# 2-12inch Fully Automatic Photonics Wafer Test System

## Model: SA-WIT-220AL

SA-WIT-220AL Fully Automatic Photonics Wafer Test System is engineered prioritizing stability, electrical noise suppression and spatial confidence, equipped with a high-precision motion control system and a premium vibration isolation system. Integrated with proprietary image processing algorithms, it enables highly stable optical characterization of small-mode-field chips and high-accuracy electrical performance measurements. Supporting fully automated wafer-scale measurement via either grating coupling or end-face coupling, the system satisfies rigorous optical test specifications and pA-level electrical signal measurement requirements. By facilitating early-stage defective chip screening at the wafer level, it prevents downstream process contamination, significantly reducing overall packaging and testing costs while enhancing production efficiency.The system has been deployed in mass production lines across domestic and international client facilities.


### Feature

- Fully automatic calibration by machine vision
- Automatic crimping of probes/probe cards
- Rapid auto-light alignment
- Customizable Wafer size: 2–12 inch
- GC/EC testing for arbitrary small-mode-spot chips
- Automated loading/unloading and defect detection
- Optional end-to-end testing solutions
- Temperature range: -40℃ ~ 125℃ (wider range customizable)

### Application

- Silicon photonics
- Thin-film lithium niobate(TFLN)
- III-V semiconductors
- Testing of cutting-edge technologies
- Testing requirements of R&D and mass production

# Specifications：

## Basic parameters

| Parameter | Descriptions |
|---|---|
| Wafer Size | 2~12inch(customizable), zoned design |
| Loading Method | Automatic |
| Loading Type | Cassette/FOUP |
| Testing Capacity | 25~50 pcs/run |
| Wafer-ID | OCR-based automatic Wafer-ID recognition with Wafer Map generation |
| Auxiliary Chuck | Enables automatic probe cleaning, RF calibration, FA calibration, PD power/polarization calibration |
| Single-Probe Marking | √ |
| Self-Cleaning | √ (for wafer, Chuck, probes, FA) |
| Real-Time Height Sensing | √ |
| Chuck Height Calibration | √ |
| Chuck Positioning Accuracy | ±2μm |
| Temperature Range | -40℃~125℃ (customizable wider ranges available) |

## Optical parameters

| Parameter | Descriptions |
|---|---|
| Fiber Type | SMF / Lens Fiber / FA |
| Coupling Repeatability | ≤0.3dB (typ.) |
| Coupling Stability | 0.3dB/5min (typ.) |
| Coupling Efficiency | ≤2s |
| Coupling Modes | Spiral/Cross/Matrix/Fast 3D Coupling |
| Spiral/Cross/Matrix/Fast 3D Coupling | √ |
| Sensor Collision Avoidance | √ |

## Electrical Specifications

| Parameter | Descriptions |
|---|---|
| Integrated Probe Count | Customizable |
| Power Type | DC/RF |
| Power Delivery | Probe/Probe Card |
| Probe Type | Cantilever/Vertical Probe |
| Cleaning Mode | Automatic |

## Sofware Specifications

| Parameter | Descriptions |
|---|---|
| User Permissions | Role-based access control for R&D/production |
| Script Execution | Supports user-defined test algorithms via Python or other languages |
| Internationalization | English/Simplified Chinese/Traditional Chinese |
| Data Storage | MES integration & database storage |
| GUI Interface | Real-time process monitoring & historical data traceabilit |