

# **Current State and Issues regarding Technical Regulations Conformity Certification System for Terminal Equipment in Japan**

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**Telecommunication Systems Division,  
Telecommunications Business Department,  
Telecommunications Bureau,  
Ministry of Internal Affairs and Communications**

# Agenda

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1. Overview of Technical Regulations Conformity Certification System under Telecommunications Business Act
2. Present Conditions of Technical Standards Conformity Approval for Terminal Equipment under Telecommunications Business Act
3. Key Issues around Technical Standards Conformity Approval for Terminal Equipment under Telecommunications Business Act
4. Future Challenges for Technical Regulations Conformity Certification System under Telecommunications Business Act

# **1. Overview of Technical Regulations Conformity Certification System under Telecommunications Business Act**

# Technical Standards under the Telecommunications Business Act and the Radio Act

## [Telecommunications Business Act]

### Sound development of telecommunications

To promote public welfare by ensuring the proper and reasonable operation of telecommunications business and consistent provision of services while safeguarding the interests of users

(from Telecommunications Business Act, Article 1: Purpose)



### Technical standards for terminal facilities

Designed to ensure that any user who connects terminal facilities to a commercial telecommunications network can expect service that:

- Does not cause damage to or impede the performance of telecommunications equipment
- Does not interfere with other users
- Clearly delimits responsibilities in relation to equipment

## [Radio Act]

### Finite radio wave resources

To promote public welfare by ensuring the fair and efficient utilization of radio waves

(from Radio Act, Article 1: Purpose)



### Technical standards for radio equipment

Designed to ensure the fair and efficient utilization of finite radio wave resources and are applicable to all equipment that generate radio waves

- Regulations on frequency, radio wave format, transmission power, etc. (avoiding interference, feasibility of common use)

The terminal facilities that the user uses by connecting to the telecommunications carrier's telecommunication line facilities are required to **conform to technical standards for connection**.

## Technical standards for connection of terminal equipment

(Telecommunications Business Act, Article 52, Paragraph 2)

The **technical standards** are specified so as to ensure the following:

1. The technical standards do not result in damage to the telecommunication line facilities nor cause an obstruction to their function;
2. The technical standards do not cause inconvenience to other users of the telecommunication line facilities;
3. The demarcation of responsibilities between the telecommunication line facilities installed by the telecommunications carrier and the terminal facilities interconnected to them by users is clearly specified.

- ✓ The technical standards for connection apply to **terminal facilities**.
- ✓ **Terminal equipment** are subject to technical standards conformity approval.

An example with analogue telephone

Demarcation of responsibility

Telecommunication line facilities

Terminal facilities

Protective device

Indoor wiring

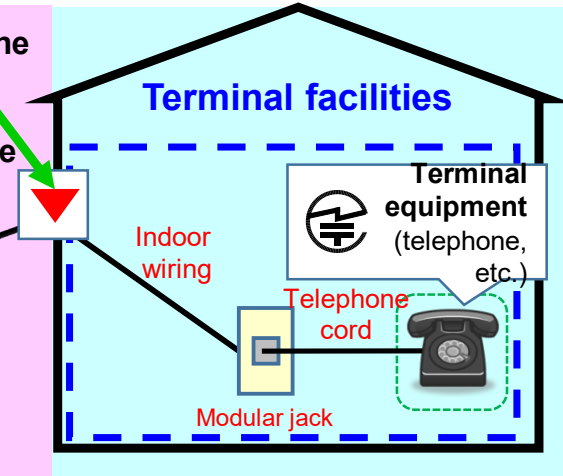
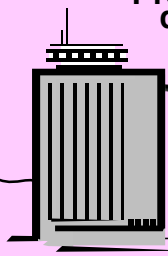
Terminal equipment (telephone, etc.)

Telephone cord

Modular jack

Telecommunications carrier

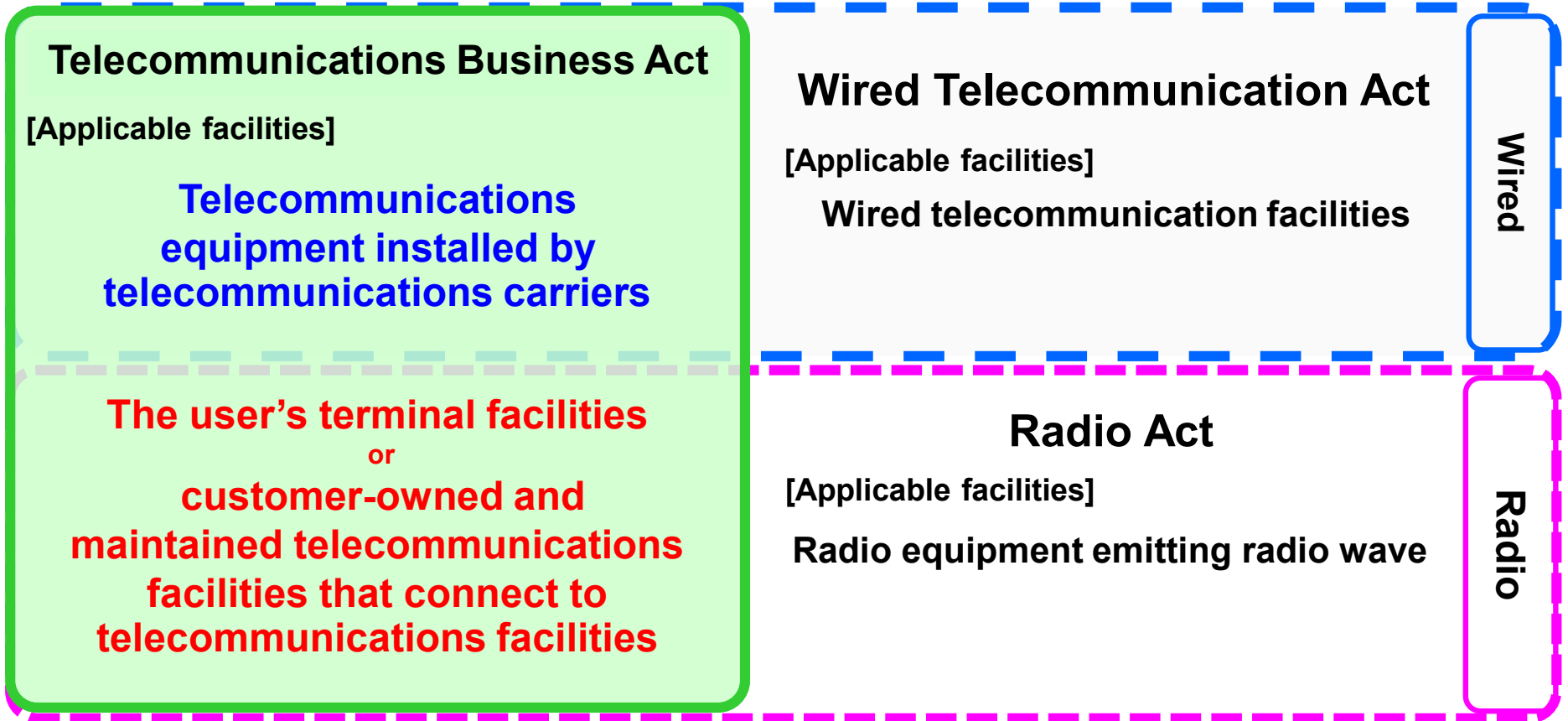
User



# Applicable Facilities

The facilities requiring conformity with the technical standards for connection specified in the Telecommunications Business Act are the following: telecommunications carriers' telecommunications facilities (for both wired and wireless communication) and terminal facilities and customer-owned and maintained telecommunications facilities that interconnect to telecommunications carriers' telecommunications facilities.

Communications equipment unrelated to telecommunications business



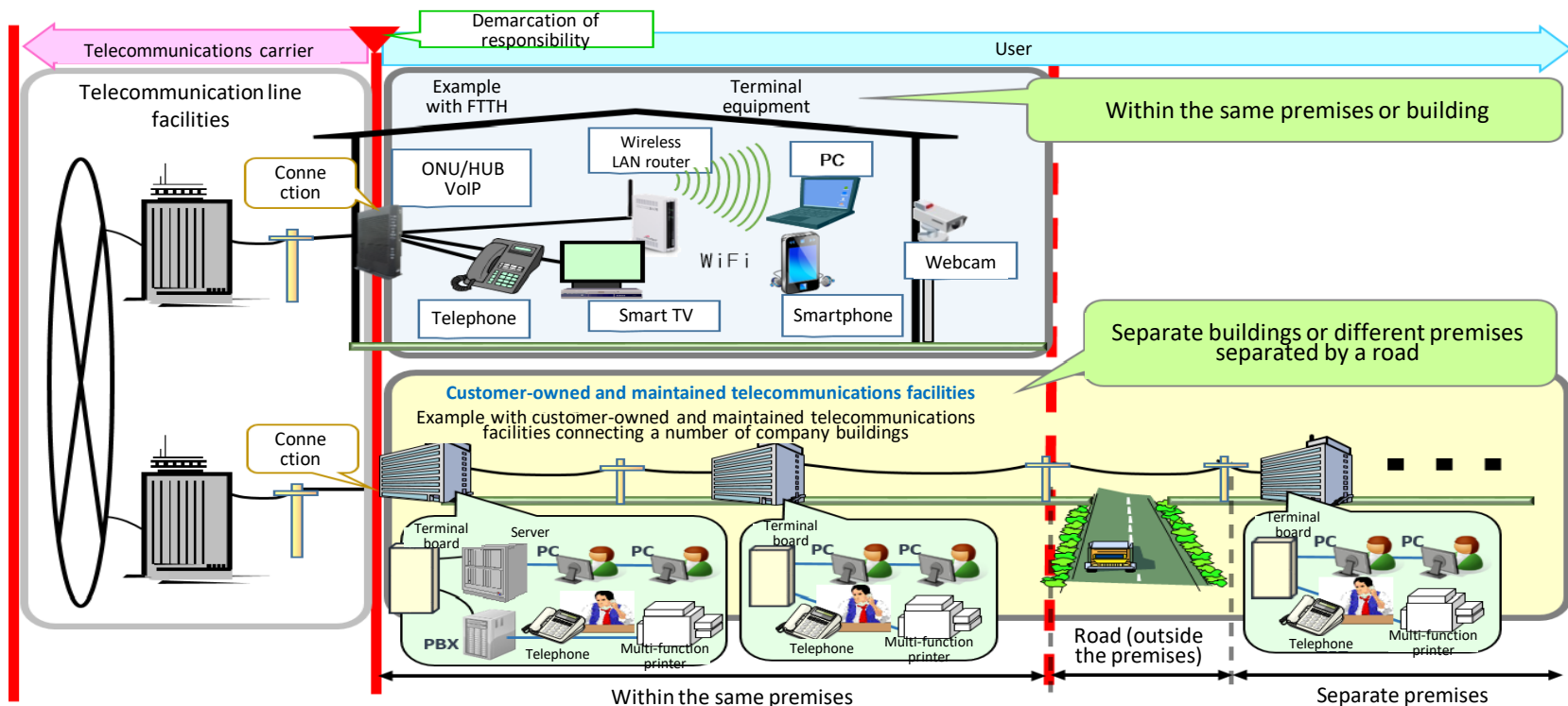
# Terminal Facilities

- **Terminal facilities** (Telecommunications Business Act, Article 52)

Pieces of telecommunications equipment that are connected to one end of a telecommunications line facility (representing demarcation of responsibility) and that are installed within the same premises or building

- **Customer-owned and maintained telecommunications facilities** (Telecommunications Business Act, Article 70)

Pieces of telecommunications equipment (other than terminal facilities) that have been installed by an entity that is not a telecommunications business



## ● Technical Regulations Conformity Certification System

System in which Registered Approval Bodies certify that terminal equipment are compliant with “Technical Standards for the Interconnection of Terminal Facilities” to enable connection to the network of a telecommunications carrier

## ● Major pathways to certification

### 1. Certification of each terminal equipment

“**Technical Standards Conformity Approval for Terminal Equipment**” issued by Registered Approval Bodies

(Telecommunications Business Act, Article 53)

### 2. Certification of terminal equipment design

“**Certification of Design of Terminal Equipment**” issued by Registered Approval Bodies

(Telecommunications Business Act, Article 56)

### 3. Self-confirmation of conformity

“**Self-Confirmation of Conformity to Technical Standards**” by the manufacturer or importer

(Telecommunications Business Act, Article 63)



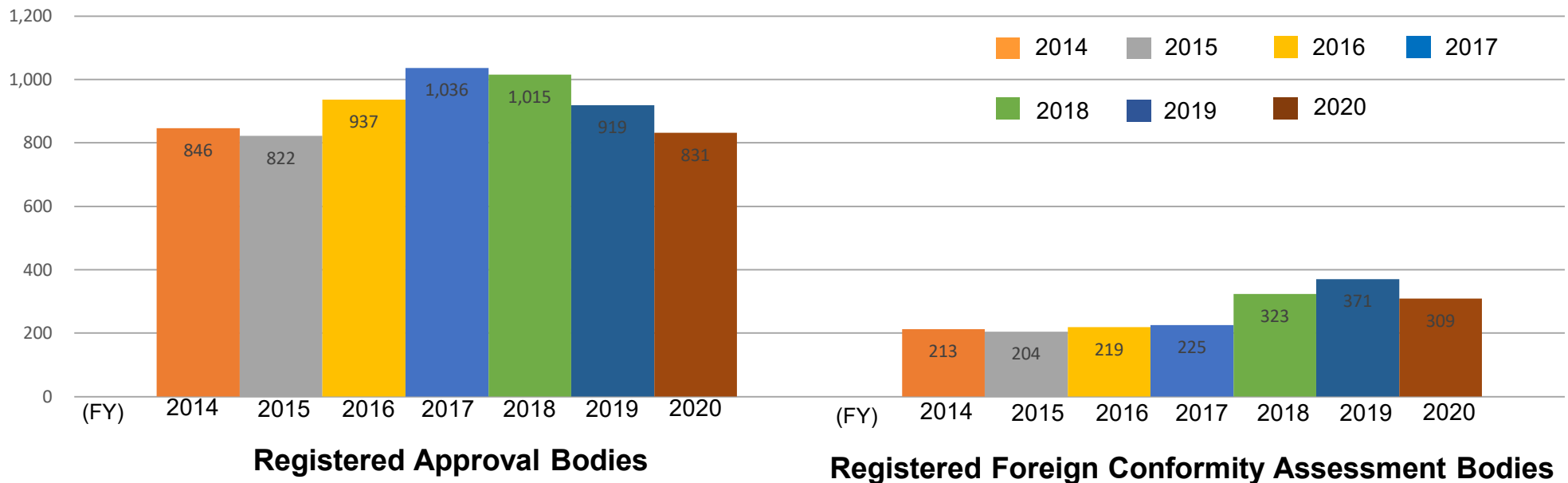


## **2. Present Conditions of Technical Standards Conformity Approval for Terminal Equipment under Telecommunications Business Act**

# Certification Status of Terminal Equipment under Telecommunications Business Act

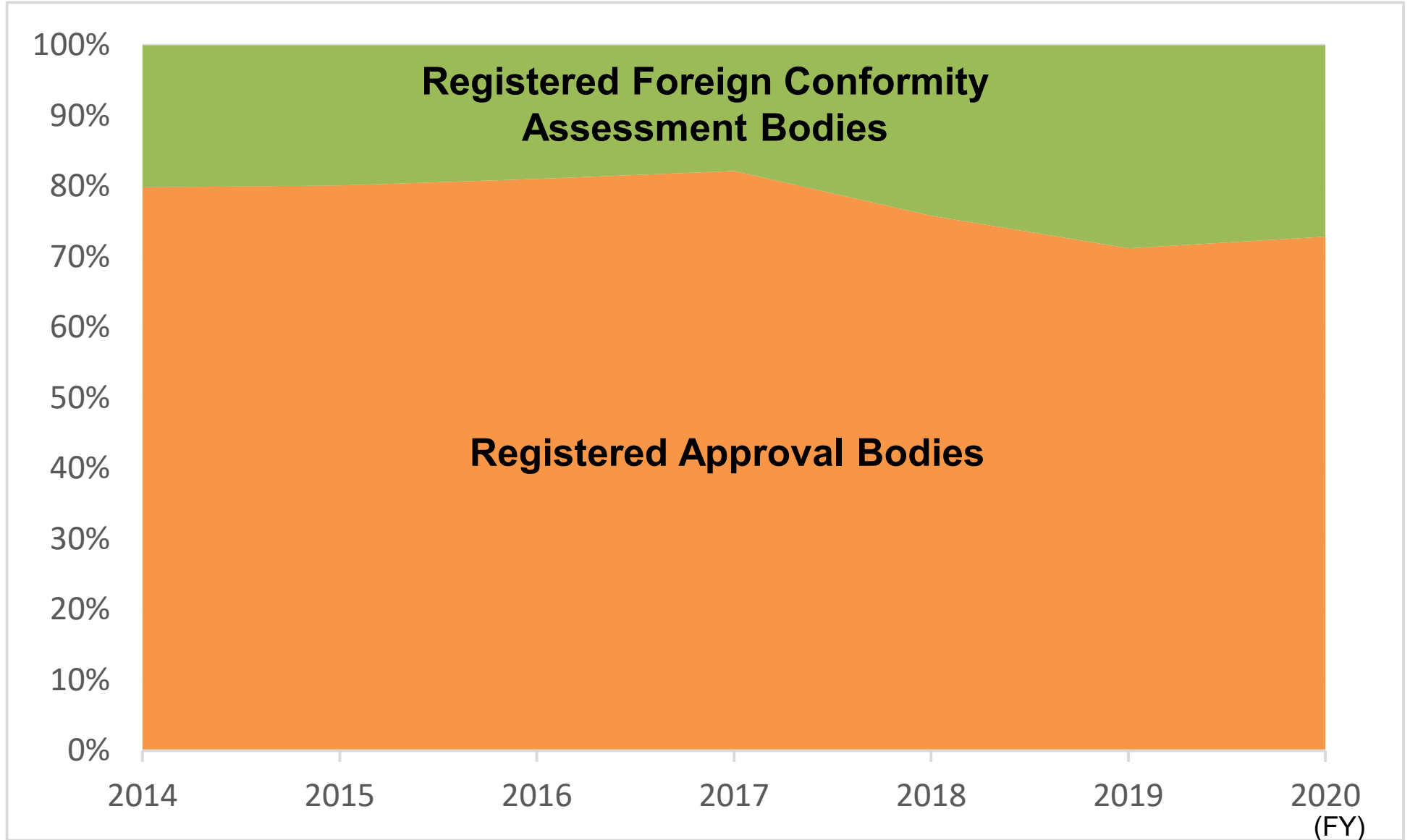
## Certification numbers for terminal equipment

FY	2014	2015	2016	2017	2018	2019	2020
<b>By Registered Approval Bodies</b>	846	822	937	1,036	1,015	919	831
<b>By Registered Foreign Conformity Assessment Bodies</b>	213	204	219	225	323	371	309
<b>Total</b>	<b>1,059</b>	<b>1,206</b>	<b>1,156</b>	<b>1,261</b>	<b>1,338</b>	<b>1,290</b>	<b>1140</b>



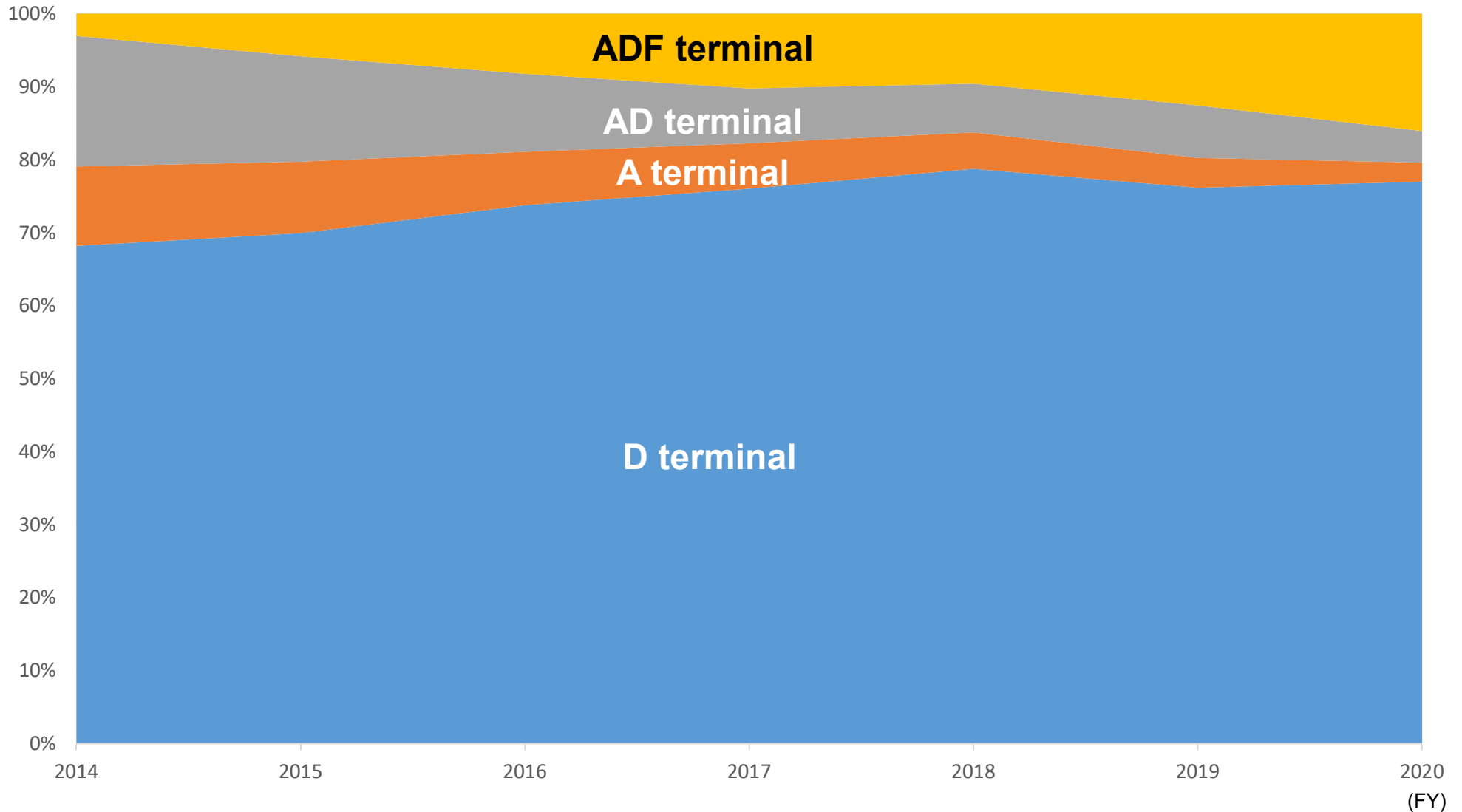
# Certification Status of Terminal Equipment under Telecommunications Business Act

## Ratio of the number of certification by Bodies



# Certification Status of Terminal Equipment under Telecommunications Business Act

## Ratio by type of terminal equipment (all bodies combined)

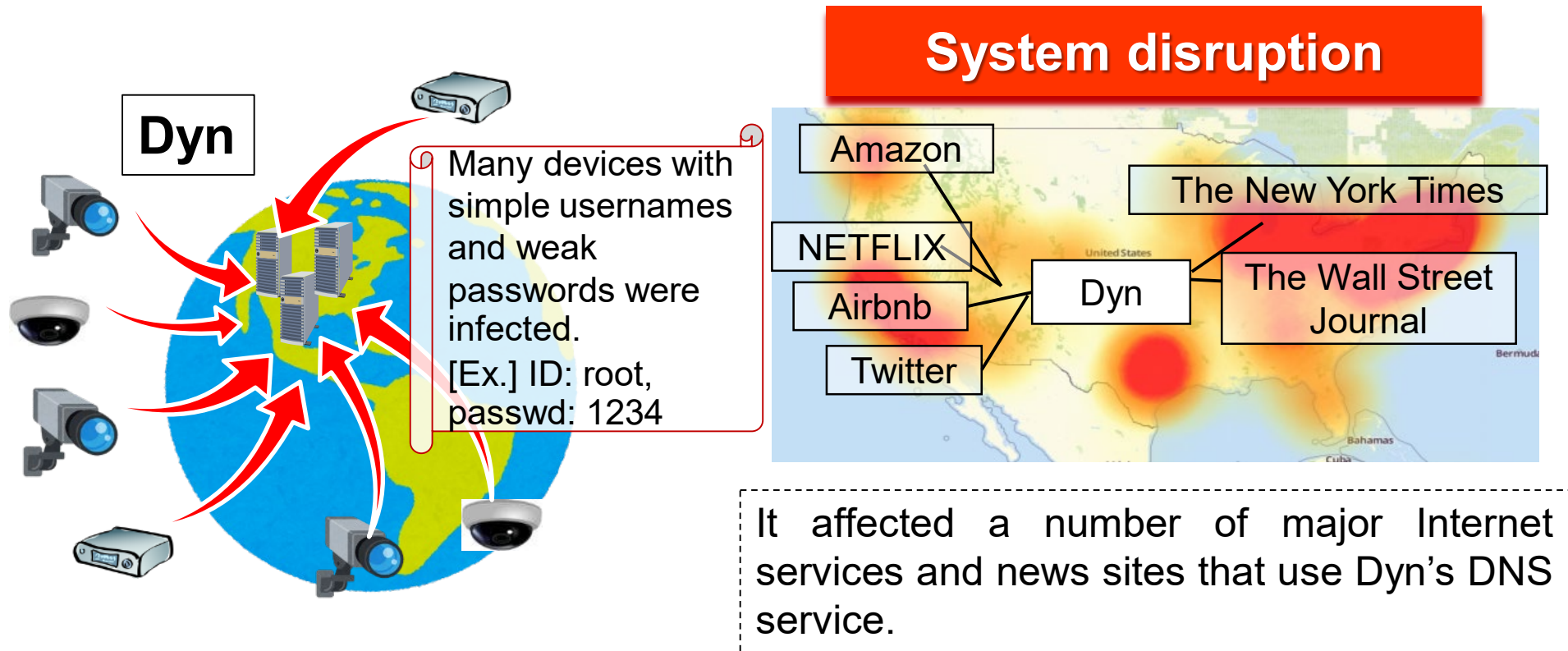


**3. Key issues around Technical Standards  
Conformity Approval for Terminal  
Equipment under the Telecommunications  
Business Act**

**<Security Standards for IoT Devices>**

# [Background] Massive DDoS Attacks Using IoT Devices as a Springboard

- On October 21, 2016, two massive DDoS attacks were launched against Dyn's DNS servers in the United States, disrupting access to services of numerous companies.
- The cause was a significant volume of attack traffic (peak 1.2 Tbps) from more than 100,000 IoT devices infected with the Mirai malware.



# Review of Technical Conditions Related to Telecommunications Equipment in Response to Widespread Use of IoT

In March 1, 2019, the Ordinance Regulating Terminal Facilities was promulgated with inclusion of provisions on security standards for IoT devices. The Ordinance came into effect on April 1, 2020.

## Applicable Terminal Equipment

- Terminal equipment that uses the Internet Protocol (IP)
- Terminal equipment whose telecommunications functions for transmission and reception can be manipulated by connecting to the terminal equipment via telecommunication line facilities
- The following items, however, are excluded:
  - Terminal equipment that has been approved as conforming to the technical standards based on the Telecommunications Business Act on March 31, 2020, or earlier, and is sold on the market.
  - PCs, smartphones, and other terminal equipment for which users can install software of their choice at any time with ease.
  - Equipment that is used by connecting to a router that has been approved as conforming to the technical standards based on the Telecommunications Business Act, including security standards.

## Functions Required of Applicable Terminal Equipment

- (1) Access control
- (2) Functions that encourage the user to set appropriate usernames and passwords for access control
- (3) Firmware update (or functions equivalent or superior to firmware update)

# Conceptual Illustration of Equipment Subject to Security Standards

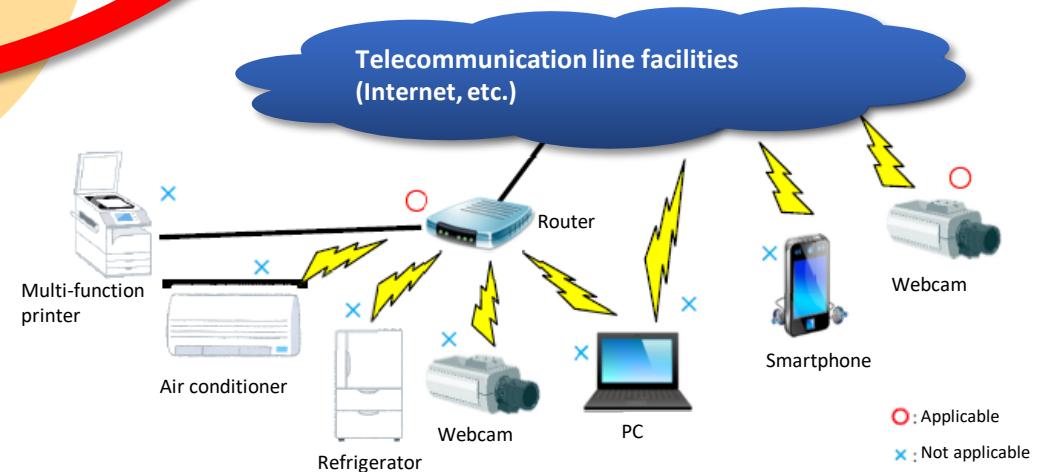
Equipment that are (potentially) subject to the security standards are those that meet the following three conditions: (1) it uses the IP, (2) its telecommunication settings can be altered by accessing it from an external network, and (3) it is, or can be, directly connected to a communication carrier's line.

IP terminals

Terminals whose telecommunication settings can be altered via an external network

Terminals that are, or can potentially be, directly connected to a communication carrier's line

**Terminals that are (potentially) subject to the security standards**



[Examples of applicable terminals]



# Functions Required of Terminal Equipment Subject to Security Standards

## 1. Access control

A function that prompts the user to enter a password to restrict access to the terminal equipment and removes the restriction only when the correct password is entered.

## 2. Functions that encourage the user to change default usernames and passwords

Example: A message is displayed that calls on the user to change the default username and password on their terminal equipment.

\*It will also suffice to have a different username or password assigned to each terminal device during the manufacturing stage.

## 3. Firmware update (or functions equivalent or superior to firmware update)

The capability to update the firmware of the terminal equipment. “Functions equivalent or superior to firmware update” refer to equipment’s functions with security certification based on ISO/IE15408 (CC certification).

## 4. Functions that retain new usernames and passwords after changes are made from default usernames and passwords

The new usernames and passwords are retained after the system is rebooted or power turned off.

# **4. Future Challenges for Technical Regulations Conformity Certification System under Telecommunications Business Act**

- **Discontinuation of communication services**
  - Radio paging services were discontinued in 2019.
  - PHS services were discontinued in January 2021.
  - 3G services will be discontinued in March 2026. (KDDI plans to discontinue the services in March 2022, Softbank in January 2024, and NTT DoCoMo in March 2026.)
  - Planned transitioning of ISDN facilities in January 2024
  - The PSTN (public switched telephone network) will also complete migration to the IP network by January 2025.
- **Migration to new networks**
  - Network structures are being transformed by newer technologies such as software networking and virtual networking
  - This is expected to usher in new forms of communication services
- **More complex and sophisticated terminal equipment**
  - Terminal equipment are increasingly made from versatile general-purpose modules
  - New features and functions are added simply by updating the software
  - With the distribution of dual SIM, eSIM, and SIM-free terminal equipment, there have been cases where emergency calls could not be placed from some of these devices depending on how they are used

- **Formulation of technical standards and classification for terminal equipment by consideration of network structure and new service**
  - Equipment classifications and technical standards are reviewed or abolished as services are discontinued
  - New device classifications and technical standards are created in response to emerging communication services
  - Classifications and technical standards for existing communication services may also be reviewed, abolished or newly created as required
- **Promoting awareness of compliance systems among overseas suppliers and importers of foreign products**
  - Increasing presence of non-certified terminal equipment due to higher numbers of foreign-made products
  - Need to promote awareness and acceptance of Japanese compliance systems

**Thank you for your time today.**