

Mlle P. SHINNIE

E-6

ISR PERFORMANCE REPORT

CERN LIBRARIES, GENEVA

RUN 312 MD - 14th May, 1973

CM-P00071553

RING 2, 26.6 GeV/c, 20 b, 5C26

EQUIPMENT TEST : AUTOMATIC MEASUREMENT OF DEBUNCHING TIME

The instrument is designed to measure the time (ms) between RF OFF (or IF) and the first minimum in the decay of the RF structure of the bunches*. This "debunching time" (T_{30}) may then be used to evaluate the momentum spread of the bunches by :

$$\frac{\Delta p}{p} = (f_{RF} \eta T_{30})^{-1}$$

where f_{RF} = radio frequency

$$\eta = \left(\frac{1}{\gamma_t^2} - \frac{1}{\gamma^2} \right)$$

The circuit was tested at injection orbit and found to perform satisfactorily. The readings obtained over about 300 pulses varied between 17.8 and 18.3 ms. The reading produced by the HP spectrum analyser was 18.0 ± 0.5 ms. The repeatability of the electronics should be of the order of 0.05 ms, so it was assumed that the variation in the readings was produced by PS energy jitter.

It is hoped that the instruments (one for each ring) will be installed before the end of the present shutdown.

S. Myers

A. Barlow

* "Measurement of Bunch Parameters at Injection" ISR running-in report, 13/12/71, RUN 131, 133, K. Hübner-