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## Test of High Voltage (120 kV peak) Acceleration

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The first part of the period was used in an unsuccessful attempt to improve the spiraling beam present with the operating point of  $v_x \approx 8.64$ ,  $v_y \approx 8.77$ . Then acceleration with high initial voltage ( $\approx 120$  kV) was tried. This gave about  $3 \times 10^{12}$  max. It was noted that by reducing the linear pulse to  $\approx 90$  psec from 130 psec the machine seemed to operate in a more reproducible manner. Also the amount of beam present during the first quarter cycle of phase oscillation was less but the overall intensity remained the same. Next quasi-adiabatic capture was attempted and after considerable tuning of the RF parameters plus some low field corrections a few pulses at  $5 \times 10^{12}$  were obtained and operation over 4.5 was fairly steady. If the linear pulse was lengthened the intensity dropped by  $\approx 10\%$  and large bunch shape oscillations lasting for up to  $\approx 5$  msec appeared. The radial loop was slowed down but this did not remove the effect. Also switching to the F-15X FMR as a source of the bootstrap RF did not help. Then the effect started to disappear on most pulses and the intensity drop was only  $\approx 5\%$ . Returned to the high voltage capture mode and obtained at best  $3 \times 10^{12}$  again. Then the low voltage mode was tried again but at best could only obtain  $4 \times 10^{12}$ . The injected intensity after multistep was only  $\approx 9-10 \times 10^{13}$ . By measuring the Band phase oscillation frequency it was possible to calculate the capture voltage for the quasi-adiabatic mode. A value of  $6.6$  kV <sup>was obtained</sup> <sub>was obtained</sub> nearly the pre-shutdown values of  $\approx 50$  kV!