

	SAFE WORK PROCEDURE:	Doc No		SWP-COE-09			
		Last Rev/Date		00	14 Apr 2010		
	Laser Writer		Current Rev/Date		00	14 Apr 2010	
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1. **Application to:**

All personnel working on the Laser Writer.

2. **Pre-requisite for Operation of the Laser Writer:**

- 2.1. Must have attended the operation and safety training.
- 2.2. Must be fully understand the system risk assessment
- 2.3. Must be fully qualified to operate the system by him/her self.

3. **Hazards that may be present:**

- 3.1. Mechanical Movement
- 3.2. Laser Radiation. The laser is enclosed in the system (laser class 1) so the user do not require licence to operate the system. However, the service engineer for the system is required to have laser licence.

4. **Personal Protection Required:**

- 4.1. Gloves
- 4.2. Cleanroom apparel (garment and shoes)

5. **Procedures:**

5.1. **Operating of the Laser Writer**

- 5.1.1 Check all red LEDs are on in the sample chamber.
- 5.1.2 Turn on the main power of the whole unit.
- 5.1.3 Login the control computer:
- 5.1.4 Wait for at least 5 minutes for the laser to warm up.
- 5.1.5 Start the software LaserDraw (LD), main control window pops up.
- 5.1.6 Wait for the initialization of the stage position to finish, then click "START".
- 5.1.7 Click the red "ini. reset" button in the manual control window that popped up.
- 5.1.8 Open the sample chamber cover and push the lens to the furthest position.
- 5.1.9 Click "UNLOAD/LOAD" button in the window; wait for the stage to move out.
- 5.1.10 Load the sample onto the sample stage, open the vacuum pump, click "UNLOAD/LOAD" button again, and wait for the stage to return to the home position.
- 5.1.11 Pull the designated lens over the sample stage, and then close the chamber cover.
- 5.1.12 Turn up the "brightness", "light" and "contrast" in the manual control window, then manually focus the image.
- 5.1.13 Locate the sample position or position the sample to the designated position by moving the sample stage.
- 5.1.14 Click "Exit", return to the main control window.
- 5.1.15 Click "Data Management", Data Management window pops up.
- 5.1.16 Import the design from other drives to the archive of LD or draw the new pattern using "Clewin", click "Select" and then "Exit", back to the main control window.

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- 5.1.17 Click "Make LDF", and then "OK" in the new window popped up.
- 5.1.18 Select the write mode and then click "START" to open the manual control window.
- 5.1.19 Select the "filter" value, then click ">" to open the automatic patterning window, the pattern will be shown on the top part.
- 5.1.20 Set the parameters for "option", "gain" and "Autofocus", then click "GO".
- 5.1.21 After exposure, click "<" to return to the manual control window.
- 5.1.22 Open chamber cover, push the lens to the furthest position, and click "UNLOAD/LOAD" button for the stage to move out.
- 5.1.23 Turn off the vacuum pump and remove the sample from the stage, then click "UNLOAD/LOAD" button for the stage to return to the home position, close the chamber cover.
- 5.1.24 Close the software and shut down the computer, then turn off the main power of the whole unit.

5.2 Maintenance of the Laser Writer

- 5.2.1 As and when the system not working

5.3 Specific Processes

- 5.3.1 To expose photoresist using laser light to form a pattern on the samples

6. Communication Frequency:

The Lab Supervisor shall arrange for this Safe Work Procedure to be communicated every once a year and as & when required.

Prepared by: Musni Hussain

Approved by: Prof. Wu Yihong