Badgy200 - FCC Certification

1. Operational description

The EVOLIS printers print on CR80 plastic cards. The printing could be color or monochrome depending of ribbon inserted in printer and printing options. Anxious to make these printers easier to use, EVOLIS decide to use RFID tag in there consumables. This RFID tag is used by the printer to identify the ribbon and to set automatically the parameters.

The communication with RFID tag is provided by the Atmel reader AT88RF1354. The AT88RF1354 is a smart, high performance ISO/IEC 14443 Type B RF Reader IC. The AT88RF1354 communicates with RFID Transponders or Contactless Smartcards using the industry standard ISO/IEC 14443-2 Type B signal modulation scheme and ISO/IEC 14443-3 Type B frame format. Data is exchanged half duplex at a 106k bit per second rate. A two byte CRC_B provides communication error detection capability. The card communicates with the reader by modulating the load on the card antenna, which also modulates the load on the reader antenna. ISO/IEC 14443 PICCs use an 847.5 KHz subcarrier for load modulation, which allows the reader to filter the subcarrier frequency off of the reader antenna and decode the data.

The AT88RF1354 RF communications interface is compliant with the ISO/IEC 14443 part 2 and part 3 Type B signaling requirements when used exactly as described in the AT88RF1354 reference design application notes. Type B signaling utilizes a 10 % amplitude modulation of the RF field for communication from the reader to the card with NRZ encoded data. Communication from card to reader utilizes BPSK load modulation of an 847.5 khz subcarrier with NRZ-L encoded data. The 13.56 MHz RF magnetic field is continuously on for Type B communications.