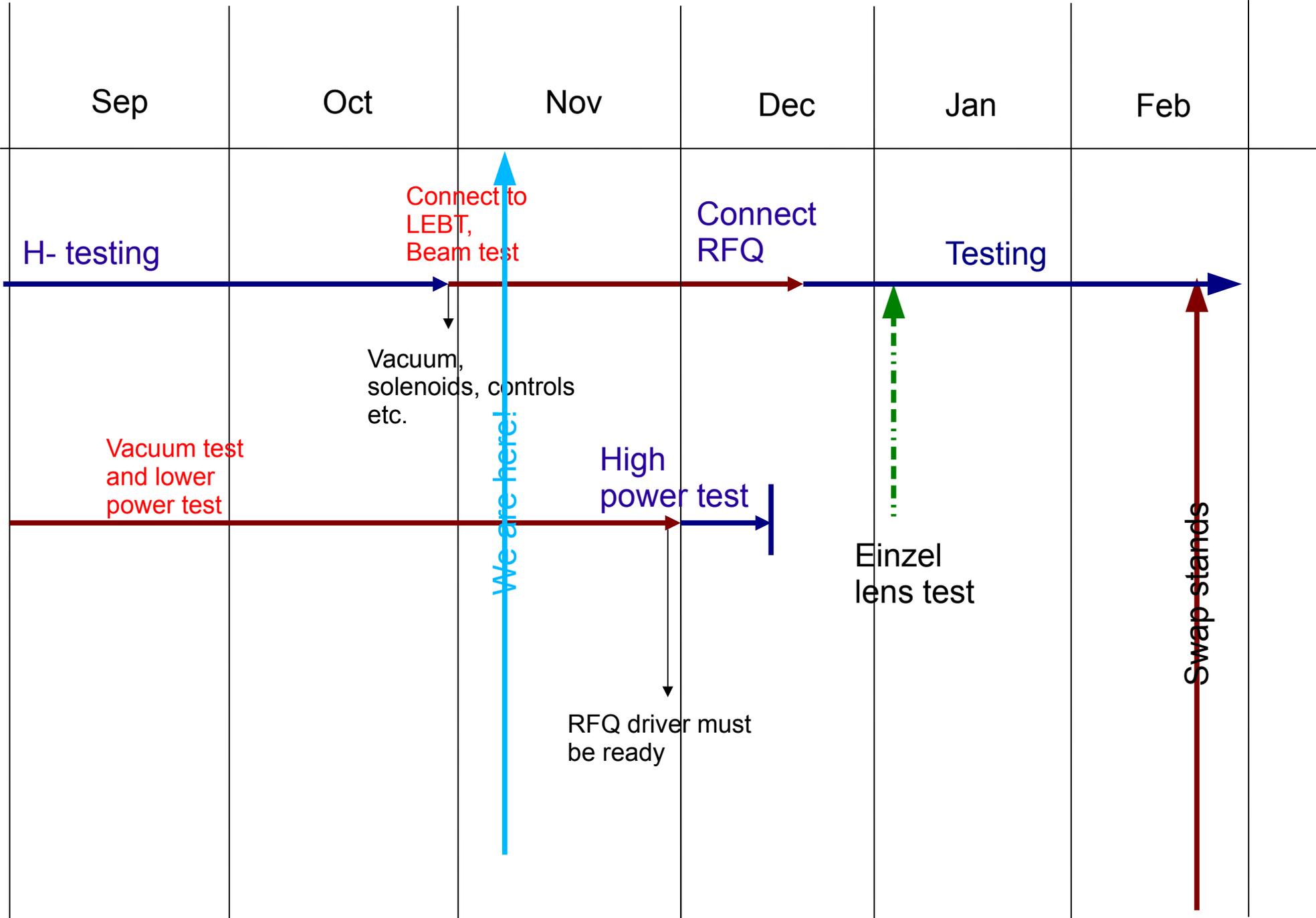


Pre-injector Upgrade Updates (26 Oct 2011 – 09 Nov 2011)

C.Y. Tan
09 Nov 2011



Sep

Oct

Nov

Dec

Jan

Feb

H- testing

Connect to LEBT, Beam test

Connect RFQ

Testing

Vacuum test and lower power test

Vacuum, solenoids, controls etc.

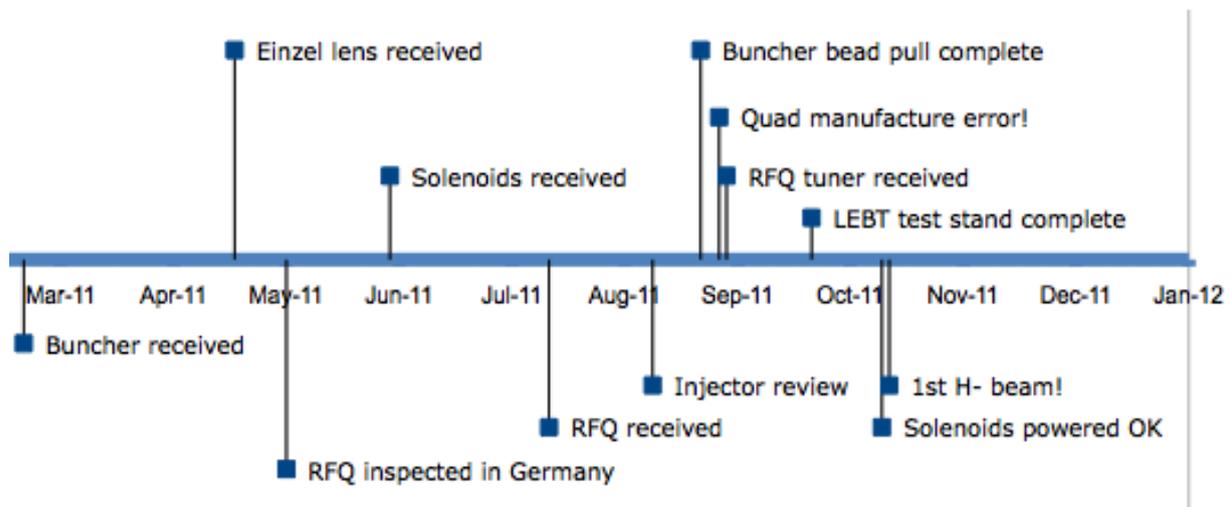
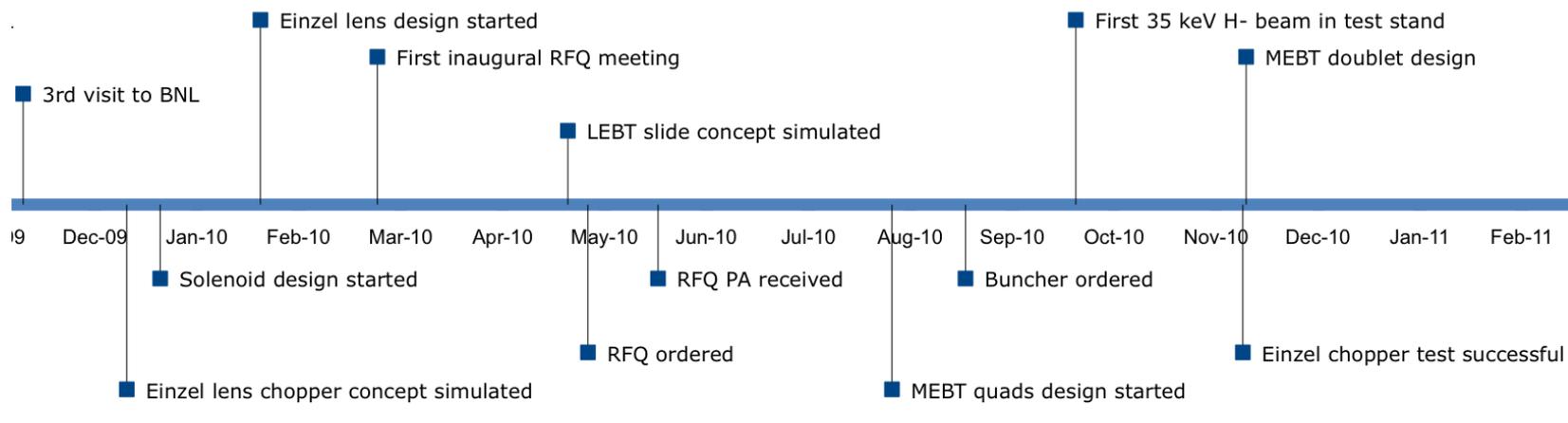
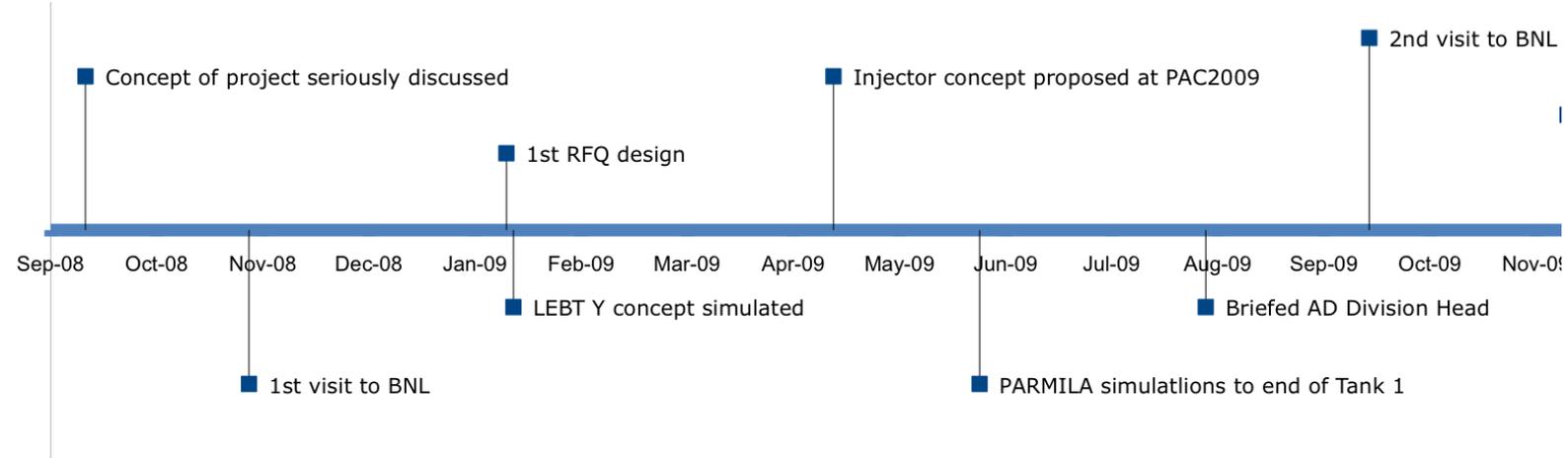
High power test

Einzel lens test

RFQ driver must be ready

Swap stands

We are here!



DANGER
HIGH
VOLTAGE

DANGER
HIGH
VOLTAGE

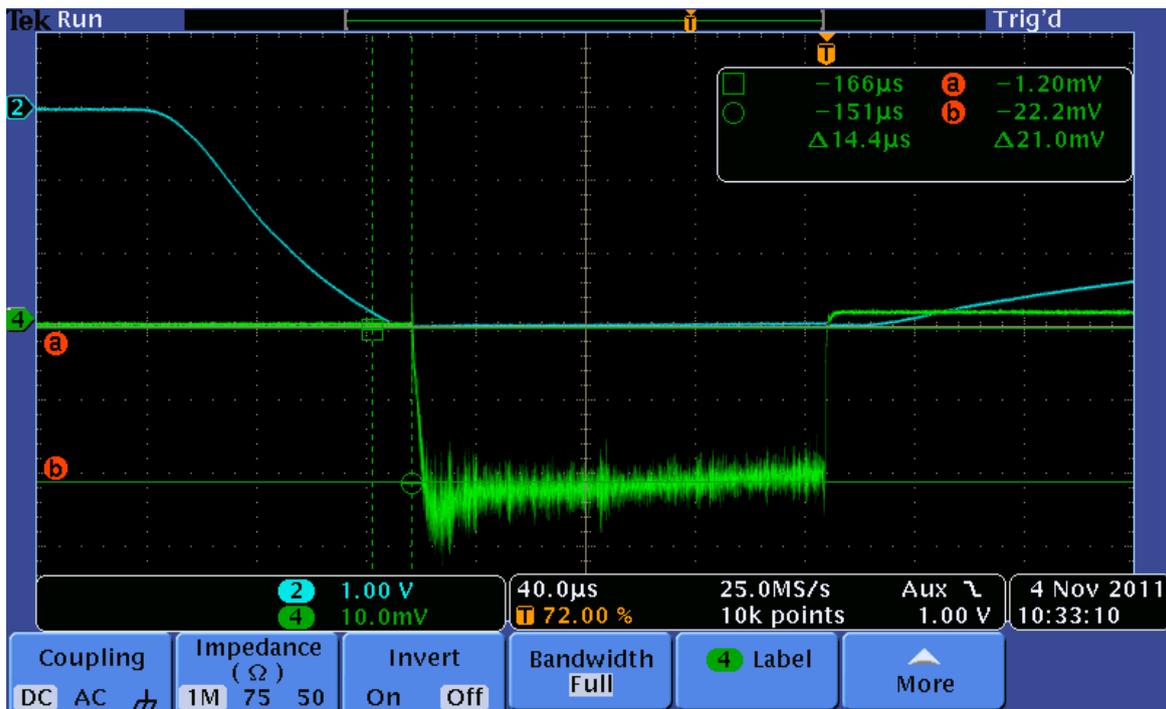
DANGER
ELECTRICAL
SHOCK
Hazard

2013 BURNS MACHINE CO.
MILWAUKEE, WI



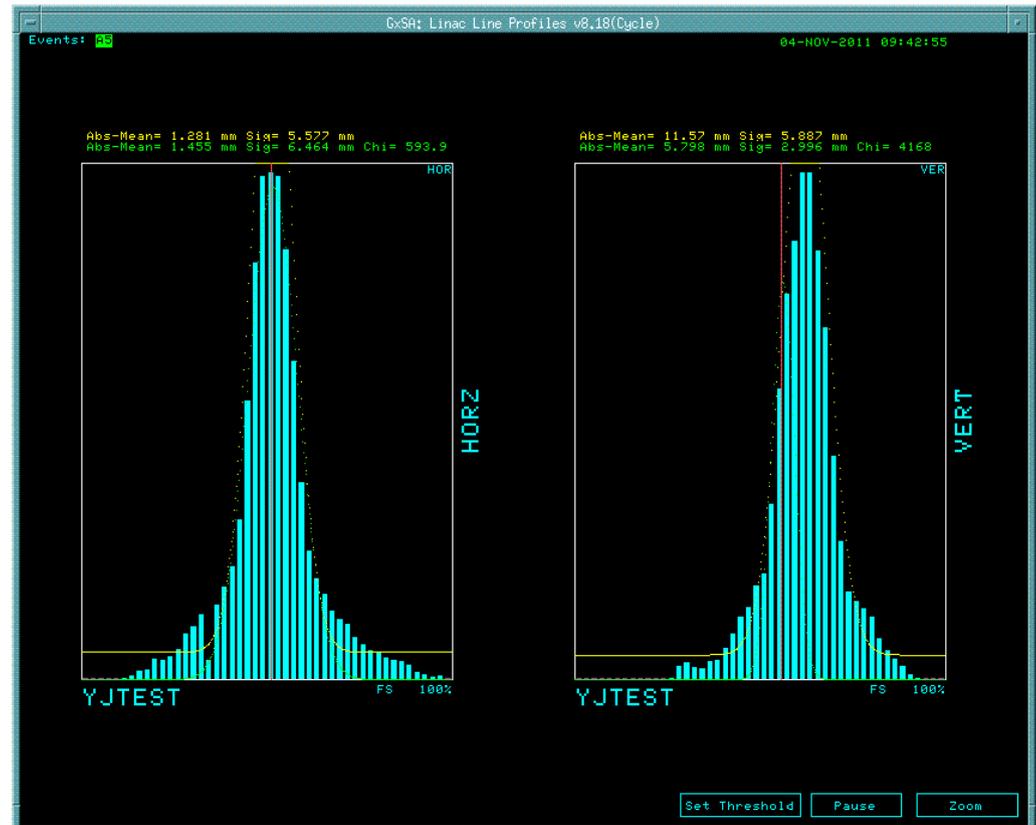
Latest

- Source to 35 kV, 150 us pulse width, 15 Hz repetition rate (no beam). Good enough for testing! (31 Oct 2011)
 - 1st attempt: Very small arc < 1 A. Suspect no cesium! Wrong!
- 1st beam 04 Nov 2011!
 - Vacuum leak? Not found.
 - Added more pumps.
- Water is flowing in the RFQ
 - Janet Schmidt is here to tune the RFQ.

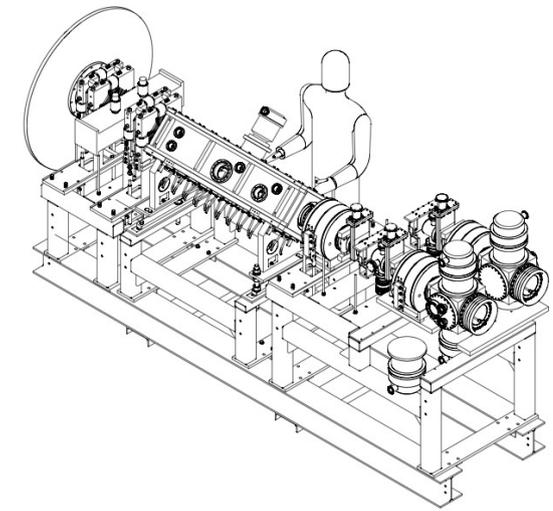
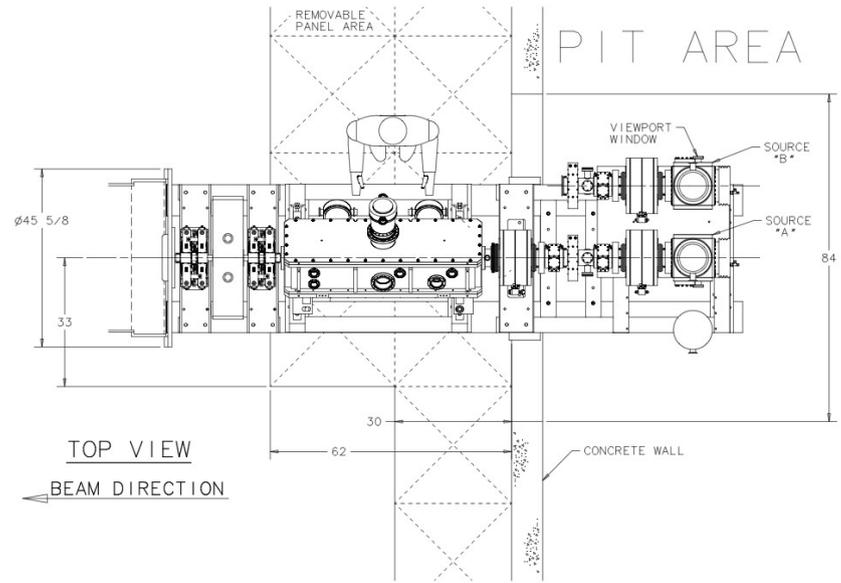


30 kV extraction, 22 mA beam. 16 averages.

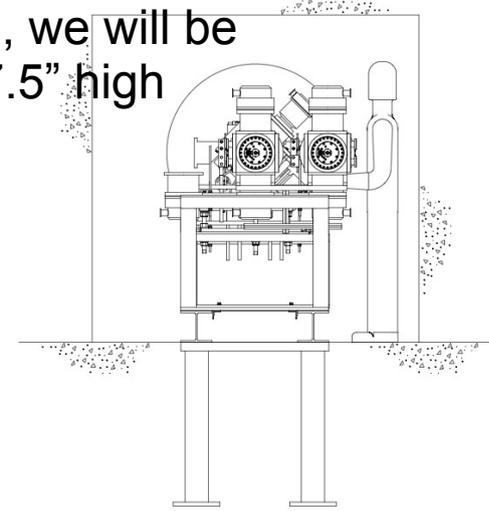
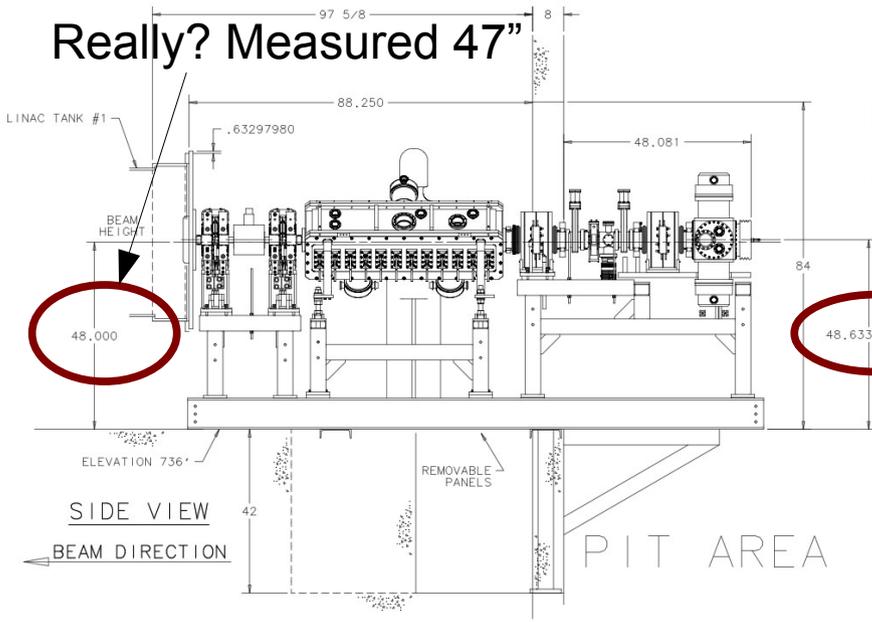
15 kV extraction, solenoid 1 on @ 300A. Solenoid 3 off.



REV	DESCRIPTION	DRAWN	DATE
		APPROVED	DATE

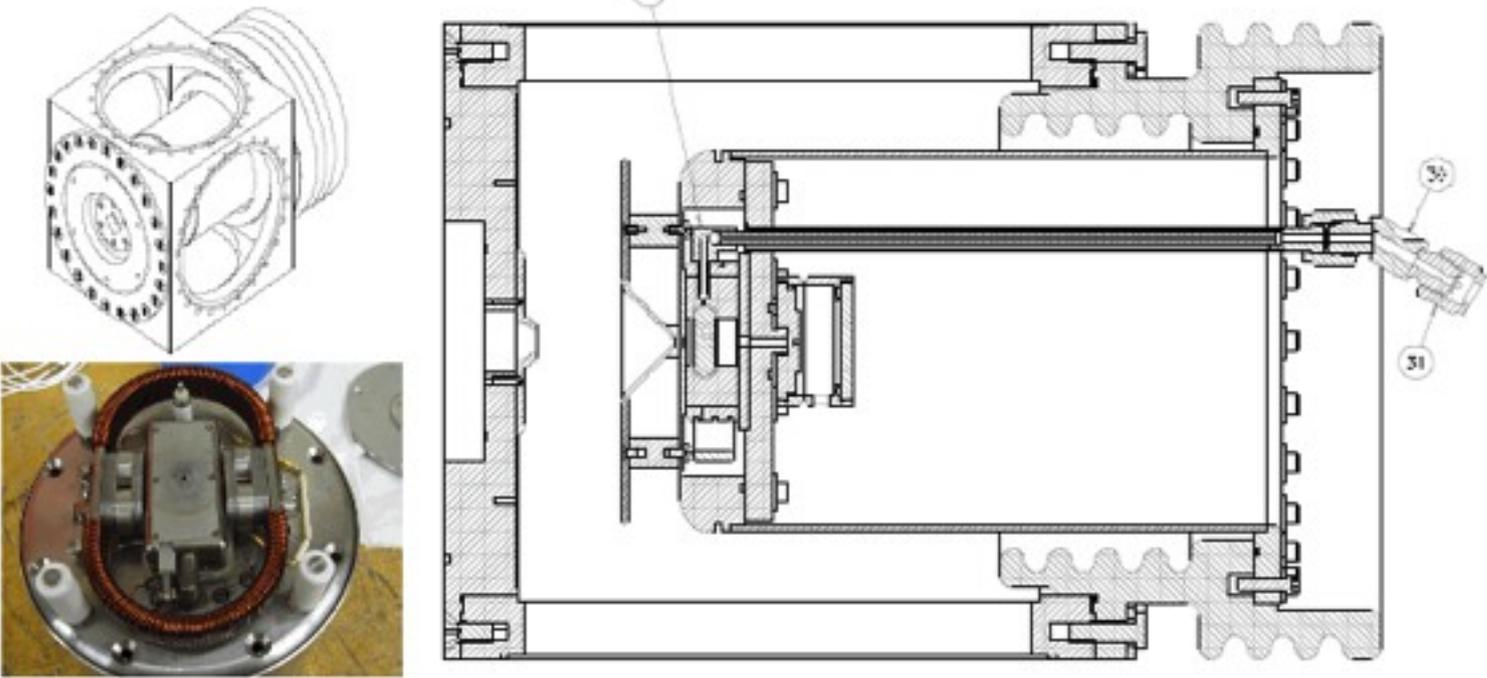


PREACCELERATOR
PRELIMINARY
LAYOUT
APRIL 27, 2011



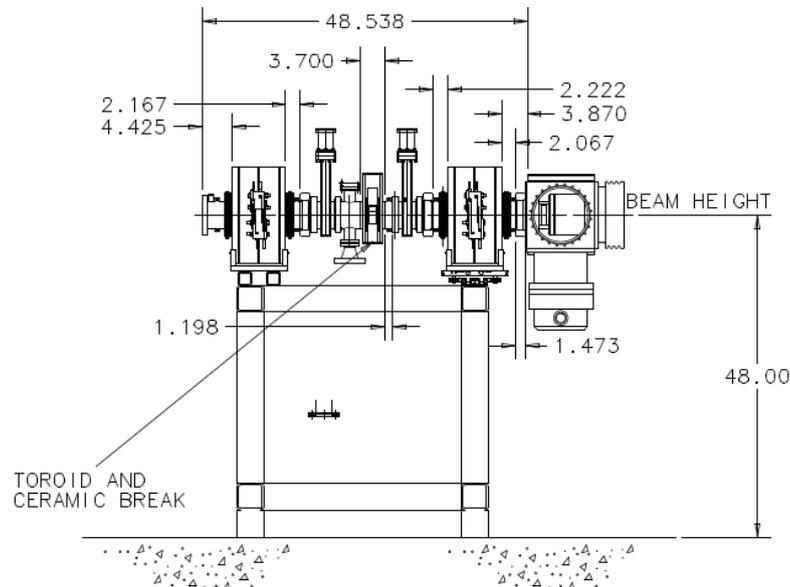
UNLESS OTHERWISE SPECIFIED			ORIGINATOR
+	+	+	DRAWN
+	+	+	CHECKED
+	+	+	APPROVED
1. BREAK ALL SHARP EDGES MAX.			USED ON
2. DO NOT SCALE DRAWING.			
3. DIMENSIONS BASED UPON ASME Y14.5M-1994			
4. MKV, ALL MKV SURFACES			MATERIAL
5. DRAWING UNITS: U.S. INCH			
FERMI NATIONAL ACCELERATOR LABORATORY UNITED STATES DEPARTMENT OF ENERGY			
SCALE	DRAWING NUMBER	SHEET	REV
		1 OF 1	
CREATED WITH :	GROUP :		

Source Status



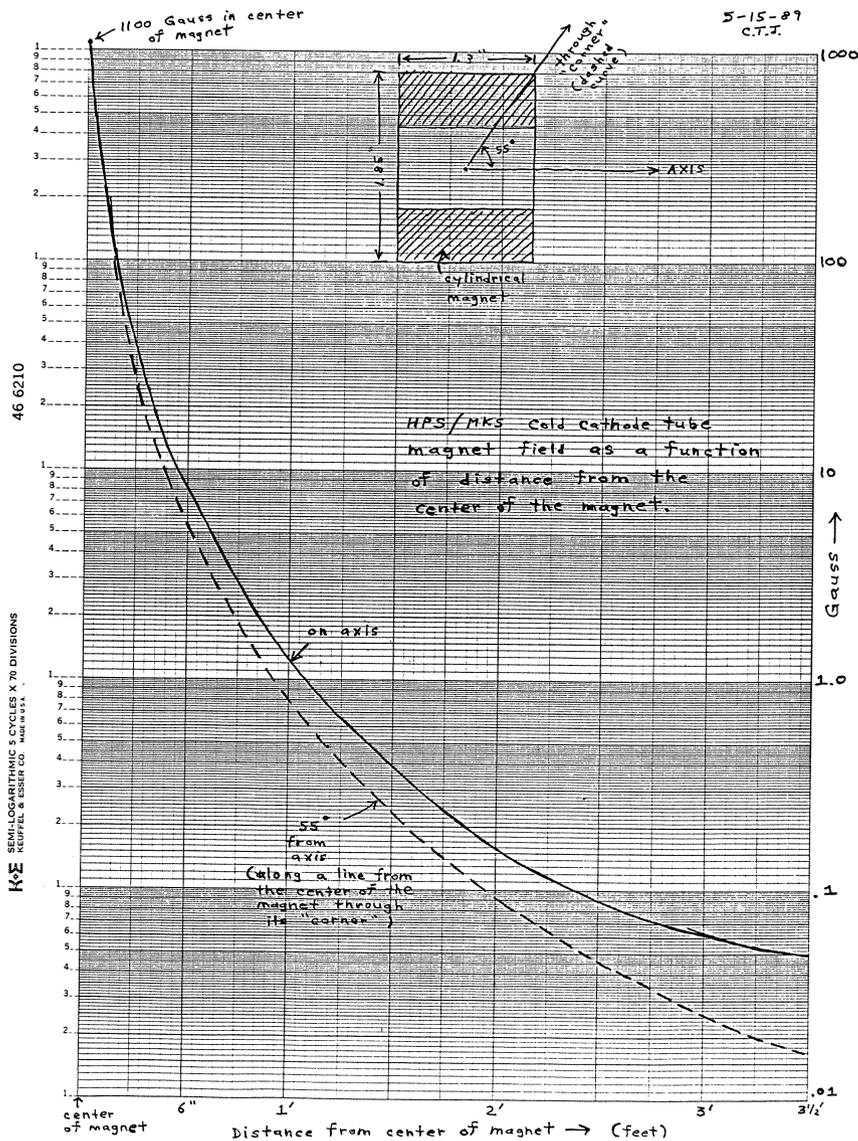
Device	Status	Comments
Bottom source turbo OFF	Repaired (08 Oct)	ceramic standoffs broke. Pieces may be in the turbo. Removed and inspected 08 Oct

LEBT Status



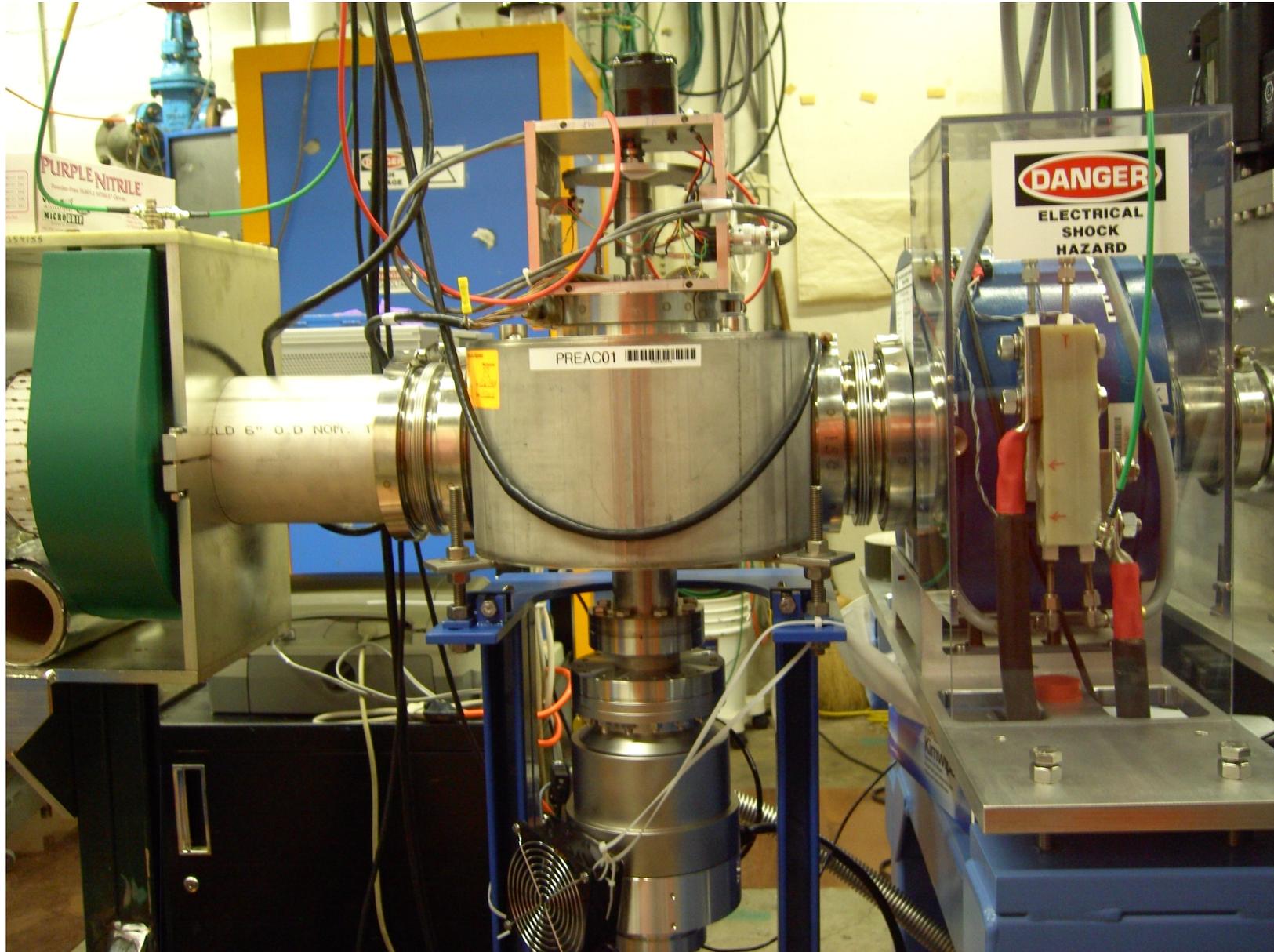
Device	Status	Comments
Solenoids PS	Powered OK	600A test ok! (02 Nov)
New slide	being designed	Expect to have by end of Feb 2012
Chopper box	with drafter	
Correctors		1 st correctors are shipped.
Vacuum problems?	Added more pumps on 08 Oct	Vacuum in LEBT gets to 1e-5 torr with H- beam. Very poor
Solid state switches	Have PO	Expect to be delivered 1 st week of November
Solenoid #4	Potted	Waiting for measurements. Klixons installed 06 Oct

Strong B field from Cold Cathode Gauge

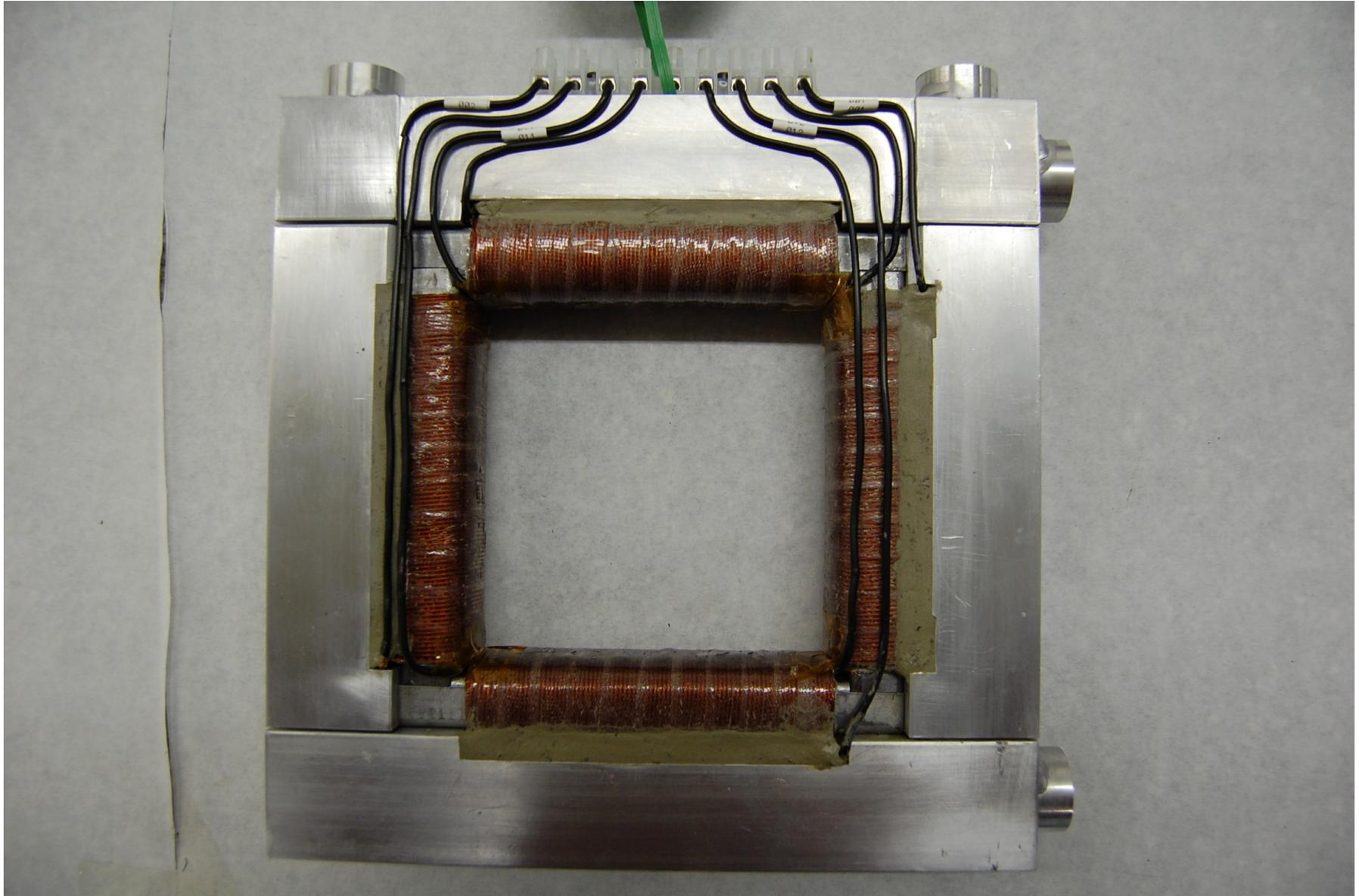


6" away, field is about 10 gauss

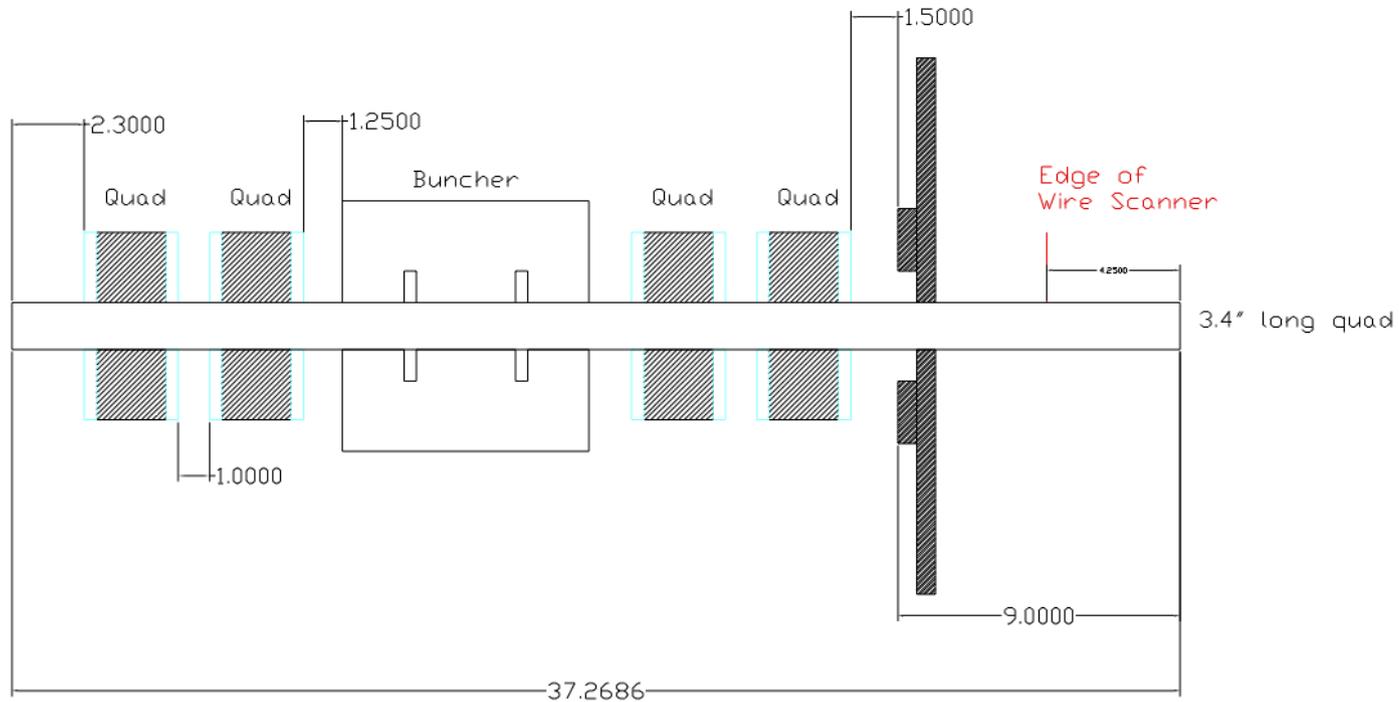
Extra pumping on multiwires



LEBT dipole magnet



MEBT Status



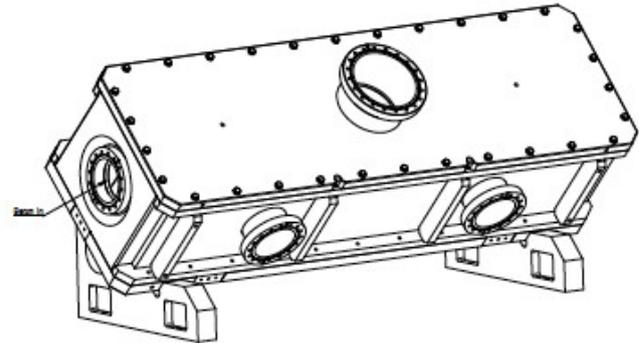
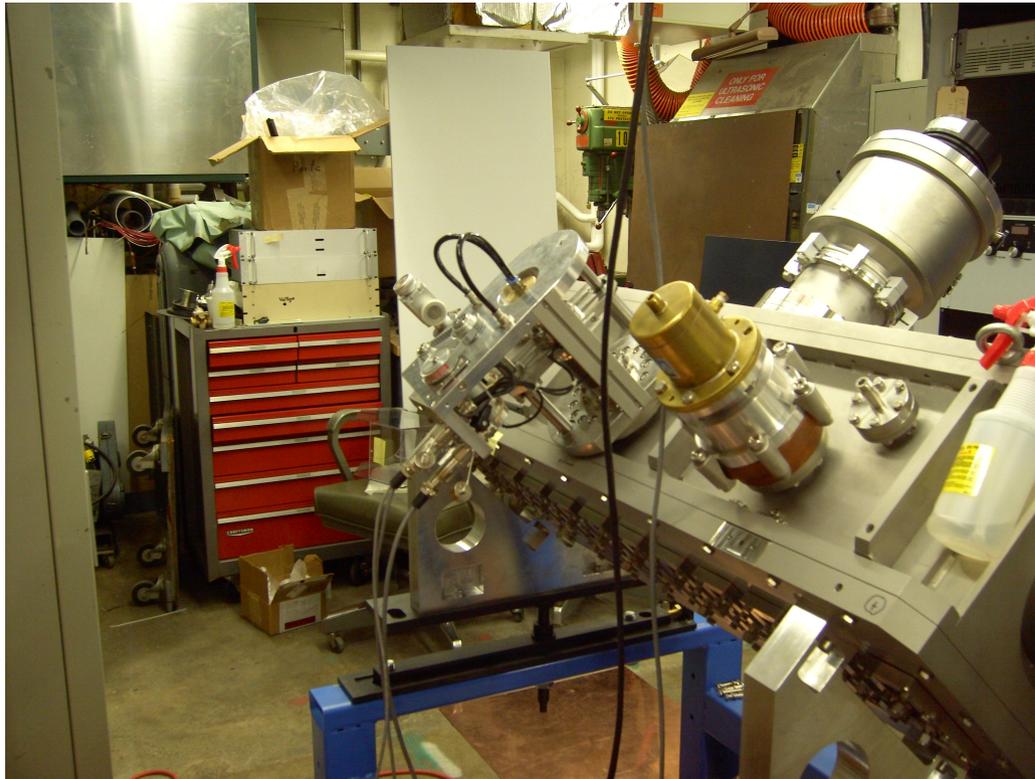
Device	Status	Comments
Quads	All quads measured (except 1) (8 Nov)	Same 12 th pole error as "bad" quadrupole.
MEBT Stand	Being designed	

Solenoid Power Supplies

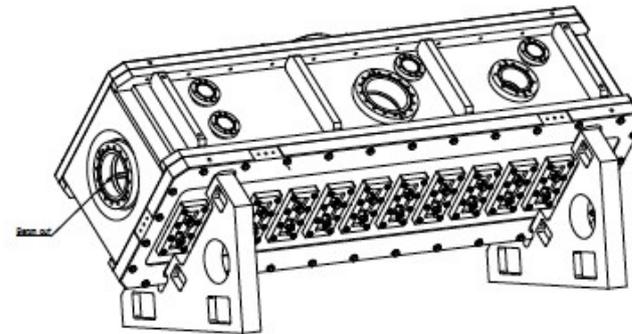


RFQ Status

- Problems with RFQ tuner



15



Device

Status

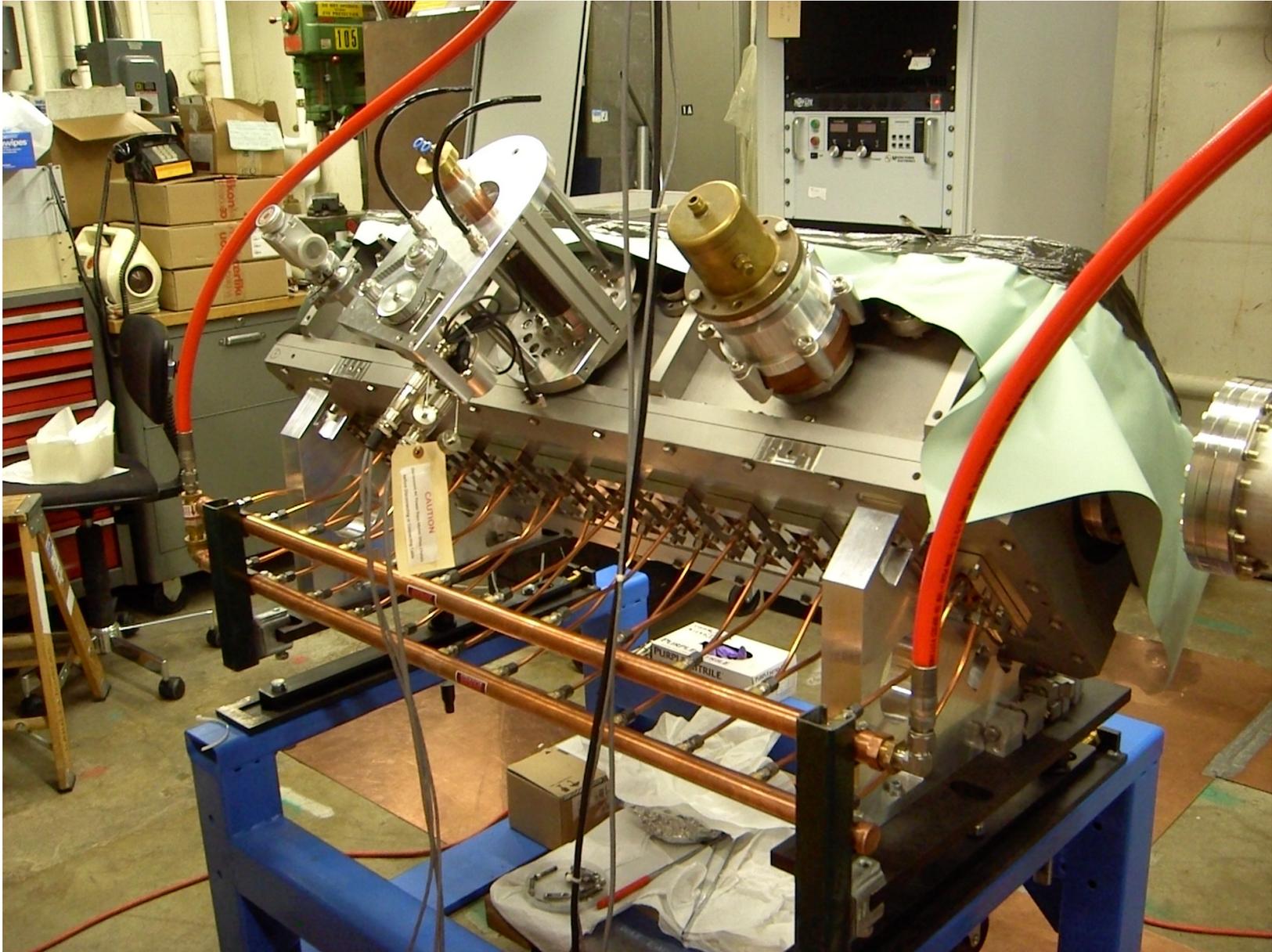
Comments

Overall tuning

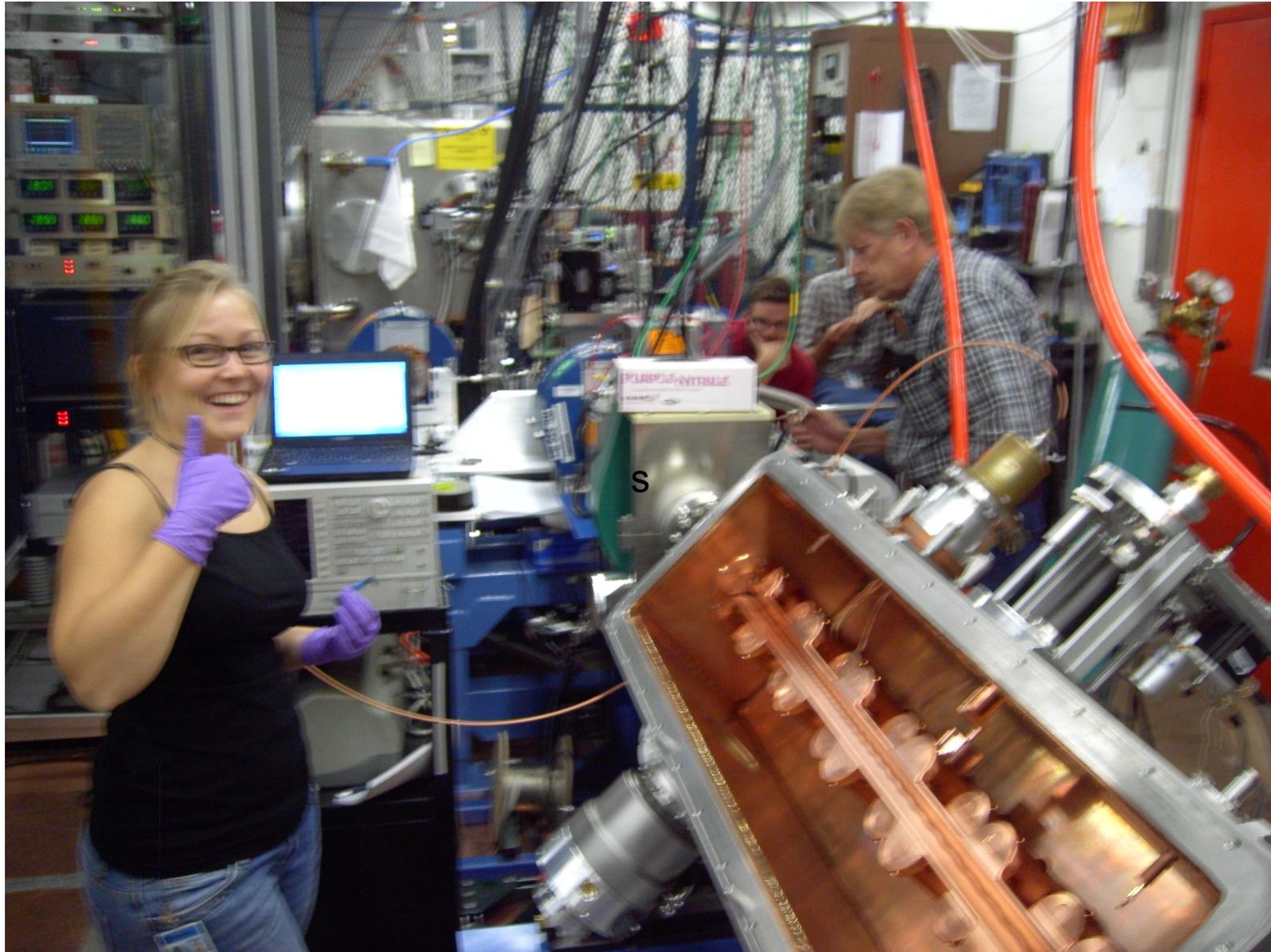
J. Schmidt will tune to 201.25 MHz.

Is here (07 Oct 2011)

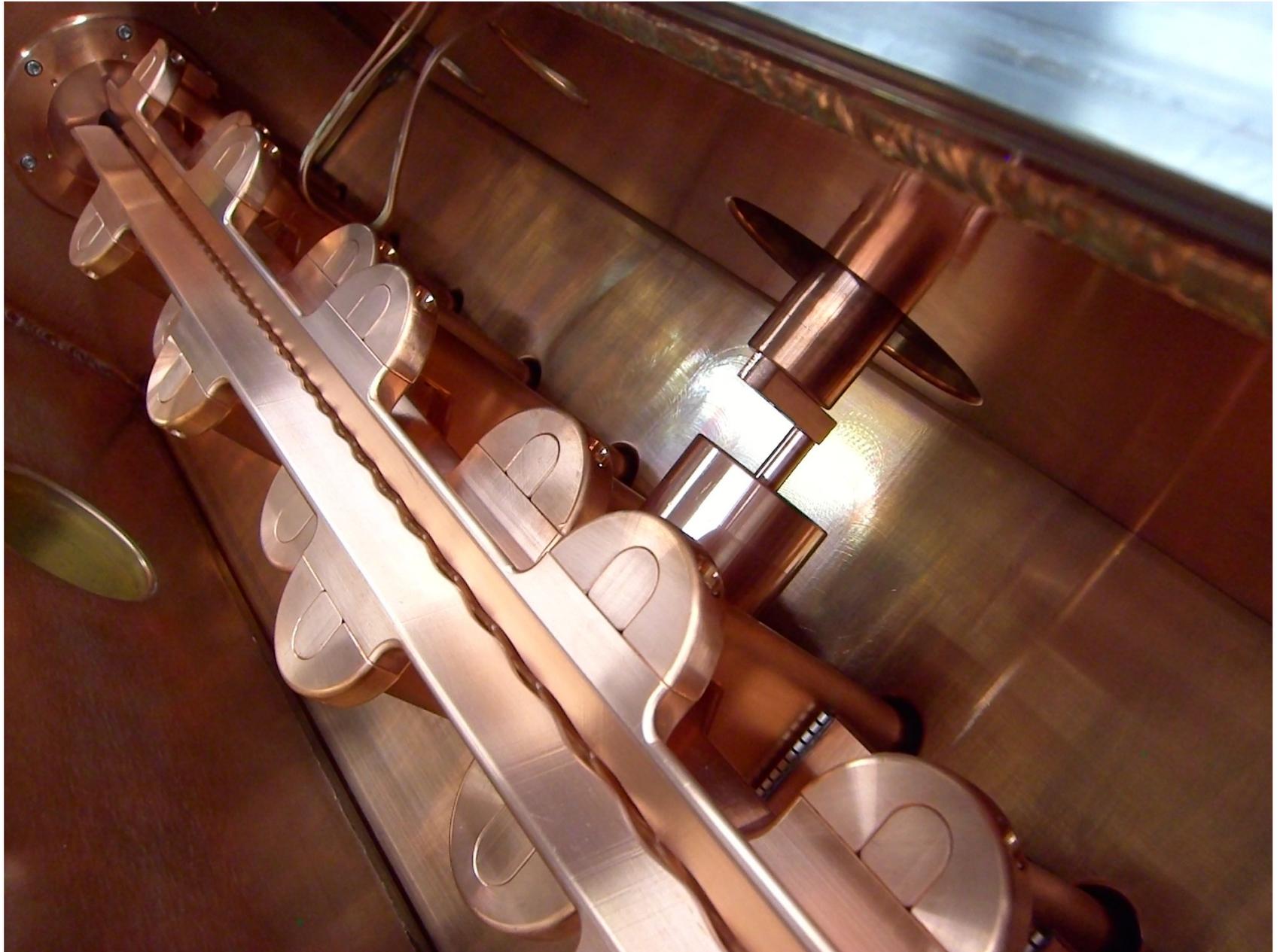
Water is on (60 deg F)

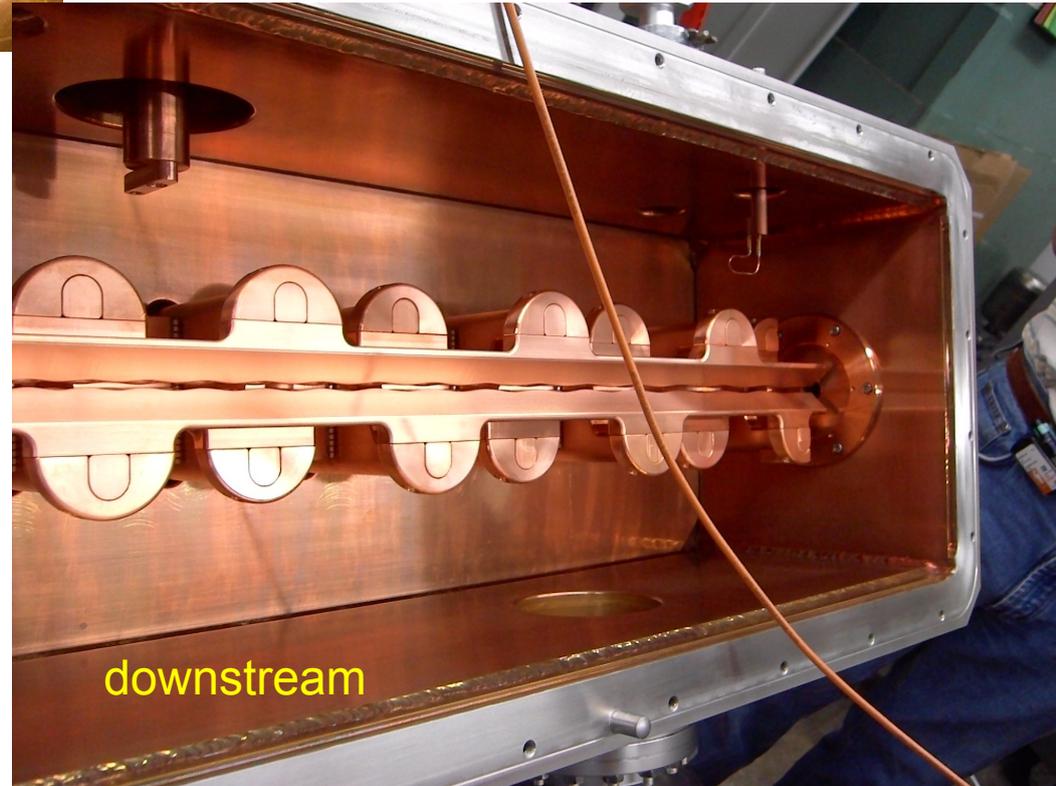
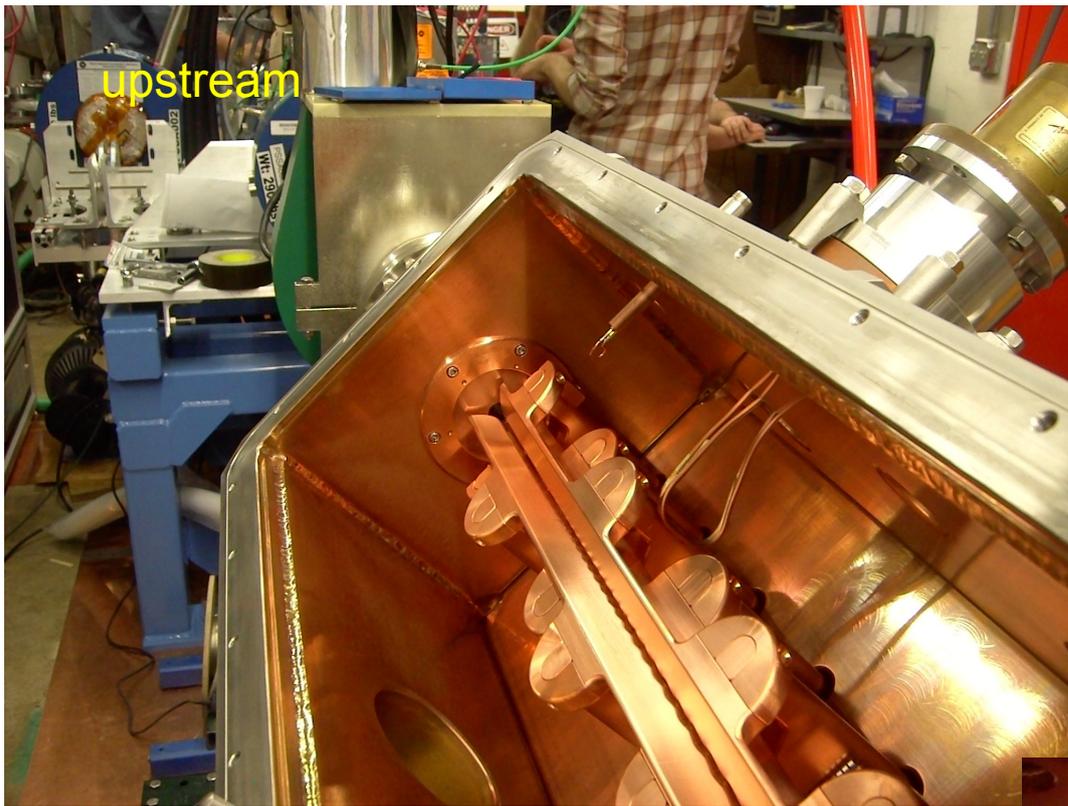


Is Janet working?

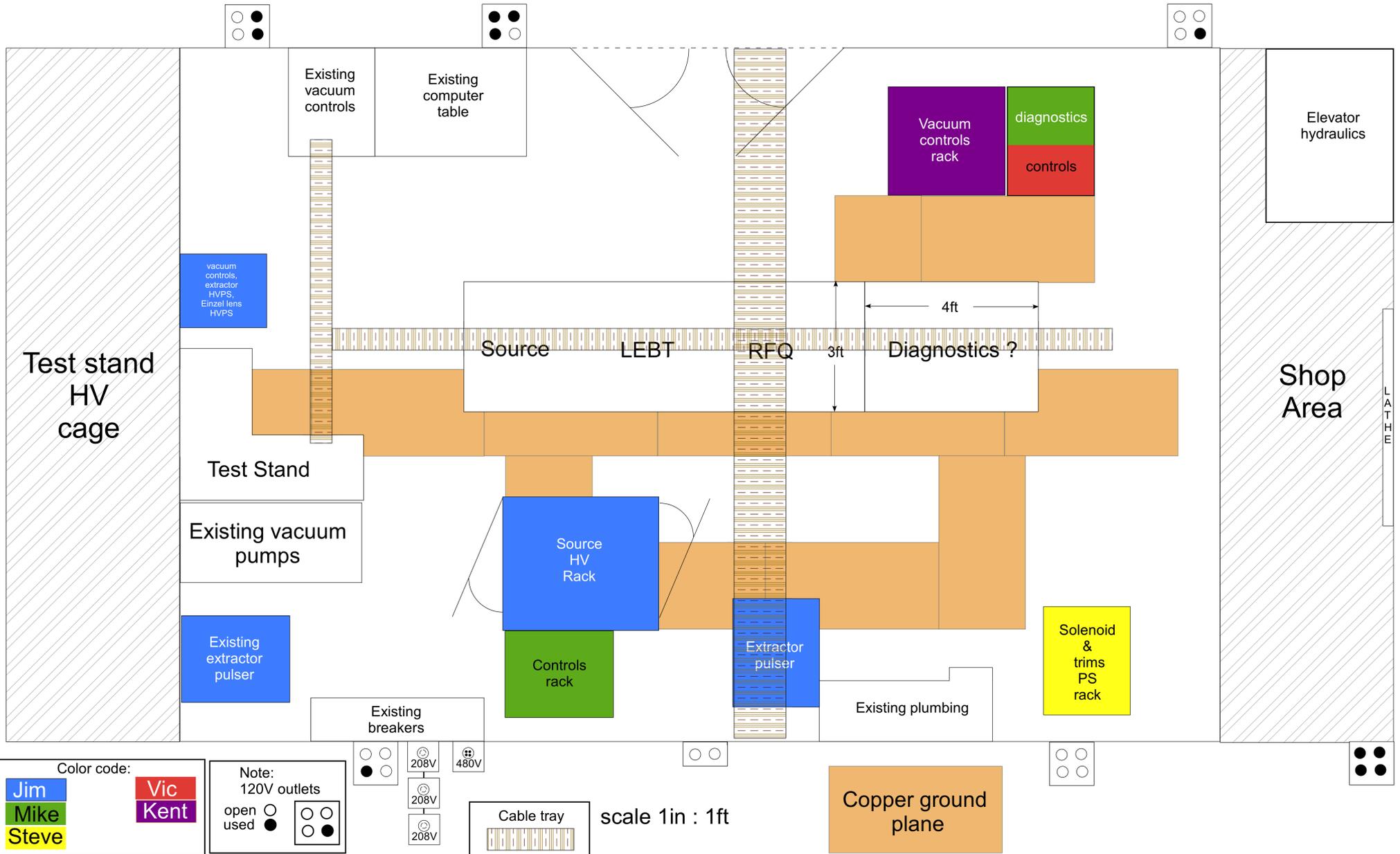


Tuner length shortenend





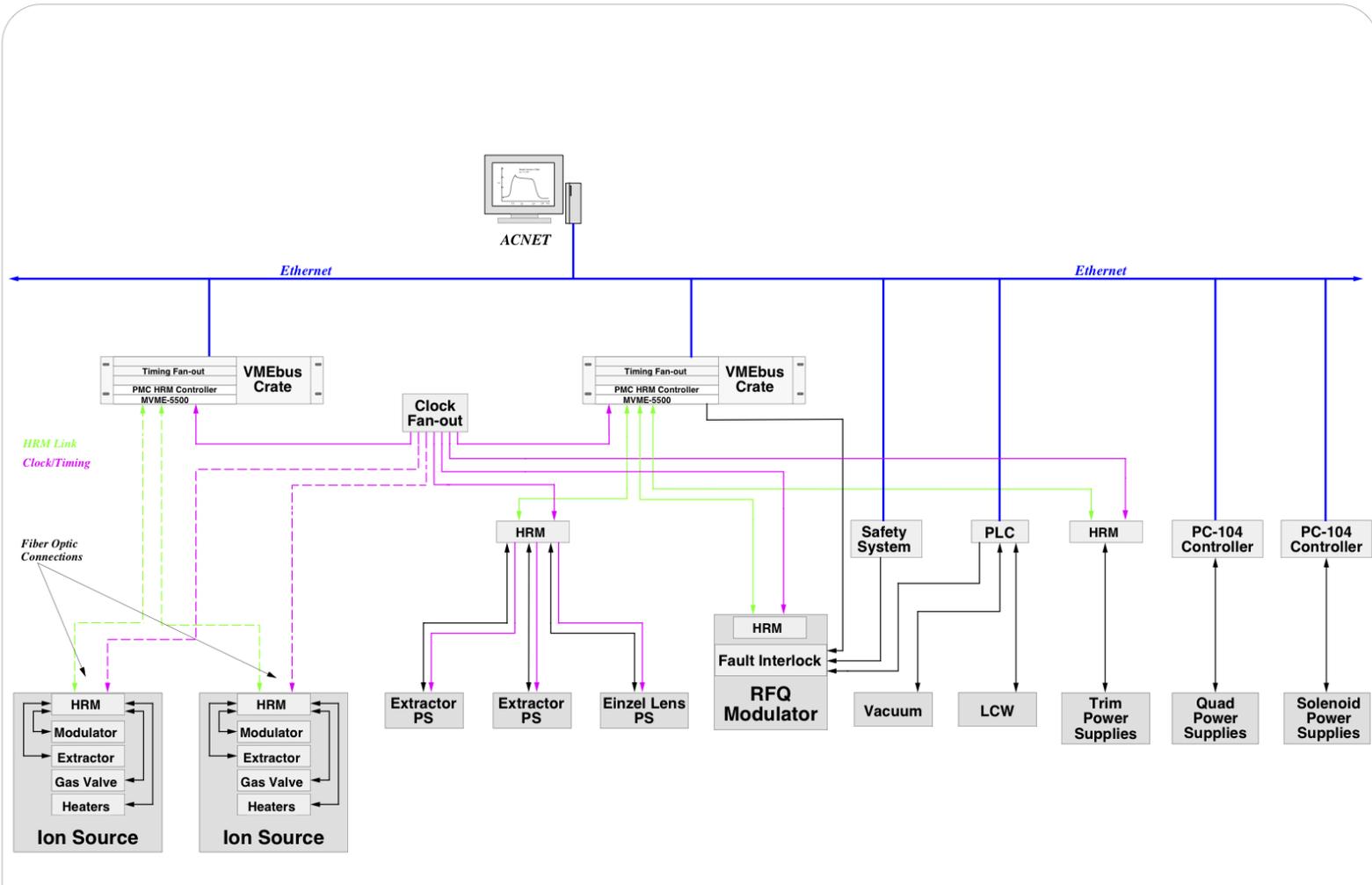
Proposed test area layout



Test area, test stand and instrumentation

Device	Status	Comments
emittance probes can	Can in village shop.	Projected to be completed in Jan 2012!
TOF	3 BPM shells	Have vacuum tube. Buttons in Nov from A0
Faraday Cup	Needs zero length adapter	Have copper seals and zero length adapter ordered

Controls



Linac RFQ Upgrade Controls Block Diagram

Controls

- Problem with HRM tripping off when source sparks. Investigating. Fixed?

Safety

- Documents submitted to safety (27 Sep)