STEREO IMPACT

PR Numbers: 1xxx=UCB, 2xxx=Caltech/JPL, 3xxx=UMd, 4xxx=GSFC/SEP, 5xxx=GSFC/Mag, 6xxx=CESR, 7xxx=Keil, 8xxx=ESTEC, 9xxx=MPAe

Assembly : SIT Instrument	**SubAssembly : n/a**
Component/Part Number:	**Serial Number: 02**
Originator: Mason	**Organization: UMd**
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Failure Occurred During (Check one √)

□ Functional test x Qualification test □ S/C Integration □ Launch operations

Environment when failure occurred:

□ Ambient □ Vibration □ Shock □ Acoustic
□ Thermal □ Vacuum x Thermal-Vacuum □ EMI/EMC

Problem Description

Post environmental testing alpha tests performed on FM2 SIT on 5/20/2005 indicated that the instrument was not performing.

Analyses Performed to Determine Cause

The alpha tests were rerun and the instrument performed nominally. The differences with the unsuccessful runs taken 2 weeks ago on 5/20 are due to the following:

There were no changes made to the unit. The problem was in the data analysis. Using the UMd GSE, the Winmac software reads the data packets produced by the SPiT program (our simulation of SEP Central) and produces files in the Low Energy CosmicRay (LECR) format. The LECR format is compatible with the WinMac GSE display and plotting functions. This format is slightly different than the payload packets which are produced when we are connected to SEP Central. The problem was in the interpretation and the reformatting of the LECR format into the ASCII hex format, which is compatible with the UMd analysis software. Unfortunately, the Winmac software was not used in previous bench testing with the UMd GSE, so we didn't encounter and resolve this issue earlier. Hence, the data files produced using the UMd GSE and Winmac needed to be understood and converted using new software in order for correct data analysis.

Corrective Action/ Resolution

x Rework (GSE) □ Repair □ Use As Is □ Scrap

The data files produced using the Umd GSE and Winmac need to be understood and converted using new software in order for correct data analysis. There is no flight hardware fix required.

ACTION TAKEN:

The software formatting errors were fixed on 6/3. An alpha run taken on that date showed proper operation. It must be noted that the fm2 solid state detector had been showing high noise, and so the test data did not meet level-1 resolution requirements. The detector operation excepted, the operation of the instrument appeared nominal.

Using the corrected software, the data taken on 5/20 was re-analyzed. On that data the solid state detectors was showing even higher noise than on 6/3. However, a broad alpha "track" was visible in the tof vs. E matrix, as expected. As best we can tell with this noisy detector, the instrument was operating nominally.

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Date Action Taken:___6/3/2005____ **Retest Results**:__Success (see above)_____
Corrective Action Required/Performed on other Units □ Serial Number(s): ___n/a_____

Closure Approvals

Subsystem Lead:	_____	Date:_____
IMPACT Project Manager:	_____	Date _____
IMPACT QA:	_____	Date:_____
NASA IMPACT Instrument Manager:	_____	Date:_____