1. (normative)  
   Radiation analysis report - DRD
   1. DRD identification
      1. Requirement identification and source document

This DRD is called from ECSS-Q-ST-60-15, requirements 5.1v, 5.2w and 5.3gg.

* + 1. Purpose and objective

The purpose of the equipment Radiation Analysis report is to document in a single place all baseline information (data, assumptions, methods and techniques) used for the radiation analyses, and the results obtained.

* 1. Expected response
     1. Contents

Identification of parts sensitive to radiation effects

The radiation analysis report shall list all radiation sensitive parts, as defined in ECSS-Q-ST-60-15 Table 5‑1, Table 5‑2, and Table 5‑3, extracted from the DCL.

The list shall include the full part number and manufacturer information.

TID analysis

The radiation analysis report shall provide TID tolerance of each sensitive component with reference of test report.

The radiation analysis report shall identify the parts submitted to RVT.

The radiation analysis report shall include the description of mechanical model, assumption, method and tools used for ray trace or Monte Carlo analysis, and results obtained.

The radiation analysis report shall present TIDL and TIDS for each part as well as RDM and associated status for lot acceptance.

The radiation analysis report shall reference the TID drifts to be considered in WCA as well as description of TID mitigations implemented (if any).

TNID analysis

The radiation analysis report shall provide TNID tolerance of each sensitive component with reference of test report.

The radiation analysis report shall identify the parts submitted to RVT.

The radiation analysis report shall include the description of mechanical model, assumption, method and tools used for ray-trace or Monte-Carlo analysis, and results obtained.

The radiation analysis report shall present TNIDL and TNIDS for each part as well as RDM and associated status for lot acceptance.

The radiation analysis report shall reference the TNID drifts to be considered in WCA as well as description of TNID mitigations implemented (if any).

SEE analysis

The radiation analysis report shall provide SEE tolerance of each sensitive component and each SEE type with reference of test report.

The radiation analysis report shall describe the assumptions methods and tools used for SEE rate predictions as well as SEE rates.

The radiation analysis report shall present SEE criticality analysis results:

Comparison of application voltage and SEE SOA for devices sensitive to SEB/SEGR;

Detailed SET analysis with input considered (template or test data) and description of impact at equipment level, and mitigation (if any);

SEU/SEFI analysis with description of impact at equipment level, mitigation (if any), and methods of recovery;

Identification of SEE that propagate at higher level (subsystem/system).

1. The analyses of items 2, 3 and 4 can be included in WCA or FMEA documents.
   * 1. Special remarks

None.