

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: P209089

Luminaire Tested: **LDSQA6A65930D010TE LARH40FL 6LSQA1H 30°**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P209089
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (P26688)
Test Lab: INNOVATION CENTER-P2
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: io LED
Catalog Number: LDSQA6A65930D010TE LARH40FL 6LSQA1H 30°
Description: PORTFOLIO 6" SQUARE ADJUSTABLE REFLECTOR, ANGLE-CUT TRIM,
SELF-FLANGED, 40° FLOOD, 30° Tilt
Light Source: (1) HIGH LUMEN LED 90CRI / 3000K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 5072.5 lumens
Efficiency: N/A
Efficacy: 64.5 lumens/watt
Spacing Criteria (0/90/45): 2.63 / 0.54 / 1.37
Luminous Opening: Rectangular (W 0.5' x L: 0.5' x H: 0')
CIE Type: Direct

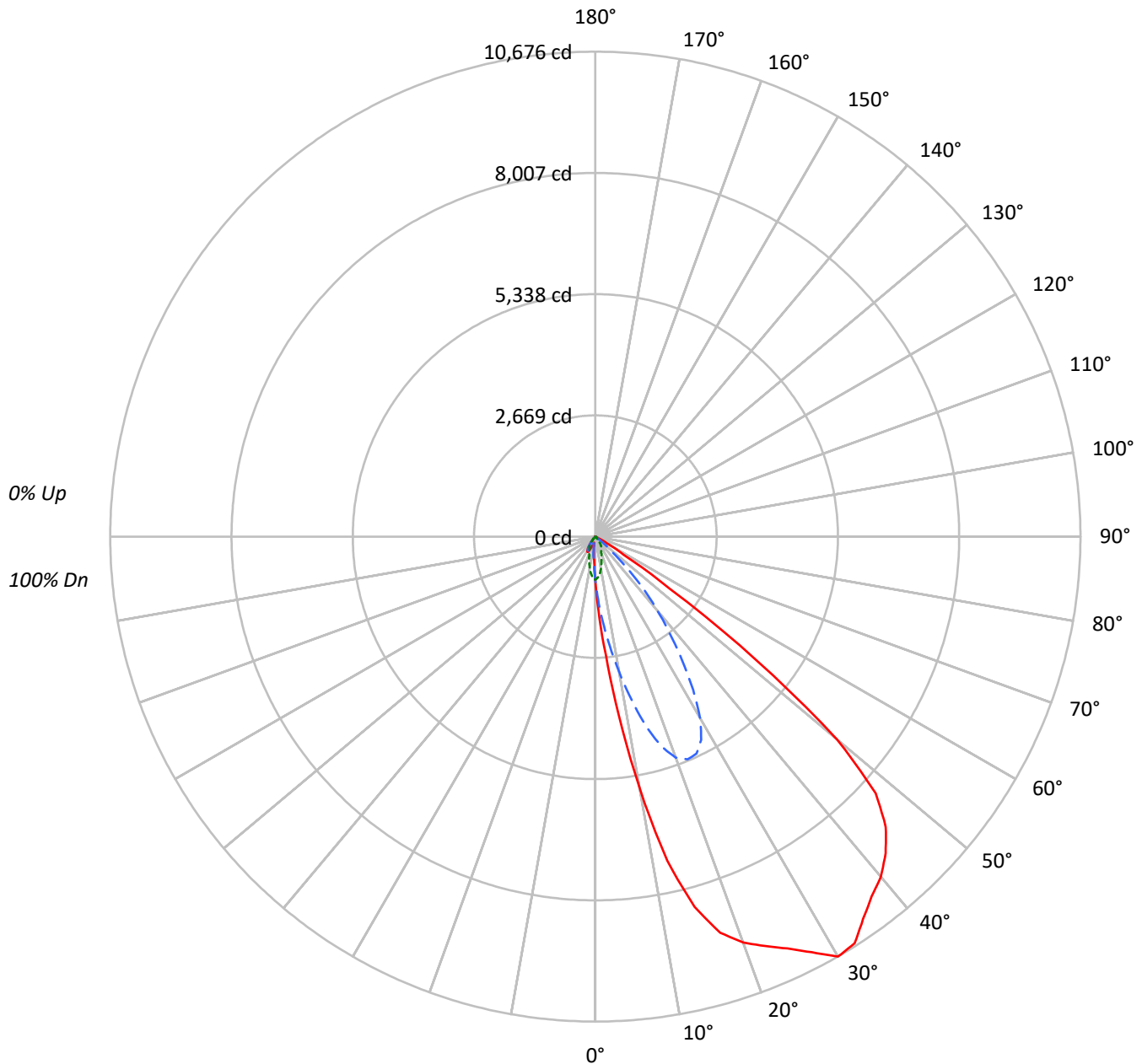
Input Watts (W): 78.67
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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				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	88	83	78	86	81	77	83	79	76	81	77	74	73						
4	91	82	75	70	89	80	74	69	78	73	68	76	71	67	74	70	67	65						
5	85	74	67	62	83	73	66	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	44	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	41	36	46	40	36	45	40	36	34						

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	40933	40933	40933
5°	112346	37714	15391
10°	246195	30866	5867
15°	376062	23495	6882
20°	435701	17480	10690
25°	475290	14376	17250
30°	530752	13036	17615
35°	540014	8941	12079
40°	549501	4238	6110
45°	550396	1760	2667
50°	465309	764	824
55°	149830	525	135
60°	29751	603	0
65°	3036	713	0
70°	327	995	0
75°	0	1314	0
80°	0	2182	223
85°	0	4347	445



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	129.0	2.5
10°-20°	667.4	13.2
20°-30°	1277.9	25.2
30°-40°	1505.6	29.7
40°-50°	1182.6	23.3
50°-60°	288.2	5.7
60°-70°	12.4	0.2
70°-80°	4.7	0.1
80°-90°	4.7	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°	2074.4	40.9
0°-40°	3580.0	70.6
0°-60°	5050.8	99.6
0°-90°	5072.5	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	5072.5	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	951	951	951	951	951	
5°	2599	1881	873	457	356	344
15°	8437	4333	527	151	154	2355
25°	10005	5269	303	317	363	4663
35°	10274	3331	170	219	230	6442
45°	9039	1030	29	40	44	6792
55°	1996	38	7	4	2	2376
65°	30	4	7	4	0	79
75°	0	4	8	5	0	0
85°	0	5	9	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°	950.7	950.7	950.7	950.7	950.7	950.7	950.7	950.7	950.7	950.7	950.7
2.5°	1629.5	1625.9	1602.3	1624.2	1557.5	1554.9	1525.1	1511.9	1473.3	1436.5	1383.9
5°	2599.4	2542.4	2495.9	2497.7	2369.6	2346.0	2279.3	2211.8	2108.3	2011.8	1881.1
7.5°	3962.3	3894.7	3796.5	3755.3	3510.6	3438.7	3301.0	3121.2	2895.8	2671.3	2429.3
10°	5631.2	5641.7	5514.5	5397.0	5026.9	4881.3	4658.6	4304.3	3877.2	3455.3	3026.5
12.5°	7310.6	7303.6	7151.9	6973.8	6517.8	6312.6	6016.2	5574.2	5008.5	4354.3	3683.4
15°	8436.7	8486.7	8422.6	8280.6	7891.2	7656.1	7322.0	6722.1	6032.8	5238.3	4333.2
17.5°	9143.5	9190.9	9168.1	9056.7	8712.9	8462.1	8183.2	7692.1	6894.9	5896.0	4845.4
20°	9509.2	9583.8	9573.2	9452.2	9192.6	8984.8	8677.0	8221.8	7531.6	6352.9	5176.9
22.5°	9753.0	9810.0	9825.8	9689.0	9420.6	9223.3	8997.9	8536.6	7887.7	6631.8	5308.4
25°	10004.7	10105.6	10006.5	9838.1	9591.7	9402.2	9161.9	8719.9	8057.8	6745.8	5269.0
27.5°	10313.4	10361.7	10137.2	9983.7	9710.1	9504.8	9249.6	8826.0	8087.6	6654.6	5043.6
30°	10675.6	10475.7	10318.7	10014.4	9703.9	9504.0	9244.4	8759.4	7930.6	6352.1	4606.8
32.5°	10616.0	10432.7	10254.7	9932.8	9625.9	9427.7	9138.3	8537.5	7559.7	5846.0	4004.3
35°	10274.0	10313.4	10121.4	9854.8	9507.5	9303.1	8987.4	8221.8	6930.0	5147.9	3330.8
37.5°	9985.4	10072.3	9946.8	9700.4	9347.9	9071.6	8645.4	7714.9	6108.3	4262.2	2692.4
40°	9776.7	9804.8	9737.2	9461.0	9037.4	8638.4	8145.5	6804.6	5110.2	3345.7	2125.0
42.5°	9453.1	9527.6	9408.4	9106.7	8464.7	8013.1	7299.2	5753.1	3969.3	2555.6	1599.6
45°	9039.2	9110.2	8962.9	8461.2	7568.4	6906.3	6035.5	4485.8	2936.2	1883.8	1029.6
47.5°	8363.9	8407.7	8122.7	7429.0	6131.1	5507.5	4614.7	3127.4	1891.7	1053.3	500.8
50°	6946.7	6925.6	6338.0	5484.7	4100.8	3446.6	2746.7	1695.2	849.8	499.0	313.1
52.5°	4477.0	4428.8	3847.4	3071.2	2076.7	1584.7	1191.0	731.4	442.9	278.9	123.7
55°	1996.0	1977.6	1618.9	1257.6	849.8	731.4	558.6	358.7	235.9	97.3	37.7
57.5°	740.2	723.5	637.6	535.0	410.4	341.1	271.0	171.9	60.5	32.4	20.2
60°	345.5	344.7	303.4	249.9	173.6	131.5	76.3	40.3	25.4	17.5	11.4
62.5°	110.5	107.9	75.4	55.3	39.5	34.2	27.2	20.2	13.2	9.6	7.0
65°	29.8	29.8	27.2	22.8	18.4	15.8	13.2	9.6	6.1	5.3	4.4
67.5°	11.4	11.4	10.5	9.6	7.0	6.1	5.3	4.4	3.5	4.4	4.4
70°	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	3.5	3.5	4.4
72.5°	0.0	0.0	0.9	0.9	1.8	1.8	2.6	2.6	3.5	4.4	4.4
75°	0.0	0.0	0.9	0.9	1.8	1.8	2.6	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	4.4
82.5°	0.0	0.0	0.9	1.8	1.8	1.8	2.6	3.5	3.5	4.4	5.3
85°	0.0	0.0	0.9	1.8	1.8	2.6	2.6	3.5	3.5	4.4	5.3
87.5°	0.0	0.0	0.9	1.8	1.8	2.6	2.6	3.5	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°	950.7	950.7	950.7	950.7	950.7	950.7	950.7	950.7	950.7	950.7	950.7
2.5°	1345.3	1287.4	1207.6	1161.1	1149.7	1125.2	1082.2	1018.2	965.6	914.7	884.9
5°	1770.6	1633.8	1480.4	1372.5	1328.6	1269.9	1165.5	1057.7	958.6	872.6	805.1
7.5°	2221.4	1996.0	1747.8	1547.9	1476.0	1383.0	1212.9	1052.4	916.5	797.2	706.9
10°	2669.6	2306.5	1969.7	1680.3	1562.8	1436.5	1212.0	1004.2	844.5	706.0	606.0
12.5°	3117.7	2595.9	2132.8	1760.1	1607.5	1447.9	1176.0	930.5	753.3	612.1	516.5
15°	3531.6	2826.5	2243.3	1787.3	1603.1	1414.6	1103.3	841.0	657.7	527.1	438.5
17.5°	3840.3	2947.6	2268.8	1746.1	1533.9	1325.1	991.9	735.8	566.5	451.7	361.3
20°	3992.1	2966.9	2208.3	1628.6	1414.6	1198.0	870.0	634.9	488.5	381.5	305.2
22.5°	3992.1	2875.7	2076.7	1481.2	1265.5	1051.5	752.5	551.6	427.1	332.4	268.4
25°	3840.3	2694.1	1900.4	1311.1	1101.5	906.8	650.7	489.4	379.7	302.6	249.1
27.5°	3545.7	2443.3	1674.2	1121.7	940.1	777.9	570.0	432.4	343.8	272.7	273.6
30°	3140.5	2135.5	1414.6	921.7	774.4	639.3	479.7	362.2	275.4	262.2	270.1
32.5°	2672.2	1767.1	1120.8	714.7	599.9	503.4	364.8	256.1	219.2	221.0	229.8
35°	2191.6	1390.9	843.7	529.7	446.4	364.8	239.4	168.4	166.6	170.1	176.3
37.5°	1730.3	1041.0	610.4	387.6	299.9	224.5	128.9	115.8	115.8	119.3	122.8
40°	1296.2	738.4	420.1	229.8	145.6	102.6	81.6	75.4	74.5	75.4	79.8
42.5°	890.1	467.4	249.9	92.1	70.2	59.6	51.7	47.4	46.5	47.4	50.0
45°	499.9	287.7	97.3	49.1	42.1	37.7	32.4	29.8	28.9	28.9	30.7
47.5°	313.1	114.0	43.8	30.7	26.3	24.6	21.0	19.3	18.4	18.4	19.3
50°	120.1	44.7	27.2	20.2	17.5	15.8	14.0	12.3	11.4	11.4	12.3
52.5°	41.2	26.3	17.5	13.2	11.4	10.5	8.8	7.9	7.9	7.9	7.9
55°	22.8	15.8	10.5	7.9	7.0	7.0	7.0	7.0	7.0	7.0	7.0
57.5°	14.0	9.6	7.0	6.1	6.1	6.1	6.1	6.1	6.1	7.0	7.0
60°	7.9	6.1	5.3	5.3	5.3	5.3	6.1	6.1	6.1	7.0	7.0
62.5°	5.3	5.3	5.3	5.3	5.3	5.3	6.1	6.1	7.0	7.0	7.0
65°	4.4	4.4	4.4	5.3	5.3	5.3	6.1	6.1	7.0	7.0	7.0
67.5°	4.4	4.4	5.3	5.3	5.3	6.1	6.1	7.0	7.0	7.0	7.0
70°	4.4	5.3	5.3	6.1	6.1	6.1	7.0	7.0	7.0	7.9	7.9
72.5°	4.4	5.3	5.3	6.1	6.1	6.1	7.0	7.0	7.9	7.9	7.9
75°	5.3	5.3	5.3	6.1	6.1	6.1	7.0	7.9	7.9	7.9	7.9
77.5°	5.3	5.3	6.1	6.1	6.1	7.0	7.0	7.9	7.9	7.9	7.9
80°	5.3	5.3	6.1	6.1	7.0	7.0	7.9	7.9	7.9	8.8	8.8
82.5°	5.3	5.3	6.1	7.0	7.0	7.0	7.9	7.9	8.8	8.8	8.8
85°	5.3	6.1	6.1	7.0	7.0	7.0	7.9	7.9	8.8	8.8	8.8
87.5°	5.3	6.1	6.1	7.0	7.0	7.0	7.9	7.9	8.8	8.8	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°	950.7	950.7	950.7	950.7	950.7	950.7	950.7	950.7	950.7	950.7	950.7
2.5°	845.4	808.6	771.8	744.6	731.4	718.3	689.3	651.6	635.8	613.0	599.9
5°	736.7	674.4	625.3	592.8	573.6	548.1	514.8	478.0	456.9	433.2	417.4
7.5°	624.4	551.6	504.3	474.5	455.2	423.6	381.5	337.6	312.2	285.9	267.5
10°	526.2	456.9	403.4	369.2	344.7	307.8	265.7	235.0	213.1	190.3	171.9
12.5°	439.4	364.8	307.8	278.9	262.2	227.1	192.1	157.9	144.7	140.3	140.3
15°	356.1	288.5	240.3	215.7	198.2	160.5	153.5	151.7	150.8	150.0	151.7
17.5°	290.3	233.3	182.4	170.1	168.4	167.5	168.4	168.4	169.3	171.9	176.3
20°	243.8	191.2	187.7	188.6	188.6	192.1	196.4	200.0	203.5	207.8	215.7
22.5°	216.6	215.7	221.9	222.8	227.1	232.4	240.3	245.6	254.3	258.7	270.1
25°	249.9	256.1	267.5	271.0	278.0	286.8	299.1	306.1	316.6	321.9	335.0
27.5°	283.3	292.9	306.9	311.3	317.5	331.5	340.3	346.4	351.7	355.2	363.1
30°	280.6	289.4	303.4	304.3	313.1	322.7	328.0	333.3	336.8	335.9	340.3
32.5°	237.7	245.6	258.7	258.7	268.4	276.3	278.9	283.3	283.3	283.3	285.0
35°	182.4	187.7	196.4	199.1	207.0	212.2	214.0	219.2	219.2	217.5	217.5
37.5°	126.3	133.3	139.4	141.2	146.5	150.0	154.4	155.2	153.5	154.4	154.4
40°	82.4	86.8	91.2	92.1	96.5	99.1	103.5	103.5	104.4	103.5	105.2
42.5°	50.9	54.4	57.0	58.8	60.5	62.3	64.9	65.8	66.7	65.8	67.5
45°	31.6	33.3	35.1	36.0	36.8	37.7	40.3	40.3	40.3	40.3	41.2
47.5°	19.3	20.2	21.0	21.0	21.9	22.8	23.7	23.7	23.7	23.7	24.6
50°	11.4	12.3	12.3	12.3	13.2	13.2	14.0	14.0	14.0	13.2	14.0
52.5°	7.9	7.9	7.9	7.9	7.9	7.9	7.9	7.9	7.9	7.0	7.9
55°	7.0	7.0	6.1	6.1	6.1	6.1	6.1	5.3	4.4	4.4	3.5
57.5°	6.1	6.1	6.1	6.1	6.1	5.3	5.3	4.4	4.4	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	6.1	6.1	6.1	6.1	5.3	5.3	4.4	3.5	3.5	2.6
65°	7.0	7.0	6.1	6.1	6.1	5.3	5.3	4.4	4.4	3.5	2.6
67.5°	7.0	7.0	7.0	6.1	7.0	6.1	5.3	5.3	4.4	3.5	3.5
70°	7.9	7.0	7.0	7.0	7.0	6.1	6.1	5.3	4.4	3.5	3.5
72.5°	7.9	7.9	7.0	7.0	7.0	6.1	6.1	5.3	4.4	4.4	3.5
75°	7.9	7.9	7.0	7.0	7.0	6.1	6.1	5.3	5.3	4.4	3.5
77.5°	7.9	7.9	7.9	7.0	7.0	7.0	6.1	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	7.9	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	7.9	7.9	7.9	7.9	7.0	7.0	6.1	5.3	4.4	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: P209089

CATALOG NUMBER: LDSQA6A65930D010TE LARH40FL 6LSQA1H 30°

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	950.7	950.7	950.7	950.7	950.7	950.7	950.7	950.7
2.5°	586.7	579.7	579.7	567.4	565.7	556.0	563.9	558.6
5°	399.9	388.5	385.0	372.7	368.3	356.9	360.4	356.1
7.5°	251.7	240.3	236.8	228.0	222.8	214.0	214.9	212.2
10°	153.5	142.9	140.3	137.7	135.1	134.2	135.1	134.2
12.5°	139.4	138.6	136.8	137.7	135.9	136.8	137.7	136.8
15°	151.7	153.5	151.7	152.6	151.7	153.5	154.4	154.4
17.5°	178.0	181.5	179.8	182.4	181.5	185.9	185.9	185.9
20°	218.4	224.5	222.8	226.3	226.3	231.5	231.5	233.3
22.5°	274.5	282.4	281.5	289.4	287.7	293.8	293.8	295.5
25°	342.0	349.9	350.8	356.1	355.2	361.3	361.3	363.1
27.5°	370.1	374.5	373.6	376.2	377.1	380.6	383.2	381.5
30°	347.3	350.8	349.9	351.7	351.7	354.3	356.9	354.3
32.5°	292.0	294.7	294.7	298.2	295.5	296.4	300.8	298.2
35°	223.6	225.4	223.6	225.4	226.3	226.3	230.6	229.8
37.5°	159.6	160.5	160.5	163.1	160.5	160.5	164.9	165.8
40°	107.0	107.9	107.0	110.5	108.7	108.7	111.4	108.7
42.5°	68.4	69.3	68.4	71.0	69.3	71.0	71.9	72.8
45°	42.1	42.1	41.2	43.0	42.1	43.0	43.8	43.8
47.5°	24.6	24.6	23.7	25.4	24.6	24.6	24.6	25.4
50°	13.2	13.2	13.2	14.0	13.2	13.2	13.2	12.3
52.5°	7.0	7.0	6.1	7.0	6.1	6.1	6.1	6.1
55°	3.5	2.6	2.6	2.6	1.8	1.8	1.8	1.8
57.5°	2.6	1.8	1.8	0.9	0.9	0.9	0.0	0.0
60°	1.8	1.8	0.9	0.9	0.0	0.0	0.0	0.0
62.5°	1.8	1.8	0.9	0.9	0.0	0.0	0.0	0.0
65°	1.8	1.8	0.9	0.9	0.0	0.0	0.0	0.0
67.5°	2.6	1.8	1.8	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	2.6	1.8	1.8	0.9	0.9	0.0	0.0
77.5°	3.5	2.6	1.8	1.8	0.9	0.9	0.0	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	2.6	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



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— 0°-180° - - 45°-225° - - - 90°-270°













(END OF REPORT)