

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: P209021

Luminaire Tested: **LDSQA6A65830D010TE LARH20SP 6LSQA1H 30°**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P209021
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (P26686)
Test Lab: INNOVATION CENTER-P2
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: io LED
Catalog Number: LDSQA6A65830D010TE LARH20SP 6LSQA1H 30°
Description: PORTFOLIO 6" SQUARE ADJUSTABLE REFLECTOR, ANGLE-CUT TRIM,
SELF-FLANGED, 20° SPOT, 30° Tilt
Light Source: (1) HIGH LUMEN LED 80CRI / 3000K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 5312.3 lumens
Efficiency: N/A
Efficacy: 67.5 lumens/watt
Spacing Criteria (0/90/45): 2.35 / 0.6 / 1.31
Luminous Opening: Rectangular (W 0.5' x L: 0.5' x H: 0')
CIE Type: Direct

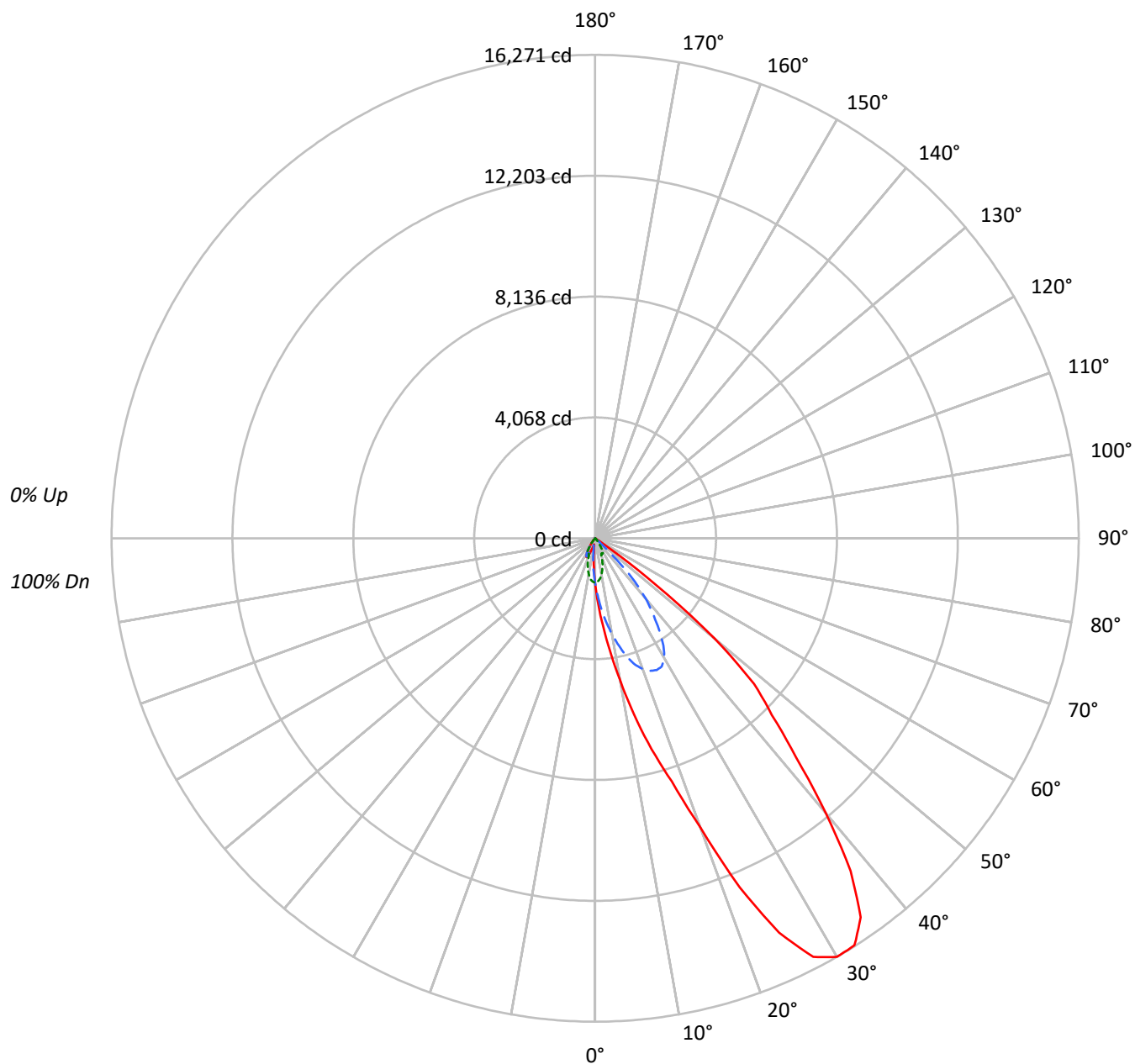
Input Watts (W): 78.67
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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					0
RW	70	50	30	10	70	50	30	10		50	30	10		50	30	10		50	30	10
RCR																				
0	119	119	119	119	116	116	116	116		111	111	111		106	106	106		102	102	102
1	112	109	106	104	110	107	104	102		103	101	99		99	97	96		96	94	93
2	105	100	95	91	103	98	94	90		95	91	88		92	89	86		89	86	84
3	99	91	85	80	96	89	84	80		87	82	78		84	80	77		82	79	76
4	92	83	76	71	90	82	76	71		79	74	70		77	73	69		75	71	68
5	86	76	69	64	84	75	68	63		73	67	63		71	66	62		69	65	61
6	80	69	62	57	79	69	62	57		67	61	56		65	60	56		64	59	55
7	75	64	56	51	73	63	56	51		62	55	51		60	55	50		59	54	50
8	70	59	51	46	69	58	51	46		57	50	46		56	50	46		54	49	46
9	66	54	47	42	64	53	47	42		52	46	42		51	46	42		50	45	41
10	61	50	43	38	60	49	43	38		48	42	38		48	42	38		47	41	38

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	64571	64571	64571
5°	125118	61532	20754
10°	212570	53845	9321
15°	327560	42952	14817
20°	474180	27950	25773
25°	695707	26974	33141
30°	808921	25554	25395
35°	818762	13535	13424
40°	677879	5103	5637
45°	511974	1735	2058
50°	350279	636	636
55°	48725	555	83
60°	1274	543	0
65°	326	754	0
70°	138	932	0
75°	0	1231	0
80°	0	2083	273
85°	0	4150	0



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	157.3	3.0
10°-20°	665.1	12.5
20°-30°	1517.1	28.6
30°-40°	1755.7	33.0
40°-50°	1058.8	19.9
50°-60°	143.8	2.7
60°-70°	4.6	0.1
70°-80°	5.0	0.1
80°-90°	4.7	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°	2339.5	44.0
0°-40°	4095.2	77.1
0°-60°	5297.9	99.7
0°-90°	5312.3	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	5312.3	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	1500	1500	1500	1500	1500	
5°	2895	2370	1424	779	480	337
15°	7349	4131	964	297	332	2176
25°	14644	4895	568	683	698	6627
35°	15577	3732	258	263	255	9388
45°	8408	1016	28	35	34	6575
55°	649	7	7	5	1	1272
65°	3	4	7	4	0	5
75°	0	5	7	5	0	0
85°	0	5	8	5	0	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°	1499.7	1499.7	1499.7	1499.7	1499.7	1499.7	1499.7	1499.7	1499.7	1499.7	1499.7
2.5°	2168.8	2148.7	2157.2	2135.0	2079.1	2067.5	2066.4	2051.6	2004.2	1967.2	1922.9
5°	2894.9	2893.8	2899.1	2851.6	2753.5	2722.9	2708.1	2672.2	2557.2	2468.5	2370.4
7.5°	3801.5	3795.1	3788.8	3702.3	3548.2	3489.1	3451.1	3321.3	3163.0	3005.7	2830.5
10°	4862.1	4858.9	4834.7	4682.7	4435.7	4327.0	4253.2	4047.4	3793.0	3569.3	3271.7
12.5°	6093.7	6065.2	6022.0	5799.3	5460.5	5342.3	5179.8	4853.7	4463.2	4120.2	3704.4
15°	7348.6	7307.4	7230.4	6944.4	6524.3	6322.7	6121.2	5691.6	5161.8	4663.7	4130.7
17.5°	8576.0	8530.6	8350.1	7864.6	7454.1	7208.2	6984.5	6394.5	5771.8	5131.2	4455.8
20°	10349.0	10184.4	9869.9	9104.7	8341.7	7898.4	7636.7	7013.0	6242.5	5496.4	4686.9
22.5°	12717.3	12352.1	11681.9	10438.7	9348.5	8708.9	8280.5	7450.9	6581.3	5734.9	4829.4
25°	14644.4	14478.7	13716.7	11947.9	10246.6	9493.1	8896.8	7799.2	6828.3	5894.3	4894.8
27.5°	15886.5	15845.4	14974.7	13197.5	10980.1	9991.2	9325.3	8029.3	6947.5	5928.0	4863.2
30°	16270.7	16335.1	15499.2	13621.7	11192.2	10091.5	9363.3	8032.5	6855.7	5775.0	4660.5
32.5°	16242.2	16245.4	15220.6	13255.5	10847.1	9800.2	9046.7	7765.4	6516.9	5391.9	4275.3
35°	15577.3	15413.7	14254.9	12130.5	10044.0	9120.5	8419.8	7248.3	5958.6	4815.7	3731.8
37.5°	14117.7	13903.5	12552.6	10689.9	9093.1	8239.3	7673.6	6569.7	5293.8	4200.4	3170.3
40°	12060.8	11756.9	10642.4	9350.6	8052.5	7410.8	6935.9	5810.9	4582.4	3596.7	2643.7
42.5°	10001.8	9853.0	9116.3	8066.2	7177.6	6573.9	6077.9	5016.2	3898.6	3001.5	1977.8
45°	8408.2	8280.5	7785.5	7093.2	6221.4	5670.5	5192.4	4187.7	3028.9	2013.7	1016.3
47.5°	7247.3	7143.8	6670.0	5942.8	4986.6	4384.0	3891.2	2746.1	1716.0	869.6	254.3
50°	5229.4	5123.8	4659.5	3817.3	2954.0	2449.5	2094.9	1226.3	486.5	176.2	26.4
52.5°	2563.5	2477.0	2161.4	1617.9	1086.0	781.0	571.0	230.1	55.9	19.0	12.7
55°	649.1	596.3	497.1	312.4	153.0	91.8	59.1	21.1	13.7	10.6	7.4
57.5°	36.9	35.9	32.7	24.3	17.9	15.8	13.7	10.6	7.4	6.3	5.3
60°	14.8	13.7	12.7	10.6	8.4	7.4	7.4	5.3	4.2	4.2	4.2
62.5°	6.3	6.3	6.3	5.3	4.2	4.2	4.2	3.2	4.2	4.2	4.2
65°	3.2	3.2	3.2	2.1	2.1	2.1	3.2	3.2	3.2	4.2	4.2
67.5°	2.1	1.1	1.1	1.1	2.1	2.1	2.1	3.2	3.2	4.2	4.2
70°	1.1	1.1	1.1	1.1	2.1	2.1	2.1	3.2	3.2	4.2	5.3
72.5°	0.0	1.1	1.1	1.1	2.1	2.1	2.1	3.2	3.2	4.2	5.3
75°	0.0	1.1	1.1	1.1	2.1	2.1	2.1	3.2	4.2	4.2	5.3
77.5°	0.0	1.1	1.1	1.1	2.1	2.1	2.1	3.2	4.2	4.2	5.3
80°	0.0	1.1	1.1	1.1	2.1	2.1	2.1	3.2	4.2	4.2	5.3
82.5°	0.0	0.0	1.1	1.1	2.1	2.1	2.1	3.2	4.2	4.2	5.3
85°	0.0	0.0	1.1	1.1	2.1	2.1	2.1	3.2	4.2	4.2	5.3
87.5°	0.0	0.0	1.1	1.1	2.1	2.1	2.1	3.2	3.2	4.2	5.3
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):

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°	95°
0°	1499.7	1499.7	1499.7	1499.7	1499.7	1499.7	1499.7	1499.7	1499.7	1499.7	1499.7
2.5°	1865.9	1827.9	1772.0	1735.0	1699.2	1665.4	1609.4	1577.8	1520.8	1468.0	1422.6
5°	2252.2	2157.2	2042.1	1944.0	1880.7	1818.4	1705.5	1622.1	1517.6	1423.7	1337.2
7.5°	2642.7	2474.9	2285.9	2124.5	2026.3	1930.3	1761.4	1626.3	1478.6	1344.5	1216.8
10°	2997.3	2745.0	2478.0	2246.9	2113.9	1989.4	1766.7	1587.3	1397.3	1231.6	1071.2
12.5°	3326.5	2981.4	2633.2	2331.3	2166.7	2016.8	1744.5	1525.0	1299.2	1102.9	916.1
15°	3619.9	3176.7	2746.1	2379.9	2186.7	2009.4	1692.8	1437.4	1183.1	963.6	727.2
17.5°	3842.6	3298.0	2795.7	2372.5	2150.9	1953.5	1604.2	1327.7	1059.6	793.6	526.6
20°	3977.7	3349.8	2785.1	2315.5	2073.8	1864.8	1498.6	1208.4	910.8	610.0	464.4
22.5°	4034.7	3345.5	2735.5	2230.0	1978.8	1767.8	1397.3	1092.3	754.6	552.0	484.4
25°	4044.2	3302.3	2665.9	2136.1	1884.9	1674.9	1294.9	960.4	655.4	567.8	542.5
27.5°	3971.4	3200.9	2535.0	2001.0	1753.0	1535.6	1141.9	763.0	615.3	565.7	582.6
30°	3756.1	2969.8	2303.9	1763.5	1524.0	1306.6	815.8	598.4	510.8	514.0	518.2
32.5°	3377.2	2585.7	1932.4	1416.3	1154.6	861.2	507.6	400.0	388.4	388.4	386.3
35°	2871.7	2116.0	1516.6	896.0	574.1	413.7	262.8	263.8	258.6	257.5	256.5
37.5°	2349.3	1669.6	960.4	370.4	249.1	173.1	155.1	157.3	155.1	158.3	156.2
40°	1852.2	1031.1	350.4	118.2	87.6	84.4	86.5	88.7	88.7	90.8	90.8
42.5°	1076.5	341.9	91.8	47.5	47.5	45.4	46.4	48.5	49.6	50.7	49.6
45°	319.8	70.7	29.6	26.4	26.4	25.3	25.3	26.4	27.4	28.5	28.5
47.5°	50.7	20.1	16.9	14.8	14.8	14.8	14.8	14.8	15.8	15.8	16.9
50°	15.8	12.7	10.6	9.5	9.5	8.4	8.4	9.5	9.5	9.5	10.6
52.5°	9.5	7.4	7.4	6.3	7.4	7.4	6.3	7.4	7.4	7.4	8.4
55°	6.3	6.3	6.3	6.3	6.3	6.3	6.3	6.3	7.4	7.4	7.4
57.5°	5.3	5.3	6.3	6.3	6.3	6.3	6.3	6.3	6.3	6.3	6.3
60°	5.3	5.3	6.3	6.3	6.3	6.3	6.3	6.3	6.3	6.3	7.4
62.5°	5.3	5.3	6.3	6.3	6.3	6.3	6.3	6.3	7.4	7.4	7.4
65°	5.3	5.3	6.3	6.3	6.3	6.3	6.3	7.4	7.4	7.4	7.4
67.5°	5.3	6.3	6.3	6.3	6.3	7.4	7.4	7.4	7.4	7.4	7.4
70°	5.3	6.3	6.3	7.4	7.4	7.4	7.4	7.4	7.4	7.4	7.4
72.5°	5.3	6.3	6.3	7.4	7.4	7.4	7.4	7.4	7.4	7.4	7.4
75°	6.3	6.3	6.3	7.4	7.4	7.4	7.4	7.4	7.4	7.4	8.4
77.5°	6.3	6.3	7.4	7.4	7.4	7.4	7.4	7.4	8.4	8.4	8.4
80°	6.3	6.3	7.4	7.4	7.4	7.4	7.4	8.4	8.4	8.4	8.4
82.5°	6.3	6.3	7.4	7.4	7.4	7.4	7.4	8.4	8.4	8.4	8.4
85°	6.3	6.3	7.4	7.4	7.4	7.4	7.4	8.4	8.4	8.4	8.4
87.5°	6.3	6.3	7.4	7.4	7.4	7.4	7.4	8.4	8.4	8.4	8.4
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°	1499.7	1499.7	1499.7	1499.7	1499.7	1499.7	1499.7	1499.7	1499.7	1499.7	1499.7
2.5°	1383.6	1335.0	1311.8	1279.1	1255.9	1204.2	1183.1	1147.2	1117.6	1069.1	1072.3
5°	1263.3	1171.5	1109.2	1060.7	1026.9	944.6	889.7	831.6	778.9	713.4	689.2
7.5°	1096.5	983.6	888.6	830.6	787.3	677.6	556.2	461.2	389.4	337.7	317.7
10°	929.8	783.1	632.2	542.5	480.2	374.7	320.8	295.5	272.3	243.8	224.8
12.5°	735.6	526.6	389.4	353.6	328.2	293.4	258.6	231.1	236.4	237.5	244.8
15°	502.4	378.9	335.6	311.3	283.9	263.8	275.5	282.8	296.6	297.6	307.1
17.5°	408.4	355.7	320.8	319.8	321.9	333.5	351.4	360.9	378.9	383.1	396.8
20°	408.4	377.8	407.4	407.4	412.7	428.5	451.7	465.4	485.5	492.9	509.7
22.5°	465.4	486.5	523.5	527.7	529.8	546.7	576.2	590.0	613.2	617.4	635.3
25°	567.8	586.8	620.6	623.7	624.8	637.4	659.6	667.0	682.8	674.4	684.9
27.5°	600.5	609.0	630.1	632.2	626.9	632.2	640.6	640.6	645.9	629.0	632.2
30°	527.7	529.8	540.4	541.4	529.8	531.9	533.0	531.9	530.9	512.9	512.9
32.5°	391.5	391.5	405.3	402.1	389.4	392.6	392.6	392.6	391.5	376.8	374.7
35°	259.6	260.7	272.3	270.2	260.7	262.8	262.8	266.0	262.8	254.3	252.2
37.5°	158.3	159.4	164.6	165.7	162.5	163.6	164.6	163.6	165.7	161.5	159.4
40°	91.8	93.9	98.1	99.2	98.1	98.1	99.2	100.3	104.5	99.2	97.1
42.5°	53.8	54.9	57.0	57.0	57.0	57.0	58.0	59.1	60.2	59.1	58.0
45°	30.6	31.7	32.7	32.7	33.8	32.7	33.8	33.8	34.8	33.8	33.8
47.5°	17.9	17.9	19.0	19.0	20.1	19.0	20.1	20.1	20.1	19.0	19.0
50°	10.6	11.6	11.6	11.6	11.6	11.6	11.6	11.6	11.6	10.6	10.6
52.5°	8.4	8.4	8.4	8.4	8.4	7.4	7.4	7.4	7.4	6.3	6.3
55°	7.4	7.4	7.4	7.4	7.4	7.4	6.3	5.3	5.3	4.2	4.2
57.5°	6.3	7.4	7.4	7.4	7.4	6.3	6.3	5.3	4.2	3.2	3.2
60°	7.4	7.4	7.4	7.4	6.3	6.3	6.3	5.3	4.2	3.2	3.2
62.5°	7.4	7.4	7.4	7.4	7.4	6.3	6.3	5.3	4.2	3.2	3.2
65°	7.4	7.4	7.4	7.4	7.4	6.3	6.3	5.3	4.2	3.2	3.2
67.5°	7.4	7.4	7.4	7.4	7.4	6.3	6.3	5.3	4.2	4.2	3.2
70°	7.4	8.4	8.4	7.4	7.4	7.4	6.3	5.3	5.3	4.2	3.2
72.5°	7.4	8.4	8.4	7.4	7.4	7.4	6.3	5.3	5.3	4.2	3.2
75°	8.4	8.4	8.4	8.4	7.4	7.4	6.3	6.3	5.3	4.2	3.2
77.5°	8.4	8.4	8.4	8.4	7.4	7.4	6.3	6.3	5.3	4.2	3.2
80°	8.4	8.4	8.4	8.4	8.4	7.4	7.4	6.3	5.3	4.2	4.2
82.5°	8.4	8.4	8.4	8.4	8.4	7.4	7.4	6.3	5.3	4.2	4.2
85°	8.4	8.4	8.4	8.4	8.4	7.4	7.4	6.3	5.3	4.2	3.2
87.5°	8.4	8.4	8.4	8.4	7.4	7.4	6.3	6.3	5.3	4.2	3.2
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: P209021

CATALOG NUMBER: LDSQA6A65830D010TE LARH20SP 6LSQA1H 30°

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	1499.7	1499.7	1499.7	1499.7	1499.7	1499.7	1499.7	1499.7
2.5°	1033.2	1008.9	998.4	1015.3	1006.8	981.5	986.8	970.9
5°	616.3	579.4	556.2	566.7	533.0	502.4	502.4	480.2
7.5°	297.6	286.0	279.7	281.8	274.4	264.9	259.6	259.6
10°	209.0	204.7	205.8	205.8	212.1	211.1	214.2	213.2
12.5°	248.0	250.1	251.2	255.4	260.7	260.7	263.8	261.7
15°	317.7	315.6	321.9	322.9	331.4	332.4	336.7	332.4
17.5°	404.2	408.4	414.8	413.7	430.6	431.6	431.6	430.6
20°	520.3	523.5	529.8	531.9	552.0	554.1	561.5	562.5
22.5°	646.9	646.9	650.1	654.3	673.3	674.4	677.6	677.6
25°	690.2	683.9	684.9	690.2	700.8	696.5	699.7	697.6
27.5°	634.3	624.8	622.7	630.1	637.4	625.8	630.1	630.1
30°	515.0	506.6	504.5	511.9	517.1	504.5	508.7	510.8
32.5°	376.8	371.5	370.4	375.7	379.9	369.4	373.6	376.8
35°	254.3	252.2	250.1	251.2	257.5	249.1	253.3	255.4
37.5°	161.5	157.3	158.3	160.4	164.6	159.4	163.6	163.6
40°	99.2	97.1	97.1	99.2	101.3	97.1	99.2	100.3
42.5°	58.0	58.0	58.0	59.1	60.2	58.0	58.0	59.1
45°	33.8	32.7	32.7	33.8	34.8	32.7	33.8	33.8
47.5°	19.0	17.9	17.9	19.0	19.0	17.9	19.0	19.0
50°	10.6	9.5	9.5	10.6	10.6	9.5	9.5	9.5
52.5°	5.3	5.3	5.3	5.3	5.3	5.3	4.2	4.2
55°	3.2	3.2	2.1	2.1	2.1	2.1	2.1	1.1
57.5°	2.1	2.1	1.1	1.1	1.1	1.1	0.0	0.0
60°	2.1	2.1	1.1	1.1	1.1	0.0	0.0	0.0
62.5°	2.1	2.1	1.1	1.1	1.1	0.0	0.0	0.0
65°	2.1	2.1	1.1	1.1	1.1	0.0	0.0	0.0
67.5°	2.1	2.1	1.1	1.1	1.1	0.0	0.0	0.0
70°	3.2	2.1	2.1	1.1	1.1	1.1	0.0	0.0
72.5°	3.2	2.1	2.1	2.1	1.1	1.1	0.0	0.0
75°	3.2	2.1	2.1	2.1	1.1	1.1	0.0	0.0
77.5°	3.2	2.1	2.1	2.1	1.1	1.1	1.1	0.0
80°	3.2	2.1	2.1	2.1	1.1	1.1	1.1	1.1
82.5°	3.2	2.1	2.1	2.1	1.1	1.1	1.1	1.1
85°	3.2	2.1	2.1	2.1	1.1	1.1	1.1	0.0
87.5°	3.2	2.1	2.1	2.1	1.1	1.1	1.1	0.0
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)