

EXPERIMENT DESCRIPTION AND REQUIREMENTS

THE SUBMITTED INFORMATION IS CONSIDERED FROZEN. MODIFICATIONS TO THE EXPERIMENT SHOULD BE APPROVED BY THE DIVISION MANAGEMENT.

Experimental Hall: LEFR Gun Test Stand (GTS)

Experiment Number:
LDRD 2016-2a-2

Days Approved: 3 years
Estimated Installation Time: N/A
Estimated Checkout Time: N/A

Spokespersons: Riad Suleiman and Matt Poelker

Short (Technical) Description of the Experiment (max 100 words)

More information can be found at:

https://wiki.jlab.org/ciswiki/index.php/Magnetized_Beam_LDRD

List Beam Energies and Beam Days: (e.g. 30 Days at 11 GeV, 20 Days at 8 GeV)
Two years at 350 kV
Third year at 200 kV

List Range of Beam Currents: (e.g. 10-60 μ A)
32 mA (200 kV), 4 mA (350 kV)

Base Equipment Used

(including description of conditions)

1. LEFR Gun Test Stand (GTS) OSP: FEL-14-34782-OSP
2. GTS Glassman High Voltage Power Supply (HVPS) OSP: FEL-14-33223-OSP (600 kV, 5 mA HV supply)
3. Laser LOSP: FEL-xx-xxxxx-LOPS (green, 5 W)
4. Electron gun and photocathode preparation chamber

Modifications to Base Equipment

(or use of base equipment with different conditions)

1. Beam Line modifications: add slits, YAG viewers and three quads
2. Electron gun modifications: add solenoid magnet around HV chamber

New Equipment

1. A second HV supply: Spellman (225 kV, 32 mA). New OSP needed before use in third year.
2. Gun solenoid magnet
3. Solenoid power supply: (450 A, 150 V) that requires 480 V and LCW

Target Requirements: N/A

**Beam Line Requirements
(including description of conditions)**

Utilities Requirements

Power (MW): 0.1 MW (solenoid magnet power supply)

Power Supplies (V, I): (150 V, 450 A)

Cryogenics (T, g/s): N/A

LCW (gpm): ? gpm (solenoid magnet power supply) + ? gpm (solenoid magnet) + 2.5 gpm (beam dump)

Cabling (#, ft): N/A

Other

Additional Requirements

Hazardous Materials: N/A

Flammable gases: N/A

Pressure Vessels: N/A

Platforms or Scaffolding: N/A

Other