MPS/MU - NOTE/EP 68-1
LH/ld - 19. 2.1968

MEASUREMENTS DURING THE M.D. - 9.2.68

1) Calibration of monitors in the first part of the e_3 beam

Position	TV 2 (SEC 40	TV 4
Number of protons $Na^{24}(\gamma)$	$1.44 \cdot 10^{14}$	$1.37 \cdot 10^{14}$
Statistic accuracy %	2.1	2.1
SEC 40	20 063	
SEC 40 (corrected for backgr)	19 264	
Factor	$7.5 \cdot 10^{9}$	
Monitor TV 4		29 670
Monitor TV 4 (corrected for backgr)		29 364
Factor		$4.66 \cdot 10^{9}$

Results :

Number of protons = $3.43 \cdot 10^{9} \cdot N_{SEC\ 5}$ (with background correction)

" $7.5 \cdot 10^{9} \cdot N_{SEC\ 40}$ "

" $7.2 \cdot 10^{9} \cdot N_{SEC\ 40}$ (without background correction)

Monitor TV 4 214 mV = $1 \cdot 10^{11}$ protons

Remarks : 5 % beam loss between TV 2 and TV 4. This may be explained by the loss in between. In addition, the vacuum tube was excentric due to the s_4 experiment (12.5 mr - beam) at the height of the s_4 septum magnet.

2) Measurement of external target efficiency

The number of protons incident on the target (tungsten 0.635 cm Ø and 7 cm long) is supposed to be measured by an Aluminium foil and the number of π^- at 7 and 12 GeV/c in the p_1 beam is given by counter measurements ($\frac{\Delta p}{p} = \pm 0.3\%$). The intensity distribution in front of the target is shown in Fig. 1. The density of activated nuclei/cm^2 over an area of 35 cm^2 (in the surrounding of the target) is 0.22/3.6 or 6% per cm^2 of the average intensity hitting the target. This activity cannot be explained by the proton flux. Preliminary evaluation of the ratio $\sigma(F^{18})/\sigma(Na^{24})$ over the target area indicate ~50% of the activity is produced by low momentum particles (e.g. neutrons E < 30 MW), therefore 30% or less of the ejcted protons may hit the target p_1. For consistency a considerably higher fraction of particles < 30 MeV is required in the surrounding of the beam. This will be determined by the Na^{22} activity. This measurement will indicate also the contribution of a source in front of the target (external septum). Results to section 2) will be reported later.

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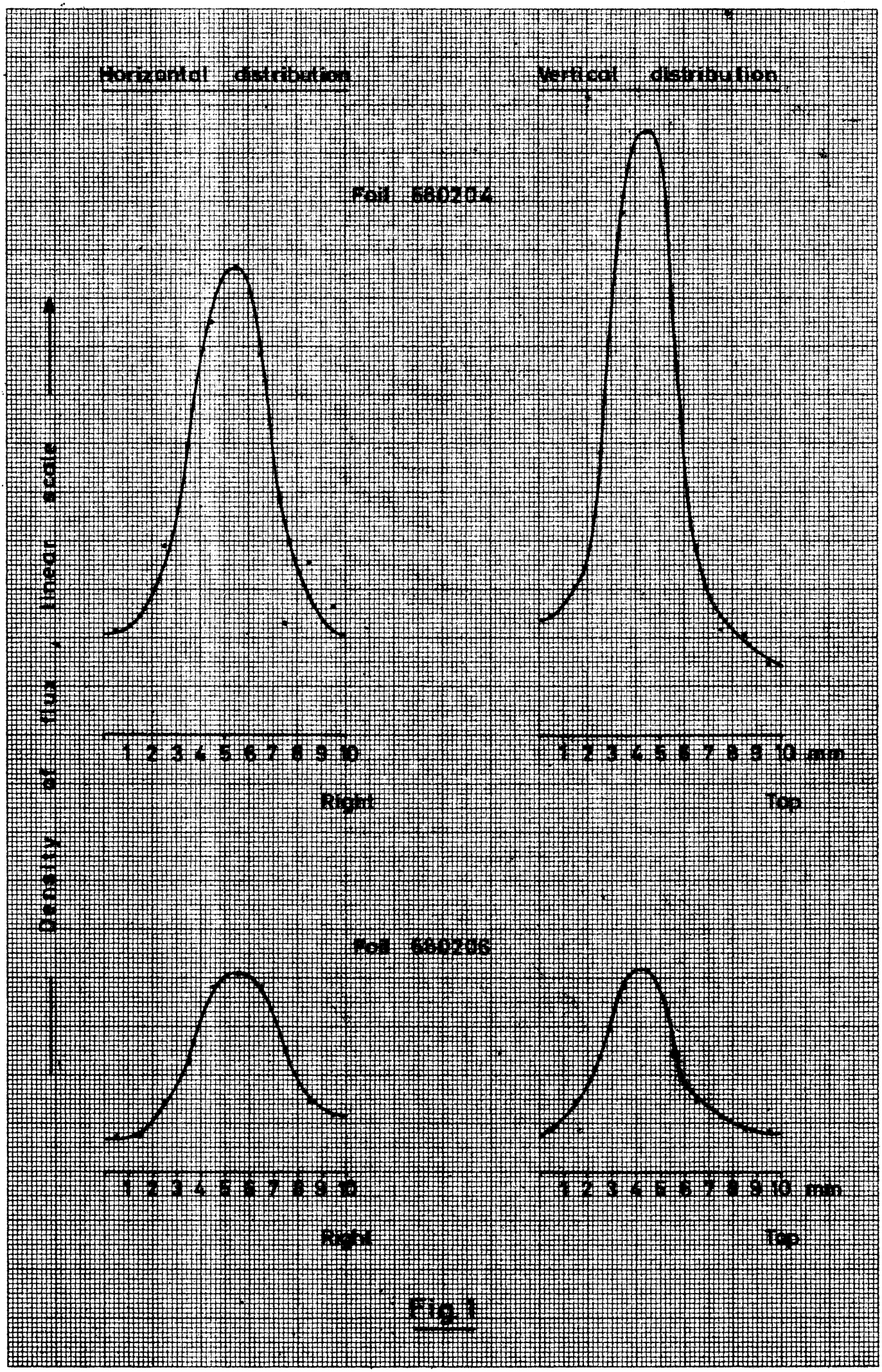

Fig. 1

FABRICATION SUISSE