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

GB/T 42650-2023

**Space data and information transfer systems - Lossless and
near-lossless multispectral and hyperspectral image
compression**

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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 refers to "ISO 18381:2013 "Lossless compression of multispectral and hyperspectral images in spatial data and information transmission systems""

Grass, the degree of consistency is non-equivalent:

Please note that some contents of this document may refer to patents: The issuing agency of this document assumes no responsibility for identifying these patents:

1 Scope

This document specifies the lossless and near-lossless compression methods for multispectral and hyperspectral images in spatial data and information transmission systems, specifically including compression

General principles of compression, image representation, predictors, encoders, and more:

This document is applicable to the design and application of lossless and near-lossless compression of spacecraft multispectral and hyperspectral images:

2 Normative references

The contents of the following documents constitute the essential provisions of this document through normative references in the text: Among them, dated references

For documents, only the version corresponding to the date applies to this document: For undated reference documents, the latest version (including all amendments) applies to this document:

GB/T 42041 Terminology for Space Data and Information Transmission in Aerospace

3 Terms and Definitions

The terms and definitions defined in GB/T 42041 apply to this document:

4 Symbols and abbreviations

4:1 Symbols

The following symbols apply to this document:

A*---absolute error limit constant;

az---absolute error limit value;

B--- output word size, in bytes, should be an integer from 1 to 8;

Cz --- the number of local differences used for prediction in the spectral segment z;

D---The dynamic range of the image, represented by the number of bits;

DA---absolute error limit bit depth;

DR---relative error limit bit depth;

dz,y,x,dz(t)---central local difference;

dNz,y,x,dWz,y,x,dNWz,y,x,dNz(t),dWz(t),dNWz(t)---direction local difference;

Fy --- image frame;

J --- block size;

K---initial constant of accumulator;

k'z, kinz---initial parameter of accumulator;

Li --- low entropy coding input symbol limit;

Iz(t) --- low entropy encoding input symbols;