

## McCarty, Christina

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**From:** Dean Aalami [dean@spaceinstruments.com]  
**Sent:** Monday, September 30, 2013 4:57 PM  
**To:** William R Crain; Dickinson, John  
**Cc:** Alan Cummings; Alan Lukemire; Nigel Angold; Carlos Urdiales; Nunez, Carlos; Jill Burnham; Branislav Kecman; Peter Berg; Weidner, Scott; Rick Cook  
**Subject:** Re: EPI-Hi Bias Supply Peer Review Comprehensive Information

Hi Bill

- 1) Output of the LVPS is directly connected to the input power line of the Bias supply. At turn on the input capacitors charge up slowly as LVPS output slowly builds up.
- 2) As I explained during the Peer Review the current limiting is implemented by limiting the MAX pulse width of the PW Modulator.
- 3) That is the best we can do since the multiplier stack combined with the output capacitor form at least a low frequency pole. If we do not put another low frequency pole in the feed back loop the noise will cause large excursions in the PW modulator width henc large output ripple.
- 4) Thanks, A 113K resistor is implemented in the latest drawings sent to Caltech.

Regards,

Dean

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Dean D. Aalami

Space Instruments  
19 Hammond, Suite 508  
Irvine, CA 92618-1636

949-472-4785 (Office)  
949-588-5887 (Fax)  
949-510-3813 (Cell)  
949-407-7036 (Skype)  
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**From:** William R Crain <William.R.Crain@aero.org>  
**To:** "Dickinson, John" <jdickinson@swri.edu>  
**Cc:** Alan Cummings <ace@srl.caltech.edu>; Alan Lukemire <alan@spacepower.com>; Nigel Angold <angoldconsulting@earthlink.net>; Carlos Urdiales <carlos.urdiales@swri.org>; cnunez@swri.edu; Dean Aalami <dean@spaceinstruments.com>; Jill Burnham <jill@srl.caltech.edu>; Branislav Kecman <kecman@srl.caltech.edu>; Peter Berg <pcb@ssl.berkeley.edu>; "Weidner, Scott" <SWeidner@swri.edu>; Bill Crain <William.R.Crain@aero.org>; Rick Cook <wrc@srl.caltech.edu>  
**Sent:** Monday, September 30, 2013 12:49 PM  
**Subject:** Re: EPI-Hi Bias Supply Peer Review Comprehensive Information

John, Dean,

Norman Katz here at Aerospace provided some additional review of the EPI-Hi bias supply offline. Here are some objective comments.

1. I don't see any provisions for a soft start. The turn-on surge could be huge & potentially crash the LVPS. There is very large amount of capacitance to charge up.
2. There doesn't seem to be any limiting for a load short
3. The overall feedback loop is slow & will be unable to reject noise on the power line.
4. U3-A op-amp should have a feedback resistor ~113K. Offset due bias current ~90mv out of 4V.

Bill

Bill Crain  
The Aerospace Corporation  
El Segundo, California  
office 310-336-8530  
cell 310-995-7421  
fax 310-336-1636

From: "Dickinson, John" <jdickinson@swri.edu>  
To: Branislav Kecman <kecman@srl.caltech.edu>, "Weidner, Scott" <SWeidner@swri.edu>, Peter Berg <pcb@ssl.berkeley.edu>, Bill Crain <William.R.Crain@aero.org>, Carlos Urdiales <carlos.urdiales@swri.org>, Nigel Angold <angoldconsulting@earthlink.net>, Rick Cook <wrc@srl.caltech.edu>, Jill Burnham <jill@srl.caltech.edu>, Alan Cummings <ace@srl.caltech.edu>, <cnunez@swri.edu>, Alan Lukemire <alan@spacepower.com>,  
Cc: Dean Aalami <dean@spaceinstruments.com>, "Dickinson, John" <jdickinson@swri.edu>  
Date: 09/20/2013 02:51 PM  
Subject: EPI-Hi Bias Supply Peer Review Comprehensive Information

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All,

I am adding a few folks to the list, redistributing all of the technical and location information, and providing WebEx information (also as Docx, just in case). Please contact me (copying Branislav and Nigel) for any concerns/questions/coordination details. Talk to you all on Monday!!!

JOHN

#### LOCATION INFORMATION:

The review will start at 10 AM on Monday, 9/23, at Caltech, room 219 in the Cahill building (#17 on the attached map). The closest parking is on street or in the underground parking structure #126 on the map. Visitors can find directions and other information here <http://www.caltech.edu/content/visit>

#### WEBEX INFORMATION:

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Meeting information  
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Topic: EPI-Hi Bias Supply Peer Review  
Date: Monday, September 23, 2013

Time: 12:00 pm, Central Daylight Time (Chicago, GMT-05:00)

Meeting Number: 577 470 508

Meeting Password: 2theSun

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To start or join the online meeting  
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Go to <https://swri15.webex.com/swri15/j.php?ED=241617297&UID=487203402&PW=NMzc0NDQ00GE1&RT=MiM3>

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Audio conference information  
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To receive a call back, provide your phone number when you join the meeting, or call the number below and enter the access code.

Call-in toll-free number (US/Canada): 1-866-469-3239

Call-in toll number (US/Canada): 1-650-429-3300

Global call-in numbers: <https://swri15.webex.com/swri15/globalcallin.php?serviceType=MC&ED=241617297&tollFree=1>

Toll-free dialing restrictions: [http://www.webex.com/pdf/tollfree\\_restrictions.pdf](http://www.webex.com/pdf/tollfree_restrictions.pdf)

Access code:577 470 508

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John Dickinson

Senior Research Engineer, Space Systems

Space Science and Engineering Division

Southwest Research Institute

Work: (210) 522-JUAN (5826)

Cell/GVoice: (210) 880-5370

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[attachment "701002\_A\_Parts\_List\_09\_14\_13.pdf" deleted by William R Crain/West/Aerospace/US] [attachment "Package\_EPI-

Hi\_Bias\_Supply\_peer\_review\_9-23-13.pdf" deleted by William R Crain/West/Aerospace/US] [attachment "EPI-

Hi\_Bias\_Supply\_Peer\_Review\_WEBEX\_Meeting information.docx" deleted by William R Crain/West/Aerospace/US] [attachment

"Caltech-map-20110428CO.PDF" deleted by William R Crain/West/Aerospace/US]