

Laser table work scope for 4 laser operation - Hansknecht

My Preliminary Jobs

1. Design and build new tune mode generator cards because there is no spare of present card and it needs updating.
2. Design and build new "BCM shutter" cards.
3. Gather table components for a fourth tune mode generator:
 - a. RTP pockels Cell
 - b. Fast high voltage switch (investigate a smaller switch)
 - c. Attenuator
 - d. Shutter
 - e. Servo for tune mode generator waveplate
 - f. Opto-mechanics hardware
 - g. Beam combining optics
4. Purchase a fourth IPG amplifier
5. Find out if I can move serial communication from the present IOC that can't handle the baud rate so I don't need another baud rate converter. (need software support)
6. Figure out how I'm going to fit a fourth amplifier under the table.
7. Get a fourth PPLN oven controller added to the TC200 EPICS application and get it moved to a location that can handle 57.6Kbps without a baud rate converter. (need software support)
8. Build a new 4 channel photodiode chassis
9. Buy 4 "trap it" beam dumps for 1560nm dumps
10. Buy fourth PM fiber (and spare) for run between service bldg. and tunnel.
11. Investigate steering mirror situation. Suggest we make one laser fixed, and the other three can steer to it. This means nothing new is added and we make hall B our fixed laser.
12. Work to prepare stepper motor control of fourth attenuator (need software support – maybe)
13. Start to rebuild PGUN OPS MAIN screen so I can control the fourth laser. It would be nice to have the new SCAM channel names early so they can go on the new screen. I will build PGUN OPS MAIN, but an operator or software group needs to rebuild the normal operator screens.

My work during summer down to add fourth laser

1. Pull fourth PM fiber and spare in conduit between service building and laser room. (Three must be pulled out in order to add new fibers)
2. Pull four RG-58 cables from SCAM to Tune mode generators under laser table.
3. Add fourth laser interlock to the room safety system.
4. Attach new Rf drive system to laser seeds
5. Rearrange laser table existing optics, then install fourth laser amplifier, PPLN assembly, Tune mode generator, attenuator, shutter.
6. Upgrade to new tune mode generator electronics
7. Upgrade to new "BCM" shutter controls.
8. Align and test laser.
9. Get new laser table covers fabricated by machine shop once I know the exact placement of the 1560nm barrier.