NIKON STEPPER INSTALLATION REPORT

MODEL : NSR200519C

NSR-2005i9C ACCEPTANCE TEST RESULTS

(6" Reticle Type, 22mm Field)

Acceptance Test Completion Date: 2005 / 12 / 12 .

No	Item	Specification	Result			
1	Exposure Power	600mJ/cm² or more (Flash)	Normal	NA		
			Flash	670 mJ/cm²		
2	Illumination Uniformity	Within ± 1.5%	Normal	NA		
			Flash	1.160%		
3	Wafer Holder Flatness	Within 2.5μm / 150mm	Max - Min	2.5 μm		
4	Chip Leveling Accuracy	Within ± 2sec	R	1.013 sec		
			P	-0.608 sec		
			X	0651 sec		
			Y	-0.923 sec		
5	Reticle Blind Setting Accuracy	+0.4 to +0.8mm (on reticle)	Xp	0.6 mm		
			Xm	0.65 mm		
			Yp	0.55 mm		
			Ym	0.7 mm		
6	Reticle Rotation	Absolute value Within ±0.02μm Of target value Repeatability Within 0.02μm	Absolute value			
			-0.017 μm			
			Repeatability			
			0.005 μm			
7	Array Orthogonality	Within ±0.1 sec	0.033 sec			
8	Stepping Precision	NORMAL ±0.070μm (3 σ)	3 Sigma			
			X	0.049 μm	Y	0.054 μm
9	Lens Distortion (Including Magnification error)	Within ±0.060μm	Max			
			X	0.025 μm	Y	0.014 μm
			Min			
			X	-0.046 μm	Y	-0.043 μm

10	Overlay-LSA	0+3 ≤0.100㎛	x	0.075 ㎛	y	0.087 ㎛
11	Overlay-FIA	+3 ≤0.100㎛	x	0.080 ㎛	y	0.047 ㎛
12	Wafer Pre-Alignment 2 Repeatability	3≤20 ㎛	X	1.05 ㎛		
			Y	2.27 ㎛		
			T	1.52 ㎛		
13	Maximum exposure field Size	21.2mm X 25.2mm	22 mm X 25.2mm			
14	Depth of Focus	±0.07㎛	0 ㎛			
15	Resolution	Within 0.45㎛	0.45 ㎛			

Nikon NSR Data Sheet

Normal Lamp Uniformity

date : 06 Dec 2005.

	2005i9C
Lamp Time	10 Hr

	1	2	3	4	5	6	7	8	9	10	11
1	-	678	673	669	672	670	670	669	670	676	-
2	678	675	672	672	669	670	670	670	669	670	672
3	680	672	670	670	669	669	668	669	669	670	670
4	679	676	670	670	670	670	668	669	670	670	672
5	679	677	670	672	670	671	668	669	669	670	671
6	681	678	671	670	670	669	670	669	669	667	668
7	680	677	674	670	670	670	669	668	668	670	668
8	680	677	676	670	670	670	669	668	668	669	669
9	679	677	670	670	670	670	668	668	668	668	670
10	678	674	670	670	670	670	668	668	668	670	670
11	677	670	669	670	669	668	668	668	668	670	670
12	679	671	672	670	672	670	667	665	669	670	671
13	-	667	670	669	670	670	669	670	666	668	-

Max.	680	Min.	665
Uniformity	1.16%	Ave.	670

Nikon NSR Data Sheet

Wafer Holder Flatness

date : 12.Dec.2005

Machine Type	2005i9C	

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
1	-	-	-	-	-	-	-15	-12	-11	-11	-11	-13	-18	-	-	-	-	-	-
2	-	-	-	-	-15	-11	-10	-7	-6	-8	-8	-8	-11	-15	-18	-	-	-	-
3	-	-	-	-15	-11	-7	-5	-4	-4	-3	-2	-3	-8	-10	-13	-16	-	-	-
4	-	-	-16	-11	-8	-4	-3	0	0	0	-1	-2	-5	-8	-9	-13	-19	-	-
5	-	-19	-14	-10	-7	-4	-1	1	1	1	0	0	-3	-6	-8	-12	-17	-21	-
6	-	-19	-14	-9	-6	-3	-1	0	0	1	0	-1	-2	-4	-8	-10	-16	-19	-
7	-22	-17	-14	-8	-5	-1	0	2	1	3	0	-1	-1	-2	-6	-10	-12	-17	-21
8	-20	-17	-13	-6	-5	-2	-1	1	1	2	1	-1	-4	-3	-8	-10	-13	-17	16
9	-21	-17	-9	-6	-4	-8	-2	1	2	2	1	0	-4	-4	-5	-9	-13	[illegible]	-19
10	-21	-16	-12	-8	-5	-5	-4	0	-1	0	2	3	-2	-3	-5	-9	-13	[illegible]	-19
11	-20	-13	-9	-8	-5	-4	-4	0	0	2	0	0	-1	-2	-5	-7	-10	[illegible]	-20
12	-19	-11	-8	-9	-7	-6	-5	-1	-2	-1	-2	-2	-2	-5	-8	-8	-11	-16	-19
13	-19	-15	-13	-9	-7	-6	-6	-3	-3	-3	-4	-4	-4	-6	-8	-9	-12	-16	-20
14	-	-17	-14	-11	-6	-7	-6	-6	-6	-5	-7	-7	-8	-9	-11	-11	-15	-19	-
15	-	-19	-13	-10	-9	-7	-6	-6	-6	-6	-6	-6	-8	-9	-12	-14	-13	-16	-
16	-	-	-16	-13	-12	-11	-10	-9	-8	-8	-7	-7	-10	-13	-16	-16	-11	-	-
17	-	-	-	-7	-12	-9	-9	-9	-9	-8	-7	-8	-10	-12	-14	-14	-	-	-
18	-	-	-	-	-13	-9	-7	-9	-10	-8	-9	-10	-10	-11	-12	-	-	-	-
19	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

※ $^{1}/_{10}$ (μm)

Front - Rear	-2.0
Lef - Right	0.7

Nikon NSR Data Sheet

Wafer Loader Prealignment-2 Repeatability date : 12.Dec.2005.

Machine Type	2005i9C

25 Time	Y	Theta	X
Mean	0.76	-3.3	4.25
Sigma (n-1)	2.27	1.52	1.05
Max - min	11.07	6.29	4.5

Nikon NSR Data Sheet

Overlay Accuracy : LSA

date : 12.Dec.2005.

Machine Type	2005BC

No	1	2	3	4	5	6	7
1	-	-0.027 -0.069	0.005 -0.032	-0.022 -0.019	-	-	-
2	-	-0.007 -0.016	-	-	-0.007 -0.022	-	-
3	0.008 0.017	-	-0.004 -0.001	-0.034 -0.009	-	-0.041 0.032	-
4	0.034 -0.009	-	0.000 0.001	-0.027 0.006	-	-0.028 0.038	-
5	-0.023 0.003	-0.009 0.021	-	-	-0.048 0.032	0.048	-
6	-	-	0.001 0.014	-0.016 0.016	0.021 0.029	-	-
7	-	-	-	-	-	-	-
Average	(X)	-0.012	(Y)	0.004			
Sigma	(X)	0.021	(Y)	0.028			
3Sigma	(X)	0.063	(Y)	0.083			

	Wafer Total			
Axis	Average	Sigma	3Sigma	Result
X	-0.012	0.021	0.063	0.075
Y	0.004	0.028	0.083	0.087

Nikon NSR Data Sheet

Overlay Accuracy : FIA

date : 12.Dec.2005

Machine Type	2005BC

No	1	2	3	4	5	6	7
1	-	0.026 0.006	0.017 -0.021	-0.011 -0.008	-	-	-
2	-	0.002 -0.022	-	-	-0.015 -0.025	-	-
3	0.034 0.028	-	0.025 -0.009	0.016 -0.004	-	-0.039 0.014	-
4	0.024 0.013	-	0.029 -0.004	0.000 -0.001	-	-0.032 -0.004	-
5	0.049 -0.003	0.026 0.021	-	-	-0.009 -0.003	0.018	-
6	-	-	-0.020 -0.026	0.003 0.017	0.028 0.004	-	-
7	-	-	-	-	-	-	-
Average	(X)	0.008	(Y)	0.000			
Sigma	(X)	0.024	(Y)	0.016			
3Sigma	(X)	0.072	(Y)	0.047			

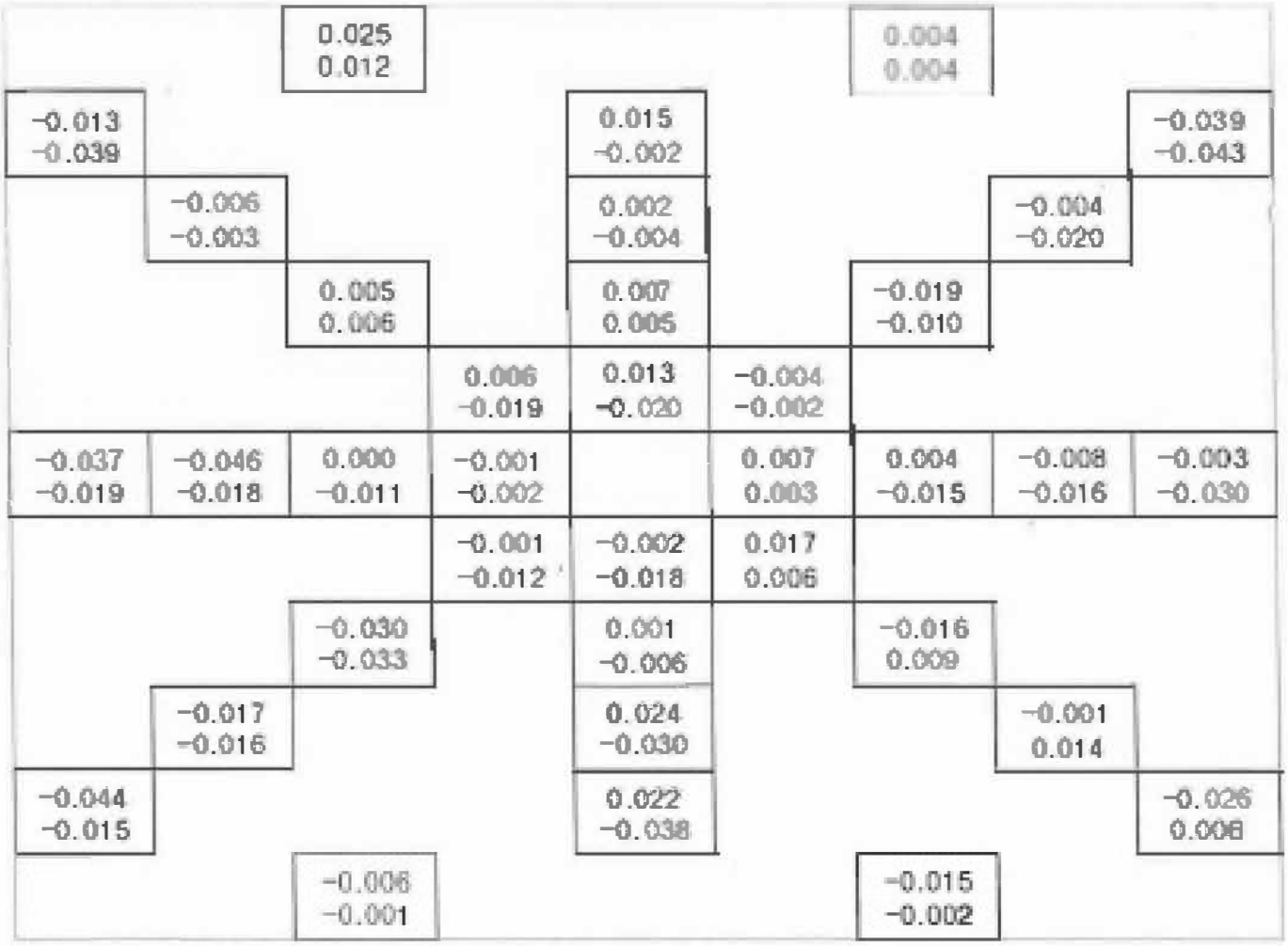
	Wafer Total			
Axis	Average	Sigma	3Sigma	Result
X	0.008	0.024	0.072	0.080
Y	0.000	0.016	0.047	0.047

Nikon NSR Data Sheet

Lens Distortion

date : 10.Dec.2005.

Machine Type 2005i9C



	Lens Distortion	
Axis	Max	min
X	0.025	-0.046
Y	0.014	-0.043

Nikon NSR Data Sheet

Reticle Rotation

date : 10.Dec.2005.

Machine Type	2005i9C	

	Value					Average
1	-0.015	-0.013	-0.026	-0.045	-0.040	-0.028
2	-0.008	-0.009	-0.035	-0.041	-0.046	-0.028
3	-0.028	-0.011	-0.039	-0.035	-0.046	-0.032
4	-0.014	-0.017	-0.016	-0.046	-0.016	-0.022
5	-0.025	-0.014	-0.020	-0.057	-0.058	-0.035

Absolute Value	Repeatability
-0.017	0.005

Array Orthogonality

date : 10.Dec.2005.

Machine Type	2005i9C	

ORTM	1.52	
ORTM90	-1.2	
ORT	urad	0.16
	sec	0.033

Nikon NSR Data Sheet

Stepping Accuacy

date : 10.Dec.2005.

Machine Type	2005i9C

No	1	2	3	4	5	6	7
1	-	-	-	-0.242	-	-	-
2	-	-0.257	-0.234 -0.256	-0.248 -0.200	-0.244 -0.190	-	-
3	-0.252	-0.259 -0.245	-0.264 -0.242	-0.247 -0.245	-0.238 -0.240	-0.247 -0.253	-
4	-0.249 -0.243	-0.263 -0.262	-0.238 -0.219	-0.278 -0.224	-0.233 -0.230	-0.232 -0.242	-0.205
5	-0.244 -0.221	-0.270 -0.223	-0.211 -0.226	-0.260 -0.224	-0.221 -0.229	-0.260 -0.233	-
6	-	-0.252 -0.268	-0.224 -0.239	-0.261 -0.252	-0.248 -0.224	-0.239	-
7	-	-	-0.265 -0.214	-0.213 -0.247	-0.241	-	-
Average	(X)	-0.247	(Y)	-0.234			
Sigma	(X)	0.016	(Y)	0.018			
3Sigma	(X)	0.049	(Y)	0.054			

	Wafer Total			
Axis	Average	Sigma	3Sigma	Result
X	-0.247	0.016	0.049	0.049
Y	-0.234	0.018	0.054	0.054

Nikon NSR Data Sheet

Auto Focus

date : 12.Dec.2005

Machine Type 2005i9C

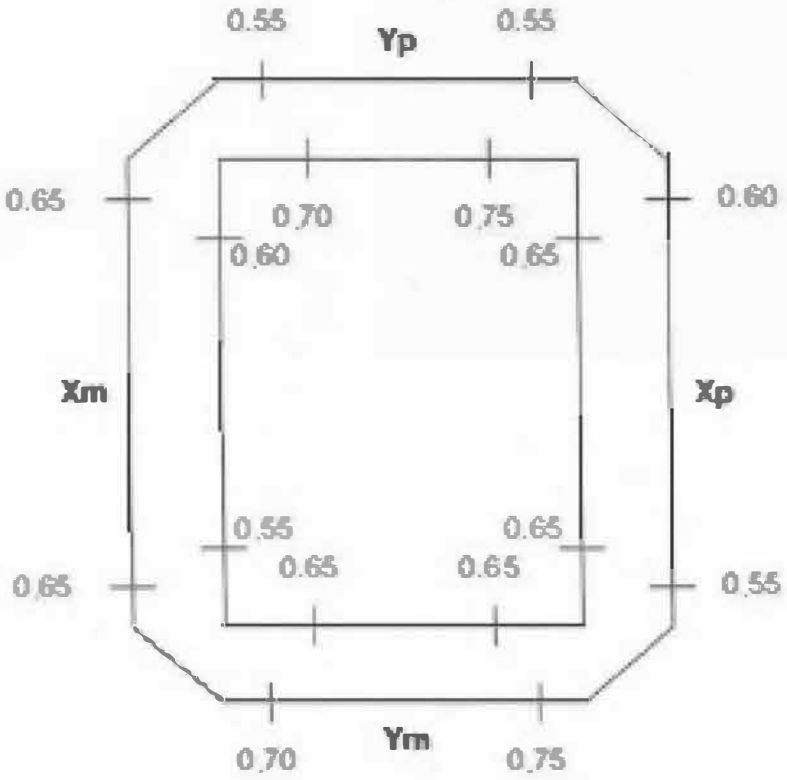
NO	Date / Focus	12/12					
1	-3.3	2	X				
2	-3	2	X				
3	-2.7	1.5	X				
4	-2.4	1.2	X				
5	-2.1	0.8	X				
6	-1.8	0.7	X				
7	-1.5	0.55	X				
8	-1.2	0.5	X				
9	-0.9	0.45	△				
10	-0.6	0.45	○				
11	-0.3	0.4	○				
12	0	0.4	○				
13	0.3	0.4	○				
14	0.6	0.45	○				
15	0.9	0.45	△				
16	1.2	0.5	X				
17	1.5	0.55	X				
18	1.8	0.7	X				
19	2.1	0.8	X				
20	2.4	1.2	X				
21	2.7	1.5	X				
22	3	2	X				
23	3.3	2	X				
Best Focus		0					

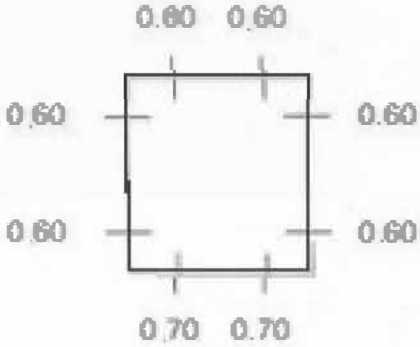
Nikon NSR Data Sheet

Reticle Blind Accuacy

date : 2005/12/08

Machine Type	NSR-2005i9C



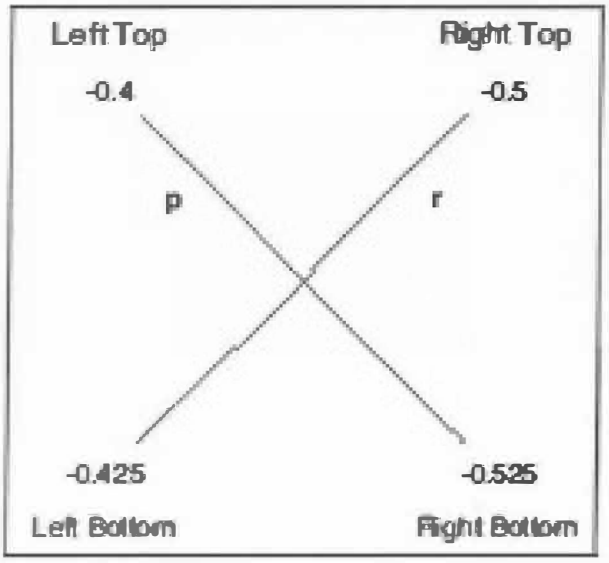


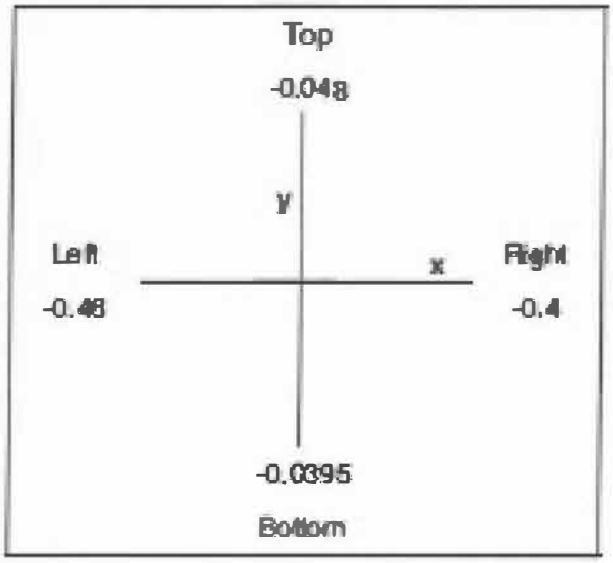
Nikon NSR Data Sheet

Leveling Check

date : 12.Dec.2005.

Machine Type	2005i9C





	[urad]	[sec]
Pitching	4.91	1.013
Rolling	-2.946	-0.608

	[urad]	[sec]
X	3.158	0.651
Y	-4.474	-0.923

NIKON 2005i9C

Machine Type	2005i9C		
		Wafer Size	6 Inch

NO			
1	Resolution	Within 0.45μm	OK
2	Depth of Focus	±0.7μm	OK
3	Exposure Power	600mJ/㎠ Over	670 mJ/㎠
4	Illumination Uniformity	Within ±1.5%	1.160%
5	Integrated Exposure Control	Within ±1.0%	-0.2% ~ -0.6%
6	Maximum exposure field Size	21.2mm X 25.2mm	22mm X 25.2mm
7	Reticle Blind Setting Accuracy	+0.4 to +0.8㎜ (on reticle)	0.65mm ~ 0.7mm
8	Reticle Rotation repeatability	Within ±0.02㎜	Absolute Value : -0.017mm Repeatability : 0.005mm
9	Array orthogonality	Within ±0.1 sec	0.033 SEC
10	Stepping Accuracy	Within ±0.07㎛ (3σ)	X: 0.049 Y: 0.054
11	Lens Distortion (Including Magnification error)	Within ±80㎚	X: 0.028 Y: 0.014mm X: -0.046 Y: -0.043mm
12	Overlay Accuracy (LSA)	Within 0.1㎛ (X)+3σ)	X: 0.075mm Y: 0.089mm
13	Overlay Accuracy (FIA)	Within 0.1㎛ (X)+3σ)	X: 0.080mm Y: 0.107mm
14	Wafer Prealignment 再現性	Within 20㎛ (3σ)	X: 1.05mm Y: 2.19mm T: 1.62mm