

PDR RID Report

Originator Angie Kelly **Phone No** 286-7726
Organization Mission Operations Manager/505
E Mail Address AKelly (GSFCMail)
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Review FOS
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Section NA **Page** NA **Figure Table** NA

Category Name Design **Actionee** HAIS
Sub Category
Subject Derived TLM Parameters

Description of Problem or Suggestion:

Derived TLM parameters are calculated on a time period defined within the PDB, based upon spacecraft time returned in TLM.

If a user wants a derived parameter calculated more often for one TLM format than for another, which often happens, how can he make this calculation frequency autonomously dependent upon TLM format? A derived parameter may be needed more frequently (for example) in safe mode or in a calibration mode, or the frequency of calculation of a derived parameter may be beneficially dependent on the frequency of availability of the TLM parms from which it is derived, which may themselves be format dependent. The current design appears to make this capability unavailable even manually, much less autonomously.

Originator's Recommendation

Design the description of frequency of calculation of each derived parameter in the PDB such that it can be autonomously TLM format dependent, and not always the same frequency.

GSFC Response by: **GSFC Response Date**

HAIS Response by: D. Herring **HAIS Schedule** 2/3/95

HAIS R. E. D. Dunn **HAIS Response Date** 1/17/95

The Telemetry subsystem design currently provides some of the capability the author requests. Our design checks whether each derived parameter equation is due to be processed following the reception of every telemetry packet. If due, equation processing will be initiated. It should be noted that derived parameter updates can take place no more often than once per telemetry packet, but of course could be much less frequent. This is reasonable, considering derived parameters are typically based upon telemetered values which will update no faster than the received telemetry packet rate.

The initial time period for calculations of derived telemetry parameters will be defined within the PDB, however the user has the capability of individually adjusting each derived parameter update (equation processing) rate. Additionally, the user has the capability of adjusting multiple derived parameter update rates via directives that may have been stored as a procedure. Procedures could be fabricated for specific needs (such as the mode changes mentioned) and run by the FOT when necessary.

The Telemetry subsystem is currently not designed to recognize spacecraft/instrument modes. Furthermore, the Telemetry subsystem does not require knowledge of telemetry format changes since it will be configured to simultaneously process housekeeping, health and safety, and diagnostic telemetry. Therefore, it would be difficult to autonomously alter the processing rate of derived parameters based upon these changes. This feature is not currently included in our baseline and we have no requirements for altering equation update rates based upon telemetered information. We plan to investigate the design impacts of supplying context switch selection of derived parameter update rates (which could provide a means of accomplishing the author's request for autonomous rate changes), but consider implementation of this feature outside our current baseline.

Status Closed **Date Closed** 2/1/95 **Sponsor** Johns

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