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**NATIONAL STANDARD OF THE
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**Specification for network real-time kinematic (RTK) surveys
based on satellite navigation**

卫星导航定位基准站网络实时动态测量（RTK）规范

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Foreword

This standard was drafted in accordance with the rules given in GB/T 1:1-2009: This standard was proposed by the Ministry of Natural Resources of the People's Republic of China: This standard is under the jurisdiction of the National Geographic Information Standardization Technical Committee (SAC/TC230): Drafting organizations of this standard: Institute of Surveying and Mapping Standardization, Ministry of Natural Resources, Zhejiang Surveying and Mapping Quality Supervision and Inspection Station, China Surveying and Mapping Scientific Research Institute, National Basic Geographic Information Center, Fujian Institute of Surveying and Mapping, Wuhan University, Geodetic Data Processing Center of Ministry of Natural Resources, Ministry of Natural Resources Chongqing Institute of Surveying and Mapping: The main drafters of this standard: Guo Yufang, Deng Guoqing, Ge Zhonghua, He Shujing, Huang Gongwen, Ren Fu, Zhang Jing, Chen Ming, Wang Tiejun, Wu Tong, Xu Yantian, Shen Zhongshu, Zhao Lijian, Du Zhongjin, Wen Hanjiang, Xie Xiuping, Zhang Zhiyong, Cheng Yaxuan, Li Rongchun: Satellite navigation and positioning base station network in real time Dynamic Measurement (RTK) Specification

1 Scope

China's national specification for network RTK surveying. Real-time kinematic positioning gives centimetre accuracy in seconds by correcting a rover's satellite observations against a reference station's, and network RTK extends it: instead of one base station whose corrections degrade with distance, a network of permanent stations models the errors

across a region and generates a correction tailored to wherever the rover happens to be. That removes the base station from the surveyor's work entirely - the rover connects over the mobile network and works anywhere in the coverage. China has built out this infrastructure more comprehensively than anywhere else. What the specification has to fix is how a survey using it is conducted and checked, because the ease of the method conceals its failure modes: a fixed solution can be wrong, and a surveyor who does not re-initialise and check will not know.

This standard specifies the reference for real-time dynamic survey (RTK) technology implementation of satellite navigation and positioning reference station network for control survey and topographic survey Benchmarks, basic requirements, and technical requirements and methods for field observation, data processing and testing: This standard applies to the real-time dynamic measurement of the satellite navigation and positioning base station network of the corresponding level: Use single base station, multiple base stations Real-time dynamic measurement can refer to this standard:

2 Normative references

The following documents are indispensable for the application of this document: For dated reference documents, only the dated version applies to this article Pieces: For undated references, the latest version (including all amendments) applies to this document:

GB/T 18314 Global Positioning System (GPS) Measurement Specification CH8016 Global Positioning System (GPS) Survey Receiver Verification Regulation

3 Terms and definitions

The following terms and definitions apply to this document: 3:

1 Global Navigation Satellite System globalnavigationsatellitesystem; GNSS A general term for satellite systems that provide positioning, navigation and timing services on a global scale: Such as global positioning system (GPS), GLONASS navigation Satellite system (GLONASS), Galileo navigation satellite system (Galileo) and Beidou satellite navigation system (BDS), etc: 3:

2 Satellite navigation and positioning reference station network GNSSreferencestationnetwork It is composed of several satellite navigation and positioning reference stations, data centers and data communication networks to provide data, positioning, navigation, timing, and location: Systems for services such as home appliances, weather, and earthquakes: 3:

3 Real-time dynamic measurement realtimekinematic; RTK GNSS is a kind of relative positioning technology, mainly through the real-time data link and carrier between the base station and the rover: Resolving technology to achieve high-precision dynamic relative positioning: 3:

4 Reference station Long-term continuous observation of satellite navigation signals, obtain observation data, and transmit the observation data in real time or regularly through communication facilities Ground fixed observation station to the data center: 3:

5 Rovingstation A measuring station set up by a mobile receiver within a certain range of a base station:

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