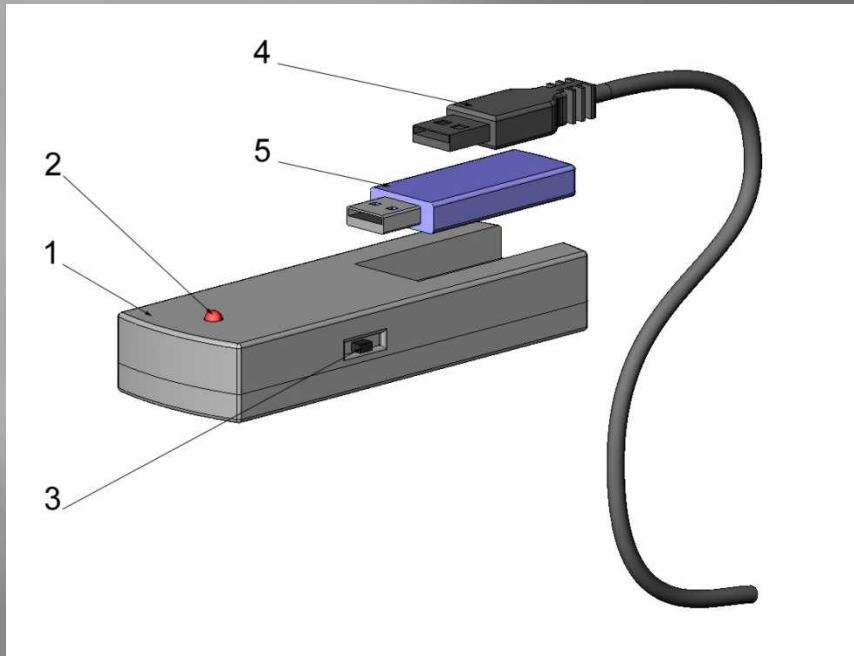
- Container-mounted RFSTs form a local radio network;
- Information from the local network is sent via the base station to the warehouse computer;
- Information on the current container status is stored in the database of the warehouse computer.

RFST System Design



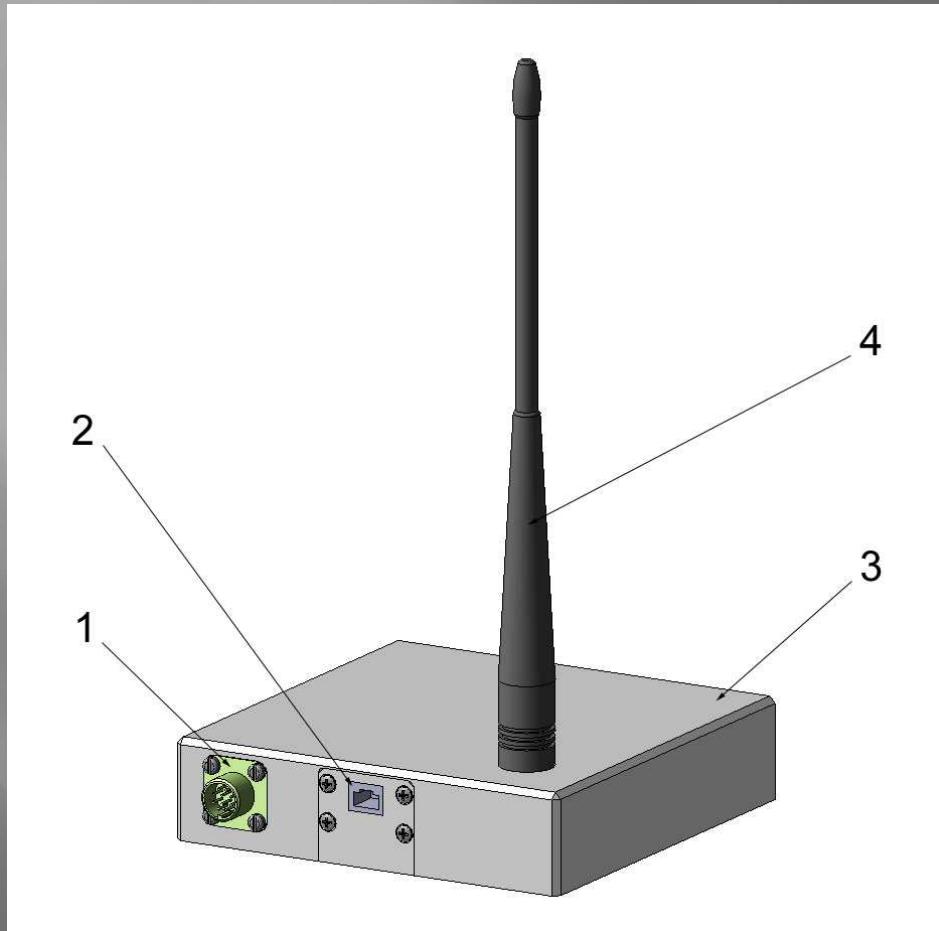
1. Body of RFST;
2. Base;
3. Mechanical load sensor;
4. Radio antenna;
5. Lithium battery;
6. Transceiver;
7. Microcontroller.

Reader Design



1. Body;
2. Status indicator;
3. Power switch;
4. USB 2.0 cable connector;
5. Bluetooth wireless unit.

Base Station Design



1. Power connector;
2. USB 2.0 connector;
3. Base station body;
4. Radio antenna.

Conclusions

In the process of building the RFST system, specialists from VNIIEF and SNL will jointly develop, manufacture, and conduct field testing of several working prototypes of the system. Detailed design documentation generated at various phases of the project will be used to set up a pilot small-scale production line for the manufacture of the RFST system components in order to pre-test and market this new technology in both the U.S. and Russia.