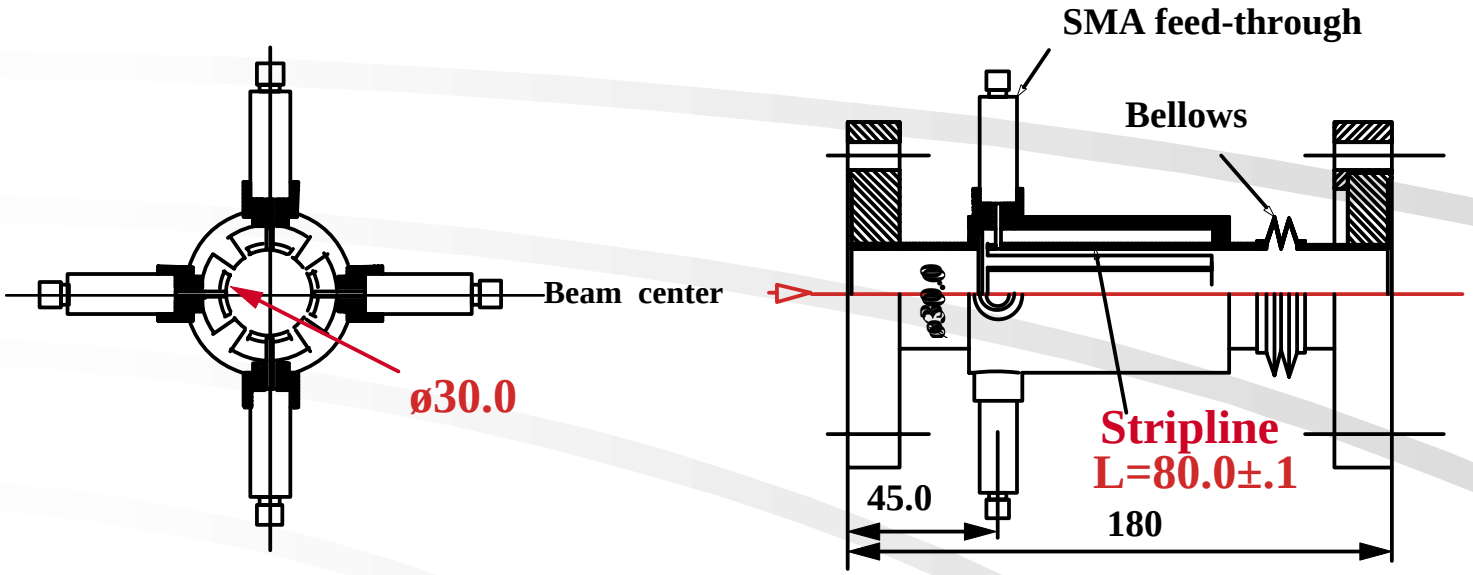
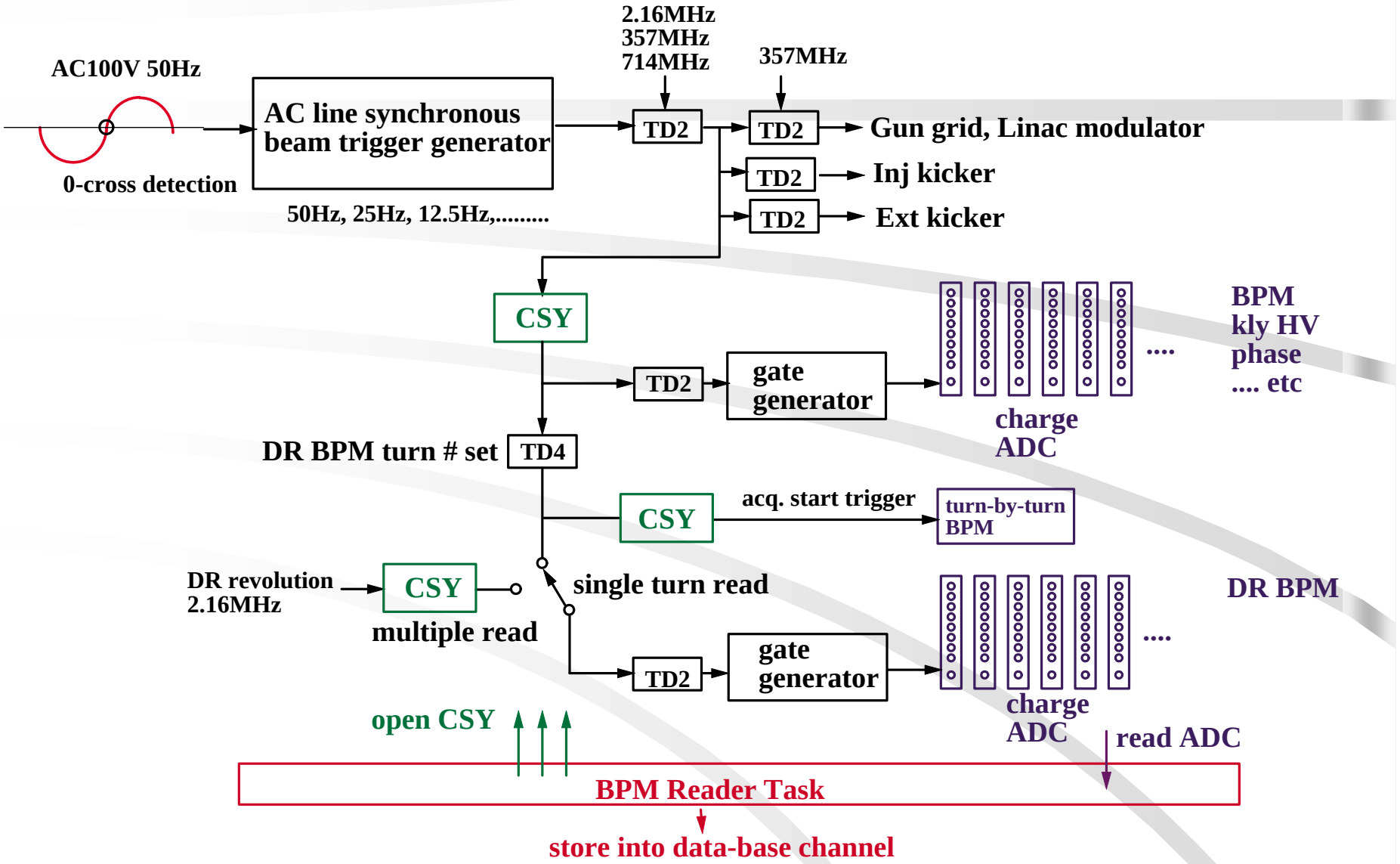
Example of BPM pickup

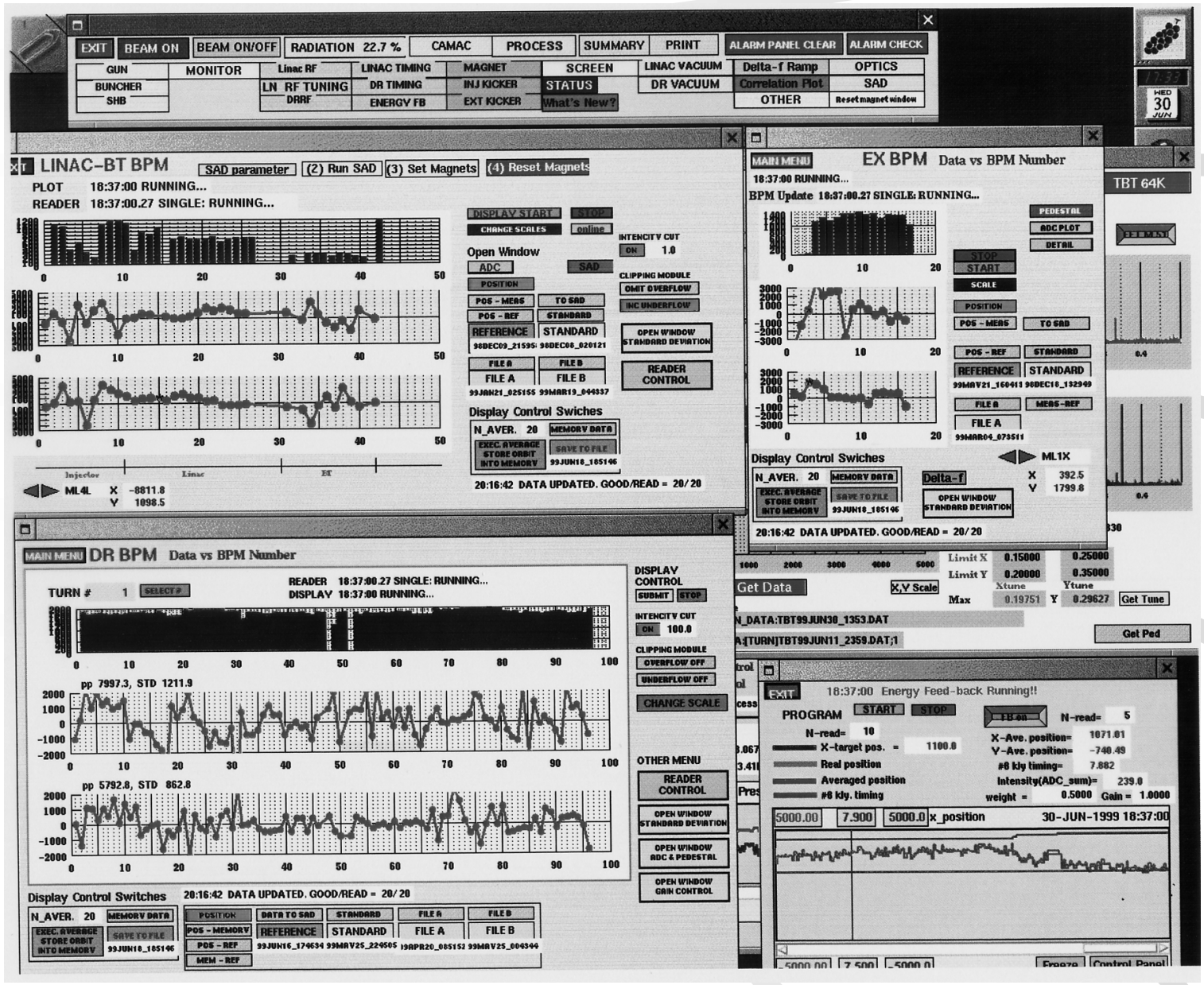
LINAC strip-line BPM



Synchronous Data Acquisition in ATF



Single shot orbit from Gun to Extraction



RF gun test at ATF Linac

for low beam loss injection into DR

for testing possible replacement to laser-photo-cathode RF gun

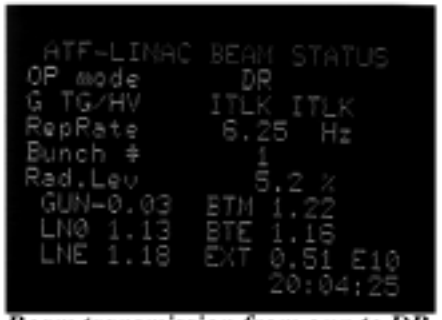
7/9/2001 ~ 9/18/2001

type: BNL gun IV
copper cathode
PULRISE Laser (YLF)
1nC single bunch
14 mm.mrad emittance

04 Sep 2001

Beam test results

DR injection study (31 Aug 2001)



Beam transmission from gun to DR
~100% transmission at BT end

DR storage stability (10min)
~10% intensity fluctuation and missing beam pulse

Injector beam results: (04 Sep 2001)

E = 77.9 MeV dE/E = 3.5% (full width)

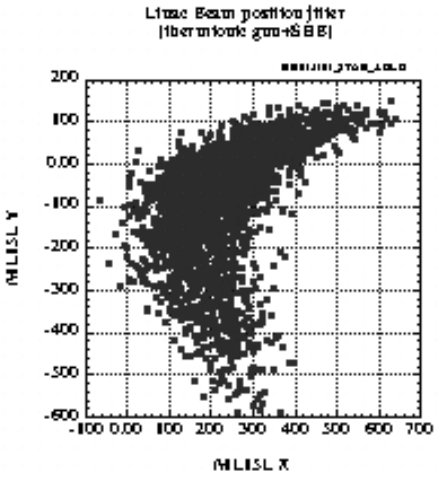
N = 7.7E9 e-/bunch (1.2nC) single bunch, 6.25Hz

bunch length (FWHM) = 13.9 ps

normalized emittance = 13.2(X), 18.2(Y) mm.mrad

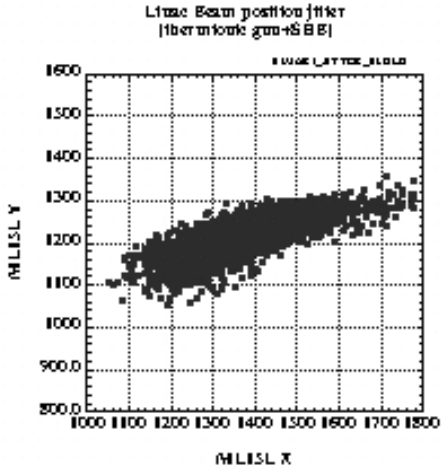
Linac Beam position jitter (ML1SL)

Thermionic gun + SHB, Buncher



$\sigma_x = 103\ \mu m$

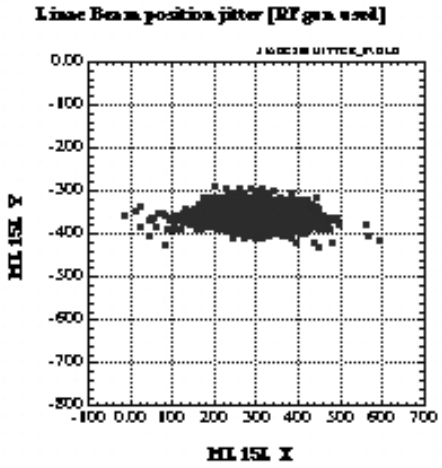
$\sigma_y = 138\ \mu m$



$\sigma_x = 117\ \mu m$

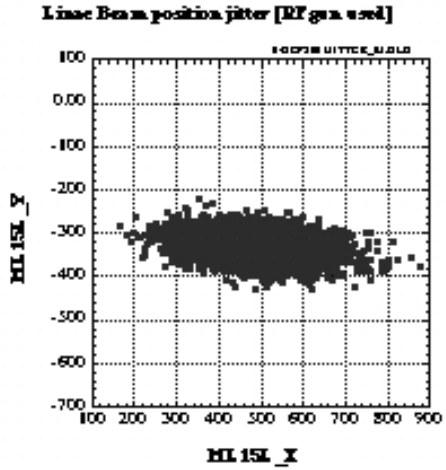
$\sigma_y = 44\ \mu m$

RF gun



$\sigma_x = 63\ \mu m$

$\sigma_y = 18\ \mu m$

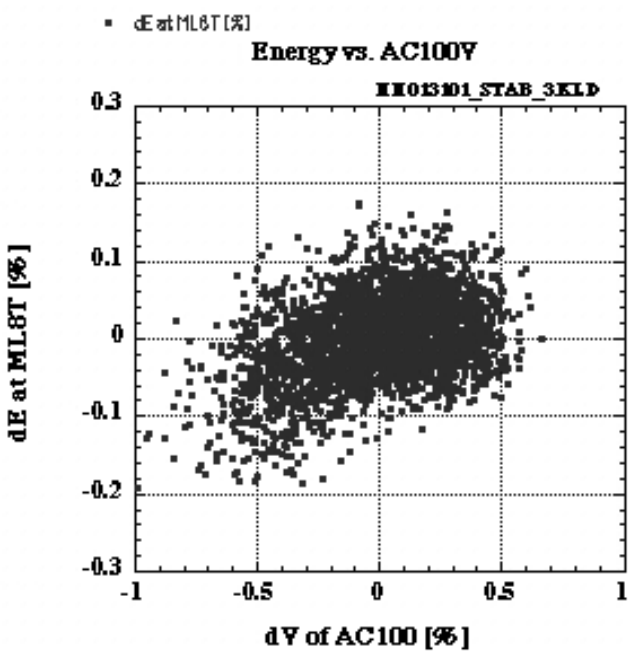


$\sigma_x = 106\ \mu m$

$\sigma_y = 29\ \mu m$

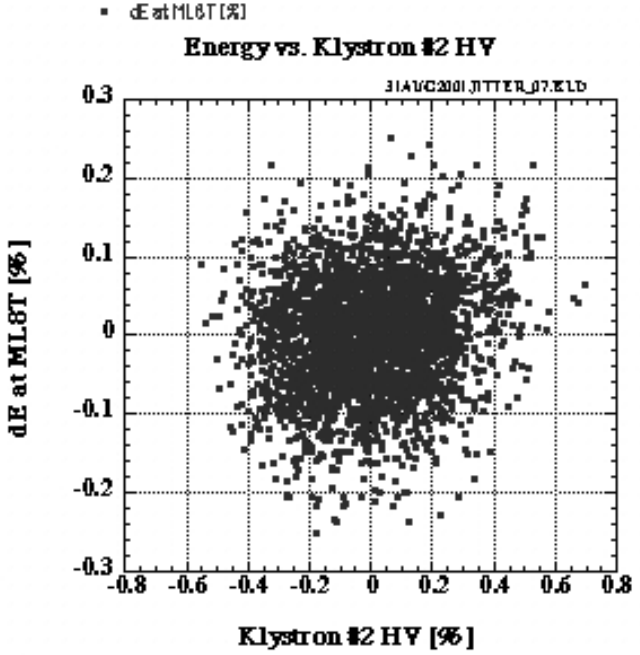
Linac Beam Energy jitter (ML8T X)

Thermionic gun + SHB, Buncher



Energy jitter (rms) = 0.053%

RF gun



Energy jitter (rms) = 0.074%