

Element:  
ACIS

Requirement Number:  
3.7.4.4-3

Verification Item:  
3.7.4.4-0-3

### AXAF-I Verification Requirement Compliance Data Submittal

Evaluators:  
POWR, EMC, EDI

Type of Review:  
 Verification Item Closure  
 Multiple Verifications Req'd  
 Requirement Closure

Requirement Title:  
Power Isolation

Compliance Data/Location:  
MA-20/ACIS-000-78-01VR/Bldg 4200 Rm 522 (Part 1 of 3)  
MA-168/38.01510.224/Bldg 4200 Rm 522 (Closure Report) (Part 2 of 3)  
MA-301/ACIS-800-A-03/Rm 522 Bldg 4200  
MA-168/VRCD-3.7.4.4-0-3-8/18/97/Bldg 4200 Rm 522 (Closure Report)

Verification Method  
Test

Comments:  
Does not contain enough information to approve. Where are the inspection records or as-built drawings that back-up the statements in the verification assessment?  
  
MA-20 DOES NOT CONTAIN THE INFORMATION TO CLOSE THIS VRCS. THERE ARE STATEMENTS MADE REFERRING TO CONTINUITY TESTS MADE ON THE PSMC THAT WILL VERIFY COMPLIANCE WITH THIS REQUIREMENT AND THAT NO FURTHER ACTION IS REQUIRED. I STRONGLY DISAGREE. THE VERIFICATION SHOULD ALSO INCLUDE TEST DATA SHOWING THAT THE LOADS THAT RECIEVE SECONDARY POWER SHOULD BE ISOLATED FROM STRUCTURE BY 1 MEGOHM.  
  
THE RESPONSE FROM THE CONTRACTOR STATES THAT THE REQUIREMENT FOR ISOLATION IS NOT MET. A WAIVER SHOULD BE GENERATED FOR NOT MEETING THE REQUIREMENT. IT IS POSSIBLE THAT THIS WAIVER MAY NOT BE APPROVED UNTIL AFTER INTEGRATED FUNCTIONAL TESTING TO MAKE SURE IT DOES NOT AFFECT ANY OTHER HARDWARE.(8/28/97)  
  
EDI TOPS - CONCUR WITH POWR TOPS RECOMMENDATION.  
JEFF WESLEY / EB14, 8/11/97, 8/28/97

*Waiver request sent to MSFC on 9/2/97. William Mayer*

Status  
Open

Recommendation:  
 Approve  
 Disapprove  
 Resubmittal  
 Other (explain)

Action Required for Closure:  
NEED MORE INFORMATION. MA-20 DOES NOT CONTAIN ALL THE INFORMATION REQUIRED TO CLOSE THIS VRCS.

MSFC Evaluator: \_\_\_\_\_ Date: \_\_\_\_\_ Organization: \_\_\_\_\_ Phone Number: \_\_\_\_\_

Disposition:  
 Approve  
 Disapprove  
 Waiver  
 Pending Action

Action Required for Closure:  
ACIS VRS 38-01510.225, VRSD 3.7.4.4-1, indicates that the isolation data can be found in Appendix D of VAR 38-01510.0150. That submittal only has Appendix A and B, and does not have the test data. Provide the test data showing that the loads receiving secondary power are isolated from structure by 1 Mohm. 7/03/97 After more careful review. the req't is not met. A waiver is required.

Chief Engineer:  
Anthony R. Lavole

OPTIONAL FORM 99 (7-90)

FAX TRANSMITTAL

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Date:  
8/28/97

To: Bill Mayer  
Dept./Agency

From: Tony Lavole  
Phone #

# Massachusetts Institute of Technology

CENTER FOR SPACE RESEARCH

## DEVIATION REQUEST

Date Prepared: August 29, 1997	Deviation No. 36-005 (ACIS)
Initiated By: Robert Goeke	
<b>COMPONENT AFFECTED:</b> Name: ACIS AXAF CCD Integrating Spectrometer	<b>ITEMS AFFECTED:</b> Detector Electronics Assembly 36-30200 Digital Processing Assembly 36-30300
<b>Requirement:</b> The CEI (36-01101), paragraph 3.7.4.4, requires single point secondary power return.	
<b>Deviation Requested:</b> It is requested that multiple point secondary power returns be allowed in the DEA and DPA.	
<b>Justification/Reason:</b> Although initially designed for a single point secondary power return topology, noise considerations, first discovered during EMI testing, required going to a multiple point ground topology. Each major circuit card assembly in the DEA and DPA (except the DEA Interface) now has at least four (4) points at which secondary power return is tied to chassis through the printed circuit card Copper-Invar-Copper (CIC) layer. This is all documented in PIRN # 20-0050A.	
<b>Related Action and Effect:</b> It is understood that both the HRC and RCTU use a multiple point grounding scheme similar to that requested herein.	

FUNCTION	APPROVAL SIGNATURE	DATE
MIT Performance Assurance	<u>Brian Klatt</u>	<u>8/29/97</u>
MIT Project Engineer	<u>Robert Goeke</u>	<u>8/29/97</u>
MIT Project Manager	<u>William Mayer</u>	<u>8/29/97</u>
NASA Representative	_____	_____
NASA Project Office	_____	_____


# ACIS Verification Summary Report

36-01518.225  
0

<b>Specification:</b>	ACIS Contract End Item Specification
<b>Requirement Number/Title:</b>	3.7.4.4.1 Electrical Return Paths (VRSD 3.7.4.4-1)
<b>Requirement Statement:</b> Supply Current shall not be returned through structure.	
<b>Verification Method:</b>	Measurement
<b>Procedure Number:</b>	ACIS-400-25-02 PSMC Performance Test Procedure
<b>Configuration:</b>	As specified in ACIS-400-25-02 PSMC Performance Test Procedure
<b>Cycle Time:</b> N/A	

## Verification Discussion/Results:

The requirement for ACIS is that power return shall be isolated from structure by greater than 1 Meg Ohm. Prior to EMC testing of the ACIS instrument at Lockheed Martin a PSMC performance test was conducted. Included in the PSMC performance test was a verification measurement of dc resistance and isolation between Spacecraft Power Return and structure. The resistive isolation between power returns and structure were measured to be 1 Meg Ohm or greater. The results of these measurement are tabulated in Appendix D of the Verification Assessment Report #36-01510.0150.

  
ACIS Cognizant Engineer

5-27-97  
Date