

Directions for Resistance Measurements

- 1) Turn on constant current source. Source will initially rise above 1A, but will settle slowly down to 1A after a minute or so. If it settles to 1.01 or 0.99A then leave it alone, because fine adjustments are difficult.
- 2) Hook the red clip to the endplug (do not put on the precision surface), and the black clip to the tube. The black clip should be at least 1' away from the endplug to avoid any effects due to the current taking unusual paths in the tube. Actually it is easiest to put the black clip in the middle of the tube, and leave it there for both measurements.
- 3) Put the digital voltmeter (DVM) on the 200 mV range. Measure the resistance across the endplug-tube gap by putting the red DVM probe on the endplug and the black on the tube near the endplug. Note that you should always measure with the DVM red probe on the red clip of the current supply, and the black DVM on the black clip of the current supply. Slightly different measurements may be obtained by measuring with reversed polarity. Also different readings may be obtained by touching different parts of the endplug. This is because the resistance is quite small and local effects are important. Use a typical measurement for the resistance measurement. Note that since the voltmeter reads mV, the voltmeter reading is the current in mA. Typical reading will be about 0.05 m Ω . Do not measure the resistance by touching the red DVM probe to the red clip because then you are measuring both the endplug-tube resistance and the clip-endplug resistance (which is typically 2 m Ω).
- 4) For module 0 there are both a hardcopy logbook and a computer logbook (for database use). Entries must be made in both. The computer logbook is located on muon1, the X-ray PC, in directory D:Tube Resistance. To enter the computer logbook entries run the program Resistance.exe. This program queries the user for the resistance measurements and writes data files in a standard format for DB use.

Hardcopies of the tube resistance logbook can be obtained by printing the file logbook.ps.

In the log book record tube number, cleaning method [hardcopy only -- see code below], date produced, date measured, and resistance of N and S tube ends.

- 5) Cleaning code: N=no cleaning; A=alcohol only; S=Sothcbrite, S/2=Sothcbrite, tube only. The tube cleaning codes can be found in the tube wiring logbook.