

FOS CDR RID Report

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Document FOS CDR

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Section

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Figure Table

Category Name Interfaces

Actionee ECS

Sub Category

Subject USCCS and RDD

Description of Problem or Suggestion:

EDOS dependencies for USCCS and RDD clock correlation have not been clearly identified (e.g., time delays through EDOS equipment and processing be constant to within some value).

Originator's Recommendation

Identify assumptions/dependencies about delays through TGT/EDOS interface and EDOS H/W and S/W.

GSFC Response by:

GSFC Response Date

HAIS Response by: Jon Kuntz

HAIS Schedule

HAIS R. E. Scott Carter

HAIS Response Date 11/10/95

The FOS Spacecraft Clock Correlation component depends on EDOS for the delivery of time stamps via EDOS Data Units (EDUs). In determining a clock error using either the RDD or the USCCS method, the component will use predetermined constant equipment delays, in addition to the time stamps and time measurements in the EDU packets and in NCC operational messages.

As reported in the EOS Spacecraft Clock Calibration Study Report (Revision A, 510-4SSD/0193), the only time delays associated with EDOS that are expected to vary to any degree are the measured Return Channel Time Delay (RCTD) values. All other equipment delays are expected to be constant with negligible variances. The NCC will provide the measured delays in Operational Data Messages (ODMs).

NASA has established a preliminary accuracy requirement of 10 milliseconds for all EDOS related time inaccuracies combined. For the USCCS method this is sufficient to allow the FOS to be able to maintain the accuracy of the spacecraft clock to within 100 microseconds. Since the RDD method is only used as a supplemental indicator during a real time contact, the 10 millisecond inaccuracies imposed by EDOS would not adversely affect the ability of the FOS to maintain the clock accuracy.

Current investigation is underway by EDOS to explore the feasibility of a 20 microsecond accuracy requirement for the combined EDOS time inaccuracies. If this EDOS requirement is determined to be feasible, the RDD method would also be capable of maintaining the clock to within the 100 microsecond accuracy.

There is no defined nominal scenario where the primary ground terminal will be changed from WSGTU to the STGT during real-time. Therefore, any variances in time delays that arise from changes in the TGT/EDOS interface, can be reflected in TGT-specific configuration file which the component will select on startup, based upon off-line changes in the TGT configuration.

Status **Closed**

Date Closed **11/30/95**

Sponsor **Johns**

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