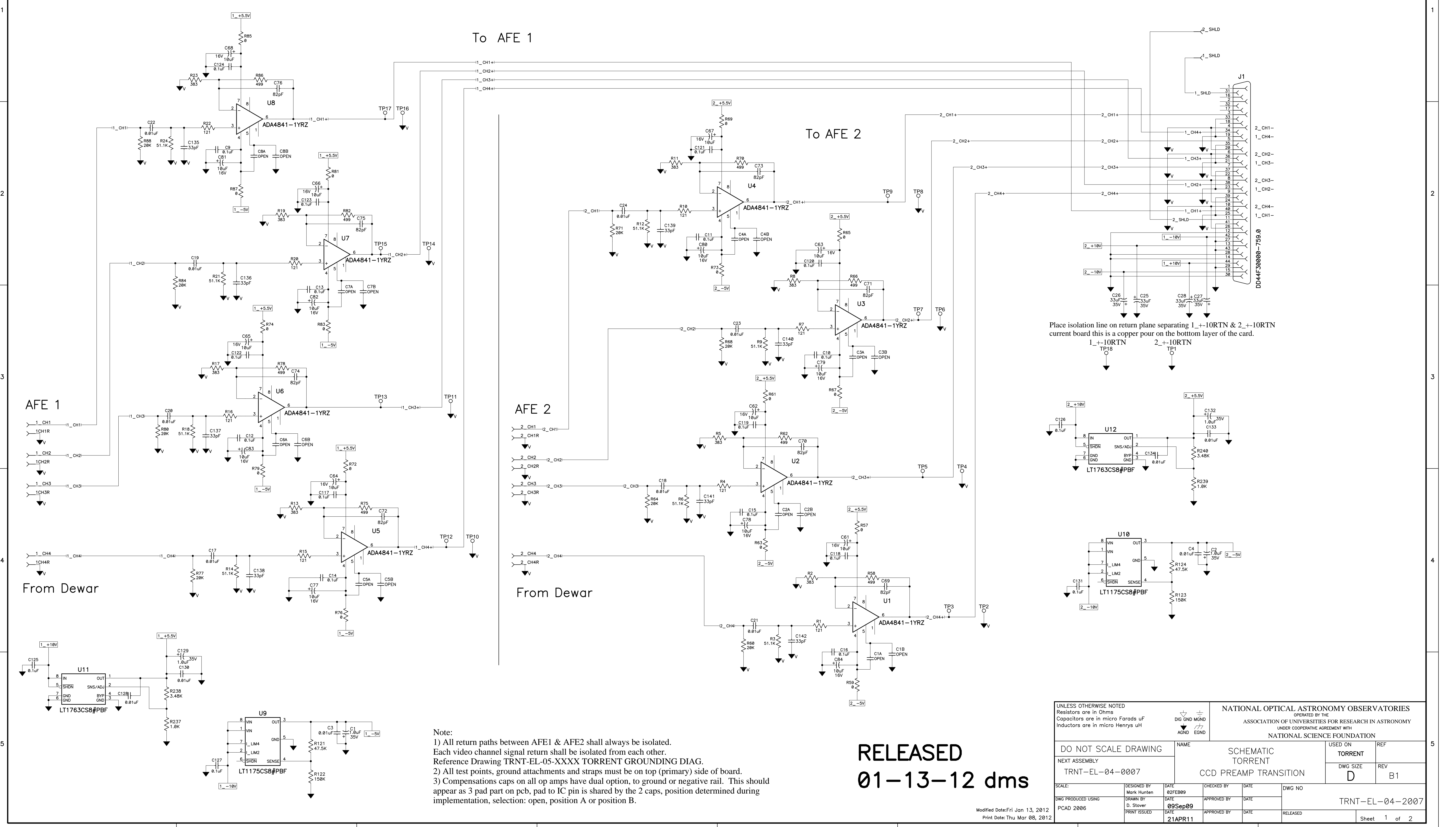
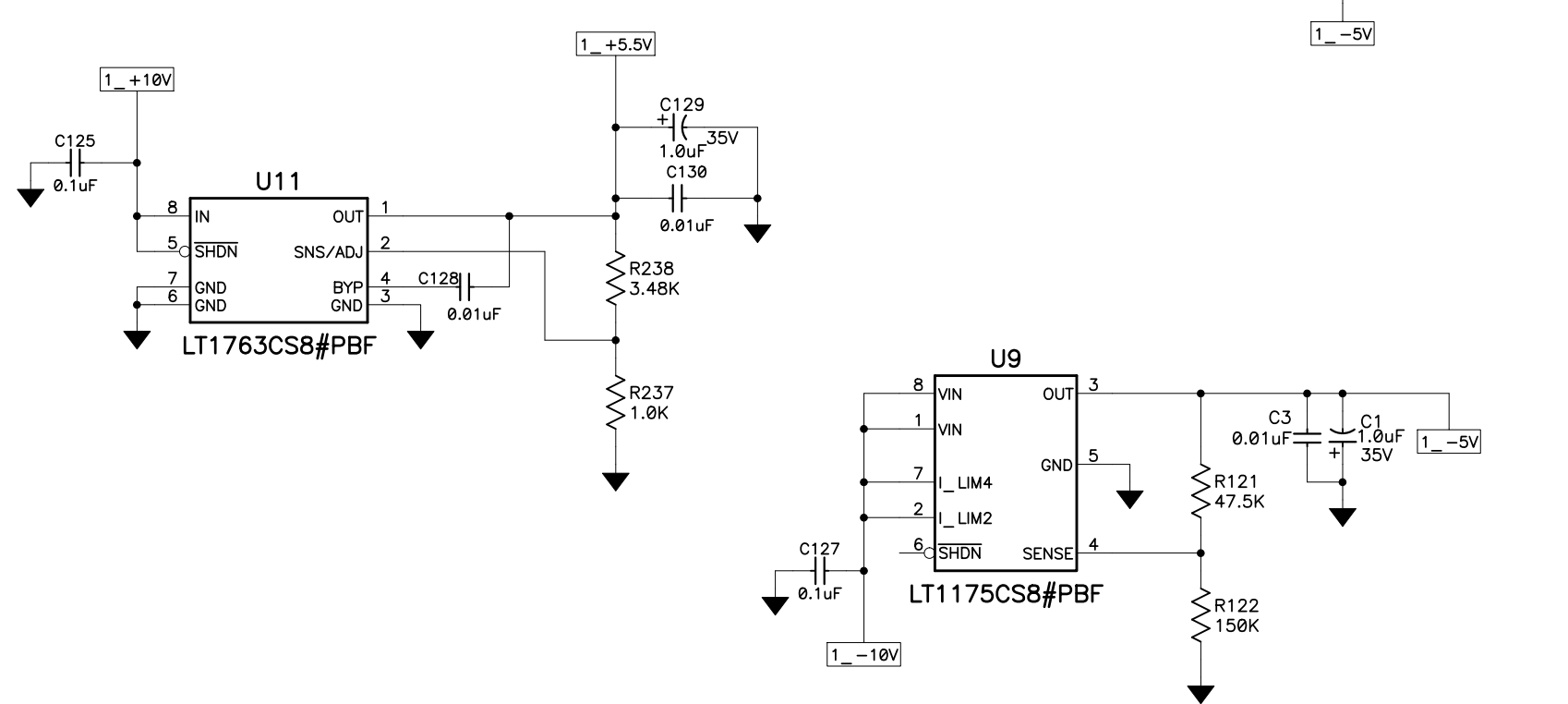
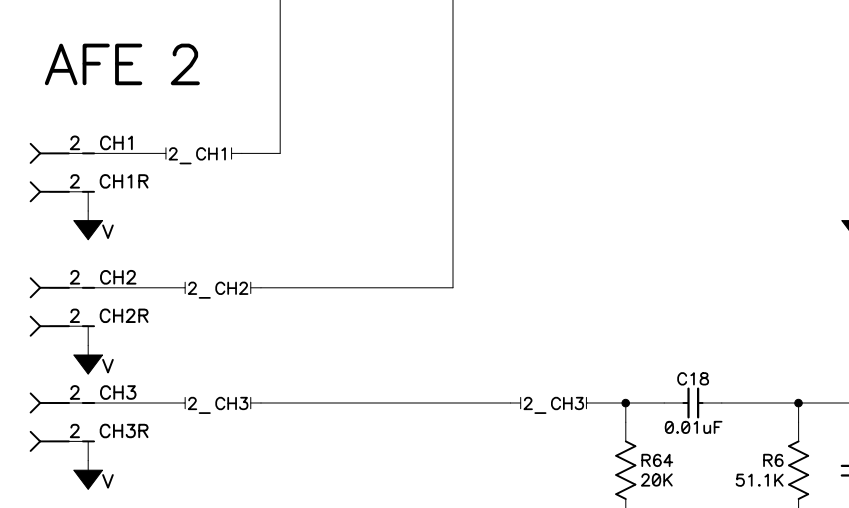
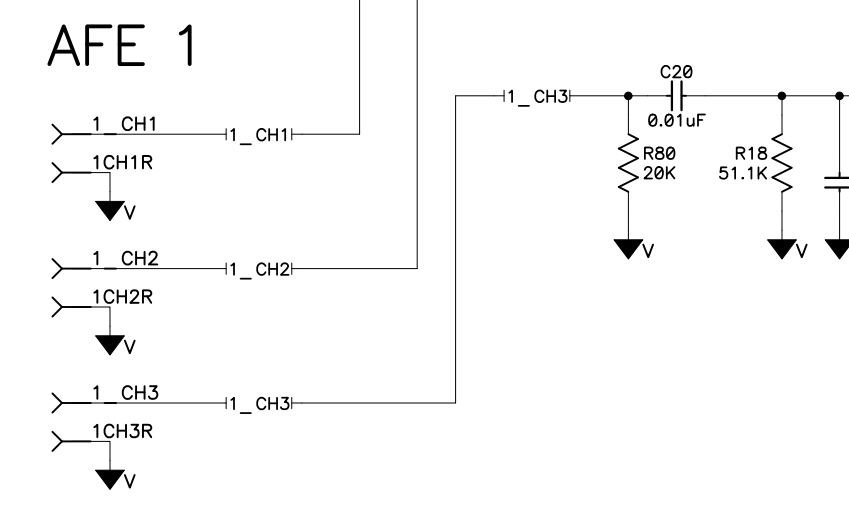
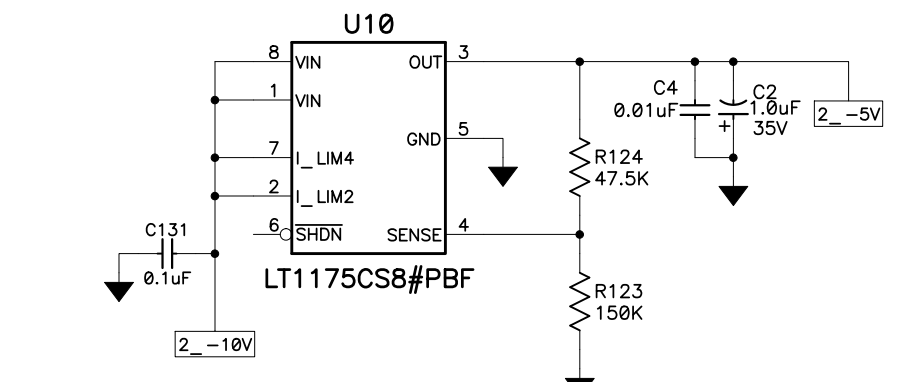
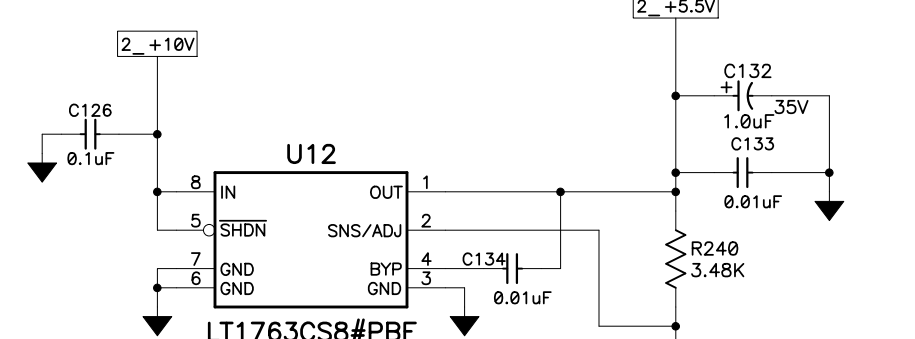


| REVISIONS |  |          |         |     |                 |
|-----------|--|----------|---------|-----|-----------------|
| LTR       | DESCRIPTION  | ECR      | DATE    | BY  | APPVD           |
| A         | Layout incorrect, required respin - schematic version increment for consistency. |          | 27OCT09 | DMS |                 |
| B         | multiple corrections see ECO for specific details                                | TRNT-016 | 21APR11 | DMS | MHUNTEN         |
| B1        | Component values, grounding note and wire see ECO for details                    | TRNT-029 | 13jan12 | DMS | rgeorge pmooore |



Place isolation line on return plane separating 1\_+10RTN & 2\_+10RTN current board this is a copper pour on the bottom layer of the card.

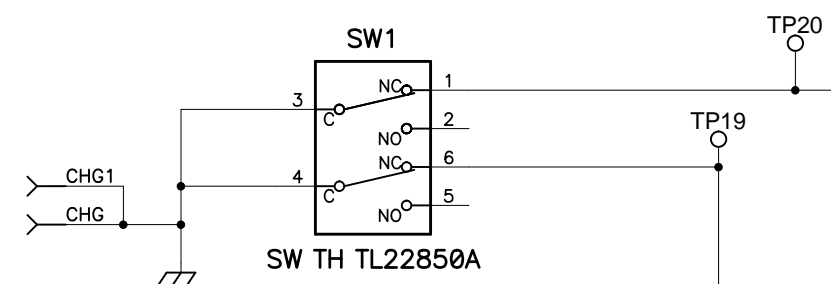


Note:  
 1) All return paths between AFE1 & AFE2 shall always be isolated. Each video channel signal return shall be isolated from each other. Reference Drawing TRNT-EL-05-XXXX TORRENT GROUNDING DIAG.  
 2) All test points, ground attachments and straps must be on top (primary) side of board.  
 3) Compensation caps on all op amps have dual option, to ground or negative rail. This should appear as 3 pad part on pcb, pad to IC pin is shared by the 2 caps, position determined during implementation, selection: open, position A or position B.

**RELEASED**  
**01-13-12 dms**

|  |                       |   |             |
|--|-----------------------|---|-------------|
| UNLESS OTHERWISE NOTED<br>Resistors are in Ohms<br>Capacitors are in micro Farads uF<br>Inductors are in micro Henrys uH |                       | NATIONAL OPTICAL ASTRONOMY OBSERVATORIES<br>OPERATED BY THE<br>ASSOCIATION OF UNIVERSITIES FOR RESEARCH IN ASTRONOMY<br>UNDER COOPERATIVE AGREEMENT WITH<br>NATIONAL SCIENCE FOUNDATION |             |
| DO NOT SCALE DRAWING   | NAME                  | USED ON   | REF         |
| NEXT ASSEMBLY  | SCHEMATIC             | TORRENT   |             |
| TRNT-EL-04-0007  | TORRENT               | DWG SIZE  | REV         |
|  | CCD PREAMP TRANSITION | D   | B1          |
| SCALE:   | DESIGNED BY           | DATE  | CHECKED BY  |
|  | Mark Hunten           | 02FEB09   |             |
| DWG PRODUCED USING   | DRAWN BY              | DATE  | APPROVED BY |
| PCAD 2006  | D. Stover             | 09Sep09   |             |
|  | PRINT ISSUED          | DATE  | APPROVED BY |
|  |                       | 21APR11   |             |
| Modified Date: Fri Jan 13, 2012<br>Print Date: Thu Mar 08, 2012  |                       | DWG NO  |             |
|  |                       | TRNT-EL-04-2007   |             |
|  |                       | Sheet 1 of 2  |             |

SWITCH SHOWN IN NON ACTUATED STATE POSITION WHEN A CONTROLLER IS NOT CONNECTED TO THE TRANSITION MODULE



NOTE:  
Diode installation varies per application.  
\*\*N Ch - Cathode of diode will be positioned to the N marking  
\*P Ch - Cathode of diode will be positioned to the P marking

NOTE:  
Diode installation varies per application.  
\*\*N Ch - Cathode of diode will be positioned to the N marking  
\*P Ch - Cathode of diode will be positioned to the P marking

From AFE 2

From AFE 1

RELEASED  
01-13-12 dms

|  |              |     |     |  |
|--|--------------|-----|-----|--|
| NATIONAL OPTICAL ASTRONOMY OBSERVATORIES |              |     |     |  |
| NAME SCHEMATIC                           |              |     |     |  |
| TORRENT                                  |              |     |     |  |
| CCD PREAMP TRANSITION                    |              |     |     |  |
| DWG NO                                   | SIZE         | REF | REV |  |
| TRNT-EL-04-2007                          | D            |     | B1  |  |
| RELEASED                                 | Sheet 2 of 2 |     |     |  |

Modified Date: Fri Jan 13, 2012  
Print Date: Thu Mar 08, 2012