# JLab Prototype RTP HV Driver Installation Timeline

October 17, 2024

## Friday September 13, 2024:

1. Bench Test in TL 1137: ePAS sign in, Pre-Job Brief, and MSD
2. Measure rise time, ringing, and circular polarization and document results – Matt and Shukui
3. Kent visit: measure rise time in TL 1137

## Week of September 16, 2024:

### Monday

1. Start long burn-in at operating frequency (15 Hz then 960 Hz) and voltages – Steve, Jim
2. Rewire of xport fiber converter chassis – Jim

### Tuesday

1. CEBAF Laser Room Planning Walk-thru – Riad, Shukui, Jim
    1. Where to put drivers on laser table
    2. Where to install xpot in rack
    3. How / where to re-route fibers, com cables, power cables
    4. What goes where, who will do

### Wednesday

1. Kent visit: measure rise time in TL 1137

### Thursday

1. Team review of planning and ePAS

### Friday

1. CEBAF Laser Room Planning Walk-thru – Riad, Shukui, Steve
    1. Measure rise time, ringing, and circular polarization of existing RTP and document results
    2. Carefully plan connection process of RTP to new drivers

## Week of September 23, 2024:

### Monday

1. Slowed down transition time – Steve

### Tuesday

1. Uploaded new firmware to Helicity Generator Board to provide Hel and nHel signals in laser room – ePAS and ATLis approved (Riad, Ed)

## Weeks of September 30 – October 14, 2024:

1. General installation ePAS and ATLis – Ready to Issue – Riad
2. Optimize rise time (10 µs) and ringing (<1%): find output and gate resistors and output inductance
3. Screen updates – Jim
4. Follow-up on software operation in Accelerator – Jim
5. non-NRTL inspection and QR sticker, add plastic cover to metal box – Jim
6. Plan to measure RTP eight applied HVs from UVA Prototype – ePAS and ATLis – Ready to Issue (Jim)
7. Measure applied HV to RTP in TL 1137. Is there any cross-talk? Jim
8. Plan to provide electrical ground to rack in laser room - Jim
9. Provide electrical ground to floating PCB – use BNC cable to electrical helicity output. MOLLER might use to check ground loops.
10. Add an option to connect two floating grounds: metal box and PCB
11. Plan to measure IA rise time. Scope is very hard, instead use parity DAQ

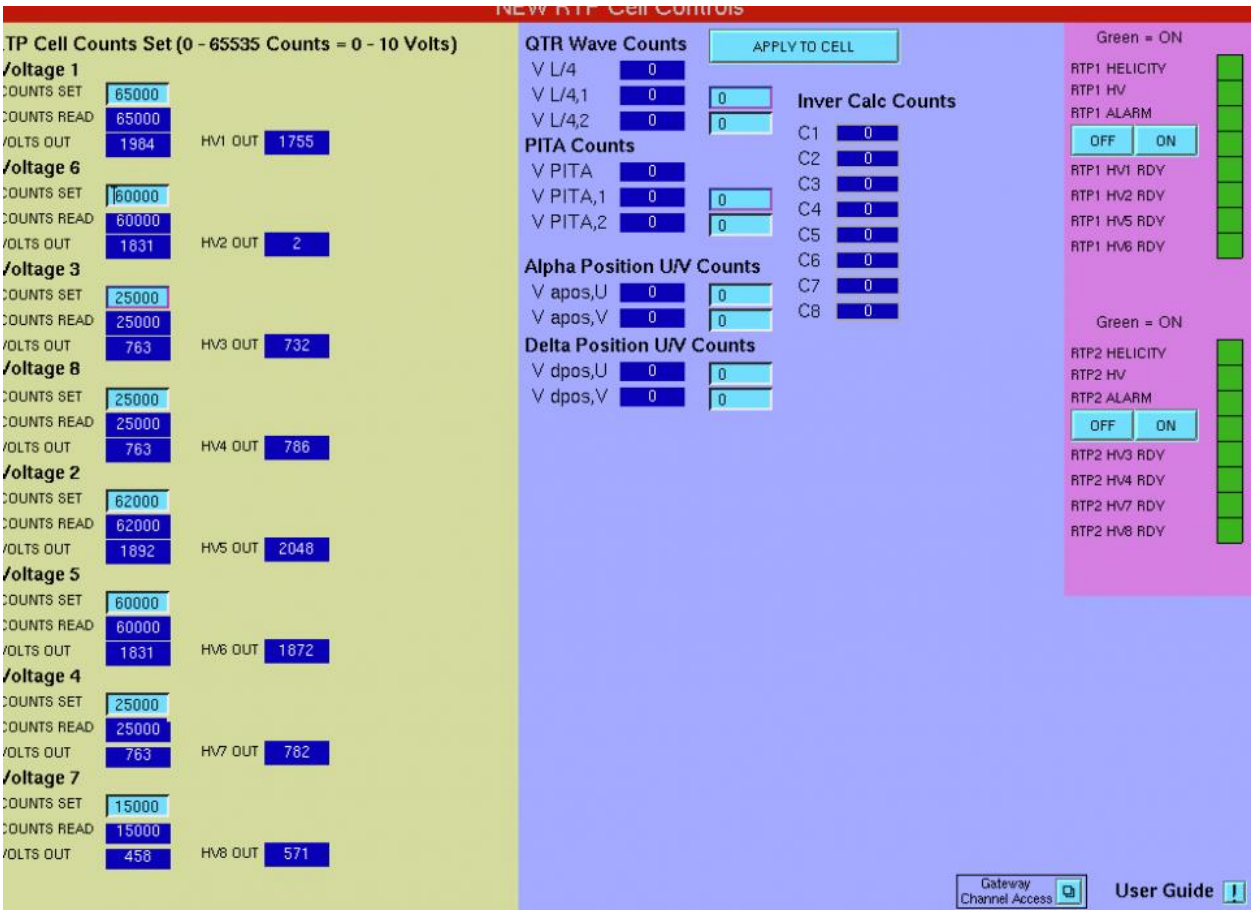
12. Add a Windows laptop to bench in TL 1137

## Week of October 21, 2024:

1. Cut off HV cables to RTP cell, re-connect to old HV drivers and measure again
2. Ethernet cables pull to xport controller chassis
3. Route comms fibers from controller to drivers on laser table.
4. Install and connect drivers
5. Set drivers to operational voltages
6. Measure new driver rise time, ringing, and circular polarization and document results

## Week of October 28, 2024:

1. Measure electrical pickup in laser room and ISB using Parity DAQ – MOLLER Collaboration


NEW RTP Cell Controls
TP Cell Counts Set (0 - 65535 Counts = 0 - 10 Volts)
Voltage 1
COUNTS SET 65000
COUNTS READ 65000
VOLTS OUT 1984
HV1 OUT 1755
Voltage 6
COUNTS SET 60000
COUNTS READ 60000
VOLTS OUT 1831
HV2 OUT 2
Voltage 3
COUNTS SET 25000
COUNTS READ 25000
VOLTS OUT 763
HV3 OUT 732
Voltage 8
COUNTS SET 25000
COUNTS READ 25000
VOLTS OUT 763
HV4 OUT 786
Voltage 2
COUNTS SET 62000
COUNTS READ 62000
VOLTS OUT 1892
HV5 OUT 2048
Voltage 5
COUNTS SET 60000
COUNTS READ 60000
VOLTS OUT 1831
HV6 OUT 1872
Voltage 4
COUNTS SET 25000
COUNTS READ 25000
VOLTS OUT 763
HV7 OUT 782
Voltage 7
COUNTS SET 15000
COUNTS READ 15000
VOLTS OUT 458
HV8 OUT 571
QTR Wave Counts
APPLY TO CELL
V L/4 0
V L/4,1 0 0
V L/4,2 0 0
PITA Counts
V PITA 0
V PITA,1 0 0
V PITA,2 0 0
Alpha Position U/V Counts
V apos,U 0 0
V apos,V 0 0
Delta Position U/V Counts
V dpos,U 0 0
V dpos,V 0 0
Inver Calc Counts
C1 0
C2 0
C3 0
C4 0
C5 0
C6 0
C7 0
C8 0
Green = ON
RTP1 HELICITY
RTP1 HV
RTP1 ALARM
OFF
ON
RTP1 HV1 RDY
RTP1 HV2 RDY
RTP1 HV5 RDY
RTP1 HV6 RDY
Green = ON
RTP2 HELICITY
RTP2 HV
RTP2 ALARM
OFF
ON
RTP2 HV3 RDY
RTP2 HV4 RDY
RTP2 HV7 RDY
RTP2 HV8 RDY
Gateway Channel Access
User Guide