



MODEL	FPA-3000 i5	INSTALLATION CHECK LIST	
SN	8032195	START DATE	4/4/2011
CUSTOMER	ON Semi	END DATE	8/11/2011

	DESCRIPTION		Results	UNIT	SPECIFICATION
	LENS DISTORTION (Normal)	DX	0.029	μm	≤ ± 0.04
		DY	0.022		
ILLUMINATION SYSTEM	Standard/Normal Illumination	Uniformity	2.2	%	≤ 1.0
		Intensity	9118.0	W/m ²	≥ 9000
	L.I. ACCURACY		0.3	%	≤ 1.0
	MASKING BLADE ACCURACY	θ	1818	ppm	≤ 3000
		GZW	15	μm	≤ 60
		Total	55	μm	≤ ± 110
FOCUS TILT SYSTEM	FOCUS - TILT STABILITY	F(3σ)	0.039	μm	3σ ≤ 0.08
		X(3σ)	1.397	ppm	3σ ≤ 6
		Y(3σ)	2.755		
	FOCUS - TILT REPEATABILITY	F(3σ)	0.068	μm	3σ ≤ 0.10
		X(3σ)	2.4	ppm	3σ ≤ 7
		Y(3σ)	3.2		
	GLOBAL - TILT MEASUREMENT REPEATABILITY	X(3σ)	0.4	ppm	3σ ≤ 4
		Y(3σ)	0.4		
	GLOBAL - TILT ACCURACY	X(3σ)	1.0	ppm	3σ ≤ 8
		Y(3σ)	1.1		
	TILT SENSOR UNEVEN FOCUS (DxD ON)	V	0.0	ppm	≤ ± 4
	UNEVEN FOCUS (TSOC) (DxD OFF)	V	0.3	ppm	≤ ± 6
	ALFC MEASUREMENT REPEATABILITY	3σ	0.06	μm	3σ ≤ 0.10
TVPA	TV PRE-ALIGNMENT ACCURACY (DARK FIELD)	X	1.12	μm	≤ 3.0
		Y	1.55		
WAFER STAGE	XYSA	Ortho	-0.10	ppm	≤ ± .5
		Scal X	0.05		
		Scal Y	0.08		
	STEPPING ACCURACY	XX (3σ)	0.031	μm	3σ ≤ 0.040
		YY(3σ)	0.024		
	STEPPING REPEATABILITY	X(3σ)	0.026	μm	3σ ≤ 0.035
		Y(3σ)	0.012		
SRC	SRC MEASUREMENT REPEATABILITY	3σ	0.26	ppm	3σ ≤ 0.5



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RETICLE ALIGNMENT	ROC MEASUREMENT REPEATABILITY	XL(3σ)	0.003	μm	3σ ≤ 0.01
		YL(3σ)	0.001		
		XR(3σ)	0.004		
		YR(3σ)	0.001		
	RETICLE ROTATION ACCUARACY		0.000	μm	≤ ± 0.01
	RETICLE ROTATION REPEATABILITY		0.002	μm	≤ ± 0.02
BASELINE	BLCC STABILITY (MODE 1)	X(3σ)	0.006	μm	3σ ≤ 0.030
		Y(3σ)	0.005		
		RNG(X)	0.008	μm	Range ≤ 0.03
		RNG (Y)	0.007		
	BLCC STABILITY (MODE 2)	X(3σ)	0.007	μm	3σ ≤ 0.030
		Y(3σ)	0.004		
		RNG(X)	0.012	μm	Range ≤ 0.03
		RNG (Y)	0.005		
	BLCC STABILITY (MODE 4)	X(3σ)	0.005	μm	3σ ≤ 0.031
		Y(3σ)	0.005		
		RNG(X)	0.006	μm	Range ≤ 0.03
		RNG (Y)	0.007		
AUTO ALIGNMENT	AGA ACCURACY MODE 1 (m + 3σ)	X	0.038	μm	mean + 3σ < 0.05
		Y	0.027		
	AGA ACCURACY MODE 2 (m + 3σ)	X	0.037	μm	mean + 3σ < 0.05
		Y	0.036		
	AGA ACCURACY MODE 4 (m + 3σ)	X	0.044	μm	mean + 3σ < 0.05
		Y	0.035		
WAFER FEEDER	WAFER FEEDER ADJUSTMENT ACURACY (MECH PA)	θ	3.92	μm	3σ ≤ 30
		XL	6.289	μm	3σ ≤ 40
		XR	6.388		
		YL	18.21		
		YR	5.951		
TPD	THROUGHPUT 6" WAFER TYPE-L WF	DxD ON	131.0	WPH	>102
		DxD OFF	129.4		>102
	WAFER CHUCK FLATNESS	□ 22mm		μm	



MODEL	FPA-3000 i5
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CUSTOMER	ON Semi
ENGINEER	EG/RF/JB/JF

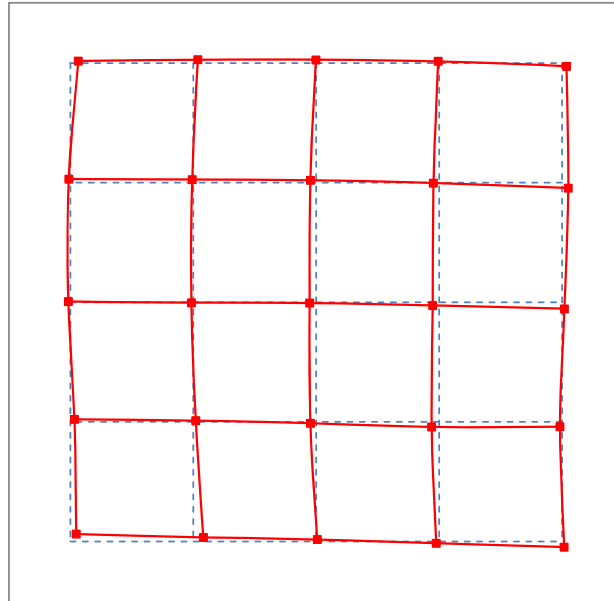
DATA PACKAGE CHECKLIST

Item #	Test Item	Date Created
1	<u>Install Checklist5'!b9</u>	
2	<u>LENS DISTORTION (Normal)</u>	8/9/2011
3	<u>UNIFORMITY (Normal)</u>	8/10/2011
4	<u>L.I. ACCURACY</u>	8/10/2011
5	<u>MASKING BLADE ACCURACY</u>	7/16/2011
6	<u>FOCUS - TILT STABILITY</u>	7/16/2011
7	<u>GLOBAL - TILT ACCURACY</u>	7/20/2011
8	<u>GLOBAL - TILT REPEATABILITY</u>	7/20/2011
9	<u>UNEVEN FOCUS (DxD ON)</u>	7/18/2011
10	<u>UNEVEN FOCUS (DxD OFF)</u>	7/18/2011
11	<u>ALFC MEASUREMENT REPEATABILITY</u>	7/16/2011
12	<u>TVPA ACCURACY</u>	8/9/2011
13	<u>STEPPING ACCURACY</u>	8/8/2011
14	<u>STEPPING REPEATABILITY</u>	8/9/2011
15	<u>SRC MEASUREMENT REPEATABILITY</u>	8/9/2011
16	<u>ROC MEASUREMENT REP</u>	7/14/2011
17	<u>RETICLE ROTATION ACCUARACY</u>	8/9/2011
18	<u>BLCC STABILITY (MODE 1)</u>	8/9/2011
19	<u>BLCC STABILITY (MODE 2)</u>	8/9/2011
20	<u>BLCC STABILITY (MODE 4)</u>	8/9/2011
21	<u>AGA ACCURACY MODE 1</u>	8/10/2011
22	<u>AGA ACCURACY MODE 2</u>	8/11/2011
23	<u>AGA ACCURACY MODE 4</u>	8/11/2011
24	<u>MECHANICAL PA ACURACY</u>	8/9/2011

Distortion



MODEL	FPA-3000 i5	ITEM	LENS DISTORTION (Normal)		
SN	8032195	ENGR	EG/RF/JB/JF	SPEC	dX&dY < ± 0.04
CUSTOMER	ON Semi	DATE	8/9/2011		



PITCH X 5.247 mm PITCH Y 5.247 mm

X (Mag Included)

	-10.494	-5.247	0	5.247	10.494
10.494	0.023	0.013	-0.001	-0.003	0.012
5.247	-0.004	-0.003	-0.017	-0.016	0.018
0	-0.006	-0.005	-0.019	-0.018	0.007
-5.247	0.012	0.007	-0.017	-0.021	-0.006
-10.494	0.017	0.029	0.003	-0.008	0.006

Y (Mag Included)

	-10.494	-5.247	0	5.247	10.494
10.494	0.006	0.010	0.009	0.006	-0.009
5.247	0.011	0.009	0.007	-0.001	-0.016
0	0.002	-0.001	-0.002	-0.009	-0.019
-5.247	0.007	0.004	-0.004	-0.015	-0.014
-10.494	0.022	0.012	0.006	-0.005	-0.017

MAX X 0.029 μm
 MIN X -0.021 μm
 MAX Y 0.022 μm
 MIN Y -0.019 μm

dX 0.029 um (Mag Included)
 dY 0.022 um (Mag Included)



MODEL	FPA-3000 i5	ITEM	UNIFORMITY (Normal)		
SN	8032195	ENGR	EG/RF/JB/JF	SPEC	≤ 1.2%
CUSTOMER	ON Semi	DATE	8/10/2011		

ON Semiconductor

Intensity/Uniformity Data

B.No.= 8032195

DATE= 11/08/10

Mode: Standard

NA: 0.63

Sigma: 0.65

1st Zoom: N/A %

2nd Zoom: 0 %

FP: 0.85

ND Filter: No %

SP Filter: No

2nd Cond.: C

Lamp: N/A hr

0 0 0

Sampling Area

X= 22.00 mm Y= 26.00 mm

Sampling Pitch

X= 1.10 mm Y= 1.30 mm

Sampling Count / Point

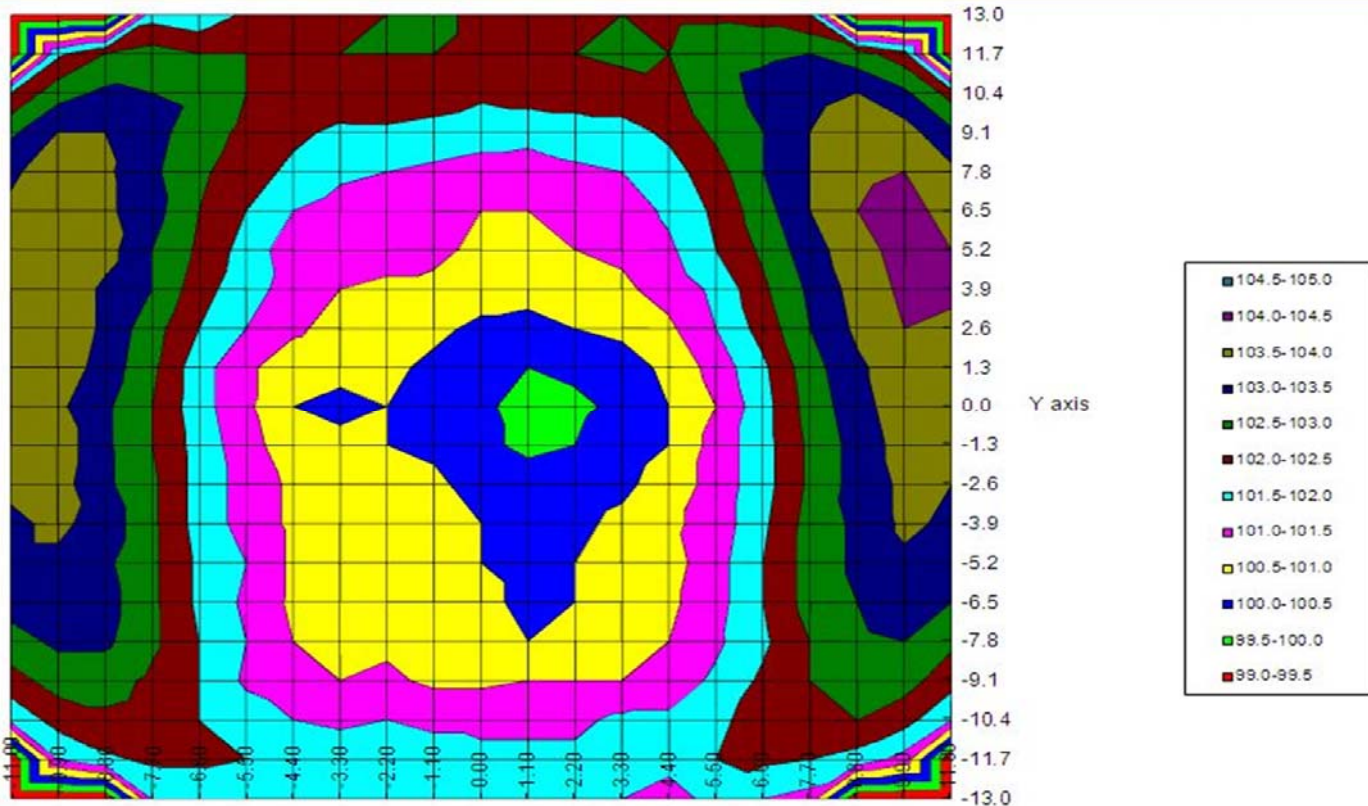
0

Uniformity= 2.16 %

Max= 104.2 %

Min= 99.8 %

Axis	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
	-11.00	-9.90	-8.80	-7.70	-6.60	-5.50	-4.40	-3.30	-2.20	-1.10	0.00	1.10	2.20	3.30	4.40	5.50	6.60	7.70	8.80	9.90	11.00
1 13.00	-	-	-	101.8	101.6	102.1	102.3	102.4	102.5	102.6	102.4	102.4	102.4	102.5	102.4	102.3	102.0	-	-	-	-
2 11.70	-	101.9	102.5	102.7	102.5	102.5	102.4	102.5	102.5	102.5	102.4	102.4	102.5	102.6	102.5	102.8	102.9	103.0	102.7	102.2	-
3 10.40	102.0	102.8	103.1	103.0	102.9	102.5	102.4	102.3	102.4	102.3	102.1	102.2	102.2	102.3	102.4	102.7	103.2	103.4	103.5	103.1	102.3
4 9.10	102.9	103.5	103.5	103.2	102.7	102.4	102.1	101.9	101.9	101.8	101.7	101.7	101.8	101.8	102.1	102.6	103.0	103.5	103.7	103.7	103.1
5 7.80	103.4	103.8	103.6	103.1	102.6	102.2	101.9	101.6	101.5	101.4	101.3	101.2	101.4	101.5	101.8	102.3	103.0	103.5	103.9	104.0	103.6
6 6.50	103.6	103.9	103.6	103.2	102.5	102.0	101.5	101.3	101.2	101.2	101.0	101.0	101.1	101.2	101.6	102.1	102.8	103.5	104.0	104.2	103.8
7 5.20	103.7	103.9	103.7	103.0	102.4	101.8	101.2	101.1	101.2	101.1	100.9	100.8	101.0	101.1	101.4	102.0	102.6	103.3	103.8	104.2	104.0
8 3.90	103.9	103.9	103.4	103.0	102.2	101.7	101.3	101.0	100.9	100.9	100.7	100.7	100.7	100.9	101.2	101.6	102.4	103.1	103.7	104.1	104.1
9 2.60	103.8	103.9	103.4	102.7	102.0	101.5	101.1	100.8	100.7	100.6	100.4	100.3	100.5	100.6	100.9	101.5	102.2	103.0	103.6	104.0	103.9
10 1.30	103.7	103.8	103.3	102.6	101.7	101.1	100.7	100.6	100.6	100.4	100.2	100.0	100.1	100.3	100.6	101.2	101.9	102.8	103.4	103.8	103.8
11 0.00	103.7	103.6	103.1	102.5	101.7	101.1	100.5	100.4	100.5	100.3	100.1	99.8	99.9	100.1	100.5	101.0	101.8	102.7	103.3	103.8	103.7
12 -1.30	103.6	103.8	103.1	102.5	101.8	101.2	100.7	100.6	100.5	100.4	100.1	99.9	100.0	100.3	100.5	101.2	101.8	102.6	103.2	103.7	103.7
13 -2.60	103.6	103.7	103.1	102.6	101.8	101.3	100.9	100.6	100.6	100.6	100.3	100.2	100.3	100.4	100.7	101.2	101.8	102.6	103.2	103.6	103.5
14 -3.90	103.4	103.6	103.3	102.6	101.8	101.3	100.9	100.7	100.7	100.6	100.5	100.4	100.4	100.6	100.9	101.2	101.9	102.7	103.1	103.6	103.4
15 -5.20	103.4	103.4	103.1	102.6	101.9	101.5	100.9	100.8	100.7	100.7	100.5	100.4	100.5	100.6	100.8	101.3	102.0	102.7	103.1	103.4	103.2
16 -6.50	103.2	103.4	103.2	102.6	101.9	101.4	100.9	100.7	100.7	100.7	100.6	100.4	100.5	100.7	100.9	101.3	102.0	102.7	103.0	103.3	103.0
17 -7.80	102.8	103.1	103.1	102.6	102.0	101.5	101.0	100.8	100.9	100.7	100.6	100.5	100.6	100.7	101.0	101.4	101.9	102.5	102.9	103.0	102.6
18 -9.10	102.3	102.7	102.7	102.4	102.0	101.4	101.2	101.0	101.1	100.9	100.9	101.0	101.0	101.0	101.2	101.6	102.1	102.5	102.7	102.7	102.2
19 -10.40	101.6	102.2	102.4	102.3	102.0	101.8	101.5	101.4	101.5	101.4	101.4	101.4	101.4	101.6	101.6	101.9	102.2	102.3	102.5	102.2	101.5
20 -11.70	-	101.5	101.9	102.1	102.1	102.0	101.7	101.8	101.8	101.7	101.6	101.6	101.6	101.8	101.8	102.0	102.1	102.0	101.8	101.3	-
21 -13.00	-	-	-	101.5	101.6	101.6	101.7	101.6	101.8	101.7	101.6	101.7	101.8	101.5	101.8	101.8	101.5	101.3	-	-	-





MODEL	FPA-3000 i5	ITEM	L.I. ACCURACY		
SN	8032195	ENGR	EG/RF/JB/JF	SPEC	< 1.0
CUSTOMER	ON Semi	DATE	8/10/2011		

Hg lamp Intensity (LI) = **9118** W/m² at NA=0.63, sigma=0.65

EXPOSURE TIME : 60 msec. = **547.1** J/m²

	UC/Coef	LI/Coef	UC/LI
MAX	550.0		
MIN	547.5		
AVERAGE	548.9		
3sigma	1.97		

EXPOSURE TIME : 200 msec. = **1823.6** J/m²

	UC/Coef	LI/Coef	UC/LI
MAX	1829.0		
MIN	1825.5		
AVERAGE	1827.3		
3sigma	2.52		

EXPOSURE TIME : 500 msec. = **4559.0** J/m²

	UC/Coef	LI/Coef	UC/LI
MAX	4568.5		
MIN	4565.0		
AVERAGE	4566.9		
3sigma	2.86		

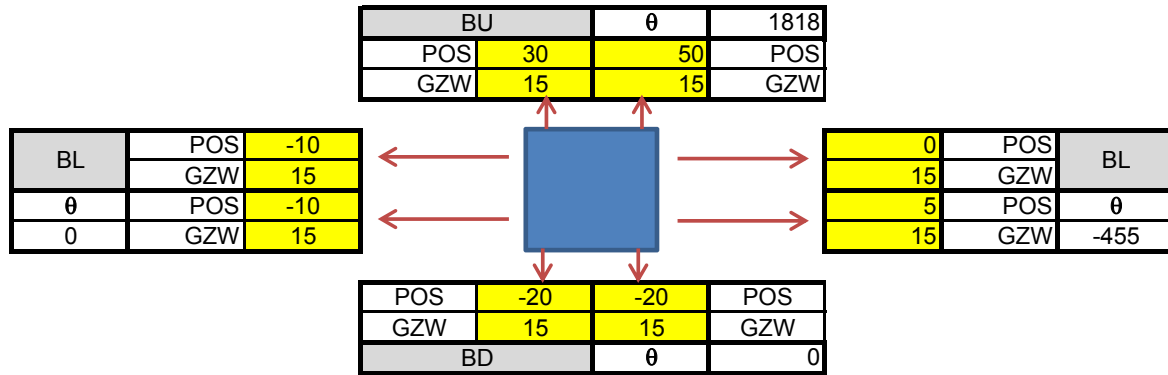
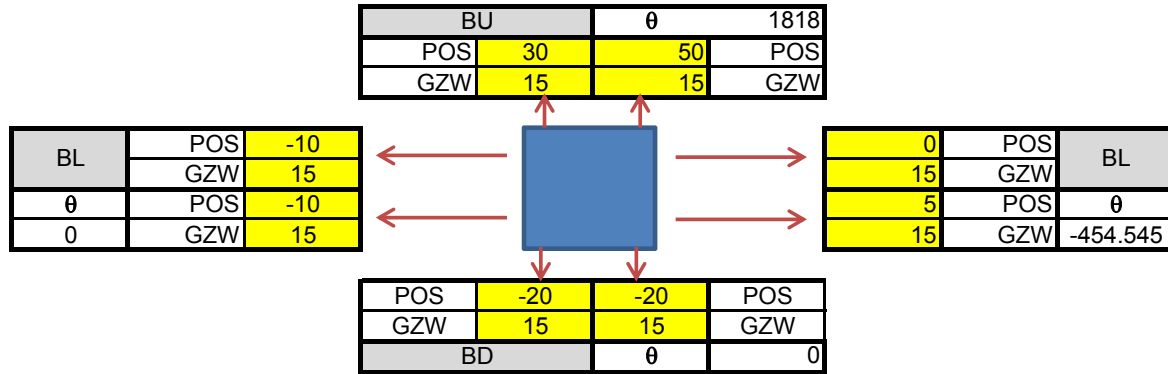
EXPOSURE TIME : 1000 msec. = **9118.0** J/m²

	UC/Coef	LI/Coef	UC/LI
MAX	9131.5		
MIN	9128.0		
AVERAGE	9129.8		
3sigma	3.36		

Expo. Time	Repeatabilit	Error against Set value
60 msec	0.23%	0.33%
200 msec	0.10%	0.20%
500 msec	0.04%	0.17%
1000 msec	0.02%	0.13%
LINEARITY		0.10%
OVERALL		Spec
ACCURACY	0.33%	(<1.0%)



MODEL	FPA-3000 i5	ITEM	MASKING BLADE ACCURACY		
SN	8032195	ENGR	EG/RF/JB/JF	SPEC	q $\leq$ 3000 GZW < 60um Total < 110um
CUSTOMER	ON Semi	DATE	7/16/2011		



	POS	GZW	Q
BU	40	15	1818
BD	-20	15	0
BL	-10	15	0
BR	2.5	15	455

MAX ROTATION	1818
MAX ERROR	40
MAX GZW	15
OVERALL ACCURACY (μm)	55

Focus Tilt Stability



MODEL	FPA-3000 i5	ITEM	FOCUS - TILT STABILITY		
SN	8032195	ENGR	EG/RF/JB/JF	SPEC	Focus $3\sigma \leq 0.08\mu\text{m}$ Tilt X&Y $3s < 6\text{ppm}$
CUSTOMER	ON Semi	DATE	7/16/2011		

Data #	Focus(μm) Tilt (ppm)			Measure (μm)				
	Z	X	Y	CH-1(M)	CH-2(M)	CH-3(M)	CH-4(M)	CH-5(M)
1	-0.058	-0.62	-1.03	0	-0.15	-0.02	-0.12	0.01
2	-0.025	-0.43	0.5	0.04	-0.1	0.01	-0.1	0.03
3	-0.037	-0.57	1	0.03	-0.11	-0.01	-0.11	0.01
4	-0.04	-0.54	0.03	0.03	-0.13	-0.01	-0.12	0.03
5	-0.022	-1.19	0.89	0.05	-0.1	0.01	-0.09	0.02
6	-0.042	-0.43	0.64	0.03	-0.12	-0.01	-0.12	0.01
7	-0.045	-0.43	-0.21	0.02	-0.13	0	-0.12	0.01
8	-0.033	-1.79	2.21	0.05	-0.11	0.01	-0.11	-0.01
9	-0.021	-1.26	0.82	0.06	-0.11	0.02	-0.1	0.03
10	-0.049	-1.05	0.25	0.03	-0.14	-0.02	-0.13	0.01
11	-0.044	-0.87	-0.5	0.02	-0.13	-0.01	-0.11	0.01
12	-0.024	-1.23	-1.07	0.03	-0.12	0.03	-0.09	0.03
13	-0.022	-0.9	0.89	0.06	-0.11	0.01	-0.11	0.03
14	-0.034	-0.97	0.46	0.03	-0.11	0	-0.1	0.01
15	-0.036	-1.26	0.89	0.04	-0.11	-0.01	-0.11	0.01
16	-0.029	-0.22	-0.5	0.04	-0.12	-0.01	-0.11	0.05
17	-0.044	-2.4	2.89	0.05	-0.12	0	-0.13	-0.02
18	-0.037	-1.26	1.53	0.04	-0.11	0	-0.11	0
19	-0.026	-0.97	0.32	0.05	-0.11	0.01	-0.1	0.03
20	-0.023	-0.86	0.78	0.05	-0.11	0.01	-0.11	0.03
21	-0.053	-1.33	0.25	0.03	-0.15	-0.02	-0.13	0.01
22	-0.064	-1.04	0.96	0.02	-0.15	-0.03	-0.15	-0.01
23	-0.018	-1.04	0.54	0.05	-0.1	0.01	-0.09	0.03
24	-0.063	-1.08	2.14	0.02	-0.14	-0.02	-0.15	-0.03
25	-0.043	-0.47	1.03	0.02	-0.11	-0.01	-0.12	0
Min.	-0.064	-2.4	-1.07	0	-0.15	-0.03	-0.15	-0.03
Max.	-0.018	-0.22	2.89	0.06	-0.1	0.03	-0.09	0.05
Mean	-0.037	-0.97	0.63	0.04	-0.12	0	-0.11	0.01
Count	25	25	25	25	25	25	25	25
Range	0.046	2.18	3.96	0.06	0.05	0.06	0.06	0.08
3-S	0.039	1.397	2.755	0.043	0.047	0.041	0.047	0.054



MODEL	FPA-3000 i5	ITEM	GLOBAL - TILT ACCURACY		
SN	8032195	ENGR	EG/RF/JB/JF	SPEC	Tilt X & Y $3\sigma \leq 8$
CUSTOMER	ON Semi	DATE	7/20/2011		

DRIVE		COMPENSATED	
TILT X	TILT Y	TILT X	TILT Y
50	50	0.59	-0.15
50	0	0.30	0.49
50	-50	0.28	0.39
-50	50	-0.33	-0.69
-50	0	-0.01	-0.16
-50	-50	-0.53	0.21
0	50	0.54	0.06
0	-50	0.10	0.06
50	50	0.27	0.31
50	0	0.67	0.44
50	-50	0.06	0.26
-50	50	-0.03	-0.71
-50	0	-0.21	-0.14
-50	-50	-0.20	-0.04
0	50	0.19	-0.20
0	-50	0.05	-0.04
3σ		1.00	1.07

Global Tilt Repeatability



MODEL	FPA-3000 i5	ITEM	GLOBAL - TILT REPEATABILITY		
SN	8032195	ENGR	EG/RF/JB/JF	SPEC	Tilt X & Y $3\sigma \leq 4$
CUSTOMER	ON Semi	DATE	7/20/2011		

<<Measure>>

*** GLOBAL-TILT-OFFSET AUTO-MEASUREMENT ***

Data #	X(ppm)	Y(ppm)
1	-1.430	-0.440
2	-1.161	-0.719
3	-1.138	-0.768
4	-1.174	-0.855
5	-1.258	-0.832
6	-1.140	-0.755
7	-1.148	-0.650
8	-1.025	-0.799
9	-1.066	-0.527
10	-1.033	-0.427
11	-1.258	-0.766
12	-1.143	-0.676
13	-1.133	-0.661
14	-1.230	-0.640
15	-1.120	-0.658
16	-1.099	-0.761
17	-1.053	-0.858
18	-1.435	-0.681
19	-1.263	-0.540
20	-1.133	-0.861
21	-1.171	-0.735
22	-1.209	-0.743
23	-0.856	-0.712
24	-1.102	-0.881
25	-1.394	-0.619
Max.	-0.856	-0.427
Min.	-1.435	-0.881
Mean	-1.167	-0.703
Count	25	25
Range	0.579	0.454
3-S	0.379	0.364



MODEL	FPA-3000 i5	ITEM	UNEVEN FOCUS (DxD ON)		
SN	8032195	ENGR	EG/RF/JB/JF	SPEC	V < ± 4 ppm
CUSTOMER	ON Semi	DATE	7/18/2011		

FOCUS MAP

	-11	0	11	AVE
11	-0.63		-0.63	-0.63
0				
-11	-0.63		-0.63	-0.63
AVE	-0.63		-0.63	

Field Size=	22 mm
TILT X=	0.000 ppm
TILT Y=	0.000 ppm
V	0.000 ppm

Uneven DxD OFF (TSOC)



MODEL	FPA-3000 i5	ITEM	UNEVEN FOCUS (DxD OFF)		
SN	8032195	ENGR	EG/RF/JB/JF	SPEC	V < ± 6ppm
CUSTOMER	ON Semi	DATE	7/18/2011		

	X	Y
0	0.16	-0.12
180	-0.71	-0.35
Ave	-0.275	0.115
Vector	0.298	ppm

ALFC



MODEL	FPA-3000 i5	ITEM	ALFC MEASUREMENT REPEATABILITY		
SN	8032195	ENGR	EG/RF/JB/JF	SPEC	$3\sigma \leq 0.10$
CUSTOMER	ON Semi	DATE	7/16/2011		

Advanced Lens Focus Check (LEFT)

1 0.013 [um]
 2 -0.041 [um]
 3 -0.040 [um]
 4 0.015 [um]
 5 -0.015 [um]
 6 0.006 [um]
 7 -0.026 [um]
 8 -0.020 [um]
 9 -0.012 [um]
 10 -0.029 [um]
 11 -0.011 [um]
 12 0.001 [um]
 13 -0.044 [um]
 14 -0.008 [um]
 15 -0.034 [um]
 16 -0.046 [um]
 17 -0.034 [um]
 18 -0.040 [um]
 19 -0.016 [um]
 20 0.002 [um]
 21 -0.003 [um]
 22 -0.033 [um]
 23 -0.039 [um]
 24 0.001 [um]
 25 0.006 [um]

EFFICIENT DATA COUNT: 25

MAX: 0.015 [um]
 MIN: -0.046 [um]
 RANGE: 0.061 [um]
 AVERAGE -0.018 [um]

3-SIGMA:	0.057 [um]
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MODEL	FPA-3000 I5	ITEM	TVPA ACCURACY		
SN	8032195	ENGR	EG/RF/JB/JF	SPEC	X & Y < ± 3um
CUSTOMER	ON Semi	DATE	8/9/2011		

No = 1	X = -0.675	Y = -1.294	Cmag = -0.266	Crot = 0.085	sts =OK
No = 2	X = -0.815	Y = -1.082	Cmag = -0.254	Crot = 0.113	sts =OK
No = 3	X = -0.998	Y = -1.250	Cmag = -0.252	Crot = 0.093	sts =OK
No = 4	X = -0.838	Y = -1.430	Cmag = -0.280	Crot = 0.120	sts =OK
No = 1	X = -0.263	Y = -0.804	Cmag = -0.303	Crot = -0.050	sts =OK
No = 2	X = -0.157	Y = -0.921	Cmag = -0.315	Crot = -0.054	sts =OK
No = 3	X = -0.064	Y = -0.797	Cmag = -0.313	Crot = -0.037	sts =OK
No = 4	X = -0.159	Y = -0.684	Cmag = -0.303	Crot = 0.003	sts =OK
No = 1	X = -0.220	Y = -0.777	Cmag = -0.313	Crot = -0.028	sts =OK
No = 2	X = -0.141	Y = -0.873	Cmag = -0.307	Crot = -0.046	sts =OK
No = 3	X = -0.074	Y = -0.773	Cmag = -0.307	Crot = -0.024	sts =OK
No = 4	X = -0.139	Y = -0.691	Cmag = -0.315	Crot = 0.007	sts =OK
No = 1	X = -0.138	Y = -0.779	Cmag = -0.309	Crot = -0.004	sts =OK
No = 2	X = -0.087	Y = -0.837	Cmag = -0.307	Crot = -0.019	sts =OK
No = 3	X = -0.043	Y = -0.773	Cmag = -0.307	Crot = -0.008	sts =OK
No = 4	X = -0.082	Y = -0.723	Cmag = -0.309	Crot = 0.018	sts =OK
No = 1	X = -0.225	Y = -0.744	Cmag = -0.307	Crot = -0.029	sts =OK
No = 2	X = -0.104	Y = -0.861	Cmag = -0.299	Crot = -0.045	sts =OK
No = 3	X = -0.011	Y = -0.729	Cmag = -0.303	Crot = -0.008	sts =OK
No = 4	X = -0.098	Y = -0.627	Cmag = -0.301	Crot = -0.003	sts =OK
No = 1	X = -0.348	Y = -0.801	Cmag = -0.313	Crot = -0.056	sts =OK
No = 2	X = -0.215	Y = -0.938	Cmag = -0.321	Crot = -0.045	sts =OK
No = 3	X = -0.098	Y = -0.798	Cmag = -0.313	Crot = -0.050	sts =OK
No = 4	X = -0.236	Y = -0.662	Cmag = -0.305	Crot = -0.003	sts =OK
No = 1	X = -0.265	Y = -0.726	Cmag = -0.311	Crot = -0.014	sts =OK
No = 2	X = -0.168	Y = -0.836	Cmag = -0.321	Crot = -0.029	sts =OK
No = 3	X = -0.086	Y = -0.713	Cmag = -0.305	Crot = 0.001	sts =OK
No = 4	X = -0.165	Y = -0.635	Cmag = -0.303	Crot = 0.010	sts =OK
No = 1	X = -0.234	Y = -0.828	Cmag = -0.309	Crot = -0.026	sts =OK
No = 2	X = -0.161	Y = -0.906	Cmag = -0.311	Crot = -0.025	sts =OK
No = 3	X = -0.104	Y = -0.821	Cmag = -0.311	Crot = -0.037	sts =OK
No = 4	X = -0.168	Y = -0.746	Cmag = -0.317	Crot = 0.009	sts =OK
No = 1	X = -0.213	Y = -0.838	Cmag = -0.313	Crot = -0.017	sts =OK
No = 2	X = -0.172	Y = -0.892	Cmag = -0.309	Crot = -0.020	sts =OK
No = 3	X = -0.122	Y = -0.820	Cmag = -0.307	Crot = -0.022	sts =OK
No = 4	X = -0.161	Y = -0.774	Cmag = -0.307	Crot = 0.009	sts =OK
No = 1	X = -0.286	Y = -0.783	Cmag = -0.309	Crot = -0.037	sts =OK
No = 2	X = -0.168	Y = -0.904	Cmag = -0.309	Crot = -0.050	sts =OK
No = 3	X = -0.072	Y = -0.774	Cmag = -0.301	Crot = -0.034	sts =OK
No = 4	X = -0.171	Y = -0.663	Cmag = -0.311	Crot = 0.007	sts =OK
No = 1	X = -0.274	Y = -0.776	Cmag = -0.309	Crot = -0.010	sts =OK
No = 2	X = -0.207	Y = -0.870	Cmag = -0.319	Crot = -0.031	sts =OK
No = 3	X = -0.146	Y = -0.771	Cmag = -0.303	Crot = -0.008	sts =OK
No = 4	X = -0.148	Y = -0.720	Cmag = -0.309	Crot = 0.024	sts =OK
No = 1	X = -0.345	Y = -0.799	Cmag = -0.319	Crot = -0.060	sts =OK
No = 2	X = -0.180	Y = -0.957	Cmag = -0.307	Crot = -0.067	sts =OK
No = 3	X = -0.042	Y = -0.787	Cmag = -0.309	Crot = -0.071	sts =OK
No = 4	X = -0.174	Y = -0.624	Cmag = -0.305	Crot = -0.018	sts =OK
No = 1	X = -0.191	Y = -0.786	Cmag = -0.307	Crot = -0.027	sts =OK
No = 2	X = -0.124	Y = -0.892	Cmag = -0.323	Crot = -0.045	sts =OK
No = 3	X = -0.046	Y = -0.770	Cmag = -0.303	Crot = -0.014	sts =OK
No = 4	X = -0.124	Y = -0.704	Cmag = -0.315	Crot = 0.010	sts =OK
No = 1	X = -0.294	Y = -0.933	Cmag = -0.311	Crot = -0.045	sts =OK
No = 2	X = -0.195	Y = -1.014	Cmag = -0.315	Crot = -0.031	sts =OK
No = 3	X = -0.123	Y = -0.919	Cmag = -0.301	Crot = -0.035	sts =OK
No = 4	X = -0.195	Y = -0.832	Cmag = -0.311	Crot = -0.029	sts =OK
No = 1	X = -0.176	Y = -0.787	Cmag = -0.307	Crot = 0.013	sts =OK
No = 2	X = -0.162	Y = -0.811	Cmag = -0.313	Crot = 0.011	sts =OK
No = 3	X = -0.151	Y = -0.771	Cmag = -0.317	Crot = 0.022	sts =OK
No = 4	X = -0.155	Y = -0.759	Cmag = -0.309	Crot = 0.036	sts =OK
No = 1	X = -0.261	Y = -0.725	Cmag = -0.319	Crot = -0.016	sts =OK
No = 2	X = -0.181	Y = -0.839	Cmag = -0.317	Crot = -0.047	sts =OK
No = 3	X = -0.103	Y = -0.719	Cmag = -0.307	Crot = -0.007	sts =OK
No = 4	X = -0.181	Y = -0.638	Cmag = -0.309	Crot = 0.005	sts =OK
No = 1	X = -0.277	Y = -0.829	Cmag = -0.307	Crot = -0.039	sts =OK
No = 2	X = -0.191	Y = -0.925	Cmag = -0.315	Crot = -0.042	sts =OK
No = 3	X = -0.118	Y = -0.813	Cmag = -0.309	Crot = -0.041	sts =OK
No = 4	X = -0.194	Y = -0.726	Cmag = -0.301	Crot = -0.002	sts =OK
No = 1	X = -0.299	Y = -0.856	Cmag = -0.301	Crot = -0.054	sts =OK
No = 2	X = -0.177	Y = -0.979	Cmag = -0.309	Crot = -0.039	sts =OK
No = 3	X = -0.073	Y = -0.842	Cmag = -0.305	Crot = -0.062	sts =OK
No = 4	X = -0.180	Y = -0.736	Cmag = -0.311	Crot = -0.018	sts =OK
No = 1	X = -0.271	Y = -0.804	Cmag = -0.315	Crot = -0.020	sts =OK
No = 2	X = -0.181	Y = -0.899	Cmag = -0.317	Crot = -0.040	sts =OK
No = 3	X = -0.112	Y = -0.796	Cmag = -0.309	Crot = -0.035	sts =OK
No = 4	X = -0.182	Y = -0.720	Cmag = -0.319	Crot = 0.003	sts =OK
No = 1	X = -0.207	Y = -0.710	Cmag = -0.303	Crot = -0.012	sts =OK
No = 2	X = -0.131	Y = -0.814	Cmag = -0.311	Crot = -0.043	sts =OK
No = 3	X = -0.068	Y = -0.705	Cmag = -0.305	Crot = -0.006	sts =OK
No = 4	X = -0.123	Y = -0.634	Cmag = -0.297	Crot = 0.016	sts =OK
No = 1	X = -0.281	Y = -0.819	Cmag = -0.315	Crot = -0.037	sts =OK
No = 2	X = -0.204	Y = -0.866	Cmag = -0.313	Crot = -0.028	sts =OK
No = 3	X = -0.144	Y = -0.802	Cmag = -0.305	Crot = -0.036	sts =OK
No = 4	X = -0.200	Y = -0.722	Cmag = -0.313	Crot = -0.005	sts =OK
No = 1	X = -0.283	Y = -0.877	Cmag = -0.319	Crot = -0.039	sts =OK
No = 2	X = -0.211	Y = -0.957	Cmag = -0.317	Crot = -0.025	sts =OK
No = 3	X = -0.143	Y = -0.870	Cmag = -0.303	Crot = -0.043	sts =OK
No = 4	X = -0.203	Y = -0.783	Cmag = -0.319	Crot = -0.020	sts =OK
No = 1	X = -0.301	Y = -0.913	Cmag = -0.313	Crot = -0.027	sts =OK
No = 2	X = -0.245	Y = -0.963	Cmag = -0.321	Crot = -0.012	sts =OK
No = 3	X = -0.212	Y = -0.911	Cmag = -0.311	Crot = -0.027	sts =OK
No = 4	X = -0.247	Y = -0.857	Cmag = -0.309	Crot = -0.022	sts =OK
No = 1	X = -0.126	Y = -0.811	Cmag = -0.309	Crot = -0.018	sts =OK
No = 2	X = -0.119	Y = -0.835	Cmag = -0.315	Crot = -0.005	sts =OK
No = 3	X = -0.107	Y = -0.796	Cmag = -0.305	Crot = -0.012	sts =OK
No = 4	X = -0.108	Y = -0.788	Cmag = -0.303	Crot = 0.003	sts =OK
No = 1	X = -0.224	Y = -0.752	Cmag = -0.317	Crot = -0.024	sts =OK
No = 2	X = -0.154	Y = -0.841	Cmag = -0.319	Crot = -0.039	sts =OK
No = 3	X = -0.092	Y = -0.757	Cmag = -0.311	Crot = -0.022	sts =OK
No = 4	X = -0.147	Y = -0.666	Cmag = -0.313	Crot = 0.021	sts =OK

*****	TypaHelp	V6.0	*****			
torikomishotsu		100				
Ave:	X	=	-0.197	Y	=	-0.819
3sigma:	X	=	0.447	Y	=	0.38
max:	Xmax	=	0.998	Ymax	=	1.43
Xmax	+	Crotmax	=	1.118		
Ymax	+	Crotmax	=	1.550		



MODEL	FPA-3000 i5	ITEM	STEPPING ACCURACY		
SN	8032195	ENGR	EG/RF/JB/JF	SPEC	XX & YY $3\sigma \leq 0.04$
CUSTOMER	ON Semi	DATE	8/8/2011		

XX	C1	C2	C3	C4	C5	C6	C7	C8	C9	C10
R1					-0.108	-0.102	-0.109			
R2			-0.100	-0.126	-0.110	-0.105	-0.104	-0.103	-0.088	
R3			-0.114	-0.106	-0.112	-0.112	-0.105	-0.106	-0.104	
R4		-0.113	-0.129	-0.117	-0.107	-0.118	-0.116	-0.114	-0.132	-0.111
R5		-0.104	-0.118	-0.102	-0.110	-0.105	-0.117	-0.092	-0.124	-0.126
R6		-0.107	-0.115	-0.114	-0.118	-0.107	-0.132	-0.127	-0.112	-0.126
R7		-0.126	-0.120	-0.116	-0.111	-0.096	-0.113	-0.110	-0.104	-0.117
R8			-0.106	-0.117	-0.139	-0.125	-0.106	-0.125	-0.118	
R9			-0.131	-0.101	-0.114	-0.129	-0.095	-0.121	-0.126	
R10					-0.112	-0.123	-0.107			

XY	C1	C2	C3	C4	C5	C6	C7	C8	C9	C10
R1					0.007	0.007	0.007			
R2			-0.003	0.004	0.004	0.003	0.009	0.015	0.002	
R3			0.002	0.009	0.002	0.010	0.013	0.009	0.011	
R4		0.009	0.001	0.006	0.009	0.007	0.009	0.003	0.005	0.006
R5		0.007	0.002	0.010	0.012	0.002	0.004	0.008	0.016	0.016
R6		0.008	-0.002	0.002	0.006	0.003	0.005	0.005	0.005	0.010
R7		0.008	0.005	0.013	-0.003	-0.001	0.001	0.014	0.007	0.011
R8			-0.003	0.003	0.007	0.004	0.002	0.000	0.004	
R9			0.004	0.010	-0.002	0.003	0.005	0.008	0.009	
R10					0.005	0.006	0.005			

YX	C1	C2	C3	C4	C5	C6	C7	C8	C9	C10
R1										
R2				-0.039	-0.047	-0.046	-0.050			
R3		-0.033	-0.026	-0.041	-0.034	-0.024	-0.031	-0.031	-0.024	
R4		-0.032	-0.028	-0.035	-0.039	-0.020	-0.037	-0.042	-0.017	
R5	-0.014	-0.026	-0.024	-0.018	-0.020	-0.020	-0.014	-0.026	-0.034	-0.029
R6	-0.025	-0.023	-0.022	-0.027	-0.031	-0.024	-0.027	-0.027	-0.023	-0.024
R7	-0.026	-0.023	-0.021	-0.030	-0.022	-0.026	-0.030	-0.024	-0.026	-0.022
R8		-0.013	-0.013	-0.024	-0.025	-0.015	-0.026	-0.021	-0.022	
R9		-0.035	-0.015	-0.024	-0.036	-0.020	-0.033	-0.037	-0.030	
R10				-0.017	-0.027	-0.032	-0.025			

YY	C1	C2	C3	C4	C5	C6	C7	C8	C9	C10
R1										
R2				-0.083	-0.083	-0.091	-0.071			
R3		-0.077	-0.092	-0.096	-0.094	-0.103	-0.095	-0.082	-0.084	
R4		-0.078	-0.089	-0.068	-0.083	-0.090	-0.099	-0.089	-0.081	
R5	-0.095	-0.085	-0.099	-0.084	-0.091	-0.090	-0.084	-0.085	-0.092	-0.094
R6	-0.086	-0.079	-0.080	-0.087	-0.072	-0.085	-0.103	-0.090	-0.086	-0.087
R7	-0.093	-0.090	-0.108	-0.092	-0.089	-0.093	-0.097	-0.087	-0.086	-0.088
R8		-0.091	-0.080	-0.082	-0.082	-0.092	-0.093	-0.095	-0.077	
R9		-0.087	-0.108	-0.102	-0.100	-0.084	-0.091	-0.092	-0.088	
R10				-0.089	-0.082	-0.083	-0.077			

3σ XX(nm) 30.959
 3σ XY(nm) 13.380
 3σ YX(nm) 24.264
 3σ YY(nm) 24.006

Stepping Repeatability



MODEL	FPA-3000 i5	ITEM	STEPPING REPEATABILITY		
SN	8032195	ENGR	EG/RF/JB/JF	SPEC	X&Y $3\sigma \leq 0.030$
CUSTOMER	ON Semi	DATE	8/9/2011		

	C1	C2	C3	C4	C5	C6	C7	C8
R1			-0.01	-0.014	-0.018	-0.016		
R2		0.001	0	0.001	-0.003	0.003	-0.009	
R3	0.015	0.014	0.01	0.004	-0.007	-0.007	0.002	0.002
R4	0.009	-0.012	-0.004	-0.017	-0.008	-0.013	0.003	0
R5	0.007	-0.007	-0.014	-0.009	0.01	-0.001	0.003	-0.007
R6	0	0.002	0	-0.007	0	-0.002	0.001	-0.006
R7		0.013	0.014	0.005	-0.007	0.011	0.007	
R8			0.007	0.013	0.007	0.002		

	C1	C2	C3	C4	C5	C6	C7	C8
R1			0.011	0.007	0.007	0.013		
R2		0.01	0.012	0.007	0.005	0.001	0.002	
R3	0.007	0.007	0.011	0.014	0.004	0.012	0.009	0.018
R4	0.003	0.01	0.007	0.006	0.004	0.004	0.009	0.01
R5	0.009	0.008	0.004	0.008	0.009	0.007	0.01	0.004
R6	0.013	0.001	0.005	0.002	0.003	-0.002	0.005	0.007
R7		0.012	0.011	0.003	0.01	0	0.007	
R8			0.005	0.005	0.01	0.002		

3s X 0.0262 mm

3s Y 0.0121 mm



MODEL	FPA-3000 i5	ITEM	SRC MEASUREMENT REPEATABILITY		
SN	8032195	ENGR	EG/RF/JB/JF	SPEC	3σ ≤ 0.5um
CUSTOMER	ON Semi	DATE	8/9/2011		

1	Rot. =	0.149	Mag. =	5.366	[ppm]
2	Rot. =	0.025	Mag. =	5.229	[ppm]
3	Rot. =	-0.137	Mag. =	5.183	[ppm]
4	Rot. =	-0.037	Mag. =	5.382	[ppm]
5	Rot. =	-0.181	Mag. =	5.137	[ppm]
6	Rot. =	-0.019	Mag. =	5.389	[ppm]
7	Rot. =	-0.165	Mag. =	5.237	[ppm]
8	Rot. =	-0.014	Mag. =	5.412	[ppm]
9	Rot. =	-0.083	Mag. =	5.435	[ppm]
10	Rot. =	0.016	Mag. =	5.359	[ppm]
11	Rot. =	0.064	Mag. =	5.550	[ppm]
12	Rot. =	-0.010	Mag. =	5.557	[ppm]
13	Rot. =	0.101	Mag. =	5.443	[ppm]
14	Rot. =	-0.008	Mag. =	5.427	[ppm]
15	Rot. =	0.036	Mag. =	5.580	[ppm]
16	Rot. =	0.056	Mag. =	5.473	[ppm]
17	Rot. =	-0.162	Mag. =	5.527	[ppm]
18	Rot. =	0.096	Mag. =	5.588	[ppm]
19	Rot. =	0.047	Mag. =	5.527	[ppm]
20	Rot. =	0.081	Mag. =	5.603	[ppm]
21	Rot. =	0.084	Mag. =	5.664	[ppm]
22	Rot. =	0.046	Mag. =	5.557	[ppm]
23	Rot. =	-0.027	Mag. =	5.618	[ppm]
24	Rot. =	0.042	Mag. =	5.603	[ppm]
25	Rot. =	0.016	Mag. =	5.641	[ppm]

Available Data 25 Measurement Span 26.200 [mm]

Mean :	Rot. =	0.001	Mag. =	5.46	[ppm]
3Sigma :	Rot. =	0.258	Mag. =	0.435	[ppm]
Max :	Rot. =	0.149	Mag. =	5.664	[ppm]
Min :	Rot. =	-0.181	Mag. =	5.137	[ppm]
Range :	Rot. =	0.330	Mag. =	0.527	[ppm]



MODEL	FPA-3000 i5	ITEM	ROC MEASUREMENT REP		
SN	8032195	ENGR	EG/RF/JB/JF	SPEC	3σ ≤ 0.01um
CUSTOMER	ON Semi	DATE	7/14/2011		

Reticle Offset Check

	XL	YL	XR	YR	
1	0.078	-0.003	-0.043	-0.011	[um]
2	0.077	-0.004	-0.044	-0.011	[um]
3	0.077	-0.004	-0.044	-0.011	[um]
4	0.078	-0.003	-0.043	-0.011	[um]
5	0.076	-0.004	-0.045	-0.011	[um]
6	0.077	-0.003	-0.044	-0.010	[um]
7	0.077	-0.004	-0.045	-0.010	[um]
8	0.077	-0.004	-0.044	-0.010	[um]
9	0.077	-0.003	-0.044	-0.010	[um]
10	0.076	-0.003	-0.044	-0.011	[um]
11	0.077	-0.004	-0.045	-0.011	[um]
12	0.076	-0.004	-0.046	-0.010	[um]
13	0.078	-0.004	-0.043	-0.011	[um]
14	0.077	-0.003	-0.043	-0.011	[um]
15	0.077	-0.004	-0.043	-0.010	[um]
16	0.075	-0.003	-0.046	-0.010	[um]
17	0.077	-0.003	-0.042	-0.010	[um]
18	0.077	-0.004	-0.043	-0.010	[um]
19	0.079	-0.004	-0.042	-0.010	[um]
20	0.079	-0.004	-0.042	-0.010	[um]
21	0.076	-0.004	-0.045	-0.010	[um]
22	0.078	-0.004	-0.044	-0.010	[um]
23	0.077	-0.004	-0.045	-0.010	[um]
24	0.078	-0.004	-0.043	-0.010	[um]
25	0.076	-0.004	-0.046	-0.010	[um]

EFFICIENT DATA COUNT: 25

MAX:	XL	0.079	YL	-0.003	XR	-0.042	YR	-0.01	[um]
MIN:	XL	0.075	YL	-0.004	XR	-0.046	YR	-0.011	[um]
RANGE:	XL	0.004	YL	0.001	XR	0.004	YR	0.001	[um]
AVERAGE	XL	0.077	YL	-0.004	XR	-0.044	YR	-0.01	[um]
3-SIGMA	XL	0.003	YL	0.001	XR	0.004	YR	0.001	[um]

Reticle Rotation



MODEL	FPA-3000 i5	ITEM	RETICLE ROTATION ACCUARACY			
SN	8032195	ENGR	EG/RF/JB/JF	SPEC	0 ± 10nm	
CUSTOMER	ON Semi	DATE	8/9/2011			

	C1	C2	C3	C4	C5	AVE (nm)
R1	3	2	2	3	3	1.3
R2	-3	0	0	2	4	0.3
R3	-5	-1	9	-6	6	0.3
R4	-8	-4	4	7	-6	-0.7
R5	1	-1	-5	2	4	0.1

Accuracy (nm)	0.3
Repeatability (nm)	2.00



MODEL	FPA-3000 i5	ITEM	BLCC STABILITY (MODE 1)		
SN	8032195	ENGR	EG/RF/JB/JF	SPEC	X&Y 3σ ≤ 0.030um Range ≤ 0.03um
CUSTOMER	ON Semi	DATE	8/9/2011		

1	BIX = -0.005	BIY = -0.002 [um]
2	BIX = -0.004	BIY = -0.000 [um]
3	BIX = -0.004	BIY = 0.001 [um]
4	BIX = -0.004	BIY = -0.003 [um]
5	BIX = -0.002	BIY = -0.002 [um]
6	BIX = -0.003	BIY = -0.002 [um]
7	BIX = 0.001	BIY = -0.001 [um]
8	BIX = -0.000	BIY = -0.001 [um]
9	BIX = 0.000	BIY = -0.004 [um]
10	BIX = 0.000	BIY = -0.004 [um]
11	BIX = -0.001	BIY = -0.004 [um]
12	BIX = -0.004	BIY = -0.004 [um]
13	BIX = -0.004	BIY = -0.002 [um]
14	BIX = -0.004	BIY = -0.003 [um]
15	BIX = -0.002	BIY = -0.002 [um]
16	BIX = -0.005	BIY = -0.005 [um]
17	BIX = -0.002	BIY = -0.002 [um]
18	BIX = -0.004	BIY = -0.005 [um]
19	BIX = -0.003	BIY = -0.002 [um]
20	BIX = -0.004	BIY = -0.004 [um]
21	BIX = -0.001	BIY = -0.005 [um]
22	BIX = -0.007	BIY = -0.007 [um]
23	BIX = -0.005	BIY = -0.003 [um]
24	BIX = -0.001	BIY = -0.000 [um]
25	BIX = -0.004	BIY = -0.003 [um]

Available Data 25 Illumination Mode 1

Mean : BIX = -0.003 BIY = -0.003 [um]

3Sigma : BIX = 0.006 BIY = 0.005 [um]

Max : BIX = 0.001 BIY = 0.001 [um]

Min : BIX = -0.007 BIY = -0.007 [um]

Range : BIX = 0.008 BIY = 0.007 [um]



MODEL	FPA-3000 i5	ITEM	BLCC STABILITY (MODE 2)		
SN	8032195	ENGR	EG/RF/JB/JF	SPEC	X&Y 3 σ $\leq$ 0.030um Range $\leq$ 0.03um
CUSTOMER	ON Semi	DATE	8/9/2011		

1	BIX = 0.000	BIY = -0.000 [um]
2	BIX = -0.001	BIY = -0.001 [um]
3	BIX = -0.002	BIY = -0.000 [um]
4	BIX = -0.002	BIY = -0.004 [um]
5	BIX = -0.001	BIY = -0.001 [um]
6	BIX = -0.003	BIY = -0.002 [um]
7	BIX = -0.003	BIY = -0.002 [um]
8	BIX = -0.001	BIY = -0.002 [um]
9	BIX = -0.004	BIY = -0.000 [um]
10	BIX = -0.001	BIY = -0.001 [um]
11	BIX = -0.002	BIY = -0.002 [um]
12	BIX = -0.001	BIY = -0.001 [um]
13	BIX = -0.010	BIY = -0.001 [um]
14	BIX = -0.004	BIY = -0.003 [um]
15	BIX = -0.002	BIY = -0.002 [um]
16	BIX = 0.000	BIY = -0.001 [um]
17	BIX = -0.001	BIY = 0.001 [um]
18	BIX = -0.004	BIY = -0.000 [um]
19	BIX = -0.002	BIY = -0.003 [um]
20	BIX = -0.000	BIY = -0.000 [um]
21	BIX = 0.002	BIY = -0.004 [um]
22	BIX = -0.005	BIY = -0.003 [um]
23	BIX = -0.002	BIY = -0.003 [um]
24	BIX = -0.003	BIY = 0.000 [um]
25	BIX = -0.002	BIY = -0.003 [um]

Available Data 25 Illumination Mode 1

Mean : BIX = -0.002 BIY = -0.002 [um]

3Sigma : BIX = 0.007 BIY = 0.004 [um]

Max : BIX = 0.002 BIY = 0.001 [um]

Min : BIX = -0.010 BIY = -0.004 [um]

Range : BIX = 0.012 BIY = 0.005 [um]



MODEL	FPA-3000 i5	ITEM	BLCC STABILITY (MODE 4)		
SN	8032195	ENGR	EG/RF/JB/JF	SPEC	X&Y $3\sigma \leq 0.030\mu\text{m}$ Range $\leq 0.03\mu\text{m}$
CUSTOMER	ON Semi	DATE	8/9/2011		

1	BIX = -0.000	BIY = 0.005 [um]
2	BIX = -0.005	BIY = 0.005 [um]
3	BIX = -0.002	BIY = 0.003 [um]
4	BIX = -0.002	BIY = 0.002 [um]
5	BIX = -0.001	BIY = -0.001 [um]
6	BIX = -0.002	BIY = 0.003 [um]
7	BIX = -0.002	BIY = 0.002 [um]
8	BIX = -0.003	BIY = 0.001 [um]
9	BIX = -0.004	BIY = 0.003 [um]
10	BIX = -0.004	BIY = 0.001 [um]
11	BIX = -0.003	BIY = 0.002 [um]
12	BIX = -0.003	BIY = 0.000 [um]
13	BIX = -0.005	BIY = 0.001 [um]
14	BIX = 0.001	BIY = 0.003 [um]
15	BIX = -0.002	BIY = -0.000 [um]
16	BIX = -0.001	BIY = -0.001 [um]
17	BIX = -0.003	BIY = -0.000 [um]
18	BIX = -0.005	BIY = 0.004 [um]
19	BIX = -0.006	BIY = 0.001 [um]
20	BIX = -0.004	BIY = 0.001 [um]
21	BIX = 0.000	BIY = 0.001 [um]
22	BIX = -0.003	BIY = 0.003 [um]
23	BIX = -0.002	BIY = 0.003 [um]
24	BIX = -0.004	BIY = 0.006 [um]
25	BIX = -0.005	BIY = 0.000 [um]

Available Data 25 Illumination Mode 1

Mean : BIX = -0.003 BIY = 0.002 [um]

3Sigma : BIX = 0.005 BIY = 0.005 [um]

Max : BIX = 0.001 BIY = 0.006 [um]

Min : BIX = -0.006 BIY = -0.001 [um]

Range : BIX = 0.006 BIY = 0.007 [um]



MODEL	FPA-3000 i5	ITEM	AGA ACCURACY MODE 1		
SN	8032195	ENGR	EG/RF/JB/JF	SPEC	mean + 3s < 0.05um
CUSTOMER	ON Semi	DATE	8/10/2011		

	Wafer 1		Wafer 2		Wafer 3		Wafer 4		Wafer 5	
	Cx[nm]	By[nm]	Cx[nm]	By[nm]	Cx[nm]	By[nm]	Cx[nm]	By[nm]	Cx[nm]	By[nm]
	-9	11	-39	18	-35	16	-13	12	-35	23
	-4	10	-19	13	-18	15	5	8	-24	24
	-10	10	-13	17	-24	16	7	6	-15	27
	-8	8	-21	12	-30	16	16	4	-28	20
	-4	1	-12	-1	-14	16	-3	0	-18	3
	-10	15	-11	12	-21	24	18	3	-15	18
	-16	3	-26	10	-15	13	-5	3	-27	21
	8	4	-28	19	-28	16	5	4	-19	15
	11	4	-19	16	-29	14	-9	10	-21	22
	3	-2	-26	15	-20	6	-15	8	-40	27
	18	13	-32	10	-24	11	7	2	-14	16
	0	3	-22	8	-17	11	-3	0	-21	10
	1	8	-27	9	-16	11	0	6	-11	15
	-6	4	-19	9	-15	25	10	7	-16	13
	10	6	-15	11	-5	16	5	-8	-18	15
	-5	-5	5	5	-20	19	14	-6	-27	11
	-1	-3	0	-4	-13	18	0	-6	-11	3
	-11	-3	-25	-3	-22	8	2	-8	-13	5
	26	-2	-13	-1	-9	13	-2	-4	-22	3
	5	4	-1	9	-13	11	2	-3	-13	10
	5	2	-18	9	-16	7	-1	-1	-21	5
	6	0	-28	16	-35	1	-5	4	-34	15
	7	0	-12	12	-13	11	-7	8	-18	8
	19	0	-18	0	-21	5	19	-1	-15	4
	7	-6	-15	1	-26	2	5	-5	-12	6
	1	1	0	4	-15	9	6	-12	-22	-2
	0	-3	-3	3	-4	10	6	-14	-33	-5
	6	1	-6	11	-4	18	7	-10	-4	2
	-2	-1	-8	15	-8	19	4	-9	-12	0
	-2	-5	-15	0	-13	14	6	-10	-12	-4
	1	-4	-7	5	-3	11	3	-5	-21	3
	-4	-4	-23	8	-29	8	-9	-4	-22	5
Mean	1.3	2.2	-16.1	8.4	-18.0	12.8	2.3	-0.7	-19.8	10.6
3sigma	27.8	16.8	30.9	19.3	26.2	16.7	24.9	21.1	24.3	27.3
M+3sig	29.1	19.0	47.0	27.7	44.1	29.5	27.2	21.7	44.1	37.8



MODEL	FPA-3000 i5	ITEM	AGA ACCURACY MODE 2		
SN	8032195	ENGR	EG/RF/JB/JF	SPEC	mean + 3s < 0.05um
CUSTOMER	ON Semi	DATE	8/11/2011		

	Wafer 1		Wafer 2		Wafer 3		Wafer 4		Wafer 5	
	Cx[nm]	By[nm]	Cx[nm]	By[nm]	Cx[nm]	By[nm]	Cx[nm]	By[nm]	Cx[nm]	By[nm]
	15	11	-21	13	-11	17	-23	4	-24	14
	15	12	-12	12	1	17	-6	12	-8	27
	25	9	-15	25	-10	27	-9	12	-10	33
	17	14	-19	17	-10	26	-3	19	-12	32
	29	8	-7	24	4	16	4	8	-3	32
	12	2	-8	9	-9	27	-2	10	-8	29
	6	15	-16	18	-4	28	-11	6	-11	26
	23	9	-23	25	-1	21	-2	18	-22	18
	9	6	-20	24	-2	10	-2	11	-9	22
	7	15	-29	13	-13	16	-1	17	-6	18
	23	3	3	15	9	16	-2	13	-3	14
	-5	3	-1	13	-6	0	-11	7	-25	7
	5	2	-16	11	-9	8	-15	10	-15	21
	10	2	-5	20	-6	1	-6	12	-15	28
	2	14	-9	12	-7	25	-13	12	-14	16
	2	7	-9	21	-11	23	-23	13	-17	39
	12	3	13	29	-14	19	-11	7	8	24
	6	2	-3	25	-14	16	-25	4	-18	14
	0	11	5	19	-11	14	-6	15	-12	26
	15	5	6	24	2	18	-21	17	5	19
	9	-3	3	14	-6	-1	-21	10	-9	20
	5	2	-13	14	-11	-4	-19	20	-10	9
	27	-3	10	20	11	2	-29	28	-5	8
	19	-3	0	11	-8	-3	-28	15	-6	12
	3	-6	-3	16	-6	1	-30	5	-26	11
	6	-1	0	18	-12	7	-30	8	-12	17
	5	5	5	23	-8	13	-26	0	-6	16
	12	-3	4	35	-4	5	-18	21	-6	36
	10	5	6	33	6	6	-28	14	2	22
	3	-6	4	28	3	-4	-24	3	0	22
	-8	-7	-1	31	-7	2	-31	18	-6	13
	-5	-5	-2	25	-11	1	-29	14	-20	16
Mean	9.8	4.0	-5.4	19.9	-5.5	11.6	-15.7	12.0	-10.1	20.7
3sigma	27.8	19.7	31.7	20.9	20.1	30.5	32.6	18.1	24.8	25.0
M+3sig	37.6	23.7	37.1	40.8	25.6	42.1	48.2	30.1	34.9	45.7



MODEL	FPA-3000 i5	ITEM	AGA ACCURACY MODE 4		
SN	8032195	ENGR	EG/RF/JB/JF	SPEC	mean + 3s < 0.05um
CUSTOMER	ON Semi	DATE	8/11/2011		

	Wafer 1		Wafer 2		Wafer 3		Wafer 4		Wafer 5	
	Cx[nm]	By[nm]	Cx[nm]	By[nm]	Cx[nm]	By[nm]	Cx[nm]	By[nm]	Cx[nm]	By[nm]
	-31	10	-30	17	-22	9	-31	30	-36	23
	-15	7	-15	7	-2	17	-22	31	-23	33
	-12	6	-21	28	-5	7	-39	22	-26	29
	-1	9	-20	29	-7	1	-21	23	-31	30
	7	14	-1	17	12	5	-11	22	-32	24
	-1	4	-7	25	5	-9	-28	25	-29	33
	-13	3	-10	17	-15	15	-33	21	-31	22
	-20	14	-21	26	7	6	-18	27	-28	26
	-16	7	-13	12	-7	6	-23	30	-23	39
	-24	3	-16	9	-20	6	-36	31	-18	22
	-8	-3	-16	19	-13	2	-11	29	-17	18
	-24	0	-30	17	-13	-4	-32	20	-30	17
	-8	-3	-37	27	-23	-1	-26	24	-31	13
	-11	11	-27	19	1	-1	-25	20	-37	38
	-7	5	-22	17	-1	2	-18	20	-34	22
	-3	9	-26	15	-4	0	-25	25	-31	34
	8	11	-20	22	10	2	-10	15	-24	31
	-7	9	-26	13	-4	-11	-29	16	-23	21
	-4	3	-27	18	-11	-9	-16	16	-22	25
	-4	6	-26	20	-3	1	-22	20	-27	14
	-11	-14	-12	16	-9	-7	-33	28	-17	14
	-22	4	-24	22	-28	-3	-27	25	-23	23
	-28	2	-13	13	-5	2	-21	28	-14	17
	-23	-14	-22	14	-12	-8	-30	20	-36	7
	-27	-12	-24	11	-22	-11	-31	12	-35	17
	-9	-9	-22	7	3	-17	-30	11	-33	10
	3	-2	-28	11	3	-13	-23	15	-35	5
	12	6	-14	15	7	-11	-17	26	-37	19
	6	14	-17	26	4	-3	-11	23	-24	22
	-10	5	-25	12	2	-15	-18	9	-24	13
	-7	-2	-21	14	-11	7	-20	28	-31	25
	-23	-1	-36	16	-9	-7	-40	14	-31	12
Mean	-10.4	3.2	-20.9	17.2	-6.0	-1.3	-24.3	22.1	-27.9	21.8
3sigma	33.8	22.9	23.8	17.9	30.7	25.2	24.4	18.4	19.1	25.9
M+3sig	44.2	26.1	44.7	35.1	36.7	26.6	48.6	40.5	47.0	47.7



MODEL	FPA-3000 i5	ITEM	MECHANICAL PA ACURACY		
SN	8032195	ENGR	EG/RF/JB/JF	SPEC	Xl,Xr,Yl,Yr 3s ≤ 40um
CUSTOMER	ON Semi	DATE	8/9/2011		

=====xl=====

Sample count = 25

AVERAGE = 721.556

3-SIGMA = 6289.632

3-Sig = 6.289um

=====xr=====

Sample count = 25

AVERAGE = 402.963

3-SIGMA = 6388.632

3-Sig = 6.388um

=====yl=====

Sample count = 25

AVERAGE = -341407.938

3-SIGMA = 18210.697

3-Sig = 18.210um

=====yr=====

Sample count = 25

AVERAGE = -347583.625

3-SIGMA = 5951.546

3-Sig = 5.951um

=====END=====