Research of V2X communication for Cooperative Driving Automation

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SIP
Cabinet Office

1.Research status of V2X communication for cooperative driving automation

- **TF on V2X communication for Cooperative Driving Automation (CDA) has been established in 2019**
- **Started research for communication methods for CDA**

【Purpose】

Draw the ideal form of cooperative driving automation and the roadmap to realization, while considering international standards, establish the optimal communication method policy by ALL JAPAN

【goal】

- Propose the optimal communication method for CDA
- Draw the roadmap for communication method (requirement)

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◆ Activities of TF on V2X Communication for CDA

- Define CDA
- Develop CDA use cases based on the definition

Phase1
Done

- Define communication requirements based on use cases

Phase2
Done

- Examination of applicability of existing ITS communication
- Technology verification for Communication methods (frequency / bandwidth) for CDA
- Proposal of communication method and the roadmap

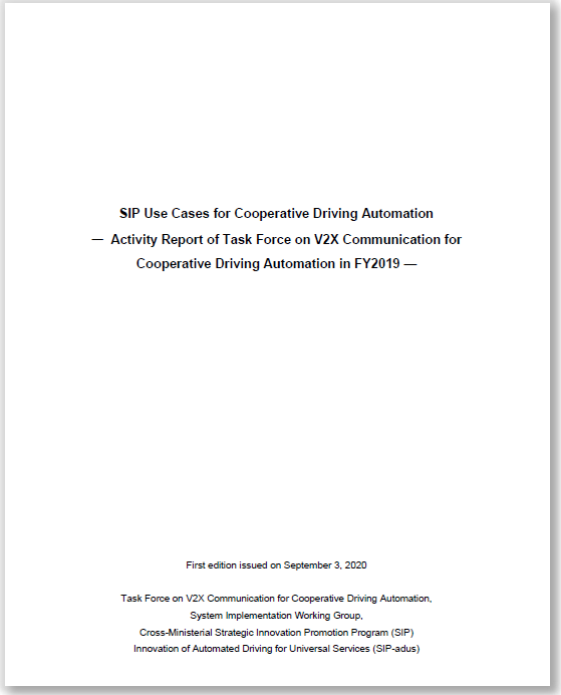
Phase3
On going

Phase1

◆ SIP Cooperative Autonomous Driving Use Case 1st Edition released

Contents

- CDA system definition
- Scope of study
- Use case review process
- SIP CDA use cases


SIP Use Cases for Cooperative Driving Automation
— Activity Report of Task Force on V2X Communication for Cooperative Driving Automation in FY2019 —

First edition issued on September 3, 2020

Task Force on V2X Communication for Cooperative Driving Automation,
System Implementation Working Group,
Cross-Ministerial Strategic Innovation Promotion Program (SIP)
Innovation of Automated Driving for Universal Services (SIP-adus)

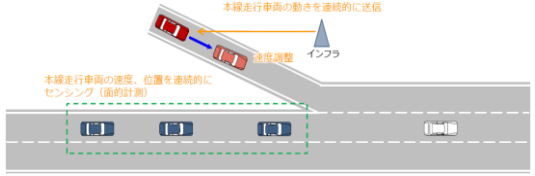
（https://en.sip-adus.go.jp/rd/rddata/usecase.pdf）

2. Communication requirements

◆ Examined with reference to similar cases implemented in the past or currently under consideration

- ✓ Experimental guidelines for communication systems for CDA (ITS FORUM RC-015 1.0 version)
- ✓ Demonstration experiments by ITS-related organizations, etc.

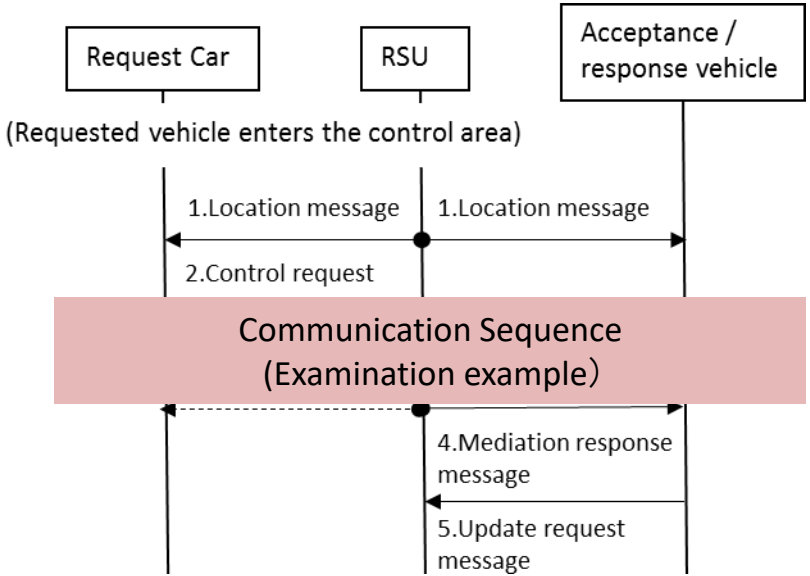
Phase2



Use case (image)

Functional classification	a. Merging / lane change support
Use case	Main line gap aiming merge support
No.	a-1-2
Message name	Location information provided
Communication form	V2I（I → V）
[illegible]	[illegible]
[illegible]	[illegible]
per area	1 vehicle
Required communication distance	66.7～116.7m
Maximum relative speed	Connection route ：20~70km/h
Maximum data size	1942 byte (1692+250) Estimated number ：62 vehicles

Communication requirements (examination example)



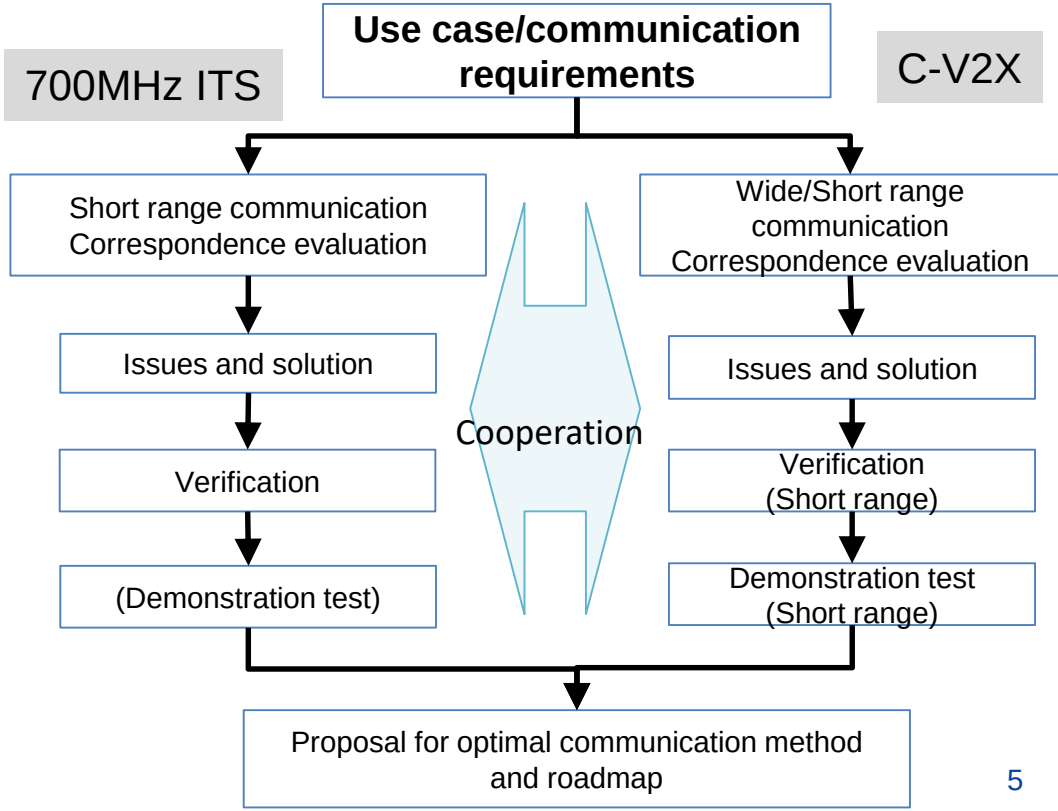
Communication Sequence (Examination example)

3. Examination of application to communication technologies

◆ Consider issues and solutions when applying use cases and communication requirements to ITS radio communication

Phase3

- Applicability of existing ITS radio communication (700MHz band)
- Application study and experiments of cellular V2X
- Proposal for optimal radio communication method and roadmap



SIP-adus
Workshop
2021

Thank you