ISO 16695:2014-02 (E)

Space environment (natural and artificial) - Geomagnetic reference models

Contents

Page

Foreword iv

Introduction v

1 Scope 1

2 Reference frames 1
2.1 General 1
2.2 Geocentric reference frame 2
2.3 Geodetic reference frame 2
2.4 Geodetic to geocentric coordinate transform 3

3 Specification of the geomagnetic field vector 3
3.1 General 3
3.2 Magnetic vector components in the geocentric frame 4
3.3 Magnetic elements in the geodetic reference frame 4
3.4 Transform of magnetic vector components from geocentric to geodetic frame 6

4 Specification of the geomagnetic reference model 6
4.1 Potential of the magnetic field 6
4.2 Geomagnetic reference radius 8
4.3 Epoch of a sub-model 8
4.4 Validity of a sub-model 8
4.5 Time-dependence of Gauss coefficients 8
4.6 Calculation of magnetic vector components in the geocentric reference frame 9
4.7 Spatial wavelength 10
4.8 Root-mean-square difference between two model fields 10

5 Examples of the use of geomagnetic reference models 11
5.1 Compute reference magnetic elements near the Earth's surface 11
5.2 Compute reference magnetic vector in near-Earth space 11
5.3 Compute reference magnetic vector in magnetosphere 12

Annex A (informative) Available geomagnetic reference models 13

Bibliography 18