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Development Status of Multi-GNSS Receivers for Satellite Applications

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The orbit of a satellite may deviate due to changes in space environment and errors in the satellite's attitude control system. Such orbit errors of satellites are being corrected using the periodically calculated position information of the satellite at ground observation stations. In recent years, the use of GNSS receivers on satellites has made it possible to determine the orbit of satellites more accurately, thereby reducing the cost of satellite tracking as well as extending the life of satellites by reducing the gas consumption of thrusters for orbit correction. Then, the GNSS receiver installed on LEO satellites should be designed in consideration of frequent changes in visible satellites and high Doppler change rate due to fast movement of satellites. On the other hand, GNSS receivers installed on GEO satellites not only need to receive week signals from GNSS satellites broadcasting from the opposite of earth but also operate in environments with limited visibility of satellites.

DusiTech has developed GNSS receivers for LEO satellites through the support of the Korea Research Foundation's "Space Core Technology development Project" from 2025 to 2018. And, DusiTech is developing a multi-GNSS receiver for GEO satellite as part of the Ministry of Science and ICT's "Space pioneer Project" since 2021.

In this poster presentation, we will provide an overview of the development progress and product line up of multi-GNSS receivers for LEO and GEO satellites, which have been under development by DusiTech until the present.