

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: P209055

Luminaire Tested: **LDSQA6A65840D010TE LARH30NF 6LSQA1H 30°**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P209055
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: LDSQA6A65840D010TE 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 / 4000K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 6180.7 lumens
Efficiency: N/A
Efficacy: 78.6 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

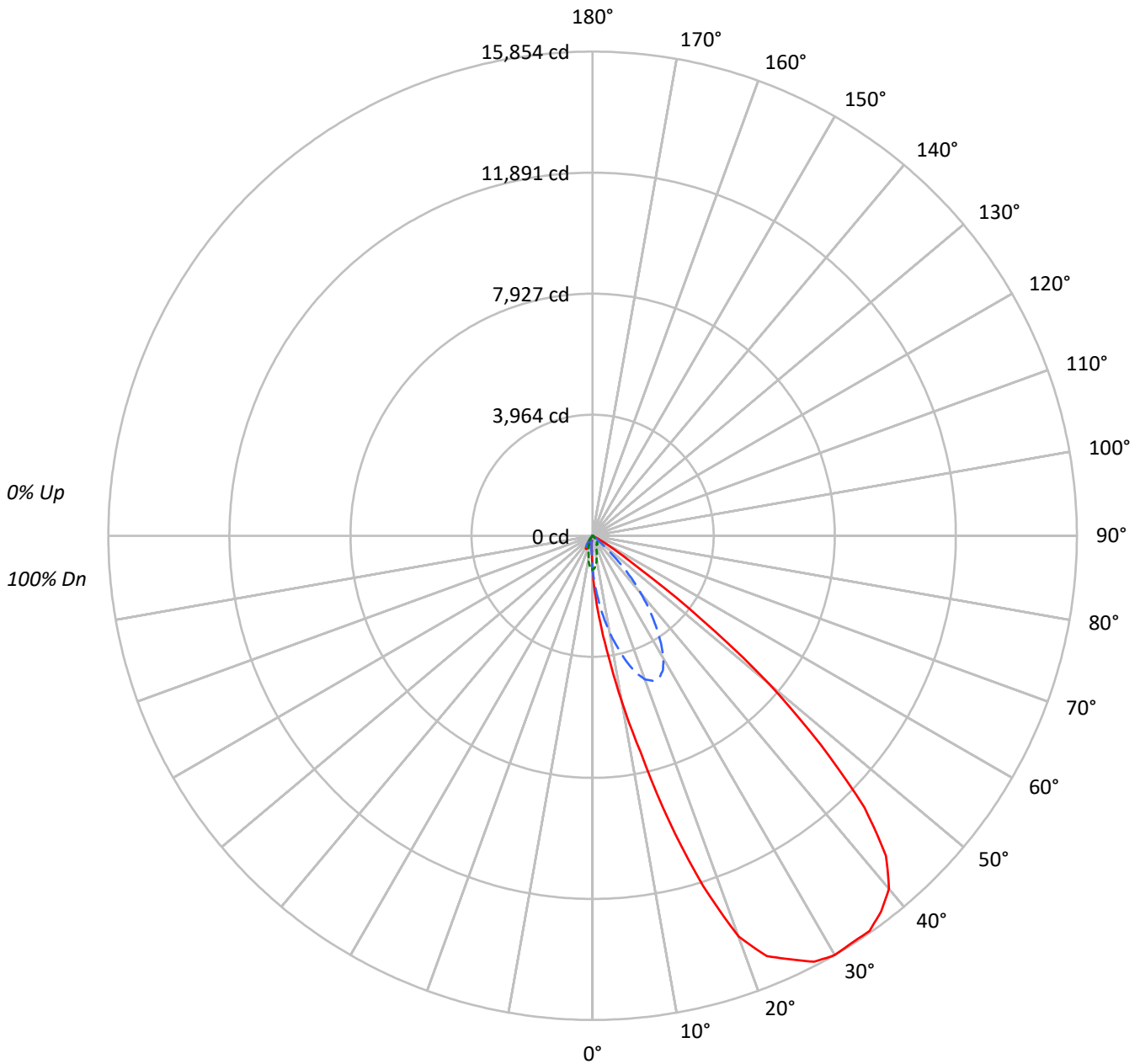
Input Watts (W): 78.67
Input Voltage (V): NR
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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Luminous Intensity Polar Plot





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COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:

RF	20									20									20									20									
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	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°	48003	48003	48003
5°	123134	43670	13601
10°	240026	33559	6536
15°	430875	22795	8768
20°	639714	17301	14470
25°	727132	14257	22689
30°	788219	15591	21343
35°	830252	10102	13230
40°	848204	4485	6441
45°	766098	1711	2393
50°	504299	677	677
55°	138105	593	0
60°	27581	680	0
65°	1946	917	0
70°	277	1133	0
75°	0	1680	0
80°	0	2504	273
85°	0	4989	543



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	136.6	2.2
10°-20°	725.5	11.7
20°-30°	1644.4	26.6
30°-40°	1973.9	31.9
40°-50°	1391.2	22.5
50°-60°	287.0	4.6
60°-70°	10.2	0.2
70°-80°	6.0	0.1
80°-90°	5.9	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°	2506.5	40.6
0°-40°	4480.4	72.5
0°-60°	6158.6	99.6
0°-90°	6180.7	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	6180.7	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	1115	1115	1115	1115	1115	
5°	2849	2076	1010	420	315	350
15°	9666	4253	511	182	197	2869
25°	15306	5144	300	420	478	7064
35°	15796	3602	192	252	252	9820
45°	12582	1235	28	38	39	9254
55°	1840	25	8	6	0	2424
65°	19	6	9	6	0	57
75°	0	6	10	7	0	0
85°	0	7	10	7	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°	1114.9	1114.9	1114.9	1114.9	1114.9	1114.9	1114.9	1114.9	1114.9	1114.9	1114.9
2.5°	1900.5	1843.1	1865.6	1799.3	1784.7	1772.3	1784.7	1712.8	1672.3	1620.6	1579.0
5°	2849.0	2780.4	2796.2	2680.4	2627.6	2591.6	2584.9	2436.5	2325.3	2202.8	2075.8
7.5°	3966.1	3900.9	3891.9	3712.1	3603.1	3541.3	3515.4	3303.0	3110.9	2892.8	2654.6
10°	5490.1	5341.7	5295.6	5034.9	4827.0	4695.5	4533.7	4194.3	3857.1	3527.8	3224.4
12.5°	7263.5	7182.6	7068.0	6608.3	6244.2	6057.6	5816.0	5285.5	4775.3	4231.3	3723.4
15°	9666.4	9378.6	9183.1	8518.9	7932.2	7644.5	7291.6	6480.2	5709.2	5020.3	4252.7
17.5°	12014.1	11863.5	11557.8	10695.8	9792.2	9338.2	8812.2	7709.7	6620.7	5640.7	4703.4
20°	13961.8	13820.2	13471.8	12659.2	11656.7	10986.9	10324.9	8812.2	7389.4	6135.2	5004.6
22.5°	14894.6	14804.7	14520.3	13824.6	12970.5	12333.3	11621.9	9750.6	7958.1	6458.8	5141.7
25°	15305.9	15264.3	15081.1	14532.7	13728.0	13187.4	12515.3	10414.8	8312.1	6609.4	5143.9
27.5°	15722.9	15730.7	15326.1	14892.3	14129.2	13610.0	12962.6	10709.3	8376.2	6525.2	4975.3
30°	15854.3	15771.2	15592.5	14969.9	14245.0	13693.2	12998.6	10573.3	8113.2	6179.0	4639.3
32.5°	15800.4	15767.8	15571.1	14912.5	14048.3	13440.3	12651.3	10033.9	7593.9	5684.5	4162.8
35°	15795.9	15735.2	15284.5	14719.2	13654.9	12904.2	11864.6	9161.7	6858.9	5032.7	3602.0
37.5°	15510.4	15359.8	15021.6	14259.6	12857.0	11905.1	10739.6	8096.3	5959.8	4301.0	3045.7
40°	15091.2	14888.9	14443.9	13290.8	11474.6	10377.8	9240.4	6885.9	5007.9	3579.5	2454.5
42.5°	14215.8	13910.1	13280.7	11694.9	9632.6	8643.6	7697.3	5659.8	4084.1	2916.4	1873.5
45°	12581.7	12163.6	11312.8	9571.9	7781.6	6974.7	6213.8	4553.9	3269.3	2163.4	1235.1
47.5°	10112.5	9724.8	8950.5	7619.8	6102.6	5420.4	4813.5	3387.3	2216.3	1253.1	590.0
50°	7528.8	7196.1	6591.5	5295.6	4096.5	3560.4	3041.2	1924.1	1038.5	595.6	245.0
52.5°	4492.1	4326.9	3790.8	2936.7	2023.0	1743.1	1399.2	814.8	523.7	215.8	66.3
55°	1839.8	1698.2	1497.0	1201.4	880.0	746.2	638.4	402.3	163.0	45.0	24.7
57.5°	831.7	800.2	709.2	557.4	404.6	339.4	229.3	76.4	36.0	22.5	14.6
60°	320.3	288.8	247.3	133.7	57.3	48.3	39.3	25.8	18.0	12.4	9.0
62.5°	46.1	43.8	39.3	31.5	24.7	22.5	19.1	13.5	10.1	7.9	6.7
65°	19.1	19.1	16.9	13.5	11.2	10.1	9.0	6.7	5.6	5.6	5.6
67.5°	7.9	7.9	6.7	5.6	4.5	4.5	4.5	3.4	4.5	4.5	5.6
70°	2.2	2.2	2.2	2.2	2.2	2.2	3.4	3.4	4.5	4.5	5.6
72.5°	0.0	0.0	1.1	1.1	2.2	2.2	2.2	3.4	4.5	5.6	5.6
75°	0.0	0.0	1.1	1.1	2.2	2.2	2.2	3.4	4.5	5.6	5.6
77.5°	0.0	0.0	1.1	1.1	2.2	2.2	3.4	3.4	4.5	5.6	5.6
80°	0.0	0.0	1.1	1.1	2.2	2.2	3.4	3.4	4.5	5.6	6.7
82.5°	0.0	0.0	1.1	1.1	2.2	2.2	3.4	3.4	4.5	5.6	6.7
85°	0.0	0.0	1.1	1.1	2.2	2.2	3.4	3.4	4.5	5.6	6.7
87.5°	0.0	0.0	1.1	1.1	2.2	2.2	3.4	3.4	4.5	5.6	6.7
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°	1114.9	1114.9	1114.9	1114.9	1114.9	1114.9	1114.9	1114.9	1114.9	1114.9	1114.9
2.5°	1543.1	1471.1	1450.9	1388.0	1335.2	1309.3	1276.7	1203.7	1148.6	1075.5	1031.7
5°	1987.0	1851.0	1743.1	1611.6	1525.1	1468.9	1381.2	1247.5	1139.6	1010.4	918.2
7.5°	2466.9	2218.5	2024.1	1807.2	1682.4	1584.6	1435.2	1243.0	1084.5	912.6	769.8
10°	2929.9	2559.0	2253.3	1942.0	1778.0	1642.0	1436.3	1194.7	984.5	767.6	617.0
12.5°	3337.9	2859.1	2428.7	2028.6	1825.2	1655.5	1398.1	1108.1	854.1	631.6	499.0
15°	3678.4	3091.7	2552.3	2061.2	1828.5	1626.2	1318.3	984.5	709.2	511.4	418.1
17.5°	3936.9	3214.3	2590.5	2021.8	1763.3	1543.1	1195.8	828.3	575.4	433.8	351.8
20°	4070.6	3237.9	2535.4	1915.1	1643.1	1417.2	1035.1	672.1	487.8	377.6	294.5
22.5°	4087.5	3171.5	2403.9	1762.2	1491.4	1264.3	857.5	560.8	434.9	333.8	259.6
25°	3987.5	3027.7	2216.3	1589.1	1325.0	1089.0	697.9	502.4	395.6	300.1	298.9
27.5°	3773.9	2780.4	1991.5	1388.0	1123.9	885.6	592.3	454.0	352.9	318.1	338.3
30°	3472.7	2463.5	1715.0	1134.0	877.7	681.1	499.0	374.2	310.2	313.6	330.4
32.5°	3064.8	2070.2	1390.2	830.5	628.2	512.5	374.2	255.1	257.4	258.5	273.1
35°	2552.3	1659.9	1038.5	558.6	441.7	360.8	211.3	187.7	191.1	192.2	202.3
37.5°	2045.4	1275.6	690.1	372.0	277.6	189.9	131.5	125.9	128.1	127.0	138.2
40°	1566.7	889.0	413.6	184.3	106.8	88.8	80.9	77.5	78.7	79.8	86.5
42.5°	1109.3	482.1	204.5	69.7	56.2	51.7	48.3	46.1	47.2	47.2	51.7
45°	563.1	228.1	69.7	38.2	34.8	31.5	29.2	28.1	28.1	28.1	30.3
47.5°	243.9	75.3	32.6	23.6	21.4	20.2	18.0	16.9	16.9	16.9	18.0
50°	76.4	30.3	20.2	15.7	13.5	12.4	11.2	11.2	11.2	10.1	11.2
52.5°	28.1	19.1	13.5	10.1	9.0	9.0	9.0	7.9	9.0	7.9	9.0
55°	16.9	12.4	9.0	7.9	7.9	7.9	7.9	7.9	7.9	7.9	7.9
57.5°	11.2	9.0	7.9	7.9	6.7	6.7	7.9	7.9	7.9	7.9	7.9
60°	7.9	7.9	6.7	6.7	6.7	6.7	7.9	7.9	7.9	7.9	7.9
62.5°	6.7	6.7	6.7	6.7	6.7	6.7	7.9	7.9	7.9	7.9	9.0
65°	5.6	6.7	6.7	6.7	6.7	6.7	7.9	7.9	9.0	9.0	9.0
67.5°	5.6	6.7	6.7	7.9	7.9	7.9	7.9	9.0	9.0	9.0	9.0
70°	6.7	6.7	7.9	7.9	7.9	7.9	9.0	9.0	9.0	9.0	10.1
72.5°	6.7	6.7	7.9	7.9	7.9	7.9	9.0	9.0	10.1	10.1	10.1
75°	6.7	7.9	7.9	7.9	7.9	9.0	9.0	9.0	10.1	10.1	10.1
77.5°	6.7	7.9	7.9	9.0	9.0	9.0	9.0	10.1	10.1	10.1	10.1
80°	6.7	7.9	7.9	9.0	9.0	9.0	10.1	10.1	10.1	10.1	11.2
82.5°	6.7	7.9	7.9	9.0	9.0	9.0	10.1	10.1	10.1	10.1	11.2
85°	7.9	7.9	9.0	9.0	9.0	9.0	10.1	10.1	10.1	10.1	11.2
87.5°	7.9	7.9	9.0	9.0	9.0	9.0	10.1	10.1	11.2	10.1	11.2
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):

	100°	105°	110°	112.5°	115°	120°	125°	130°	135°	140°	145°
0°	1114.9	1114.9	1114.9	1114.9	1114.9	1114.9	1114.9	1114.9	1114.9	1114.9	1114.9
2.5°	973.3	908.1	863.1	846.3	813.7	762.0	731.6	703.5	650.7	639.5	610.3
5°	812.6	708.0	633.9	605.8	568.7	524.8	482.1	454.0	420.3	406.8	386.6
7.5°	640.6	536.1	472.0	449.5	423.7	387.7	349.5	321.4	286.6	268.6	251.7
10°	503.5	425.9	372.0	349.5	322.5	284.3	245.0	207.9	177.6	158.5	155.1
12.5°	409.1	345.0	287.7	264.1	232.6	194.4	166.3	165.2	163.0	161.8	164.1
15°	334.9	273.1	212.4	186.6	177.6	176.4	179.8	183.2	182.1	185.4	187.7
17.5°	275.3	209.0	195.6	196.7	197.8	201.2	206.8	215.8	216.9	222.5	227.0
20°	224.8	221.4	227.0	231.5	234.9	241.6	254.0	265.2	268.6	276.5	285.5
22.5°	255.1	265.2	277.6	283.2	287.7	300.1	313.6	331.5	338.3	348.4	360.8
25°	307.9	324.8	343.9	350.6	357.4	377.6	393.4	414.7	420.3	432.7	445.1
27.5°	351.8	369.8	390.0	399.0	404.6	424.8	438.3	451.8	451.8	458.5	467.5
30°	345.0	359.6	376.5	383.2	385.5	400.1	413.6	418.1	415.8	419.2	425.9
32.5°	286.6	297.8	311.3	316.9	319.2	329.3	340.5	340.5	339.4	339.4	343.9
35°	212.4	220.3	227.0	232.6	236.0	242.8	252.9	251.7	251.7	249.5	252.9
37.5°	142.7	147.2	155.1	157.3	158.5	163.0	170.8	170.8	168.6	169.7	172.0
40°	86.5	92.2	96.7	97.8	100.0	103.4	109.0	109.0	109.0	109.0	110.1
42.5°	51.7	55.1	58.4	58.4	59.6	64.1	66.3	66.3	66.3	66.3	67.4
45°	30.3	31.5	33.7	34.8	34.8	37.1	38.2	38.2	38.2	38.2	39.3
47.5°	18.0	19.1	19.1	20.2	20.2	21.4	22.5	22.5	21.4	21.4	21.4
50°	11.2	11.2	11.2	11.2	12.4	12.4	12.4	12.4	12.4	12.4	11.2
52.5°	9.0	9.0	9.0	9.0	7.9	7.9	7.9	7.9	6.7	6.7	5.6
55°	7.9	7.9	7.9	7.9	7.9	6.7	6.7	6.7	5.6	4.5	3.4
57.5°	7.9	7.9	7.9	7.9	7.9	6.7	6.7	5.6	4.5	4.5	3.4
60°	7.9	7.9	7.9	7.9	7.9	6.7	6.7	5.6	4.5	4.5	3.4
62.5°	9.0	9.0	7.9	7.9	7.9	6.7	6.7	5.6	5.6	4.5	3.4
65°	9.0	9.0	7.9	7.9	7.9	7.9	6.7	6.7	5.6	4.5	3.4
67.5°	9.0	9.0	9.0	9.0	7.9	7.9	7.9	6.7	5.6	4.5	3.4
70°	10.1	10.1	9.0	9.0	9.0	7.9	7.9	6.7	5.6	5.6	4.5
72.5°	10.1	10.1	9.0	9.0	9.0	9.0	7.9	6.7	6.7	5.6	4.5
75°	10.1	10.1	10.1	10.1	9.0	9.0	7.9	6.7	6.7	5.6	4.5
77.5°	10.1	10.1	10.1	10.1	9.0	9.0	9.0	7.9	6.7	5.6	4.5
80°	10.1	10.1	10.1	10.1	10.1	9.0	9.0	7.9	6.7	5.6	4.5
82.5°	11.2	11.2	10.1	10.1	10.1	9.0	9.0	7.9	6.7	5.6	5.6
85°	11.2	11.2	10.1	10.1	10.1	9.0	9.0	7.9	6.7	6.7	5.6
87.5°	11.2	11.2	10.1	10.1	10.1	9.0	9.0	7.9	6.7	6.7	5.6
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: P209055

CATALOG NUMBER: LDSQA6A65840D010TE LARH30NF 6LSQA1H 30°

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	1114.9	1114.9	1114.9	1114.9	1114.9	1114.9	1114.9	1114.9
2.5°	592.3	558.6	547.3	555.2	546.2	539.5	530.5	526.0
5°	370.9	346.2	338.3	340.5	332.7	325.9	316.9	314.7
7.5°	228.1	204.5	195.6	195.6	186.6	178.7	173.1	169.7
10°	152.8	148.4	149.5	150.6	149.5	150.6	147.2	149.5
12.5°	164.1	161.8	164.1	165.2	165.2	167.5	163.0	166.3
15°	191.1	188.8	192.2	194.4	194.4	197.8	193.3	196.7
17.5°	233.8	232.6	238.3	240.5	241.6	247.3	241.6	246.1
20°	295.6	294.5	302.3	305.7	304.6	315.8	307.9	315.8
22.5°	375.4	373.1	384.4	387.7	388.9	403.5	396.7	402.3
25°	455.2	457.4	463.0	468.7	469.8	482.1	472.0	477.6
27.5°	472.0	468.7	472.0	478.8	479.9	485.5	476.5	481.0
30°	427.1	421.4	422.6	430.4	432.7	434.9	427.1	429.3
32.5°	347.3	338.3	338.3	346.2	348.4	351.8	338.3	343.9
35°	256.2	248.4	248.4	254.0	255.1	257.4	247.3	251.7
37.5°	175.3	168.6	170.8	173.1	174.2	176.4	175.3	174.2
40°	112.4	107.9	111.3	111.3	112.4	113.5	113.5	114.6
42.5°	68.6	65.2	67.4	67.4	68.6	68.6	68.6	69.7
45°	39.3	38.2	38.2	39.3	39.3	39.3	38.2	39.3
47.5°	21.4	20.2	21.4	21.4	21.4	21.4	21.4	21.4
50°	11.2	10.1	10.1	10.1	10.1	10.1	10.1	10.1
52.5°	5.6	4.5	4.5	4.5	3.4	4.5	3.4	3.4
55°	3.4	2.2	2.2	2.2	1.1	1.1	0.0	0.0
57.5°	2.2	1.1	1.1	1.1	0.0	0.0	0.0	0.0
60°	2.2	1.1	1.1	1.1	0.0	0.0	0.0	0.0
62.5°	2.2	1.1	1.1	1.1	0.0	0.0	0.0	0.0
65°	2.2	1.1	1.1	1.1	0.0	0.0	0.0	0.0
67.5°	3.4	2.2	1.1	1.1	1.1	0.0	0.0	0.0
70°	3.4	2.2	2.2	1.1	1.1	0.0	0.0	0.0
72.5°	3.4	2.2	2.2	2.2	1.1	1.1	0.0	0.0
75°	3.4	2.2	2.2	2.2	1.1	1.1	0.0	0.0
77.5°	3.4	3.4	2.2	2.2	1.1	1.1	1.1	0.0
80°	4.5	3.4	2.2	2.2	2.2	1.1	1.1	1.1
82.5°	4.5	3.4	2.2	2.2	2.2	1.1	1.1	1.1
85°	4.5	3.4	3.4	2.2	2.2	1.1	1.1	1.1
87.5°	4.5	3.4	3.4	2.2	2.2	1.1	1.1	1.1
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)