

## II-O-1.2

# SYSTEM IN PACKAGE TECHNOLOGY FOR IMPLEMENTATION OF MULTI-MODE RFID READERS

*Shiho Kim<sup>1</sup>*

<sup>1</sup>Department of Electrical Engineering, Chungbuk National University, Korea

### **Abstract**

We have proposed a system in package (SiP) technology for implementing UHF/HF multi-band and multi-mode RFID reader. The proposed SiP RFID reader has been designed to support both for EPC Generation 2 protocol of UHF band, and 13.56MHz RFID protocols of ISO15693 as well as ISO14443 type A/B standards. All of the chips and passive components of RFID reader, except for external HF/UHF dual band-antenna, were integrated into a single package. The band and mode of operation is controlled by embedded 32-bit RISC core, and the mode can be selected by embedded software programming. The implemented SiP has 4 substrate layers with area of 40mm × 40mm. The implemented reader SiP operates at single supply voltage of 3.3V. The maximum current consumption at active mode is about 210mA. The measured operating distances are about 5cm for 13.56MHz modes, and about 20cm for UHF mode.

Key words: RFID reader, System in Package, multi-band multi-mode RFID.