

Scaled data based on original data using

LM-41-14 Approved Method for Photometric Testing Of Indoor Fluorescent Luminaires

Test Report Prepared for

Cooper Lighting Solutions

(formerly Eaton)

Brand: io LED

Report Number: P209052

Luminaire Tested: **LDSQA6A65827D010TE LARH30NF 6LSQA1H 30°**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P209052
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (P26687)
Test Lab: INNOVATION CENTER-P2
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: io LED
Catalog Number: LDSQA6A65827D010TE LARH30NF 6LSQA1H 30°
Description: PORTFOLIO 6" SQUARE ADJUSTABLE REFLECTOR, ANGLE-CUT TRIM,
SELF-FLANGED, 30° NARROW FLOOD, 30° Tilt
Light Source: (1) HIGH LUMEN LED 80CRI / 2700K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 5667.5 lumens
Efficiency: N/A
Efficacy: 72.0 lumens/watt
Spacing Criteria (0/90/45): 2.58 / 0.47 / 1.37
Luminous Opening: Rectangular (W 0.5' x L: 0.5' x H: 0')
CIE Type: Direct

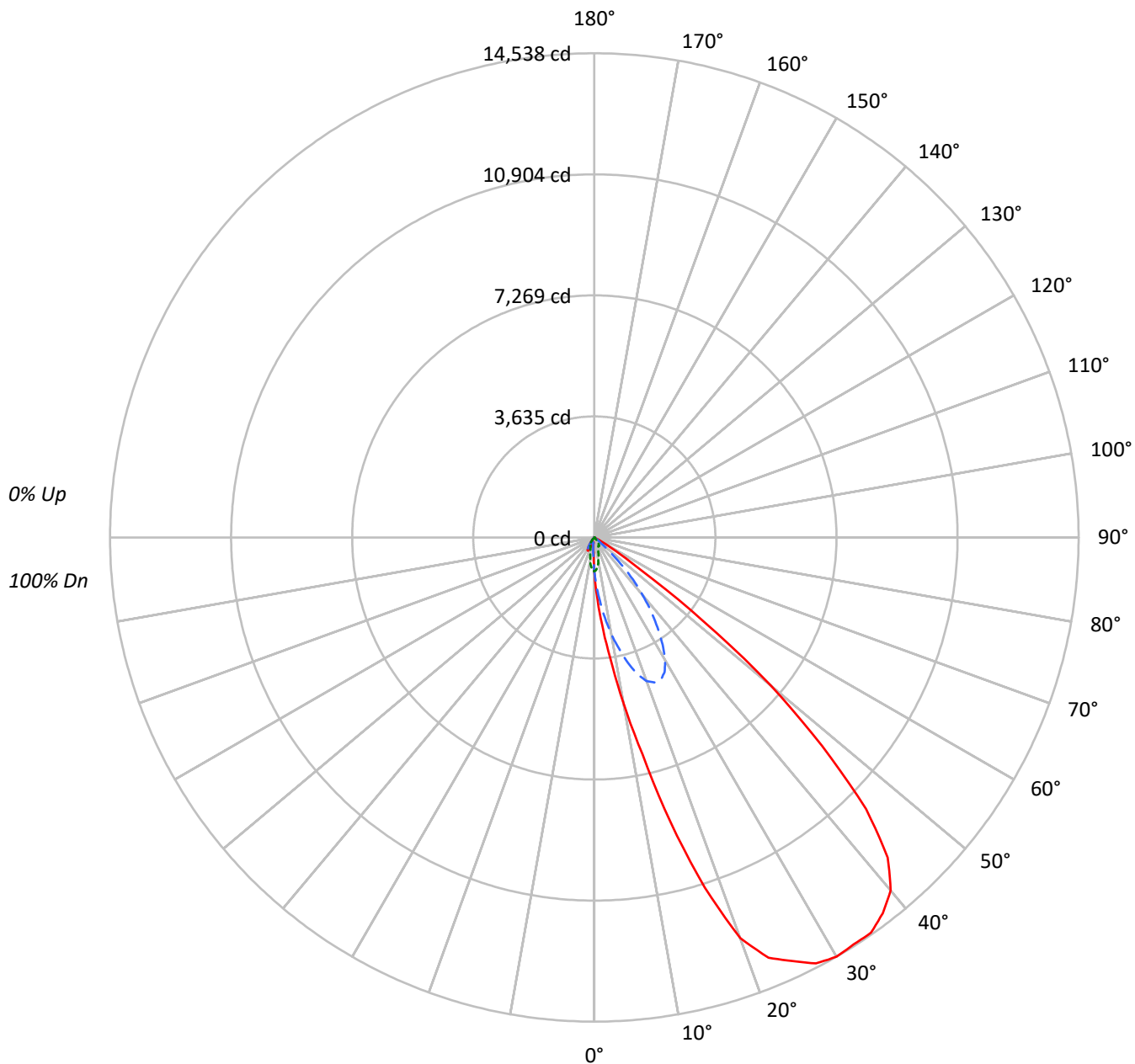
Input Watts (W): 78.67
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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Luminous Intensity Polar Plot





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COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:

RF	20				20				20				20				20							
RC	80				70				50				30				10				0			
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	50	30	10	0			
RCR																								
0	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102	100						
1	112	109	106	103	110	107	104	102	103	100	98	99	97	95	95	94	93	91						
2	105	99	94	90	103	97	93	89	94	90	87	91	88	85	88	85	83	81						
3	98	90	84	79	96	89	83	78	86	81	77	83	79	76	81	77	74	73						
4	91	82	75	70	89	81	74	69	78	73	68	76	71	67	74	70	67	65						
5	85	74	67	62	83	73	67	61	71	65	61	70	64	60	68	63	60	58						
6	79	68	60	55	77	67	60	55	65	59	54	64	58	54	62	57	54	52						
7	74	62	55	49	72	61	54	49	60	53	49	59	53	49	57	52	48	46						
8	69	57	49	44	67	56	49	44	55	49	44	54	48	44	53	47	43	42						
9	64	52	45	40	63	52	45	40	51	44	40	50	44	40	49	43	39	38						
10	60	48	41	36	59	48	41	36	47	40	36	46	40	36	45	40	36	34						

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	44016	44016	44016
5°	112908	40043	12473
10°	220095	30774	5994
15°	395095	20901	8037
20°	586592	15867	13269
25°	666751	13074	20808
30°	722767	14293	19573
35°	761308	9261	12131
40°	777773	4114	5907
45°	702481	1571	2198
50°	462422	623	623
55°	126635	540	0
60°	25291	620	0
65°	1783	835	0
70°	264	1032	0
75°	0	1547	0
80°	0	2306	248
85°	0	4594	494



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	125.2	2.2
10°-20°	665.3	11.7
20°-30°	1507.9	26.6
30°-40°	1810.0	31.9
40°-50°	1275.6	22.5
50°-60°	263.2	4.6
60°-70°	9.3	0.2
70°-80°	5.6	0.1
80°-90°	5.4	0.1
90°-100°	0.0	0.0
100°-110°	0.0	0.0
110°-120°	0.0	0.0
120°-130°	0.0	0.0
130°-140°	0.0	0.0
140°-150°	0.0	0.0
150°-160°	0.0	0.0
160°-170°	0.0	0.0
170°-180°	0.0	0.0
0°-30°	2298.4	40.6
0°-40°	4108.4	72.5
0°-60°	5647.2	99.6
0°-90°	5667.5	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	5667.5	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	1022	1022	1022	1022	1022	
5°	2612	1903	926	385	289	321
15°	8864	3900	469	167	180	2630
25°	14035	4717	275	385	438	6477
35°	14484	3303	176	231	231	9004
45°	11537	1133	26	35	36	8485
55°	1687	23	7	5	0	2223
65°	18	5	8	5	0	52
75°	0	5	9	6	0	0
85°	0	6	9	6	1	0
90°	0	0	0	0	0	



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CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	22.5°	25°	30°	35°	40°	45°
0°	1022.3	1022.3	1022.3	1022.3	1022.3	1022.3	1022.3	1022.3	1022.3	1022.3	1022.3
2.5°	1742.6	1690.1	1710.7	1649.9	1636.5	1625.2	1636.5	1570.5	1533.4	1486.0	1447.9
5°	2612.4	2549.6	2564.0	2457.8	2409.4	2376.4	2370.2	2234.2	2132.2	2019.9	1903.4
7.5°	3636.8	3577.0	3568.8	3403.9	3303.9	3247.2	3223.5	3028.8	2852.5	2652.6	2434.1
10°	5034.2	4898.2	4855.9	4616.8	4426.2	4305.6	4157.2	3846.0	3536.8	3234.9	2956.6
12.5°	6660.4	6586.2	6481.1	6059.6	5725.7	5554.6	5333.0	4846.6	4378.8	3880.0	3414.2
15°	8863.7	8599.9	8420.5	7811.5	7273.5	7009.7	6686.1	5942.1	5235.1	4603.4	3899.6
17.5°	11016.5	10878.4	10598.1	9807.6	8979.1	8562.8	8080.5	7069.5	6070.9	5172.3	4312.8
20°	12802.4	12672.5	12353.1	11608.0	10688.8	10074.6	9467.6	8080.5	6775.8	5625.7	4589.0
22.5°	13657.7	13575.3	13314.6	12676.7	11893.5	11309.1	10656.8	8941.0	7297.2	5922.5	4714.7
25°	14034.9	13996.8	13828.8	13325.9	12588.0	12092.3	11476.1	9550.0	7621.9	6060.6	4716.8
27.5°	14417.2	14424.5	14053.5	13655.7	12955.9	12479.8	11886.2	9820.0	7680.6	5983.3	4562.2
30°	14537.8	14461.6	14297.7	13726.8	13062.1	12556.1	11919.2	9695.3	7439.5	5665.9	4254.1
32.5°	14488.4	14458.5	14278.1	13674.2	12881.7	12324.2	11600.8	9200.7	6963.4	5212.5	3817.1
35°	14484.2	14428.6	14015.3	13497.0	12521.1	11832.7	10879.4	8401.0	6289.4	4614.8	3302.9
37.5°	14222.5	14084.4	13774.2	13075.5	11789.4	10916.5	9847.8	7424.0	5464.9	3943.9	2792.8
40°	13838.1	13652.6	13244.5	12187.2	10521.8	9516.0	8473.1	6314.1	4592.1	3282.3	2250.7
42.5°	13035.3	12755.0	12177.9	10723.8	8832.8	7925.9	7058.2	5189.8	3745.0	2674.2	1717.9
45°	11536.9	11153.5	10373.4	8777.1	7135.5	6395.5	5697.9	4175.7	2997.8	1983.8	1132.6
47.5°	9272.8	8917.3	8207.2	6987.1	5595.8	4970.3	4413.8	3106.0	2032.2	1149.1	541.0
50°	6903.6	6598.5	6044.1	4855.9	3756.3	3264.7	2788.6	1764.3	952.2	546.2	224.7
52.5°	4119.1	3967.6	3476.0	2692.8	1855.0	1598.4	1283.0	747.1	480.2	197.9	60.8
55°	1687.0	1557.1	1372.7	1101.6	806.9	684.3	585.3	368.9	149.4	41.2	22.7
57.5°	762.6	733.7	650.3	511.1	371.0	311.2	210.2	70.1	33.0	20.6	13.4
60°	293.7	264.8	226.7	122.6	52.6	44.3	36.1	23.7	16.5	11.3	8.2
62.5°	42.3	40.2	36.1	28.9	22.7	20.6	17.5	12.4	9.3	7.2	6.2
65°	17.5	17.5	15.5	12.4	10.3	9.3	8.2	6.2	5.2	5.2	5.2
67.5°	7.2	7.2	6.2	5.2	4.1	4.1	4.1	3.1	4.1	4.1	5.2
70°	2.1	2.1	2.1	2.1	2.1	2.1	3.1	3.1	4.1	4.1	5.2
72.5°	0.0	0.0	1.0	1.0	2.1	2.1	2.1	3.1	4.1	5.2	5.2
75°	0.0	0.0	1.0	1.0	2.1	2.1	2.1	3.1	4.1	5.2	5.2
77.5°	0.0	0.0	1.0	1.0	2.1	2.1	3.1	3.1	4.1	5.2	5.2
80°	0.0	0.0	1.0	1.0	2.1	2.1	3.1	3.1	4.1	5.2	6.2
82.5°	0.0	0.0	1.0	1.0	2.1	2.1	3.1	3.1	4.1	5.2	6.2
85°	0.0	0.0	1.0	1.0	2.1	2.1	3.1	3.1	4.1	5.2	6.2
87.5°	0.0	0.0	1.0	1.0	2.1	2.1	3.1	3.1	4.1	5.2	6.2
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0



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CANDELA DISTRIBUTION (continued):

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°	95°
0°	1022.3	1022.3	1022.3	1022.3	1022.3	1022.3	1022.3	1022.3	1022.3	1022.3	1022.3
2.5°	1414.9	1349.0	1330.4	1272.7	1224.3	1200.6	1170.7	1103.7	1053.2	986.2	946.0
5°	1822.0	1697.3	1598.4	1477.8	1398.4	1346.9	1266.5	1143.9	1045.0	926.5	842.0
7.5°	2262.0	2034.3	1856.0	1657.1	1542.7	1453.1	1316.0	1139.8	994.5	836.8	705.9
10°	2686.6	2346.5	2066.2	1780.8	1630.3	1505.6	1317.0	1095.5	902.8	703.9	565.8
12.5°	3060.7	2621.7	2227.0	1860.1	1673.6	1518.0	1282.0	1016.1	783.2	579.2	457.6
15°	3373.0	2835.0	2340.4	1890.0	1676.7	1491.2	1208.8	902.8	650.3	468.9	383.4
17.5°	3610.0	2947.3	2375.4	1853.9	1616.9	1414.9	1096.5	759.5	527.6	397.8	322.6
20°	3732.6	2969.0	2324.9	1756.0	1506.6	1299.5	949.1	616.3	447.3	346.3	270.0
22.5°	3748.1	2908.2	2204.3	1615.9	1367.5	1159.4	786.3	514.2	398.8	306.1	238.1
25°	3656.4	2776.3	2032.2	1457.2	1215.0	998.6	640.0	460.7	362.7	275.2	274.1
27.5°	3460.6	2549.6	1826.1	1272.7	1030.5	812.1	543.1	416.3	323.6	291.6	310.2
30°	3184.4	2258.9	1572.6	1039.8	804.9	624.5	457.6	343.2	284.4	287.5	303.0
32.5°	2810.3	1898.3	1274.8	761.6	576.1	469.9	343.2	233.9	236.0	237.0	250.4
35°	2340.4	1522.1	952.2	512.2	405.0	330.8	193.7	172.1	175.2	176.2	185.5
37.5°	1875.6	1169.7	632.8	341.1	254.5	174.2	120.6	115.4	117.5	116.5	126.8
40°	1436.6	815.2	379.2	169.0	97.9	81.4	74.2	71.1	72.1	73.2	79.4
42.5°	1017.1	442.1	187.6	63.9	51.5	47.4	44.3	42.3	43.3	43.3	47.4
45°	516.3	209.2	63.9	35.0	31.9	28.9	26.8	25.8	25.8	25.8	27.8
47.5°	223.6	69.0	29.9	21.6	19.6	18.5	16.5	15.5	15.5	15.5	16.5
50°	70.1	27.8	18.5	14.4	12.4	11.3	10.3	10.3	10.3	9.3	10.3
52.5°	25.8	17.5	12.4	9.3	8.2	8.2	8.2	7.2	8.2	7.2	8.2
55°	15.5	11.3	8.2	7.2	7.2	7.2	7.2	7.2	7.2	7.2	7.2
57.5°	10.3	8.2	7.2	7.2	6.2	6.2	7.2	7.2	7.2	7.2	7.2
60°	7.2	7.2	6.2	6.2	6.2	6.2	7.2	7.2	7.2	7.2	7.2
62.5°	6.2	6.2	6.2	6.2	6.2	6.2	7.2	7.2	7.2	7.2	8.2
65°	5.2	6.2	6.2	6.2	6.2	6.2	7.2	7.2	8.2	8.2	8.2
67.5°	5.2	6.2	6.2	7.2	7.2	7.2	7.2	8.2	8.2	8.2	8.2
70°	6.2	6.2	7.2	7.2	7.2	7.2	8.2	8.2	8.2	8.2	9.3
72.5°	6.2	6.2	7.2	7.2	7.2	7.2	8.2	8.2	9.3	9.3	9.3
75°	6.2	7.2	7.2	7.2	7.2	8.2	8.2	8.2	9.3	9.3	9.3
77.5°	6.2	7.2	7.2	8.2	8.2	8.2	8.2	9.3	9.3	9.3	9.3
80°	6.2	7.2	7.2	8.2	8.2	8.2	9.3	9.3	9.3	9.3	10.3
82.5°	6.2	7.2	7.2	8.2	8.2	8.2	9.3	9.3	9.3	9.3	10.3
85°	7.2	7.2	8.2	8.2	8.2	8.2	9.3	9.3	9.3	9.3	10.3
87.5°	7.2	7.2	8.2	8.2	8.2	8.2	9.3	9.3	10.3	9.3	10.3
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0



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CANDELA DISTRIBUTION (continued):

	100°	105°	110°	112.5°	115°	120°	125°	130°	135°	140°	145°
0°	1022.3	1022.3	1022.3	1022.3	1022.3	1022.3	1022.3	1022.3	1022.3	1022.3	1022.3
2.5°	892.4	832.7	791.5	776.0	746.1	698.7	670.9	645.1	596.7	586.4	559.6
5°	745.1	649.2	581.2	555.5	521.5	481.3	442.1	416.3	385.4	373.1	354.5
7.5°	587.4	491.6	432.8	412.2	388.5	355.5	320.5	294.7	262.8	246.3	230.8
10°	461.7	390.6	341.1	320.5	295.8	260.7	224.7	190.6	162.8	145.3	142.2
12.5°	375.1	316.4	263.8	242.2	213.3	178.3	152.5	151.5	149.4	148.4	150.5
15°	307.1	250.4	194.8	171.1	162.8	161.8	164.9	168.0	166.9	170.0	172.1
17.5°	252.5	191.7	179.3	180.3	181.4	184.5	189.6	197.9	198.9	204.0	208.2
20°	206.1	203.0	208.2	212.3	215.4	221.6	232.9	243.2	246.3	253.5	261.8
22.5°	233.9	243.2	254.5	259.7	263.8	275.2	287.5	304.0	310.2	319.5	330.8
25°	282.4	297.8	315.3	321.5	327.7	346.3	360.7	380.3	385.4	396.8	408.1
27.5°	322.6	339.0	357.6	365.8	371.0	389.5	401.9	414.3	414.3	420.5	428.7
30°	316.4	329.8	345.2	351.4	353.5	366.9	379.2	383.4	381.3	384.4	390.6
32.5°	262.8	273.1	285.5	290.6	292.7	301.9	312.3	312.3	311.2	311.2	315.3
35°	194.8	202.0	208.2	213.3	216.4	222.6	231.9	230.8	230.8	228.8	231.9
37.5°	130.9	135.0	142.2	144.3	145.3	149.4	156.6	156.6	154.6	155.6	157.7
40°	79.4	84.5	88.6	89.7	91.7	94.8	100.0	100.0	100.0	100.0	101.0
42.5°	47.4	50.5	53.6	53.6	54.6	58.7	60.8	60.8	60.8	60.8	61.8
45°	27.8	28.9	30.9	31.9	31.9	34.0	35.0	35.0	35.0	35.0	36.1
47.5°	16.5	17.5	17.5	18.5	18.5	19.6	20.6	20.6	19.6	19.6	19.6
50°	10.3	10.3	10.3	10.3	11.3	11.3	11.3	11.3	11.3	11.3	10.3
52.5°	8.2	8.2	8.2	8.2	7.2	7.2	7.2	7.2	6.2	6.2	5.2
55°	7.2	7.2	7.2	7.2	7.2	6.2	6.2	6.2	5.2	4.1	3.1
57.5°	7.2	7.2	7.2	7.2	7.2	6.2	6.2	5.2	4.1	4.1	3.1
60°	7.2	7.2	7.2	7.2	7.2	6.2	6.2	5.2	4.1	4.1	3.1
62.5°	8.2	8.2	7.2	7.2	7.2	6.2	6.2	5.2	5.2	4.1	3.1
65°	8.2	8.2	7.2	7.2	7.2	7.2	6.2	6.2	5.2	4.1	3.1
67.5°	8.2	8.2	8.2	8.2	7.2	7.2	7.2	6.2	5.2	4.1	3.1
70°	9.3	9.3	8.2	8.2	8.2	7.2	7.2	6.2	5.2	5.2	4.1
72.5°	9.3	9.3	8.2	8.2	8.2	8.2	7.2	6.2	6.2	5.2	4.1
75°	9.3	9.3	9.3	9.3	8.2	8.2	7.2	7.2	6.2	5.2	4.1
77.5°	9.3	9.3	9.3	9.3	8.2	8.2	8.2	7.2	6.2	5.2	4.1
80°	9.3	9.3	9.3	9.3	9.3	8.2	8.2	7.2	6.2	5.2	4.1
82.5°	10.3	10.3	9.3	9.3	9.3	8.2	8.2	7.2	6.2	5.2	5.2
85°	10.3	10.3	9.3	9.3	9.3	8.2	8.2	7.2	6.2	6.2	5.2
87.5°	10.3	10.3	9.3	9.3	9.3	8.2	8.2	7.2	6.2	6.2	5.2
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0



TEST NUMBER: P209052

CATALOG NUMBER: LDSQA6A65827D010TE LARH30NF 6LSQA1H 30°

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	1022.3	1022.3	1022.3	1022.3	1022.3	1022.3	1022.3	1022.3
2.5°	543.1	512.2	501.9	509.1	500.8	494.7	486.4	482.3
5°	340.1	317.4	310.2	312.3	305.0	298.9	290.6	288.6
7.5°	209.2	187.6	179.3	179.3	171.1	163.9	158.7	155.6
10°	140.2	136.0	137.1	138.1	137.1	138.1	135.0	137.1
12.5°	150.5	148.4	150.5	151.5	151.5	153.6	149.4	152.5
15°	175.2	173.1	176.2	178.3	178.3	181.4	177.3	180.3
17.5°	214.4	213.3	218.5	220.5	221.6	226.7	221.6	225.7
20°	271.0	270.0	277.2	280.3	279.3	289.6	282.4	289.6
22.5°	344.2	342.1	352.4	355.5	356.6	370.0	363.8	368.9
25°	417.4	419.4	424.6	429.7	430.8	442.1	432.8	438.0
27.5°	432.8	429.7	432.8	439.0	440.0	445.2	436.9	441.1
30°	391.6	386.5	387.5	394.7	396.8	398.8	391.6	393.7
32.5°	318.4	310.2	310.2	317.4	319.5	322.6	310.2	315.3
35°	235.0	227.7	227.7	232.9	233.9	236.0	226.7	230.8
37.5°	160.8	154.6	156.6	158.7	159.7	161.8	160.8	159.7
40°	103.1	98.9	102.0	102.0	103.1	104.1	104.1	105.1
42.5°	62.9	59.8	61.8	61.8	62.9	62.9	62.9	63.9
45°	36.1	35.0	35.0	36.1	36.1	36.1	35.0	36.1
47.5°	19.6	18.5	19.6	19.6	19.6	19.6	19.6	19.6
50°	10.3	9.3	9.3	9.3	9.3	9.3	9.3	9.3
52.5°	5.2	4.1	4.1	4.1	3.1	4.1	3.1	3.1
55°	3.1	2.1	2.1	2.1	1.0	1.0	0.0	0.0
57.5°	2.1	1.0	1.0	1.0	0.0	0.0	0.0	0.0
60°	2.1	1.0	1.0	1.0	0.0	0.0	0.0	0.0
62.5°	2.1	1.0	1.0	1.0	0.0	0.0	0.0	0.0
65°	2.1	1.0	1.0	1.0	0.0	0.0	0.0	0.0
67.5°	3.1	2.1	1.0	1.0	1.0	0.0	0.0	0.0
70°	3.1	2.1	2.1	1.0	1.0	0.0	0.0	0.0
72.5°	3.1	2.1	2.1	2.1	1.0	1.0	0.0	0.0
75°	3.1	2.1	2.1	2.1	1.0	1.0	0.0	0.0
77.5°	3.1	3.1	2.1	2.1	1.0	1.0	1.0	0.0
80°	4.1	3.1	2.1	2.1	2.1	1.0	1.0	1.0
82.5°	4.1	3.1	2.1	2.1	2.1	1.0	1.0	1.0
85°	4.1	3.1	3.1	2.1	2.1	1.0	1.0	1.0
87.5°	4.1	3.1	3.1	2.1	2.1	1.0	1.0	1.0
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0



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— 0°-180° - - 45°-225° - - - 90°-270°













(END OF REPORT)