

## **Development and Application of RFID tag for Remote Monitoring of SOC Facility Maintenance**

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### **Summary**

This study is aimed at improving the safety and maximizing construction productivity by effectively grafting SOC facility construction material to RFID/USN technology for the purpose of science in the maintenance of SOC facility.

For this study, this researcher designed the system that may execute remote control and identify detailed inspection and repair history on site by directly attaching the RFID tag to individual subject bridge to be checked. In the case of bridge materials, material stocking and inventory management are not easy to manage, and the types of management greatly vary. For this reason, in this study, the method of applying RFID tag was explored depending on management phase, management unit, and management type so as to conduct research on the method of application by materials and the tag that can be applied. Vibration-resistant tag for burying purpose is the tag that is being laid at the time of paving bridge surface or asphalt, which was designed in the structure that efficiently disperse vehicle's load and vibration. In the case of civil work materials (bridge safety diagnosis), verification was implemented for applicability and possibility of the tag that was produced in compliance with the property of bridge structure.

The bridge installation work in SOC civil work site requires safety diagnosis with RFID tag applied to each member based on the bridge safety inspection in detail at the time when the bridge construction work is completed as it incorporates all the categories of civil engineering work.

To conduct verification test of RFID tag at the actual site, the selected RFID tag was attached to the material of bridge to be checked and then recognition-distance, attaching method, etc. were tested.

Through the testing in this study, the result of verifying the application of RFID to the materials on the safety diagnosis list was derived, the property of the materials on the safety diagnosis list was verified through interview with the persons concerned at the construction site, and then the problem of the existing RFID tag and its solution were derived. In addition, the method of its application through the verification of work efficiency from work movements and RFID tag attachment at the time of safety diagnosis.

