

# Release A CDR RID Report

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Document RMA

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Section

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Figure Table

Category Name ECS System-Level

Actionee Project (Daly)

Sub Category

Subject Effect of Software Reliability on RMA

## Description of Problem or Suggestion:

Availability predictions do not take software reliability into account. Thus, actual functional availability will be significantly lower than predicted if hardware reliability and availability hold true to form. An additional risk is that money spent for marginal increases in hardware RMA might be better spent on software QA to reduce software failure rates.

## Originator's Recommendation

Compute the RMA margin left over for software: number of service-denying failures during Release A and Mean Time to repair, i.e. how quickly do we need to get the software back up. (Since these trade off, assume various failure rates and compute MTTR or MDT. If MTTR/MDT is known via the software design, compute the number of failures we can tolerate.) Use this information to model test effort and acceptable failure rates during testing. Information should also be provided to developers to see if they can predict reliability after coding or MTTR in cases of failure. Evaluate whether hardware cross-strapping should be replaced in some areas by extra software QA.

GSFC Response by: Chris Daly

GSFC Response Date 10/5/95

The ESDIS Project and the ECS Contractor, with technical direction from the Assurance Management Office of the Office of Flight Assurance (GSFC code 303), will reanalyze the RMA requirements for the SDPS and CSMS with the following objectives:

- 1) Reassess RMA allocations to determine if they are appropriate.
- 2) Assess overall system RMA sensitivity to different assumed levels of software reliability.
- 3) Define an ECS process for assessing software reliability including MTTR.

Items 1 and 2 will be complete by the time of SDPS and CSMS Incremental Design Review for Release B. Completion of item 3, which will draw on the "software experience factory" in conjunction with the University of Maryland, is TBD.

HAIS Response by:

HAIS Schedule

HAIS R. E.

HAIS Response Date

Status **Closed**

Date Closed **10/25/95**

Sponsor **Schroeder**

\*\*\*\*\* Attachment if any \*\*\*\*\*