Recommendations for Using the ALS200 on 
TEL CleanTracks Act8 Photolithography Equipment

Summary: This document describes the steps and recommends criteria for successful leveling 
of certain elements in Tokyo Electron (TEL) CleanTracks Act8 200 mm tool platforms, including 
process robot pincettes and process plates. These recommendations are for preventive 
maintenance when the tool is off the production line. It is assumed that the stations are largely 
leveled, as these recommendations are most useful in pinpointing small inclination errors of less 
than 1° (i.e., a few thousandths of an inch over the diameter of a wafer).

Requisite Equipment
In order to perform any of the leveling steps recommended below, the following equipment will 
be needed:
- ALS200 (fully charged)
- CleanTracks Act8 tool with all stations to be characterized at temperatures <70°C
- Fully functional automation (robots) and ability to over-ride robot recipes or access a
“leveling recipe”
- (Optional) OEM-recommended fixtures for teaching robots
- Laptop running LevelView™ application
- LevelView™ software setup:
  - Go/No Go region set for ±0.05°
  - Stabilization time set for 20 s
  - Stabilization sensitivity set for 0.05°
  - Note: Logging data could be continuous such as every 5 s or simply by pressing
    “Log A Reading Now”.
- (Optional) Log file with historical inclination data for the stations of interest

Leveling the Tool
The goal of leveling the tool is to insure that all stations where a wafer would rest – either during 
transfer or during process – are all coplanar, i.e., all have inclinations that are within 
approximately ±0.05° from each other. We consider this the safest Go/No Go criterion for 
leveling tools in order to prevent wafer damage (even in the form of added particulates) or 
brakeage.

Use of ALS200 insures that comparable, objective records exist about the inclination of various 
stations. Keeping track of inclination variations over time could reveal weakening of the 
pincettes (e.g., twisting, drooping effects), erosion of transfer pins in process plates, or other 
phenomena that adversely affect the photo-resist process. The steps below provide details of 
using ALS200 in leveling your Act8 tool.

1. Verify coplanarity of the three pincettes by placing ALS200 on Pincette #3 (bottom most 
pincette). Note (log) inclination measured. Set the inclination of Pincette #3 as the 
reference for measurements for Pincette #1 and #2.
2. Temporarily remove heat shield between Pincette #2 and Pincette #3. This will be 
reinstalled after leveling is complete.
3. Place ALS200 on Pincette #2 and note (log) inclination measured. Place ALS200 on 
Pincette #1 and note (log) inclination measured.
4. Set LevelView™ for absolute measurements.
5. Create a custom automation recipe that allows ALS200 to go through the system. Consider setting pin “Up” and “Down” times to 30 s each for all process plates. Optionally, if more time is needed to log more inclination data, the time could be increased to 1 min for “Up” and 1 min for “Down.”
6. Cycle a dummy wafer from the loading cassette through the system with the robots at low speed (turn “Level 2” key). As soon as the dummy wafer is deposited at the coater chuck, “Pause” the robot and place the ALS200 in its stead. Resume cycle and return robot to normal speed (use “Level 2” key).
7. Proceed with measuring (and logging) the inclination of all process plates with pins both raised and lowered. Verify that inclination measured with pins raised is coplanar with inclination measured with pins lowered. If they are not, verify that pins are securely in place and not damaged. If one or more pins need replacing, use these recommendations to insure that the serviced process plate is coplanar with its pins.
8. As soon as ALS200 is returned to the coating area, “Pause” the robot, return the dummy wafer to the coater chuck and resume cycle back to the loading cassette.
9. Verify inclination of process plates and make adjustments to process columns that exhibit inclinations outside of the Go/No Go region.