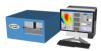
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# MaxMile LED Epiwafer EpiEL, PL, or EL/PL Combination Mapping System









		4-inch Desktop	8-inch Desktop	Robot I System	Robot II System
1.	Wafer Size:	2"-4"	2"-8"	2"-8"(Opt: up to 12") 2"-8"	
2.	Station Size $(w \times d \times h)$ :	18"×18"×14"	18"×18"×14"	32"×32"×68"	57"×32"×68"
<b>3.</b>	Wafer Loading:	manual	manual	manual/robot	robot
4.	<b>Cassette Station:</b>	n/a	n/a	1	up to 3
5.	Cassette detection:	n/a	n/a	yes	yes
6.	Wafer size detection:	n/a	n/a	yes	yes
7.	Cassette wafer mapping	g: n/a	n/a	yes	yes
8.	Prealigning:	n/a	n/a	yes	yes

- **9. Functions** for Quick and Mapping Test directly on Epi-wafers
  - Standard: EpiEL (Electroluminescence), PL (Photoluminescence), EL/PL combination, IV, Reverse, Warpage.
  - Optional: Film thickness\*, GaN/Si, Test temperature control\*.
- **10. Spectral Detection Range**: from UV to NIR (default 200nm-800nm)
- 11. Spectral resolution: 0.5-2 nm, depending on spectral range selection and system configuration
- 12. EpiEL Probe type: Type I, Type IA, Type II, Type IIA, Type IIB, Type IIC, and Type SiA
- 13. Measurement Items
  - Types of EL mappings:
    - ✓ Wavelength--WLP/WLD/WLC (peak/dominant/center) wavelength, FWHM, blue shift, and blue shift rate.
    - ✓ Intensity--radiometric/photometric power, slope efficiency.
    - ✓ Electrical—measured forward driving current/voltage, device Vf, device If, turn-on voltage, reverse leakage current/voltage, threshold voltage, on-resistance, top resistance, forward leakage, series resistance, ideality factor n, etc.

## • Types of PL mappings:

- ✓ Wavelength--WLP/WLD/WLC (peak/dominant/center) wavelength, FWHM.
- ✓ Intensity--radiometric/photometric power

### Types of IV mappings:

✓ Forward driving current/voltage, reverse leakage current/voltage, threshold voltage, onresistance, etc.

#### • Types of other mappings:

- ✓ Warpage
- ✓ Film thickness\*

#### • Types of Curves:

- ✓ EL spectra at specific driving current/voltage
- ✓ PL spectrum
- ✓ LIV--current/emissive intensity vs. voltage
- ✓ Output intensity vs. driving current
- ✓ Wavelength & FWHM vs. driving current
- ✓ Reverse IV.

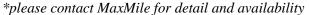
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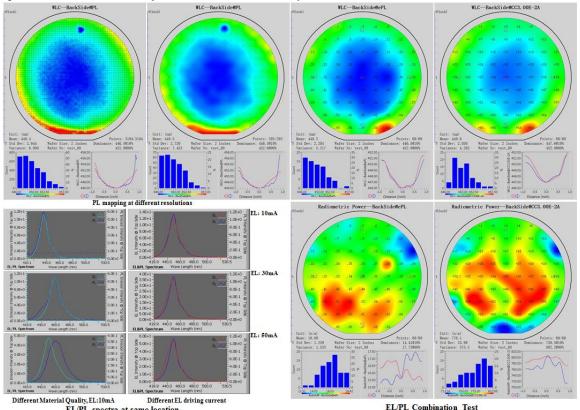
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CVD Wafer Layout Mapping for all above measurement items, from either mapping or quick

**Note:** Software can be customized for specific device parameter mapping.

- 14. Excitation sources
  - EL: Keithley SourceMeter; PL: 405nm standard, please contact MaxMile for other excitation sources.
- 15. Current measurement: >10e-12A
- 16. Control units and OS: PC-based EpiEL station run on 64bit Microsoft Windows 7/8
- 17. Sampling points/Steps:
  - EL sampling points and optical/electrical measurement steps for each point can be specified by end user.
  - PL sampling points can be specified by end user (high resolution scanning for demanding application and quick scanning for mass production quality control).
  - User can generate own test point arrangement.
- 18. Measurement time: about 1-12 minutes per wafer, depending on test type, sampling points, test protocol, and measuring step setting; PL option scanning rate: up to 50 points per second.
- 19. Report generation and data presentation: HTML (Brief/Abbreviated/Full) /XML/CSV/TXT
- 20. Mapping color encoding: rainbow, gradient, binary, temperature, gray, or any type specified by end
- 21. Power Supply: 10A/110VAC or 5A/220VAC Max; Vacuum needed for robot system
- **22. Ambient Condition:** Temperature: 15 ℃-30 ℂ; Relative humidity: 30%-70% without condensation
- 23. Warranty: one year
- 24. Delivery: up to 3 months depending on system options; installation and operating training will be provided at customer site.





EL/PL spectra at same location