RFID 402931 13.56 MHz and ZM4e Collocated Operational Description

The Zebra P330i and P430i are card printers that can print a full color image on a PVC card in one pass through the printer. These printers use color dye-sublimation ribbons or thermal transfer ribbons to transfer digital images to a PVC card. These cards can be used for identification, loyalty cards, or marketing purposes. Options for this printer include Ethernet, magnetic card encoding, contact and contact-less smart card encoding. Ribbon recognition and security is maintained through RFID technology within the printers. In addition, RFID technology is used to encode PVC cards embedded with a transponder.

The RFID 402931 module is 13.56 MHz radio module used in the P330i and P430i Zebra printers. The RFID system uses an I●CODE1 format and conforms to ISO 15693 specifications. The RFID system is contained on a single PCBA which holds the loop antenna, impedance matching network, RF interface IC and digital controller IC. The design is optimized for short range lower power operation.

The ZM4e RFID subsystem is comprised of a ThingMagic Mercury4e multi protocol UHF RFID reader, a coupler/antenna connected to the reader via a coaxial cable and an adaptor PCB that provides the operating voltage and communications to the RFID reader.

The ZM4e RFID reader communicates with RFID PVC cards embedded with a transponder via the coupler/antenna. Instructions from the host computer system are sent to the RFID reader via a serial communication link on the adapter PCB. The reader responds to the host with data read and/or a status message. The UHF RF signals generated by the reader are turned on only during a host commanded read or encode operation. The RF signal is an amplitude-modulated frequency-hopping carrier operating between 902MHz and 928MHz.

The RFID 402931 and ZM4e transmit at the same time. However, they operate independent of each other. The coupler/antennas are located within 20 cm of each other and therefore are collocated.