RFID applications in Japanese Library Community: a background paper

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1. RFID Usage

Number of Japanese libraries using RFID is more than 100 (including branch libraries) in March, 2007. Though the first introduction of RFID system is 1998, the number grows rapidly from around 2003. Among the libraries using RFID system, more than 80% are public libraries. The largest scale example is a city of which 21 libraries introduced an RFID system and more than two million books of them are RFID equipped.

Most of them are using 13.56MHz tag, but two libraries are using 2.45GHz tag.

2. Manufacturers of chips and RFID tag system vendors

Four manufacturers provide chips for library systems; they are Philips iCode-SLI, Infineon my-d, Fujitsu F-RAM and CheckPoint-chip. Three of them are ISO/IEC 18000-3 model 1 compliant.

Library RFID tag system vendors are, Uchida Yōkō, Toshokan Ryūtsū Center (TRC), Checkpoint System Japan, Takachiho Kōeki and some others. Among them, first two vendors' (Uchida Yōkō and TRC) share is about 90%. These two vendors are Japanese domestic. They have no alliance with Europe or American vendors.

3. Publishers and RFID

Japanese publishers are now planning to introduce "source tagging". A project is set up and a committee is formed to discuss issues among communities. Members of the committee are from publishers, book traders, bookstores, secondhand bookstores, libraries, standardization bodies and others. Library community sends delegations seeing possibility of using publisher's RFID tag in library environment.

At this point, the project is at the evaluation experiment stage, using "Secure RFID tag" manufactured by HITACHI. This tag is UHF tag compliant with ISO/IEC 18000-6 Type-C with optional user area and read/write password control.

In this experiment, the tag is equipped inside the back cover of a book. This does not affect to the manufacturing process of bookbinding. It is also tested that the removal of tag is possible without changing the paper recycling process.

About the identifiers in the RFID tag, this project with other related projects is approaching to ISO and EPC Global for the standardization. This project is still experimental stage and concrete schedule of source tagging is not yet decided.

4.　Position of libraries

A committee is formed to establish the position of libraries for the RFID project.　Members are delegates from the National Diet Library, public libraries, university libraries, school libraries, special libraries and from Japan Library Association.　Library specific matters in the project are decided in this committee.

In this project, UHF tag is used, while most of existing systems are using 13.56MHz band tag. Assuming that these two types of tags will be used in library RFID systems, the committee has been discussing 1) to make standards that can be used both in ISO/IEC 18000-3 mode-1 and in ISO/IEC 18000-6 type-C, as far as possible; 2) to establish unique identifier of library items (at least in) Japan; 3) to make minimum required set of data items on RFID tag, assuming the smallest user area of these tags are limited (several hundred bits).　Current draft proposal has three mandatory fields, which are 1) library identifier (to be decided), 2) item identifier (decided by each library; can be same as the identifiers used in existing bar code based system) and 3) EAS bit.　Data encoding is fixed length field.　Current draft will be authorized in the project as the project standard, and will be a de facto standard for publishing/library communities in Japan.