

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: P209039

Luminaire Tested: **LDSQA6A45840D010TE LARH30NF 6LSQA1H 30°**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P209039
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: LDSQA6A45840D010TE 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: 4802.1 lumens
Efficiency: N/A
Efficacy: 88.3 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

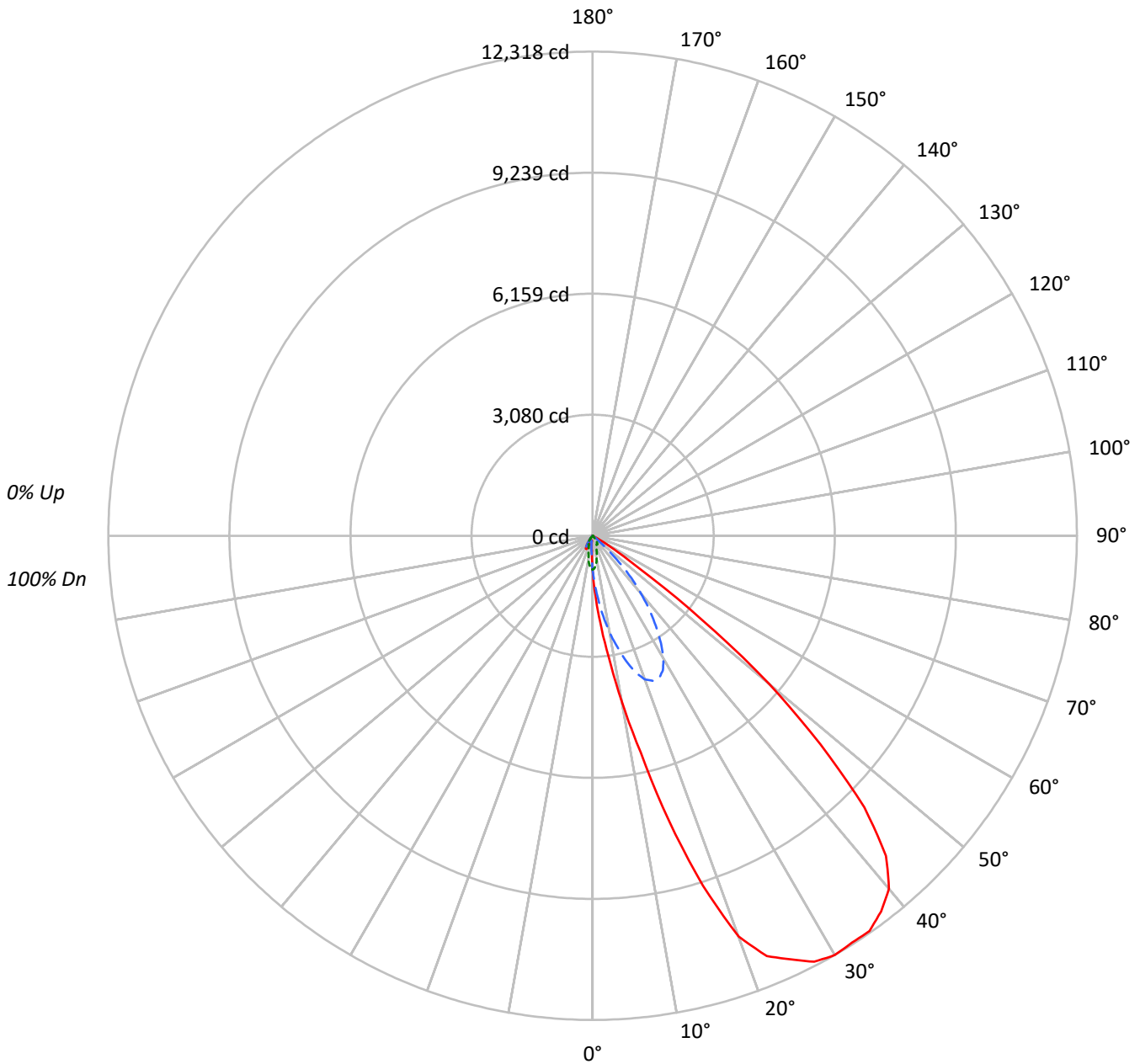
Input Watts (W): 54.4
Input Voltage (V): NR
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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°	37295	37295	37295
5°	95668	33928	10567
10°	186487	26075	5076
15°	334763	17709	6811
20°	497020	13443	11244
25°	564940	11074	17630
30°	612402	12111	16585
35°	645058	7847	10281
40°	659006	3485	5008
45°	595211	1327	1863
50°	391809	529	529
55°	107298	458	0
60°	21433	525	0
65°	1508	713	0
70°	214	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°	106.1	2.2
10°-20°	563.7	11.7
20°-30°	1277.6	26.6
30°-40°	1533.6	31.9
40°-50°	1080.8	22.5
50°-60°	223.0	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°	1947.4	40.6
0°-40°	3481.0	72.5
0°-60°	4784.9	99.6
0°-90°	4802.1	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	4802.1	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	866	866	866	866	866	
5°	2214	1613	785	327	244	272
15°	7510	3304	397	142	153	2229
25°	11892	3996	233	327	371	5488
35°	12272	2798	149	196	196	7629
45°	9775	960	22	30	31	7189
55°	1429	19	6	4	0	1884
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°	866.2	866.2	866.2	866.2	866.2	866.2	866.2	866.2	866.2	866.2	866.2
2.5°	1476.5	1432.0	1449.5	1398.0	1386.6	1377.0	1386.6	1330.7	1299.3	1259.1	1226.8
5°	2213.5	2160.2	2172.5	2082.5	2041.5	2013.5	2008.3	1893.0	1806.6	1711.4	1612.8
7.5°	3081.4	3030.8	3023.8	2884.1	2799.4	2751.4	2731.3	2566.3	2417.0	2247.6	2062.4
10°	4265.5	4150.2	4114.4	3911.8	3750.3	3648.1	3522.4	3258.7	2996.7	2740.9	2505.1
12.5°	5643.3	5580.5	5491.4	5134.3	4851.4	4706.4	4518.7	4106.5	3710.1	3287.5	2892.8
15°	7510.2	7286.7	7134.7	6618.7	6162.9	5939.3	5665.2	5034.7	4435.7	3900.5	3304.1
17.5°	9334.3	9217.3	8979.7	8310.0	7608.0	7255.2	6846.6	5990.0	5143.9	4382.5	3654.2
20°	10847.5	10737.5	10466.8	9835.5	9056.6	8536.2	8021.9	6846.6	5741.1	4766.7	3888.3
22.5°	11572.2	11502.4	11281.4	10740.9	10077.3	9582.2	9029.5	7575.7	6183.0	5018.1	3994.8
25°	11891.8	11859.5	11717.2	11291.0	10665.9	10245.9	9723.7	8091.7	6458.0	5135.2	3996.5
27.5°	12215.7	12221.9	11907.5	11570.5	10977.6	10574.2	10071.2	8320.5	6507.8	5069.7	3865.6
30°	12317.9	12253.3	12114.5	11630.7	11067.5	10638.8	10099.2	8214.8	6303.5	4800.7	3604.5
32.5°	12276.0	12250.7	12097.9	11586.2	10914.7	10442.3	9829.3	7795.7	5900.1	4416.5	3234.2
35°	12272.5	12225.3	11875.2	11436.0	10609.1	10025.8	9218.1	7118.1	5329.0	3910.1	2798.5
37.5°	12050.7	11933.7	11670.9	11078.9	9989.1	9249.6	8344.1	6290.4	4630.5	3341.6	2366.3
40°	11725.0	11567.8	11222.1	10326.2	8915.1	8062.9	7179.3	5350.0	3890.9	2781.1	1907.0
42.5°	11044.8	10807.3	10318.3	9086.3	7484.0	6715.6	5980.4	4397.3	3173.1	2265.9	1455.6
45°	9775.2	9450.4	8789.4	7436.8	6045.9	5418.9	4827.8	3538.1	2540.1	1680.9	959.6
47.5°	7856.8	7555.6	6954.0	5920.1	4741.3	4211.3	3739.8	2631.8	1721.9	973.6	458.4
50°	5849.4	5591.0	5121.2	4114.4	3182.7	2766.2	2362.8	1494.9	806.8	462.8	190.4
52.5°	3490.1	3361.7	2945.2	2281.6	1571.7	1354.3	1087.1	633.1	406.9	167.6	51.5
55°	1429.4	1319.4	1163.1	933.4	683.7	579.8	496.0	312.6	126.6	34.9	19.2
57.5°	646.2	621.7	551.0	433.1	314.3	263.7	178.1	59.4	27.9	17.5	11.4
60°	248.9	224.4	192.1	103.9	44.5	37.5	30.6	20.1	14.0	9.6	7.0
62.5°	35.8	34.1	30.6	24.4	19.2	17.5	14.8	10.5	7.9	6.1	5.2
65°	14.8	14.8	13.1	10.5	8.7	7.9	7.0	5.2	4.4	4.4	4.4
67.5°	6.1	6.1	5.2	4.4	3.5	3.5	3.5	2.6	3.5	3.5	4.4
70°	1.7	1.7	1.7	1.7	1.7	1.7	2.6	2.6	3.5	3.5	4.4
72.5°	0.0	0.0	0.9	0.9	1.7	1.7	1.7	2.6	3.5	4.4	4.4
75°	0.0	0.0	0.9	0.9	1.7	1.7	1.7	2.6	3.5	4.4	4.4
77.5°	0.0	0.0	0.9	0.9	1.7	1.7	2.6	2.6	3.5	4.4	4.4
80°	0.0	0.0	0.9	0.9	1.7	1.7	2.6	2.6	3.5	4.4	5.2
82.5°	0.0	0.0	0.9	0.9	1.7	1.7	2.6	2.6	3.5	4.4	5.2
85°	0.0	0.0	0.9	0.9	1.7	1.7	2.6	2.6	3.5	4.4	5.2
87.5°	0.0	0.0	0.9	0.9	1.7	1.7	2.6	2.6	3.5	4.4	5.2
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°	866.2	866.2	866.2	866.2	866.2	866.2	866.2	866.2	866.2	866.2	866.2
2.5°	1198.9	1143.0	1127.3	1078.4	1037.3	1017.3	991.9	935.2	892.4	835.6	801.6
5°	1543.8	1438.1	1354.3	1252.1	1184.9	1141.2	1073.1	969.2	885.4	785.0	713.4
7.5°	1916.6	1723.7	1572.6	1404.1	1307.1	1231.2	1115.0	965.7	842.6	709.0	598.1
10°	2276.4	1988.2	1750.7	1508.8	1381.4	1275.7	1115.9	928.2	764.9	596.4	479.4
12.5°	2593.3	2221.4	1886.9	1576.1	1418.0	1286.2	1086.2	861.0	663.6	490.7	387.7
15°	2857.9	2402.1	1983.0	1601.4	1420.7	1263.5	1024.2	764.9	551.0	397.3	324.8
17.5°	3058.7	2497.3	2012.7	1570.8	1370.0	1198.9	929.1	643.5	447.1	337.0	273.3
20°	3162.6	2515.6	1969.9	1487.9	1276.6	1101.1	804.2	522.2	379.0	293.4	228.8
22.5°	3175.7	2464.1	1867.7	1369.1	1158.7	982.3	666.2	435.7	337.9	259.3	201.7
25°	3098.0	2352.3	1721.9	1234.7	1029.5	846.1	542.2	390.3	307.4	233.1	232.3
27.5°	2932.1	2160.2	1547.3	1078.4	873.2	688.1	460.2	352.8	274.2	247.1	262.8
30°	2698.1	1914.0	1332.5	881.0	682.0	529.1	387.7	290.8	241.0	243.6	256.7
32.5°	2381.2	1608.4	1080.1	645.3	488.1	398.2	290.8	198.2	200.0	200.8	212.2
35°	1983.0	1289.7	806.8	434.0	343.2	280.3	164.2	145.8	148.4	149.3	157.2
37.5°	1589.2	991.1	536.1	289.0	215.7	147.6	102.2	97.8	99.5	98.7	107.4
40°	1217.2	690.7	321.3	143.2	83.0	69.0	62.9	60.2	61.1	62.0	67.2
42.5°	861.8	374.6	158.9	54.1	43.7	40.2	37.5	35.8	36.7	36.7	40.2
45°	437.5	177.3	54.1	29.7	27.1	24.4	22.7	21.8	21.8	21.8	23.6
47.5°	189.5	58.5	25.3	18.3	16.6	15.7	14.0	13.1	13.1	13.1	14.0
50°	59.4	23.6	15.7	12.2	10.5	9.6	8.7	8.7	8.7	7.9	8.7
52.5°	21.8	14.8	10.5	7.9	7.0	7.0	7.0	6.1	7.0	6.1	7.0
55°	13.1	9.6	7.0	6.1	6.1	6.1	6.1	6.1	6.1	6.1	6.1
57.5°	8.7	7.0	6.1	6.1	5.2	5.2	6.1	6.1	6.1	6.1	6.1
60°	6.1	6.1	5.2	5.2	5.2	5.2	6.1	6.1	6.1	6.1	6.1
62.5°	5.2	5.2	5.2	5.2	5.2	5.2	6.1	6.1	6.1	6.1	7.0
65°	4.4	5.2	5.2	5.2	5.2	5.2	6.1	6.1	7.0	7.0	7.0
67.5°	4.4	5.2	5.2	6.1	6.1	6.1	6.1	7.0	7.0	7.0	7.0
70°	5.2	5.2	6.1	6.1	6.1	6.1	7.0	7.0	7.0	7.0	7.9
72.5°	5.2	5.2	6.1	6.1	6.1	6.1	7.0	7.0	7.9	7.9	7.9
75°	5.2	6.1	6.1	6.1	6.1	7.0	7.0	7.0	7.9	7.9	7.9
77.5°	5.2	6.1	6.1	7.0	7.0	7.0	7.0	7.9	7.9	7.9	7.9
80°	5.2	6.1	6.1	7.0	7.0	7.0	7.9	7.9	7.9	7.9	8.7
82.5°	5.2	6.1	6.1	7.0	7.0	7.0	7.9	7.9	7.9	7.9	8.7
85°	6.1	6.1	7.0	7.0	7.0	7.0	7.9	7.9	7.9	7.9	8.7
87.5°	6.1	6.1	7.0	7.0	7.0	7.0	7.9	7.9	8.7	7.9	8.7
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):

	100°	105°	110°	112.5°	115°	120°	125°	130°	135°	140°	145°
0°	866.2	866.2	866.2	866.2	866.2	866.2	866.2	866.2	866.2	866.2	866.2
2.5°	756.2	705.5	670.6	657.5	632.2	592.0	568.4	546.6	505.6	496.8	474.1
5°	631.3	550.1	492.5	470.6	441.8	407.8	374.6	352.8	326.6	316.1	300.4
7.5°	497.7	416.5	366.7	349.3	329.2	301.2	271.6	249.7	222.7	208.7	195.6
10°	391.2	330.9	289.0	271.6	250.6	220.9	190.4	161.5	138.0	123.1	120.5
12.5°	317.8	268.1	223.5	205.2	180.7	151.1	129.2	128.4	126.6	125.7	127.5
15°	260.2	212.2	165.0	144.9	138.0	137.1	139.7	142.3	141.5	144.1	145.8
17.5°	213.9	162.4	151.9	152.8	153.7	156.3	160.7	167.6	168.5	172.9	176.4
20°	174.6	172.0	176.4	179.9	182.5	187.7	197.3	206.1	208.7	214.8	221.8
22.5°	198.2	206.1	215.7	220.0	223.5	233.1	243.6	257.6	262.8	270.7	280.3
25°	239.3	252.3	267.2	272.4	277.7	293.4	305.6	322.2	326.6	336.2	345.8
27.5°	273.3	287.3	303.0	310.0	314.3	330.1	340.5	351.0	351.0	356.3	363.2
30°	268.1	279.4	292.5	297.8	299.5	310.9	321.3	324.8	323.1	325.7	330.9
32.5°	222.7	231.4	241.9	246.2	248.0	255.8	264.6	264.6	263.7	263.7	267.2
35°	165.0	171.1	176.4	180.7	183.4	188.6	196.5	195.6	195.6	193.8	196.5
37.5°	110.9	114.4	120.5	122.2	123.1	126.6	132.7	132.7	131.0	131.8	133.6
40°	67.2	71.6	75.1	76.0	77.7	80.3	84.7	84.7	84.7	84.7	85.6
42.5°	40.2	42.8	45.4	45.4	46.3	49.8	51.5	51.5	51.5	51.5	52.4
45°	23.6	24.4	26.2	27.1	27.1	28.8	29.7	29.7	29.7	29.7	30.6
47.5°	14.0	14.8	14.8	15.7	15.7	16.6	17.5	17.5	16.6	16.6	16.6
50°	8.7	8.7	8.7	8.7	9.6	9.6	9.6	9.6	9.6	9.6	8.7
52.5°	7.0	7.0	7.0	7.0	6.1	6.1	6.1	6.1	5.2	5.2	4.4
55°	6.1	6.1	6.1	6.1	6.1	5.2	5.2	5.2	4.4	3.5	2.6
57.5°	6.1	6.1	6.1	6.1	6.1	5.2	5.2	4.4	3.5	3.5	2.6
60°	6.1	6.1	6.1	6.1	6.1	5.2	5.2	4.4	3.5	3.5	2.6
62.5°	7.0	7.0	6.1	6.1	6.1	5.2	5.2	4.4	4.4	3.5	2.6
65°	7.0	7.0	6.1	6.1	6.1	6.1	5.2	5.2	4.4	3.5	2.6
67.5°	7.0	7.0	7.0	7.0	6.1	6.1	6.1	5.2	4.4	3.5	2.6
70°	7.9	7.9	7.0	7.0	7.0	6.1	6.1	5.2	4.4	4.4	3.5
72.5°	7.9	7.9	7.0	7.0	7.0	7.0	6.1	5.2	5.2	4.4	3.5
75°	7.9	7.9	7.9	7.9	7.0	7.0	6.1	6.1	5.2	4.4	3.5
77.5°	7.9	7.9	7.9	7.9	7.0	7.0	7.0	6.1	5.2	4.4	3.5
80°	7.9	7.9	7.9	7.9	7.9	7.0	7.0	6.1	5.2	4.4	3.5
82.5°	8.7	8.7	7.9	7.9	7.9	7.0	7.0	6.1	5.2	4.4	4.4
85°	8.7	8.7	7.9	7.9	7.9	7.0	7.0	6.1	5.2	5.2	4.4
87.5°	8.7	8.7	7.9	7.9	7.9	7.0	7.0	6.1	5.2	5.2	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: P209039

CATALOG NUMBER: LDSQA6A45840D010TE LARH30NF 6LSQA1H 30°

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	866.2	866.2	866.2	866.2	866.2	866.2	866.2	866.2
2.5°	460.2	434.0	425.2	431.3	424.4	419.1	412.1	408.6
5°	288.1	268.9	262.8	264.6	258.5	253.2	246.2	244.5
7.5°	177.3	158.9	151.9	151.9	144.9	138.8	134.5	131.8
10°	118.8	115.3	116.1	117.0	116.1	117.0	114.4	116.1
12.5°	127.5	125.7	127.5	128.4	128.4	130.1	126.6	129.2
15°	148.4	146.7	149.3	151.1	151.1	153.7	150.2	152.8
17.5°	181.6	180.7	185.1	186.9	187.7	192.1	187.7	191.2
20°	229.6	228.8	234.9	237.5	236.6	245.4	239.3	245.4
22.5°	291.6	289.9	298.6	301.2	302.1	313.5	308.2	312.6
25°	353.6	355.4	359.7	364.1	365.0	374.6	366.7	371.1
27.5°	366.7	364.1	366.7	372.0	372.8	377.2	370.2	373.7
30°	331.8	327.4	328.3	334.4	336.2	337.9	331.8	333.6
32.5°	269.8	262.8	262.8	268.9	270.7	273.3	262.8	267.2
35°	199.1	193.0	193.0	197.3	198.2	200.0	192.1	195.6
37.5°	136.2	131.0	132.7	134.5	135.3	137.1	136.2	135.3
40°	87.3	83.8	86.4	86.4	87.3	88.2	88.2	89.1
42.5°	53.3	50.6	52.4	52.4	53.3	53.3	53.3	54.1
45°	30.6	29.7	29.7	30.6	30.6	30.6	29.7	30.6
47.5°	16.6	15.7	16.6	16.6	16.6	16.6	16.6	16.6
50°	8.7	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	1.7	1.7	1.7	0.9	0.9	0.0	0.0
57.5°	1.7	0.9	0.9	0.9	0.0	0.0	0.0	0.0
60°	1.7	0.9	0.9	0.9	0.0	0.0	0.0	0.0
62.5°	1.7	0.9	0.9	0.9	0.0	0.0	0.0	0.0
65°	1.7	0.9	0.9	0.9	0.0	0.0	0.0	0.0
67.5°	2.6	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	0.0	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	2.6	1.7	1.7	0.9	0.9	0.9	0.0
80°	3.5	2.6	1.7	1.7	1.7	0.9	0.9	0.9
82.5°	3.5	2.6	1.7	1.7	1.7	0.9	0.9	0.9
85°	3.5	2.6	2.6	1.7	1.7	0.9	0.9	0.9
87.5°	3.5	2.6	2.6	1.7	1.7	0.9	0.9	0.9
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)