

Operator:ASML Machine:6xxx Release:4.1.0 Date:16/07/2015 Time:16:10

Report Filename : EMCA.68
Report Path : TM/Projection/StrayLightMonitoring/EMCA.log/
Machine Type : 1250D

Testname : Straylight At Multiple Opaque Squares
Start Time : Thu, 16 Jul 2015 16:07:37 096389us +0800
Stop Time : Thu, 16 Jul 2015 16:10:47 841204us +0800
Execution Time : 00:03:10
Test Run Result : Finished
Test Status : Test is Finished
Comment :

Step	Start Time	Stop Time	Status
Prepare machine	16:07:37	16:09:15	Finished
Perform TIS measurements	16:09:15	16:10:08	Finished
Perform Spot sensor measurements	16:10:08	16:10:27	Finished
Create testlog	16:10:27	16:10:40	Finished
Unload reticle	16:10:40	16:10:46	Finished
Calculate stray light	16:10:46	16:10:47	Finished

Execution Time
00:01:37
00:00:53
00:00:18
00:00:13
00:00:05
00:00:01

Main Results

Test Log Name : 6xxx
Machine Number : 6xxx
Machine Type : 1250D
Lens Number : 0122xxxx
ELLE ID :
Measurement Time : 07/16/2015 16:10
Comment :
Pupil Shape
Illumination mode : Annular
NA : 0.850
DOE ID : 15
Sigma
inner : 0.690
outer : 0.930
Reticle ID : 45563154P009
Number of Cycles : 1
Attenuator Factor : 0.600
Chuck ID : CHUCK_ID_1
TIS Plate ID : PLATE_1
PGA gain : PGA_GAIN_10DB
Number of Samples : 100
Defocus : 0.000 [um]
Rema Usage TIS : Homed
Number of Laser Pulses : 50
Laser Frequency : 4000 [Hz]
Energy : 11.25 [mJ]
Rema Usage Spot Sensor : Homed
Dark Current : 576 [bits]
Reference Blocksize : 33 [um]
Straylight at ref. blocksize : 1.35 [%]
Max. Straylight position
X : -3.55 [mm]
Y : 6.60 [mm]

Detailed Results

position		sensor	pad size [um]	Stray Light [%]	used ref
X [mm]	Y [mm]				
-10.25	7.00	TIS Ratio	108	0.84	1
-10.25	6.40	TIS Ratio	68	0.88	1
-10.55	7.00	TIS Ratio	48	1.03	1
-10.55	6.80	TIS Ratio	36	1.02	1
-10.55	6.60	TIS Ratio	33	1.04	1
-10.55	6.40	TIS Ratio	30	1.12	1
-10.50	8.30	TIS Ratio	0	0.00	0
-10.50	10.80	TIS Ratio	1100	0.49	3
-10.50	8.45	TIS Ratio	0	0.00	0
-6.75	7.00	TIS Ratio	108	0.85	4
-6.75	6.40	TIS Ratio	68	0.91	4
-7.05	7.00	TIS Ratio	48	1.00	4
-7.05	6.80	TIS Ratio	36	1.04	4
-7.05	6.60	TIS Ratio	33	0.97	4
-7.05	6.40	TIS Ratio	30	1.12	4
-7.00	8.30	TIS Ratio	0	0.00	0
-7.00	10.80	TIS Ratio	1100	0.53	6
-7.00	8.45	TIS Ratio	0	0.00	0
-3.25	7.00	TIS Ratio	108	1.01	7
-3.25	6.40	TIS Ratio	68	1.26	7
-3.55	7.00	TIS Ratio	48	1.17	7
-3.55	6.80	TIS Ratio	36	1.25	7
-3.55	6.60	TIS Ratio	33	1.35	7
-3.55	6.40	TIS Ratio	30	1.28	7
-3.50	8.30	TIS Ratio	0	0.00	0
-3.50	10.80	TIS Ratio	1100	0.60	9
-3.50	8.45	TIS Ratio	0	0.00	0
0.25	7.00	TIS Ratio	108	0.70	10
0.25	6.40	TIS Ratio	68	0.92	10
-0.05	7.00	TIS Ratio	48	0.97	10
-0.05	6.80	TIS Ratio	36	1.01	10
-0.05	6.60	TIS Ratio	33	1.22	10
-0.05	6.40	TIS Ratio	30	1.17	10
0.00	8.30	TIS Ratio	0	0.00	0
0.00	10.80	TIS Ratio	1100	0.57	12
0.00	8.45	TIS Ratio	0	0.00	0
3.75	7.00	TIS Ratio	108	0.71	13
3.75	6.40	TIS Ratio	68	0.88	13
3.45	7.00	TIS Ratio	48	0.89	13
3.45	6.80	TIS Ratio	36	0.99	13
3.45	6.60	TIS Ratio	33	1.02	13
3.45	6.40	TIS Ratio	30	1.13	13
3.50	8.30	TIS Ratio	0	0.00	0
3.50	10.80	TIS Ratio	1100	0.57	15
3.50	8.45	TIS Ratio	0	0.00	0
7.25	7.00	TIS Ratio	108	0.87	16
7.25	6.40	TIS Ratio	68	0.92	16
6.95	7.00	TIS Ratio	48	1.00	16
6.95	6.80	TIS Ratio	36	1.01	16
6.95	6.60	TIS Ratio	33	0.99	16
6.95	6.40	TIS Ratio	30	1.12	16
7.00	8.30	TIS Ratio	0	0.00	0
7.00	10.80	TIS Ratio	1100	0.45	18
7.00	8.45	TIS Ratio	0	0.00	0
10.75	7.00	TIS Ratio	108	0.49	19
10.75	6.40	TIS Ratio	68	0.43	19
10.45	7.00	TIS Ratio	48	0.67	19
10.45	6.80	TIS Ratio	36	0.66	19
10.45	6.60	TIS Ratio	33	0.74	19
10.45	6.40	TIS Ratio	30	0.89	19
10.50	8.30	TIS Ratio	0	0.00	0
10.50	10.80	TIS Ratio	1100	0.39	21
10.50	8.45	TIS Ratio	0	0.00	0
-10.50	10.80	Spot	1100	0.49	2
-10.50	9.60	Spot	0	0.00	0
-7.00	10.80	Spot	1100	0.53	5
-7.00	9.60	Spot	0	0.00	0

-3.50	10.80	Spot	1100	0.60	8
-3.50	9.60	Spot	0	0.00	0
0.00	10.80	Spot	1100	0.57	11
0.00	9.60	Spot	0	0.00	0
3.50	10.80	Spot	1100	0.57	14
3.50	9.60	Spot	0	0.00	0
7.00	10.80	Spot	1100	0.45	17
7.00	9.60	Spot	0	0.00	0
10.50	10.80	Spot	1100	0.39	20
10.50	9.60	Spot	0	0.00	0

ref id	used cal	cal id	Av TIS	cal	Av SS
0	1	0	282.9	-265.6	0.00
0	1	0	283.6	-265.6	0.00
0	1	0	286.8	-265.6	0.00
0	1	0	286.6	-265.6	0.00
0	1	0	287.0	-265.6	0.00
0	1	0	288.5	-265.6	0.00
1	1	0	2319.6	0.0	0.00
0	1	1	275.7	-265.6	0.00
3	0	1	2331.2	0.0	0.00
0	2	0	285.3	-267.8	0.00
0	2	0	286.6	-267.8	0.00
0	2	0	288.3	-267.8	0.00
0	2	0	289.2	-267.8	0.00
0	2	0	287.7	-267.8	0.00
0	2	0	290.8	-267.8	0.00
4	2	0	2328.0	0.0	0.00
0	2	2	278.6	-267.8	0.00
6	0	2	2309.5	0.0	0.00
0	3	0	285.0	-264.7	0.00
0	3	0	290.1	-264.7	0.00
0	3	0	288.4	-264.7	0.00
0	3	0	290.0	-264.7	0.00
0	3	0	292.0	-264.7	0.00
0	3	0	290.5	-264.7	0.00
7	3	0	2281.4	0.0	0.00
0	3	3	277.0	-264.7	0.00
9	0	3	2301.2	0.0	0.00
0	4	0	277.3	-263.1	0.00
0	4	0	281.8	-263.1	0.00
0	4	0	282.7	-263.1	0.00
0	4	0	283.5	-263.1	0.00
0	4	0	287.8	-263.1	0.00
0	4	0	286.7	-263.1	0.00
10	4	0	2282.6	0.0	0.00
0	4	4	274.5	-263.1	0.00
12	0	4	2251.7	0.0	0.00
0	5	0	278.2	-264.0	0.00
0	5	0	281.6	-264.0	0.00
0	5	0	281.8	-264.0	0.00
0	5	0	283.8	-264.0	0.00
0	5	0	284.3	-264.0	0.00
0	5	0	286.6	-264.0	0.00
13	5	0	2262.3	0.0	0.00
0	5	5	275.5	-264.0	0.00
15	0	5	2286.1	0.0	0.00
0	6	0	277.1	-259.4	0.00
0	6	0	278.1	-259.4	0.00
0	6	0	279.8	-259.4	0.00
0	6	0	279.9	-259.4	0.00
0	6	0	279.6	-259.4	0.00
0	6	0	282.1	-259.4	0.00
16	6	0	2294.1	0.0	0.00
0	6	6	268.4	-259.4	0.00
18	0	6	2267.8	0.0	0.00
0	7	0	273.6	-263.5	0.00
0	7	0	272.2	-263.5	0.00
0	7	0	277.1	-263.5	0.00
0	7	0	276.9	-263.5	0.00
0	7	0	278.5	-263.5	0.00

0	7	0	281.6	-263.5	0.00
19	7	0	2295.2	0.0	0.00
0	7	7	271.4	-263.5	0.00
21	0	7	2289.7	0.0	0.00
0	0	1	0.0	0.0	0.00
2	0	1	0.0	0.0	0.91
0	0	2	0.0	0.0	0.00
5	0	2	0.0	0.0	0.91
0	0	3	0.0	0.0	0.01
8	0	3	0.0	0.0	0.92
0	0	4	0.0	0.0	0.01
11	0	4	0.0	0.0	0.91
0	0	5	0.0	0.0	0.01
14	0	5	0.0	0.0	0.91
0	0	6	0.0	0.0	0.00
17	0	6	0.0	0.0	0.92
0	0	7	0.0	0.0	0.00
20	0	7	0.0	0.0	0.92

Operator:ASML Machine:6xxx Release:4.1.0 Date:13/05/2015 Time:21:07

Report Filename : EMZQ.76
Report Path : TM/Projection/AberrationsQualification/ILIAS/EMZQ.log/
Machine Type : 1250D

Testname : Ilias Lens Qualification
Start Time : Wed, 13 May 2015 20:03:24 088689us +0800
Stop Time : Wed, 13 May 2015 21:07:27 542791us +0800
Execution Time : 01:04:03
Test Run Result : Finished
Test Status : Test is Finished
Results Validation : N.A.
Measurement Quality : N.A.
Comment :

Step	Start Time	Stop Time	Status	Execution Time
Initialize Data	20:03:24	20:03:25	Finished	00:00:01
Prepare Machine	20:03:25	20:06:04	Finished	00:02:39
Perform Measurements	20:06:04	21:06:35	Finished	01:00:30
Model	21:06:35	21:07:27	Finished	00:00:52

Scenario Inputs

Selected Scenario : Manual
Verification Set : No Verification
Override Inputs : Yes
Manual Scenario Selected : Yes

Test Info
Machine ID : 6xxx
Machine type : 1250D
Lens ID : 0122xxxx
ELLE ID : 000000
Testlog : ZSQF_6xxx_20150513_2006_manual.tlg
Date and time of measurement : 05/13/2015 20:06
Reticle ID : 45564101P111
Measurements layout : UV13X2
Clearout reticle : Yes
Chuck ID : Chuck 2
Number of cycles : 1
Number of Y positions : 5
Lens Temperature : 22.00 [C]

Lens Pressure : 984.00 [mbar]
 Lens Stability

Zernike delta over measurement time

	Delta [nm]	Spec. [nm]	In Spec.
Z5	-0.104	2.000	Yes
Z7	-0.221	2.000	Yes
Z9	0.095	2.000	Yes
Z14	-0.049	2.000	Yes
Z16	0.054	2.000	Yes

RMS values

		After Correction		Deltas		
	Current	NEXZ	+SA	NEXZ	SA	Both
	[nm]	[nm]	[nm]	[nm]	[nm]	[nm]
Spherical	0.92	0.94	0.94	-0.02	0.00	-0.02
Coma	0.78	0.63	0.63	0.14	0.01	0.15
Astigmatism	1.10	1.10	1.10	0.00	0.00	0.00
3-foil	0.55	0.56	0.57	-0.01	-0.00	-0.01
(Z5->Z37)	2.27	2.29	2.28	-0.01	0.01	-0.01
(Z38->)	0.99	0.99	0.99	0.00	0.00	0.00

Measured Zernike distributions (integrated)

	Offset		Tilt in X		Curv in X	
	Value [nm]	Range [nm]	Value [nm/cm]	Range [nm/cm]	Value [nm/cm2]	Range [nm/cm2]
Z5	-3.24	3.21	-0.30	0.43	2.72	0.78
Z6	0.70	0.57	-0.24	0.44	-0.20	1.28
Z7	0.48	0.39	0.67	0.23	-0.51	0.45
Z8	-0.49	2.89	0.22	0.51	0.62	2.11
Z9	-0.45	0.78	-0.20	0.08	0.83	0.41
Z14	-0.07	0.23	-0.08	0.38	0.39	0.25
Z15	-0.13	0.88	0.07	0.24	0.08	0.53
Z16	-0.59	0.83	-0.43	0.15	0.95	0.48

Non-integrated non-correctable aberration data (cycle averaged)

	Min [nm]	Max [nm]
Z5	-4.80	3.87
Z6	-1.06	2.46
Z7	-1.90	1.12
Z8	-2.46	1.72
Z9	-1.04	1.30
Z10	-1.75	1.03
Z11	-1.78	2.18
Z12	-0.29	3.93
Z13	-1.77	1.48
Z14	-1.65	1.38
Z15	-1.14	0.83
Z16	-2.03	1.29
Z17	-3.41	0.09
Z18	-1.13	1.38
Z19	-1.20	2.14
Z20	-1.34	0.81
Z21	-2.50	2.00
Z22	-2.96	2.25
Z23	-0.81	1.77
Z24	-0.87	0.76

Z25	-1.56	1.58
Z26	-0.83	0.84
Z27	-0.98	0.85
Z28	0.28	2.48
Z29	-1.27	0.89
Z30	-1.05	1.38
Z31	-1.18	1.00
Z32	-0.63	0.92
Z33	-1.07	0.86
Z34	-0.97	1.69
Z35	-0.64	0.75
Z36	-1.09	0.72
Z37	1.30	2.83

Integrated non-correctable aberration (cycle averaged, scan integrated)

	Min [nm]	Max [nm]
Z5	-3.51	1.49
Z6	-0.07	0.85
Z7	-0.70	0.71
Z8	-0.43	0.87
Z9	-0.75	0.78
Z10	-0.97	0.22
Z11	-0.72	0.50
Z12	0.81	3.30
Z13	-1.08	0.03
Z14	-1.36	1.20
Z15	-0.17	0.20
Z16	-1.37	1.05
Z17	-2.74	-1.71
Z18	-0.35	0.70
Z19	-0.86	1.23
Z20	-0.45	0.10
Z21	-1.57	1.15
Z22	-0.53	-0.24
Z23	-0.55	1.40
Z24	-0.14	0.15
Z25	-1.34	1.30
Z26	-0.52	0.50
Z27	-0.62	0.23
Z28	1.04	2.01
Z29	-0.06	0.28
Z30	-0.78	1.11
Z31	-0.30	0.09
Z32	-0.23	0.47
Z33	-0.29	0.08
Z34	-0.70	1.43
Z35	-0.10	0.15
Z36	-0.88	0.53
Z37	1.56	2.20

Integrated non-correctable aberration (cycle averaged, scan integrated)

	X [mm]	Z2 [nm]	Z3 [nm]	Z4 [nm]	Z5 [nm]	Z6 [nm]	Z7 [nm]
0	-12.72				1.49	0.80	-0.70
1	-10.60				0.70	0.39	-0.21
2	-8.48				-0.63	0.55	-0.16
3	-6.36				-1.82	0.42	-0.00
4	-4.24				-3.17	0.52	0.57
5	-2.12				-3.51	0.57	0.71
6	-0.00				-3.51	0.79	0.39
7	2.12				-3.37	0.62	-0.25
8	4.24				-2.69	0.81	0.01
9	6.36				-1.77	0.85	0.16
10	8.48				-0.54	0.67	-0.02
11	10.60				0.70	0.51	-0.19

12	12.72			0.14	-0.07	-0.48	
+-----+	+-----+	+-----+	+-----+	+-----+	+-----+	+-----+	+-----+

	X [mm]	Z8 [nm]	Z9 [nm]	Z10 [nm]	Z11 [nm]	Z12 [nm]	Z13 [nm]
0	-12.72	0.33	0.76	-0.97	0.32	0.94	-0.06
1	-10.60	0.17	0.57	0.08	0.50	0.81	0.03
2	-8.48	-0.15	0.04	0.22	0.13	1.12	0.01
3	-6.36	-0.41	-0.75	0.09	-0.42	1.06	-0.00
4	-4.24	-0.42	-0.38	-0.13	-0.29	2.65	-0.24
5	-2.12	-0.43	-0.29	0.06	-0.35	3.04	-0.02
6	-0.00	-0.30	-0.40	0.05	-0.42	3.08	-0.17
7	2.12	-0.31	-0.18	-0.25	-0.72	3.30	-0.50
8	4.24	-0.11	-0.21	0.13	-0.54	3.09	-0.69
9	6.36	-0.06	-0.44	-0.15	-0.58	1.81	-0.65
10	8.48	0.04	0.25	-0.61	-0.62	2.15	-0.78
11	10.60	0.68	0.67	-0.71	-0.17	1.72	-0.79
12	12.72	0.87	0.78	0.09	0.17	1.82	-1.08

	X [mm]	Z14 [nm]	Z15 [nm]	Z16 [nm]	Z17 [nm]	Z18 [nm]	Z19 [nm]
0	-12.72	1.20	-0.03	1.05	-1.83	0.24	1.23
1	-10.60	0.23	0.11	0.65	-2.21	0.18	-0.07
2	-8.48	0.43	0.05	0.64	-2.20	0.42	0.36
3	-6.36	-0.42	-0.04	0.60	-2.74	0.13	0.36
4	-4.24	-1.36	-0.17	-0.27	-2.22	-0.05	0.01
5	-2.12	-1.11	-0.17	-0.97	-2.34	0.10	0.15
6	-0.00	-0.50	-0.05	-1.37	-2.45	0.01	-0.15
7	2.12	0.52	0.06	-1.29	-2.07	-0.35	-0.21
8	4.24	1.20	0.12	-0.57	-1.95	-0.30	0.01
9	6.36	0.63	0.20	0.08	-2.45	0.10	-0.37
10	8.48	0.31	0.09	0.01	-1.71	0.45	-0.10
11	10.60	0.28	0.08	-0.05	-1.78	0.59	0.27
12	12.72	-0.62	0.18	-0.02	-1.94	0.70	-0.86

	X [mm]	Z20 [nm]	Z21 [nm]	Z22 [nm]	Z23 [nm]	Z24 [nm]	Z25 [nm]
0	-12.72	-0.45	0.69	-0.24	1.40	0.15	-0.72
1	-10.60	-0.34	0.76	-0.38	1.29	0.08	-1.34
2	-8.48	0.04	1.06	-0.44	0.38	-0.03	-1.09
3	-6.36	0.10	1.15	-0.50	0.57	0.06	-0.34
4	-4.24	-0.16	-0.15	-0.43	0.63	0.02	0.34
5	-2.12	-0.25	-1.03	-0.33	0.82	-0.04	0.85
6	-0.00	-0.08	-1.57	-0.39	0.97	-0.08	1.30
7	2.12	-0.17	-1.27	-0.37	0.78	-0.05	1.00
8	4.24	-0.23	-0.13	-0.42	1.02	-0.14	0.47
9	6.36	-0.10	0.97	-0.37	0.64	-0.13	-0.08
10	8.48	-0.08	0.97	-0.27	0.48	-0.14	-0.81
11	10.60	-0.20	0.59	-0.51	-0.43	-0.02	-1.20
12	12.72	-0.16	0.27	-0.53	-0.55	-0.10	-0.55

	X [mm]	Z26 [nm]	Z27 [nm]	Z28 [nm]	Z29 [nm]	Z30 [nm]	Z31 [nm]
0	-12.72	0.20	-0.62	1.36	0.28	1.11	-0.01
1	-10.60	-0.52	-0.57	1.05	0.15	0.58	-0.30
2	-8.48	-0.25	-0.06	1.19	-0.06	-0.25	-0.29
3	-6.36	0.06	0.23	1.76	-0.04	-0.05	-0.14
4	-4.24	0.40	-0.16	1.68	-0.02	-0.00	-0.27
5	-2.12	0.50	-0.37	1.99	0.08	0.19	-0.19
6	-0.00	0.02	-0.25	1.94	-0.04	0.05	-0.16

7	2.12	-0.08	-0.10	2.01	0.08	-0.21	-0.11
8	4.24	-0.11	-0.12	1.97	0.05	0.14	0.03
9	6.36	-0.23	0.10	1.80	0.27	0.12	0.09
10	8.48	0.12	0.18	1.18	0.20	0.47	0.07
11	10.60	0.39	0.14	1.04	0.14	-0.37	0.04
12	12.72	0.04	0.01	1.13	0.13	-0.78	-0.16

	X [mm]	Z32 [nm]	Z33 [nm]	Z34 [nm]	Z35 [nm]	Z36 [nm]	Z37 [nm]
0	-12.72	0.14	-0.29	1.33	0.04	0.01	1.56
1	-10.60	-0.23	-0.20	1.43	0.08	-0.51	1.69
2	-8.48	-0.12	-0.19	1.10	0.15	-0.88	1.71
3	-6.36	-0.15	-0.23	0.28	0.03	-0.56	1.57
4	-4.24	-0.05	-0.15	0.23	-0.00	-0.11	1.63
5	-2.12	0.18	-0.29	0.02	-0.06	0.21	1.90
6	-0.00	0.36	-0.09	0.38	-0.10	0.43	2.20
7	2.12	0.39	-0.09	1.01	0.02	0.32	1.85
8	4.24	0.11	0.08	0.51	0.01	0.21	1.67
9	6.36	0.22	0.07	0.50	0.03	-0.27	1.64
10	8.48	-0.04	-0.01	-0.36	0.05	-0.41	1.73
11	10.60	-0.05	-0.04	-0.63	0.00	-0.19	1.85
12	12.72	0.47	0.08	-0.70	0.05	0.53	1.87

Non-integrated non-correctable aberration data (cycle averaged)

	X [mm]	Y [nm]	Z2 [nm]	Z3 [nm]	Z4 [nm]	Z5 [nm]	Z6 [nm]	Z7 [nm]
0	-12.72	3.60				1.99	0.56	-0.48
1	-10.60	3.60				-0.04	0.51	-0.27
2	-8.48	3.60				-1.03	0.91	0.27
3	-6.36	3.60				-1.61	0.06	0.15
4	-4.24	3.60				-2.67	0.94	1.12
5	-2.12	3.60				-3.15	0.45	1.03
6	-0.00	3.60				-2.96	0.93	0.51
7	2.12	3.60				-3.28	1.15	0.02
8	4.24	3.60				-2.86	0.70	-0.13
9	6.36	3.60				-1.96	1.28	0.33
10	8.48	3.60				-0.81	0.15	-0.09
11	10.60	3.60				0.12	-0.19	0.13
12	12.72	3.60				-0.03	-0.98	-0.92
13	-12.72	1.80				0.86	-1.06	-0.50
14	-10.60	1.80				0.11	-0.29	-0.52
15	-8.48	1.80				-1.67	1.50	-0.65
16	-6.36	1.80				-2.90	0.98	0.21
17	-4.24	1.80				-4.44	0.52	0.79
18	-2.12	1.80				-4.63	0.25	0.54
19	-0.00	1.80				-4.80	0.87	0.30
20	2.12	1.80				-4.28	1.02	-0.01
21	4.24	1.80				-3.83	0.46	0.26
22	6.36	1.80				-2.79	0.28	0.14
23	8.48	1.80				-1.56	0.84	0.22
24	10.60	1.80				-0.27	1.20	-0.05
25	12.72	1.80				-1.64	-0.83	-0.54
26	-12.72	-0.00				-0.44	0.42	0.13
27	-10.60	-0.00				0.65	0.22	-0.04
28	-8.48	-0.00				-0.46	0.56	-0.83
29	-6.36	-0.00				-2.78	0.53	-0.02
30	-4.24	-0.00				-4.42	0.61	0.64
31	-2.12	-0.00				-4.50	0.36	0.75
32	-0.00	-0.00				-4.59	1.32	0.42
33	2.12	-0.00				-3.89	0.67	-0.58
34	4.24	-0.00				-3.46	0.65	0.27
35	6.36	-0.00				-2.40	0.65	0.16
36	8.48	-0.00				-0.93	0.57	0.12
37	10.60	-0.00				0.07	0.48	-0.40
38	12.72	-0.00				-1.10	-0.28	-0.17

39	-12.72	-1.80				1.18	2.46	-0.75
40	-10.60	-1.80				1.06	1.24	0.05
41	-8.48	-1.80				-0.57	-0.35	-0.26
42	-6.36	-1.80				-2.10	-0.32	-0.19
43	-4.24	-1.80				-3.53	0.55	0.26
44	-2.12	-1.80				-4.05	1.08	0.55
45	-0.00	-1.80				-3.85	0.41	0.19
46	2.12	-1.80				-4.09	-0.07	-0.19
47	4.24	-1.80				-3.14	1.28	0.03
48	6.36	-1.80				-2.19	1.63	0.03
49	8.48	-1.80				-0.55	0.75	0.19
50	10.60	-1.80				1.12	0.26	-0.13
51	12.72	-1.80				0.58	0.42	-0.35
52	-12.72	-3.60				3.87	1.62	-1.90
53	-10.60	-3.60				1.74	0.26	-0.24
54	-8.48	-3.60				0.57	0.11	0.69
55	-6.36	-3.60				0.30	0.82	-0.18
56	-4.24	-3.60				-0.77	-0.01	0.05
57	-2.12	-3.60				-1.20	0.72	0.69
58	-0.00	-3.60				-1.37	0.44	0.50
59	2.12	-3.60				-1.30	0.32	-0.47
60	4.24	-3.60				-0.17	0.98	-0.36
61	6.36	-3.60				0.50	0.40	0.13
62	8.48	-3.60				1.16	1.05	-0.56
63	10.60	-3.60				2.45	0.81	-0.51
64	12.72	-3.60				2.90	1.32	-0.42

	X [nm]	Y [nm]	Z8 [nm]	Z9 [nm]	Z10 [nm]	Z11 [nm]	Z12 [nm]	Z13 [nm]
0	-12.72	3.60	-0.59	0.71	0.36	2.18	1.30	-0.61
1	-10.60	3.60	-0.19	0.51	0.77	1.18	1.58	-0.14
2	-8.48	3.60	0.66	0.03	-0.00	0.58	1.94	0.37
3	-6.36	3.60	0.89	-0.71	-0.46	0.16	1.98	1.48
4	-4.24	3.60	0.44	-0.30	-0.16	-0.86	3.33	0.64
5	-2.12	3.60	0.57	-0.07	0.07	-1.10	3.43	0.40
6	-0.00	3.60	0.41	-0.23	-0.05	-0.95	2.90	0.23
7	2.12	3.60	0.27	-0.06	0.03	-1.46	3.35	-0.12
8	4.24	3.60	0.37	-0.03	0.60	-1.48	3.43	-1.07
9	6.36	3.60	0.96	-0.22	0.33	-0.99	2.63	-1.66
10	8.48	3.60	0.79	0.43	-0.06	-1.18	2.70	-1.77
11	10.60	3.60	0.50	0.72	0.09	-0.81	2.64	-1.38
12	12.72	3.60	0.15	0.42	1.00	-0.74	2.77	-0.95
13	-12.72	1.80	1.17	0.80	-0.16	0.41	0.93	0.26
14	-10.60	1.80	0.45	0.22	1.03	0.28	1.26	0.68
15	-8.48	1.80	0.19	-0.32	0.72	0.08	1.75	-0.10
16	-6.36	1.80	0.57	-1.04	0.43	-0.66	1.49	0.53
17	-4.24	1.80	0.87	-0.47	0.19	-0.78	3.25	0.28
18	-2.12	1.80	0.86	-0.58	0.35	-1.29	3.92	-0.14
19	-0.00	1.80	0.63	-1.01	0.02	-1.78	3.75	0.05
20	2.12	1.80	1.21	-0.46	-0.75	-1.61	3.93	-0.37
21	4.24	1.80	1.31	-0.19	-0.01	-1.16	3.66	-0.63
22	6.36	1.80	0.76	-0.55	-0.22	-1.11	1.95	-1.37
23	8.48	1.80	0.30	0.16	-0.60	-0.94	2.55	-1.02
24	10.60	1.80	1.06	0.40	-0.58	-0.25	2.48	-0.88
25	12.72	1.80	0.56	0.41	0.43	-0.20	2.53	-0.60
26	-12.72	-0.00	1.09	0.62	-1.75	-0.38	1.05	0.28
27	-10.60	-0.00	0.82	0.57	-0.24	-0.13	0.75	-0.03
28	-8.48	-0.00	0.17	-0.21	0.87	-0.49	1.20	0.38
29	-6.36	-0.00	-0.01	-0.96	0.93	-0.94	0.88	-0.27
30	-4.24	-0.00	0.02	-0.55	0.42	-0.53	2.83	-0.13
31	-2.12	-0.00	-0.20	-0.77	-0.00	-0.83	3.19	0.14
32	-0.00	-0.00	0.01	-0.74	-0.02	-0.74	3.62	-0.23
33	2.12	-0.00	0.14	-0.64	-0.25	-1.04	3.43	-0.89
34	4.24	-0.00	0.35	-0.33	-0.49	-0.81	3.30	-0.99
35	6.36	-0.00	0.45	-0.52	-1.03	-0.83	1.49	-0.53
36	8.48	-0.00	0.23	0.17	-0.87	-0.65	2.00	-0.25
37	10.60	-0.00	0.75	0.55	-0.89	0.00	1.36	-0.63
38	12.72	-0.00	0.85	0.83	-0.02	0.77	1.71	-1.13
39	-12.72	-1.80	0.10	0.80	-1.58	0.31	1.04	0.13
40	-10.60	-1.80	0.13	0.39	-0.35	0.84	0.74	0.20
41	-8.48	-1.80	-0.49	0.08	0.14	0.10	0.74	-0.20

42	-6.36	-1.80	-1.04	-0.90	0.08	-0.46	0.45	-0.91
43	-4.24	-1.80	-1.45	-0.48	-0.32	-0.05	2.25	-0.65
44	-2.12	-1.80	-1.38	-0.21	0.16	0.48	2.62	0.29
45	-0.00	-1.80	-1.16	-0.40	0.38	0.50	3.15	-0.46
46	2.12	-1.80	-1.61	-0.18	-0.47	-0.09	3.21	-0.94
47	4.24	-1.80	-1.26	-0.41	-0.08	-0.16	2.82	-0.71
48	6.36	-1.80	-0.63	-0.76	-0.58	-0.04	1.43	-0.04
49	8.48	-1.80	-0.04	-0.01	-1.29	-0.51	1.96	-0.66
50	10.60	-1.80	0.50	0.69	-1.42	0.04	1.08	-0.31
51	12.72	-1.80	1.05	0.95	-0.31	0.89	1.05	-0.98
52	-12.72	-3.60	-0.14	0.88	-1.70	-0.92	0.40	-0.35
53	-10.60	-3.60	-0.37	1.13	-0.83	0.35	-0.29	-0.54
54	-8.48	-3.60	-1.27	0.61	-0.65	0.41	-0.04	-0.39
55	-6.36	-3.60	-2.46	-0.15	-0.54	-0.18	0.50	-0.84
56	-4.24	-3.60	-1.99	-0.12	-0.76	0.76	1.61	-1.32
57	-2.12	-3.60	-1.98	0.16	-0.28	1.00	2.02	-0.82
58	-0.00	-3.60	-1.39	0.39	-0.08	0.87	1.98	-0.45
59	2.12	-3.60	-1.54	0.42	0.20	0.61	2.56	-0.18
60	4.24	-3.60	-1.34	-0.07	0.62	0.90	2.24	-0.04
61	6.36	-3.60	-1.84	-0.17	0.78	0.07	1.55	0.37
62	8.48	-3.60	-1.08	0.50	-0.24	0.17	1.54	-0.18
63	10.60	-3.60	0.61	0.97	-0.76	0.17	1.04	-0.74
64	12.72	-3.60	1.72	1.30	-0.67	0.14	1.06	-1.73

	X [nm]	Y [nm]	Z14 [nm]	Z15 [nm]	Z16 [nm]	Z17 [nm]	Z18 [nm]	Z19 [nm]
0	-12.72	3.60	1.03	-0.17	1.17	-2.59	0.86	1.36
1	-10.60	3.60	0.39	-0.11	0.60	-2.59	1.32	0.51
2	-8.48	3.60	0.30	-1.14	0.43	-2.70	1.00	0.63
3	-6.36	3.60	-0.13	-1.00	0.55	-3.34	0.48	0.11
4	-4.24	3.60	-1.33	-0.49	0.03	-2.54	0.77	0.08
5	-2.12	3.60	-0.86	-0.05	-0.64	-2.68	0.15	0.39
6	-0.00	3.60	-0.32	0.07	-1.00	-2.38	-0.32	-0.13
7	2.12	3.60	0.66	-0.02	-0.96	-1.96	-0.84	-0.71
8	4.24	3.60	1.13	0.15	-0.63	-1.78	-1.13	-0.33
9	6.36	3.60	0.50	-0.44	0.09	-2.16	-0.26	-0.41
10	8.48	3.60	0.19	-0.73	-0.35	-1.76	-0.17	-0.28
11	10.60	3.60	0.33	-0.40	-0.25	-1.57	0.09	-0.03
12	12.72	3.60	-0.86	-0.01	0.05	-1.39	0.37	-1.11
13	-12.72	1.80	1.21	-0.12	0.80	-2.80	0.48	0.70
14	-10.60	1.80	0.94	-0.29	0.33	-2.63	0.56	-0.68
15	-8.48	1.80	0.79	-0.17	0.59	-2.51	0.45	0.15
16	-6.36	1.80	-0.67	-0.52	0.44	-3.41	1.05	0.63
17	-4.24	1.80	-1.36	-0.30	-0.49	-3.25	0.71	-0.30
18	-2.12	1.80	-0.99	-0.43	-1.33	-3.18	0.42	-0.20
19	-0.00	1.80	-0.45	-0.04	-1.68	-2.94	-0.14	-0.18
20	2.12	1.80	0.30	0.06	-1.71	-2.86	-0.46	0.02
21	4.24	1.80	1.34	0.07	-0.86	-2.78	-1.08	0.21
22	6.36	1.80	0.90	0.07	-0.32	-3.16	-1.01	-0.34
23	8.48	1.80	0.37	-0.08	-0.47	-2.11	0.11	-0.17
24	10.60	1.80	0.20	-0.17	-0.50	-1.99	-0.00	0.43
25	12.72	1.80	-1.13	0.19	-0.27	-2.27	0.34	-0.33
26	-12.72	-0.00	1.36	-0.17	0.96	-2.20	0.14	0.76
27	-10.60	-0.00	0.36	0.21	0.71	-2.75	0.14	-0.49
28	-8.48	-0.00	0.78	0.51	0.70	-1.97	0.35	0.21
29	-6.36	-0.00	-0.89	0.42	0.37	-3.21	-0.13	0.45
30	-4.24	-0.00	-1.41	0.15	-0.67	-2.88	0.04	-0.28
31	-2.12	-0.00	-0.98	0.33	-1.39	-2.46	0.15	-0.14
32	-0.00	-0.00	-0.38	0.37	-2.03	-2.89	0.19	-0.19
33	2.12	-0.00	0.27	0.53	-1.69	-2.40	-0.07	0.17
34	4.24	-0.00	1.08	0.44	-0.85	-2.66	0.03	0.56
35	6.36	-0.00	1.03	0.43	-0.07	-2.80	0.04	-0.20
36	8.48	-0.00	0.18	0.36	0.28	-1.87	0.06	0.04
37	10.60	-0.00	0.25	0.83	0.06	-1.94	0.44	0.60
38	12.72	-0.00	-0.59	0.45	-0.13	-2.40	0.54	-0.49
39	-12.72	-1.80	1.38	0.43	1.02	-1.64	0.15	1.22
40	-10.60	-1.80	-0.10	0.59	0.75	-2.01	-0.24	-0.16
41	-8.48	-1.80	0.27	0.63	0.76	-2.08	0.30	0.53
42	-6.36	-1.80	-0.44	0.51	0.70	-2.30	-0.72	0.29
43	-4.24	-1.80	-1.65	0.13	-0.19	-1.65	-0.98	0.28
44	-2.12	-1.80	-1.31	0.29	-1.07	-2.24	-0.03	0.05

45	-0.00	-1.80	-0.59	0.42	-1.43	-2.40	0.25	-0.14
46	2.12	-1.80	0.66	0.45	-1.40	-2.15	-0.18	-0.07
47	4.24	-1.80	1.36	0.27	-0.47	-1.89	0.55	-0.14
48	6.36	-1.80	0.64	0.70	0.30	-2.28	1.12	-0.58
49	8.48	-1.80	0.20	0.62	0.35	-1.43	0.85	0.24
50	10.60	-1.80	-0.12	0.47	0.13	-1.90	1.04	0.80
51	12.72	-1.80	-0.24	0.17	-0.02	-1.94	0.98	-1.19
52	-12.72	-3.60	1.01	-0.10	1.29	0.09	-0.43	2.14
53	-10.60	-3.60	-0.42	0.18	0.84	-1.04	-0.90	0.45
54	-8.48	-3.60	0.04	0.41	0.72	-1.75	0.00	0.27
55	-6.36	-3.60	0.06	0.39	0.94	-1.46	-0.03	0.33
56	-4.24	-3.60	-1.05	-0.31	-0.04	-0.77	-0.79	0.29
57	-2.12	-3.60	-1.40	-0.97	-0.43	-1.13	-0.20	0.62
58	-0.00	-3.60	-0.73	-1.07	-0.73	-1.61	0.06	-0.11
59	2.12	-3.60	0.68	-0.74	-0.68	-0.98	-0.22	-0.48
60	4.24	-3.60	1.11	-0.35	-0.05	-0.63	0.15	-0.27
61	6.36	-3.60	0.08	0.23	0.40	-1.84	0.62	-0.30
62	8.48	-3.60	0.61	0.26	0.26	-1.40	1.38	-0.31
63	10.60	-3.60	0.74	-0.30	0.29	-1.48	1.37	-0.44
64	12.72	-3.60	-0.27	0.10	0.27	-1.71	1.25	-1.20

	X [mm]	Y [mm]	Z20 [nm]	Z21 [nm]	Z22 [nm]	Z23 [nm]	Z24 [nm]	Z25 [nm]
0	-12.72	3.60	-0.96	0.42	-1.73	1.22	-0.28	-0.42
1	-10.60	3.60	0.31	0.44	-1.78	1.23	0.17	-1.26
2	-8.48	3.60	0.28	0.71	-2.40	0.42	0.24	-1.02
3	-6.36	3.60	-0.25	0.65	-2.95	0.84	0.69	-0.34
4	-4.24	3.60	0.29	-0.50	-2.68	0.29	0.60	0.34
5	-2.12	3.60	0.69	-1.53	-2.00	1.00	0.26	0.70
6	-0.00	3.60	0.67	-2.25	-0.53	0.76	-0.12	1.26
7	2.12	3.60	0.66	-1.76	0.83	0.74	-0.18	0.80
8	4.24	3.60	0.69	-0.44	1.38	1.05	-0.07	0.50
9	6.36	3.60	-0.24	0.76	2.25	0.79	-0.47	-0.05
10	8.48	3.60	0.02	0.66	1.73	-0.09	-0.43	-0.83
11	10.60	3.60	0.18	0.15	0.86	-0.48	-0.35	-0.84
12	12.72	3.60	-1.04	0.49	0.55	-0.57	-0.36	-0.21
13	-12.72	1.80	-0.23	1.00	-1.17	1.32	-0.10	-0.63
14	-10.60	1.80	-0.02	1.29	-1.06	1.07	-0.03	-1.28
15	-8.48	1.80	0.31	1.71	-1.60	0.37	-0.16	-0.90
16	-6.36	1.80	-0.06	1.98	-2.09	0.71	-0.18	-0.38
17	-4.24	1.80	0.42	0.50	-1.89	0.73	-0.07	0.37
18	-2.12	1.80	0.23	-0.45	-0.84	0.87	-0.36	1.03
19	-0.00	1.80	0.57	-1.06	-0.31	0.95	-0.03	1.52
20	2.12	1.80	0.62	-0.44	-0.03	0.86	-0.59	1.24
21	4.24	1.80	0.40	0.68	0.98	1.02	-0.68	0.47
22	6.36	1.80	-0.23	2.00	1.19	0.65	-0.53	-0.14
23	8.48	1.80	-0.01	1.87	0.99	0.45	-0.87	-0.86
24	10.60	1.80	-0.09	1.23	-0.48	-0.68	-0.86	-1.22
25	12.72	1.80	-0.21	0.78	0.19	-0.32	-0.56	-0.62
26	-12.72	-0.00	-0.51	1.20	0.33	1.71	0.17	-0.96
27	-10.60	-0.00	-0.29	1.30	-0.58	1.01	-0.24	-1.56
28	-8.48	-0.00	0.29	1.60	-0.62	0.45	-0.61	-1.17
29	-6.36	-0.00	-0.26	1.95	-0.46	0.59	-0.24	-0.32
30	-4.24	-0.00	-0.71	0.64	-0.39	0.72	-0.27	0.32
31	-2.12	-0.00	-0.56	-0.34	-0.43	0.82	-0.30	1.16
32	-0.00	-0.00	-0.22	-0.78	-0.36	1.18	-0.40	1.34
33	2.12	-0.00	-0.36	-0.75	-0.17	1.05	-0.17	1.24
34	4.24	-0.00	-0.37	0.75	-0.19	0.89	-0.08	0.62
35	6.36	-0.00	-0.18	1.67	-0.30	0.51	-0.25	0.07
36	8.48	-0.00	-0.42	1.50	-0.45	0.60	-0.00	-0.94
37	10.60	-0.00	-0.53	0.87	-0.67	-0.48	-0.00	-1.37
38	12.72	-0.00	-0.19	0.35	-0.45	-0.80	-0.46	-1.05
39	-12.72	-1.80	-0.57	0.43	0.56	1.13	0.52	-0.97
40	-10.60	-1.80	-0.82	0.68	0.22	1.77	0.12	-1.40
41	-8.48	-1.80	-0.14	1.00	0.77	0.17	0.20	-1.25
42	-6.36	-1.80	0.27	1.25	1.04	0.47	-0.14	-0.39
43	-4.24	-1.80	-0.86	-0.11	0.89	0.78	0.06	0.34
44	-2.12	-1.80	-1.06	-0.92	0.31	0.85	0.30	1.01
45	-0.00	-1.80	-0.90	-1.26	-0.61	1.03	-0.18	1.58
46	2.12	-1.80	-0.93	-1.28	-0.59	0.68	0.50	1.13
47	4.24	-1.80	-1.34	-0.42	-1.74	1.03	0.14	0.47

48	6.36	-1.80	-0.33	0.71	-2.05	0.70	0.34	-0.01
49	8.48	-1.80	-0.26	0.91	-1.36	0.89	0.34	-0.66
50	10.60	-1.80	-0.25	0.66	-1.09	-0.08	0.35	-1.41
51	12.72	-1.80	-0.15	0.20	-1.56	-0.81	0.15	-0.71
52	-12.72	-3.60	0.03	0.38	0.83	1.62	0.43	-0.60
53	-10.60	-3.60	-0.88	0.06	1.27	1.38	0.39	-1.21
54	-8.48	-3.60	-0.55	0.30	1.64	0.49	0.17	-1.13
55	-6.36	-3.60	0.80	-0.07	1.96	0.25	0.14	-0.27
56	-4.24	-3.60	0.05	-1.30	1.93	0.64	-0.21	0.35
57	-2.12	-3.60	-0.53	-1.91	1.32	0.54	-0.11	0.37
58	-0.00	-3.60	-0.53	-2.50	-0.14	0.90	0.33	0.83
59	2.12	-3.60	-0.82	-2.12	-1.92	0.59	0.21	0.60
60	4.24	-3.60	-0.51	-1.22	-2.53	1.08	-0.02	0.28
61	6.36	-3.60	0.47	-0.30	-2.96	0.56	0.25	-0.29
62	8.48	-3.60	0.25	-0.09	-2.25	0.54	0.24	-0.78
63	10.60	-3.60	-0.31	0.06	-1.17	-0.41	0.76	-1.15
64	12.72	-3.60	0.81	-0.46	-1.37	-0.27	0.70	-0.13

	X	Y	Z26	Z27	Z28	Z29	Z30	Z31
	[mm]	[nm]	[nm]	[nm]	[nm]	[nm]	[nm]	[nm]
0	-12.72	3.60	-0.28	-0.89	1.44	-0.19	1.38	-1.18
1	-10.60	3.60	-0.45	-0.17	1.33	0.62	0.53	-0.26
2	-8.48	3.60	0.20	0.79	1.78	0.71	0.02	0.11
3	-6.36	3.60	-0.12	-0.19	2.16	0.79	0.31	0.12
4	-4.24	3.60	0.05	-0.65	1.94	0.31	0.33	-0.25
5	-2.12	3.60	0.18	-0.54	2.14	-0.03	0.54	-0.28
6	-0.00	3.60	-0.00	-0.41	2.04	0.04	0.40	-0.37
7	2.12	3.60	0.09	-0.35	1.97	0.52	0.03	-0.25
8	4.24	3.60	0.32	-0.29	2.13	0.21	0.03	0.05
9	6.36	3.60	0.27	-0.29	2.13	-0.16	0.15	0.19
10	8.48	3.60	0.30	0.57	2.11	-0.74	0.55	-0.15
11	10.60	3.60	0.35	0.21	1.15	-0.33	-0.31	-0.03
12	12.72	3.60	-0.03	-0.34	0.93	0.25	-0.91	-1.12
13	-12.72	1.80	0.27	-0.98	0.94	0.34	1.29	-0.62
14	-10.60	1.80	-0.52	-0.31	0.64	0.36	0.88	-0.18
15	-8.48	1.80	-0.13	0.14	0.64	0.70	-0.10	-0.19
16	-6.36	1.80	0.57	-0.11	1.53	0.25	-0.21	0.20
17	-4.24	1.80	0.58	-0.67	1.41	-0.08	-0.25	0.09
18	-2.12	1.80	0.47	-0.80	1.72	-0.04	0.16	-0.17
19	-0.00	1.80	0.08	-0.59	1.48	-0.07	-0.13	-0.05
20	2.12	1.80	-0.17	-0.61	1.76	0.13	-0.19	-0.13
21	4.24	1.80	-0.45	-0.47	1.51	0.12	0.25	0.47
22	6.36	1.80	-0.49	-0.28	1.45	0.14	0.13	0.64
23	8.48	1.80	0.22	0.26	0.72	-0.26	1.01	0.51
24	10.60	1.80	0.36	0.32	0.70	-0.37	0.01	-0.10
25	12.72	1.80	-0.25	-0.26	0.74	0.46	-0.76	-0.41
26	-12.72	-0.00	0.84	-0.69	1.55	0.18	1.25	0.15
27	-10.60	-0.00	-0.43	-0.67	0.70	0.01	0.63	-0.36
28	-8.48	-0.00	-0.31	-0.38	0.56	0.26	-0.32	0.02
29	-6.36	-0.00	0.29	0.05	1.37	-0.13	-0.12	0.38
30	-4.24	-0.00	0.74	-0.03	1.37	-0.19	-0.26	0.14
31	-2.12	-0.00	0.70	-0.60	1.69	-0.02	0.32	0.27
32	-0.00	-0.00	0.02	-0.21	1.71	-0.09	-0.16	0.17
33	2.12	-0.00	-0.25	-0.17	1.71	-0.02	-0.41	0.01
34	4.24	-0.00	-0.47	-0.30	1.75	-0.32	0.35	0.22
35	6.36	-0.00	-0.83	0.22	1.51	0.15	0.13	0.20
36	8.48	-0.00	-0.09	0.41	0.28	0.51	0.29	0.34
37	10.60	-0.00	0.41	-0.39	0.78	0.24	0.11	0.34
38	12.72	-0.00	-0.07	-0.11	1.59	0.46	-0.62	-0.26
39	-12.72	-1.80	0.53	-0.06	1.52	0.29	1.03	0.59
40	-10.60	-1.80	-0.58	-0.93	1.14	-0.33	0.26	-0.37
41	-8.48	-1.80	-0.67	-0.55	1.03	-0.67	-0.41	-0.60
42	-6.36	-1.80	-0.16	0.56	1.76	-0.21	-0.35	-0.52
43	-4.24	-1.80	0.66	0.40	1.66	-0.00	0.08	-0.64
44	-2.12	-1.80	0.67	-0.04	2.06	0.20	-0.29	-0.20
45	-0.00	-1.80	0.11	-0.02	2.00	-0.09	0.06	-0.44
46	2.12	-1.80	-0.06	0.25	2.29	-0.17	-0.12	0.13
47	4.24	-1.80	-0.33	0.32	2.00	-0.11	0.15	-0.42
48	6.36	-1.80	-0.47	0.64	1.78	0.35	0.32	-0.33
49	8.48	-1.80	0.17	0.14	1.08	0.84	0.46	-0.08
50	10.60	-1.80	0.49	0.15	1.08	0.42	-0.84	0.01

51	12.72	-1.80	-0.07	0.28	1.10	0.09	-0.59	0.42
52	-12.72	-3.60	-0.35	-0.46	1.35	0.76	0.60	1.00
53	-10.60	-3.60	-0.60	-0.76	1.43	0.08	0.60	-0.34
54	-8.48	-3.60	-0.34	-0.33	1.92	-1.27	-0.43	-0.81
55	-6.36	-3.60	-0.30	0.85	1.96	-0.90	0.14	-0.88
56	-4.24	-3.60	-0.03	0.17	2.03	-0.13	0.10	-0.66
57	-2.12	-3.60	0.51	0.16	2.33	0.30	0.20	-0.55
58	-0.00	-3.60	-0.10	-0.03	2.48	0.04	0.08	-0.08
59	2.12	-3.60	-0.01	0.39	2.30	-0.04	-0.36	-0.29
60	4.24	-3.60	0.35	0.15	2.48	0.36	-0.06	-0.16
61	6.36	-3.60	0.38	0.19	2.14	0.89	-0.13	-0.26
62	8.48	-3.60	0.03	-0.47	1.72	0.65	0.04	-0.28
63	10.60	-3.60	0.35	0.41	1.46	0.74	-0.85	-0.03
64	12.72	-3.60	0.64	0.48	1.27	-0.61	-1.05	0.59

	X	Y	Z32	Z33	Z34	Z35	Z36	Z37
	[mm]	[mm]	[nm]	[nm]	[nm]	[nm]	[nm]	[nm]
0	-12.72	3.60	0.64	-0.02	1.12	-0.14	0.22	1.58
1	-10.60	3.60	-0.55	0.21	1.51	-0.17	-0.16	1.44
2	-8.48	3.60	-0.24	0.63	0.92	0.35	-0.96	1.40
3	-6.36	3.60	-0.46	0.45	0.27	-0.11	-0.61	1.55
4	-4.24	3.60	-0.33	0.39	0.06	0.22	-0.23	1.71
5	-2.12	3.60	0.05	0.41	0.06	0.33	0.10	1.58
6	-0.00	3.60	0.21	-0.03	0.37	0.28	0.31	1.90
7	2.12	3.60	0.24	-0.59	0.89	0.41	0.10	1.76
8	4.24	3.60	0.15	-0.17	0.54	0.40	-0.04	1.30
9	6.36	3.60	-0.12	-0.51	0.22	0.47	-0.24	1.61
10	8.48	3.60	-0.30	-0.59	-0.27	0.19	-0.22	1.91
11	10.60	3.60	-0.09	-0.68	-0.66	-0.18	-0.03	1.67
12	12.72	3.60	-0.08	0.11	-0.48	-0.03	0.72	1.91
13	-12.72	1.80	-0.16	-0.14	1.00	0.14	-0.11	1.48
14	-10.60	1.80	-0.63	-0.05	1.69	0.15	-0.45	1.74
15	-8.48	1.80	-0.25	0.17	1.33	0.09	-0.76	1.88
16	-6.36	1.80	-0.07	0.06	0.19	0.25	-0.26	1.48
17	-4.24	1.80	-0.13	0.38	0.39	-0.01	0.01	1.68
18	-2.12	1.80	-0.04	-0.15	-0.27	0.37	0.43	2.23
19	-0.00	1.80	-0.12	0.05	0.47	0.35	0.62	2.23
20	2.12	1.80	0.41	-0.01	0.95	0.50	0.44	1.99
21	4.24	1.80	0.03	-0.20	0.48	-0.03	0.28	1.76
22	6.36	1.80	0.34	-0.32	0.68	-0.21	0.05	1.84
23	8.48	1.80	0.02	-0.52	-0.52	-0.01	-0.22	1.83
24	10.60	1.80	0.03	-0.26	-0.34	0.17	-0.18	2.06
25	12.72	1.80	0.10	-0.13	-0.53	0.31	0.46	1.91
26	-12.72	-0.00	0.49	-0.61	1.64	-0.07	-0.15	1.36
27	-10.60	-0.00	0.05	0.18	1.17	-0.11	-0.74	1.79
28	-8.48	-0.00	-0.02	-0.09	1.29	-0.10	-0.89	1.82
29	-6.36	-0.00	-0.18	-0.14	0.27	-0.17	-0.68	1.72
30	-4.24	-0.00	0.02	-0.28	0.13	-0.27	-0.03	1.73
31	-2.12	-0.00	0.51	-0.45	0.00	-0.28	0.27	2.12
32	-0.00	-0.00	0.92	0.13	0.27	-0.48	0.56	2.83
33	2.12	-0.00	0.63	-0.05	1.17	-0.15	0.17	1.90
34	4.24	-0.00	0.33	0.09	0.57	-0.47	0.43	1.91
35	6.36	-0.00	0.45	0.13	0.42	-0.44	-0.60	1.54
36	8.48	-0.00	0.07	-0.26	-0.35	-0.38	-0.69	1.72
37	10.60	-0.00	0.28	-0.12	-0.61	-0.47	-0.63	2.03
38	12.72	-0.00	0.69	-0.09	-0.97	-0.26	0.28	1.91
39	-12.72	-1.80	0.18	-0.56	1.53	0.02	-0.15	1.73
40	-10.60	-1.80	0.23	-0.27	1.14	-0.21	-0.67	1.91
41	-8.48	-1.80	-0.07	-0.60	1.11	-0.08	-1.09	1.55
42	-6.36	-1.80	0.16	-0.61	0.18	0.03	-0.56	1.56
43	-4.24	-1.80	0.09	-0.70	0.37	-0.16	-0.17	1.55
44	-2.12	-1.80	0.05	-0.34	0.03	-0.64	0.14	1.79
45	-0.00	-1.80	0.14	-0.34	0.36	-0.40	0.47	2.19
46	2.12	-1.80	0.09	-0.06	1.09	-0.36	0.53	1.98
47	4.24	-1.80	-0.11	0.46	0.47	-0.07	0.11	1.75
48	6.36	-1.80	0.31	0.36	0.68	-0.27	-0.29	1.46
49	8.48	-1.80	-0.05	0.46	-0.32	0.05	-0.47	1.65
50	10.60	-1.80	0.06	0.26	-0.68	0.07	-0.33	2.02
51	12.72	-1.80	0.91	0.03	-0.90	0.25	0.51	1.92
52	-12.72	-3.60	-0.43	-0.14	1.35	0.27	0.23	1.65
53	-10.60	-3.60	-0.23	-1.07	1.65	0.75	-0.53	1.57

54	-8.48	-3.60	-0.04	-1.04	0.85	0.48	-0.69	1.91
55	-6.36	-3.60	-0.19	-0.91	0.50	0.14	-0.70	1.57
56	-4.24	-3.60	0.10	-0.53	0.21	0.20	-0.14	1.47
57	-2.12	-3.60	0.32	-0.91	0.28	-0.06	0.12	1.76
58	-0.00	-3.60	0.67	-0.28	0.43	-0.26	0.20	1.88
59	2.12	-3.60	0.59	0.28	0.97	-0.30	0.36	1.64
60	4.24	-3.60	0.15	0.21	0.47	0.20	0.26	1.61
61	6.36	-3.60	0.14	0.70	0.51	0.62	-0.28	1.76
62	8.48	-3.60	0.04	0.86	-0.34	0.39	-0.45	1.52
63	10.60	-3.60	-0.53	0.61	-0.87	0.43	0.23	1.44
64	12.72	-3.60	0.72	0.46	-0.63	-0.02	0.69	1.71

Operator:ASML Machine:6xxx Release:4.1.0 Date:04/01/2016 Time:13:30

Report Filename : LUPI.27
Report Path : TM/Illumination/Performance/LUPI.log/
Machine Type : 1250D

Testname : ILIAS Pupil Measurement
Start Time : Mon, 04 Jan 2016 13:25:59 273037us +0800
Stop Time : Mon, 04 Jan 2016 13:30:26 094390us +0800
Execution Time : 00:04:26
Test Run Result : OK
Test Status : Test is Finished
Results Validation : In Limits
Measurement Quality : OK
Comment :

Step	Start Time	Stop Time	Status	Execution Time
Initialize Drivers	13:25:59	13:26:09	Finished	00:00:09
Prepare Machine	13:26:09	13:27:48	Finished	00:01:38
Perform Measurements	13:27:48	13:29:51	Finished	00:02:03
Perform Analysis	13:29:51	13:30:25	Finished	00:00:33

Scenario Inputs

Selected Scenario : ATP-1
Verification Set : Final Verification
Override Inputs : No
Manual Scenario Selected : No

Measurement input values

Measurement mode : Static
Image size : 256 x 256
Pupil Shape
Illumination mode : Annular
NA : 0.850
DOE ID : 15
Sigma
inner : 0.690
outer : 0.930
Polarization mode : Unpolarized
Start beam
Beam Mode : Automatic
Beam Positioning
Position x : -3.000 [mm]
Position y : 0.000 [mm]
Pointing x : 0.450 [mRad]
Pointing y : 0.000 [mRad]
Beam Window
Beam position control window : 300 [um]
Beam pointing control window : 50 [uRad]
Measurement sequence : 5x1 Auto reticle
Perform measurement : Yes
Perform analysis : Yes
Raw data file : service_data/LU/LUPI/LUPI_RAW_m6xxx.355

Save avg pupil as picture file	: No
sigma correction	: Yes
Pupil Qualification Method	: Automatic Pupil Qualification
Pupil Numbers Method	: Center of Gravity Method

verification_type	: Final Verification
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Average Sigma Outer	
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minimum	: 0.000
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maximum	: 1.000
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Average Sigma Inner	
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minimum	: 0.000
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maximum	: 1.000
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Sigma Outer Range	
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minimum	: 0.000
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maximum	: 1.000
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Sigma Inner Range	
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minimum	: 0.000
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maximum	: 1.000
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Deviation Sigma Outer (set - get)	
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minimum	: -1.000
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maximum	: 1.000
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Deviation Sigma Inner (set - get)	
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minimum	: -1.000
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maximum	: 1.000
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Average Sigma variation	
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minimum	: 0.000
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maximum	: 0.012
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Show Ellipticity	: No
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Average Range Sigma Inner Range	
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minimum	: 0.000
---------	---------

maximum	: 1.000
---------	---------

Average Range Sigma Outer Range	
---------------------------------	--

minimum	: 0.000
---------	---------

maximum	: 1.000
---------	---------

Average Ellipticity	
---------------------	--

minimum	: -3.000e+00 [%]
---------	------------------

maximum	: 3.000 [%]
---------	-------------

Minimum Ellipticity	
---------------------	--

minimum	: 0.000e+00 [%]
---------	-----------------

maximum	: 100.000 [%]
---------	---------------

Maximum Ellipticity	
---------------------	--

minimum	: 0.000e+00 [%]
---------	-----------------

maximum	: 100.000 [%]
---------	---------------

Ellipticity Range	
-------------------	--

minimum	: 0.000e+00 [%]
---------	-----------------

maximum	: 100.000 [%]
---------	---------------

Average Ellipticity (45 deg)	
------------------------------	--

minimum	: -1.000e+02 [%]
---------	------------------

maximum	: 100.000 [%]
---------	---------------

Minimum Ellipticity (45 deg)	
------------------------------	--

minimum	: 0.000e+00 [%]
---------	-----------------

maximum	: 100.000 [%]
---------	---------------

Maximum Ellipticity (45 deg)	
------------------------------	--

minimum	: 0.000e+00 [%]
---------	-----------------

maximum	: 100.000 [%]
---------	---------------

Ellipticity Range (45 deg)	
----------------------------	--

minimum	: 0.000e+00 [%]
---------	-----------------

maximum	: 100.000 [%]
---------	---------------

Show COG	: No
----------	------

COG X field variation	
-----------------------	--

minimum	: 0.0000
---------	----------

maximum	: 1.0000
---------	----------

COG Y field variation	
-----------------------	--

minimum	: 0.0000
---------	----------

maximum	: 1.0000
---------	----------

Balance type	: None
--------------	--------

Average Balance	
-----------------	--

minimum	: 0.000e+00 [%]
---------	-----------------

maximum	: 100.000 [%]
---------	---------------

Balance Range	
---------------	--

minimum	: 0.000e+00 [%]
---------	-----------------

maximum	: 100.000 [%]
---------	---------------

Balance Minimum	
-----------------	--

minimum	: 0.000e+00 [%]
---------	-----------------

```

maximum                                     : 100.000    [%]
Balance Maximum
minimum                                     : 0.000e+00 [%]
maximum                                     : 100.000    [%]

```

Avg Pole Width

	minimum	maximum
	[deg]	[deg]
0	0.0	180.0
1	0.0	180.0
2	0.0	180.0
3	0.0	180.0

Avg Pole Width variation

	minimum	maximum
	[deg]	[deg]
0	0.0	180.0
1	0.0	180.0
2	0.0	180.0
3	0.0	180.0

Measurement Result values

```

Picture file                               :
Pupil data to analyse
Test_identifier                           : LUPI
Time of measurement                       : Mon, 04 Jan 2016 13:29:49 098907us +0800
mach_info
Machine number                           : 6xxx
Machine type                             : 1250D
Machine architecture                     : XT Machine Architecture
Machine specification                     : pep-D Specification
Lightsource type                         : Cymer Laser: XLA 165
Illuminator type                         : 120
Software release                         : 4.1.0.c
Lens number                             : 0122xxxx

```

DOE data

	DOE ID	Illumination mode	DOE Table name	DOE File version
0	2	Quasar	cQuad20	2.0.1
1	15	Conventional	conventional	2.0.1
2	14	Quasar	cQuad 60	2.0.1
3	18	Quasar	Dipole40 Y	2.0.1
4	15	Annular	annular	2.0.1
5	0	Conventional		
6	0	Conventional		
7	0	Conventional		
8	0	Conventional		
9	0	Conventional		
10	0	Conventional		
11	0	Conventional		
12	0	Conventional		
13	0	Conventional		
14	0	Conventional		
15	0	Conventional		
16	0	Conventional		

mach_settings

```

Pupil shape
Illumination mode                       : Annular
NA                                       : 0.850
DOE ID                                  : 15
Sigma
inner                                   : 0.690
outer                                   : 0.930

```

```

DOE Table name           : annular
DOE File version         : 2.0.1
Actual beam position and pointing
  Beam Mode              : Automatic
  Beam Positioning
    Position x           : -2.741 [mm]
    Position y           : -0.171 [mm]
    Pointing x           : 0.472 [mRad]
    Pointing y           : 0.000 [mRad]
  Beam Window
    Beam position control window : 300 [um]
    Beam pointing control window : 50 [uRad]
  VAT Compensation       : No
  Uniformity Improvement Package mode : UIP mode on
Actual Pupicom setting
  Mode                   : Automatic
  Angle                  : 0.8 [deg]
Actual Unicom setting
  Mode                   : Automatic
  Position               : 47.145 [mm]
Reticle information
  Reticle ID             : 45563154P009
  Reticle chrome y-offset (WS coordinates) : 0.901 [mm]
  Chrome offset direction : Positive direction
  Number of pinholes     : 5
ILIAS sensor type on chuck1 : None
ILIAS sensor type on chuck 2 : Multiple scan grid
Sensor used for measurement : ILIAS on chuck 2
mode                     : Static
Values all pinholes

```

Average Pupil Values

	Minimum	Maximum	Range	Average
Sigma Inner [10%]	0.6689	0.6756	0.0067	0.6727
Sigma Outer [90%]	0.9375	0.9403	0.0028	0.9393
Ellipticity [%]	-1.598	1.385	2.983	-0.252
Ellipticity (45 Deg) [%]	-0.801	0.464	1.266	-0.144
Quadrant balance [%]	0.250	2.928	2.679	1.417
cQuadrant balance [%]	0.949	2.961	2.012	1.733
Balance X [%]	0.219	2.528	2.309	1.201
Balance Y [%]	0.031	0.289	0.258	0.120

Average Pole Information

```

Pole 1
Pole 2
Pole 3
Pole 4
Pole 5
Pole 6
Pole 7
Pole 8

```

Pole group info

```

Group 1
Group 2
Group 3
Inter Group
Max. value

```

Values per pinhole

	Pinhole position (Waferstage coordinates)			Pupil values
	Position X [mm]	Position Y [mm]	Slit y-offset [mm]	Sigma inner [10%]
0	-12.72	-11.00	0.00	0.6691
1	-6.36	-11.00	0.00	0.6756
2	0.00	-11.00	0.00	0.6756
3	6.36	-11.00	0.00	0.6746
4	12.72	-11.00	0.00	0.6689
5	0.00	0.00	0.00	0.0000

6	0.00	0.00	0.00	0.0000
7	0.00	0.00	0.00	0.0000
8	0.00	0.00	0.00	0.0000
9	0.00	0.00	0.00	0.0000
10	0.00	0.00	0.00	0.0000
11	0.00	0.00	0.00	0.0000
12	0.00	0.00	0.00	0.0000
13	0.00	0.00	0.00	0.0000
14	0.00	0.00	0.00	0.0000
15	0.00	0.00	0.00	0.0000
16	0.00	0.00	0.00	0.0000
17	0.00	0.00	0.00	0.0000
18	0.00	0.00	0.00	0.0000
19	0.00	0.00	0.00	0.0000

Pupil values				
	Sigma outer [90%]	Ellipticity [%]	Ellipticity (45 Deg) [%]	Quadrant balance [%]
0	0.9393	1.4	-0.8	2.9
1	0.9399	-0.7	-0.3	0.6
2	0.9403	-1.6	-0.1	0.7
3	0.9394	-1.5	-0.0	0.2
4	0.9375	1.1	0.5	2.6
5	0.0000	0.0	0.0	0.0
6	0.0000	0.0	0.0	0.0
7	0.0000	0.0	0.0	0.0
8	0.0000	0.0	0.0	0.0
9	0.0000	0.0	0.0	0.0
10	0.0000	0.0	0.0	0.0
11	0.0000	0.0	0.0	0.0
12	0.0000	0.0	0.0	0.0
13	0.0000	0.0	0.0	0.0
14	0.0000	0.0	0.0	0.0
15	0.0000	0.0	0.0	0.0
16	0.0000	0.0	0.0	0.0
17	0.0000	0.0	0.0	0.0
18	0.0000	0.0	0.0	0.0
19	0.0000	0.0	0.0	0.0

Pupil values					COG	
	cQuadrant balance [%]	Balance X [%]	Balance Y [%]	Nr. of poles	cog X [-]	cog Y [-]
0	3.0	2.5	0.1	0	-0.0295	0.0062
1	1.0	0.5	0.1	0	-0.0017	0.0023
2	1.0	0.4	0.3	0	0.0014	0.0037
3	0.9	0.2	0.0	0	0.0036	0.0031
4	2.7	2.3	0.1	0	0.0230	0.0067
5	0.0	0.0	0.0	0	0.0000	0.0000
6	0.0	0.0	0.0	0	0.0000	0.0000
7	0.0	0.0	0.0	0	0.0000	0.0000
8	0.0	0.0	0.0	0	0.0000	0.0000
9	0.0	0.0	0.0	0	0.0000	0.0000
10	0.0	0.0	0.0	0	0.0000	0.0000
11	0.0	0.0	0.0	0	0.0000	0.0000
12	0.0	0.0	0.0	0	0.0000	0.0000
13	0.0	0.0	0.0	0	0.0000	0.0000
14	0.0	0.0	0.0	0	0.0000	0.0000
15	0.0	0.0	0.0	0	0.0000	0.0000
16	0.0	0.0	0.0	0	0.0000	0.0000
17	0.0	0.0	0.0	0	0.0000	0.0000
18	0.0	0.0	0.0	0	0.0000	0.0000
19	0.0	0.0	0.0	0	0.0000	0.0000

Nr pulses	Dose [mJ]

0	68	29584.74
1	69	29836.71
2	66	28325.13
3	65	28088.92
4	65	28332.11
5	0	0.00
6	0	0.00
7	0	0.00
8	0	0.00
9	0	0.00
10	0	0.00
11	0	0.00
12	0	0.00
13	0	0.00
14	0	0.00
15	0	0.00
16	0	0.00
17	0	0.00
18	0	0.00
19	0	0.00

Pole pos. and orientation per pinhole

pole_orient_matrix

	Pole 1	Pole 2	Pole 3	Pole 4	Pole 5	Pole 6	Pole 7	Pole 8
0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
12	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
13	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
14	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
15	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
16	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
17	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
18	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
19	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
20	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
21	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
22	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
23	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
24	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
25	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
26	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

pole_width_matrix

	Pole 1	Pole 2	Pole 3	Pole 4	Pole 5	Pole 6	Pole 7	Pole 8
0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
12	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
13	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

14	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
15	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
16	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
17	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
18	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
19	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
20	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
21	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
22	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
23	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
24	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
25	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
26	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Verification Results

	Minimum	Maximum	Measured	In Limits
Sigma Inner	0.000	1.000	0.673	Ok
Sigma Outer	0.000	1.000	0.939	Ok
Sigma Variation	0.000	0.012	0.007	Ok
Range Sigma Inner	0.000	1.000	0.007	Ok
Range Sigma Outer	0.000	1.000	0.003	Ok
Average Ellipticity [%]	-3.000	3.000	-0.252	Ok

sigma correction

pupil_shape

Illumination mode : Conventional

NA : 0.000

DOE ID : 0

Sigma

inner : 0.000

outer : 0.000

offset

inner : 0.000

outer : 0.000

Operator:ASML Machine:6xxx Release:4.1.0 Date:13/01/2016 Time:17:46

Report Filename : LUSL.99

Report Path : TM/Projection/StrayLightMonitoring/LUSL.log/

Machine Type : 1250D

File name of logfile(s) : service_data/LU/LUSL/LUSL.0352.log

Testname : Uniformity Stray Light Measurement
Start Time : Wed, 13 Jan 2016 17:45:44 039008us +0800
Stop Time : Wed, 13 Jan 2016 17:46:49 102252us +0800
Execution Time : 00:01:05
Test Run Result : Finished
Test Status : Test is Finished
Results Validation : In Limits
Measurement Quality : OK
Comment : Scheduled execution (m-action)

Step	Start Time	Stop Time	Status	Execution Time
Initialize drivers	17:45:44	17:45:46	Finished	00:00:02
Prepare machine	17:45:46	17:46:12	Finished	00:00:25
Perform measurements	17:46:12	17:46:48	Finished	00:00:36
Calculate results	17:46:48	17:46:49	Finished	00:00:00

Scenario Inputs

Selected Scenario : Monitoring
Verification Set : Single Verification
Override Inputs : No
Manual Scenario Selected : No

Input parameters

```

pupil_shape
  Illumination mode      : Annular
  NA                     : 0.850
  DOE ID                 : 15
  Sigma
    inner                : 0.690
    outer                : 0.930
  Image Field Size X     : 26.00 [mm]
  Image Field Size Y     : 26.00 [mm]
  Steps in X             : 11
  Steps in Y             : 1
  No. of Pulses          : 200
  Pulse Frequency        : 4000
  Attenuator Transmission : 100 [%]
  spot_sensor            : Non-Leading
  Reticle used           : No
  REMA settings
    Rema use             : Spot
    disable_BBS          : No
  Unicom
    Mode                 : Automatic
    Position              : 47.153 [mm]
  Use Nominal Pulse Frequency : Yes

```

Verification data

```

verification_type : Single Verification

```

Results

```

Machine information
  Machine Type      : 1250D
  Lens number       : 0122xxxx
  UNICOM position   : 47.15 [mm]
  Stray light results
    Maximum
      Stray Light Value : 0.530 [%]
      X position        : 2.588 [mm]
      Y position        : 0.000 [mm]
    At (0,0)
      Stray Light Value : 0.516 [%]
      X position        : -0.000 [mm]
      Y position        : 0.000 [mm]
    Max. Centre-to-edge
      Stray Light Value : 0.252 [%]
      X position        : -12.939 [mm]
      Y position        : 0.000 [mm]
    Slit Average
      Stray Light Value : 0.445 [%]
      Y position        : 0.000 [mm]
  Result with UNICOM at centre position
    UNICOM centre position : 35.1 [mm]
    Stray Light at (0,0)
      Stray Light Value : 0.571 [%]
      X position        : 0.000 [mm]
      Y position        : 0.000 [mm]

```

Stray light results per point on the line y=0

	Stray Light Value	X position	Y position
	[%]	[mm]	[mm]
0	0.264	-12.939	0.000
1	0.434	-10.351	0.000
2	0.455	-7.763	0.000
3	0.484	-5.175	0.000
4	0.506	-2.588	0.000
5	0.516	-0.000	0.000
6	0.530	2.588	0.000

7	0.514	5.175	0.000
8	0.465	7.763	0.000
9	0.430	10.351	0.000
10	0.293	12.939	0.000
11	0.000	0.000	0.000
12	0.000	0.000	0.000
13	0.000	0.000	0.000
14	0.000	0.000	0.000
15	0.000	0.000	0.000
16	0.000	0.000	0.000
17	0.000	0.000	0.000
18	0.000	0.000	0.000
19	0.000	0.000	0.000
20	0.000	0.000	0.000
21	0.000	0.000	0.000
22	0.000	0.000	0.000
23	0.000	0.000	0.000
24	0.000	0.000	0.000
25	0.000	0.000	0.000
26	0.000	0.000	0.000
27	0.000	0.000	0.000
28	0.000	0.000	0.000
29	0.000	0.000	0.000
30	0.000	0.000	0.000
31	0.000	0.000	0.000
32	0.000	0.000	0.000
33	0.000	0.000	0.000
34	0.000	0.000	0.000
35	0.000	0.000	0.000
36	0.000	0.000	0.000
37	0.000	0.000	0.000
38	0.000	0.000	0.000
39	0.000	0.000	0.000
40	0.000	0.000	0.000
41	0.000	0.000	0.000
42	0.000	0.000	0.000
43	0.000	0.000	0.000
44	0.000	0.000	0.000
45	0.000	0.000	0.000
46	0.000	0.000	0.000
47	0.000	0.000	0.000
48	0.000	0.000	0.000
49	0.000	0.000	0.000
50	0.000	0.000	0.000

Operator:ASML
Release:4.1.0
Time:20:12

Machine:6xxx
Date:12/01/2016

Report Filename : LUSU.65
Report Path : TM/Illumination/Performance/LUSU.log/
Machine Type : 1250D

File name of logfile(s) : service_data/LU/LUSU/LUSU.1637.log

Testname : Slit Uniformity
Start Time : Tue, 12 Jan 2016 20:10:33 598505us +0800
Stop Time : Tue, 12 Jan 2016 20:12:51 657772us +0800
Execution Time : 00:02:18
Test Run Result : OK
Test Status : Test is Finished
Results Validation : In Limits
Measurement Quality : OK
Comment :

Step	Start Time	Stop Time	Status	Execution Time
Initialize Drivers	20:10:33	20:10:33	Finished	00:00:00
Prepare Machine	20:10:33	20:10:53	Finished	00:00:19
Perform Measurement	20:10:53	20:12:47	Finished	00:01:54

Generate Results	20:12:47	20:12:50	Finished	00:00:03
------------------	----------	----------	----------	----------

Scenario Inputs

Selected Scenario : m-action
Verification Set : Single Verification
Overrule Inputs : No
Manual Scenario Selected : No

Measurement mode : Stepping
Slit Uniformity X Size : 26.000 [mm]
Slit Uniformity Y Size : 11.000 [mm]
Field Uniformity X Size : 26.000 [mm]
Field Uniformity Y Size : 7.000 [mm]
Field Shift X : 0.000 [mm]
Field Shift Y : 0.000 [mm]
Steps in X Direction : 11
Steps in Y Direction : 51
Number of pulses : 100
Number of pre-expose pulses : 0
Attenuator transmission laser : 1.00
Pulse frequency : 4000
Use the nominal pulse frequency as pulse frequency : Yes
Pupil shape
Illumination mode : Annular
NA : 0.850
DOE ID : 15
Sigma
inner : 0.690
outer : 0.930
Polarization mode : Unpolarized
Spot sensor : Leading
REMA window
REMA window X centre : 0.00000 [m]
REMA window Y centre : 0.00000 [m]
REMA window X size : 0.00000 [m]
REMA window Y size : 0.00000 [m]
REMA set_ps
Rema use : Spot
disable_BBS : No
Unicom
Mode : Automatic
Position : 47.152 [mm]
Pupicom
Mode : Automatic
Angle : 0.8 [deg]
Beam
Beam Mode : Automatic
Beam Positioning
Position x : -3.000 [mm]
Position y : 0.000 [mm]
Pointing x : 0.450 [mRad]
Pointing y : 0.000 [mRad]
Beam Window
Beam position control window : 300 [um]
Beam pointing control window : 50 [uRad]
UIP on : Yes

type : Single Verification

slit_uniformity_limits
minimum : 0.00 [%]
maximum : 20.00 [%]

average spot sensor light intensity limits
minimum : 0.00 [mW/cm^2]
maximum : 10000.00 [mW/cm^2]

av_ss_light_int_l_bp_limits
minimum : 0.00 [mW/cm^2]
maximum : 10000.00 [mW/cm^2]

av_point_ratio_limits			
minimum	:	0.00	[%]
maximum	:	10.00	[%]
tilt_x_limits			
minimum	:	-20.00	[%]
maximum	:	20.00	[%]
tilt_y_limits			
minimum	:	-20.00	[%]
maximum	:	20.00	[%]
field_uniformity_limits			
minimum	:	0.00	[%]
maximum	:	20.00	[%]
slit_uni_tilt_x_limits			
minimum	:	0.00	[%]
maximum	:	20.00	[%]
slit_uni_sym_limits			
minimum	:	0.00	[%]
maximum	:	20.00	[%]
slit_uni_tilt_x_sym_limits			
minimum	:	0.00	[%]
maximum	:	20.00	[%]
symmetrical_error_limits			
minimum	:	-20.00	[%]
maximum	:	20.00	[%]
unicom_position_limits			
minimum	:	0.0	[mm]
maximum	:	100.0	[mm]
pupicom_position_limits			
minimum	:	-60.0	[deg]
maximum	:	60.0	[deg]
beam_pos_x_limits			
minimum	:	-10.000	[mm]
maximum	:	10.000	[mm]
beam_pos_y_limits			
minimum	:	-10.000	[mm]
maximum	:	10.000	[mm]
beam_poi_x_limits			
minimum	:	-5.000	[mrad]
maximum	:	5.000	[mrad]
beam_poi_y_limits			
minimum	:	-5.000	[mrad]
maximum	:	5.000	[mrad]
Main Results			
Slit Uniformity	:	0.93	[%]
Tilt X	:	-0.12	[%]
Symmetrical Error	:	0.69	[%]
UNICOM correctable	:	0.42	[%]
Selected Chuck	:	Spot sensor WS chuck 1	
Corrected Slit Uniformities			
Slit Uniformity if corrected for Tilt X	:	0.90	[%]
Slit Uniformity if corrected for Symmetrical Error	:	0.35	[%]
Slit Uniformity if corrected for Tilt X and Symmetrical Error	:	0.36	[%]
Slit Uniformity if corrected for UNICOM	:	0.51	[%]
Slit Uniformity if corrected for UNICOM and Tilt X	:	0.56	[%]
Light Source Properties			
Number of Laser Pulses emitted since installation [*10^6]	:	31030	
Illumination Properties			
DOE data file name	:	annular	
DOE data file version	:	2.0.1	
Beam Position and Pointing			

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Beam position X          :   -2.68      [mm]
Beam position Y          :    0.08      [mm]
Beam pointing X          :    0.446     [mrad]
Beam pointing Y          :    0.012     [mrad]
Beam data valid          :   Yes
Beam drift during measurement
  Beam position X        :   -0.74      [mm]
  Beam position Y        :   -0.08      [mm]
  Beam pointing X        :   -0.001     [mrad]
  Beam pointing Y        :   -0.013     [mrad]
Beam drift during measurement valid :   Yes
Field Uniformity Results
  Field Uniformity       :    2.46      [%]
  Tilt Y                 :   -1.02      [%]
Field Value Statistics
  Average Spot Sensor Light Intensity : 1826.93 [mW/cm2]
  Standard Deviation of the Spot Sensor Light Intensity : 25.17 [mW/cm2]
  Average Energy Sensor Light Intensity : 1790.55 [mW/cm2]
  Standard Deviation of the Energy Sensor Light Intensity : 13.58 [mW/cm2]
  Average Point Ratio : 1.0203
  Standard Deviation of the Point Ratio : 0.0115
Corrected Intensities
  Average Spot Sensor Light Intensity Corrected to 1 external BP : 2003.15 [mW/cm2]
  Intensity constants
    ATP Intensity Specification : 2000 [mW/cm2]
    Number of Bending Points : 3
Greyfilter Coefficients
  Comment : Calculated
  a0 : -0.000000e+00
  a2 : -7.71078e-02 [1/mm2]
  a4 : 1.93402e-03 [1/mm4]
  a6 : -1.81279e-05 [1/mm6]
  a8 : 5.27786e-08 [1/mm8]

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Slit Profile

	X	Average Ratio	Ratio per run (0..4)	(5..14)	(15..24)
	[mm]	[%]	[%]	[%]	[%]
0	-12.94	80.350			
1	-10.35	79.461			
2	-7.77	79.189			
3	-5.18	79.439			
4	-2.59	79.269			
5	0.00	79.166			
6	2.59	78.864			
7	5.18	78.915			
8	7.77	79.151			
9	10.35	79.952			
10	12.94	80.066			

Verification Results

	limits		In Limits	Measured
	minimum	maximum		
Slit uniformity [%]	0.00	20.00	OK	0.93
Avg SS light intensity [mW/cm^2]	0.00	10000.00	OK	1826.93
Avg SS light intensity corr 1BP [mW/cm^2]	0.00	10000.00	OK	2003.15
Average point ratio [%]	0.00	10.00	OK	1.02
Tilt X [%]	-20.00	20.00	OK	-0.12
Tilt Y [%]	-20.00	20.00	OK	-1.02
Field uniformity [%]	0.00	20.00	OK	2.46
Slit uniformity tilt X [%]	0.00	20.00	OK	0.90
Slit uniformity symmetrical [%]	0.00	20.00	OK	0.35
Slit uniformity tilt X & symmetrical [%]	0.00	20.00	OK	0.36
Symmetrical error [%]	-20.00	20.00	OK	0.69
Unicom position [mm]	0.0	100.0	OK	47.2
Pupicom position [deg]	-60.0	60.0	OK	0.0
Beam position X [mm]	-10.000	10.000	OK	-2.685
Beam position Y [mm]	-10.000	10.000	OK	0.084

Beam pointing X [mrad]	-5.000	5.000	OK	0.446
Beam pointing Y [mrad]	-5.000	5.000	OK	0.012