

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: P209057

Luminaire Tested: **LDSQA6A65930D010TE LARH30NF 6LSQA1H 30°**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P209057
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: LDSQA6A65930D010TE 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 90CRI / 3000K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 4823.4 lumens
Efficiency: N/A
Efficacy: 61.3 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

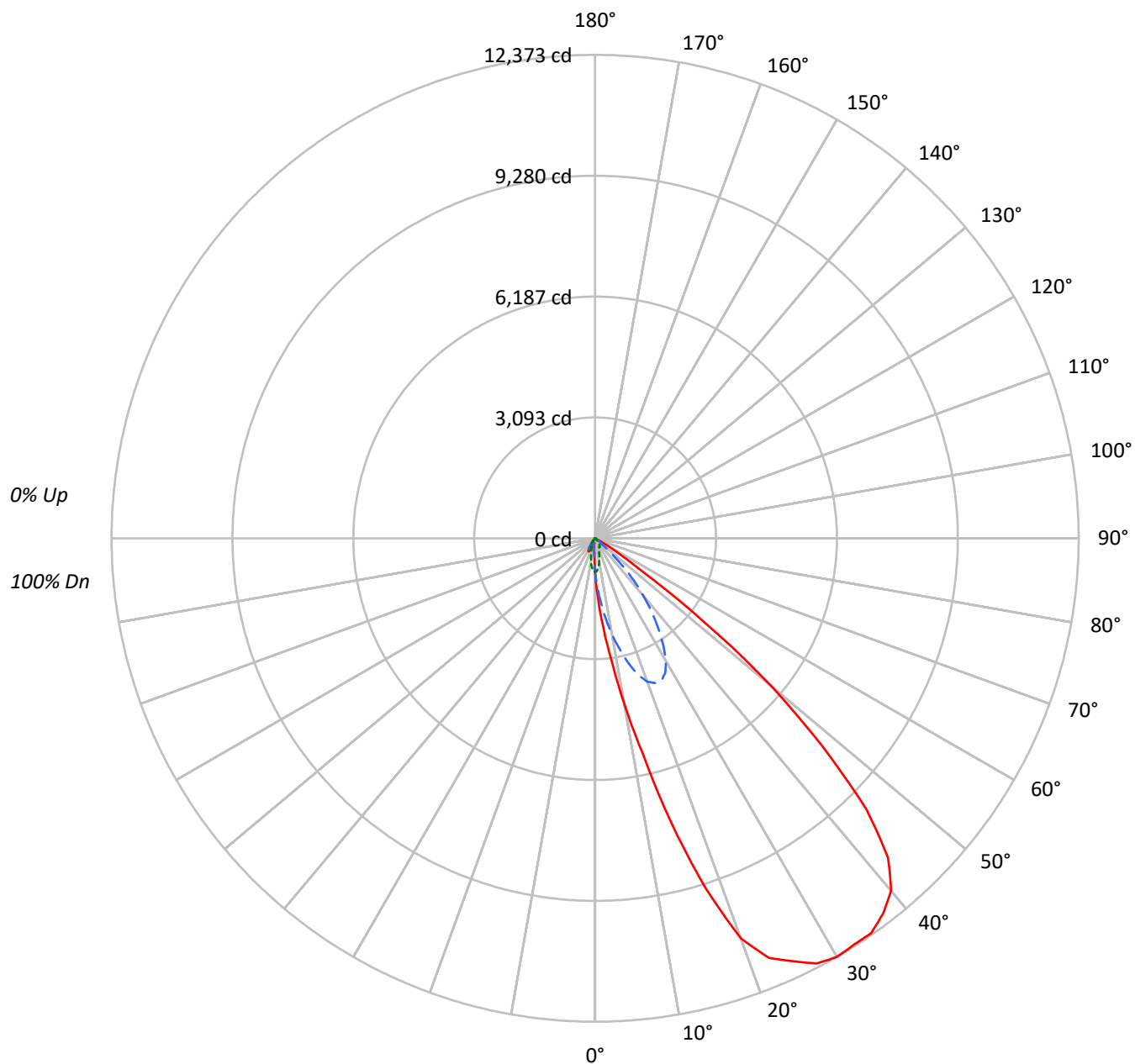
Input Watts (W): 78.67
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	37458	37458	37458
5°	96091	34079	10615
10°	187313	26188	5098
15°	336248	17790	6842
20°	499224	13503	11294
25°	567448	11126	17706
30°	615121	12166	16655
35°	647917	7884	10328
40°	661928	3502	5030
45°	597854	1333	1869
50°	393550	529	529
55°	107771	458	0
60°	21528	525	0
65°	1518	713	0
70°	227	881	0
75°	0	1314	0
80°	0	1959	223
85°	0	3903	445



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	106.6	2.2
10°-20°	566.2	11.7
20°-30°	1283.3	26.6
30°-40°	1540.4	31.9
40°-50°	1085.6	22.5
50°-60°	224.0	4.6
60°-70°	7.9	0.2
70°-80°	4.7	0.1
80°-90°	4.6	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°	1956.1	40.6
0°-40°	3496.5	72.5
0°-60°	4806.1	99.6
0°-90°	4823.4	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	4823.4	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	870	870	870	870	870	
5°	2223	1620	788	328	246	273
15°	7544	3319	399	142	154	2239
25°	11945	4014	234	328	373	5512
35°	12327	2811	150	196	196	7663
45°	9819	964	22	30	31	7221
55°	1436	19	6	4	0	1892
65°	15	4	7	4	0	44
75°	0	4	8	5	0	0
85°	0	5	8	5	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°	870.0	870.0	870.0	870.0	870.0	870.0	870.0	870.0	870.0	870.0	870.0
2.5°	1483.1	1438.4	1455.9	1404.2	1392.8	1383.1	1392.8	1336.6	1305.1	1264.7	1232.3
5°	2223.3	2169.8	2182.1	2091.8	2050.5	2022.5	2017.2	1901.4	1814.6	1719.0	1619.9
7.5°	3095.1	3044.2	3037.2	2896.9	2811.8	2763.6	2743.4	2577.7	2427.7	2257.5	2071.6
10°	4284.4	4168.6	4132.7	3929.2	3766.9	3664.3	3538.0	3273.2	3010.0	2753.1	2516.3
12.5°	5668.4	5605.2	5515.8	5157.1	4872.9	4727.3	4538.7	4124.8	3726.6	3302.1	2905.7
15°	7543.5	7319.0	7166.4	6648.0	6190.2	5965.7	5690.3	5057.1	4455.4	3917.8	3318.8
17.5°	9375.7	9258.1	9019.6	8346.9	7641.7	7287.4	6877.0	6016.6	5166.7	4401.9	3670.5
20°	10895.6	10785.1	10513.2	9879.1	9096.8	8574.0	8057.5	6877.0	5766.6	4787.8	3905.5
22.5°	11623.6	11553.4	11331.5	10788.6	10122.0	9624.8	9069.6	7609.3	6210.4	5040.4	4012.5
25°	11944.6	11912.1	11769.1	11341.1	10713.2	10291.3	9766.8	8127.6	6486.7	5157.9	4014.3
27.5°	12269.9	12276.1	11960.3	11621.8	11026.3	10621.1	10115.9	8357.4	6536.7	5092.2	3882.7
30°	12372.6	12307.6	12168.2	11682.3	11116.6	10686.0	10144.0	8251.3	6331.4	4822.0	3620.5
32.5°	12330.5	12305.0	12151.5	11637.6	10963.1	10488.6	9873.0	7830.3	5926.2	4436.1	3248.6
35°	12326.9	12279.6	11927.9	11486.7	10656.2	10070.3	9259.0	7149.7	5352.6	3927.4	2810.9
37.5°	12104.2	11986.6	11722.7	11128.0	10033.5	9290.6	8381.1	6318.3	4651.0	3356.5	2376.8
40°	11777.0	11619.2	11271.9	10372.0	8954.7	8098.7	7211.1	5373.7	3908.1	2793.4	1915.5
42.5°	11093.8	10855.3	10364.1	9126.6	7517.2	6745.4	6006.9	4416.8	3187.2	2275.9	1462.0
45°	9818.6	9492.3	8828.4	7469.8	6072.7	5443.0	4849.2	3553.8	2551.3	1688.3	963.9
47.5°	7891.7	7589.1	6984.8	5946.4	4762.4	4230.0	3756.4	2643.4	1729.5	977.9	460.5
50°	5875.4	5615.8	5143.9	4132.7	3196.8	2778.5	2373.3	1501.5	810.4	464.8	191.2
52.5°	3505.6	3376.6	2958.3	2291.7	1578.7	1360.3	1091.9	635.9	408.7	168.4	51.7
55°	1435.7	1325.2	1168.2	937.6	686.7	582.4	498.2	314.0	127.2	35.1	19.3
57.5°	649.0	624.5	553.4	435.0	315.7	264.9	178.9	59.6	28.1	17.5	11.4
60°	250.0	225.4	193.0	104.4	44.7	37.7	30.7	20.2	14.0	9.6	7.0
62.5°	36.0	34.2	30.7	24.6	19.3	17.5	14.9	10.5	7.9	6.1	5.3
65°	14.9	14.9	13.2	10.5	8.8	7.9	7.0	5.3	4.4	4.4	4.4
67.5°	6.1	6.1	5.3	4.4	3.5	3.5	3.5	2.6	3.5	3.5	4.4
70°	1.8	1.8	1.8	1.8	1.8	1.8	2.6	2.6	3.5	3.5	4.4
72.5°	0.0	0.0	0.9	0.9	1.8	1.8	1.8	2.6	3.5	4.4	4.4
75°	0.0	0.0	0.9	0.9	1.8	1.8	1.8	2.6	3.5	4.4	4.4
77.5°	0.0	0.0	0.9	0.9	1.8	1.8	2.6	2.6	3.5	4.4	4.4
80°	0.0	0.0	0.9	0.9	1.8	1.8	2.6	2.6	3.5	4.4	5.3
82.5°	0.0	0.0	0.9	0.9	1.8	1.8	2.6	2.6	3.5	4.4	5.3
85°	0.0	0.0	0.9	0.9	1.8	1.8	2.6	2.6	3.5	4.4	5.3
87.5°	0.0	0.0	0.9	0.9	1.8	1.8	2.6	2.6	3.5	4.4	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°	870.0	870.0	870.0	870.0	870.0	870.0	870.0	870.0	870.0	870.0	870.0
2.5°	1204.2	1148.1	1132.3	1083.2	1041.9	1021.8	996.3	939.3	896.3	839.3	805.1
5°	1550.6	1444.5	1360.3	1257.7	1190.2	1146.3	1077.9	973.5	889.3	788.5	716.6
7.5°	1925.1	1731.3	1579.6	1410.3	1312.9	1236.6	1120.0	970.0	846.4	712.2	600.8
10°	2286.5	1997.0	1758.5	1515.5	1387.5	1281.4	1120.9	932.3	768.3	599.0	481.5
12.5°	2604.8	2231.2	1895.3	1583.1	1424.3	1291.9	1091.1	864.8	666.6	492.9	389.4
15°	2870.6	2412.8	1991.8	1608.5	1427.0	1269.1	1028.8	768.3	553.4	399.1	326.3
17.5°	3072.3	2508.4	2021.6	1577.8	1376.1	1204.2	933.2	646.4	449.0	338.5	274.5
20°	3176.7	2526.8	1978.6	1494.5	1282.2	1106.0	807.8	524.5	380.6	294.7	229.8
22.5°	3189.8	2475.0	1876.0	1375.2	1163.8	986.7	669.2	437.6	339.4	260.5	202.6
25°	3111.8	2362.8	1729.5	1240.1	1034.0	849.9	544.6	392.0	308.7	234.2	233.3
27.5°	2945.1	2169.8	1554.1	1083.2	877.1	691.1	462.2	354.3	275.4	248.2	264.0
30°	2710.1	1922.5	1338.4	884.9	685.0	531.5	389.4	292.1	242.1	244.7	257.9
32.5°	2391.7	1615.5	1084.9	648.1	490.3	399.9	292.1	199.1	200.8	201.7	213.1
35°	1991.8	1295.4	810.4	435.9	344.7	281.5	164.9	146.5	149.1	150.0	157.9
37.5°	1596.2	995.5	538.5	290.3	216.6	148.2	102.6	98.2	100.0	99.1	107.9
40°	1222.6	693.7	322.8	143.8	83.3	69.3	63.1	60.5	61.4	62.3	67.5
42.5°	865.6	376.3	159.6	54.4	43.9	40.3	37.7	36.0	36.8	36.8	40.3
45°	439.4	178.0	54.4	29.8	27.2	24.6	22.8	21.9	21.9	21.9	23.7
47.5°	190.3	58.8	25.4	18.4	16.7	15.8	14.0	13.2	13.2	13.2	14.0
50°	59.6	23.7	15.8	12.3	10.5	9.6	8.8	8.8	8.8	7.9	8.8
52.5°	21.9	14.9	10.5	7.9	7.0	7.0	7.0	6.1	7.0	6.1	7.0
55°	13.2	9.6	7.0	6.1	6.1	6.1	6.1	6.1	6.1	6.1	6.1
57.5°	8.8	7.0	6.1	6.1	5.3	5.3	6.1	6.1	6.1	6.1	6.1
60°	6.1	6.1	5.3	5.3	5.3	5.3	6.1	6.1	6.1	6.1	6.1
62.5°	5.3	5.3	5.3	5.3	5.3	5.3	6.1	6.1	6.1	6.1	7.0
65°	4.4	5.3	5.3	5.3	5.3	5.3	6.1	6.1	7.0	7.0	7.0
67.5°	4.4	5.3	5.3	6.1	6.1	6.1	6.1	7.0	7.0	7.0	7.0
70°	5.3	5.3	6.1	6.1	6.1	6.1	7.0	7.0	7.0	7.0	7.9
72.5°	5.3	5.3	6.1	6.1	6.1	6.1	7.0	7.0	7.9	7.9	7.9
75°	5.3	6.1	6.1	6.1	6.1	7.0	7.0	7.0	7.9	7.9	7.9
77.5°	5.3	6.1	6.1	7.0	7.0	7.0	7.0	7.9	7.9	7.9	7.9
80°	5.3	6.1	6.1	7.0	7.0	7.0	7.9	7.9	7.9	7.9	8.8
82.5°	5.3	6.1	6.1	7.0	7.0	7.0	7.9	7.9	7.9	7.9	8.8
85°	6.1	6.1	7.0	7.0	7.0	7.0	7.9	7.9	7.9	7.9	8.8
87.5°	6.1	6.1	7.0	7.0	7.0	7.0	7.9	7.9	8.8	7.9	8.8
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°	870.0	870.0	870.0	870.0	870.0	870.0	870.0	870.0	870.0	870.0	870.0
2.5°	759.5	708.7	673.6	660.4	635.0	594.6	571.0	549.0	507.8	499.0	476.2
5°	634.1	552.5	494.7	472.7	443.8	409.6	376.3	354.3	328.0	317.5	301.7
7.5°	499.9	418.4	368.4	350.8	330.6	302.6	272.8	250.8	223.6	209.6	196.5
10°	392.9	332.4	290.3	272.8	251.7	221.9	191.2	162.3	138.6	123.7	121.0
12.5°	319.2	269.3	224.5	206.1	181.5	151.7	129.8	128.9	127.2	126.3	128.0
15°	261.4	213.1	165.8	145.6	138.6	137.7	140.3	143.0	142.1	144.7	146.5
17.5°	214.9	163.1	152.6	153.5	154.4	157.0	161.4	168.4	169.3	173.7	177.2
20°	175.4	172.8	177.2	180.7	183.3	188.6	198.2	207.0	209.6	215.8	222.8
22.5°	199.1	207.0	216.6	221.0	224.5	234.2	244.7	258.7	264.0	271.9	281.5
25°	240.3	253.5	268.4	273.6	278.9	294.7	307.0	323.6	328.0	337.7	347.3
27.5°	274.5	288.5	304.3	311.4	315.7	331.5	342.0	352.6	352.6	357.8	364.9
30°	269.3	280.7	293.8	299.1	300.8	312.2	322.8	326.3	324.5	327.1	332.4
32.5°	223.6	232.4	242.9	247.3	249.1	257.0	265.7	265.7	264.9	264.9	268.4
35°	165.8	171.9	177.2	181.5	184.2	189.4	197.3	196.5	196.5	194.7	197.3
37.5°	111.4	114.9	121.0	122.8	123.7	127.2	133.3	133.3	131.6	132.4	134.2
40°	67.5	71.9	75.4	76.3	78.1	80.7	85.1	85.1	85.1	85.1	86.0
42.5°	40.3	43.0	45.6	45.6	46.5	50.0	51.7	51.7	51.7	51.7	52.6
45°	23.7	24.6	26.3	27.2	27.2	28.9	29.8	29.8	29.8	29.8	30.7
47.5°	14.0	14.9	14.9	15.8	15.8	16.7	17.5	17.5	16.7	16.7	16.7
50°	8.8	8.8	8.8	8.8	9.6	9.6	9.6	9.6	9.6	9.6	8.8
52.5°	7.0	7.0	7.0	7.0	6.1	6.1	6.1	6.1	5.3	5.3	4.4
55°	6.1	6.1	6.1	6.1	6.1	5.3	5.3	5.3	4.4	3.5	2.6
57.5°	6.1	6.1	6.1	6.1	6.1	5.3	5.3	4.4	3.5	3.5	2.6
60°	6.1	6.1	6.1	6.1	6.1	5.3	5.3	4.4	3.5	3.5	2.6
62.5°	7.0	7.0	6.1	6.1	6.1	5.3	5.3	4.4	4.4	3.5	2.6
65°	7.0	7.0	6.1	6.1	6.1	6.1	5.3	5.3	4.4	3.5	2.6
67.5°	7.0	7.0	7.0	7.0	6.1	6.1	6.1	5.3	4.4	3.5	2.6
70°	7.9	7.9	7.0	7.0	7.0	6.1	6.1	5.3	4.4	4.4	3.5
72.5°	7.9	7.9	7.0	7.0	7.0	7.0	6.1	5.3	5.3	4.4	3.5
75°	7.9	7.9	7.9	7.9	7.0	7.0	6.1	6.1	5.3	4.4	3.5
77.5°	7.9	7.9	7.9	7.9	7.0	7.0	7.0	6.1	5.3	4.4	3.5
80°	7.9	7.9	7.9	7.9	7.9	7.0	7.0	6.1	5.3	4.4	3.5
82.5°	8.8	8.8	7.9	7.9	7.9	7.0	7.0	6.1	5.3	4.4	4.4
85°	8.8	8.8	7.9	7.9	7.9	7.0	7.0	6.1	5.3	5.3	4.4
87.5°	8.8	8.8	7.9	7.9	7.9	7.0	7.0	6.1	5.3	5.3	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: P209057

CATALOG NUMBER: LDSQA6A65930D010TE LARH30NF 6LSQA1H 30°

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	870.0	870.0	870.0	870.0	870.0	870.0	870.0	870.0
2.5°	462.2	435.9	427.1	433.3	426.2	421.0	414.0	410.5
5°	289.4	270.1	264.0	265.7	259.6	254.3	247.3	245.6
7.5°	178.0	159.6	152.6	152.6	145.6	139.5	135.1	132.4
10°	119.3	115.8	116.6	117.5	116.6	117.5	114.9	116.6
12.5°	128.0	126.3	128.0	128.9	128.9	130.7	127.2	129.8
15°	149.1	147.3	150.0	151.7	151.7	154.4	150.9	153.5
17.5°	182.4	181.5	185.9	187.7	188.6	193.0	188.6	192.1
20°	230.7	229.8	235.9	238.6	237.7	246.5	240.3	246.5
22.5°	292.9	291.2	300.0	302.6	303.5	314.9	309.6	314.0
25°	355.2	357.0	361.3	365.7	366.6	376.3	368.4	372.7
27.5°	368.4	365.7	368.4	373.6	374.5	378.9	371.9	375.4
30°	333.3	328.9	329.8	335.9	337.7	339.4	333.3	335.0
32.5°	271.0	264.0	264.0	270.1	271.9	274.5	264.0	268.4
35°	200.0	193.8	193.8	198.2	199.1	200.8	193.0	196.5
37.5°	136.8	131.6	133.3	135.1	135.9	137.7	136.8	135.9
40°	87.7	84.2	86.8	86.8	87.7	88.6	88.6	89.5
42.5°	53.5	50.9	52.6	52.6	53.5	53.5	53.5	54.4
45°	30.7	29.8	29.8	30.7	30.7	30.7	29.8	30.7
47.5°	16.7	15.8	16.7	16.7	16.7	16.7	16.7	16.7
50°	8.8	7.9	7.9	7.9	7.9	7.9	7.9	7.9
52.5°	4.4	3.5	3.5	3.5	2.6	3.5	2.6	2.6
55°	2.6	1.8	1.8	1.8	0.9	0.9	0.0	0.0
57.5°	1.8	0.9	0.9	0.9	0.0	0.0	0.0	0.0
60°	1.8	0.9	0.9	0.9	0.0	0.0	0.0	0.0
62.5°	1.8	0.9	0.9	0.9	0.0	0.0	0.0	0.0
65°	1.8	0.9	0.9	0.9	0.0	0.0	0.0	0.0
67.5°	2.6	1.8	0.9	0.9	0.9	0.0	0.0	0.0
70°	2.6	1.8	1.8	0.9	0.9	0.0	0.0	0.0
72.5°	2.6	1.8	1.8	1.8	0.9	0.9	0.0	0.0
75°	2.6	1.8	1.8	1.8	0.9	0.9	0.0	0.0
77.5°	2.6	2.6	1.8	1.8	0.9	0.9	0.9	0.0
80°	3.5	2.6	1.8	1.8	1.8	0.9	0.9	0.9
82.5°	3.5	2.6	1.8	1.8	1.8	0.9	0.9	0.9
85°	3.5	2.6	2.6	1.8	1.8	0.9	0.9	0.9
87.5°	3.5	2.6	2.6	1.8	1.8	0.9	0.9	0.9
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)