QR Code Mobile Applications

**AI Consultant
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International member bodies
ISO/IEC JTC1 SC31
ISO/IEC JTC1 SC37
ISO TC20 WG13
ISO TC104 SC4 WG2
ISO TC122 WG4
ISO TC122 WG7
ISO TC122 WG10
ISO TC122/TC104 JWG
ISO TC204 WG4
ISO TC204 WG7.2

Japan Member bodies
ISO/IEC JTC1
ISO/IEC JTC1 SC31 Chairman
JEITA AIDC Committee Chairman
JEITA RFID Expert Group Chairman
JEITA RFID Committee
JAISA R&D Centre Director
GS1, EPC Global

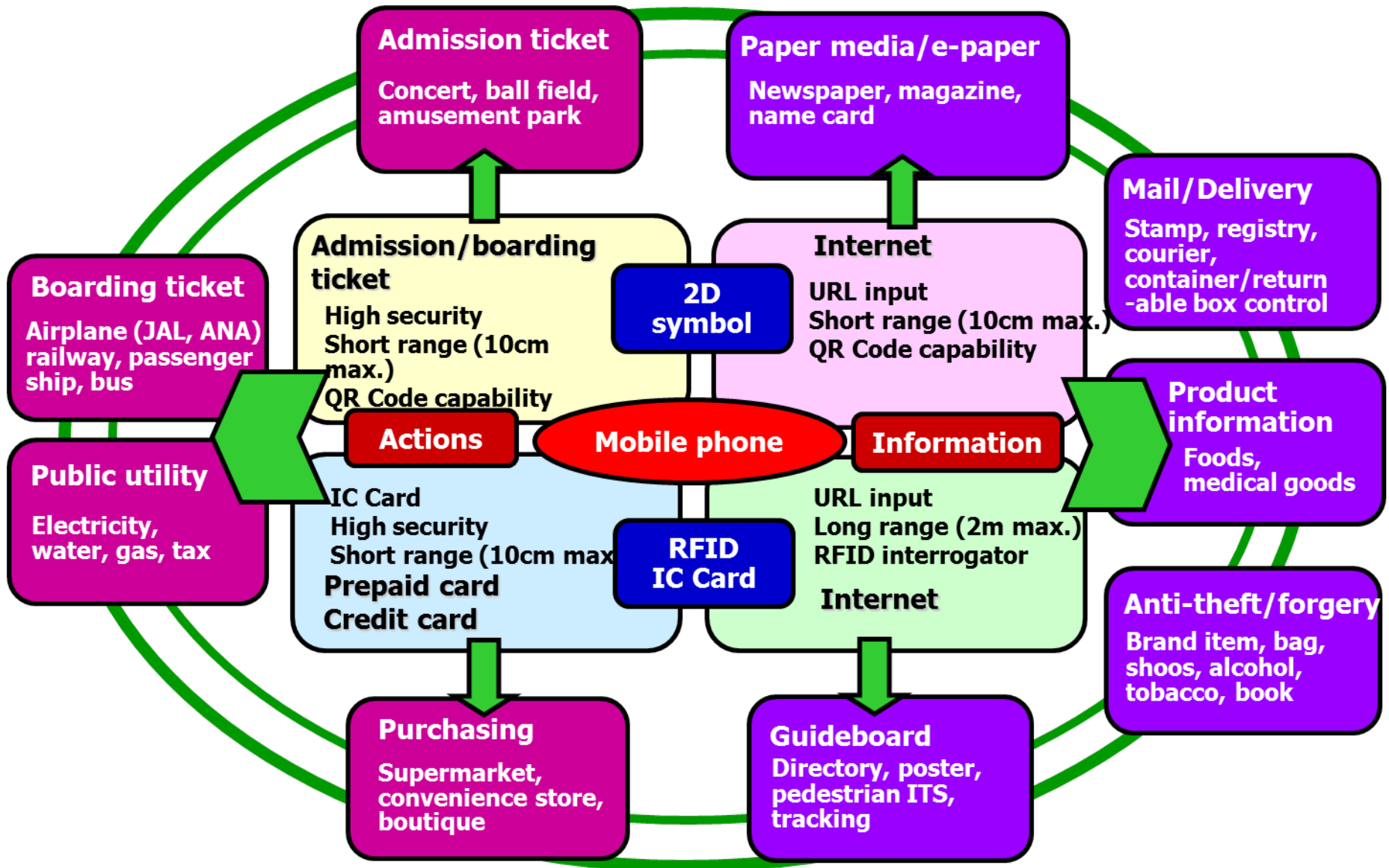**United State Member bodies**
US TAG To ISO/IEC JTC1 SC31
ASC MH10/SC8

JEITA: Japan Electronics and Information Technology Industries Association
JAISA: Japan Automatic Identification Systems Association

Mobile Data Carrier Applications (1)

Admission ticket

Concert, ball field, amusement park

Paper media/e-paper

Newspaper, magazine, name card

Mail/Delivery

Stamp, registry, courier, container/return -able box control

Boarding ticket

Airplane (JAL, ANA) railway, passenger ship, bus

Admission/boarding ticket

High security
Short range (10cm max.)
QR Code capability

2D symbol

Internet

URL input
Short range (10cm max.)
QR Code capability

Actions

Mobile phone

Information

Product information

Foods, medical goods

Public utility

Electricity, water, gas, tax

IC Card
High security
Short range (10cm max.)
Prepaid card
Credit card

RFID IC Card

URL input
Long range (2m max.)
RFID interrogator

Internet

Anti-theft/forgery

Brand item, bag, shoos, alcohol, tobacco, book

Purchasing

Supermarket, convenience store, boutique

Guideboard

Directory, poster, pedestrian ITS, tracking

Mobile Data Carrier Applications (2)

Food Tracing Information

Movie Information Providing

Wine Information Providing

Genuine Whiskey Checking

Secure Taxi Service

Bus Information Providing

Use cases in consumer market

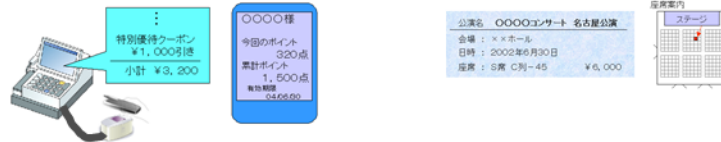### ■QR Code on mobile phone LCD

Mobile QR Code

Member card/coupon   **Electronic ticket**

Electronic payment

■QR Code reading by mobile phone

Service available for some NTTdocomo or SoftBank terminals

Mail order   **Ads (magazine/poster)**

Sales campaign   **Business card**

Electronic Coupon

QR Code displayed on a mobile LCD

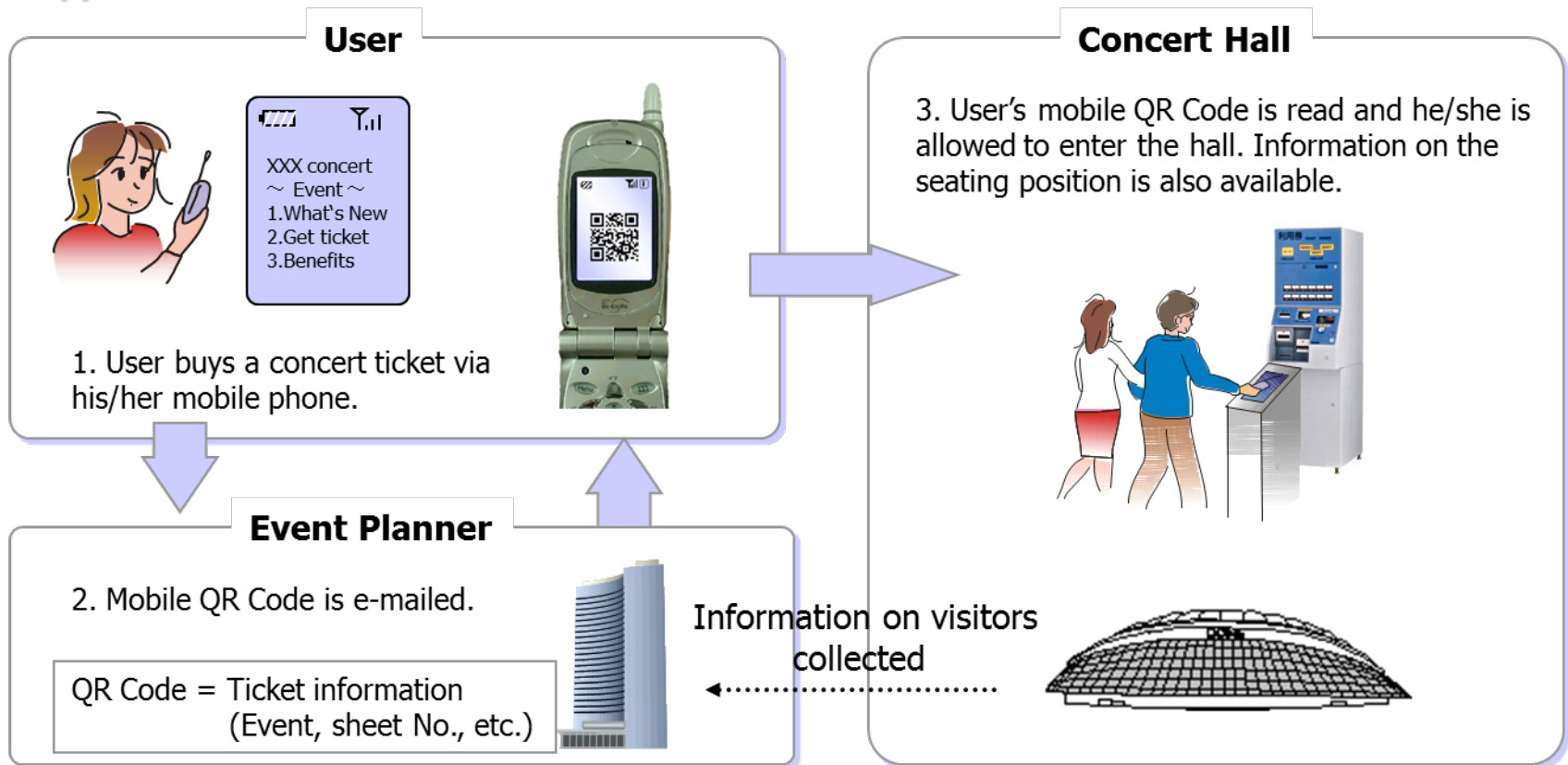■**Application：Calculating reward points offered to a member card holder**

User

XXX shop
1. What's New
2. Enroll
3. Save money

1. User accesses the website that issues an electronics coupon.

System Service Provider

2. Mobile QR Code carrying the data on coupon/reward card point is e-mailed.

QR Code = Coupon and card point data

Retail/Restaurant

3. Mobile QR Code is read and benefits such as discount or card points are offered to the user.

特別優待クーポン
¥1,000引き

小計 ¥3,200

○○○○様

今回のポイント
320点
累計ポイント
1,500点
有効期限
04/06/30

Record on the card points

Member information

<Benefits>
■**Can evaluate and operate a marketing and sales promotion.**
■**Can reduce the cost of issuing member cards and coupons.**

QR Code displayed on a mobile LCD

■**Application**：**Visitor Control at Concert Hall**

User

XXX concert
〜 Event 〜
1.What's New
2.Get ticket
3.Benefits

1. User buys a concert ticket via his/her mobile phone.

Event Planner

2. Mobile QR Code is e-mailed.

QR Code = Ticket information
(Event, sheet No., etc.)

Concert Hall

3. User's mobile QR Code is read and he/she is allowed to enter the hall. Information on the seating position is also available.

Information on visitors collected

<Benefits> ■**Can reduce the personnel cost with automated visitor control.**
■**No need to issue a paper ticket, reducing the paper and postage cost.**

A new service which offers you various contents via the internet to your mobile telephones is available with Java Application. As well as the ability to check reward points and purchase history, two-dimensional code displayed on your mobile phone can be scanned at point of purchase to show your personal customer data for authentication. It can also be used to calculate reward points. Customers wishing to use the service will receive a biweekly magazine.

Make your mobile phone a member card!!

MOBILE MEMBERSHIP

Make your mobile phone a member of The SUIT COMPANY.
If you register with The SUIT COMPANY's mobile membership, your mobile phone will be proof of your membership. Two-dimensional code displayed on your mobile phone offers you the full benefits of our membership service at the store of purchase. Only available to the models that can be connected to the internet.
Some models are excluded. (i-mode, SoftBank, EZ web).
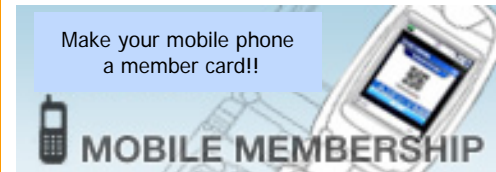
Mobile Membership Service (2)

New mobile terminal type automatic vending machine (Cmode automatic vending machine called "C-mo") is now available, which is equipped with computer, display, speaker, printer and so on. Collaboration with i-mode has made it possible to offer various services to i-mode users, such as cashless shopping, downloading standby screen and ring tone.
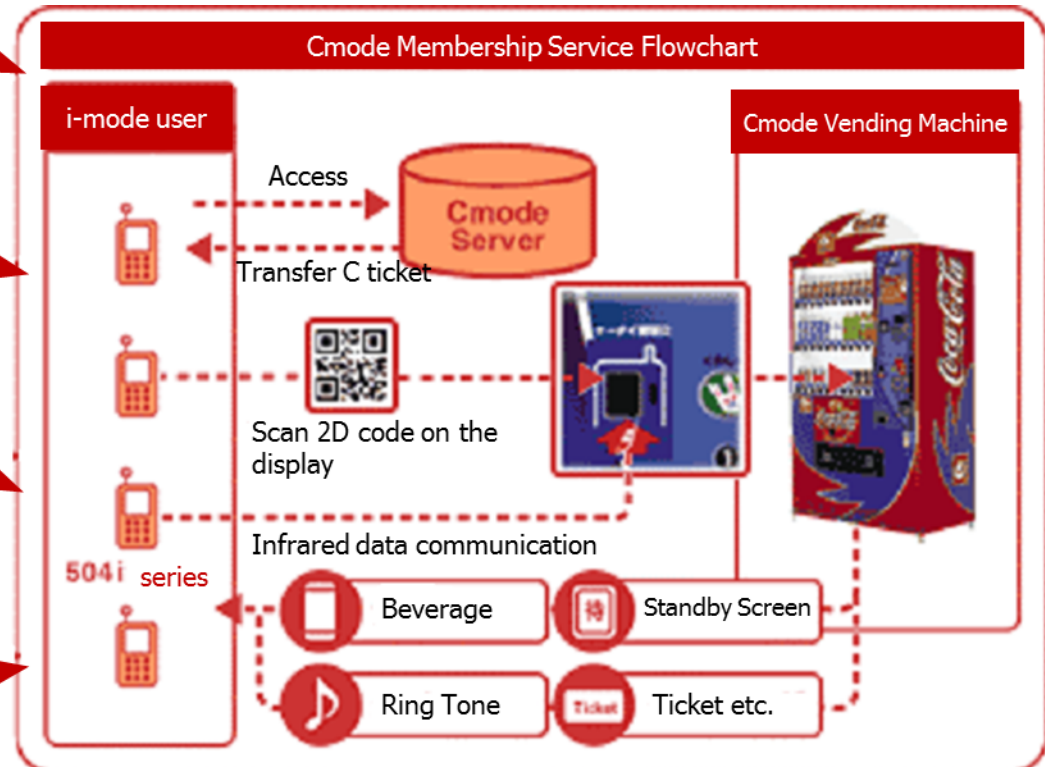

Ability to purchase coupon and ticket
Coupon and ticket can be issued from the printer on Cmode automatic vending machine. Other information is also available.

Ability to download standby screen and ring tone to mobile phone
Favorite standby screen and ring tone can be selected and purchased on Club C-mode.

Ability to use cashless beverage purchasing
Insert cash in C-mode to credit in the specified account on a server for cashless shopping.

Ability to get reward points
Accumulated reward points can be exchanged with beverage or other Cmode service.

Cmode Membership Service Flowchart

i-mode user / Cmode Vending Machine / Access / Cmode Server / Transfer C ticket / Scan 2D code on the display / Infrared data communication / 504i series / Beverage / Standby Screen / Ring Tone / Ticket etc.

Mobile Phone Check-In

A new check-in service allows you to purchase a domestic flight ticket of JAL Group with your mobile phone using a QR Code showing your ID for authentication, which is e-mailed after you have made a reservation via phone or Internet. Once payment was settled, you will get a checked ticket by reading the QR Code on the phone's LCD screen by the automatic check-in/ticketing TCM machine installed at the airport.
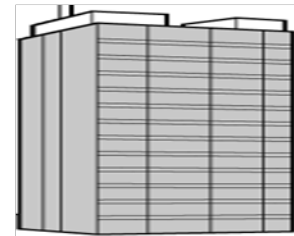
QR Code displayed on a mobile LCD

Billing Agent
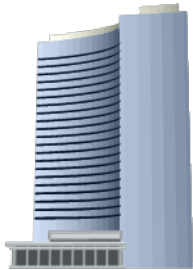
Power/Gas Supplier

Request delivery

Send a bill statement
(mobile QR Code) via e-mail

Pay a bill

QR Code e-mailed

XX Bill Statement
1. Bill of Feb
2. Make payment
3. Details
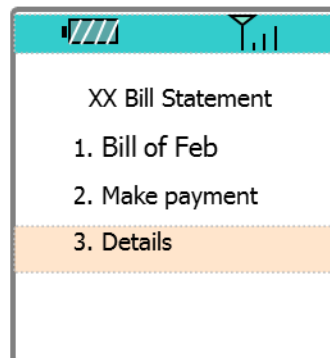
Mobile QR Code is scanned to
complete the transaction

QR Code displayed on a mobile LCD

■**Application**：**On-line Public Utility Bill Payment**

User

2. User goes to a convenience shop with his/her mobile phone.

Bill of Feb.
Electricity bill

1.Make payment
2.Details

Convenience Store

3. Mobile QR Code is read and the payment of public utility charge is settled.

Power/Gas Supplier (or Billing Agent)

1. QR-coded bill statement is e-mailed.

QR Code = Bill statement data

4. Public utility charge is processed and settled.
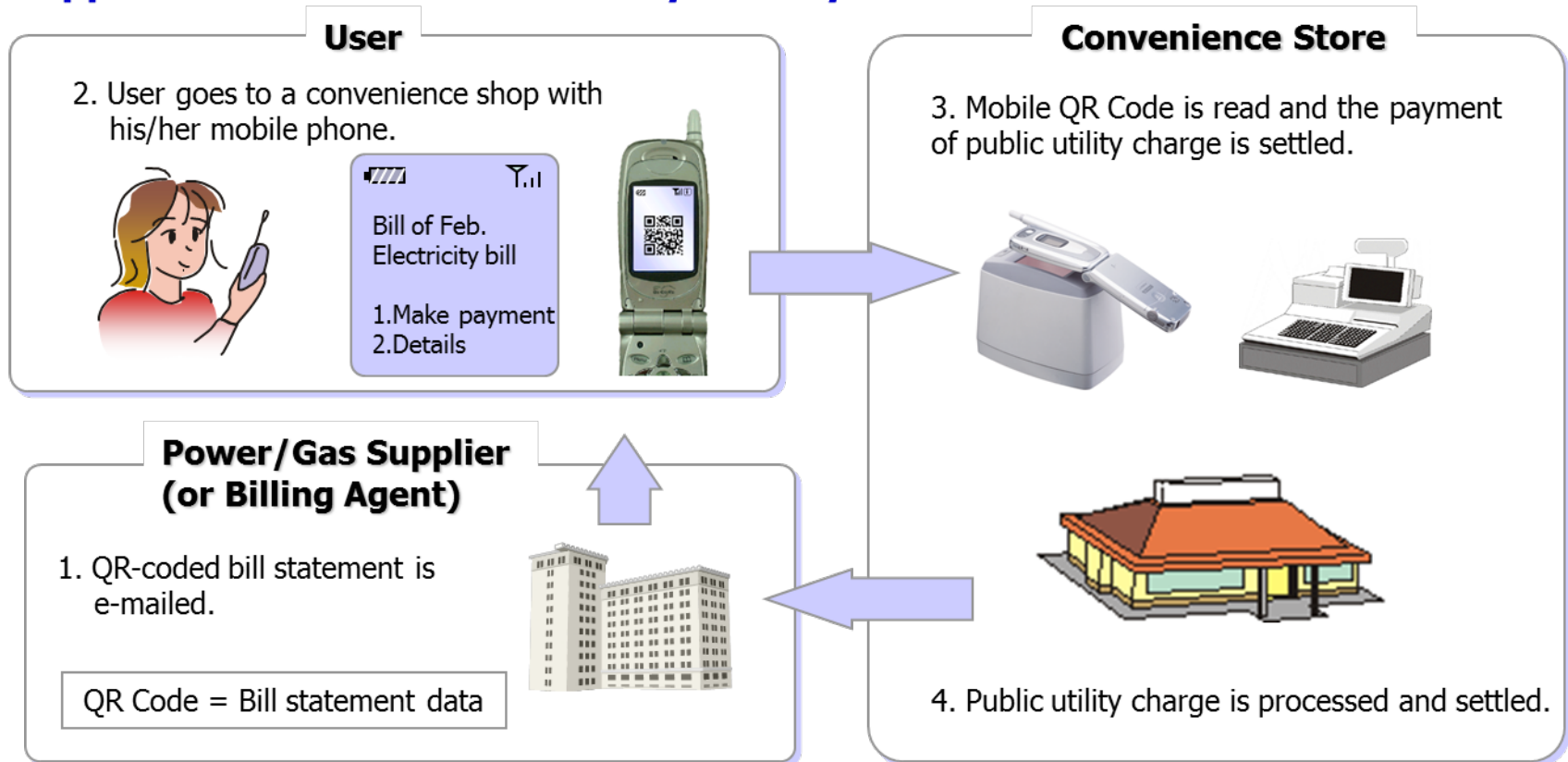
<Benefits> ■Can reduce the transaction cost by eliminating paper works.
■Bill settlement, including a request for payment, can be simplified.

You can pay your Docomo cell phone bill without a bill statement at a convenient store with the two-dimensional code you have downloaded from the i-mode website.

Usage of Mobile QR code

Character display functions

Encode the information such as name, date of birth, emergency contact number, blood type, medical history and allergy on QR code, card and QR code pendant. (Mobile phone does not work because the line is busy in times of disaster.)
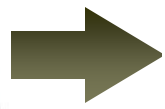
Automatically connect to URL

Jump to a designated URL when reading the URL encoding QR Code.

Telephone book registration facility

The information can be registered on the phone book when reading the QR Code that are printed on the corner of business card.

・**Store information, Corporate information, facility information, Exhibition information**

  Zoo, Station, arena, Exhibition site・・・・

・**Food Traceability**

・**Education support（Meeting, Lecture, Seminar）**

・**Catalog selling**

・**Game**

・**Fortune-telling**

・**Emergency, Disaster**

 Encode the information such as name, date of birth, emergency contact number, blood type, medical history and allergy on QR code, card, QR code pendant. (Mobile phone does not work because the line is busy in times of disaster.)

・Swimming of Penguin
・Inside of the mouth of elephant
・Joey inside of Kangaroo's pouch

GPS
Interlock

Moving image

Picture

Voice guidance

Character information

Map

Character information
English
Japanese
Chinese・・

ピッ！

Reading

URL

Visitors

Centre Server

Product Traceability (vegetable, fruit)

・Agricultural chemical used
・the USE of pesticides
・harvest date
・shipping date

・Production record
・Production management information
・Agricultural pest information

Character information
English
Japanese
Chinese

Farm produce
Production site

Character information
Photograph
Moving image

Bleep !

Reading

URL

Instruct

Consumer

Server Center

Farm house

Front desk Big-screen projector

Class room big-screen projector

Professor Teacher

Students

Center Server

Lecture information

Lecture room information

Registration
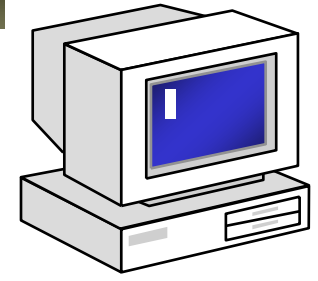
Request

Confirmation of attendance

Present assignment

Small exam

Web Learning tool

Specifications of Mobile QR Code

Requirements of QR Code implementation

1. **Mobile WEB network service**
   A full line of QR Code applications are available with mobile WEB network service.

2. **Camera function**
   2-1. Close-up mode
   2-2. Auto-focus
   2-3. Optical zooming
   2-4. Camera shake compensation
   Close-up mode offers user-friendly reading/operation.

3. **Camera module**
   3-1. Lens resolution
   3-2. Number of image sensor pixels

4. **Display**

Camera module
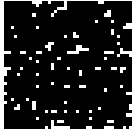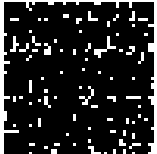
Resolution of optical lens decides the need of image processing.

Optical lens

Conventional module

Infrared & ultraviolet light

Lens holder

IR cut filter

Cut filter is indispensable.

Substrate

Wire bonding

Sensor

More than VGA is recommended for a sensor.

Small-sized module

Optical lens

Lens holder

IR cut filter

Glass

Electrode

Sensor

Solder ball
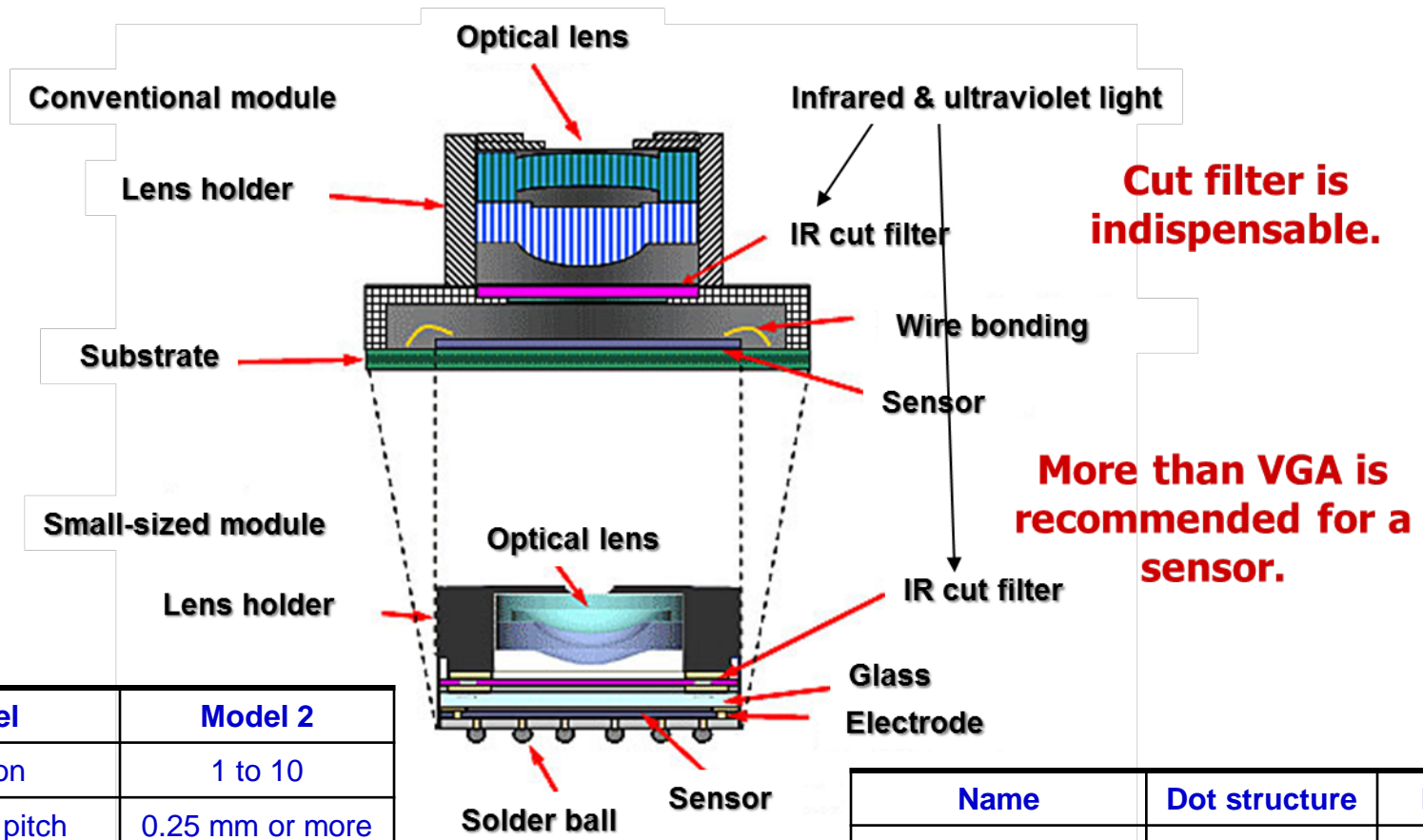
Model	Model 2
Version	1 to 10
Min. cell pitch	0.25 mm or more
Error correction	M
Reading direction	360°
Reading distortion	+/- 20°

Name	Dot structure	Pixel
1 million or more	---------	1 million
VGA	640 x 480	310,000
CIF	352 x 288	110,000
QVCA	320 x 240	80,000

Size and volume of QR Code data (1)

Ver.	Cell	Data bit	Numeric	Alphameric	Binary	Kanji	Sample of QR Code
2	25 X 25	224	63	38	26	16	
4	33 X 33	512	149	90	62	38	
6	41 X 41	864	255	154	106	65	
8	49 X 49	1232	365	221	152	93	
10	57 X 57	1728	513	311	213	131	

Version	Cell	ECC Level	Data bits	Numeric	Alphameric	Binary	Kanji
1	21x21	L	152	41	25	17	10
		M	128	34	20	14	8
		Q	104	27	16	11	7
		H	72	17	10	7	4
2	25x25	L	272	77	47	32	20
		M	224	63	38	26	16
		Q	176	48	29	20	12
		H	128	34	20	14	8
3	29x29	L	440	127	77	53	32
		M	352	101	61	42	26
		Q	272	77	47	32	20
		H	208	58	35	24	15
4	33x33	L	640	187	114	78	48
		M	512	149	90	62	38
		Q	384	111	67	46	28
		H	288	82	50	34	21
5	37x37	L	864	255	154	106	65
		M	688	202	122	84	52
		Q	496	144	87	60	37
		H	368	106	64	44	27
6	41x41	L	1,088	322	195	134	82
		M	864	255	154	106	65
		Q	608	178	108	74	45
		H	480	139	84	58	36
7	45x45	L	1,248	370	224	154	95
		M	992	293	178	122	75
		Q	704	207	125	86	53
		H	528	154	93	64	39
8	49x49	L	1,552	461	279	192	118
		M	1,232	365	221	152	93
		Q	880	259	157	108	66
		H	688	202	122	84	52
9	53x53	L	1,856	552	335	230	141
		M	1,456	432	262	180	111
		Q	1,056	312	189	130	80
		H	800	235	143	98	60
10	57x57	L	2,192	652	395	271	167
		M	1,728	513	311	213	131
		Q	1,232	364	221	151	93
		H	976	288	174	119	74

Targeted handsets: NOKIA3230, NOKIA6600, NOKIA6680, NOKIA7610, A5506T(KDDI), N900i(NTT DoCoMo)
Condition: This is a testing if QR codes printed on papers can be decoded when they are scanned with the above handsets without zoom-macro lens(close-up lens) .

RESULTS

➢There are big differences in the decoding ratio depending on the camera performance of handsets. In the case that the cell size of QR codes is more than 0.9 and its version is 1 or later, all handsets can decode them. (QR code whose cell size is 0.9mm and version 5 can't be decoded with NOKIA3230.)
➢N900i (without zoom-macro lens) can take images of QR codes from almost the same distance as when using close-up lens. If the cell size of QR codes is more than 0.6, it can decode them.
➢There are big difference in the fair distance for decoding (the distance of a targeted QR code to a camera) of cameras if handsets don't have zoom-macro lens.

Fair distance for decoding

NOKIA3230	: about 10cm	NOKIA6600	: about 10cm
NOKIA6680	: about 10cm	NOKIA7610	: about 8cm
A5506T	: about 20cm	N900i	: about 4cm

Cell size	Version	The numbers of cell	size on a side	Data Volume (alphameric character)	NOKIA 3230	NOKIA 6600	NOKIA 6680	NOKIA 7610	A5506T	N900i
0.5	1	21X21	14.5mm	20	×	×	×	×	×	×
	3	29X29	18.5mm	61	×	×	×	×	×	×
	5	37X37	22.5mm	122	×	×	×	×	×	×
0.6	1	21X21	17.4mm	20	×	×	×	×	×	○
	3	29X29	22.2mm	61	×	×	×	×	×	○
	5	37X37	27.0mm	122	×	×	×	×	×	○
0.7	1	21X21	20.3mm	20	×	×	×	×	×	○
	3	29X29	25.9mm	61	×	△	×	○	○	○
	5	37X37	31.5mm	122	×	△	×	○	○	○
0.8	1	21X21	23.2mm	20	×	○	×	○	○	○
	3	29X29	29.6mm	61	×	○	×	○	○	○
	5	37X37	36.0mm	122	×	○	×	○	○	○
0.9	1	21X21	26.1mm	20	○	○	○	○	○	○
	3	29X29	33.3mm	61	○	○	○	○	○	○
	5	37X37	40.5mm	122	×	○	○	○	○	○
1.0	1	21X21	29.0mm	20	○	○	○	○	○	○
	3	29X29	37.0mm	61	○	○	○	○	○	○
	5	37X37	45.0mm	122	○	○	○	○	○	○

-"Cell size" is indicated in millimeters

-"Size on a side" refers the size per one side. It includes a margin of 4 cells on the left, right, top and bottom.

-"Data volume" refers the maximum number of characters that can be contained in a QR code including only alphanumeric characters.

Cell pitch	Version 1	Version 3	Version 5
0.5mm	NOKIA 3230:NG NOKIA6600:NG NOKIA 6680:NG NOKIA7610:NG A5506T:NG N900i:NG	NOKIA 3230:NG NOKIA6600:NG NOKIA 6680:NG NOKIA7610:NG A5506T:NG N900i:NG	NOKIA 3230:NG NOKIA6600:NG NOKIA 6680:NG NOKIA7610:NG A5506T:NG N900i:NG
0.6mm	NOKIA 3230:NG NOKIA6600:NG NOKIA 6680:NG NOKIA7610:NG A5506T:NG N900i:OK	NOKIA 3230:NG NOKIA6600:NG NOKIA 6680:NG NOKIA7610:NG A5506T:NG N900i:OK	NOKIA 3230:NG NOKIA6600:NG NOKIA 6680:NG NOKIA7610:NG A5506T:NG N900i:OK

Cell pitch	Version 1	Version 3	Version 5
0.7mm	 NOKIA 3230:NG NOKIA6600:NG NOKIA 6680:NG NOKIA7610:NG A5506T:NG N900i:OK	 NOKIA 3230:NG NOKIA6600:OK NOKIA 6680:NG NOKIA7610:OK A5506T:OK N900i:OK	 NOKIA 3230:NG NOKIA6600:OK NOKIA 6680:NG NOKIA7610:OK A5506T:OK N900i:OK
0.8mm	 NOKIA 3230:NG NOKIA6600:OK NOKIA 6680:NG NOKIA7610:OK A5506T:OK N900i:OK	 NOKIA 3230:NG NOKIA6600:OK NOKIA 6680:NG NOKIA7610:OK A5506T:OK N900i:OK	 NOKIA 3230:NG NOKIA6600:OK NOKIA 6680:NG NOKIA7610:OK A5506T:OK N900i:OK

Cell pitch	Version 1	Version 3	Version 5
0.9mm	NOKIA 3230:OK NOKIA6600:OK NOKIA 6680:OK NOKIA7610:OK A5506T:OK N900i:OK	NOKIA 3230:OK NOKIA6600:OK NOKIA 6680:OK NOKIA7610:OK A5506T:OK N900i:OK	NOKIA 3230:NG NOKIA6600:OK NOKIA 6680:OK NOKIA7610:OK A5506T:OK N900i:OK
1.0mm	NOKIA 3230:OK NOKIA6600:OK NOKIA 6680:OK NOKIA7610:OK A5506T:OK N900i:OK	NOKIA 3230:OK NOKIA6600:OK NOKIA 6680:OK NOKIA7610:OK A5506T:OK N900i:OK	NOKIA 3230:OK NOKIA6600:OK NOKIA 6680:OK NOKIA7610:OK A5506T:OK N900i:OK

Backlight LCD does not affect readability.

Readers produced by Denso Wave can read more than 20 times for 30 seconds, and read more than 40mm in depth.

Recommend 0.33-040 for cell pitch of display.(Crystalline liquid)

NM502i P2102V, D501i, P251iS , D251iS, R692i , F671i , D04 , D06, D31DN02 , DN03 , K03 , K04 , K05 , K06 , K51, N03 , N04 , N05, NW01, P02, P03, P51, PE03II , SA02 , SA03, SA04 , SA05, SA51, SH52 , T04 , T06, T07, T08, T09, T51, A1011ST, A1013K, A1014ST , A1101S, A3011SA, A3012CA, A3013T, A3014S, A3015SA, A5301T , A5302CA , A5303H, A5304T , C3001H, C3003P, C301T, C302H , C304SH, C305S, C307K, C308P, C309H, C310T, C313K, C413S, C452CA, TD11, TK03, TK04 , TK05, TK12 , TK21, TK22, TK23S, TP11, TS02, TS11, TT21, TT22

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

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
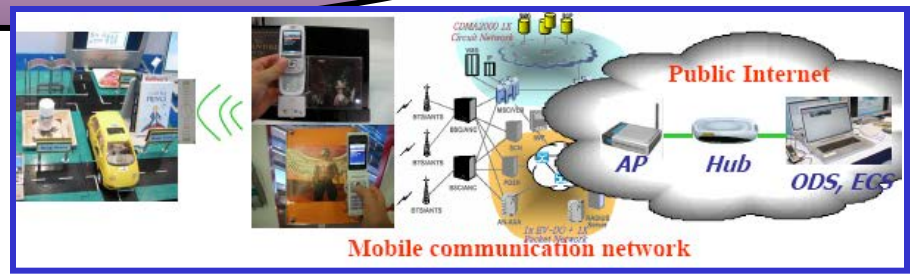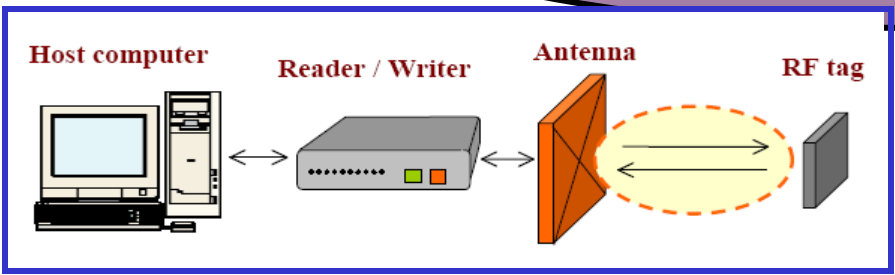- ISO 11784 & 11785: Animal identification

Industrial use

Mobile RFID technical standards

Mobile RFID application standards

Sensor network

Mobile RFID is expanding to consumer markets

Ubiquitous network

Host computer   Reader / Writer   Antenna   RF tag

Public Internet
AP   Hub   ODS, ECS
Mobile communication network

RFID venders   **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

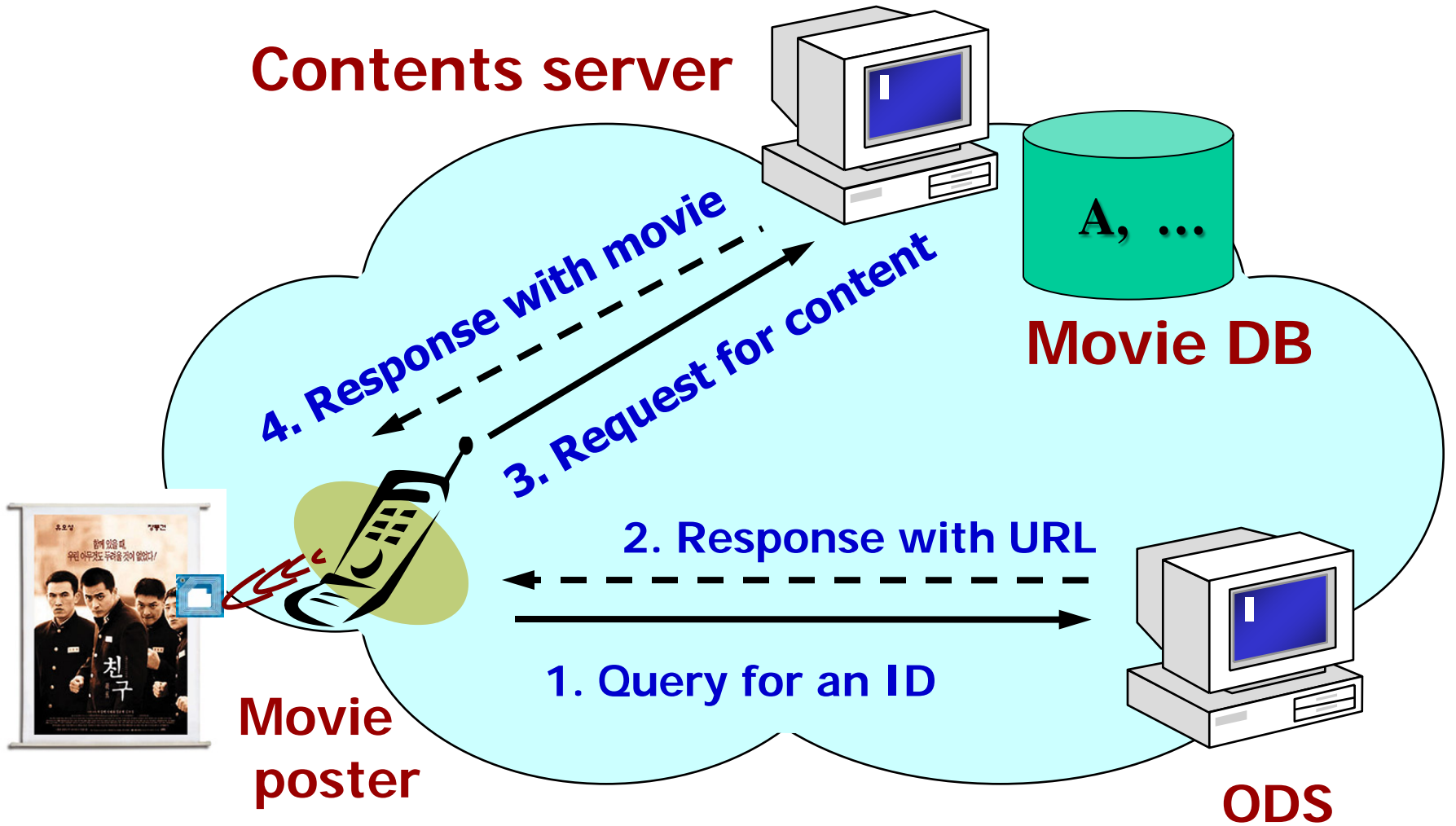# *Mobile RFID Proposed by Korea*

◆ **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.

Contents server

A, …

Movie DB

4. Response with movie

3. Request for content

2. Response with URL

1. Query for an ID

Movie poster

ODS

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.**
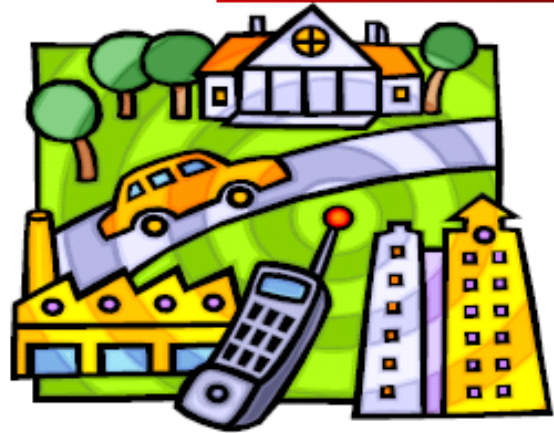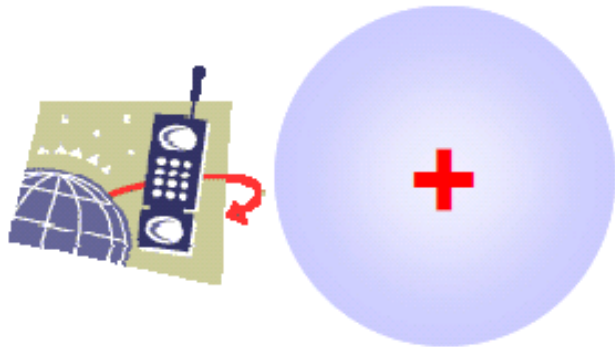
Mobile RFID Concept Proposed by Korea
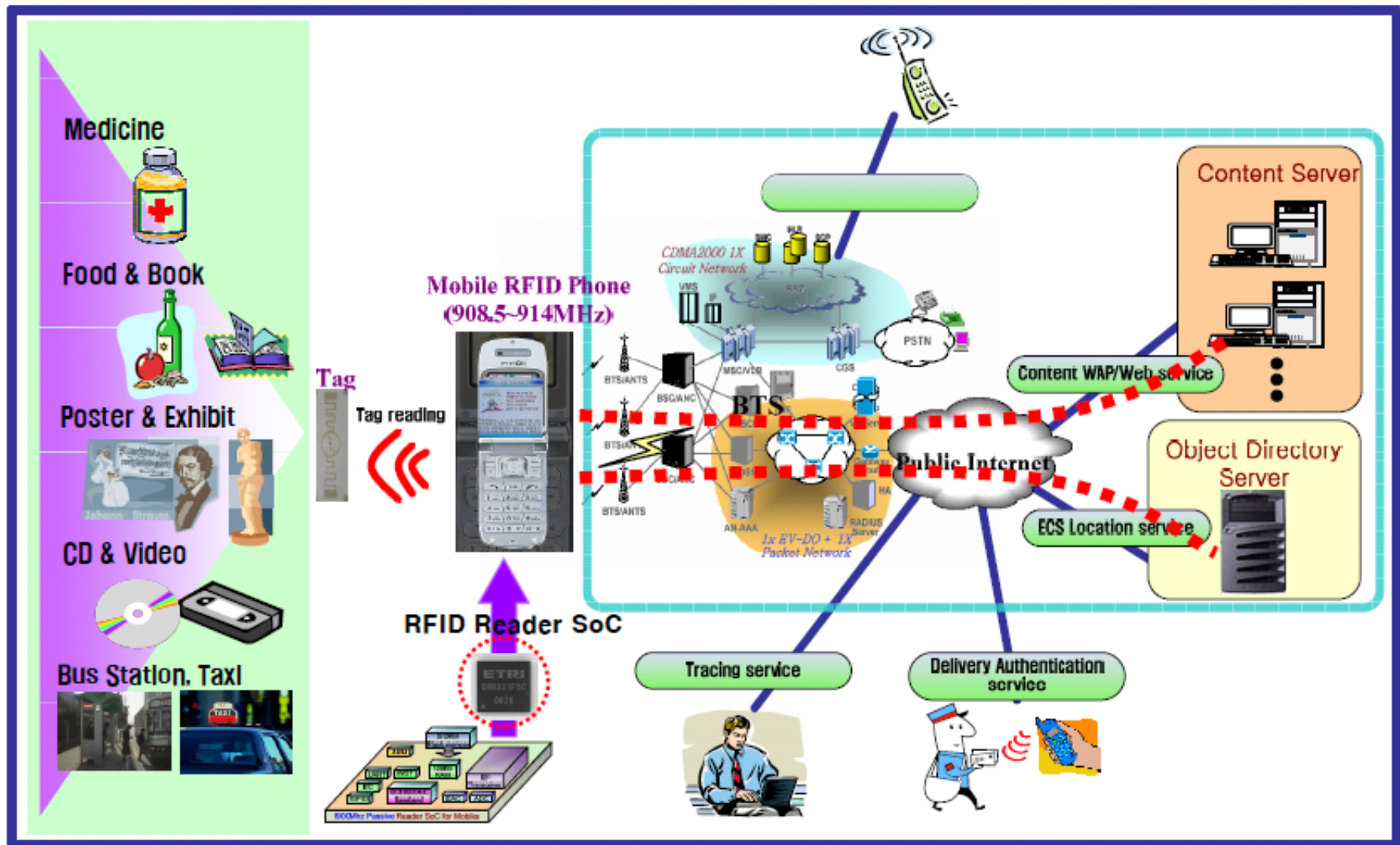
Mobile RFID Applications Proposed by Korea

900MHz RFID
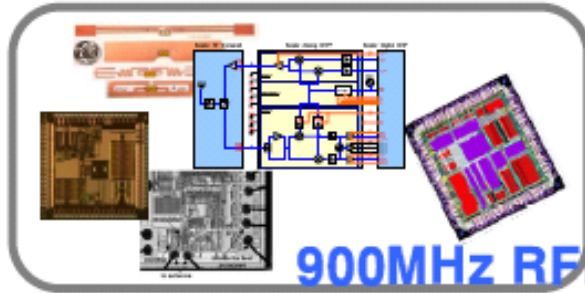
UHF band as most popular RFID

Longer and adjustable cover range

Mobile Phone

+

Convergence and easy implementation

Ubiquitous terminal device (u-device)

Mobile RFID Applications Suggested by Korea

Food Tracing Information

Movie Information Providing
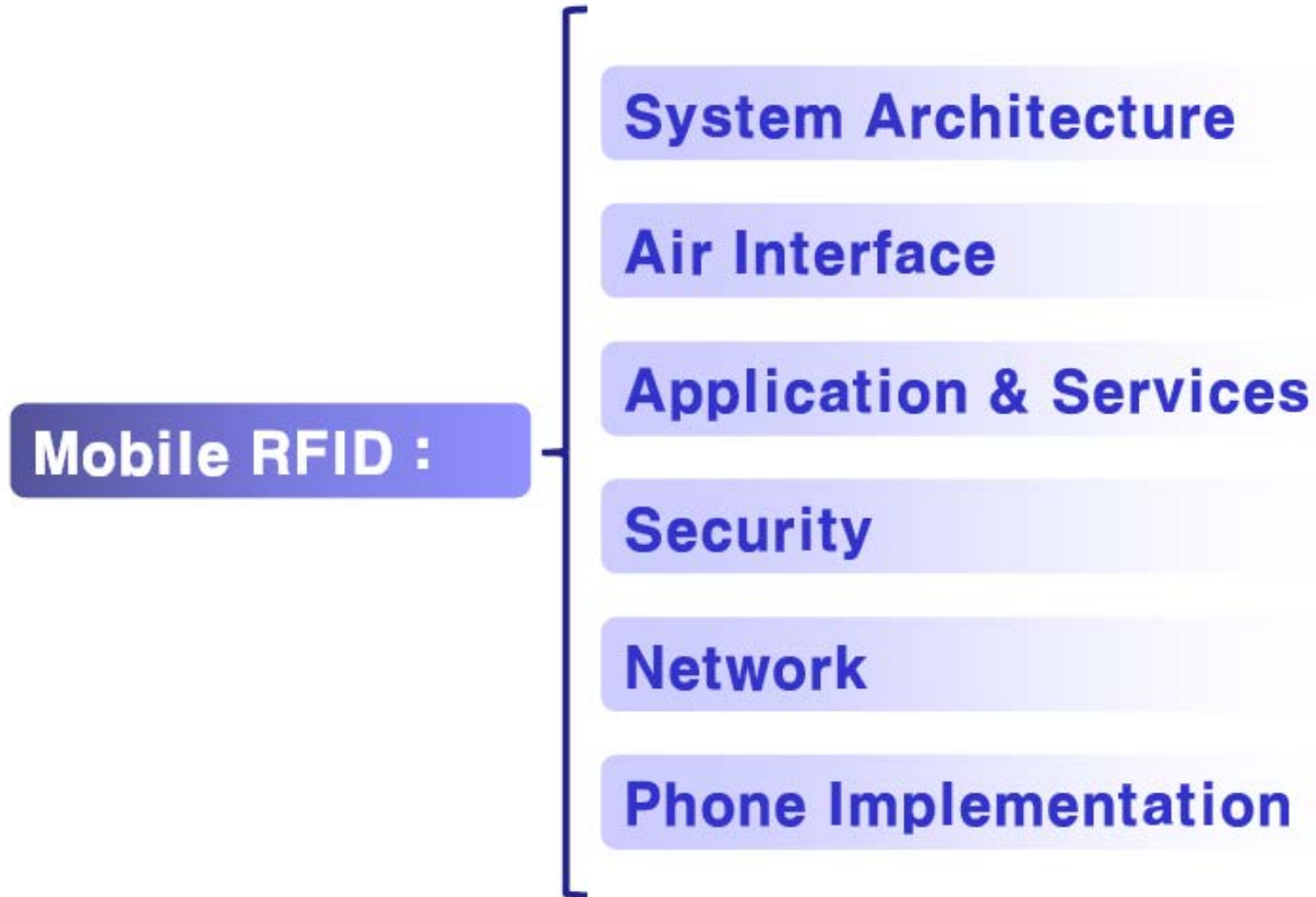
Wine Information Providing

Genuine Whiskey Checking

Secure Taxi Service

Bus Information Providing

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_IDandMgmnt.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**

10. 30 10:14

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

Craig K. Harmon

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)

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**