China ITS Update

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Xiaojing WANG

Chief Engineer of RIOH, MOT
Director of China National ITS Center
Content

- Transport Policy in China
- National Strategy for ITS
- Update of C-ITS
I. Transport Policy in China
1. National Development Strategy in Next 10 Years

❖ Change of the Growth Model

▪ A new growth model,
  • Development is based on improved quality and performance

▪ Economic development driven more by:
  • Domestic demand
  • Scientific and technological progress
  • Resource conservation and a circular economy
  • Modern service industry and strategic emerging industries
Innovation-driven Development

- Promote close integration of science and technology with economic development
  - Enterprises play the leading role
  - The market points the way
  - Enterprises, universities and research institutes work together

Government Support

- New technologies research
- Products and production processes development
- New business models
2. Transport Policy

- Transport must support the *National Strategy* and sustainable development
  - Improve the quality of transportation services
  - Improve safety and emergency support capabilities
  - Development of green transport system
  - Infrastructure Construction and Maintenance
    - More attention on *Maintenance*
3. R&D in Transport Efficiency and Safety

- **Operation and management technology**
  - Public Transport Management and Service
  - Multi-modal Passenger Transit Center Management and Service
  - Drop and pull transport and auto train technology

- **Transport safety and emergency management**
  - Road operational risk assessment and security management
  - Monitoring and management of highway network operation
  - Truck and Bus transport safety management
  - Highway Safety

- **Green Transport**
  - Ecological environment protection and restoration in road construction
  - Highway waste materials recycling
  - Transportation energy consumption and carbon emissions monitoring
  - Eco-drive
II. National Strategy for ITS
1. New national ITS development strategy (2013-2020)
(1) Summary

- Technology Application in Transportation
  - Internet Of Things
  - Future Internet & Mobile Internet
  - Cloud Computing
  - Big Data Management

- Standardization
  - Data Collection, Management and Exchange
  - Communication in Cooperative System
  - Logistics Information Exchange and Service Platform
  - Man-machine Interface of Driver Assistant
**Demo and Application**

- **Public Transport**
  - Intelligent Public Transport Management and Service
  - Multi-modal Passenger Transit Center Management and Service

- **Freight Transport**
  - multimodal transport
  - Ro-Ro transport
  - urban logistics

- **Traveler Information Service**
  - Travel Information Service System
  - Route Guidance

- **Nationwide Promotion Plan**
  - ETC
  - E-Payment in Transportation
(2) To 2015

- ETC users might exceed 10,000,000
- Smart bus system shall be set up in more than 10 cities
- National expressway operation management system might cover more than 20 provinces
- City intelligent vehicle management system (RFID system) shall formal operation
- Traffic information service by mobile internet shall operation
- Cooperative ITS might begin demo
(3) Promote close integration of science and technology with economic development

- **A New Development Model**
  - Enterprises play the leading role
  - The market points the way
  - Enterprises, universities and research institutes work together
  - New business models

- **Technology Innovation Center in Enterprise**
  (Support by government)

- Encourage enterprises to increase expenditures on research and development
  - new materials
  - new product and engineering process
  - new road maintenance equipments
  - intelligent transport system/service

- Encourage competition in the construction and service market
China ITS Industry Alliance

- Formally established on Step 24, 2013
- Most Members are from industrial community
III. Update of C-ITS
1. Architecture


- **Defined User Service**
  - Traffic Management and Planning
  - Electronic Payment Service
  - Traveler Information System
  - Emergency and Security
  - Transportation Operation Management
  - Inter-modal Transportation
  - *Vehicle safety and driving assistance*
  - *Automated Highway System*

- **Standardization**
  - To ensure national compatibility and secure
(2) Cooperative System Architecture (2012-2013)

• Framework of Vehicle-Infrastructure Cooperation
• Framework of Vehicle-Vehicle Cooperation
2. Arrangement in spectrum allocation

- Maybe Appoint a New Band, C-ITS is the exclusive user

<table>
<thead>
<tr>
<th>Country</th>
<th>Frequency (MHz)</th>
<th>C-ITS</th>
<th>ITS</th>
<th>New Band</th>
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<tr>
<td>China</td>
<td>5725-5850</td>
<td></td>
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<tr>
<td>USA</td>
<td>902-928</td>
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<td>EU</td>
<td>5795-5925</td>
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<td>Japan</td>
<td>715-725</td>
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</tbody>
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- Frequency Regions
  - ISM Band: 5725-5875 MHz
  - ITS Band: 5725-5850 MHz
  - New Band: 5730-5850 MHz (proposed)
3. New Standard Plan in C-ITS

❖ Cooperative System, DSRC
  - Part 1: General Technology Requirement
  - Part 2: MAC and Physical Layer
  - Part 3: Network and Application Layer
  - Part 4: Equipment Application

❖ Cooperative System, Application
  - General Technology Requirement for Telematics Service of Vehicle Monitoring and Traveler Information
  - Function Requirement of Vehicle Crash Warning
4. Security of C-ITS

(1) Research

*Security Technology in C-ITS*
- Secure problem in different use scenes
- Essential security messages of vehicle and infrastructure
- Evaluation method for Security

*Credential management and authentication system (CMAS)*
- Requirement of security certificates
- Define roles for management authority and auto manufacturers
- Governance structure of C-ITS Security
(2) Regulatory Authority and Facilities

- Management Center under the MOT (plan)
- National certificates management and authentication system

Has passed national authority certification in Feb of 2013
Thank You!