

December 13, 2005

Press Release

T-Engine Forum
Ubiquitous ID Center

Three types of ucode tags, including active tags, certified by Ubiquitous ID Center

02-001 Dice (YRP Ubiquitous Networking Laboratory)

02-002 Local Area Search (LAS) 300 Series (K-ubique ID Corp)

01-009 μ Chip RKT101 Series (Hitachi, Ltd.)

The T-Engine Forum (Shinagawa, Tokyo, Chair: Ken Sakamura, Professor at the University of Tokyo / Chair of the Ubiquitous ID Center, Members: 491) is an organization that standardizes and promotes the core technology for ubiquitous computing. The Forum has been actively working on open infrastructure systems that realize free mobility assistance functions that enable supply chain management and traceability, and provide directions and sightseeing guidance. In these systems, unique numbers called "ucode" are attached to physical objects and locations using active tags with infrared or radio communication functions, and information on these physical objects and locations is obtained from the attached ucodes using a portable terminal called the "Ubiquitous Communicator". The Ubiquitous ID Center within the T-Engine Forum makes specifications open to public for RFID tags and radio wave markers that return unique numbers for these infrastructure systems and certifies them so they can be extensively used.

The Ubiquitous ID Center (www.uidcenter.org) has certified "Dice" by the YRP Ubiquitous Networking Laboratory and the "Local Area Search (LAS) 300 series" by K-ubique ID Corp. as active tags that support ucodes. Additionally, the Center has certified the anti-collision " μ chip RKT101 series" as an RFID tag that supports ucodes. This is a new model of the " μ chip" by Hitachi, which is a 2.45GHz passive RFID and has already been certified earlier.

(1) Certification Number 02-001 "Dice" (YRP Ubiquitous Networking Laboratory)

"Dice" by the YRP Ubiquitous Networking Laboratory, an active RFID that uses very low-power 315 MHz radio waves, has been certified as "Interface Category 2^{*1}/Security Class 1^{*2}".

(2) Certification Number 02-002 "Local Area Search (LAS) 300 Series" (K-ubique ID

[Information 2]

Corp.)

The “Local Area Search (LAS) 300 series” by K-ubique ID Corp, an active RFID which uses very low-power 315 MHz radio wave, has been certified as “Interface Category 2^{*1}/Security Class 1^{*2}”.

(3) Certification Number 01-009 “ μ chip RKT101 Series” by Hitachi, Ltd.

The “ μ chip RKT101 Series” by Hitachi, Ltd., a passive, anti-collision RFID, which uses 2.45GHz radio wave, has been certified as “Interface Category 1^{*1}/Security Class 1^{*2}”.

The Ubiquitous ID Center classifies tags according to Interface Categories and Security Classes and certifies them so that the most appropriate tag can be used for its intended purpose.

One feature of active tags is that they have built-in power sources and can read tags spread over large areas even though they use relatively low-power radio waves. Moreover, it is possible to provide sophisticated functions such as "Dice" which stores data through sensors. On the other hand, since passive tags do not require built-in power sources, there are no worries about battery life and the tags can be made thin and small. In this way, the various tags with different sizes and radio wave characteristics are expected to diversify the fields of application further and at the same time these unified codes are used universally.

[Inquires regarding this issue]

T-Engine Forum / Ubiquitous ID Center (Contact: Koshizuka / Morokuma)

Phone: 03-5437-2290

e-mail:press@www.t-engine.org

[Information 2]

Appendix: List of certified ucode tags (as of December, 2005)

Table 1 List of Tags Certified by Ubiquitous ID Center

Certification No.	Certification Date	Interface Category	Security Class	Tag Name/Type	Vendor Name
00-001	2003.12.3	Category 0	Class 0	Barcode	Sato
00-002	2003.12.3	Category 0	Class 0	Barcode	Toppan Printing
00-003	2003.12.24	Category 0	Class 0	Barcode	Dai Nippon Printing
00-004	2003.12.3	Category 0	Class 0	2D barcode	Sato
00-005	2003.12.3	Category 0	Class 0	2D barcode	Toppan Printing
00-006	2003.12.24	Category 0	Class 0	2D barcode	Dai Nippon Printing
00-007	2003.12.3	Category 0	Class 0	Digital water mark	NTT Data
01-001	2003.6.23	Category 1	Class 1	μ chip	Hitachi
01-002	2003.6.23	Category 1	Class 1	T-junction	Toppan Printing
01-003	2003.6.23	Category 1	Class 4	eTRON/16-AE45X	YRP UNL ^{*3} , the University of Tokyo, Renesas Technology
01-004	2004.3.19	Category 1	Class 1	MR89R116	Fujitsu
01-005	2004.3.19	Category 1	Class 1	MR89R118	Fujitsu
01-006	2004.12.7	Category 1	Class 1	μ chip RW	Hitachi ULSI Systems
01-007	2005.7.7	Category 1	Class 1	MR89R7020	Fujitsu
01-008	2005.7.7	Category 1	Class 1	MR89R119	Fujitsu
01-009	2005.12.12	Category 1	Class 1	μ chip RK101 Series	Hitachi
02-001	2005.12.12	Category 2	Class 1	Dice	YRP UNL
02-002	2005.12.12	Category 2	Class 1	Local Area Search (LAS) 300 Series	K-ubique ID

[Information 2]

[Terms and remarks]

^{*1} Physical Layer Category

The Ubiquitous ID Center defines the categories as shown in Table 2 according to the types of physical layer interfaces for ucode tag communications.

Table 2 ucode Tag Interface Categories

Category	Contents
Category 0	Print tags (barcodes, two-dimensional barcodes)
Category 1	RF tags (RFID tags and contactless IC cards with a contactless interface)
Category 2	Active RF tag (ID tags and sensor nodes that have built-in batteries and communicate using RF)
Category 3	Active Infrared tags (ID tags and sensor nodes that have built-in batteries and communicate using infrared ray)

^{*2} Security Classes

The Ubiquitous ID Center defines the security classes as shown in Table 3 according to the security requirements ucode tags should meet.

Table 3 ucode Tag Security Classes

Class	Provided security related functions
Class 0	Data defect detection (Partially corrupted data by disturbance or physical defects in optical tags can be detected)
Class 1	Physical duplication resistant/Physical forgery resistant (It is difficult to create physically identical or similar items)
Class 2	Identification prevention (It prevents communication status, contents and methods from being identified)
Class 3	Tamper resistant and access control for each resource (It prevents information stored in a tag from being read physically and logically. Also, it controls access to each stored resource according to the access authority level of a person who accesses a logical tamper-resistant resource.)
Class 4	Secure communications with unknown nodes

[Information 2]

	(It can establish a secure data communication path for an unspecified node which does not share a private key in advance when tag data is communicated via a network).
Class 5	Time-dependent resource management (Time-dependent management of stored data, security information and operation of tag functions, including setting up an expiry date for data and stopping operation after a certain period of time.
Class 6	Internal program/security information update management (Protection function that makes it possible to maintain the most appropriate security status for the status of use, such as updating firmware and applying security patches.)

*3 YRP UNL: YRP Ubiquitous Networking Laboratory