

## Vertical Tune with/without E10 and H10 ?/2

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No. 4

H10 Magnet was not in Blumberg  
Ring so could not try extraction.

FEB STUDIES REPORT

APRIL 10, 1977

1600 - 5:00

BENNETT, BLUMBERG, GILL, KEANE

On at 1830, CBM =  $1.5 \cdot 10^{12}$  ppp (detuned).  
FEB at 700 ns on 28.7 GeV/c flat top. Radial  
position  $\approx \pm .4$  mm at E3. Triggered E and H  
superperiod  $\lambda/2$  backleg winding bumps at  $\pm 2.25$  ms  
(12 ms half sinusoid). Noted beam loss at E3,  
which suggests they cause a  $\nu_H$  shift. Tried to  
measure  $\nu_H$  but data still poor. Switched to  
vertical  $\nu$  measurements. Got

E & H bumps off	$\nu_V = 8.653 \pm .012$
only E bump on	$8.644 \pm .024$
only H bump on	$8.642 \pm .022$
E and H bumps on	about same as above as predicted by beam code, no $\Delta\nu_V$ .

Using E10 flag, noted that outer edge of beam  
with backleg bumps on is at 1.82" from beam center  
axis — approximately what beam code gives.

Moved E10 septum in. Could only skew it by  
-2.4 mrad instead of desired -4.7 mrad. Noted that  
only  $\sim 4\%$  beam loss with down stream end -1.6"  
from B.C. axis. Not much different at -1.5".  
We did note that losses were strongly dependent on  
CBM — no loss at  $.8 \cdot 10^{12}$ , 25% lost at  $1.7 \cdot 10^{12}$ .  
Beam size is strongly dependent on CBM.

The E10 magnet does not appear to be an  
injection aperture at above CBM at 1.5" w.r.t.  
B.C. axis (downstream end). Our desired operating  
position is about 1.6".

2215: F Superperiod leak aborted studies.