KOREA 5G+ Spectrum Plan

Spectrum policy for Fast-Changing Technology Ecosystem in KOREA

Feb. 2022.

Ministry of Science and ICT

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Ministry of Science and ICT

The Importance of the Timely Frequency Provision

Expanding the Radio Industry → Frequency resources are essential for all industries

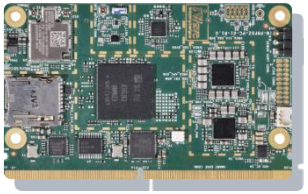
Broadcasting, Mobile

Convergence with all existing industries

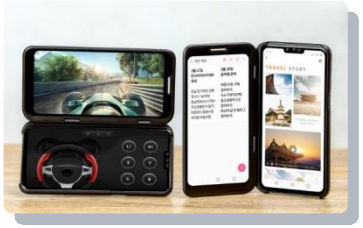
Provision of Spectrum

Chipset

Module



Device



Service

Eco System

Adequate provision of spectrum → Creating new ecosystem, Enhancing competitiveness of the national industry

Existing Spectrum Management System

Accepting demand » Feasibility Analysis » R&D » Frequency Provision

Not efficient for timely provision of spectrum

Accepting demand

- Listening to industrial demand
- Bring up the agenda

Feasibility Analysis

- Global trend analysis
  - ITU, FCC(US), CEPT(EU)
  - Standards of ISO, ETSI, 3GPP

R&D

- Interference analysis
- Plan for frequency supply

Frequency Supply

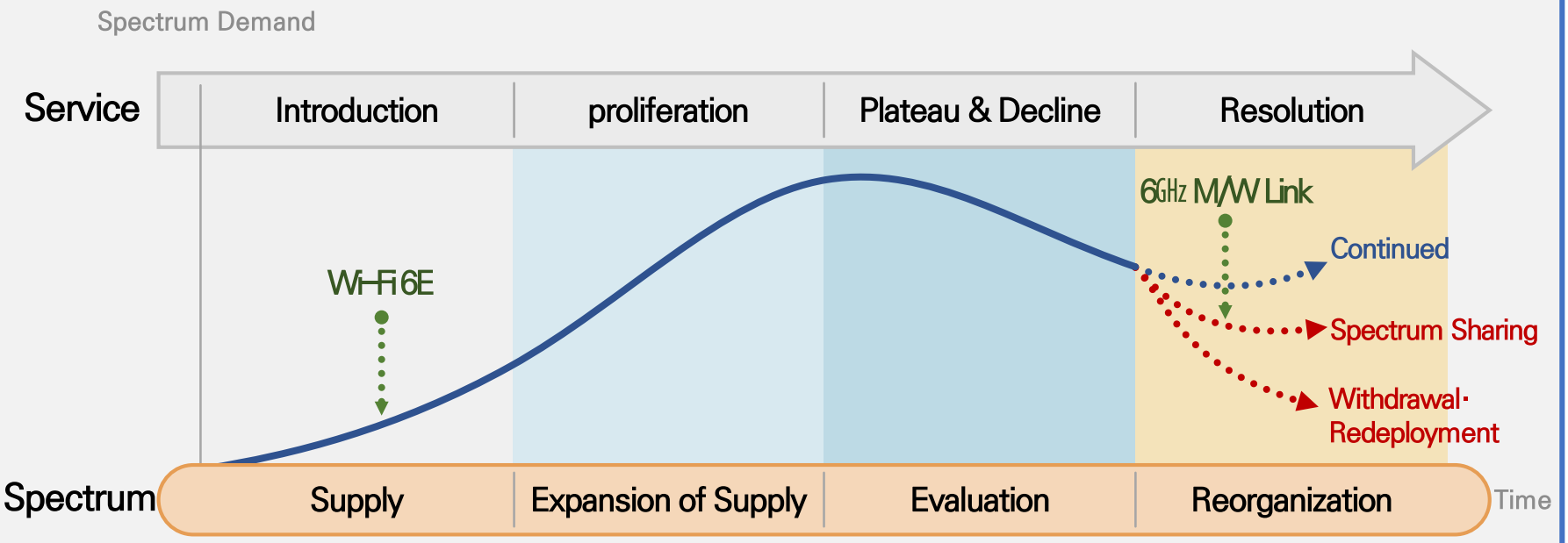
- Notice of proposed rulemaking
- Revision of the law

Improved frequency management system

Frequency utilization efficiency evaluation

- ☑ Spectrum refarming for technology In 'Resolution Phase'
- ☑ Provide spectrum for promising technology

Spectrum Life Cycle Model



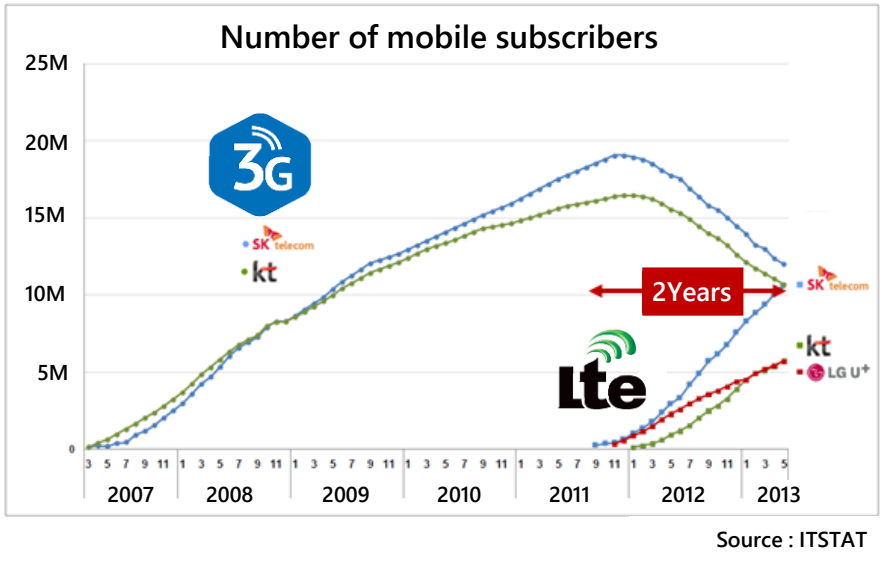
Providing Wi-Fi 6E connectivity in form of spectrum sharing by reorganization of M/W Link

Acceleration of creating ecosystem – Government-Industry Collaboration

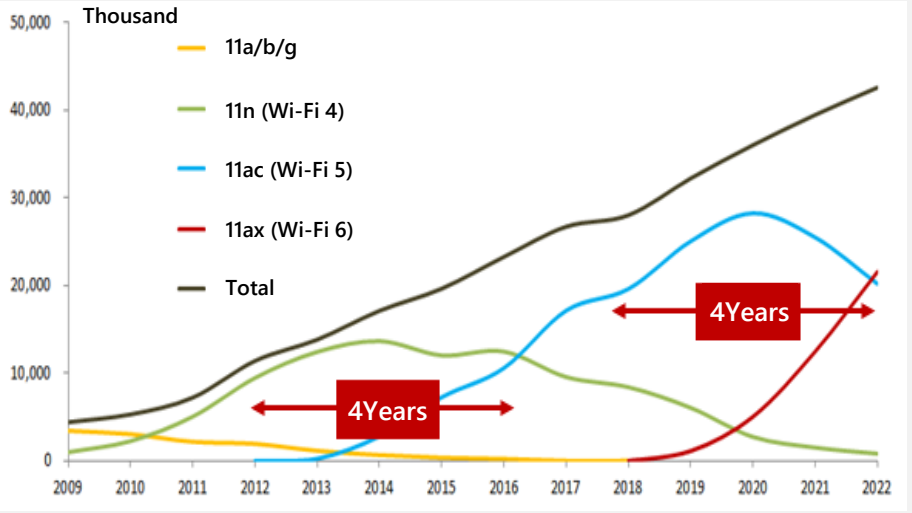
- Government lead creating ecosystem if it is predicted to take a long time.
- In case of 6㎓ band, Korea promoted government-industry collaborated PoC.

→To make environment for wide activating of technologies and services using 6㎓ band.

→To improve Wi-Fi performance in subway train using 5G(28㎓) as a backhaul



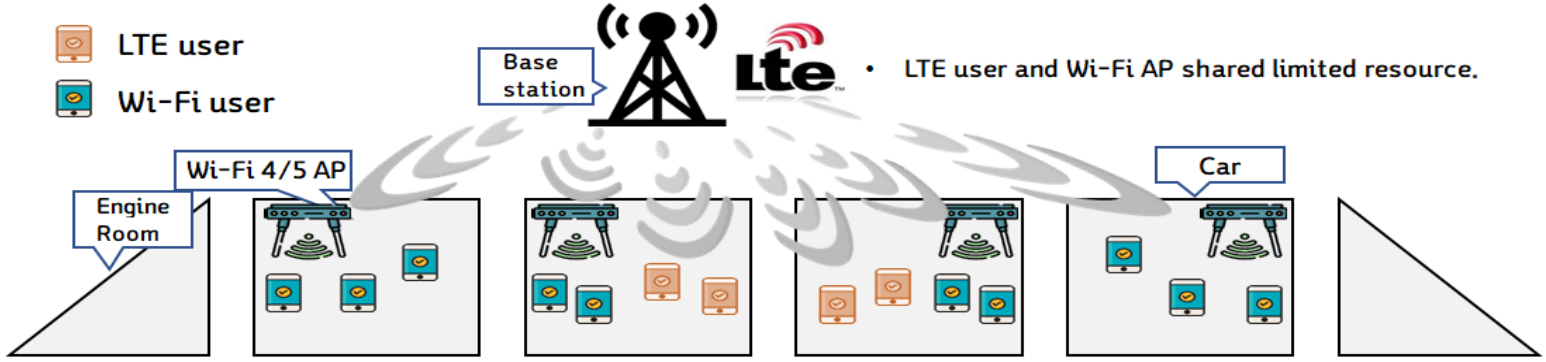
Source : ITSTAT



Introduction about provision of 6GHz band

(As-Is) Insufficient Wi-Fi capacity in subway car

- Using LTE as backhaul and deploying Wi-Fi 4/5 operating at 2.4GHz/5GHz

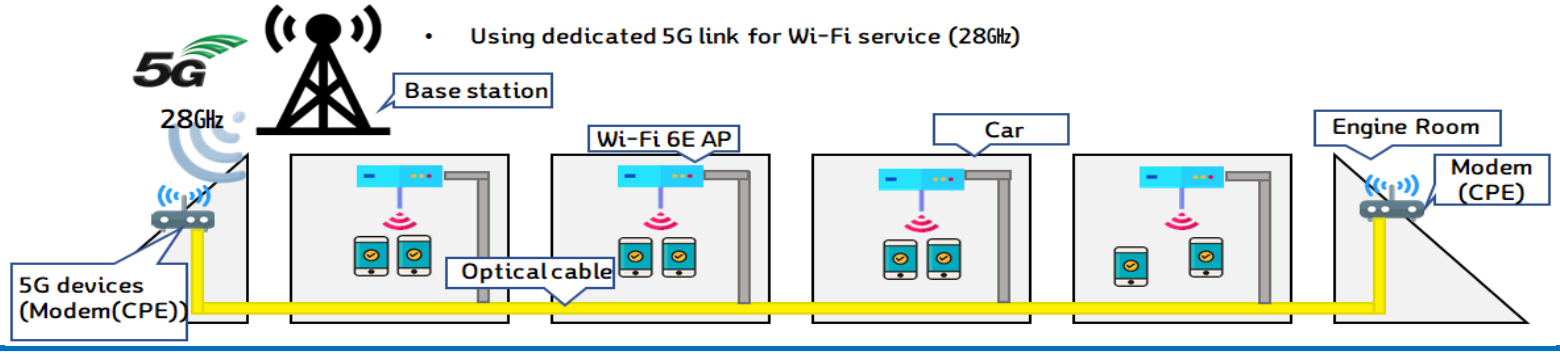


70Mbps

x10

(To-Be) Dramatically increased Wi-Fi capacity

- Constructing 5G at 28GHz band as backhaul, installing Wi-Fi 6E at 2.4GHz/5GHz/6GHz



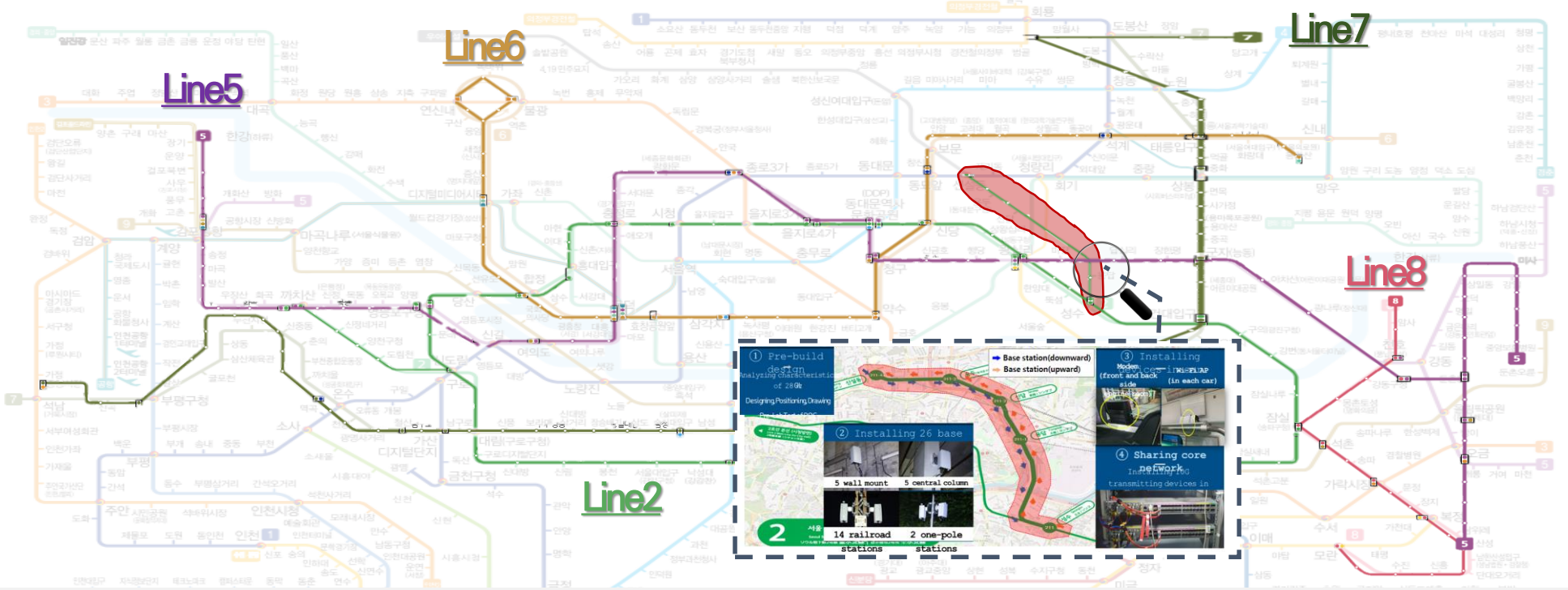
700Mbps
(Max 1.8Gbps)

Overview of PoC and Plan for commercialization

- **Start installing in Seoul Subway** (Line2, Line5, Line6, Line7, Line8)

For POC

2 5 6 7 8 For Commercialization



For seeking solutions for launching subway Wi-Fi using 5G 28㎓ and Wi-Fi 6E in US or Thailand, comprehensive solution can be provided by Korean Wi-Fi manufacturers through consultation (most of those are in the business partnership with Samsung, Inseego, Linksys, Qualcomm, and Broadcom)

Introduction about provision of 6GHz band

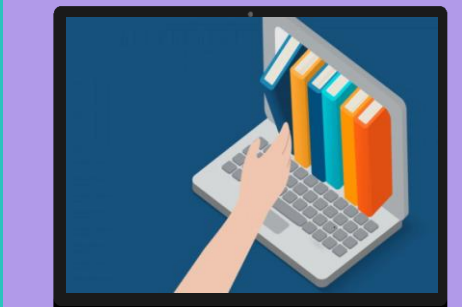
Various POC → Accelerate the creation of Wi-Fi 6E ecosystem

Wi-Fi 6E Roaming

Smart Factory

AR/VR

Online to Offline Payment System



Thank You

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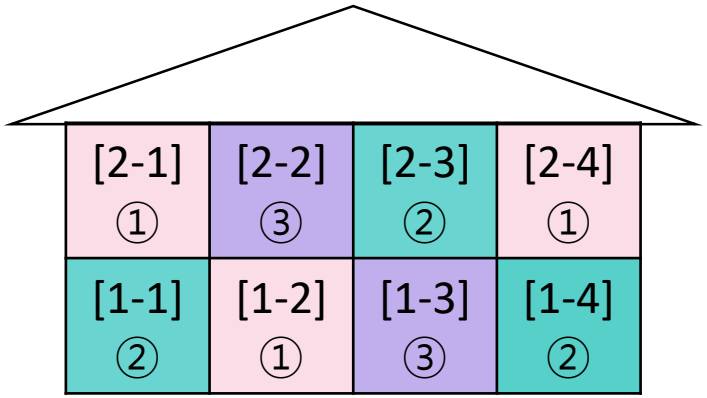
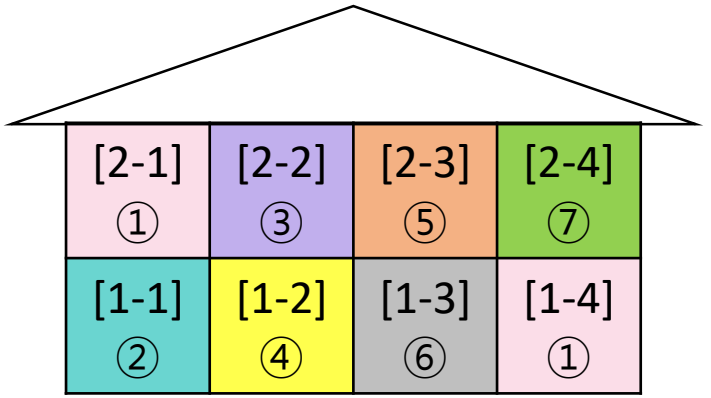
< Comparison of Wi-Fi 6E applications in Schools >

Lower 500㎒
bandwidth supply (160㎒ x 3 channels)



- Communication deterioration occurs due to the use of the same channel in adjacent classes due to lack of spectrum

Full 1,200㎒
bandwidth supply (160㎒ x 7 channels)



- Stable communication could be performed by preventing the use of the same channel in adjacent classes

As the Four color theory, which states that at least 4 colors are needed to color all countries so that they don't overlap with each other, more than 4 channels are needed to avoid overlapping nearby channels in 2-dimensional space.