

PS MACHINE DEVELOPMENT OF 21 MAY 1970

Test of new target 1 (1x1x10)

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A test of comparison of the yield of two targets placed in ss 1 was made, using

- 1) target 1 top 1x1x20 with an angle of  $7^{\circ} 27'$  with respect to the closed orbit, Beryllium oxide.
- 2) target 1 bottom 1x1x10 with an angle of  $11^{\circ} 27'$ , Beryllium oxide.

The operation of both targets is similar. Only a very slight correction to the servo target comparison was necessary to adjust from one to the other.

Two typical records on 50 pulses are compared below:

	<u>Top</u>	<u>Bot</u>
Ip	$3896 \times 10^{10}$ p	$3893 \times 10^{10}$ p
AIC 1	133.92 V	132.27 V
Mon.1 (Ago)	364.308	354,040

The monitor count is the same within 1%. The AIC is less by about 3% for the bottom target.

A report on the observations of the three experimental groups using their beams during the experiment is attached (Dr. A. Astbury).

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Distribution

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P.S. Internal Target Tests 21.5.70

Comparison made at target 1 - both targets on same holder - 'old' - 2.0cm BeO at  
130 mrad  
- 'new' - 1.0cm BeO at  
200 mrad

P.S. Intensity  $\sim 8 \times 10^{11}$  p.p.p. ie kept low. Tip of targets same so have shift  
in effective centres.

Comments on comparison as follows:

d<sub>29</sub> - Pisa - Karlsruhe

Running at 8.0 GeV/c, negatives

Ratio of  $\frac{\text{new (1 cm BeO)}}{\text{old (2cm BeO)}}$  with respect to protons.  $\sim 0.9$

Agoritsas monitor up slightly, no retuning done for new target

m<sub>7</sub> CERN- ORSAY- Vienna

Running at 2.4 GeV/c, positives

	Be (2.0 cm)	BeO (2.0cm)	BeO (1.0cm)
$\pi/k$	4.7	5.0	5.6
$k^+$ /Agoritsas	7.5	7.1	6.9

Separator curve performed with new target but did not return beam.

g<sub>9</sub> CERN- Bologna

Running at 1.6 GeV/c, negatives

Ratio of  $\frac{\text{new (1cm BeO)}}{\text{old (2cm BeO)}}$  with respect to protons  $\sim 1.16$ .

Agoritsas monitor - no change - beam returned to find new target.

CONCLUSION

There appears to be very little detectable difference in the relative target efficiencies of 2.0 cm and 1.0cm of BeO. The losses in d<sub>29</sub> and m<sub>7</sub> may possibly be regained with some tuning. The target heating test was postponed.