

IAF SPACE SYSTEMS SYMPOSIUM (D1)
Lessons Learned in Space Systems (7)

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THE STUDY ON HIGH ADOPTABILITY OF NEWLY DEVELOPED SPACE KEY TECHNOLOGY

Abstract

With the advent of the NewSpace era, the importance of self-reliance in satellite development technology required for space development is gradually being emphasized as the development of small and cube satellites equipped with various sensors is being actively and competitively carried out in an attempt to utilize space in a short time and at low cost.

Korea has been developing space key technologies through the Space Pioneer program since 2021, with the goal of achieving TRL (Technology Readiness Level) 7, a Qualified Model (QM) that has completed space environment testing. This program is designed to compensate for the shortcomings of previous core technology development projects and pass all required ground tests, but there is reluctance to apply it directly to actual satellite systems due to the lack of on-orbit space verification or space heritage. Recently, Korea is planning several space projects to improve reliability and provide space heritage opportunities based on its experience so far. As part of this, it is attempting to merge the Korean launch vehicle Nuri with a satellite for space verification. The Performance Verification Satellite (PVSat) launched by Nuri in 2022 and the Next Generation Small Satellite 2(NEXT-2) launched in 2023 are also securing space heritage by carrying core technologies for similar purposes.

In this paper, the current status of space key technologies developed through the Space Pioneer program is described, and high adoptability of the core technologies in PVSat and NEXT-2 with on-orbit test results are discussed.