

Status of DSRC Applications in Japan

-Smart Communications and other applications-

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- 1. Deployment of ETC
- 2. Summary and Present Situation of DSRC
- 3. Plan for the future

1. Deployment of ETC*

(1) Spread of ETC

- ETC started commercially in March, 2001
- Over 3.8 million ETC units have been shipped and over 20 % of cars have ETC units now



1. Deployment of ETC



(2) Nationwide deployment of ETC

- 1,150 toll plazas in Japan do ETC services
- New services for ETC-only interchange (Smart IC) are in preparation at 35 points



(1) DSRC used in ETC

DSRC is standardized in Japan as ARIB STD-T75, based on ITU-R and ISO standard 5.8GHz active system (ITU-R basis) ISO15628(FDIS)basis Multi application High-speed, large capacity



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2. Summary and Present Situation of DSRC

(2) Multi-application using ASL*

- The ASL is standardized in Japan as ARIB STD-T88, which can realize multi application using with ISO15628
- The ASL can handle both IP and non-IP application
- New system can realize various applications with 6 basic functions in non-IP application is being investigated



(3) Examples of multi-application with ASL and examination situations Various applications are under development; payment, information services

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a) Information services with IP application

 Experiment was done at Moriya Service Area, on January 29 and February 2, 2003
 About 300 users conducted the experiment with 4 experimental cars



Opening ceremony at the information booth for the experiment.



5.8 GHz DSRC roadside antenna



Various services examined through the two-way active communication system.



Built-in on-board equipment

b) Car discrimination system at parking areas

Car discrimination system already started at private parking areas in January, 2003
DSRC authenticates the ID number of the on-board ETC equipment of an approaching car and opens the gate



DSRC antenna





DSRC authenticates the ID number of the onboard ETC equipment

c) Demonstration of payment at gas station

The demonstration was made at a private gas station on January 22 to 24, 2003
Experiment of payment and information services were done at self-service gas machines and automated car-washing machines



Requesting the type and amount through the screen, and electronic payment of the charge



Prepaid type IC card used in the demonstration



The demonstration was made at an actual shop doing business.



DSRC antenna on the roof of the car-washing machine



User can choose the menu and the charge is electronically paid.

d) Experiment of payment at hamburger shop

The experiment was made at a hamburger shop from September 25 to 28, 2001
The experiment was to send the menu and the order between in-store machine and on-board unit, and to pay online



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3. Plan for the Future

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(1) Development of ITS on-board units

One on-board unit will be able to use the following services in 2007

- Smooth passage through all types of gates
- Regional guides according to location and needs
- Timely driving support information



The case where each application needs an exclusive on-board unit



The case where one on-board unit can use several applications



[Smooth passage through all types of gates]

Smooth passage by cashless fee payment other than ETC, including parking fees
Voice announcement services when entering and leaving a facility.





[Regional guides according to location and needs]

- Providing area road information and regional or tourist information at roadside stations and expressway service areas or parking areas
- Offering a wider range of opportunities to obtain information in the car





[Timely driving support information]

- Improving safety by providing various information instantly while driving
- Enhancing the existing VICS services
- Establishment of infrastructures such as roadside units based on international standards and multi-modal application of on-board units



3. Plan for the Future

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(2) Development scenario

For the services with ITS on-board units, joint researches by public and private sectors and settlement of standards and specifications are promoted



3. Plan for the Future

(3) Targeted world with ITS on-board units

Media free comunicatione environment with not only DSRC but cell phone and wireless LAN

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END