

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: P209027

Luminaire Tested: **LDSQA6A65940D010TE LARH20SP 6LSQA1H 30°**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P209027
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: LDSQA6A65940D010TE LARH20SP 6LSQA1H 30°
Description: PORTFOLIO 6" SQUARE ADJUSTABLE REFLECTOR, ANGLE-CUT TRIM,
SELF-FLANGED, 20° SPOT, 30° Tilt
Light Source: (1) HIGH LUMEN LED 90CRI / 4000K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 4819.5 lumens
Efficiency: N/A
Efficacy: 61.3 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

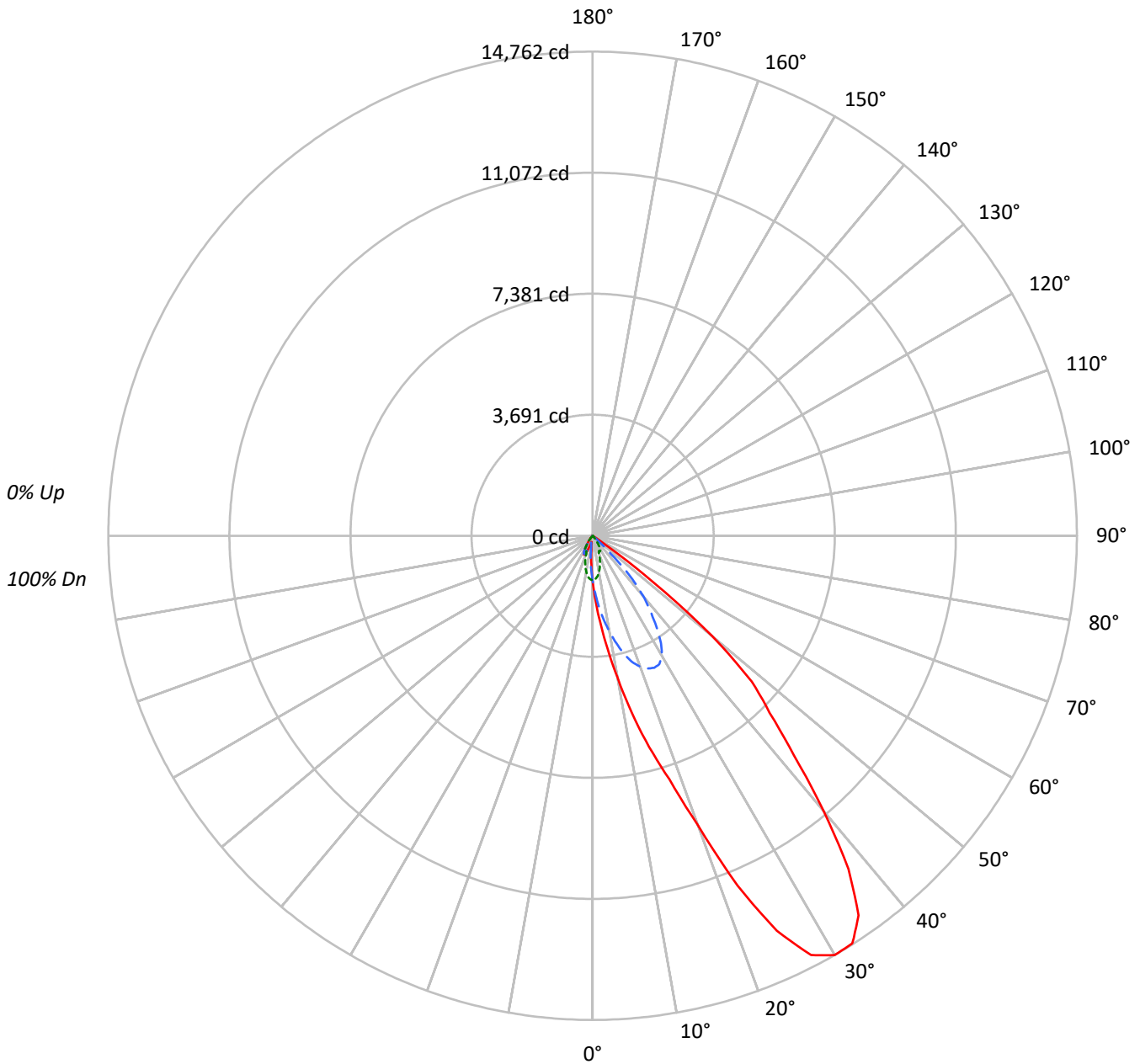
Input Watts (W): 78.67
Input Voltage (V): NR
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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	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°	58582	58582	58582
5°	113513	55823	18831
10°	192853	48853	8455
15°	297174	38967	13444
20°	430198	25356	23381
25°	631174	24471	30067
30°	733889	23183	23039
35°	742817	12278	12178
40°	615003	4626	5115
45°	464486	1577	1863
50°	317786	576	576
55°	44206	503	75
60°	1154	491	0
65°	295	683	0
70°	126	843	0
75°	0	1115	0
80°	0	1909	248
85°	0	3804	0



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	142.7	3.0
10°-20°	603.4	12.5
20°-30°	1376.4	28.6
30°-40°	1592.8	33.0
40°-50°	960.6	19.9
50°-60°	130.5	2.7
60°-70°	4.2	0.1
70°-80°	4.6	0.1
80°-90°	4.3	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°	2122.5	44.0
0°-40°	3715.4	77.1
0°-60°	4806.5	99.7
0°-90°	4819.5	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	4819.5	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	1361	1361	1361	1361	1361	
5°	2626	2150	1292	707	436	306
15°	6667	3748	874	269	302	1974
25°	13286	4441	515	620	633	6013
35°	14132	3386	234	238	232	8517
45°	7628	922	26	32	31	5965
55°	589	7	7	5	1	1154
65°	3	4	7	4	0	4
75°	0	5	7	5	0	0
85°	0	5	8	5	0	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°	1360.6	1360.6	1360.6	1360.6	1360.6	1360.6	1360.6	1360.6	1360.6	1360.6	1360.6
2.5°	1967.6	1949.4	1957.1	1937.0	1886.2	1875.7	1874.7	1861.3	1818.3	1784.7	1744.5
5°	2626.4	2625.4	2630.2	2587.1	2498.1	2470.3	2456.9	2424.3	2320.0	2239.5	2150.5
7.5°	3448.8	3443.1	3437.4	3358.8	3219.1	3165.4	3131.0	3013.2	2869.6	2726.9	2568.0
10°	4411.1	4408.2	4386.2	4248.3	4024.3	3925.7	3858.6	3671.9	3441.2	3238.2	2968.2
12.5°	5528.5	5502.6	5463.4	5261.4	4954.0	4846.8	4699.3	4403.5	4049.2	3738.0	3360.8
15°	6666.9	6629.6	6559.7	6300.2	5919.1	5736.3	5553.4	5163.7	4683.0	4231.1	3747.6
17.5°	7780.5	7739.3	7575.6	7135.2	6762.7	6539.6	6336.6	5801.4	5236.5	4655.3	4042.5
20°	9389.1	9239.7	8954.4	8260.2	7567.9	7165.8	6928.3	6362.5	5663.5	4986.6	4252.2
22.5°	11537.6	11206.4	10598.4	9470.4	8481.4	7901.1	7512.4	6759.8	5970.9	5203.0	4381.4
25°	13286.0	13135.7	12444.4	10839.6	9296.2	8612.5	8071.6	7075.8	6194.9	5347.5	4440.8
27.5°	14413.0	14375.6	13585.7	11973.3	9961.6	9064.5	8460.3	7284.5	6303.1	5378.2	4412.1
30°	14761.5	14819.9	14061.6	12358.2	10154.1	9155.4	8494.8	7287.4	6219.8	5239.3	4228.2
32.5°	14735.6	14738.5	13808.8	12026.0	9841.0	8891.2	8207.5	7045.1	5912.4	4891.8	3878.8
35°	14132.4	13984.0	12932.7	11005.3	9112.3	8274.6	7638.8	6576.0	5405.9	4369.0	3385.7
37.5°	12808.2	12613.9	11388.3	9698.3	8249.7	7475.1	6961.8	5960.3	4802.7	3810.8	2876.3
40°	10942.1	10666.3	9655.2	8483.3	7305.6	6723.4	6292.6	5271.9	4157.4	3263.1	2398.5
42.5°	9074.0	8939.0	8270.7	7318.0	6511.8	5964.2	5514.1	4550.9	3536.9	2723.1	1794.3
45°	7628.3	7512.4	7063.3	6435.2	5644.4	5144.5	4710.8	3799.3	2748.0	1826.9	922.1
47.5°	6575.0	6481.2	6051.3	5391.6	4524.1	3977.4	3530.2	2491.4	1556.9	789.0	230.8
50°	4744.3	4648.6	4227.3	3463.2	2680.0	2222.3	1900.6	1112.6	441.4	159.9	23.9
52.5°	2325.7	2247.2	1960.9	1467.8	985.2	708.5	518.0	208.7	50.7	17.2	11.5
55°	588.9	541.0	451.0	283.4	138.8	83.3	53.6	19.1	12.4	9.6	6.7
57.5°	33.5	32.6	29.7	22.0	16.3	14.4	12.4	9.6	6.7	5.7	4.8
60°	13.4	12.4	11.5	9.6	7.7	6.7	6.7	4.8	3.8	3.8	3.8
62.5°	5.7	5.7	5.7	4.8	3.8	3.8	3.8	2.9	3.8	3.8	3.8
65°	2.9	2.9	2.9	1.9	1.9	1.9	2.9	2.9	2.9	3.8	3.8
67.5°	1.9	1.0	1.0	1.0	1.9	1.9	1.9	2.9	2.9	3.8	3.8
70°	1.0	1.0	1.0	1.0	1.9	1.9	1.9	2.9	2.9	3.8	4.8
72.5°	0.0	1.0	1.0	1.0	1.9	1.9	1.9	2.9	2.9	3.8	4.8
75°	0.0	1.0	1.0	1.0	1.9	1.9	1.9	2.9	3.8	3.8	4.8
77.5°	0.0	1.0	1.0	1.0	1.9	1.9	1.9	2.9	3.8	3.8	4.8
80°	0.0	1.0	1.0	1.0	1.9	1.9	1.9	2.9	3.8	3.8	4.8
82.5°	0.0	0.0	1.0	1.0	1.9	1.9	1.9	2.9	3.8	3.8	4.8
85°	0.0	0.0	1.0	1.0	1.9	1.9	1.9	2.9	3.8	3.8	4.8
87.5°	0.0	0.0	1.0	1.0	1.9	1.9	1.9	2.9	2.9	3.8	4.8
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):

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°	95°
0°	1360.6	1360.6	1360.6	1360.6	1360.6	1360.6	1360.6	1360.6	1360.6	1360.6	1360.6
2.5°	1692.8	1658.4	1607.6	1574.1	1541.5	1510.9	1460.2	1431.4	1379.7	1331.9	1290.7
5°	2043.3	1957.1	1852.7	1763.7	1706.2	1649.7	1547.3	1471.6	1376.9	1291.6	1213.1
7.5°	2397.5	2245.3	2073.9	1927.4	1838.4	1751.2	1598.0	1475.5	1341.4	1219.8	1104.0
10°	2719.2	2490.4	2248.2	2038.5	1917.8	1804.9	1602.8	1440.1	1267.7	1117.4	971.8
12.5°	3018.0	2704.9	2388.9	2115.1	1965.7	1829.7	1582.7	1383.6	1178.7	1000.6	831.1
15°	3284.2	2882.0	2491.4	2159.1	1983.9	1823.0	1535.8	1304.1	1073.3	874.2	659.7
17.5°	3486.2	2992.1	2536.4	2152.4	1951.3	1772.3	1455.4	1204.5	961.3	720.0	477.8
20°	3608.7	3039.0	2526.8	2100.7	1881.5	1691.9	1359.6	1096.3	826.3	553.4	421.3
22.5°	3660.5	3035.2	2481.8	2023.2	1795.3	1603.8	1267.7	991.0	684.6	500.8	439.5
25°	3669.1	2996.0	2418.6	1937.9	1710.1	1519.5	1174.8	871.3	594.6	515.1	492.1
27.5°	3603.0	2904.0	2299.9	1815.4	1590.4	1393.1	1036.0	692.3	558.2	513.2	528.5
30°	3407.7	2694.4	2090.2	1600.0	1382.6	1185.4	740.1	542.9	463.4	466.3	470.1
32.5°	3063.9	2345.8	1753.1	1284.9	1047.5	781.3	460.5	362.9	352.4	352.4	350.4
35°	2605.3	1919.7	1375.9	812.9	520.9	375.3	238.4	239.4	234.6	233.6	232.7
37.5°	2131.4	1514.7	871.3	336.1	226.0	157.0	140.7	142.7	140.7	143.6	141.7
40°	1680.4	935.5	317.9	107.2	79.5	76.6	78.5	80.4	80.4	82.3	82.3
42.5°	976.6	310.2	83.3	43.1	43.1	41.2	42.1	44.0	45.0	46.0	45.0
45°	290.1	64.2	26.8	23.9	23.9	23.0	23.0	23.9	24.9	25.9	25.9
47.5°	46.0	18.2	15.3	13.4	13.4	13.4	13.4	13.4	14.4	14.4	15.3
50°	14.4	11.5	9.6	8.6	8.6	7.7	7.7	8.6	8.6	8.6	9.6
52.5°	8.6	6.7	6.7	5.7	6.7	6.7	5.7	6.7	6.7	6.7	7.7
55°	5.7	5.7	5.7	5.7	5.7	5.7	5.7	5.7	6.7	6.7	6.7
57.5°	4.8	4.8	5.7	5.7	5.7	5.7	5.7	5.7	5.7	5.7	5.7
60°	4.8	4.8	5.7	5.7	5.7	5.7	5.7	5.7	5.7	5.7	6.7
62.5°	4.8	4.8	5.7	5.7	5.7	5.7	5.7	5.7	6.7	6.7	6.7
65°	4.8	4.8	5.7	5.7	5.7	5.7	5.7	6.7	6.7	6.7	6.7
67.5°	4.8	5.7	5.7	5.7	5.7	6.7	6.7	6.7	6.7	6.7	6.7
70°	4.8	5.7	5.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7
72.5°	4.8	5.7	5.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7
75°	5.7	5.7	5.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7	7.7
77.5°	5.7	5.7	6.7	6.7	6.7	6.7	6.7	6.7	7.7	7.7	7.7
80°	5.7	5.7	6.7	6.7	6.7	6.7	6.7	7.7	7.7	7.7	7.7
82.5°	5.7	5.7	6.7	6.7	6.7	6.7	6.7	7.7	7.7	7.7	7.7
85°	5.7	5.7	6.7	6.7	6.7	6.7	6.7	7.7	7.7	7.7	7.7
87.5°	5.7	5.7	6.7	6.7	6.7	6.7	6.7	7.7	7.7	7.7	7.7
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°	1360.6	1360.6	1360.6	1360.6	1360.6	1360.6	1360.6	1360.6	1360.6	1360.6	1360.6
2.5°	1255.3	1211.2	1190.1	1160.5	1139.4	1092.5	1073.3	1040.8	1014.0	969.9	972.8
5°	1146.1	1062.8	1006.3	962.3	931.6	856.9	807.2	754.5	706.6	647.3	625.2
7.5°	994.8	892.4	806.2	753.5	714.3	614.7	504.6	418.4	353.3	306.4	288.2
10°	843.5	710.5	573.5	492.1	435.7	339.9	291.1	268.1	247.0	221.2	203.9
12.5°	667.4	477.8	353.3	320.8	297.8	266.2	234.6	209.7	214.5	215.4	222.1
15°	455.8	343.7	304.5	282.5	257.6	239.4	249.9	256.6	269.1	270.0	278.6
17.5°	370.5	322.7	291.1	290.1	292.0	302.6	318.8	327.5	343.7	347.6	360.0
20°	370.5	342.8	369.6	369.6	374.4	388.7	409.8	422.2	440.4	447.1	462.5
22.5°	422.2	441.4	474.9	478.7	480.7	496.0	522.8	535.2	556.3	560.1	576.4
25°	515.1	532.4	563.0	565.9	566.8	578.3	598.4	605.1	619.5	611.8	621.4
27.5°	544.8	552.5	571.6	573.5	568.7	573.5	581.2	581.2	586.0	570.7	573.5
30°	478.7	480.7	490.2	491.2	480.7	482.6	483.5	482.6	481.6	465.3	465.3
32.5°	355.2	355.2	367.7	364.8	353.3	356.2	356.2	356.2	355.2	341.8	339.9
35°	235.5	236.5	247.0	245.1	236.5	238.4	238.4	241.3	238.4	230.8	228.8
37.5°	143.6	144.6	149.4	150.3	147.5	148.4	149.4	148.4	150.3	146.5	144.6
40°	83.3	85.2	89.0	90.0	89.0	89.0	90.0	91.0	94.8	90.0	88.1
42.5°	48.8	49.8	51.7	51.7	51.7	51.7	52.7	53.6	54.6	53.6	52.7
45°	27.8	28.7	29.7	29.7	30.6	29.7	30.6	30.6	31.6	30.6	30.6
47.5°	16.3	16.3	17.2	17.2	18.2	17.2	18.2	18.2	18.2	17.2	17.2
50°	9.6	10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.5	9.6	9.6
52.5°	7.7	7.7	7.7	7.7	7.7	6.7	6.7	6.7	6.7	5.7	5.7
55°	6.7	6.7	6.7	6.7	6.7	6.7	5.7	4.8	4.8	3.8	3.8
57.5°	5.7	6.7	6.7	6.7	6.7	5.7	5.7	4.8	3.8	2.9	2.9
60°	6.7	6.7	6.7	6.7	5.7	5.7	5.7	4.8	3.8	2.9	2.9
62.5°	6.7	6.7	6.7	6.7	6.7	5.7	5.7	4.8	3.8	2.9	2.9
65°	6.7	6.7	6.7	6.7	6.7	5.7	5.7	4.8	3.8	2.9	2.9
67.5°	6.7	6.7	6.7	6.7	6.7	5.7	5.7	4.8	3.8	3.8	2.9
70°	6.7	7.7	7.7	6.7	6.7	6.7	5.7	4.8	4.8	3.8	2.9
72.5°	6.7	7.7	7.7	6.7	6.7	6.7	5.7	4.8	4.8	3.8	2.9
75°	7.7	7.7	7.7	7.7	6.7	6.7	5.7	5.7	4.8	3.8	2.9
77.5°	7.7	7.7	7.7	7.7	6.7	6.7	5.7	5.7	4.8	3.8	2.9
80°	7.7	7.7	7.7	7.7	7.7	6.7	6.7	5.7	4.8	3.8	3.8
82.5°	7.7	7.7	7.7	7.7	7.7	6.7	6.7	5.7	4.8	3.8	3.8
85°	7.7	7.7	7.7	7.7	7.7	6.7	6.7	5.7	4.8	3.8	2.9
87.5°	7.7	7.7	7.7	7.7	6.7	6.7	5.7	5.7	4.8	3.8	2.9
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: P209027

CATALOG NUMBER: LDSQA6A65940D010TE LARH20SP 6LSQA1H 30°

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	1360.6	1360.6	1360.6	1360.6	1360.6	1360.6	1360.6	1360.6
2.5°	937.4	915.4	905.8	921.1	913.4	890.5	895.2	880.9
5°	559.2	525.7	504.6	514.2	483.5	455.8	455.8	435.7
7.5°	270.0	259.5	253.7	255.6	248.9	240.3	235.5	235.5
10°	189.6	185.8	186.7	186.7	192.5	191.5	194.4	193.4
12.5°	225.0	226.9	227.9	231.7	236.5	236.5	239.4	237.5
15°	288.2	286.3	292.0	293.0	300.6	301.6	305.4	301.6
17.5°	366.7	370.5	376.3	375.3	390.7	391.6	391.6	390.7
20°	472.0	474.9	480.7	482.6	500.8	502.7	509.4	510.3
22.5°	586.9	586.9	589.8	593.6	610.9	611.8	614.7	614.7
25°	626.2	620.4	621.4	626.2	635.8	631.9	634.8	632.9
27.5°	575.4	566.8	564.9	571.6	578.3	567.8	571.6	571.6
30°	467.3	459.6	457.7	464.4	469.2	457.7	461.5	463.4
32.5°	341.8	337.0	336.1	340.9	344.7	335.1	338.9	341.8
35°	230.8	228.8	226.9	227.9	233.6	226.0	229.8	231.7
37.5°	146.5	142.7	143.6	145.5	149.4	144.6	148.4	148.4
40°	90.0	88.1	88.1	90.0	91.9	88.1	90.0	91.0
42.5°	52.7	52.7	52.7	53.6	54.6	52.7	52.7	53.6
45°	30.6	29.7	29.7	30.6	31.6	29.7	30.6	30.6
47.5°	17.2	16.3	16.3	17.2	17.2	16.3	17.2	17.2
50°	9.6	8.6	8.6	9.6	9.6	8.6	8.6	8.6
52.5°	4.8	4.8	4.8	4.8	4.8	4.8	3.8	3.8
55°	2.9	2.9	1.9	1.9	1.9	1.9	1.9	1.0
57.5°	1.9	1.9	1.0	1.0	1.0	1.0	0.0	0.0
60°	1.9	1.9	1.0	1.0	1.0	0.0	0.0	0.0
62.5°	1.9	1.9	1.0	1.0	1.0	0.0	0.0	0.0
65°	1.9	1.9	1.0	1.0	1.0	0.0	0.0	0.0
67.5°	1.9	1.9	1.0	1.0	1.0	0.0	0.0	0.0
70°	2.9	1.9	1.9	1.0	1.0	1.0	0.0	0.0
72.5°	2.9	1.9	1.9	1.9	1.0	1.0	0.0	0.0
75°	2.9	1.9	1.9	1.9	1.0	1.0	0.0	0.0
77.5°	2.9	1.9	1.9	1.9	1.0	1.0	1.0	0.0
80°	2.9	1.9	1.9	1.9	1.0	1.0	1.0	1.0
82.5°	2.9	1.9	1.9	1.9	1.0	1.0	1.0	1.0
85°	2.9	1.9	1.9	1.9	1.0	1.0	1.0	0.0
87.5°	2.9	1.9	1.9	1.9	1.0	1.0	1.0	0.0
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)