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PEOPLE'S REPUBLIC OF CHINA**

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**Specifications for global positioning system (GPS) surveys
(English Translation)**

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1 Scope

This standard specifies the use of global positioning system (GPS) static survey technology to establish the principles, survey methods, accuracy indicators, technical requirements of the GPS control network.

This standard applies to the design, layout and data processing of national and local GPS control networks.

2 Normative references

The provisions in following documents become the provisions of this Standard through reference in this Standard. For the dated references, the subsequent amendments (excluding corrections) or revisions do not apply to this Standard;

however, parties who reach an agreement based on this Standard are encouraged to study if the latest versions of these documents are applicable.

For undated references, the latest edition of the referenced document applies.

GB/T 12897 Specifications for the first and second order leveling

GB/T 12898 Specifications for the third and fourth order leveling

GB/T 17942 Specifications for national triangulation

CH 1002 Specifications for inspection and acceptance of surveying and mapping products

CH 1003 Quality assessment criteria of surveying and mapping products

CH/T 1004 General rules for technical design of surveying and mapping

CH/T 2008 Specifications for construction of the continuously operating reference stations using global navigation satellite system

CH/T 8016 Verification procedure of survey receiver of global positioning system (GPS) points as specified in Table 2.

5.3.1 The GPS survey for the establishment of the national level-1 geodetic

control network, study of global geodynamics, crustal deformation survey, precision orbit determination shall meet the accuracy requirements of level A

GPS survey.

5.3.2 GPS survey used to establish national level-2 geodetic control networks, establish local or urban coordinate datum frames, regional geodynamic studies, crustal deformation surveys, local deformation monitoring, various precision engineering surveys shall meet the accuracy requirements of level B GPS survey.

5.3.3 GPS survey used to establish level-3 geodetic control networks, as well

as basic control networks for regional, urban, and engineering survey shall meet the accuracy requirements for level C GPS surveys.

5.3.4 GPS surveys used to establish the level-4 geodetic control network shall meet the accuracy requirements of level D GPS surveys.

5.3.5 GPS surveys for control purposes of small and medium-sized cities, towns, and survey and survey of maps, cadastre, land information, real estate, geophysical surveys, explorations, construction, etc., shall meet the accuracy requirements of levels D and E GPS surveys.

6.1 Basic principles

6.1.1

GPS networks at all levels are generally laid out level by level. If it can guarantee the technical requirements of accuracy and density, it may be laid out across levels.

6.1.2

The layout of GPS networks at all levels shall be considered comprehensively in accordance with the factors of its layout purpose, accuracy requirements, satellite status, type and number of receivers, existing data in the survey area, terrain and traffic conditions of the survey area, operational efficiency. It is carried out in accordance with the principles of optimal design.

6.1.3 The minimum number of independent observation loops or attachment

routes of GPS networks at all levels shall not exceed the requirements of Table

3.

observation mode, the network shall be established by the method of side connection of point connection.

6.1.12 When using GPS surveys to establish various levels of geodetic control

networks, the following principles shall be followed in their layout.

- a) When used in the national level 1 earth control network, its points shall be evenly distributed to cover China's land. In the case of meeting the conditions, the points should be laid near the national level 1 leveling line or the node of the national level 1 level network.
- b) When used in the national level 2 earth control network, it shall comprehensively consider such factors as the application service and the large-scale stability monitoring of the national levels 1 and 2 leveling networks, etc., design it in a unified manner, lay it into a continuous network. The point shall, on the basis of even distribution, coincide as practical as possible to the node of the national levels 1 and 2 leveling network, the existing national high-level GPS point, the crustal deformation monitoring network, the basic tide station.
- c) When used for level 3 earth control network survey, it shall meet the basic requirements of the national basic scale map, combine the leveling and gravity survey techniques to refine the area to be similar the geoid.

6.2 Naming of GPS points

6.2.1

The GPS point shall be named after the location of the point. If it cannot be distinguished, it can be distinguished by adding (1), (2), etc. after the name of the point. Minority areas shall use the standardized transliteration Chinese name; the original text can be attached after transliteration.

6.2.2

When new and old points coincide, it shall use the old point name and not change it. If the