



DR

MuTr HV TEST PROCEDURE IN THE PEH

procedure name

PHENIX Procedure No. PP-2.5.2.12-08

Revision: A

Date: 12-15-00

Hand Processed Changes

<u>HPC No.</u>	<u>Date</u>	<u>Page Nos.</u>	<u>Initials</u>
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Approvals

PHENIX S E & I Date

Cognizant Scientist/Engineer Date
/Activity Manager

PHENIX Safety Date

CA Safety Date

Handwritten signature and date: 12/15/00

REVISION CONTROL SHEET

LETTER	DESCRIPTION	DATE	WRITTEN BY	APPROVED BY	CURRENT OVERSIGHT
A	First Issue. Only evidence that this procedure ever officially existed is a cover page and 3 pages of emails documenting the MuTr HV Operating Procedure	12/15/2000	n/a	n/a	n/a
RETIRED	The procedure documented herein has been superceded by PHENIX procedure PP-2.5.2.12-07	3/11/2007	n/a	D.Lynch, P.Giannotti and R. Pisani for PHENIX	D.Lynch

Subject: HV test document (fwd)

Date: Fri, 15 Dec 2000 13:06:01 -0500 (EST)

From: "David S. Brown" <brownds@rcf.rhic.bnl.gov>

To: wlenz@bnl.gov

Hi Bill,

The HV test procedure I mentioned to you in my phone message is attached as a trailer to this e-mail. You can print it out and send any comments/suggestions to brownds@rcf.rhic.bnl.gov. Otherwise, please sign off on it and I'll drop by your office to pick it up.

Later,

David Brown

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----- Forwarded message -----
Date: Thu, 14 Dec 2000 13:47:50 -0500 (EST)
From: David S. Brown <brownds@rcf.rhic.bnl.gov>
Reply-To: phenix-mutr-prod-1@bnl.gov
To: phenix-mutr-prod-1@bnl.gov
Subject: HV test document

Greetings,

Here is the updated HV test document with additions/changes recommended at yesterday's meeting. If people are satisfied with this procedure I'll take it to Bill Lenz tomorrow.

Basic Plan:

Here is the proposed procedure for testing the HV system for the MuTr chambers. The standard manual for operating the PHENIX HV controls will be followed as we have the MuTr HV integrated into the EPICS HV control system. Details can be found at

[http://www.phenix.bnl.gov/~phoncs/oncs/Anc sys/hvmanual.ps](http://www.phenix.bnl.gov/~phoncs/oncs/Anc_sys/hvmanual.ps)

- 1) I propose to first apply 50 V on all anodes to make sure we have no dead shorts and that all 1469P cards are functional.
- 2) Next we ramp each channel up to 1000V at a rate of 50V/sec. Trip current will be set at 300nA. Each channel should draw no more than 50nA, except for those cases where a leaky capacitor or

high resistance alternate path on the card was allowed to pass the inspection because it did not compromise chamber operation.

- 3) The 1000V test is primarily a checkout of the HV distribution network not the chambers. After resolving any problems at this stage we can continue by ramping the chambers up to their full operating voltage
- 4) The HV test at full operating voltage will be conducted according to Cristos' documented procedure for HV commissioning, used at 905.
- 5) I have Cristos' final log entries for the chambers so if we experience problems during the HV commissioning we can cross check with his results for the final checkout at 905.

Trouble Shooting Procedure: (1000V test)

Try swapping 1469P channels to see if there is a HV module problem.

Then disconnect the HV leads from the chamber for a given channel in the box to see if the short (both dead and high resistance) is at the chamber or the box.

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0 (If it appears there is a problem with the card in the box one could then disconnect the RG59 cable and see if it is shorted somewhere. A bit risky of an operation, but with <=500nA trip setting not overly dangerous I think.)

We have only one spare box so maybe we will have to tie some (hopefully none) of the channels together until a replacement arrives.

If we have a problem with a chamber, then additional dialog is needed about what to do.

Gas System Issues:

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0 (We definitely need to know if gas is flowing to the chambers AND out of them while we perform the HV test. It is also important that gas has been flowing continuously for the past 48 hours. It would also be good if we can reliably maintain a 70/30% Ar/CO2 mixture, especially during the test at full HV. Jiro has been consulted on these issues and will hopefully give an answer soon.)

Safety Procedure: (50V and 1000V tests only)

The voltage/current combinations being used are not lethal, but will cause muscular contractions resulting in a fall hazard if someone comes in electrical contact with the HV system. Therefore during these phases of testing no one is allowed to work inside the magnet or on the scaffolding (stations 2 and 3), or in the case of station 1 on the FEE plate. To enforce this precaution appropriate signage will be placed at the entrance to the east scaffolding and/or around station 1. In addition, two people will be needed for operating the HV system. One person will be responsible for operating the controls located in the counting house, while the other will be stationed out on the floor near the SMM to keep people away from the aforementioned areas. The two HV operators will be in continuous voice contact via

walkie-talkie.

Qualified HV control operators:

- 1) David Brown
- 2) Dohyun
- 3) David Lee
- 4) Rusty Towel
- 5) Lars Ewell
- 6) Steve Pate

Phone #s

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