ISO 15856:2010-08 (E)

Space systems - Space environment - Simulation guidelines for radiation exposure of non-metallic materials

Contents

Page

Foreword iv

Introduction v

1 Scope 1

2 Normative references 2

3 Terms, definitions, abbreviated terms and acronyms 2
3.1 Terms and definitions 2
3.2 Abbreviated terms and acronyms 4

4 Space environment radiation characteristics 5
4.1 Sources of radiation in space 5
4.2 Radiation levels for Earth orbits 5
4.3 Methods for charged particle and photon irradiation 6

5 Properties of spacecraft materials 6
5.1 General 6
5.2 Surface properties 6
5.3 Volume (bulk) properties 7
5.4 Measure of radiation action 7

6 Requirements for simulation of space radiation 7
6.1 Objective 7
6.2 Methodology (test) 7
6.3 Methodology for simulation that involves simulation of the type of radiation, its spectrum, and intensity 8

7 Radiation sources for simulation 10
7.1 Sources 10
7.2 Low-energy protons 10
7.3 Low-energy electrons 10
7.4 High-energy proton accelerators 10
7.5 High-energy electron accelerators 10
7.6 Ultraviolet radiation 10

8 Alternate simulation method 11
8.1 Methodology 11
8.2 Standard spacecraft orbits 11

Annex A (informative) Additional information 13

Annex B (informative) Depth dose 15

Annex C (informative) Accelerated tests 21

Bibliography 22