

Instruction for Streak Camera System Operation Procedures (2012-04)

1. **Sign in** login the 'VERDI' system from the laptop computer
2. **Warm up** (1 hour)
 - **Chiller ON:** press the soft key (RUN/STANDBY) on the chiller to turn on the chiller, make sure the chiller screen shows 'COOLANT TEMPERATURE +XX C'. The chiller setting is 18C.
 - **Laser ON:** switch the key of Verdi power supply to Laser 'ON' position. The power should ramp up to 17.99W, current to ~ 49A in 1 minute or so. Green light should be seen.
 - **Laser and Streak Camera Control ON:** switch on the power strips labeled (3) & (4) on the instrument rack.
3. **Laser and optics setup** (need individual training)

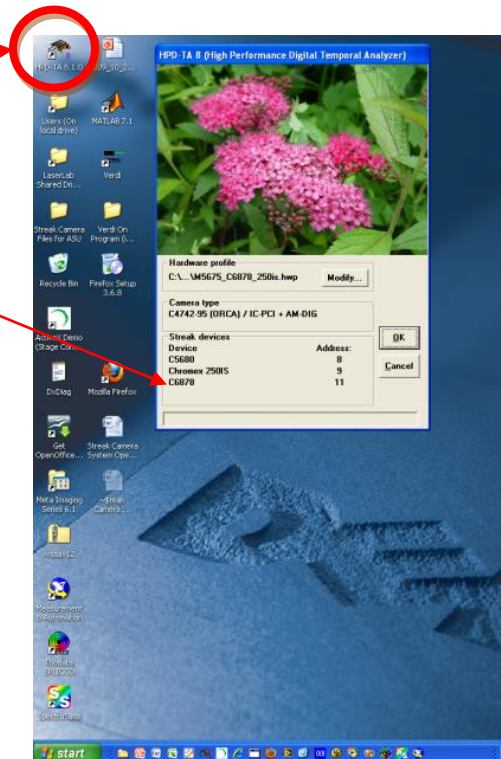
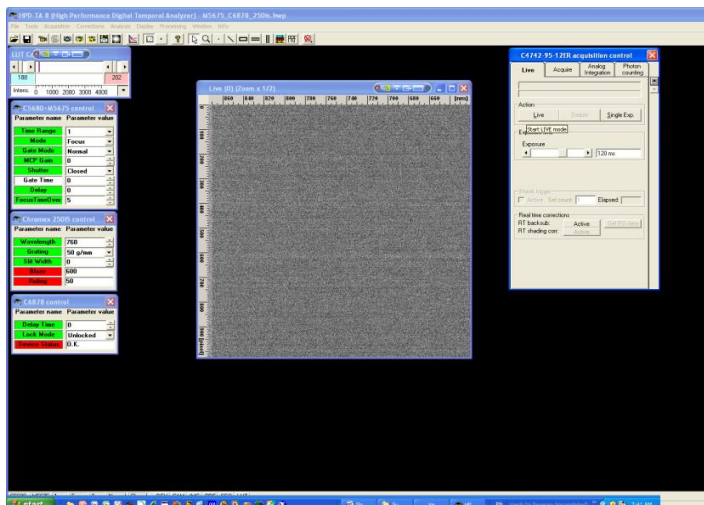
4. Streak camera program

- Start Streak Camera using "HPD-TA 8.1.0"

For fast scan, check the following before click on "OK"
 Hardware profile = C:\...\M5675_C6878_250is.hwp
 Camera type = C4742-95 (ORCA) / IC-PCI + AM-DIG
 Streak devices = C5680 (8); Chromex (9); C6878 (11)

[SL1]

The screen should be like this after start data acquisition in 'Live Mode'



! For the following procedures, always monitor the signal intensity using the PC monitor on the streak camera when making optical adjustment.

- **Setting parameters in HPD-TA 8.1.0**

Grating: there are 3 gratings, see sensitivity curve in the reference folder

Slit width: always starts with 10 and gradually increase ONCE seen signal on screen

Mode: Focus

MCP Gain: 0

Shutter: close

- **Start searching signal in focus mode**

!Check excitation intensity is set at minimum using circular NG filter, and how to increase the intensity gradually!

!Check if all the optics is set correctly.

Gradually increase MCP Gain by clicking the up arrow (do not type in the number) and monitoring the intensity changes on screen. The max = 60, usually use 55.

While monitoring the signal on screen, increase the slit width (see reference for spectral resolution).

- **Start searching signal in operate mode**

Mode: Operate. Check if the streak camera 'SYNC IN' light is on (green)

Time Range: 4 (2 ns)

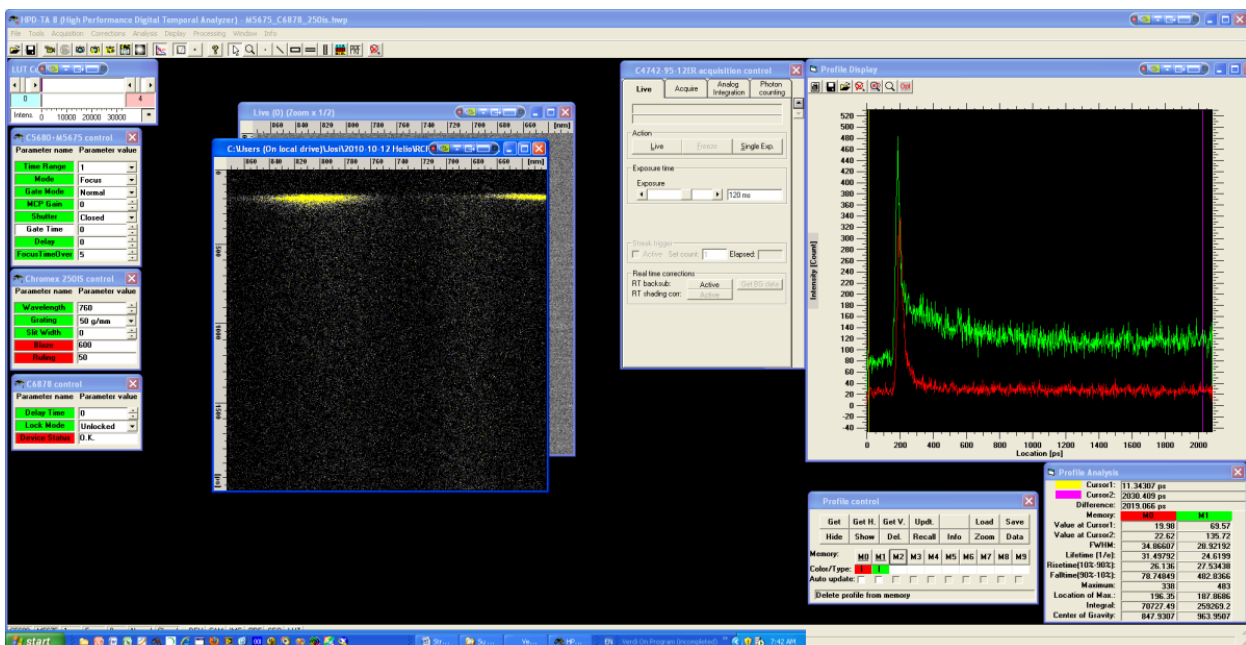
Lock Mode: Locked, waiting until 'OK' appears in the window below 'Lock Mode'

Delay Time: place cursor in this window and use Ctrl+up-down arrow to vary the time delay or type in a number to set the time zero for signal. Refer to the numbers in reference.

- **Start data acquisition in photon counting mode**

Set Accumulation number (1000 = 2 minutes for 120 ms integration time)

Start Photo Counting, select an area to monitor the count rate (< 7% at highest intensity region) to avoid artifact.



OFF procedures

- 1) Turn off the Verdi laser (switching key to 'OFF' position)
- 2) Chiller off
- 3) Switch off power strip labeled "Lasers (3)"
- 4) Switch off power strip labeled "Streak Camera (4)"
- 5) Logoff "Verdi" system from the laptop