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**BUREAU OF INDIAN STANDARDS**

**DRAFT FOR COMMENTS ONLY**

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*भारतीय मानक मसौदा*

**अंतरिक्ष पर्यावरण (प्राकृतिक और कृत्रिम) — पृथ्वी का आयनमंडल मॉडल — अंतर्राष्ट्रीय संदर्भ आयनमंडल  
(आईआरआई) मॉडल और प्लाज़्मास्फियर का विस्तार**

**Draft Indian Standard**

**Space Environment (Natural and Artificial) — The Earth's Ionosphere Model — International Reference  
Ionosphere (IRI) Model and Extensions to the Plasmasphere**

ICS: 07.060

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**Air and Space Vehicles Sectional Committee, TED 14 Last date for receipt of comments is  
28/08/2024**

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**NATIONAL FOREWORD**

*(Identical Clause to be added later)*

This Indian Standard which is identical with ISO 16457: 2022 'Space Environment (Natural and Artificial) — The Earth's Ionosphere Model — International Reference Ionosphere (IRI) Model and Extensions to the Plasmasphere issued by International Organization for Standardization (ISO), was adopted by the Bureau of Indian Standards on the recommendations of Air and Space Vehicles Sectional Committee and approval of the Transport Engineering Division Council.

The text of ISO standard has been proposed as suitable for publication as an Indian Standard without deviations. Certain terminologies and conventions are, however, not identical to those used in Indian Standards. Attention is particularly drawn to the following:

- Wherever the words 'International Standard' appear referring to this standard, they should be read as 'Indian Standard'.
- Comma (,) has been used as a decimal marker, while in Indian Standards, the current practice is to use a point (.) as the decimal marker.

Attention is drawn to the possibility that some of the elements of this standard may be the subject of patent rights. The Bureau of Indian Standards shall not be held responsible for identifying any or all such patent rights.

For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with IS 2 : 2022 'Rules for rounding off numerical values (*second revision*)'. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

## SCOPE

This document provides guidance to potential users for the specification of the global distribution of ionosphere densities and temperatures, as well as the total content of electrons in the height interval from 50 km to 1 500 km. It includes and explains several options for a plasmaspheric extension of the model, embracing the geographical area between latitudes of 80°S and 80°N and longitudes of 0°E to 360°E, for any time of day, any day of year, and various solar and magnetic activity conditions.

A brief introduction to ionospheric and plasmaspheric physics is given in Annex A. Annex B provides an overview over physical models, because they are important for understanding and modelling the physical processes that produce the ionospheric plasma.

**FOR COMPLETE TEXT OF THE DOCUMENT KINDLY REFER ISO 16457: 2022 or CONTACT:**

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