

NOTE: Any Errors should be reported to the TCD/CVD group immediately!!

*Please email .dat and jpg files to Terri (tbrandt@mps.ohio-state.edu), Jason (jlink@milkyway.gsfc.nasa.gov), and Louis (lmb@milkyway.gsfc.nasa.gov)

blue: TCD specific. purple: both. green: CVD specific.

TCD/CVD Limited Performance Test (~15 Minutes)

Commands To Issue

Turn on TCD Low Voltage Power

Turn the TCD power on

Verify Voltage Levels and TCD/CVD Concentrator Turn On

Set TCD TDC thresholds

GUI: send "TCD_threshold.crm" script

Turn on CVD High Voltage. Currently the CVD HV is set to ramp up to final values via increasing increments of 300V every 10 seconds. Full power on should take ~2 minutes.

GUI: send "hv_on_cvd.crm" script

Verify CVD HV is at default nominal levels. HV0 should be at ~1730V (DAC 2125) , HV1 at ~1500V (DAC 1875)

Verify CVD threshold (set with HV) is at nominal level (DAC = 75, Threshold = 0.094V)

Turn on TCD High Voltage. (This can be done while the CVD is ramping up.)

GUI: send "hv_on_TCD.crm" script

Verify TCD HV is at default nominal levels. Values should be between 2300V and ~3000V.

Take a muon run for ~5000 evts. This should take ~5mins. Verify High-Z Scalar Count Rate

Do a Muon Run

Verify Data quality:

CVD should show data on all 8 ADC histograms

TCD should show data in all 18 ADC0/TDC0 histograms. Expect some data in higher channels, but not a substantial amount.

Data files should be distributed to a members of the TCD/CVD team for further verification.*

Turn off CVD High Voltage. HV should drop to 0 as soon as this command is sent and received

GUI: send "hv_off_cvd.crm" script

Turn off TCD High Voltage.

GUI: send "hv_off_TCD.crm" script

Verify in housekeeping that the HV has turned off for both detectors

<p style="text-align: center;">TCD/CVD Comprehensive Performance Test (~30-45 minutes)</p>	<p style="text-align: center;">Commands To Issue</p>
Turn on TCD Low Voltage Power	Turn the TCD power on
Verify and Record Voltage Levels and TCD/CVD Concentrator Turn On	
Set TCD TDC thresholds	GU: send "TCD_threshold.crm" script
Turn on CVD High Voltage. Currently the CVD HV is set to ramp up to final values via increasing increments of 300V every 10 seconds. Full power on should take ~2 minutes.	GUI: send "hv_on_cvd.crm" script
Verify and Record CVD HV is at default nominal levels. HV0 should be at ~1730V (DAC 2125) , HV1 at ~1500V (DAC 1875)	
Verify and record CVD threshold (set with HV) is at nominal level (DAC = 75, Threshold = 0.094V)	
Turn on TCD High Voltage.	GUI: send "hv_on_TCD.crm" script
Verify and Record TCD HV is at default nominal levels. Values should be between 2300V and 3000V.	
Take a 2000 evt muon run. This should take ~2mins. Verify High-Z Scalar Count Rate.	Do a Muon Run
Verify Data quality:	
CVD should show data on all 8 ADC histograms	
TCD should show data in all 18 ADC0/TDC0 histograms, expect some data in higher channels, but not a substantial amount.	
If the trigger rate is less than the TCD max of ~28 Hz, decrease Threshold Dac from 75 to 50. Otherwise, skip to increasing the Threshold.	In GUI: TCD, mxr, HV1, 50, set. Cmd: SCI_TCD HV, 5, 15, 50
Take a 2000 evt muon run (~2 min). Verify data and High-Z Scalar Count Rate. The High-Z Scalar Count Rate should be higher than when the threshold is at 75.	Do a Muon Run
Increase Threshold Dac from 50 to 500.	In GUI: TCD, mxr, HV1, 500, set. Cmd: SCI_TCD HV, 5, 15, 500
Take a 2000 evt muon run (~2 min). Verify Data and High-Z Scalar Count Rate. The High-Z Scalar Count Rate should be lower than when the threshold is at 75.	Do a Muon Run
Change Threshold DAC from 200 to 75	In GUI: TCD, mxr, HV1, 75, set. Cmd: SCI_TCD HV, 5, 15, 75
Decrease CVD High Voltage by 100V on Each Supply	SCI_TCD HV, 6, 15, 1950 SCI_TCD HV 7, 15 1725

Verify and Record Housekeeping Data	
Take a 2000 evt muon run (~2 min). Verify Data and High-Z scalar count rate is lower than earlier (when the high voltage was at the nominal levels). Muon Data should also show less Spread.	Do a Muon Run
Data files should be distributed to a members of the TCD/CVD team for further verification.*	
Turn off CVD High Voltage. HV should drop to 0 as soon as this command is sent and received	GUI: send "hv_off_cvd.crm" script
Turn off TCD High Voltage.	GUI: send "hv_off_TCD.crm" script
Verify in housekeeping that the HV has turned off for both detectors	
Optional, if the TCD reset cable is installed: Issue a TCD Reset (using the reset cable) and verify TCD concentrator reboot.	
Additional CPT Tests (but not strictly part of the CVD CPT)	
-Verify after CPU reboot and power cycle that all CVD/TCD interfaces come up without issue	
-Verify operation of thermister on CVD HV Box	
-Verify all housekeeping signals related to CVD/TCD	