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RESEARCH ON DESIGN OF SATELLITE NAVIGATION SIGNAL STRUCTURE

**Abstract**

As the emerging of navigation satellite systems and developing of positioning technology principle, the basic theory research of navigation signal system is going deeper step by step. Seeking for a satellite navigation signal system which meet the function and performance demand of navigation, positioning and timing is the basic structure of various navigation satellite systems. Under the requirement promotion of navigation measurement performance increases, more harsh environment and navigation frequency shortage, the reasonable design of navigation signal system has significant effect to the accuracy, anti-interference and compatibility of the navigation satellite system, and various standards are the powerful support to maintain the system operation and specify the industrial market of navigation application. The integration of navigation system design and standards will provide theory support and significant guarantee for the sustainable and stable operation of navigation satellite system. On the basis of arranging and analyzing the current signal structure of navigation satellite system at home and abroad, the paper made a comprehensive inquiry to the key elements of satellite navigation signal, such as carrier frequency, modulation method, channel encoding and navigation message, dissected the effect of each key element to system compatibility, interoperability, code tracking and capture capability, anti-interference performance, mitigating multipath and user terminal costing, conducted requirement analysis for signal structure and designed a standard for satellite navigation signal structure