Magic Mirror™

- Dimples and depressed areas show up as bright spots
- Mounds and raised areas show up as dark spots
Optical Technique

- Halogen Lamp with Band-Pass Filter
- Series of Lenses Create Broad Beam Collimated Light Column
- Parallel Rays of Light Reflect Perpendicular to the Polished Surface – Min. 3% reflectivity required
- Reflected Rays Projected onto De-focused CCD Detector.
Magic Mirror™ Method

Magic Mirror™ Optical Imaging Principle
Reflected image resulting from concavity

Magic Mirror™ Optics Schematic

www.hologenix.com
Hologenix YIS-200SP-2 Magic Mirror™
2 Cassette Wafer Surface Inspection System

- Automatic Defect Detection with Hologenix ADDS Image Processing Software
- Detection Sensitivity better than 0.05 Micron Depth with <1M-100M Radius of Curvature using the Proprietary Magic Mirror™ Method
- Defect Width: <150 microns
- Adjustable Defect Detection Recipes
- Images can be Saved and/or Printed
- Non-Contact Notch, Flat-Finding and Centering Technology
- 150-200 mm Wafer Inspection
- Throughput: Approx. 150-180 Wafers per Hour
- Dual Cassette & Dual Robots
- Class 1 Clean Room Compatible
- Windows XP Environment
- Standalone Sorter Capability
- Optional: SECS-GEM

www.hologenix.com
300mm Magic Mirror™ YIS-300SP Defect Detection System

- Detection Sensitivity better than 0.05 Micron Depth
- Full View and 4X Zoom
- 150-300 mm Wafer Sizes
- Adjustable Sensitivity
- Adjustable Intensity
- Manual Loading
- Rotating Wafer Chuck
- Broad Beam Illumination with Narrow Band-Pass Filtered White Lamp
- Defect Detection and Image Enhancement Software

www.hologenix.com
300mm Magic Mirror™ YIS-300SP-2
Automated Defect Detection System

• Detection Sensitivity better than 0.05 Micron Depth
• 13 or 25 Wafer Capacity FOUP or Open Cassette
• Class 0.1 Mini-Environment
• 200-300 mm Wafer Sizes
• Edge Grip Wafer Handling
• Optional Non-contact Notch Finder
• Optional SECS II - GEM
• Optional OCR
• Windows Based Defect Detection Software
Advanced Automation Control and Defect Detection Software

www.hologenix.com
Automatic Defect Classification

Dimples, Mounds, Flaws, Flares, Edge Dimples, etc.
Magic Mirror™ Applications

The Magic Mirror™ is useful for detecting problems with many types of wafer processes:

- Polishing
- Epitaxy
- Oxidation, Diffusion, CVD
- Post Implant Annealing, RTP
- CMP
- SOI

www.hologenix.com
Polishing Scratches

www.hologenix.com
Dimples and Wax Defects
Dimples and Flares

www.hologenix.com
Dimples and Wax Flaws

www.hologenix.com
Automatic Dimple Detection
Polishing Defects

www.hologenix.com
SOI (Bonded)

www.hologenix.com
Back-Side Grinding
Good Wafer