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**NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

GB/T 23236-2024

Replacing GB/T 23236-2009

**Digital aerial photogrammetry - Specifications for
aerotriangulation**

数字航空摄影测量 空中三角测量规范

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Table of Contents

1 Scope	1
2 Normative references	1
3 Terms and Definitions	1
5 Frame-type digital aerial photography image orientation parameters	6
3 Technical Design	7
6 Measurement methods	7
7 Workflow	7
7 Bundle Block Adjustment	9
3 Quality Check of Results	11
2 Requirements for the content and recording format of frame-type digital aerial photography orientation parameter data	16

Foreword

This document is in accordance with the provisions of GB/T 1:1-2020 "Guidelines for standardization work Part 1: Structure and drafting rules for standardization documents" Drafting: This document replaces GB/T 23236-2009 "Specifications for Aerial Triangulation of Digital Aerial Photogrammetry": In addition to the changes, the main changes in this document compared with GB/T 23236-2009 are as follows:

- a) The English name of the standard has been changed;
- b) The scope of application of the standard has been changed (see Chapter 1, Chapter 1 of the:2009 edition);
- c) Added a chapter on "Terms and Definitions" (see Chapter 3);
- d) Added the provisions on ground resolution of aerial photography images (see 4:3:2);
- e) Changed the "mean error of plane position" and "mean error of elevation" in the header of Table 3 to "tolerance of plane position" and "tolerance of elevation" (see Table 3, Table 3 of the:2009 edition);
- f) The calculation formula for checkpoint error has been changed (see 4:4:1:2, 7:2 and 7:3 of the:2009 edition);
- g) Added some provisions on the accuracy of aerial triangulation (see 4:4:1:5);
- h) Added some provisions on adjustment accuracy (see 4:4:2:1);

- i) Deleted the requirement for poor model connection (see 6:3 of the:2009 edition);
- j) The content of aerial triangulation results was changed and the format of the results was standardized; the The content was modified to frame-type digital aerial photography image orientation parameters, and the frame-type digital aerial photography image orientation parameters were standardized: Meaning (see 4:5, Chapter 8 of the:2009 edition);
- k) The operation process was changed, where relative orientation and model connection were changed to connection point measurement and free network adjustment, and absolute orientation was changed to is the regional block adjustment (see Chapter 7, 3:7 of the:2009 edition);
- l) The relevant provisions on the connection of regional networks have been changed (see 8:7:4, 7:8 of the:2009 edition);
- m) Added the method and formula for estimating the elevation accuracy of photogrammetric stereo mapping (see Appendix A);

1 Scope

GB/T 23236-2024 is the Chinese national standard on digital aerial photogrammetry - specifications for aerotriangulation, in the field of natural and applied sciences. The /T suffix marks it as a recommended standard: it is not compulsory by itself, but it becomes binding as soon as a contract, a tender or a customer specification calls it up - which in practice is how most foreign buyers meet it. It was issued on 28 May 2024 by the State Administration for Market Regulation; Standardization Administration of China, and has been in force since 1 December 2024. Classification: ICS 07.040, CCS A77. This page is published from the official record of the standard held by the Chinese standards administration: the identification, the dates, the classification and the issuing body are taken from there. The clause text, the tables and the numeric limits are in the document itself, which is delivered complete in English translation.

This document specifies the basic rules, preparation, technical requirements, quality management, and other aspects of aerial triangulation in conventional digital aerial photogrammetry production: Control, result collation and submission, describe the measurement method and establish the work process: This document applies to the production operations of frame-type digital aerial photographic images obtained by conventional aerial photography methods during the aerial triangulation stage: Other digital aerial images obtained by unconventional aerial photography methods, such as push-broom aerial images and swing-broom aerial images, are used in aerial triangulation: The accuracy requirements involved in the measurement stage can be implemented in accordance with this document:

2 Normative references

The contents of the following documents constitute the essential clauses of this document through normative references in this document: For referenced documents without a date, only the version corresponding to that date applies to this document; for referenced documents without a date, the latest version (including all amendments) applies to This document:

GB/T 15661 1:50001:100001:250001:500001:100000 Specification for aerial photography of topographic maps

GB/T 18316 Quality inspection and acceptance of digital surveying and mapping results

GB/T 24356 Quality inspection and acceptance of surveying and mapping results

GB/T 27919 Technical Specification for IMU/GPS Assisted Aerial Photography GB/T 27920:

1 Specification for digital aerial photography Part 1: Frame-type digital aerial photography

CH/T 1001 Rules for the preparation of surveying and mapping technical summaries CH/T

1004 Specification for Surveying and Mapping Technical Design CH/T 3006 Digital aerial

photogrammetry control measurement specification

3 Terms and definitions

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

1 Aerial photography is carried out using manned aerial aircraft or aerial drones equipped with aerial cameras in accordance with the aerial photography specifications for topographic maps: 3:2 digital aerial image Digitally recorded aerial images:

Note: Digital aerial images directly acquired by digital area array cameras and images shot on film by film cameras are acquired by image scanners: Digital aerial images are called frame-type digital aerial images; strip-shaped digital aerial images are directly acquired by digital line array cameras according to push-broom imaging: It is called push-broom digital aerial photography: 3:

3 Describe the spatial position and attitude parameters of digital aerial photography images in the mapping coordinate system:

Note: The orientation parameters of frame-type digital aerial photography are expressed in terms of the internal and external orientation elements of the image: The internal orientation element of the image is the distance between the photographic center and the image plane: The parameters of the relative position relationship between the image and the ground include the coordinates of the principal point of the image and the principal distance of the image: The exterior orientation elements of the image are used to determine the relative position of the image and the ground: