Message ID: **4317** Entry time: **Tue Aug 5 11:36:23 2008**

Run:	1320
Author:	TP
Type:	Info
System:	General
Subject:	LEM setup and beam spot measurements

Moderator at 10K/40K, no moderator layer:

- without RA, nearly no additional rate on TD and MCP1 up to 20 kV settings (moderator 21kV).
- RA causes some background; MCP2-on and RA-on gives additional background rate on TD.
- 21/16/12.5/12/20/17.5/10.56 kV (moderator-L3), MCP2 off:
  RA = 10.56 kV (15kV settings): TD = 20 cps
  RA = 12.73 kV (18kV settings): TD = 30 cps after 10 min.
  RA = 14.18 kV (20 kV settings): TD = 20 cps after 10 min.
  11:50:
  MCP2 -1.0/+0.4kV: no change on TD
  MCP2 -1.5/+0.4kV: no change on TD, TD ~20 cps.
  MCP2 -1.8/+0.4kV: TD ~20 cps.
  MCP2 -2.3/+0.4kV: TD ~20 cps, MCP2-F ~400 cps, MCP2-anode up to 1000 cps.

Problems with MCP2 rate without RA, several thousand cps...

14:30 after RA off and slowly rising MCP2 potentials, MCP2 rate ok.

15:40 Default 15kV settings, MCP2 on, QMS on: TD 33kcps, MCP2-F 5.5 kcps.

First results of proton beam spots with default Mirror/Trigger positions and RA on/off, 15kV settings, see figures 2 and 3.

For B > 1kG, exchange MCP2-F and MCP2-R signals (MCP2-F signal "oscillating") at the patch panel in the electronics rack.

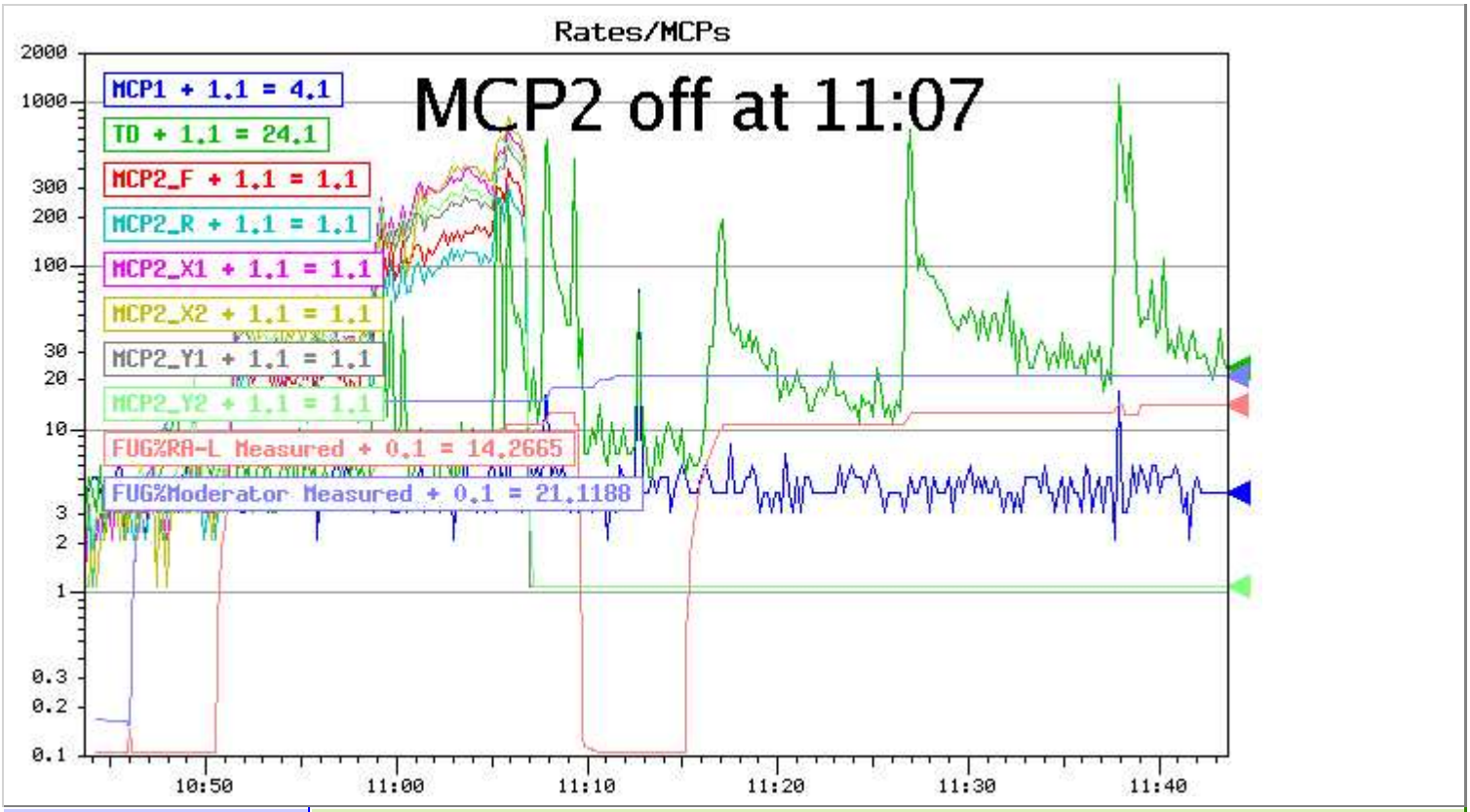
Proton beam spot at 15 kV transport best centred for

- L3 = 9.5 kV
- RA-R = 0.7 kV, RA-LTB = 0, WEW = 0 - 1.5 kG
- RA-RB = 0.5 kV, RA-LT = 0, WEW = 2.0 kG

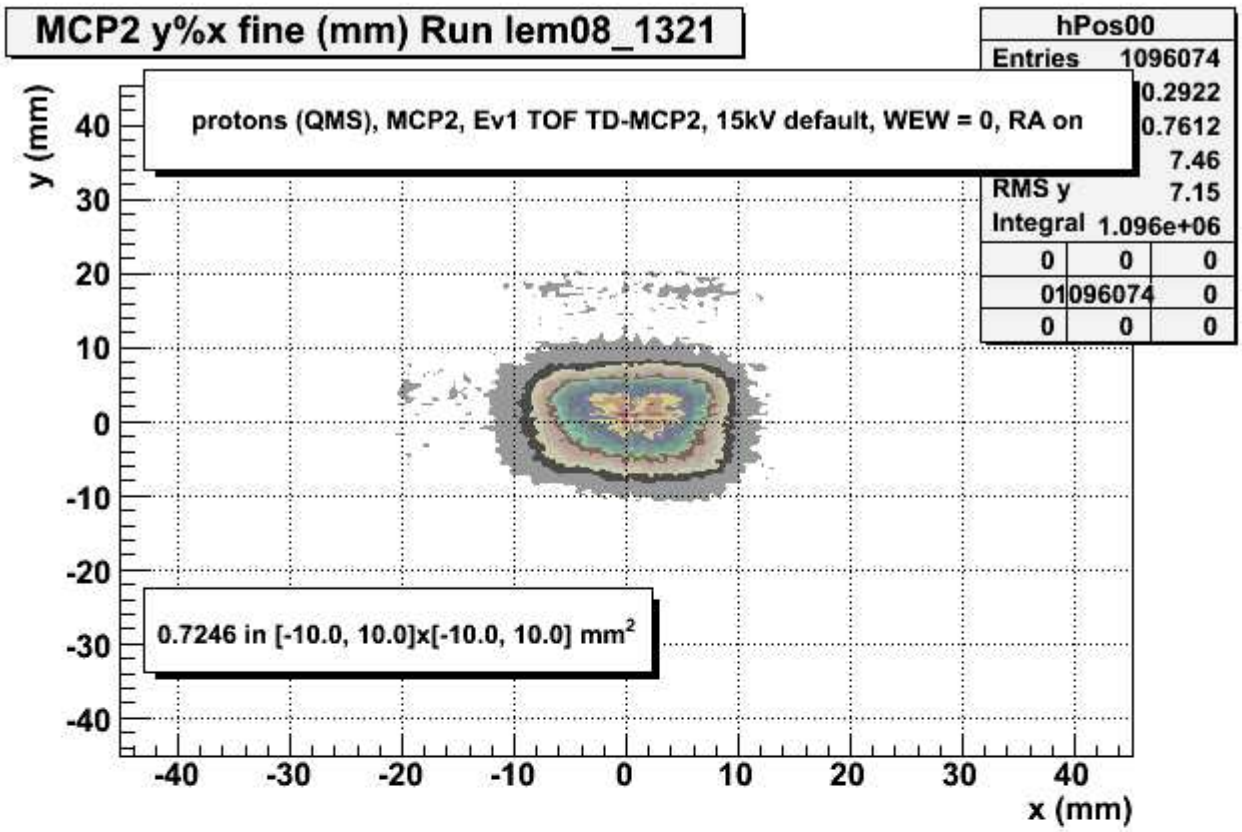
19:20 QMS off, HV transport off, WEW off, close BPVX/Y.

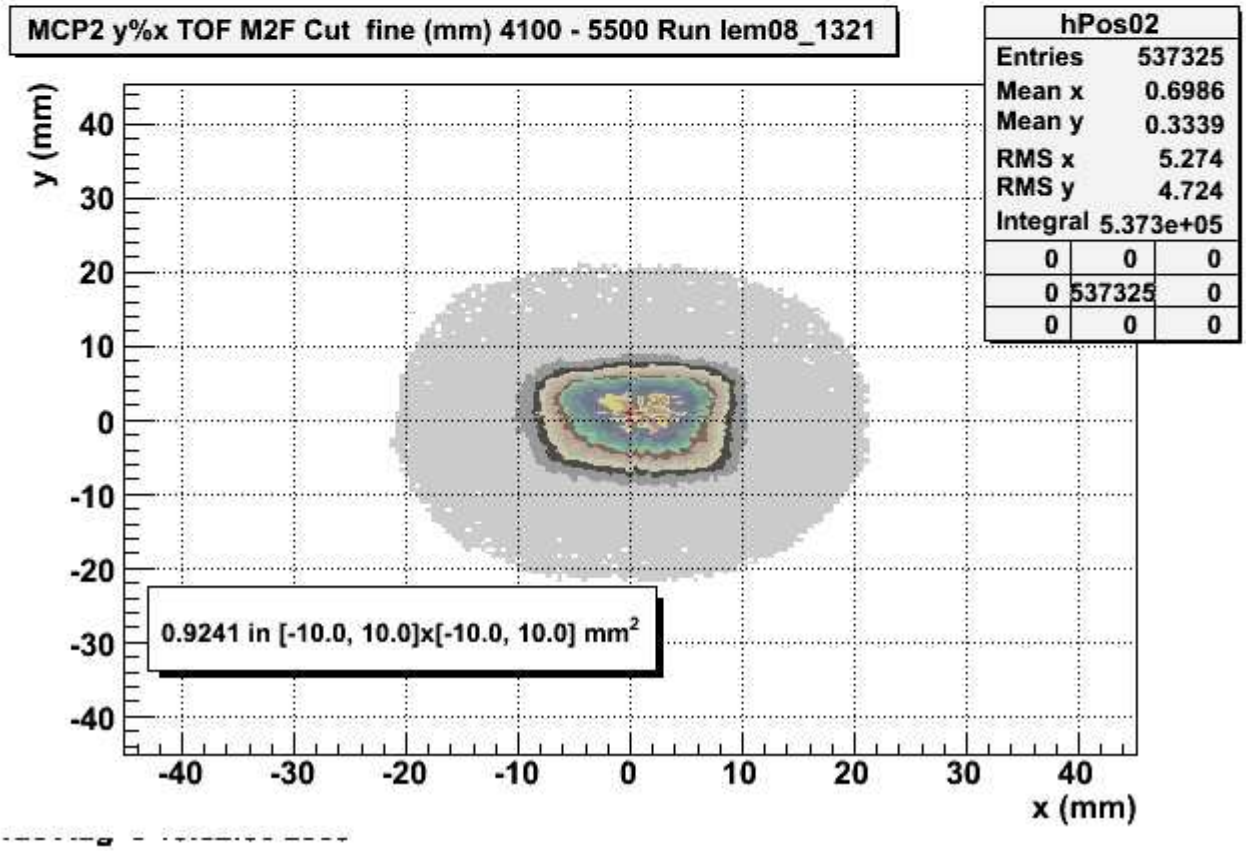
Figure 4 shows proton beam spots at 500, 1000, 1500 and 2000 G. With RA-R = 0.7 kV (up to 1.5 kG) and RA-R = RA-B = 0.5 kV (2 kG) the beam spot can be centred. Focusing effect of magnet is smaller for protons than for muons due to the about three times higher momentum.

Attachment 1:	MCPs.gif 15 kB Uploaded Tue Aug 5 12:46:40 2008 | Hide | Hide all

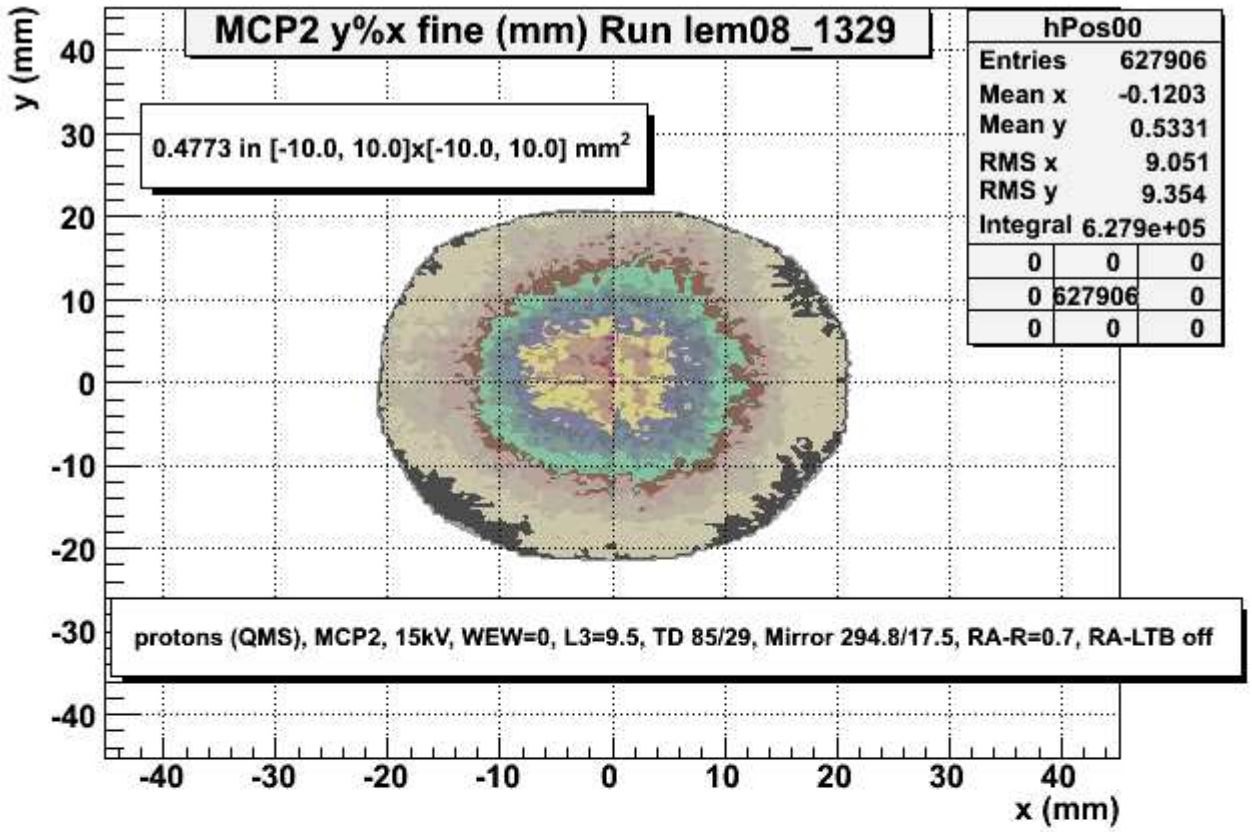


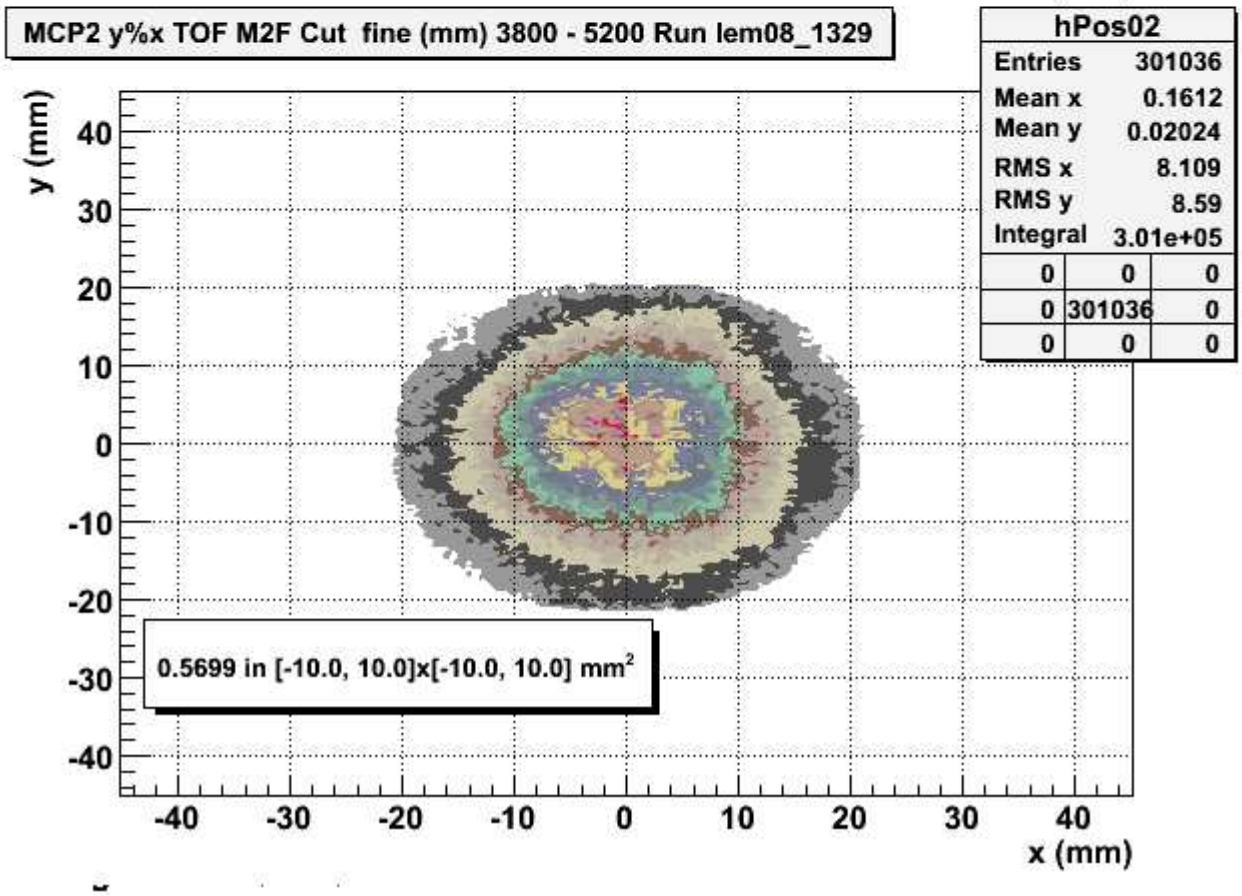
Attachment 2:	lem08_1321_beamspot.gif 27 kB Uploaded Tue Aug 5 17:36:43 2008 | Hide | Hide all



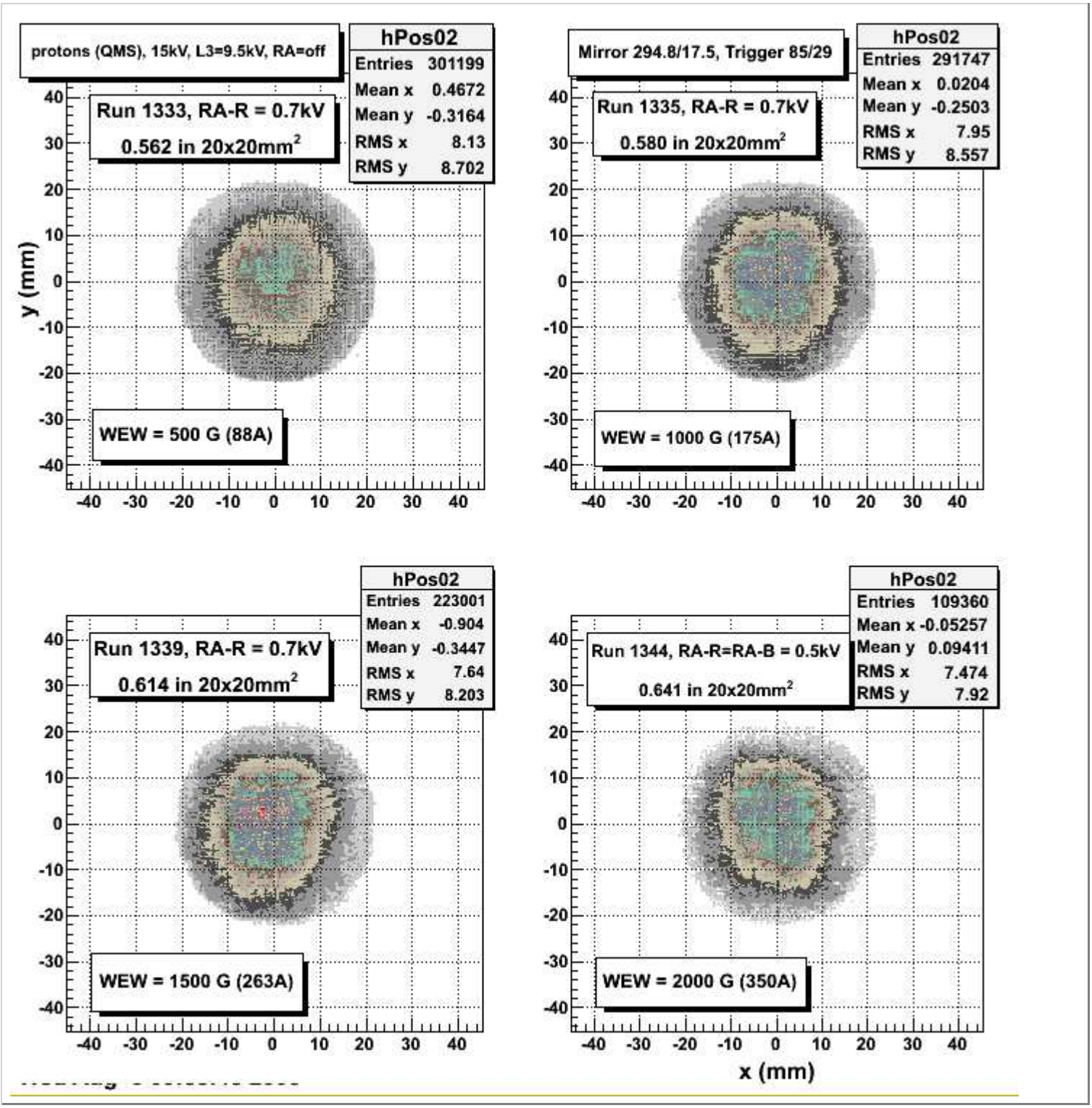


Attachment 3:	lem08_1329_beamspot.gif 36 kB Uploaded Tue Aug 5 17:37:01 2008 | Hide | Hide all





Attachment 4:	protonBeamSpots_RA-off_500-2000G.gif 45 kB Uploaded Wed Aug 6 11:12:45 2008 | Hide | Hide all


protons (QMS), 15kV, L3=9.5kV, RA=off
hPos02
Entries 301199
Mean x 0.4672
Mean y -0.3164
RMS x 8.13
RMS y 8.702
Run 1333, RA-R = 0.7kV
0.562 in 20x20mm²
WEW = 500 G (88A)
Mirror 294.8/17.5, Trigger 85/29
hPos02
Entries 291747
Mean x 0.0204
Mean y -0.2503
RMS x 7.95
RMS y 8.557
Run 1335, RA-R = 0.7kV
0.580 in 20x20mm²
WEW = 1000 G (175A)
hPos02
Entries 223001
Mean x -0.904
Mean y -0.3447
RMS x 7.64
RMS y 8.203
Run 1339, RA-R = 0.7kV
0.614 in 20x20mm²
WEW = 1500 G (263A)
hPos02
Entries 109360
Mean x -0.05257
Mean y 0.09411
RMS x 7.474
RMS y 7.92
Run 1344, RA-R=RA-B = 0.5kV
0.641 in 20x20mm²
WEW = 2000 G (350A)
y (mm)
x (mm)