



### 现代化GNSS导航电文设计分析

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## Analysis of Modernization GNSS Navigation Message's Designing

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**摘要** 导航电文是导航卫星信号的重要组成部分, 其设计优劣将直接影响系统的时效性、完整性、灵活性、可靠性、可扩展性等服务性能以及用户使用成本。该文分析了各种导航电文的设计以及现代化GNSS(全球导航卫星系统)导航电文在数据内容、编码性能、编排结构以及播发方式等方面的改进措施。结果表明, 这些改进措施使系统服务性能得到进一步改善且更便于用户使用。借鉴现代化GNSS导航电文在纠错码、校验码以及交织码相结合的多重差错控制方案, 帧结构与数据块结构相结合的电文编排方式, 星间、频间电文交叉播发方式等方面的设计, 提出了我国COMPASS系统导航电文基本设计思路。

**关键词:** 导航电文 符号速率 编码 电文结构

**Abstract:** Navigation message is an important component of satellite signal. Its design will not only influence the system's performances including timeliness, integrality, flexibility, reliability, extendibility, etc., but also user's use-cost. The design of various navigation messages is analyzed and compared, especially in aspects of data content, coding performance, layout structure and broadcast style of modernization Global Navigation Satellite System (GNSS). It is indicated that the improvements in the design of navigation message will bring improvement of system performance and make the user easy to use. The navigation message design scheme of China COMPASS system is put forward by consulting the message design schemes of modernization GNSS, which are: multi-coding scheme basing error correcting code, checking code and interleaving code; message layout structure of frame and data block together; intercrossed broadcasting style between or among satellites and frequencies.

**Keywords:** Navigation message Symbol rate Coding Message structure

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