**SAD 2018 – 200 kV Gun**

1. Install 350 kV HVPS
   1. PSS/HVPS interface chassis
   2. QE scan control w/ supply OFF
   3. SF6 pressure vessel certification
   4. Assembly and operational test at UITF
   5. Crane SF6 supply/resistor tanks, gas/Dilow, cables to tunnel
   6. Install Glassman controls, Software, PSS interface chassis in ISB
   7. Transition 150kV to 350kV Glassman controls/software
   8. PSS certification of 350kV HVPS to resistor tank
2. 200 kV chamber upgrade
   1. Secure vacuum, HV, magnets, photocathodes,
   2. Vent gun, replace electrode, align anode, add NEG/BPM tube
   3. Attach gas conditioning hardware
   4. Bake, activate NEG’s, cooldown, leak check
   5. Final 2B and retro-reflection alignment
   6. Instrument BPM’s, magnets, RadMon, HV, vacuum, anode
   7. Gas condition to 200 kV w/o vacuum, anode, x-ray
   8. Pump out gas leak/valve
3. Gun2 ready for Fall Program (130kV)
   1. Heat/activate photocathode
   2. QE scan, various methods
   3. Restore beam to fc#1
   4. Check energy stability w/ Wien, spectrometer, chopper
   5. Benchmark beam v. charge (bunchlength, transmission, emittance)
4. Gun2 beam test 200 keV
   1. Test magnets for limiting resistors, PS, temps
   2. Condition chopper RF for 200 kV power level
   3. Safety procedure to mitigate no PSS kicker
   4. Adjust HV window comparators (dipole, HVPS)
   5. Restore beam to fc#1, like UITF
   6. Repeat energy stability w/ reduced Wien, spectrometer
   7. Turn on chopper, measure deflection v. power, perform chopper setup
   8. Repeat benchmark beam v. charge (bunchlength, transmission, emittance)

**SAD 2019 – Baked beam line + 2 Wien spin flipper**

1. 200 kV Wien filters
   1. Wind lower resistance coils
   2. Modify vacuum chamber accept new coil
   3. Install 20A supplies
   4. Map magnet on 20A limit
   5. Modify electrode insulator/spring
   6. Install 30kV supplies, talk to them
   7. Safety assessment for high voltage
   8. Design HV switches/software interface
2. Magnets
   1. Is upgrading solenoids a Must, Should, or Like?
   2. Dipole will run fine at ~3A
   3. Haimsons are near limit, but will work fine
3. PSS kicker
   1. Needs to be upgraded
   2. Can we consider moving to A3 (so that A1/A2 can be retracted)
4. RF
   1. Will retain prebuncher
   2. Is it sufficient for 200 keV?
5. Diagnostics
   1. Map M15m for PQB and repurpose
   2. Retain just 1 harp?
   3. Remove Brock cavity
6. Apertures/Cups
   1. Are new thermal measurement needed
7. Layout
   1. ME
   2. Elegant
   3. GPT

**SAD 2020 – Chopper + Booster + 5 MeV beamline**

Chopper to QCM

1. 6 beam Chopper
   1. RF/power design
   2. GPT simulation?
   3. Mechanical design
   4. Aperture controls
   5. Safety integration
2. Capture
   1. Plan to remove?
   2. Simplifies space, vacuum/IP’s, LCW skid, RF
3. 500 keV spectrometer
   1. Move closer to cryounit?
   2. Eliminate PSS kicker if downstream ?
   3. Increase pipe ID w/ larger gap for 200 keV ?
4. Diagnostics
   1. Have two bpm’s for launch into booster
   2. Have one harp in front of booster
   3. YAO cavity response for 200kV beam, new amplifier?
5. Magnets
   1. Map MFL0I07 solenoid

Booster to 0L03

1. Booster
   1. Assessment at UITF
   2. Cryogenic integration at CEBAF v. QCM
   3. Klystron integration at CEBAF vs. QCM
   4. Optimum energy/range e.g. 6.3 MeV or dynamic optimization?
2. 0L Beam
   1. Is optimum energy 6.3 MeV, or do we have dynamic capability now?
   2. How to improve routine setup/matching
   3. Lots of steering correctors/shielding – can we simplify this?
3. Beamlines
   1. Spectrometer
   2. Mott
   3. Bubble