



Ministry of Land,
Infrastructure and Transport

'Korean Train Control System' Commences Service in Jeolla Line

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- It builds up bridgehead of overseas expansion with the world's first wireless communication network exclusive for railway -

Railway Signal Technology, which has been relied on foreign technology so far, becomes completely localized.

○ The Ministry of Land, Infrastructure and Transport (Minister Noh Hyeong-Ok, MOLIT) announced that 'Korean Train Control System (hereinafter KTCs-2)', which the world's first wireless communication network exclusive for railway is applied to the existing train control system*, will be applied to Jeolla Line (Iksan~ Yeosu EXPO Station, 180km section) from April 19 (Tue).

* Train Control System: The system that takes in charge of safe train operation and control by verifying the location of train and by securing the train interval

** KTCS-2(Korean Train Control System Level-2) : Korean train control system that utilizes some ground equipment such as track circuit, etc. to verify the train location, and the wireless communication network

- KTCS-2 is the technology that Ministry of Land, Infrastructure and Transport developed with the national R&D project from 2014 to 2018,
- To secure the business performance and operation technique and to prepare the foothold of overseas expansion, all the verification procedures have been completed successfully by this April by selecting Jeolla Line as a pilot line in July, 2018.

* Project Section: Jeolla Line Oksan Station ~ Yeosu EXPO Station, Period: July, 2018 ~ April, 2022, Project Cost: 44 Billion won

- As a train control system developed based on the wireless communication network (LTE-R) exclusive for railway for the first time in the world, KTCS-2 is applied with European Standards in order to be compatible with overseas signal system.

* LTE-R(Long Term Evolution-Railway): As a communication network exclusive for railway utilizing LTE, 4th generation wireless communication technology, it can transmit massive data such as video, etc.

- Since its safety is improved about 6 times compared to existing foreign signal system (ATC) and the service interval with proceeding train is decreased up to 23%, the train transport capacity is increased more than 1.2 times.

* ATC(Automatic Train Control) : As a foreign made signal system utilizing AF track circuit, it is applied to Gyeongbu and Honam High-speed Railway

- In addition, compared to the foreign-made signal system using foreign-made materials, it is expected that the improvement cost can be reduced about 50% and annual maintenance cost is reduced up to 5 billion. (For details, see Reference 2)

- KTCS-2 can check the location of proceeding train in the ground equipment as existing system but transmits the information required for train operation such as travel range or speed limit of following train, etc. through LTE-R network.

- Therefore, if KTCS-2 is commercialized earlier, since the ground equipment such as railway signal installed around the railway to control trains are minimized and the information required for operation can be provided in real-time, trains can be operated safer and more efficiently.

○ In addition, it is expected that it would complete the technical independence in the railway signal system area taking in charge of the role of connecting ring to be developed to next generation signal system (KTCS-3) that transmit the train location and operation information only with wireless communication without ground equipment.

* KTCS-3(Korean Train Control System Level-3): Moving Block System-based train control system that utilizes wireless communication network without ground equipment such as track circuit

□ Director-general Lim Jong-II of Ministry of Land, Infrastructure and Transport said "the competitiveness of domestic railway technology will be developed by one level up as Korean Train Control System commences the service in the commercial line for the first time",

○ and added "We will make out best to lead the overseas signal technology by completing the performance verification study of Next generation Korean train control system (KTCS-3) while expanding it all over the lines across our country gradually starting from aged Gyeongbu High-speed Lines".