RESEARCH ON THE SYSTEM PROVIDING ADVANCED ROAD SERVICES

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1. Where are we?

- Remarkable pervasion of car navigation and VICS;
- Accumulated shipments of onboard ETC units has amounted to 8.62 million.

Accumulated shipments of VICS units
Accumulated shipments of car navigation

About 8.62 million units shipped as of Sept. 2005
ETC dissemination has brought about

• Mitigation of chronic congestion at toll gates; and
• Less environmental impact on the vicinity of toll gates.

ETC usage rate and tie-up scale at toll gates on Metropolitan expressways

CO2 emissions in Kawaguchi toll gate on Metropolitan expressways
2. Where are we going?

- ITS has begun to change our society.
  - Enhanced convenience and safety brought about by the wide spread navigation and VICS systems
  - Mitigated congestion at tollgates

- ITS has entered its *second stage* in Japan.
Proposal by the Smartway Project Advisory Committee

- Issued in August 2004;
- Calls for the realization of a full-swing ITS society by 2007; and
- Advocates the start of the following ITS services in 2007;
  - Smooth passage through all types of gates;
  - Regional guides appropriate for the location and needs of users; and
  - Timely provision of driving support information.
3. Characteristics of the Advanced Service

- A general purpose and versatile onboard unit and a communication protocol are most desirable.
- In addition, the system should be constructed on an open platform.
- The revision of the ministry ordinance related with the *Radio Wave Law* in April 2001 permitted the multi-purpose use of DSRC.
4. Envisioned Services

- **Services** are categorized into following four types:
  - Vehicle information transmission services;
  - Fee payment services;
  - Information & warning services; and
  - Information provision services.
Among the services mentioned above, the following are anticipated to start in 2007:

1. Information provision during a trip;
2. Information download at roadside rest areas; and
3. Public parking fee transaction.
Information provision during a trip

- DSRC in 5.8 GHz mode has large communication capacity which can support following services:
  - Traffic information on a wider road network;
  - Provision of a still image;
  - Voice announcement in various languages.
- Autos will function as a probe vehicle.
5. Configuration & function of the system

The system consists of an ITS onboard unit, roadside units and communication between a onboard unit and roadside units.

* API: Application Program Interface
What are basic APIs?

- Various application services can be realized by combining the following basic APIs:
  - Response function to the inquiry from roadside units;
  - Access function to the onboard memory;
  - Identification function;

(Cont’d)
What are APIs?  (Cont’d)

– Access function to an IC card;
– Function for the *pushing* type information provision; and
– Security function.
Thank you for your attention.