

STEREO CONFIGURATION CHANGE REQUEST

For Office Use Only	TITLE:	CLASS:	NUMBER:	
		I II	DATE:	
CONFIGURED ITEM:		ORIGINATOR:		PRIORITY:
STS Number:	Payload: STEREO	Name:	Dave Curtis	<input checked="" type="checkbox"/> Routine
Component :	Experiment: IMPACT	Organization:	U.C. Berkeley	<input type="checkbox"/> Urgent
Component Part #:	Serial #:	Phone:	510-642-5998	<input type="checkbox"/> Emergency
		Email:	dwc@ssl.berkeley.edu	
TYPE OF REQUEST:		RESPONSIBLE ORGANIZATION/INDIVIDUAL:		IMPACTS: (If yes attach additional pages)
<input type="checkbox"/>	Configuration			COST: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
<input type="checkbox"/>	Deviation #			SCHEDULE: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
<input checked="" type="checkbox"/>	Waiver #			
<input type="checkbox"/>	Other:			
REASONS FOR CHANGE:			RETEST REQUIRED:	
<input checked="" type="checkbox"/>	Improvement	<input type="checkbox"/> Test/Payload Failure	<input type="checkbox"/> New Document:	<input type="checkbox"/> No
<input type="checkbox"/>	Reliability	<input type="checkbox"/> Specification Requirements	<input type="checkbox"/> Other:	<input type="checkbox"/> Yes
PROPOSED CHANGE (Attach additional pages as required):				
<p style="color: blue;">Use single-ended analog interfaces between the STEREO IDPU and the STE-U. This violates the Project EMC requirements as called out in 7381-9030d, section 3.1.7.</p>				
RATIONALE (Attach additional pages as required):				
<p style="color: blue;">This is a low-noise analog interface carrying preamp signals from STE-U to the IDPU. The signals are carried on coax with a 4V amplitude and 1.6MHz bandwidth (based on the amplifier rise-time limitation of 100ns). The coax is series-terminated by 50 ohms at the source end and terminated by 500pF in series with 2.5kohm at the receiving end. The harness shall have an over-shield connected to chassis ground at both ends. This harness is about 1.2m long, the majority of which shall be routed inside the spacecraft.</p> <p style="color: blue;">The input circuit is AC coupled, so no DC currents will flow into the chassis, while AC currents to return through the coax shield, and any voltage induced onto the coax shield is further shielded by the over-wrap.</p> <p style="color: blue;">We have looked into changing this interface to a more symmetric driver (such as transformer coupled), but see no simple way to do this given the nature of the signal waveform, and are concerned that such an interface would impact the signal to noise. We could reduce the bandwidth in the signal by placing more of the electronics close to the STE-U, but this has other disadvantages; the number of signals increases in the harness, and the amount of power in the preamp box (which is remotely powered by the IDPU) increases.</p> <p style="color: blue;">It is not entirely clear that this interface violates the requirements, but we were asked to submit a waiver. We feel that this interface will meet the EMC requirements, and that alternatives will require significant redesign effort, take more power, and impact STE-U instrument performance.</p>				
DOCUMENTS/DRAWINGS AFFECTED (Document No./Title/Section) :				
AFFECTED (Check all that apply):				
FLIGHT SYSTEMS:		GROUND SYSTEMS:		
<input type="checkbox"/>	Avionics	<input type="checkbox"/>	Electrical and Cables	<input type="checkbox"/>
<input checked="" type="checkbox"/>	Experiment	<input type="checkbox"/>	Software/Firmware	<input type="checkbox"/>
<input type="checkbox"/>	Structures and Mechanical	<input type="checkbox"/>	Other:	<input type="checkbox"/>

REQUIRED APPROVAL DATE: _____

REQUIRED JUSTIFICATION:

STEREO CONFIGURATION CHANGE REQUEST

For Office Use Only	TITLE:		CLASS:		NUMBER:	
			I			
			II		DATE:	
CONTRACT/AGREEMENT NUMBER EFFECTIVITY:						
STEREO NAS5-97271		√	IMPACT S-13635Y		PLASTIC NAS5-00132	SECCHI S-13631Y
DOCUMENTS/DRAWINGS TO BE REVISED:						
Document/Drawing Number:		Document/Drawing Title:		Section(s) No.		EO No.:
PROCESSING APPROVAL:						
CCB						
Out of Board						
Emergency		Systems Engineer				Date
CCB APPROVAL:						
CCB ACTION DATE:		CCB ACTION ITEMS/CONDITIONS:				
Approved						
Denied						
Withdrawn						
Hold						
CLOSEOUT COMMENTS:					DATE OF CLOSEOUT:	
					CMO	