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Multilayer Deposition System

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System Configuration

- **Ion Source**
 - RIM 210 Deposition Source
- **Fixture Assembly**
 - Rotation, Tilt and Load/hide capabilities
- **Target Assembly**
 - Four 12" diameter water cooled targets
 - Tilt and index capabilities
- **UHV Vacuum Suite**
 - Cryo, Turbo and water pumps to achieve $9 \times 10E-9$ pressure
- **Front End**
 - CWH with dual arm robot for 6" x 6" plates
 - Vacuum Cassette Elevators(VCE's x 2)
 - SMIF Modules



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LDD current Status

Optical Performance

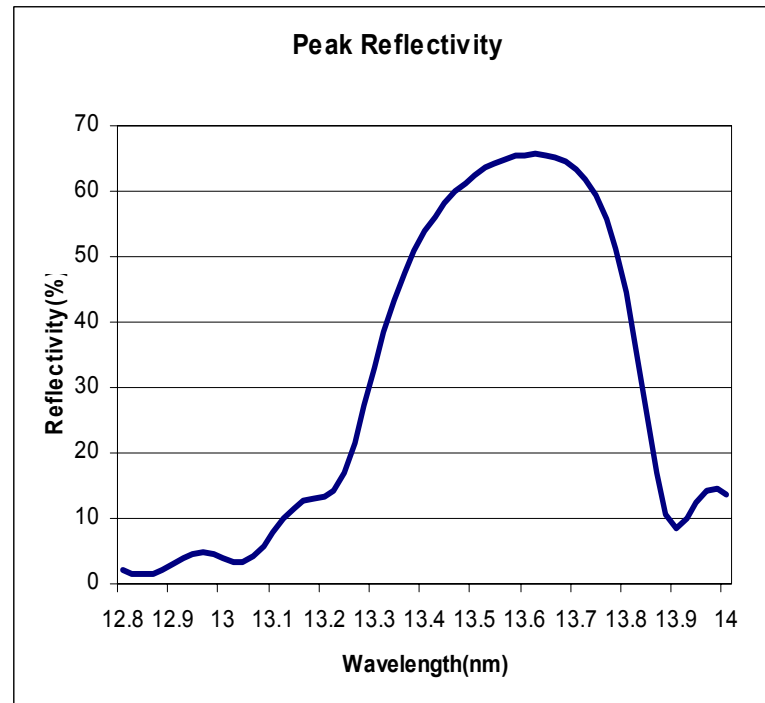
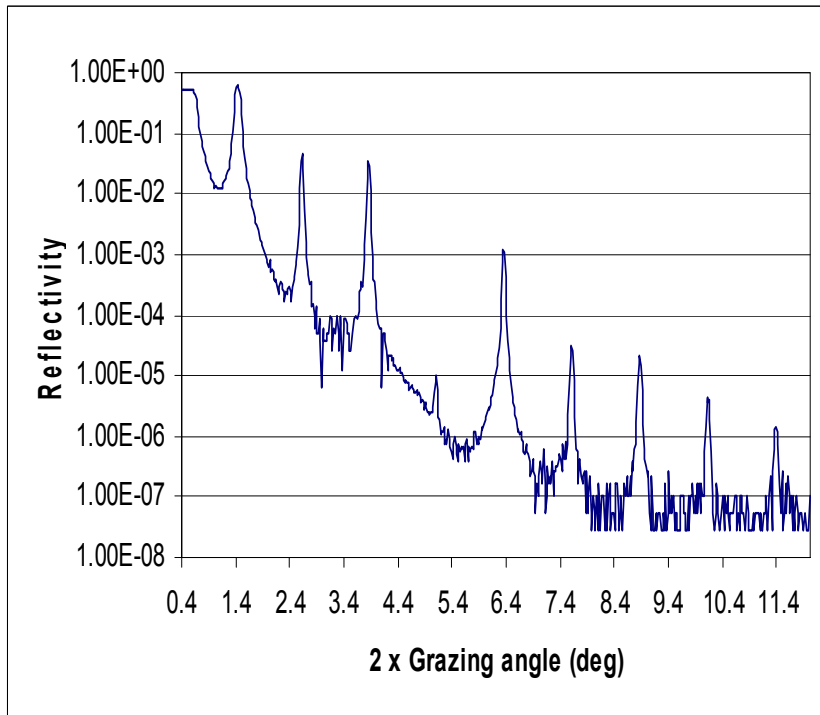
	Reflectance (%)	Centroid (nm)	FWHM
	65.8 +/- 0.075 (3 δ)	13.55 +/- 0.012 (3 δ)	0.53 +/- 0.0021 (3 δ)
P38-1103 SEMI Standard- class A	0.50%	0.05	0.006

- Reflectance meet Beta spec.
- Uniformity meet 2009 production class A spec.



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LDD current Status(cont.)



Peak Reflectivity: 65.8%





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LDD current Status

Defect Performance

	Current	Beta spec(2007)	Pilot line spec(2009)
	0.01 @ 70nm		
P38-1103 SEMI Standard- class A	0.05 @ 70nm	0.01 @ 40nm	0.005 @ 25nm

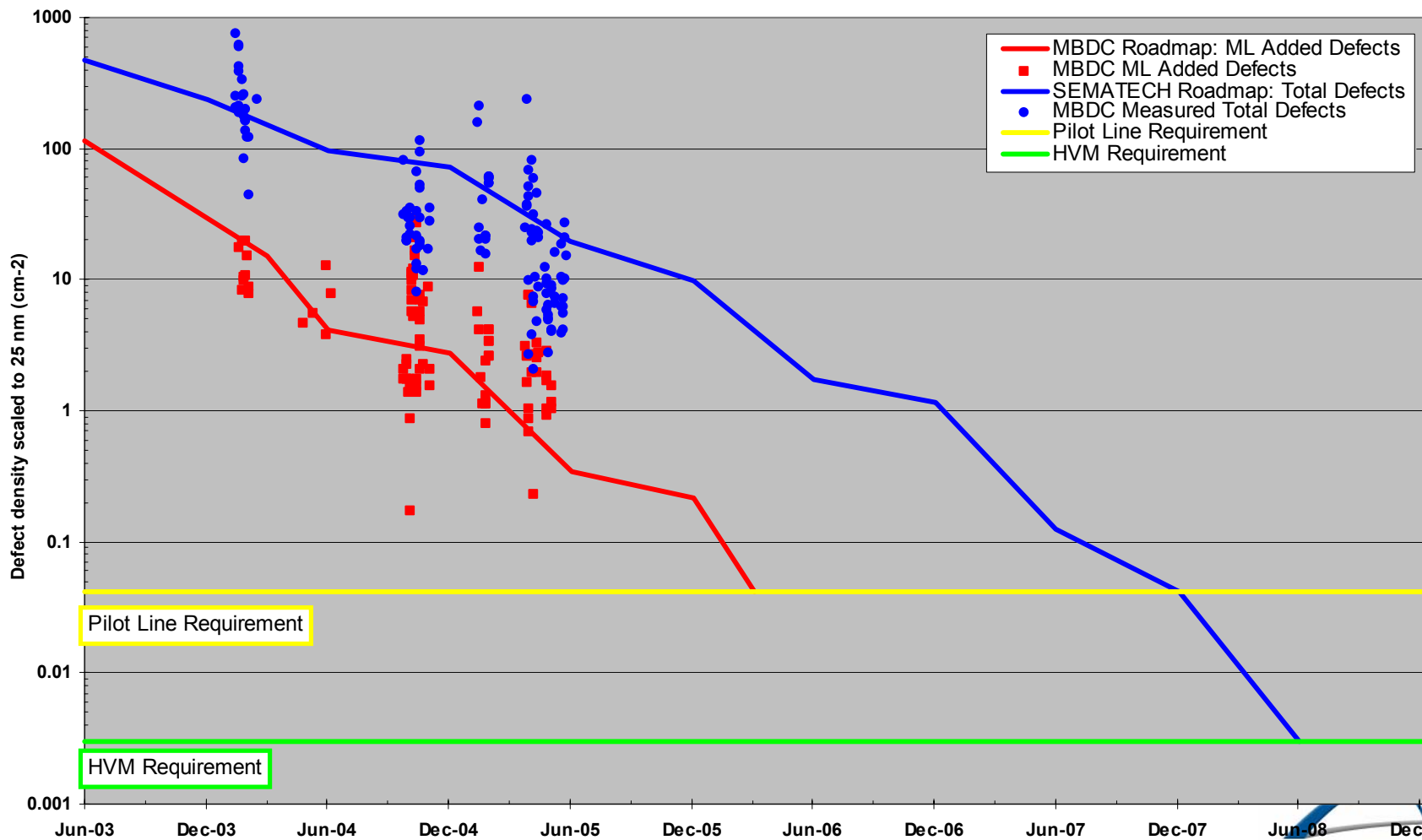




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LDD Project Defect Reduction Trend

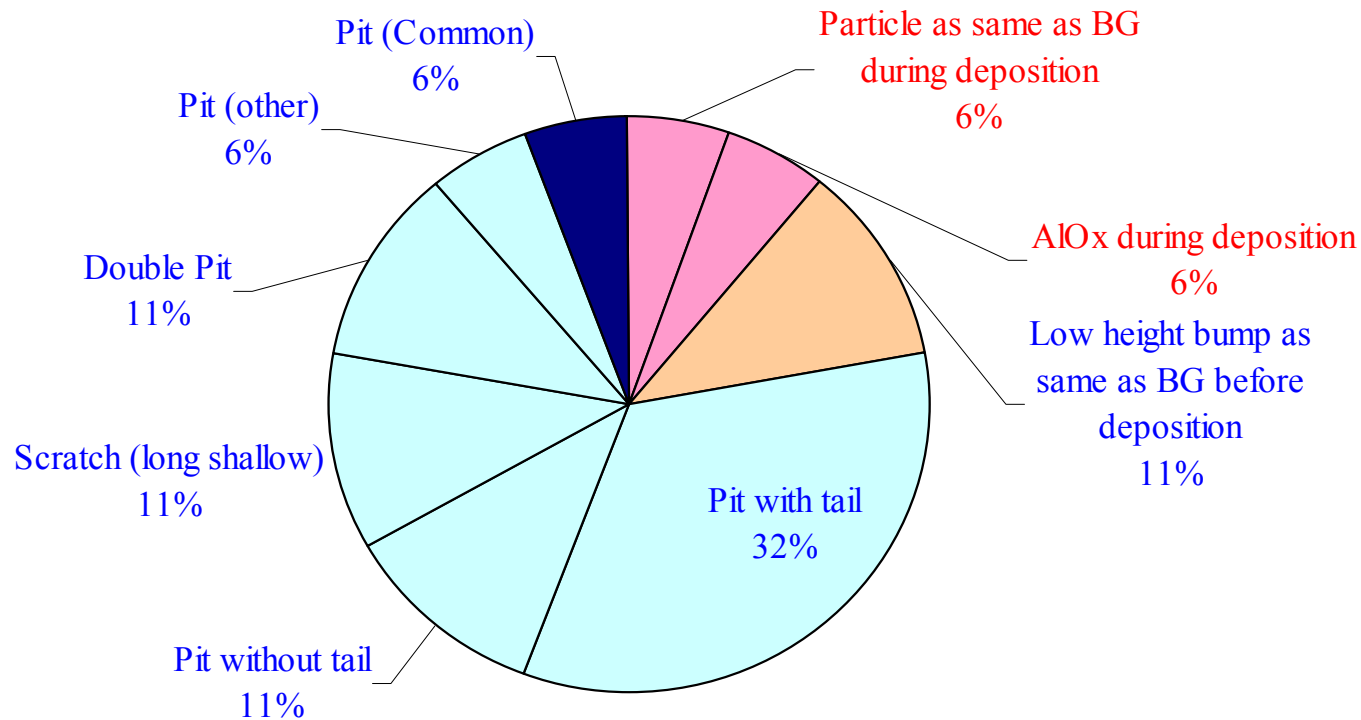
MBDC EUV Blank Defect Reduction Progress



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- SEM/EDX examination of every defect on the champion plate generated the following Pareto.
- Pits/scratches now account for ~14/18 (78%)

517PUQ89 total defects on 1ML



- **Work with suppliers to reduce pit defect density on incoming substrates.**
- **Evaluate and implement defect smoothing**
 - Install new smoothing module on existing ML coating tool by end of this year.
 - Improve cleanliness of LLNL smoothing process to render it manufacturable.

