

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: P209007

Luminaire Tested: **LDSQA6A45840D010TE LARH20SP 6LSQA1H 30°**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P209007
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: LDSQA6A45840D010TE 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 / 4000K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 4395.2 lumens
Efficiency: N/A
Efficacy: 80.8 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

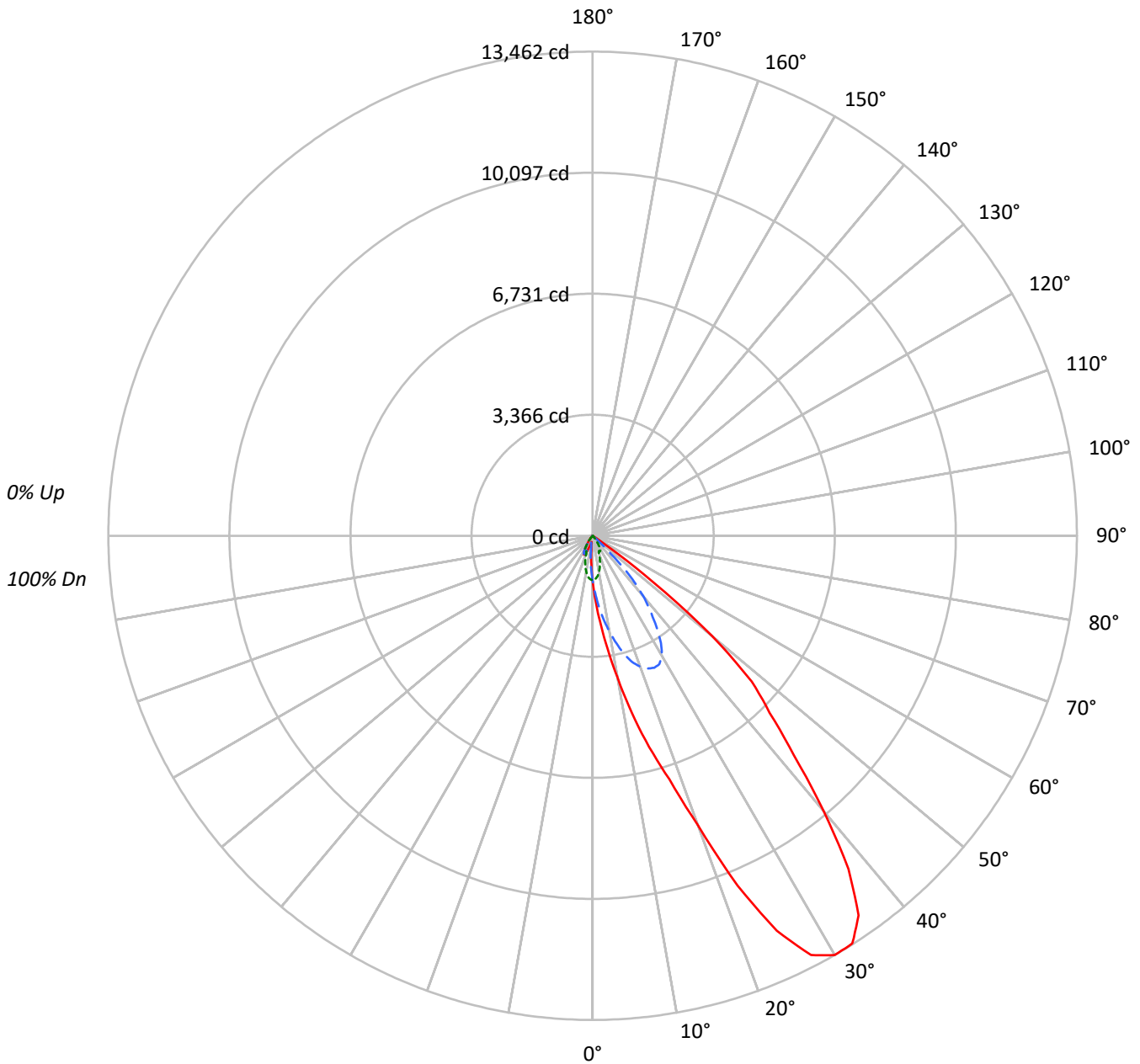
Input Watts (W): 54.4
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



TEST NUMBER: P209007

CATALOG NUMBER: LDSQA6A45840D010TE LARH20SP 6LSQA1H 30°

Luminous Intensity Polar Plot





TEST NUMBER: P209007

CATALOG NUMBER: LDSQA6A45840D010TE LARH20SP 6LSQA1H 30°

COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:

RF	20									20									20									20									
RC	80									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	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°	53423	53423	53423
5°	103521	50909	17171
10°	175876	44551	7712
15°	271013	35535	12262
20°	392324	23125	21324
25°	575610	22319	27421
30°	669277	21139	21010
35°	677425	11201	11106
40°	560860	4221	4665
45°	423593	1437	1699
50°	289807	529	529
55°	40310	458	68
60°	1051	448	0
65°	265	621	0
70°	113	768	0
75°	0	1015	0
80°	0	1736	223
85°	0	3458	0



TEST NUMBER: P209007

CATALOG NUMBER: LDSQA6A45840D010TE LARH20SP 6LSQA1H 30°

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	130.2	3.0
10°-20°	550.3	12.5
20°-30°	1255.2	28.6
30°-40°	1452.6	33.0
40°-50°	876.0	19.9
50°-60°	119.0	2.7
60°-70°	3.8	0.1
70°-80°	4.2	0.1
80°-90°	3.9	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°	1935.7	44.0
0°-40°	3388.3	77.1
0°-60°	4383.3	99.7
0°-90°	4395.2	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	4395.2	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	1241	1241	1241	1241	1241	
5°	2395	1961	1178	644	397	279
15°	6080	3418	797	245	275	1800
25°	12116	4050	470	565	577	5483
35°	12888	3088	213	217	211	7767
45°	6957	841	24	29	28	5440
55°	537	6	6	4	1	1053
65°	3	4	6	4	0	4
75°	0	4	6	4	0	0
85°	0	4	7	4	0	0
90°	0	0	0	0	0	



TEST NUMBER: P209007

CATALOG NUMBER: LDSQA6A45840D010TE LARH20SP 6LSQA1H 30°

CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	22.5°	25°	30°	35°	40°	45°
0°	1240.8	1240.8	1240.8	1240.8	1240.8	1240.8	1240.8	1240.8	1240.8	1240.8	1240.8
2.5°	1794.4	1777.8	1784.8	1766.5	1720.2	1710.6	1709.7	1697.5	1658.2	1627.6	1590.9
5°	2395.2	2394.3	2398.6	2359.4	2278.1	2252.8	2240.6	2210.9	2115.7	2042.4	1961.2
7.5°	3145.2	3140.0	3134.7	3063.1	2935.7	2886.8	2855.3	2747.9	2616.9	2486.8	2341.9
10°	4022.8	4020.2	4000.1	3874.3	3670.0	3580.1	3518.9	3348.7	3138.2	2953.1	2706.9
12.5°	5041.8	5018.2	4982.4	4798.2	4517.9	4420.1	4285.6	4015.8	3692.7	3408.9	3064.9
15°	6080.0	6046.0	5982.2	5745.6	5398.1	5231.3	5064.5	4709.1	4270.8	3858.6	3417.7
17.5°	7095.5	7058.0	6908.7	6507.0	6167.3	5963.9	5778.8	5290.6	4775.5	4245.4	3686.6
20°	8562.5	8426.3	8166.1	7533.0	6901.7	6534.9	6318.4	5802.3	5164.9	4547.6	3877.8
22.5°	10521.9	10219.8	9665.3	8636.7	7734.7	7205.6	6851.0	6164.7	5445.2	4744.9	3995.7
25°	12116.4	11979.3	11348.8	9885.4	8477.8	7854.3	7361.0	6452.9	5649.5	4876.8	4049.8
27.5°	13144.1	13110.1	12389.7	10919.2	9084.7	8266.5	7715.5	6643.2	5748.2	4904.7	4023.7
30°	13461.9	13515.2	12823.6	11270.2	9260.2	8349.4	7746.9	6645.8	5672.2	4778.1	3856.0
32.5°	13438.4	13441.0	12593.1	10967.2	8974.6	8108.4	7485.0	6424.9	5391.9	4461.1	3537.3
35°	12888.3	12752.9	11794.2	10036.4	8310.1	7546.1	6966.3	5997.1	4930.0	3984.4	3087.6
37.5°	11680.6	11503.4	10385.7	8844.5	7523.4	6817.0	6349.0	5435.6	4379.9	3475.3	2623.1
40°	9978.8	9727.3	8805.2	7736.4	6662.4	6131.5	5738.6	4807.8	3791.4	2975.8	2187.3
42.5°	8275.2	8152.1	7542.6	6673.8	5938.6	5439.1	5028.7	4150.3	3225.6	2483.3	1636.4
45°	6956.7	6851.0	6441.5	5868.7	5147.4	4691.6	4296.1	3464.8	2506.1	1666.0	840.9
47.5°	5996.2	5910.6	5518.6	4916.9	4125.8	3627.2	3219.4	2272.0	1419.8	719.5	210.4
50°	4326.6	4239.3	3855.1	3158.3	2444.1	2026.7	1733.3	1014.6	402.5	145.8	21.8
52.5°	2121.0	2049.4	1788.3	1338.6	898.5	646.2	472.4	190.4	46.3	15.7	10.5
55°	537.0	493.4	411.3	258.5	126.6	76.0	48.9	17.5	11.4	8.7	6.1
57.5°	30.6	29.7	27.1	20.1	14.8	13.1	11.4	8.7	6.1	5.2	4.4
60°	12.2	11.4	10.5	8.7	7.0	6.1	6.1	4.4	3.5	3.5	3.5
62.5°	5.2	5.2	5.2	4.4	3.5	3.5	3.5	2.6	3.5	3.5	3.5
65°	2.6	2.6	2.6	1.7	1.7	1.7	2.6	2.6	2.6	3.5	3.5
67.5°	1.7	0.9	0.9	0.9	1.7	1.7	1.7	2.6	2.6	3.5	3.5
70°	0.9	0.9	0.9	0.9	1.7	1.7	1.7	2.6	2.6	3.5	4.4
72.5°	0.0	0.9	0.9	0.9	1.7	1.7	1.7	2.6	2.6	3.5	4.4
75°	0.0	0.9	0.9	0.9	1.7	1.7	1.7	2.6	3.5	3.5	4.4
77.5°	0.0	0.9	0.9	0.9	1.7	1.7	1.7	2.6	3.5	3.5	4.4
80°	0.0	0.9	0.9	0.9	1.7	1.7	1.7	2.6	3.5	3.5	4.4
82.5°	0.0	0.0	0.9	0.9	1.7	1.7	1.7	2.6	3.5	3.5	4.4
85°	0.0	0.0	0.9	0.9	1.7	1.7	1.7	2.6	3.5	3.5	4.4
87.5°	0.0	0.0	0.9	0.9	1.7	1.7	1.7	2.6	2.6	3.5	4.4
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: P209007

CATALOG NUMBER: LDSQA6A45840D010TE LARH20SP 6LSQA1H 30°

CANDELA DISTRIBUTION (continued):

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°	95°
0°	1240.8	1240.8	1240.8	1240.8	1240.8	1240.8	1240.8	1240.8	1240.8	1240.8	1240.8
2.5°	1543.8	1512.4	1466.1	1435.5	1405.8	1377.9	1331.6	1305.4	1258.3	1214.6	1177.1
5°	1863.4	1784.8	1689.6	1608.4	1556.0	1504.5	1411.1	1342.1	1255.6	1177.9	1106.3
7.5°	2186.5	2047.6	1891.3	1757.7	1676.5	1597.1	1457.4	1345.6	1223.3	1112.4	1006.8
10°	2479.9	2271.2	2050.2	1859.0	1749.0	1646.0	1461.7	1313.3	1156.1	1019.0	886.3
12.5°	2752.3	2466.8	2178.6	1928.9	1792.7	1668.7	1443.4	1261.8	1074.9	912.5	757.9
15°	2995.0	2628.3	2272.0	1969.0	1809.2	1662.6	1400.6	1189.3	978.8	797.2	601.6
17.5°	3179.3	2728.7	2313.1	1962.9	1779.6	1616.3	1327.2	1098.5	876.7	656.6	435.7
20°	3291.0	2771.5	2304.3	1915.8	1715.8	1542.9	1239.9	999.8	753.6	504.7	384.2
22.5°	3338.2	2768.0	2263.3	1845.0	1637.2	1462.6	1156.1	903.8	624.3	456.7	400.8
25°	3346.1	2732.2	2205.7	1767.3	1559.5	1385.8	1071.4	794.6	542.3	469.8	448.8
27.5°	3285.8	2648.4	2097.4	1655.6	1450.4	1270.5	944.8	631.3	509.1	468.0	482.0
30°	3107.7	2457.2	1906.2	1459.1	1260.9	1081.0	675.0	495.1	422.6	425.2	428.7
32.5°	2794.2	2139.3	1598.8	1171.8	955.3	712.5	420.0	330.9	321.3	321.3	319.6
35°	2375.9	1750.7	1254.8	741.3	475.0	342.3	217.4	218.3	213.9	213.1	212.2
37.5°	1943.7	1381.4	794.6	306.5	206.1	143.2	128.4	130.1	128.4	131.0	129.2
40°	1532.4	853.1	289.9	97.8	72.5	69.9	71.6	73.3	73.3	75.1	75.1
42.5°	890.7	282.9	76.0	39.3	39.3	37.5	38.4	40.2	41.0	41.9	41.0
45°	264.6	58.5	24.4	21.8	21.8	21.0	21.0	21.8	22.7	23.6	23.6
47.5°	41.9	16.6	14.0	12.2	12.2	12.2	12.2	12.2	13.1	13.1	14.0
50°	13.1	10.5	8.7	7.9	7.9	7.0	7.0	7.9	7.9	7.9	8.7
52.5°	7.9	6.1	6.1	5.2	6.1	6.1	5.2	6.1	6.1	6.1	7.0
55°	5.2	5.2	5.2	5.2	5.2	5.2	5.2	5.2	6.1	6.1	6.1
57.5°	4.4	4.4	5.2	5.2	5.2	5.2	5.2	5.2	5.2	5.2	5.2
60°	4.4	4.4	5.2	5.2	5.2	5.2	5.2	5.2	5.2	5.2	6.1
62.5°	4.4	4.4	5.2	5.2	5.2	5.2	5.2	5.2	6.1	6.1	6.1
65°	4.4	4.4	5.2	5.2	5.2	5.2	5.2	6.1	6.1	6.1	6.1
67.5°	4.4	5.2	5.2	5.2	5.2	6.1	6.1	6.1	6.1	6.1	6.1
70°	4.4	5.2	5.2	6.1	6.1	6.1	6.1	6.1	6.1	6.1	6.1
72.5°	4.4	5.2	5.2	6.1	6.1	6.1	6.1	6.1	6.1	6.1	6.1
75°	5.2	5.2	5.2	6.1	6.1	6.1	6.1	6.1	6.1	6.1	7.0
77.5°	5.2	5.2	6.1	6.1	6.1	6.1	6.1	6.1	7.0	7.0	7.0
80°	5.2	5.2	6.1	6.1	6.1	6.1	6.1	7.0	7.0	7.0	7.0
82.5°	5.2	5.2	6.1	6.1	6.1	6.1	6.1	7.0	7.0	7.0	7.0
85°	5.2	5.2	6.1	6.1	6.1	6.1	6.1	7.0	7.0	7.0	7.0
87.5°	5.2	5.2	6.1	6.1	6.1	6.1	6.1	7.0	7.0	7.0	7.0
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: P209007

CATALOG NUMBER: LDSQA6A45840D010TE LARH20SP 6LSQA1H 30°

CANDELA DISTRIBUTION (continued):

	100°	105°	110°	112.5°	115°	120°	125°	130°	135°	140°	145°
0°	1240.8	1240.8	1240.8	1240.8	1240.8	1240.8	1240.8	1240.8	1240.8	1240.8	1240.8
2.5°	1144.8	1104.6	1085.4	1058.3	1039.1	996.3	978.8	949.2	924.7	884.5	887.2
5°	1045.2	969.2	917.7	877.6	849.6	781.5	736.1	688.1	644.4	590.3	570.2
7.5°	907.2	813.8	735.2	687.2	651.4	560.6	460.2	381.6	322.2	279.4	262.8
10°	769.3	647.9	523.0	448.8	397.3	310.0	265.4	244.5	225.3	201.7	186.0
12.5°	608.6	435.7	322.2	292.5	271.6	242.7	213.9	191.2	195.6	196.5	202.6
15°	415.6	313.5	277.7	257.6	234.9	218.3	227.9	234.0	245.4	246.2	254.1
17.5°	337.9	294.3	265.4	264.6	266.3	275.9	290.8	298.6	313.5	317.0	328.3
20°	337.9	312.6	337.1	337.1	341.4	354.5	373.7	385.1	401.7	407.8	421.8
22.5°	385.1	402.5	433.1	436.6	438.3	452.3	476.8	488.1	507.3	510.8	525.7
25°	469.8	485.5	513.4	516.1	516.9	527.4	545.7	551.9	565.0	558.0	566.7
27.5°	496.8	503.8	521.3	523.0	518.7	523.0	530.0	530.0	534.4	520.4	523.0
30°	436.6	438.3	447.1	447.9	438.3	440.1	441.0	440.1	439.2	424.4	424.4
32.5°	324.0	324.0	335.3	332.7	322.2	324.8	324.8	324.8	324.0	311.7	310.0
35°	214.8	215.7	225.3	223.5	215.7	217.4	217.4	220.0	217.4	210.4	208.7
37.5°	131.0	131.9	136.2	137.1	134.5	135.3	136.2	135.3	137.1	133.6	131.9
40°	76.0	77.7	81.2	82.1	81.2	81.2	82.1	83.0	86.4	82.1	80.3
42.5°	44.5	45.4	47.2	47.2	47.2	47.2	48.0	48.9	49.8	48.9	48.0
45°	25.3	26.2	27.1	27.1	27.9	27.1	27.9	27.9	28.8	27.9	27.9
47.5°	14.8	14.8	15.7	15.7	16.6	15.7	16.6	16.6	16.6	15.7	15.7
50°	8.7	9.6	9.6	9.6	9.6	9.6	9.6	9.6	9.6	8.7	8.7
52.5°	7.0	7.0	7.0	7.0	7.0	6.1	6.1	6.1	6.1	5.2	5.2
55°	6.1	6.1	6.1	6.1	6.1	6.1	5.2	4.4	4.4	3.5	3.5
57.5°	5.2	6.1	6.1	6.1	6.1	5.2	5.2	4.4	3.5	2.6	2.6
60°	6.1	6.1	6.1	6.1	5.2	5.2	5.2	4.4	3.5	2.6	2.6
62.5°	6.1	6.1	6.1	6.1	6.1	5.2	5.2	4.4	3.5	2.6	2.6
65°	6.1	6.1	6.1	6.1	6.1	5.2	5.2	4.4	3.5	2.6	2.6
67.5°	6.1	6.1	6.1	6.1	6.1	5.2	5.2	4.4	3.5	3.5	2.6
70°	6.1	7.0	7.0	6.1	6.1	6.1	5.2	4.4	4.4	3.5	2.6
72.5°	6.1	7.0	7.0	6.1	6.1	6.1	5.2	4.4	4.4	3.5	2.6
75°	7.0	7.0	7.0	7.0	6.1	6.1	5.2	5.2	4.4	3.5	2.6
77.5°	7.0	7.0	7.0	7.0	6.1	6.1	5.2	5.2	4.4	3.5	2.6
80°	7.0	7.0	7.0	7.0	7.0	6.1	6.1	5.2	4.4	3.5	3.5
82.5°	7.0	7.0	7.0	7.0	7.0	6.1	6.1	5.2	4.4	3.5	3.5
85°	7.0	7.0	7.0	7.0	7.0	6.1	6.1	5.2	4.4	3.5	2.6
87.5°	7.0	7.0	7.0	7.0	6.1	6.1	5.2	5.2	4.4	3.5	2.6
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: P209007

CATALOG NUMBER: LDSQA6A45840D010TE LARH20SP 6LSQA1H 30°

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	1240.8	1240.8	1240.8	1240.8	1240.8	1240.8	1240.8	1240.8
2.5°	854.9	834.8	826.0	840.0	833.0	812.1	816.4	803.3
5°	509.9	479.4	460.2	468.9	441.0	415.6	415.6	397.3
7.5°	246.2	236.6	231.4	233.1	227.0	219.2	214.8	214.8
10°	172.9	169.4	170.3	170.3	175.5	174.6	177.3	176.4
12.5°	205.2	206.9	207.8	211.3	215.7	215.7	218.3	216.6
15°	262.8	261.1	266.3	267.2	274.2	275.1	278.5	275.1
17.5°	334.4	337.9	343.2	342.3	356.3	357.1	357.1	356.3
20°	430.5	433.1	438.3	440.1	456.7	458.4	464.5	465.4
22.5°	535.3	535.3	537.9	541.4	557.1	558.0	560.6	560.6
25°	571.1	565.8	566.7	571.1	579.8	576.3	578.9	577.2
27.5°	524.8	516.9	515.2	521.3	527.4	517.8	521.3	521.3
30°	426.1	419.1	417.4	423.5	427.9	417.4	420.9	422.6
32.5°	311.7	307.4	306.5	310.9	314.3	305.6	309.1	311.7
35°	210.4	208.7	206.9	207.8	213.1	206.1	209.6	211.3
37.5°	133.6	130.1	131.0	132.7	136.2	131.9	135.3	135.3
40°	82.1	80.3	80.3	82.1	83.8	80.3	82.1	83.0
42.5°	48.0	48.0	48.0	48.9	49.8	48.0	48.0	48.9
45°	27.9	27.1	27.1	27.9	28.8	27.1	27.9	27.9
47.5°	15.7	14.8	14.8	15.7	15.7	14.8	15.7	15.7
50°	8.7	7.9	7.9	8.7	8.7	7.9	7.9	7.9
52.5°	4.4	4.4	4.4	4.4	4.4	4.4	3.5	3.5
55°	2.6	2.6	1.7	1.7	1.7	1.7	1.7	0.9
57.5°	1.7	1.7	0.9	0.9	0.9	0.9	0.0	0.0
60°	1.7	1.7	0.9	0.9	0.9	0.0	0.0	0.0
62.5°	1.7	1.7	0.9	0.9	0.9	0.0	0.0	0.0
65°	1.7	1.7	0.9	0.9	0.9	0.0	0.0	0.0
67.5°	1.7	1.7	0.9	0.9	0.9	0.0	0.0	0.0
70°	2.6	1.7	1.7	0.9	0.9	0.9	0.0	0.0
72.5°	2.6	1.7	1.7	1.7	0.9	0.9	0.0	0.0
75°	2.6	1.7	1.7	1.7	0.9	0.9	0.0	0.0
77.5°	2.6	1.7	1.7	1.7	0.9	0.9	0.9	0.0
80°	2.6	1.7	1.7	1.7	0.9	0.9	0.9	0.9
82.5°	2.6	1.7	1.7	1.7	0.9	0.9	0.9	0.9
85°	2.6	1.7	1.7	1.7	0.9	0.9	0.9	0.0
87.5°	2.6	1.7	1.7	1.7	0.9	0.9	0.9	0.0
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0



Report Generated By E9808895 / USPTCWHP6082093





— 0°-180° - - 45°-225° - - - - 90°-270°













(END OF REPORT)