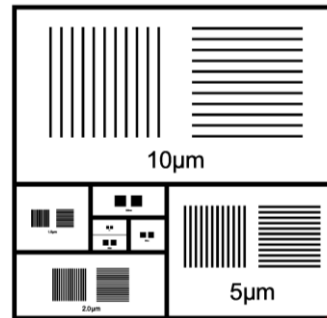
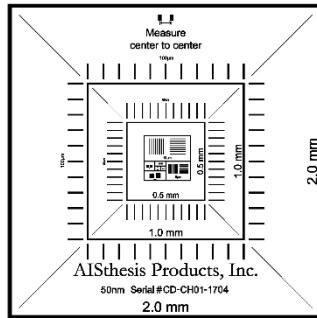




AIStthesis Products, Inc.

Advanced Imaging Products for Nanotechnology, Engineering and Life Sciences

Wafer Level Certificate of Traceability for Pelcotec™ XY-Critical Dimension Magnification Standard



Product Number: Pelcotec™ 702-01 CDMS-XY-0.05T-Etched **Manufactured for and Distributed by:**

Product Description: 2.5x2.5mm Pelcotec™ 2mm-50nm XY-Critical Dimension Magnification Standard



Wafer Identifier: CD-CH01

The accuracy of these products was determined by reference comparison to working standards traceable to the National Institute of Standards and Technology (NIST), Test No. 861/280822-11.

Line	Direction	Average pitch of wafer	Number of lines averaged	Average pitch uniformity (1σ uncertainty)	Total expanded uncertainty (3σ) average pitch for wafer*
2.0mm	X/Y	2.00 mm	2	± 2 μm (±0.10%)	± 7 μm (±0.35%)
1.0mm	X/Y	1.00 mm	2	± 1 μm (±0.10%)	± 3.5 μm (±0.35%)
0.5mm	X/Y	0.500 mm	2	± 0.5 μm (±0.10%)	± 1.75 μm (±0.35%)
0.10mm	X/Y	0.100 mm	11	± 0.10 μm (±0.10%)	± 0.35 μm (±0.35%)
50μm	X/Y	50.00 μm	11	± 0.05 μm (±0.10%)	± 0.175 μm (±0.35%)
10μm	X/Y	10.01 μm	11	± 0.01 μm (±0.10%)	± 0.035 μm (±0.35%)
5μm	X/Y	5.01 μm	12	± 0.01 μm (±0.20%)	± 0.035 μm (±0.70%)
2μm	X/Y	2.00 μm	16	± 0.004 μm (±0.20%)	± 0.014 μm (±0.70%)
1μm	X/Y	1.00 μm	17	± 0.002 μm (±0.20%)	± 0.007 μm (±0.70%)
500nm	X/Y	501.0 nm	20	± 1.00 nm (±0.20%)	± 3.5 nm (±0.70%)
250nm	X/Y	250.9 nm	21	± 0.50 nm (±0.20%)	± 1.75 nm (±0.70%)
100nm	X/Y	100.4 nm	52	± 0.20 nm (±0.20%)	± 0.75 nm (±0.75%)
50nm	X/Y	50.0 nm	51	± 0.20 nm (±0.40%)	± 0.75 nm (±1.50%)

* The 3σ uncertainty (99.73% confidence interval) average pitch is determined using a minimum of nine die per production wafer. Each average pitch is determined using 100+ measurements on each die averaged over the stated number of lines. The total expanded uncertainty includes both Type A and Type B uncertainties corrected for sample size using an appropriate Student t-factor.

Equipment used:

Instrument	Model number	Serial #	NIST Certified CD	Resolution	Repeatability
FE-SEM	FEI Apreo2	9958357	CD-PG01-0211	0.9nm	0.03%

D.S. Finch
Certified by

Signature

January 26th, 2024
Date

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P.O. Box 1950, Clyde, North Carolina 28721 Tel: 828.627.6555 E-mail: CD@aistthesisproducts.com