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INDUSTRY STANDARD OF THE PEOPLE'S REPUBLIC OF CHINA

DZ/T 0142-2010

Replacing DZ/T 0142-1994

Criterion of aeromagnetic survey

航空磁测技术规范 清晰版

(English Translation)

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Foreword

This standard replaces DZ/T 0142-1994 "Aviation Magnetic Testing Technical Specifications".

The main changes in this standard compared with DZ/T 0142-1994 are as follows.

--- Increased aeromagnetic gradient measurement, high-resolution aeromagnetic measurement, high-precision aeromagnetic measurement, differential global positioning system, production measurement, geomagnetism Terms and definitions of normal and geomagnetic anomalies, local anomalies and background fields, deltaT magnetic anomalies;

---Adding magnetic compensation, differential GPS navigation and positioning, and terrain and inversion fitting calculation methods, etc.

The satellite navigation and positioning technology, data collection system and other content have been supplemented;

--- Appropriate adjustment of the chapter structure of the original standard, the test content and requirements of the measuring instrument are relatively concentrated, basically in accordance with the actual work Process the various chapters;

--- Increased data processing, rock (mineral) stone magnetic parameter measurement, aeromagnetic local anomaly classification, aeromagnetic local anomaly forward and inversion calculation, different Provisions for frequent verification, inferred interpretation and preparation of results reports;

--- Removed visual navigation and positioning technology, aeromagnetic absolute measurement and other content;

--- Added Appendix F (Aeromagnetic Magnetic Field Conversion Data Processing and Forward and Inverse Calculation) and Appendix H (Aviation Magnetic Measurement Results Report formula). Re-edited Appendix B (Aerospace Magnetic Measurement Work Design Compilation Outline) and Appendix G (Aviation Magnetic Measurement Results Report Preparation Other) The other appendices have been revised and supplemented.

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Appendix C and Appendix E of this standard are normative appendices, Appendix A, Appendix B, Appendix D, Appendix F, Appendix G and Appendix H are data.

Sex appendix.

This standard was proposed by the China Geological Survey of the Ministry of Land and Resources.

This standard is under the jurisdiction of the Ministry of Land and Resources.

This standard was drafted. China Land Resources Aviation Geophysical and Remote Sensing Center.

1 Scope

This standard specifies the technical design, instrumentation and inspection, measurement flight and field work of aeromagnetic field measurement (referred to as aeromagnetic measurement).

Technical requirements for data processing and diagram compilation, anomaly verification, inferred interpretation and report preparation.

This standard applies to basic geological surveys, energy, metal, non-metallic mineral geological exploration and navigation in hydrology, engineering, environmental geological exploration Air magnetic measurement work, other purposes of aeromagnetic magnetic test work can be used.

2 Normative references

The following documents are indispensable for the application of this document. For dated references, only the dated version applies to this file. For undated references, the latest edition (including all amendments) applies to this document.

GB/T 14499 Geophysical Exploration Technology Symbol DZ/T 0069 Geophysical survey map legend and color standard

3 Terms and definitions

The following terms and definitions apply to this standard.

Aeromagnetic measurement of geomagnetic strength modulus values.

Aeromagnetic survey measuring the spatial rate of change of the earth's magnetic field (in nT/m or nT/km). Vertical gradient measurement in production applications Three types of measurement, horizontal gradient measurement and full-axis gradient measurement.

Measuring scale is greater than 1.25000, positioning accuracy is better than ±5m, aviation magnetometer sensitivity is better than ±0.01nT, magnetic compensation standard the

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difference is better than ±0.08nT, the data measurement point interval is not more than 10m, the data acquisition delay time is less than 0.5s, and the flying height is 150m.

The aeromagnetic measurement with a total accuracy better than ±1nT is measured.

The sensitivity of the aviation magnetometer is better than ±0.01nT, the magnetic compensation result is better than ±1.0nT, the positioning accuracy is better than ±50m, and the digital acceptance is adopted.

Recorded, aeromagnetic measurements with a total accuracy better than ±3nT.

Under laboratory conditions, the aerodynamic magnetometer is able to observe the minimum amount of change in the value of the external magnetic field.

The amount of noise of an air magnetometer (or system) under operating conditions. Expressed by the fourth-order differential rms value of the recorded data.

In order to determine the working accuracy of the navigation and positioning system, select the point of known coordinates on the ground (usually select the aircraft parking point) for static weight DZ/T 0142-2010

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