

*International Standardization
of Mobile Data Carriers
ISO/IEC JTC1 SC31 WG6*

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Ubiquitous Layers

Existing RFID technical standards

- Air interface: ISO/IEC 18000 Series
- Data protocol: ISO/IEC 15961, 15962
- Conformance: ISO/IEC TR18047 Series
- Performance: ISO/IEC 18046 Series
- Unique tag IDs: ISO/IEC 15963

Existing RFID application standards

- ISO 17363 - 367: RFID for supply chains
- ISO 18185 Series: Electro seals for freight containers
- ISO 10374: Freight container identification
- ISO 11784 & 11785: Animal identification

Industrial use

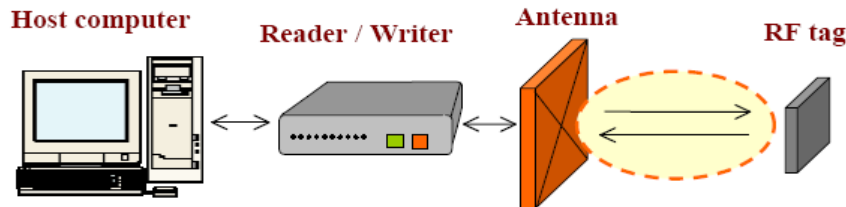
Mobile RFID technical standards

Mobile RFID application standards

Sensor network

Mobile RFID is expanding to consumer markets

Ubiquitous network



RFID vendors

Industrial users

Consumers

Mobile carriers

National Activities on Mobile RFID

■ Korea

- Feb.2005: Established Mobile RFID Forum
(Over 300 engineers from 63 entities participated)
- Jun.2006: Developed 18000 6C-compliant mobile reader/writer
- Oct.2006: Launched first pilot test
Products conforming to different mobile standards now under development
- Dec.2006: Completed 50 standards & technical reports

■ U.S.A.

- Proposed mobile RFID supporting various AIDC technologies against the Korean-proposed RFID.
- Jointly promoted mobile RFID with Korea.

■ Progress & schedule of SC31 global meetings

- Jan.2007: Made presentation at SC31/WG4/SG3 meeting
- Mar.2007: Made presentation at SC31/WG4 meeting
Discussion to set up Mobile RFID's WG started
- Jun.2007: SC31 General Meeting accepted the establishment of Mobile RFID Ad hoc meeting**
- Oct.2007: Held 1st Ad hoc meeting (Seoul, Korea)

Proposed ITU-T, JTC1/SC6 and SC31 a standardization of mobile RFID

■ Japan

- Currently offers a variety of information services using QR Code with mobile phone.
- Conducted a METI-led pilot test on mobile-embedded RF reader/writer (for books) in 2005.
- KDDI released an RF reader/writer built in mobile phone in 2006.
- NTT docomo demonstrated a payment system using mobile-embedded RF reader/writer for METI-led pilot test in Feb. 2007.

■ SC31 National Committee

- Aug.2007: Setup an Ad Hoc committee
- Sep.2007: 1st and subsequent several meetings (discussed Japan's opinion)

Japan's opinion reflected

Mobile RFID Proposed by Korea

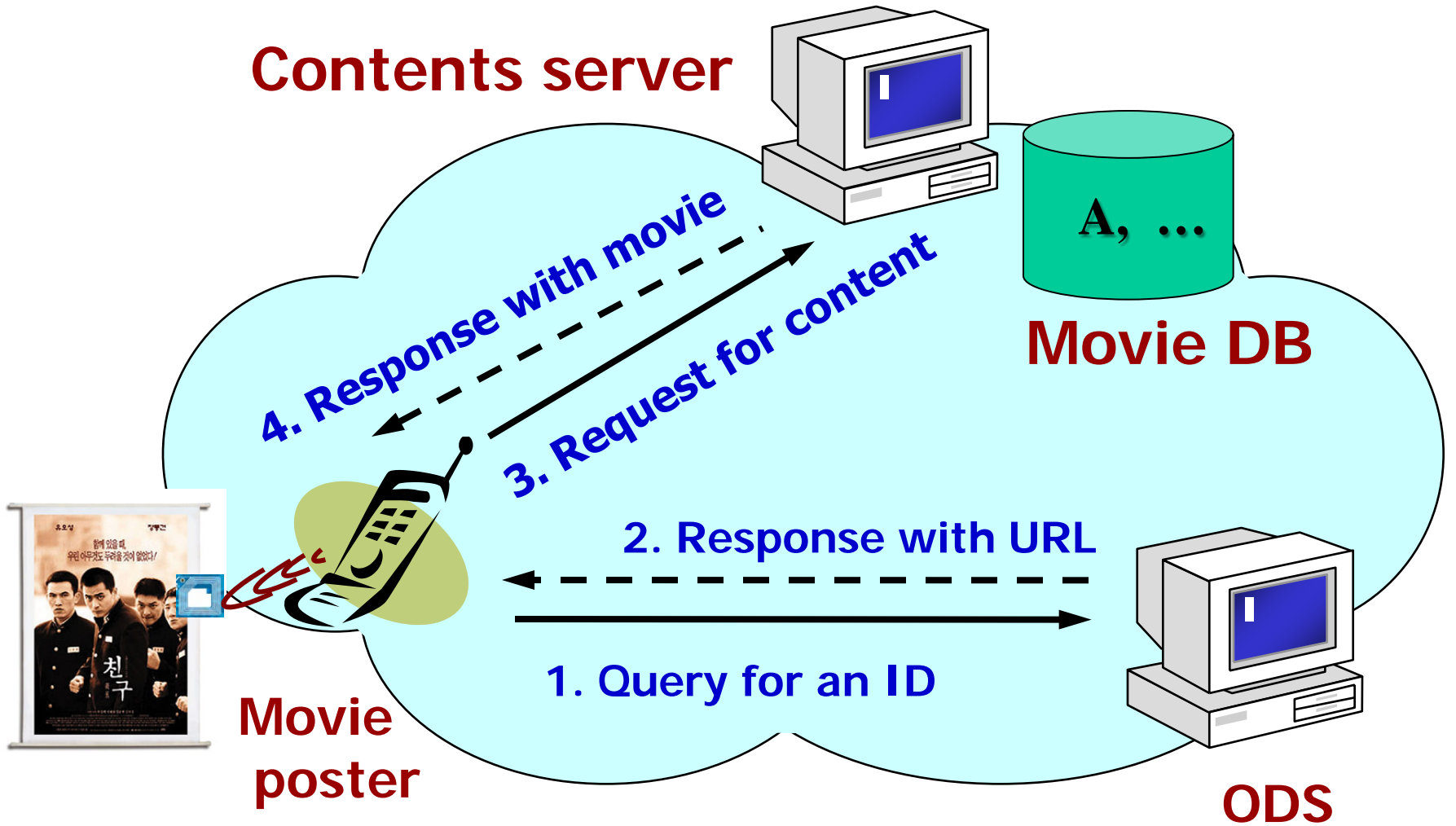
◆ **New Proposal on mobile RFID on Aug. 17, 2007 (ballot by Nov. 22, 2007)**

Title: Information technology - Automatic identification and data capture techniques - Air interface specification for Mobile RFID interrogator

Scope (and field of application)

Mobile RFID is a kind of RFID technology combined with mobile communication. Therefore, a Mobile RFID terminal device which has RFID reader functions embedded in a mobile phone, accesses RFID tags as the existing RFID interrogators.

It, however, has particular characteristics, e.g. limited electric power, limited processing capability, and unpredictable interferences caused by many users in an area. In particular, there should be a high possibility of collision among multiple mobile RFID interrogators. Therefore, this work item covers the air interface for Mobile RFID interrogators. This work item is not going to develop any new air interface solely for Mobile RFID terminal device, but to arrange the air interface features of the ISO/IEC 18000-6C for Mobile RFID, for example, limiting the maximum EIRP and alleviating the spectrum mask. This work item shall specify the transmitting and receiving parameters for UHF (860-960 MHz) air interface for Mobile RFID interrogators, which include data rates, modulation/demodulation format, data encoding/decoding, spectrum mask, and commands. This work item may include basic requirements and technical norms for air-interface physical specifications for a Mobile RFID. Analysis and guidelines for Mobile RFID environment will be informed in this work item including channel spacing, channel access schemes. This work item is required to facilitate the interoperability of multiple Mobile RFID interrogators. Also, this work item provides informative contents about a reference design specification for implementing Mobile RFID interrogators.

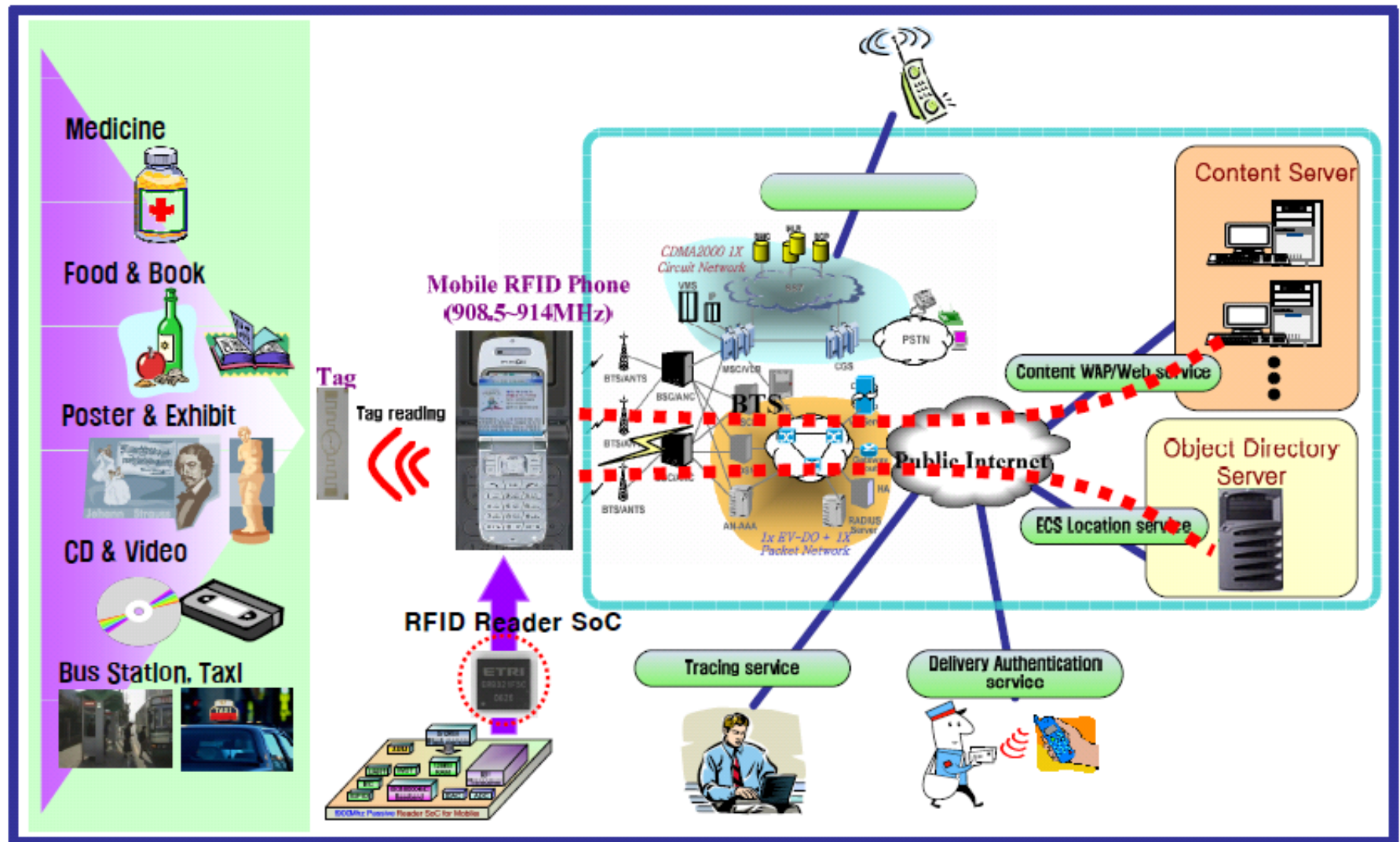


Mobil RFID service reference model

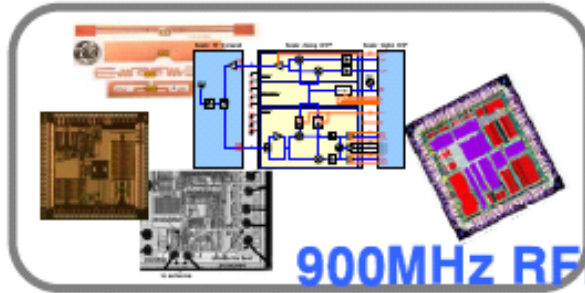
Task Definition:

The ad hoc group on *Mobile item identification and management in support of consumer applications* shall coordinate those work items assigned by the SC 31 secretariat with regard to new standardization activities in the field of mobile item identification and management in support of consumer applications providing item identification management web services through **use of portable consumer devices, by embedding mobile RFID interrogators and optically readable media (ORM) readers into portable consumer devices** and providing standards for interoperability of ubiquitous sensor networks.

Mobile RFID Concept Proposed by Korea



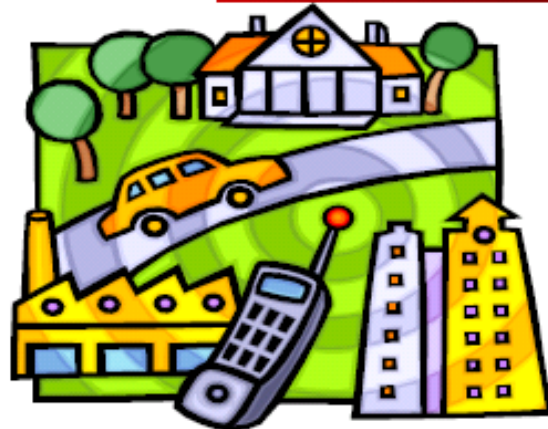
Mobile RFID Applications Proposed by Korea



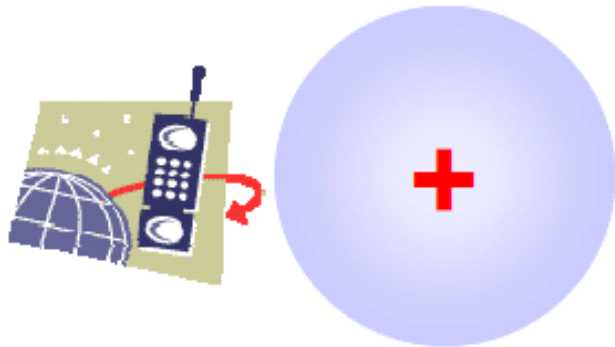
900MHz RFID

UHF band
as most popular RFID

Longer and adjustable
cover range



*Ubiquitous terminal device
(u-device)*



Convergence and
easy implementation

Mobile RFID Applications Suggested by Korea 9



Food Tracing Information



Movie Information Providing



Wine Information Providing



Genuine Whiskey Checking

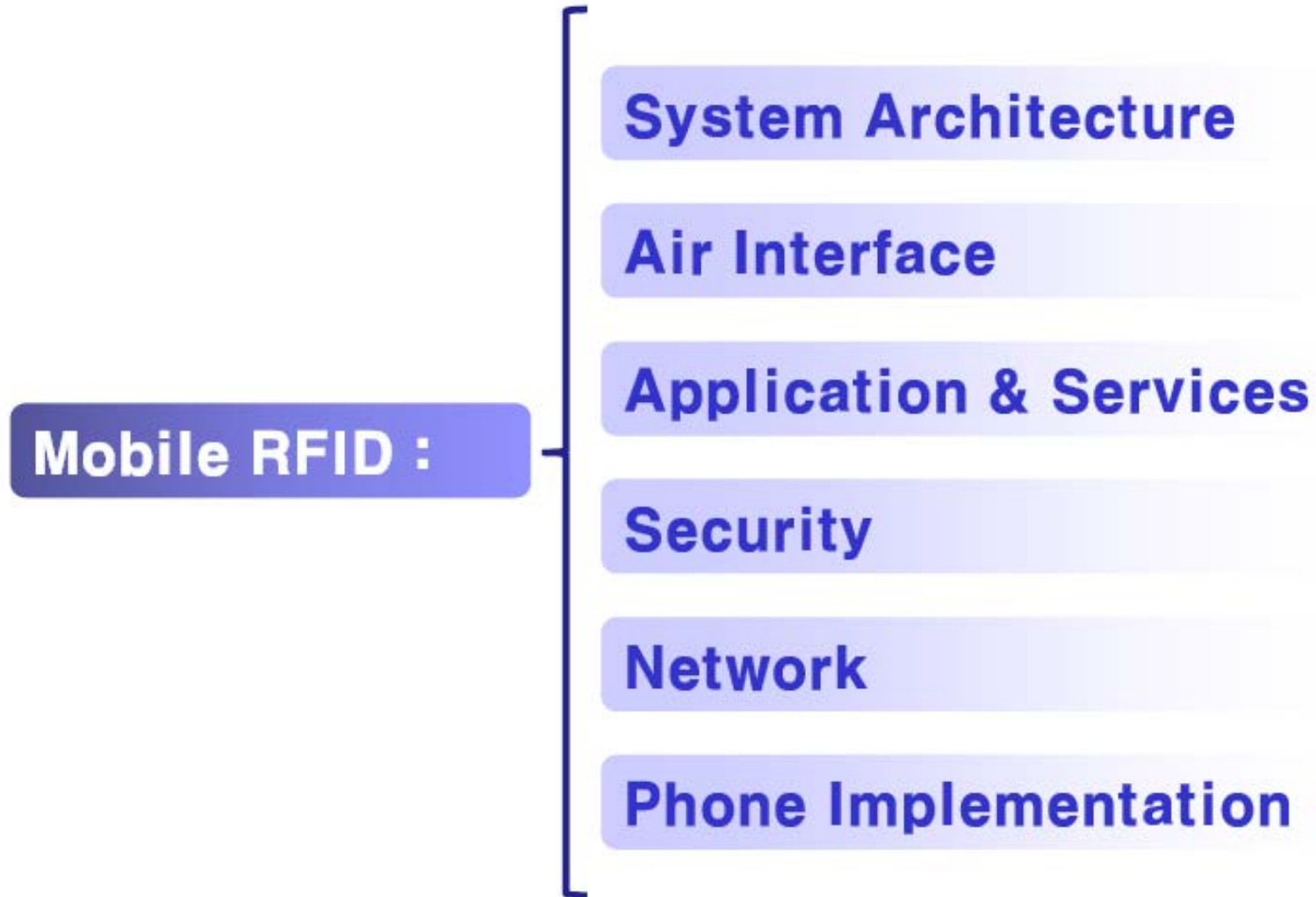


Secure Taxi Service



Bus Information Providing

Mobile RFID Standardization Proposed by Korea



RESOLUTIONS OF THE THIRTEENTH ISO/IEC JTC 1/SC 31 PLENARY
Centurion Lake Hotel, Pretoria, South Africa
8 June 2007

Creation of ad hoc group under JTC 1/SC 31 on Mobile RFID

Resolution 11: ISO/IEC JTC 1/SC 31 approves the creation of an ad hoc group to coordinate the way forward with regard to new standardization activities in the field of Mobile RFID.

Unanimous

Creation of ad hoc group under JTC 1/SC 31 on Mobile Item Identification and Management in Support of Consumer Applications

Resolution 12: Per resolution 11 ISO/IEC JTC 1/SC 31 resolves to create an ad hoc group, reporting directly to the JTC 1/SC 31 Chairman, called "Mobile item identification and management in support of consumer applications" to coordinate the way forward with regard to new standardization activities in the field of mobile item identification and management in support of consumer applications. Reference SC031-N-2305 (SC031-N-2305 - MobileItem_IDandMgmt.doc).

Unanimous

Results of discussion were reported in the June 2008 general meeting.

Mobile RFID Ad Hoc Group Meeting

Date: 30, October 9:00 - 17:30
31, October 9:00 - 16:30
Location: Renaissance Seoul Hotel
Participants: Approx. 45

National Bodies:
Korea, Japan, USA,
Germany, Austria,
China, Russia,
Netherlands &
Sweden



Mobile RFID Ad Hoc Group Meeting Agenda (1) 13

- | | | |
|----|---|---------------------------|
| 1. | Opening of the Meeting | Mr. Craig K. Harmon |
| 2. | Welcome by the Host | Representative from Korea |
| 3. | Roll Call of Participants | Mr. Se Won Oh |
| 4. | Remarks by Chairman | Mr. Craig K. Harmon |
| | 4.1 Comments from ISO/IEC JTC 1/SC 31 | Mr. Craig K. Harmon |
| | 4.2 Appointment of Drafting Committee | Mr. Craig K. Harmon |
| 5. | Adoption of Agenda | Mr. Craig K. Harmon |
| 6. | Review of Terms of Reference | 31n2305 |
| 7. | Presentations from member bodies | |
| | 7.1 Korean view on Mobile RFID | |
| | 7.2 Japanese view on Mobile ORM | |
| | 7.3 IEEE view on Sensors | |
| 8. | Provisional areas of work (prospects, trends, and analysis on MIIM, mobile RFID service cases, mobile ORM service cases, pilot projects and technology analysis.) | |
| | 8.1 Common Services for AIDC technologies and Mobile Telephony to deliver web content | |
| | 8.2 RFID and Mobile Telephony to deliver web content | |
| | 8.3 Optically Readable Media and Mobile Telephony to deliver web content | |
| | 8.4 Sensors and Sensor Networks | |
| 9. | Review and schedule for New Work Items assigned by the SC 31 Secretariat | |
- (The rest is omitted)



Craig K. Harmon

1. Review of Terms of Reference
2. Presentations from member bodies
 - > Korean view on Mobile RFID
 - > **Japanese view on Mobile ORM**
 - > Sweden view on Mobile RFID
- Provisional areas of work (prospects, trends, and analysis on MIIM, mobile RFID service cases, mobile ORM service cases, pilot projects and technology analysis.
 - 1.1.1. Mobile RFID in Europe
 - 1.1.2. Air Interface protocol for Mobile RFID
 - 1.1.3. Data Interface between phone and interrogator for Mobile RFID
 - 1.1.4. Mobile RFID application interface for Mobile RFID services
 - 1.1.5. RFID ODS(object directory service) for Mobile RFID services
 - 1.1.6. ID scheme and encoding format for Mobile RFID services
 - 1.1.7. Multiple ID resolution service for Mobile RFID services
 - 1.1.8. Service broker for Mobile RFID services
 - 1.1.9. Application data format for Mobile RFID services
 - 1.1.10. Security and privacy protection for Mobile RFID services
 - 1.1.11. Conformance and Test standards for Mobile RFID specifications
 - 1.1.12. Mobile ORM and RFID for Consumer Product Safety

規格番号	規格名称
ISO/IEC 29143	Mobile item identification and management Air interface specification for Mobile RFID interrogator
ISO/IEC 29172	Mobile item identification and management Reference architecture for Mobile AIDC services
ISO/IEC 29173	Mobile item identification and management Mobil RFID interrogator device protocol
ISO/IEC 29174	Mobile item identification and management UII scheme and encoding format for Mobile AIDC services
ISO/IEC 29175	Mobile item identification and management Application data structure and encoding format for Mobile AIDC services
ISO/IEC 29176	Mobile item identification and management Consumer privacy protection protocol for Mobile RFID services
ISO/IEC 29177	Mobile item identification and management Object directory service for Mobile AIDC services
ISO/IEC 29178	Mobile item identification and management Service broker for Mobile AIDC services
ISO/IEC 29179	Mobile item identification and management Mobile AIDC application programming interface

Resolutions

adopted at the 1st Meeting of the ISO/IEC JTC 1/SC 31 MIIM Ad Hoc
30-31 October 2007 in Seoul, Korea

RESOLUTION 10 – Work Item 8

The MIIM ad hoc recommends that JTC 1/SC 31 submit the New Work Item proposal contained in MIIMn0052, *Mobile Item Identification and Management (MIIM) - Implementation guidance for Optically Readable Media (ORM) reader*

— Unanimous

Thank you for your attention!

**AI Consultant
Akira Shibata**