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Information technology — Ull scheme and encoding format for Mobile AIDC services —

Part 1: Identifier scheme for multimedia information access triggered by tag- based identification

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*Technologies de l'information — Schéma Ull et format d'encodage pour
services AIDC mobiles —*

ISO/IEC FDIS 29174-1

*Partie 1: Schéma d'identification de l'accès à des données multimédia
déclenché par une identification basée sur des labels*

Please see the administrative notes on page iii

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Foreword

ISO (the International Organization for Standardization) and IEC (the International Electrotechnical Commission) form the specialized system for worldwide standardization. National bodies that are members of ISO or IEC participate in the development of International Standards through technical committees established by the respective organization to deal with particular fields of technical activity. ISO and IEC technical committees collaborate in fields of mutual interest. Other international organizations, governmental and non-governmental, in liaison with ISO and IEC, also take part in the work. In the field of information technology, ISO and IEC have established a joint technical committee, ISO/IEC JTC 1. International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of the joint technical committee is to prepare International Standards. Draft International Standards adopted by the joint technical committee are circulated to national bodies for voting. Publication as an International Standard requires approval by at least 75 % of the national bodies casting a vote.

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ISO/IEC 29174-1 was prepared by Joint Technical Committee ISO/IEC JTC 1, *Information technology*, Subcommittee SC 31, *Automatic identification and data capture techniques*.

ISO/IEC 29174 consists of the following parts, under the general title *Information technology — Ull scheme and encoding format for Mobile AIDC services*:

- Part 1: *Identifier scheme for multimedia information access triggered by tag-based identification*
- Part 2: *Registration procedures*

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Introduction

This part of ISO/IEC 29174 defines the Identifier (ID) scheme for multimedia information access triggered by tag-based identification, which provides the users with an improved method to access to the multimedia content without typing its address on a keyboard or inputting the name of objects and/or places of relevant information. This is one of the major communication services using identifiers in data carriers such as radio frequency identification (RFID) tags, smart cards and bar codes. International standardization of these services will enable a previously unrealized compatibility for international multimedia information services using identifiers.

The purpose of this part of ISO/IEC 29174 is to specify multiple ID scheme to be used in mobile applications and services.

This part of ISO/IEC 29174 enables multiple ID schemes, where the ID scheme is identified by an Application Family ID (AFI) and an Object Identifier (OID).

The company code used in this part of ISO/IEC 29174 is unique and distinct from the company identification used in ISO/IEC 15459.

This part of ISO/IEC 29174 also specifies the encoding formats of the identifiers for Mobile AIDC services.

There are alternate techniques to meet the use case addressed by this International Standard. One of those techniques is the use of EPC and ONS. Those interested in this technique can contact GS1 for further information.

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Information technology — Ull scheme and encoding format for Mobile AIDC services —

Part 1: Identifier scheme for multimedia information access triggered by tag-based identification

1 Scope

This part of ISO/IEC 29174 describes an identifier scheme for a Mobile Item Identifier and encoding formats for data carriers for Mobile AIDC services. The Mobile Item Identifier scheme was developed to support service requirements of an identifier scheme for Mobile AIDC services. The encoding formats of this part of ISO/IEC 29174 follow ISO/IEC 15962 and 15434.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO/IEC 15434, *Information technology — Automatic identification and data capture techniques — Syntax for high-capacity ADC media*

ISO/IEC 15962, *Information technology — Radio frequency identification (RFID) for item management — Data protocol: data encoding rules and logical memory functions*

ISO/IEC 18000-6, *Information technology — Radio frequency identification for item management — Part 6: Parameters for air interface communications at 860 MHz to 960 MHz*

ISO/IEC 19762 (all parts), *Information technology — Automatic identification and data capture (AIDC) techniques — Harmonized vocabulary*

ANS MH10.8.2, *Data Identifier and Application Identifier Standard*

GS1/EPC Tag Data Standard Version 1.5 (2010)

3 Terms, definitions, symbols and acronyms

For the purposes of this document, the terms and definitions in ISO/IEC 19762, and the following apply.

3.1 Terms and definitions

3.1.1

Mobile Item Identifier (MII)

identifier for the unique identification of virtual objects, such as electronic documents

Note 1: Examples of electronic documents are information/pages viewable via URLs

Note 2: Examples of non-virtual objects are items, persons and locations, to which virtual objects can be assigned.

3.2 Symbol

XXX2 binary notation

0xnn hexadecimal notation

3.3 Acronyms

- EPC Electronic Product Code
- ONS Object Directory Service
- PC Protocol Control
- UII Unique Item Identifier
- XI Extended Protocol Control Indicator
- XPC Extended Protocol Control

4 Requirements for MII

4.1 Applications of MII

4.1.1 Identifiers assigned in the scope of this part of ISO/IEC 29174

Identifies for virtual objects such as audio files, movie trailers, text files, etc. are within the scope of this part of ISO/IEC 29174.

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4.1.2 Identifiers assigned not in the scope of this part of ISO/IEC 29174

Identities for entities such as items, persons and places are not within the scope of this part of ISO/IEC 29174.

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4.2 Structure of MII <https://standards.iteh.ai/catalog/standards/sist/ccfd912c-57a8-46f3-963f-c6c8ef4f05c6/iso-iec-fdis-29174-1>

MII is for Mobile AIDC services, which will be provided by mobile service providers. They usually provide information related to virtual objects, which are more complex than physical objects. And also, identification elements shall be fixed to support simpler operations for them.

4.3 Length of MII

Certain applications have a huge number of identification targets while others have only a small number of targets. The former requires long ID and the latter may need only short ID. For saving hardware cost, short ID length is needed. Therefore, multiple ID lengths are required.

5 MII scheme

5.1 Structure

As shown in Table 1, the MII consists of following fields: Company Code, Length and Elements. At the time that this part of ISO/IEC 29174 was developed, the assigned AFI for MII is 0xAB.

Table 1 – MII Structure

Company Code	Length	Elements
16 bits	8 bits	24bits, 40bits, 56bits and 72bits

5.2 Application Family Identifier (AFI)

The ISO/IEC 15961-2 and ISO/IEC 15961-3 Registration Authority assigns the Application Family Identifier (AFI). The present AFI assignment for MII is 0xAB. Any future AFI assignment for MII shall be made by the ISO/IEC 15961-2 and ISO/IEC 15961-3 Registration Authority.

5.3 Length

Length is an eight-bit field permitting MII lengths up to 256 bits, however, the maximum permitted MII length is 96 bits. And the length represents 48bits, 64bits, 80bits and 96bits due to elements, which are 24bits, 40bits, 56bits and 72bits in length.

5.4 Company code

The Company Code is assigned to an organization corresponding to a content provider, which produces information services content to be delivered to Mobile AIDC service users (consumers) and has a business contract with a Mobile AIDC service provider.

A company code of all zeroes is reserved for an un-programmed MII. In such cases, the length and elements shall be encoded with all zeroes, as well. A company code of all ones is reserved for future extensibility of this part of ISO/IEC 29174 and shall be allocated through a revision of this part of ISO/IEC 29174. The MII Registration Authority (MII RA) shall be responsible for the allocation of the remaining Company Codes.

5.5 Elements

The Elements can be 24, 40, 56 and 72 bits in length, having one or more elements such as item category, item and serial code which are defined by a content provider allocating the Company code. MII shall have serial code to identify virtual object uniquely. Therefore serial code shall be included in the Elements, 16 bits in length.

5.6 MII Object Identifier

The ISO/IEC 15961-2 Data Constructs Register shows the combination of assignments of AFIs, Data Formats, together with the registration of Object Identifiers to organisations and to functions. In addition, the table indicates whether the Unique Item Identifier (UII) is encoded in a separate memory from other item-attendant data. The table clearly shows that it is the combination of AFI and Data Format(s) that provide the unique interpretation of data encoded on the RFID tag. This table is presented in AFI byte sequence.

Where a tag supports different memory areas for the UII and other Item-related data (e.g. ISO/IEC 18000-6 Type C and Type D) the **Data Format for additional data** column is encoded in the item-related memory area. This Data Format, and its associated Root-OID, may differ from that in the UII memory.

Table 2 shows the object identifier for MII.

Table 2 – MII OID

AFI (HEX)	UII Data Format (Decimal)	Monomorphic UII Compaction	Monomorphic UII Identifier	Object Identifier for Unique Item Identifier (UII)	Data Format for additional data (Decimal)	Root-OID for other data
0xAB	7			2 27 1	3	1 0 15434

6 MII encoding formats for Mobile AIDC services

6.1 ID encoding formats

6.1.1 Data Encoding Format for Mobile RFID services

MII in this part of ISO/IEC 29174 uses AFI, which is '0xAB'.