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Research Article

Experimental Results for the Multipath Performance of Galileo Signals Transmitted by GIOVE

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Abstract

Analysis of GIOVE-A signals is an important part of the in-orbit performance evaluation. This paper transmits the ranging signals using all the code modulations currently used by Galileo. In this paper, we provide a foretaste of their performance in real-life applications. Due to the significant improvement of the multipath performance of Galileo signals, we summarize the results of about 1.5 years of observation. The paper shows the elevation dependence of averaged multipath error and indicates significant suppression of long-range multipath by the best Galileo signals. The results show that Galileo is a multipath suppression champion for all the data sets. According to the analysis, Galileo signals can be classified into 3 groups: high-performance (E5AltE and E5b) and an L1BC signal, which has the lowest performance among Galileo signals. The car tests have demonstrated that for kinematic multipath the Galileo signals perform better than GPS. The phase multipath performance is also discussed.

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