Cruise-Assist Services Utilizing Up-link Information

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<u>Contents</u>

- 1. Overview
- 2. Background
- 3. Propose of Services
- 4. Proving Test
- 5. Summary

1. Overview



2. Background



Advantages of Utilizing Up-link Information:

- Range of collecting information is not limited.
- Can construct the up-linking system at reasonable cost.
- Can collect ABS activation, braking strength and so on.





Information provision service on forward obstacles at locations with poor visibility



Information provision service at dangerous driving locations



Information Provision Service for Road Surface Conditions Ahead



4. Proving Test: test items

Test 1. Test of Up-link Function of DSRC

:Test up-linking of information accumulated in OBU.

:Use the memory access function in the basic application interface.

Test 2. Test of Communications Capacity of DSRC

:Test up-link data volume when changing down-link data volume and vehicle speed.

:One beacon collects information and provides it in one passage of vehicle.

4. Proving Test: Test Equipment Configuration

Features of DSRC in Japan

- 5.8GHz band
- Two-way radio communication
- ASK and QPSK
- Radio communication protocol used for ETC

Equipment specifications

- ARIB STD-T75 (DSRC) conformity
- ARIB STD-T88 (ASL) conformity
- ITS FORUM RC-004

Basic application interface conformity

Indicate

Response

Six app. Memory access : up-link

ld

Card access

Push



4. Proving Test: Scenes of testing



4. Proving Test Test Results 1: Test of Up-link Function of DSRC

Confirmed the memory access function to up-linking information accumulated in OBU.



4. Proving Test:

Test Results 1(Reference Test) : Possibility of Event Detection



4. Proving Test: Test Results 2: Test of Communications Capacity of DSRC

Confirmed up-linking 6KB data.

Table 1. Test Results

Down-link data volumes	Maximum up-link data volumes	
	Speed	Speed
	60 km/h	100 km/h
6 KB	20 KB	12 KB
25 KB	14 KB	6 KB

5. Summary

Conclusions

- Proposal for effective cruise-assist services
- Proving test using DSRC

 (1) Confirmed the memory access function to up-linking information accumulated in OBU.
 (2) Confirmed up-linking 6KB data.

Future plans

- Develop and test the algorithm for detecting dangerous phenomena
- Optimum placement of DSRC beacon (installation location and intervals)

