

# DIN EN 16602-60-15:2014-12 (E)

Space product assurance - Radiation hardness assurance - EEE components;  
English version EN 16602-60-15:2014

---

<b>Contents</b>	<b>Page</b>
<b>Foreword</b> .....	<b>4</b>
<b>1 Scope</b> .....	<b>5</b>
<b>2 Normative references</b> .....	<b>6</b>
<b>3 Terms, definitions and abbreviated terms</b> .....	<b>8</b>
3.1 Terms from other standards.....	8
3.2 Terms specific to the present standard .....	10
3.3 Abbreviated terms.....	11
<b>4 Principles</b> .....	<b>13</b>
4.1 Overview of RHA process.....	13
4.2 Radiation effects on components.....	14
4.3 Evaluation of radiation effects.....	16
4.4 Phasing of RHA with the different phases of a space project.....	16
4.4.1 Phase 0: Mission analysis, Phase A: Feasibility .....	16
4.4.2 Phase B: Preliminary definition .....	16
4.4.3 Phase C: Detailed definition .....	16
4.4.4 Phase D: Qualification and production .....	16
4.5 Radiation reviews .....	17
<b>5 Requirements</b> .....	<b>18</b>
5.1 TID hardness assurance.....	18
5.2 TNID hardness assurance .....	21
5.3 SEE hardness assurance .....	24
<b>Annex A (normative) Mission radiation environment specification – DRD</b> .....	<b>28</b>
<b>Annex B (normative) Radiation analysis report - DRD</b> .....	<b>30</b>
<b>Bibliography</b> .....	<b>32</b>
<b>Tables</b>	
Table 3-1: K values for P=0,9 and C=0,9 as function of the number of tested samples n .....	11
Table 5-1: EEE part families potentially sensitive to TID.....	18

Table 5-2: List of EEE part families potentially sensitive to TNID.....	21
Table 5-3: List of EEE part families potentially sensitive to SEE.....	24
Table 5-4: Worst case SET templates.....	25
Table 5-5: Environment to be assessed based on LETth.....	25