

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: P209008

Luminaire Tested: **LDSQA6A45927D010TE LARH20SP 6LSQA1H 30°**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P209008
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: LDSQA6A45927D010TE LARH20SP 6LSQA1H 30°
Description: PORTFOLIO 6" SQUARE ADJUSTABLE REFLECTOR, ANGLE-CUT TRIM,
SELF-FLANGED, 20° SPOT, 30° Tilt
Light Source: (1) HIGH LUMEN LED 90CRI / 2700K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 3204.8 lumens
Efficiency: N/A
Efficacy: 58.9 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

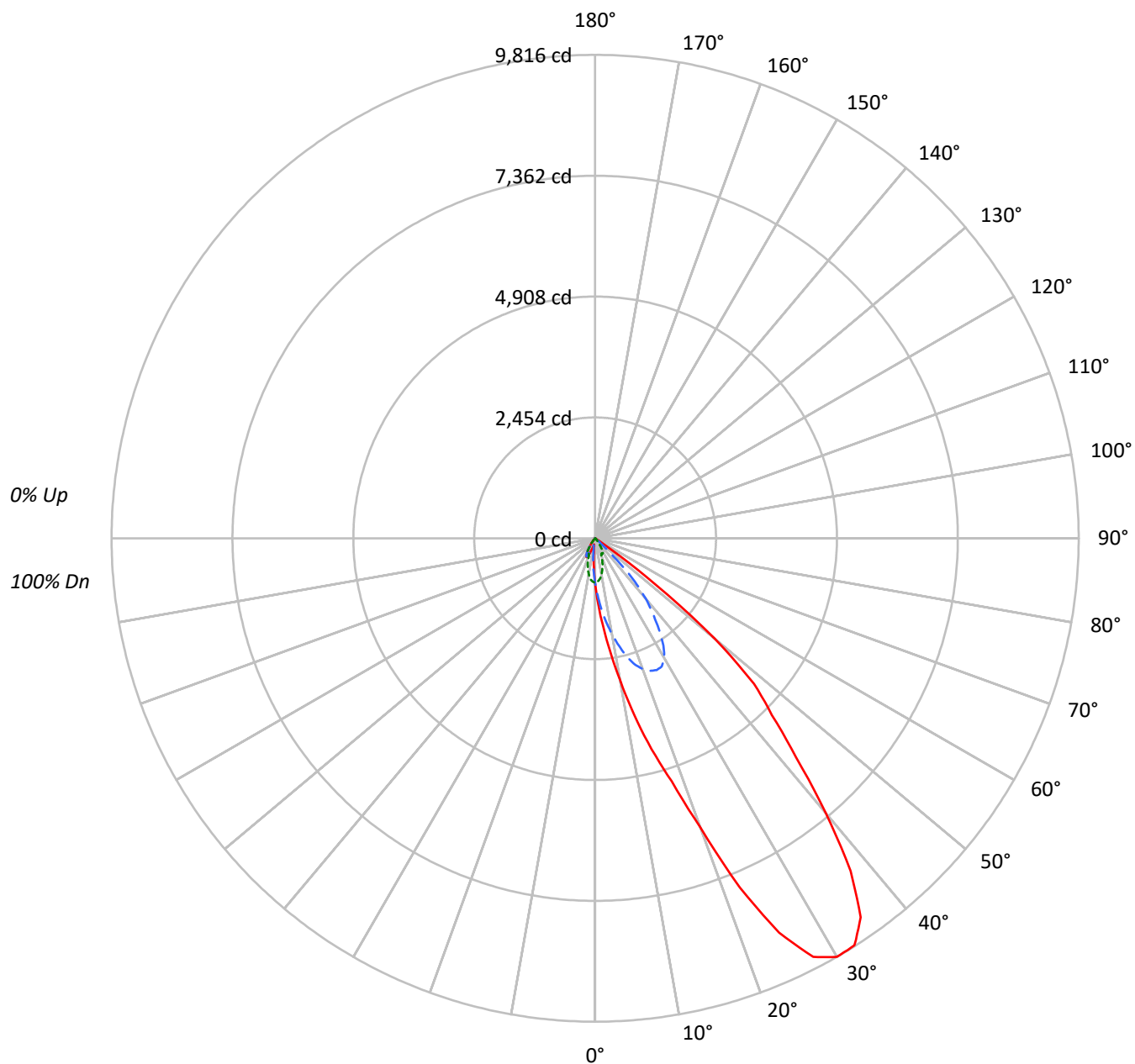
Input Watts (W): 54.4
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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	50	30	10
RCR																				
0	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102	100		
1	112	109	106	104	110	107	104	102	103	101	99	99	97	96	96	94	93	91		
2	105	100	95	91	103	98	94	90	95	91	88	92	89	86	89	86	84	82		
3	99	91	85	80	96	89	84	80	87	82	78	84	80	77	82	79	76	74		
4	92	83	76	71	90	82	76	71	79	74	70	77	73	69	75	71	68	66		
5	86	76	69	64	84	75	68	63	73	67	63	71	66	62	69	65	61	60		
6	80	69	62	57	79	69	62	57	67	61	56	65	60	56	64	59	55	54		
7	75	64	56	51	73	63	56	51	62	55	51	60	55	50	59	54	50	49		
8	70	59	51	46	69	58	51	46	57	50	46	56	50	46	54	49	46	44		
9	66	54	47	42	64	53	47	42	52	46	42	51	46	42	50	45	41	40		
10	61	50	43	38	60	49	43	38	48	42	38	48	42	38	47	41	38	36		

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	38952	38952	38952
5°	75480	37122	12521
10°	128239	32484	5622
15°	197612	25911	8942
20°	286066	16861	15551
25°	419707	16271	19996
30°	488006	15417	15323
35°	493944	8168	8100
40°	408954	3080	3400
45°	308864	1047	1242
50°	211317	382	382
55°	29396	338	45
60°	766	327	0
65°	194	458	0
70°	76	566	0
75°	0	749	0
80°	0	1265	149
85°	0	2519	0



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	94.9	3.0
10°-20°	401.2	12.5
20°-30°	915.3	28.6
30°-40°	1059.2	33.0
40°-50°	638.8	19.9
50°-60°	86.8	2.7
60°-70°	2.8	0.1
70°-80°	3.0	0.1
80°-90°	2.8	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°	1411.4	44.0
0°-40°	2470.6	77.1
0°-60°	3196.1	99.7
0°-90°	3204.8	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	3204.8	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	905	905	905	905	905	
5°	1746	1430	859	470	290	203
15°	4433	2492	581	179	201	1312
25°	8835	2953	342	412	421	3998
35°	9398	2251	155	158	154	5663
45°	5072	613	17	21	20	3966
55°	392	4	4	3	1	768
65°	2	2	4	2	0	3
75°	0	3	4	3	0	0
85°	0	3	5	3	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°	904.7	904.7	904.7	904.7	904.7	904.7	904.7	904.7	904.7	904.7	904.7
2.5°	1308.4	1296.3	1301.4	1288.0	1254.3	1247.3	1246.6	1237.7	1209.1	1186.8	1160.0
5°	1746.4	1745.8	1749.0	1720.3	1661.1	1642.7	1633.7	1612.1	1542.7	1489.2	1430.0
7.5°	2293.3	2289.5	2285.7	2233.5	2140.5	2104.9	2082.0	2003.7	1908.2	1813.3	1707.6
10°	2933.2	2931.3	2916.7	2825.0	2676.0	2610.4	2565.8	2441.7	2288.3	2153.3	1973.7
12.5°	3676.2	3659.0	3632.9	3498.6	3294.2	3222.9	3124.9	2928.1	2692.5	2485.6	2234.8
15°	4433.3	4408.4	4361.9	4189.4	3936.0	3814.4	3692.8	3433.7	3114.0	2813.5	2492.0
17.5°	5173.7	5146.3	5037.5	4744.6	4496.9	4348.6	4213.6	3857.7	3482.0	3095.6	2688.1
20°	6243.4	6144.0	5954.3	5492.7	5032.4	4765.0	4607.1	4230.8	3766.0	3315.9	2827.5
22.5°	7672.1	7451.8	7047.5	6297.5	5639.8	5253.9	4995.4	4495.0	3970.4	3459.8	2913.5
25°	8834.7	8734.7	8275.0	7207.9	6181.6	5727.0	5367.3	4705.1	4119.4	3555.9	2953.0
27.5°	9584.1	9559.2	9034.0	7961.8	6624.1	6027.5	5625.8	4843.9	4191.3	3576.3	2933.9
30°	9815.8	9854.6	9350.4	8217.7	6752.1	6088.0	5648.7	4845.8	4135.9	3484.0	2811.6
32.5°	9798.6	9800.5	9182.3	7996.8	6543.9	5912.3	5457.7	4684.7	3931.5	3252.8	2579.2
35°	9397.5	9298.8	8599.7	7318.1	6059.4	5502.2	5079.5	4372.8	3594.7	2905.2	2251.3
37.5°	8517.0	8387.7	7572.8	6449.0	5485.7	4970.6	4629.4	3963.4	3193.6	2534.0	1912.6
40°	7276.1	7092.7	6420.4	5641.0	4857.9	4470.8	4184.3	3505.6	2764.5	2169.8	1594.9
42.5°	6033.9	5944.1	5499.7	4866.2	4330.1	3965.9	3666.7	3026.2	2351.9	1810.7	1193.2
45°	5072.5	4995.4	4696.8	4279.2	3753.3	3420.9	3132.5	2526.4	1827.3	1214.8	613.1
47.5°	4372.1	4309.7	4023.9	3585.2	3008.3	2644.8	2347.5	1656.7	1035.3	524.6	153.4
50°	3154.8	3091.1	2811.0	2302.9	1782.1	1477.8	1263.8	739.8	293.5	106.3	15.9
52.5°	1546.5	1494.3	1303.9	976.0	655.2	471.1	344.4	138.8	33.7	11.5	7.6
55°	391.6	359.7	299.9	188.5	92.3	55.4	35.7	12.7	8.3	6.4	4.5
57.5°	22.3	21.6	19.7	14.6	10.8	9.6	8.3	6.4	4.5	3.8	3.2
60°	8.9	8.3	7.6	6.4	5.1	4.5	4.5	3.2	2.5	2.5	2.5
62.5°	3.8	3.8	3.8	3.2	2.5	2.5	2.5	1.9	2.5	2.5	2.5
65°	1.9	1.9	1.9	1.3	1.3	1.3	1.9	1.9	1.9	2.5	2.5
67.5°	1.3	0.6	0.6	0.6	1.3	1.3	1.3	1.9	1.9	2.5	2.5
70°	0.6	0.6	0.6	0.6	1.3	1.3	1.3	1.9	1.9	2.5	3.2
72.5°	0.0	0.6	0.6	0.6	1.3	1.3	1.3	1.9	1.9	2.5	3.2
75°	0.0	0.6	0.6	0.6	1.3	1.3	1.3	1.9	2.5	2.5	3.2
77.5°	0.0	0.6	0.6	0.6	1.3	1.3	1.3	1.9	2.5	2.5	3.2
80°	0.0	0.6	0.6	0.6	1.3	1.3	1.3	1.9	2.5	2.5	3.2
82.5°	0.0	0.0	0.6	0.6	1.3	1.3	1.3	1.9	2.5	2.5	3.2
85°	0.0	0.0	0.6	0.6	1.3	1.3	1.3	1.9	2.5	2.5	3.2
87.5°	0.0	0.0	0.6	0.6	1.3	1.3	1.3	1.9	1.9	2.5	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



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CANDELA DISTRIBUTION (continued):

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°	95°
0°	904.7	904.7	904.7	904.7	904.7	904.7	904.7	904.7	904.7	904.7	904.7
2.5°	1125.7	1102.7	1069.0	1046.7	1025.1	1004.7	970.9	951.8	917.5	885.6	858.3
5°	1358.7	1301.4	1232.0	1172.8	1134.6	1097.0	1028.9	978.6	915.6	858.9	806.7
7.5°	1594.3	1493.0	1379.1	1281.7	1222.4	1164.5	1062.6	981.1	892.0	811.1	734.1
10°	1808.2	1656.0	1494.9	1355.5	1275.3	1200.2	1065.8	957.6	843.0	743.0	646.2
12.5°	2006.8	1798.6	1588.5	1406.4	1307.1	1216.7	1052.4	920.0	783.8	665.3	552.6
15°	2183.8	1916.4	1656.7	1435.7	1319.2	1212.3	1021.2	867.2	713.7	581.3	438.7
17.5°	2318.2	1989.6	1686.6	1431.3	1297.6	1178.5	967.8	801.0	639.2	478.8	317.7
20°	2399.7	2020.8	1680.2	1396.9	1251.1	1125.0	904.1	729.0	549.5	368.0	280.1
22.5°	2434.1	2018.3	1650.3	1345.3	1193.8	1066.5	843.0	659.0	455.2	333.0	292.2
25°	2439.8	1992.2	1608.3	1288.7	1137.1	1010.4	781.2	579.4	395.4	342.5	327.3
27.5°	2395.9	1931.1	1529.3	1207.2	1057.5	926.4	688.9	460.3	371.2	341.3	351.5
30°	2266.0	1791.6	1389.9	1063.9	919.4	788.2	492.2	361.0	308.2	310.1	312.6
32.5°	2037.4	1559.9	1165.8	854.4	696.5	519.5	306.2	241.3	234.3	234.3	233.0
35°	1732.4	1276.6	914.9	540.5	346.4	249.6	158.5	159.2	156.0	155.4	154.7
37.5°	1417.3	1007.2	579.4	223.5	150.3	104.4	93.6	94.9	93.6	95.5	94.2
40°	1117.4	622.0	211.4	71.3	52.8	50.9	52.2	53.5	53.5	54.8	54.8
42.5°	649.4	206.3	55.4	28.7	28.7	27.4	28.0	29.3	29.9	30.6	29.9
45°	192.9	42.7	17.8	15.9	15.9	15.3	15.3	15.9	16.6	17.2	17.2
47.5°	30.6	12.1	10.2	8.9	8.9	8.9	8.9	8.9	9.6	9.6	10.2
50°	9.6	7.6	6.4	5.7	5.7	5.1	5.1	5.7	5.7	5.7	6.4
52.5°	5.7	4.5	4.5	3.8	4.5	4.5	3.8	4.5	4.5	4.5	5.1
55°	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	4.5	4.5	4.5
57.5°	3.2	3.2	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8
60°	3.2	3.2	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	4.5
62.5°	3.2	3.2	3.8	3.8	3.8	3.8	3.8	3.8	4.5	4.5	4.5
65°	3.2	3.2	3.8	3.8	3.8	3.8	3.8	4.5	4.5	4.5	4.5
67.5°	3.2	3.8	3.8	3.8	3.8	4.5	4.5	4.5	4.5	4.5	4.5
70°	3.2	3.8	3.8	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
72.5°	3.2	3.8	3.8	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
75°	3.8	3.8	3.8	4.5	4.5	4.5	4.5	4.5	4.5	4.5	5.1
77.5°	3.8	3.8	4.5	4.5	4.5	4.5	4.5	4.5	5.1	5.1	5.1
80°	3.8	3.8	4.5	4.5	4.5	4.5	4.5	5.1	5.1	5.1	5.1
82.5°	3.8	3.8	4.5	4.5	4.5	4.5	4.5	5.1	5.1	5.1	5.1
85°	3.8	3.8	4.5	4.5	4.5	4.5	4.5	5.1	5.1	5.1	5.1
87.5°	3.8	3.8	4.5	4.5	4.5	4.5	4.5	5.1	5.1	5.1	5.1
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°	904.7	904.7	904.7	904.7	904.7	904.7	904.7	904.7	904.7	904.7	904.7
2.5°	834.7	805.4	791.4	771.7	757.7	726.5	713.7	692.1	674.3	645.0	646.9
5°	762.1	706.7	669.2	639.9	619.5	569.8	536.7	501.7	469.9	430.4	415.8
7.5°	661.5	593.4	536.1	501.1	475.0	408.8	335.5	278.2	234.9	203.7	191.6
10°	560.9	472.4	381.4	327.3	289.7	226.0	193.6	178.3	164.3	147.1	135.6
12.5°	443.8	317.7	234.9	213.3	198.0	177.0	156.0	139.4	142.6	143.3	147.7
15°	303.1	228.6	202.5	187.8	171.3	159.2	166.2	170.6	178.9	179.5	185.3
17.5°	246.4	214.6	193.6	192.9	194.2	201.2	212.0	217.7	228.6	231.1	239.4
20°	246.4	227.9	245.8	245.8	248.9	258.5	272.5	280.8	292.9	297.3	307.5
22.5°	280.8	293.5	315.8	318.3	319.6	329.8	347.6	355.9	369.9	372.5	383.3
25°	342.5	354.0	374.4	376.3	376.9	384.6	397.9	402.4	411.9	406.8	413.2
27.5°	362.3	367.4	380.1	381.4	378.2	381.4	386.5	386.5	389.7	379.5	381.4
30°	318.3	319.6	326.0	326.6	319.6	320.9	321.5	320.9	320.3	309.4	309.4
32.5°	236.2	236.2	244.5	242.6	234.9	236.8	236.8	236.8	236.2	227.3	226.0
35°	156.6	157.3	164.3	163.0	157.3	158.5	158.5	160.4	158.5	153.4	152.2
37.5°	95.5	96.1	99.3	100.0	98.0	98.7	99.3	98.7	100.0	97.4	96.1
40°	55.4	56.7	59.2	59.8	59.2	59.2	59.8	60.5	63.0	59.8	58.6
42.5°	32.5	33.1	34.4	34.4	34.4	34.4	35.0	35.7	36.3	35.7	35.0
45°	18.5	19.1	19.7	19.7	20.4	19.7	20.4	20.4	21.0	20.4	20.4
47.5°	10.8	10.8	11.5	11.5	12.1	11.5	12.1	12.1	12.1	11.5	11.5
50°	6.4	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	6.4	6.4
52.5°	5.1	5.1	5.1	5.1	5.1	4.5	4.5	4.5	4.5	3.8	3.8
55°	4.5	4.5	4.5	4.5	4.5	4.5	3.8	3.2	3.2	2.5	2.5
57.5°	3.8	4.5	4.5	4.5	4.5	3.8	3.8	3.2	2.5	1.9	1.9
60°	4.5	4.5	4.5	4.5	3.8	3.8	3.8	3.2	2.5	1.9	1.9
62.5°	4.5	4.5	4.5	4.5	4.5	3.8	3.8	3.2	2.5	1.9	1.9
65°	4.5	4.5	4.5	4.5	4.5	3.8	3.8	3.2	2.5	1.9	1.9
67.5°	4.5	4.5	4.5	4.5	4.5	3.8	3.8	3.2	2.5	2.5	1.9
70°	4.5	5.1	5.1	4.5	4.5	4.5	3.8	3.2	3.2	2.5	1.9
72.5°	4.5	5.1	5.1	4.5	4.5	4.5	3.8	3.2	3.2	2.5	1.9
75°	5.1	5.1	5.1	5.1	4.5	4.5	3.8	3.8	3.2	2.5	1.9
77.5°	5.1	5.1	5.1	5.1	4.5	4.5	3.8	3.8	3.2	2.5	1.9
80°	5.1	5.1	5.1	5.1	5.1	4.5	4.5	3.8	3.2	2.5	2.5
82.5°	5.1	5.1	5.1	5.1	5.1	4.5	4.5	3.8	3.2	2.5	2.5
85°	5.1	5.1	5.1	5.1	5.1	4.5	4.5	3.8	3.2	2.5	1.9
87.5°	5.1	5.1	5.1	5.1	4.5	4.5	3.8	3.8	3.2	2.5	1.9
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: P209008

CATALOG NUMBER: LDSQA6A45927D010TE LARH20SP 6LSQA1H 30°

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	904.7	904.7	904.7	904.7	904.7	904.7	904.7	904.7
2.5°	623.3	608.7	602.3	612.5	607.4	592.1	595.3	585.8
5°	371.8	349.5	335.5	341.9	321.5	303.1	303.1	289.7
7.5°	179.5	172.5	168.7	170.0	165.5	159.8	156.6	156.6
10°	126.1	123.5	124.2	124.2	128.0	127.3	129.2	128.6
12.5°	149.6	150.9	151.5	154.1	157.3	157.3	159.2	157.9
15°	191.6	190.4	194.2	194.8	199.9	200.6	203.1	200.6
17.5°	243.9	246.4	250.2	249.6	259.8	260.4	260.4	259.8
20°	313.9	315.8	319.6	320.9	333.0	334.3	338.7	339.4
22.5°	390.3	390.3	392.2	394.7	406.2	406.8	408.8	408.8
25°	416.4	412.6	413.2	416.4	422.8	420.2	422.1	420.9
27.5°	382.6	376.9	375.6	380.1	384.6	377.6	380.1	380.1
30°	310.7	305.6	304.3	308.8	312.0	304.3	306.9	308.2
32.5°	227.3	224.1	223.5	226.7	229.2	222.8	225.4	227.3
35°	153.4	152.2	150.9	151.5	155.4	150.3	152.8	154.1
37.5°	97.4	94.9	95.5	96.8	99.3	96.1	98.7	98.7
40°	59.8	58.6	58.6	59.8	61.1	58.6	59.8	60.5
42.5°	35.0	35.0	35.0	35.7	36.3	35.0	35.0	35.7
45°	20.4	19.7	19.7	20.4	21.0	19.7	20.4	20.4
47.5°	11.5	10.8	10.8	11.5	11.5	10.8	11.5	11.5
50°	6.4	5.7	5.7	6.4	6.4	5.7	5.7	5.7
52.5°	3.2	3.2	3.2	3.2	3.2	3.2	2.5	2.5
55°	1.9	1.9	1.3	1.3	1.3	1.3	1.3	0.6
57.5°	1.3	1.3	0.6	0.6	0.6	0.6	0.0	0.0
60°	1.3	1.3	0.6	0.6	0.6	0.0	0.0	0.0
62.5°	1.3	1.3	0.6	0.6	0.6	0.0	0.0	0.0
65°	1.3	1.3	0.6	0.6	0.6	0.0	0.0	0.0
67.5°	1.3	1.3	0.6	0.6	0.6	0.0	0.0	0.0
70°	1.9	1.3	1.3	0.6	0.6	0.6	0.0	0.0
72.5°	1.9	1.3	1.3	1.3	0.6	0.6	0.0	0.0
75°	1.9	1.3	1.3	1.3	0.6	0.6	0.0	0.0
77.5°	1.9	1.3	1.3	1.3	0.6	0.6	0.6	0.0
80°	1.9	1.3	1.3	1.3	0.6	0.6	0.6	0.6
82.5°	1.9	1.3	1.3	1.3	0.6	0.6	0.6	0.6
85°	1.9	1.3	1.3	1.3	0.6	0.6	0.6	0.0
87.5°	1.9	1.3	1.3	1.3	0.6	0.6	0.6	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)