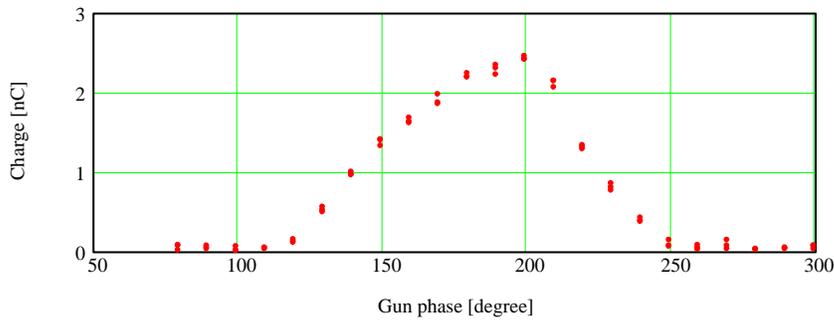
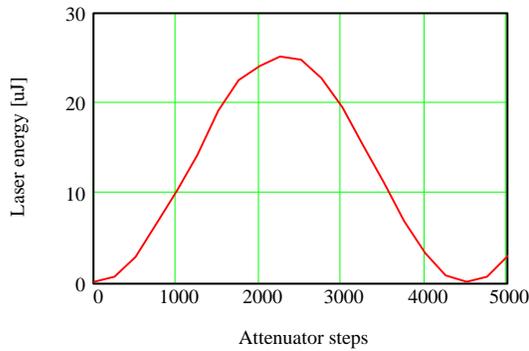


Photoinjector performance

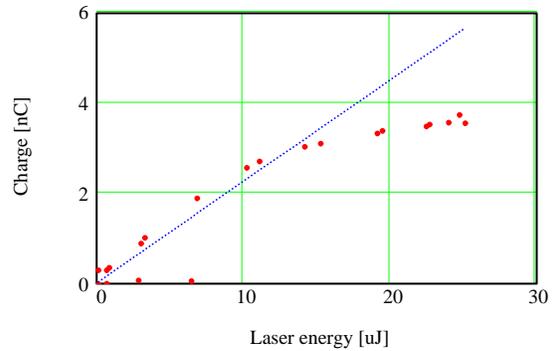
Charge (nC) vs. laser to RF nominal phase (degrees with arbitrary zero point):



Laser energy (microJoules) vs. laser cross polarizer (step number, arbitrary units):



Electron charge (nC) vs. Laser energy on the cathode (microJoules):



Derived quantities:

Maximum available laser energy [microJoules]:

Space-charge limited laser energy [microJoules]:

Quantum efficiency [nC/microJoule]:

Quantum efficiency [percent]:

Maximum (space-charge limited laser energy) charge [nC]:

measured at a laser energy of:

and at a nominal gun phase of:

Statistics:

Laser energy standard deviation [%]

Peak to Peak laser energy jitter [%]:

Operating point:

Nominal charge [nC]:

@ Gun Phase [deg]:

Gun Forward Power [Volts]:

MaxLaserEnergy = 25.221

NomLaserEnergy = 9.083

QuantumEfficiency = 0.225

0.466 QuantumEfficiency = 0.105

MaxCharge = 2.458

LaserEnergyMean = 9.623

MaxGunPhase = 198.98

LaserEnergyStdDev = 2.384

LaserEnergyPeak2Peak = 12.831

NomCharge = 0.942

NomGunPhase = 138.98

GunFrwdPower = -1.057

Measured on 8/4/00

$$M := \begin{bmatrix} 6.40 & 6.37 & 6.33 & 6.31 & 6.28 & 6.25 & 6.22 & 6.19 & 6.17 & 6.14 & 6.10 & 6.08 & 6.06 & 6.03 \\ 14 & 20 & 34 & 37 & 39 & 37 & 36 & 32 & 30 & 25 & 24 & 23 & 21 & 14 \end{bmatrix}$$

▶ Peak current fitting

Peak current [amps]: $I_{\text{peak}} = 129.3$

