

ucode Tag Lineup Significantly Expanded

—Four Types Newly Certified, for a Total of 21 Types—

The Ubiquitous ID Center, under the auspices of T-Engine Forum (Shinagawa, Tokyo; Chair: Ken Sakamura, professor at the University of Tokyo and chair of the Ubiquitous ID Center; Members: 438), conducts certification for the use of ucode (numbers that are unique on a worldwide basis) on RFID tags, radio markers, and similar devices. The Ubiquitous ID Center has recently certified FPcode (Fujitsu Limited, Photo 1) and TS102LC (Lintec Corporation, Photo 2), as well as Large Cast RFTag for Block and Thin-Laminated RFTag (TGC2 and TGL2, respectively, both from Toppan Printing Co., Ltd., Photos 3 and 4) as four new types of tags that support ucodes. There is now a significantly greater number of certified tag types; 21 in all. These certified tags will be exhibited at TRONSHOW 2008 (<http://www.tronshow.org/>), at Tokyo International Forum in Yurakucho, Tokyo, December 12–14 (Wednesday–Friday).

(1) Certification Number 00-009: FPcode (Fujitsu Limited)

FPcode from Fujitsu Limited is a printed tag with code embedded in images, using color components that are nearly imperceptible to the human eye. It has been certified as an Interface Category 0(*1), Security Class 0(*2) tag.

(2) Certification Number 01-011: TS102LC (Lintec Corporation)

TS102LC from Lintec Corporation is a passive RFID tag that conforms to ISO15693. It has been certified as an Interface Category 1, Security Class 1 tag.

(3, 4) Certification Numbers 01-012 and 01-013: Large Cast RFTag for Block and Thin-Laminated RFTag (Toppan Printing Co., Ltd.)

Large cast RFTag for Block and Thin-Laminated RFTag, both from Toppan Printing Co., Ltd., are passive RFID tags operating in the 135-KHz band and conforming to ISO 11784 and ISO 11785. The first type of such tag is a large molded tag for embedding in textured tactile paving blocks to assist pedestrians with impaired vision. The other type of tag is a thin laminated tag for rubberized textured paving blocks. These have been certified as Interface Category 1, Security Class 1 tags.

The Ubiquitous ID Center classifies tags based on interface categories and security classes so that the most appropriate tag can be selected for the intended use.

[Inquiries Regarding this Release]

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

Tel: 03-5437-2290

email: press@t-engine.org

Technical Information

[Descriptions of Terms and Remarks]

*1 Interface Category

The Ubiquitous ID Center defines interface categories based on the physical layer interface for ucode tag communication, as shown in Table 1.

Table 1 Interface Categories of ucode Tags

Category	Details
Category 0	Printed tags (barcodes, 2D barcodes)
Category 1	RF tags (RFIDs and contactless smart cards, equipped with a contactless interface)
Category 2	Active RF tags (RFID tags and sensor nodes that have batteries and communicate via radio waves)
Category 3	Active infrared tags (ID tags and sensor nodes that have batteries and communicate via infrared rays)

*2 Security Class

The Ubiquitous ID Center defines security classes based on the level of security provided by ucode tags, as shown in Table 2.

Table 2 Security Classes of ucode Tags

Class	Security Features Provided
Class 0	Data defect detection (Partial data corruption from disturbance can be detected from physical defects in optical tags.)
Class 1	Resistant to physical duplication or forgery (Creating data that is physically identical or similar is difficult.)
Class 2	Identification prevention (Identification of the status, content, and method of communication is prevented.)
Class 3	Tamper-resistant, access control for each resource (Unauthorized reading—physically or logically—of information stored on tags is prevented. Additionally, access to each stored resource is controlled, based on the authority level used for access to logically tamper-resistant resources.)
Class 4	Secure communication with unknown nodes (A channel for secure data communication can be established even for unidentified nodes that do not share a private key in advance when exchanging tag data over a network.)
Class 5	Time-dependent resource management (Time-dependent management of stored data, security information, and operation of tag functions is supported, for example by setting up a data expiration date or stopping operation after a specific period.)

Class 6	Internal program/security information updating (Protective function that enables the optimal security state to be maintained for the conditions of use, for example through firmware updates or installation of security patches.)
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[Supplemental Information]



Photo 1: FPCode (Fujitsu Limited)



Photo 2: TSL102LC (Lintec Corporation)



Photo 3: TGC2, Large Cast RFTag for Block
(Toppan Printing Co., Ltd.)



Photo 4: TGL2, Thin-Laminated RFTag
(Toppan Printing Co., Ltd.)