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

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**Classification for daily integrated intensity of electrons with
energy above 2 MeV at geostationary orbit**

地球静止轨道处能量2 MeV以上的电子日积分强度分级

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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 is required.

Please note that some of the contents of this document may involve patents. The issuing organization of this document does not assume the responsibility for identifying patents.

This document was proposed by the China Meteorological Administration.

This document is under the jurisdiction of the National Satellite Meteorology and Space Weather Standardization Technical Committee (SAC/TC 347).

This document was drafted by the National Satellite Meteorological Center and the 61741 Unit of the People's Liberation Army of China.

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Introduction

There are a large number of satellites for communication, meteorology, navigation, etc. in the geostationary orbit. High-energy electrons can induce deep charging of satellites, causing satellite failure.

The degree of damage is strongly related to the daily integrated intensity of high-energy electrons.

In order to standardize the classification of the daily integrated intensity of electrons with energies above 2 MeV in the geostationary orbit, a special This document.

Electrons with energies above 2 MeV in geostationary orbit Daily integral intensity classification

1 Scope

This document specifies the daily integrated intensity levels for electrons above 2 MeV in geostationary orbit.

This document applies to the monitoring and early warning of the daily integrated intensity of electrons with energies above 2 MeV in the geostationary orbit.

2 Normative references

This document has no normative references.

3 Terms and definitions

The following terms and definitions apply to this document.

3.1 geostationary orbit

The orbital plane coincides with the Earth's equatorial plane, the orbital period is equal to the Earth's rotation period, and the orbital eccentricity is equal to 0, a geosynchronous orbit.

[Source: GB/T 39094-2020, 2.3]

3.2 electron daily integrated intensity

I_e The total number of electrons per square centimeter, per steradian, and per day.

Note. The unit is per square centimeter spherical degree day [$\text{cm}^2\text{-sr-d}$]

4 Intensity classification

The daily integrated intensity (I_e) of electrons with energies above 2 MeV in the geostationary orbit should be divided into five levels according to Table 1.

Table 1 Daily integrated intensity classification of electrons with energy above 2 MeV in geostationary orbit

Strength Grade	Description	Intensity range ($\text{cm}^2\text{-sr-d}$)
Level 1 Low	$I_e < 10^7$	-1
Level 2	$10^7 \leq I_e < 10^8$	
Level 3 High	$10^8 \leq I_e < 10^9$	
Level 4 Extra High	$10^9 \leq I_e < 2 \times 10^9$	
Level 5 ultra-high	$I_e \geq 2 \times 10^9$	