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Radiation hardened RFID solution to OSI samples Chain-of-Custody

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CTBT treaty clarifies that “The DG shall have the primary responsibility for the security, integrity and preservation of samples. The DG shall, in any case, establish a stringent regime governing the collection, handling, transport and analysis of samples”. This work is dedicated to the engineering application of IOT/RFID technology to the CTBT technical framework and real OSI scenarios and to provide practical engineering solution. Radiation hardened design was utilized for the first time to develop OSI scenario oriented RFID chips to meet with normal function requirements under nuclear radiation environment while handling OSI samples. Dual-RFID-label mechanism was invented for the first time to realize both tamper evident and Chain-of-Custody solution to OSI samples. Customized containers design of different shapes and materials was also utilized to meet with the requirements of collection, handling, transportation and analysis of all forms of samples including water, soil, vegetation, noble gas. Suggested application solution of global coverage IOT Nano-satellite constellation could be utilized to strengthen the overall Chain-of-Custody concept and in-real-time tracking of OSI samples during transportation and off-site analysis.

Promotional text

This work would fill in the gaps of OSI samples Chain-of-Custody concept. It would contribute to the security and tamper-proof of OSI samples, which could also contribute to the IMS samples COC management.

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