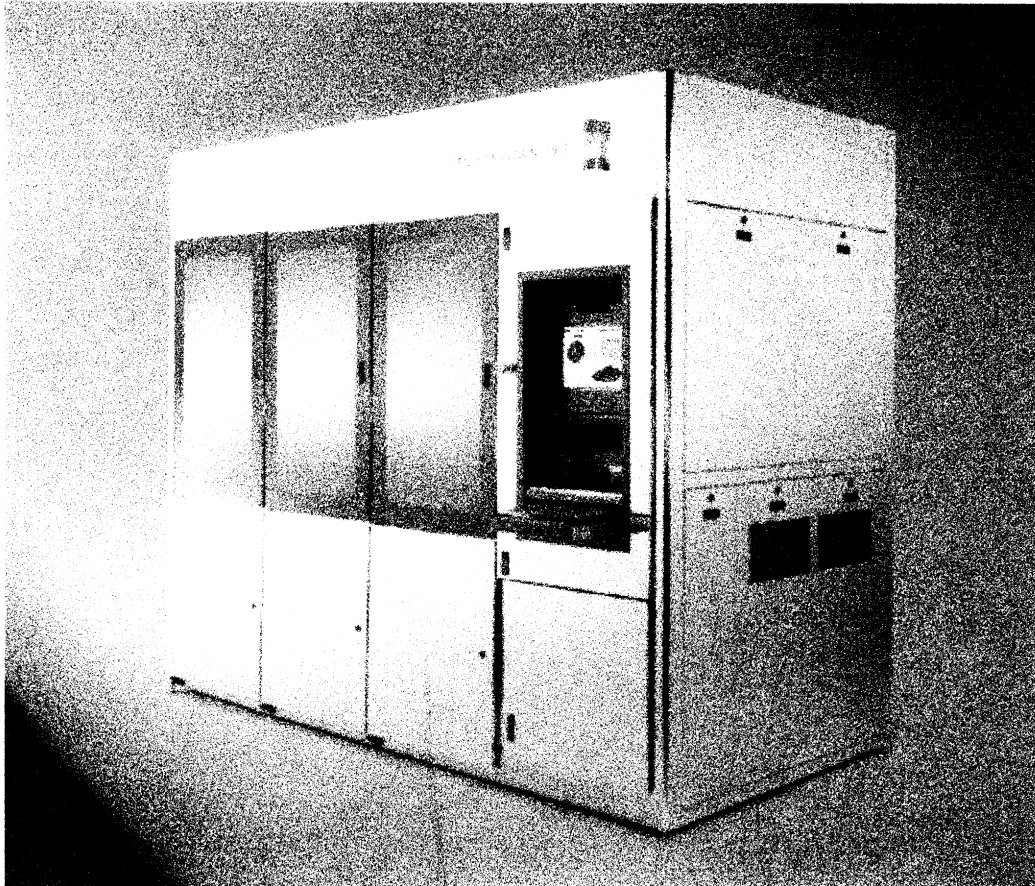
SVG SILICON VALLEY GROUP, INC.
Lithography Division

Micrascan 193



Production Unit MPT-4a

AGERE/LUCENT

ASML /SVGL Field Acceptance Test Results

Based on Document No: ***CS 866-0001-001 Rev. 09***

Prepared: May 2001

Tests	Spec	Units	Factory ATP Results	Field ATP Results
MS 193				
Focus & Astigmatism				
Mean	≤ ± 0.1	μm	0.013	0.04
Theta X	≤ ± 4.6	μrad (TIR)	0.1	-4.1
Reticle Tilt	≤ 0.075	μm (TIR)	0.025	-.025
Total Focal Plane De viation	≤ 160	nm (TIR) 180 grp lines	123	173
Illumination				
Dose Uniformity	± 2.0	%	2.0	2.0
Illumination over 26 mm	± 0.7	% 0.8 P.C.A.	0.4	0.41
Illumination over 26 mm	± 0.7	% 0.6 P.C.A.	0.48	0.66
Illumination over 26 mm	± 0.7	% 0.3 P.C.A.	0.39	0.59
Illumination Quad	± 1.0	% 0.7Quad @0.6 NA		0.73
Telecentricity	<± 1	ppm/μm, ± 0.4μm	0.274	0.558
Pointing X	<± 10	nm/μm, ± 0.4μm	8.4	5.9
Pointing Y	<± 10	nm/μm, ± 0.4μm	2.4	2.5
Dose Control	± 2.0	%	2.0	2.0
Linewidth Control (Through Focus)		150nm ± 10 nm		
Linewidth Control (Grouped) (0.3:m DOF)	≤ 25	nm (3sigma) Ele. Probe	13	15.03
Linewidth Control (Isolated) (0.3:m DOF)	≤ 25	nm (3sigma) Ele. Probe	12	18.13
Linewidth Control Uniformity (AFLV)		150nm ± 10 nm		
Linewidth Control (Grouped)	≤ 15	nm (3 sigma)	10.5	14.33
Linewidth Control (Isolated)	≤ 15	nm (3 sigma)	8.3	10.133
Resist Profiles (SEM)		150nm ± 10 nm		
Resist Wall Angle (0.3:m DOF)	> 85,< 92	Degrees	86/89	86/89.5
Contact Distortion		200 nm isolated holes		
Circularity (0.3:m DOF)	A/B ≥ 90	%	0.90	0.90
Distortion				
Residual Field Distortion X	≤ ± 25	nm	14.3	20.9
Residual Field Distortion Y	≤ ± 25	nm	16.1	15.6

Stage Performance				
Stage Repeatability X	≤ 17	nm (3 sigma)	8.7	15
Stage Repeatability Y	≤ 17	nm (3 sigma)	10.2	15
Stage Accuracy Max X	≤ 13	nm (1 sigma)	6.6	7
Stage Accuracy Max Y	≤ 13	nm (1 sigma)	3.0	6.2
Pre-Aligner Repeatability X	≤ 20	μm	10.77	10.77
Pre-Aligner Repeatability Y	≤ 20	μm	5.35	5.35
Pre-Aligner Repeatability Theta	≤ 350	μrad	159	159
Overlay		Pooled Data		
Dark Field 6T X (A-A)	≤ 45	|X| + 3 Sigma x (nm)	29.7	19.5
Dark Field 6T Y (A-A)	≤ 45	|Y| + 3 Sigma y (nm)	28.1	31.4
		Pooled Data		
Throughput AXIOM				
31 flds/wafer (@10mj/cm^2) - Factory	≥ 25	Wafers per hour	43.97	
31 flds/wafer (@11.5mj/cm^2) - Field	≥ 25	Wafers per hour		38.81
Reticle Change Time				
Short Swap (2nd reticle)	≤ 44	sec	42.94	42
Long Swap (3rd reticle)	≤ 62	sec	60.94	59
Contamination				
Wafer Contamination > 0.2μm PPP	≤ 1.7	Particles per Pass	1.4	1.0