

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: P209026

Luminaire Tested: **LDSQA6A65935D010TE LARH20SP 6LSQA1H 30°**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P209026
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: LDSQA6A65935D010TE 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 / 3500K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 4712.6 lumens
Efficiency: N/A
Efficacy: 59.9 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

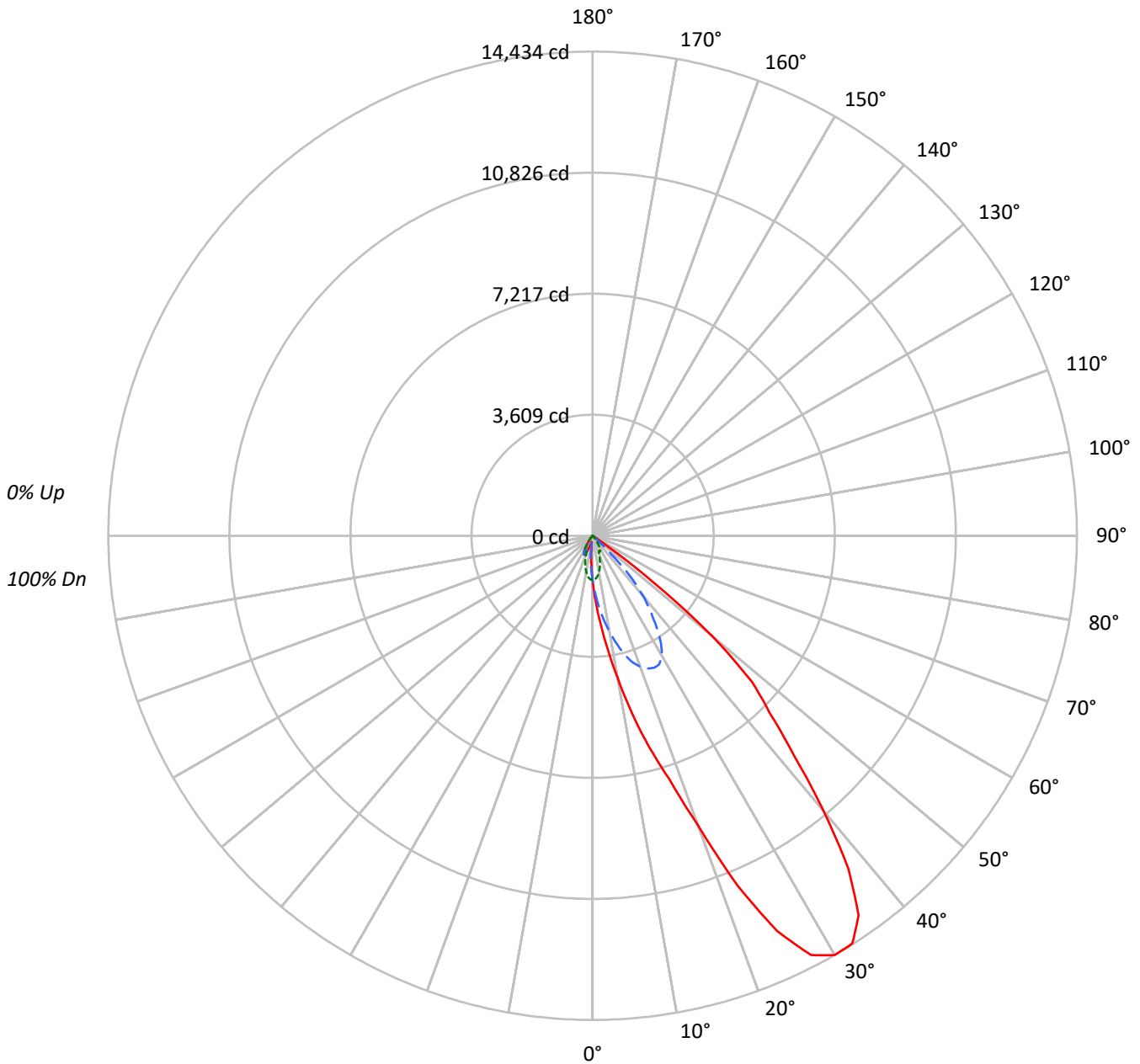
Input Watts (W): 78.67
Input Voltage (V): NR
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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Luminous Intensity Polar Plot





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COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:

RF	20					20					20					20					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	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	45	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°	57281	57281	57281
5°	110994	54587	18412
10°	188573	47768	8267
15°	290581	38102	13145
20°	420649	24793	22864
25°	617169	23929	29402
30°	717601	22666	22526
35°	726333	12005	11910
40°	601356	4525	4997
45°	454178	1541	1827
50°	310733	563	563
55°	43223	495	68
60°	1128	482	0
65°	285	672	0
70°	113	831	0
75°	0	1098	0
80°	0	1860	223
85°	0	3705	0



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	139.6	3.0
10°-20°	590.0	12.5
20°-30°	1345.9	28.6
30°-40°	1557.5	33.0
40°-50°	939.3	19.9
50°-60°	127.6	2.7
60°-70°	4.1	0.1
70°-80°	4.5	0.1
80°-90°	4.2	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°	2075.4	44.0
0°-40°	3632.9	77.1
0°-60°	4699.8	99.7
0°-90°	4712.6	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	4712.6	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	1330	1330	1330	1330	1330	
5°	2568	2103	1263	691	426	299
15°	6519	3664	855	263	295	1930
25°	12991	4342	504	606	619	5879
35°	13819	3310	228	233	227	8328
45°	7459	902	25	31	30	5832
55°	576	7	7	5	1	1129
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°	1330.4	1330.4	1330.4	1330.4	1330.4	1330.4	1330.4	1330.4	1330.4	1330.4	1330.4
2.5°	1924.0	1906.2	1913.7	1894.0	1844.4	1834.1	1833.1	1820.0	1777.9	1745.1	1705.8
5°	2568.1	2567.2	2571.8	2529.7	2442.6	2415.5	2402.4	2370.5	2268.5	2189.9	2102.8
7.5°	3372.3	3366.7	3361.1	3284.3	3147.6	3095.2	3061.5	2946.3	2805.9	2666.4	2511.0
10°	4313.2	4310.4	4288.9	4154.1	3935.0	3838.6	3773.0	3590.5	3364.8	3166.3	2902.3
12.5°	5405.8	5380.5	5342.2	5144.6	4844.1	4739.2	4595.0	4305.7	3959.3	3655.1	3286.2
15°	6519.0	6482.5	6414.1	6160.4	5787.8	5609.0	5430.2	5049.1	4579.1	4137.2	3664.4
17.5°	7607.8	7567.6	7407.5	6976.8	6612.6	6394.5	6196.0	5672.6	5120.3	4552.0	3952.8
20°	9180.7	9034.7	8755.7	8076.9	7400.0	7006.8	6774.6	6221.3	5537.8	4875.9	4157.8
22.5°	11281.6	10957.7	10363.2	9260.3	8293.2	7725.8	7345.7	6609.8	5838.4	5087.5	4284.2
25°	12991.2	12844.2	12168.2	10599.1	9089.9	8421.4	7892.5	6918.8	6057.4	5228.9	4342.3
27.5°	14093.1	14056.6	13284.2	11707.6	9740.6	8863.3	8272.6	7122.9	6163.2	5258.8	4314.2
30°	14433.9	14491.0	13749.5	12084.0	9928.8	8952.3	8306.3	7125.7	6081.8	5123.1	4134.4
32.5°	14408.7	14411.5	13502.4	11759.1	9622.6	8693.9	8025.4	6888.8	5781.2	4783.2	3792.7
35°	13818.8	13673.7	12645.7	10761.1	8910.1	8090.9	7469.3	6430.1	5286.0	4272.0	3310.5
37.5°	12524.0	12334.0	11135.6	9483.1	8066.6	7309.2	6807.4	5828.1	4696.2	3726.2	2812.4
40°	10699.3	10429.7	9441.0	8295.0	7143.5	6574.2	6152.9	5154.9	4065.1	3190.7	2345.3
42.5°	8872.7	8740.7	8087.2	7155.6	6367.3	5831.8	5391.8	4449.9	3458.5	2662.7	1754.5
45°	7459.0	7345.7	6906.6	6292.4	5519.1	5030.4	4606.3	3715.0	2687.0	1786.3	901.6
47.5°	6429.1	6337.4	5917.0	5271.9	4423.7	3889.1	3451.9	2436.1	1522.3	771.5	225.6
50°	4639.0	4545.4	4133.5	3386.4	2620.5	2173.0	1858.4	1087.9	431.6	156.4	23.4
52.5°	2274.1	2197.3	1917.4	1435.2	963.4	692.8	506.5	204.1	49.6	16.9	11.2
55°	575.8	529.0	441.0	277.1	135.8	81.5	52.4	18.7	12.2	9.4	6.6
57.5°	32.8	31.8	29.0	21.5	15.9	14.0	12.2	9.4	6.6	5.6	4.7
60°	13.1	12.2	11.2	9.4	7.5	6.6	6.6	4.7	3.7	3.7	3.7
62.5°	5.6	5.6	5.6	4.7	3.7	3.7	3.7	2.8	3.7	3.7	3.7
65°	2.8	2.8	2.8	1.9	1.9	1.9	2.8	2.8	2.8	3.7	3.7
67.5°	1.9	0.9	0.9	0.9	1.9	1.9	1.9	2.8	2.8	3.7	3.7
70°	0.9	0.9	0.9	0.9	1.9	1.9	1.9	2.8	2.8	3.7	4.7
72.5°	0.0	0.9	0.9	0.9	1.9	1.9	1.9	2.8	2.8	3.7	4.7
75°	0.0	0.9	0.9	0.9	1.9	1.9	1.9	2.8	3.7	3.7	4.7
77.5°	0.0	0.9	0.9	0.9	1.9	1.9	1.9	2.8	3.7	3.7	4.7
80°	0.0	0.9	0.9	0.9	1.9	1.9	1.9	2.8	3.7	3.7	4.7
82.5°	0.0	0.0	0.9	0.9	1.9	1.9	1.9	2.8	3.7	3.7	4.7
85°	0.0	0.0	0.9	0.9	1.9	1.9	1.9	2.8	3.7	3.7	4.7
87.5°	0.0	0.0	0.9	0.9	1.9	1.9	1.9	2.8	2.8	3.7	4.7
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°	1330.4	1330.4	1330.4	1330.4	1330.4	1330.4	1330.4	1330.4	1330.4	1330.4	1330.4
2.5°	1655.3	1621.6	1571.9	1539.2	1507.3	1477.4	1427.8	1399.7	1349.1	1302.3	1262.0
5°	1997.9	1913.7	1811.6	1724.5	1668.4	1613.1	1513.0	1439.0	1346.3	1263.0	1186.2
7.5°	2344.3	2195.5	2027.9	1884.6	1797.6	1712.4	1562.6	1442.7	1311.7	1192.8	1079.5
10°	2658.9	2435.1	2198.3	1993.2	1875.3	1764.8	1567.3	1408.1	1239.6	1092.6	950.3
12.5°	2951.0	2644.9	2335.9	2068.1	1922.1	1789.1	1547.6	1352.9	1152.5	978.4	812.7
15°	3211.3	2818.1	2436.1	2111.2	1939.9	1782.6	1501.7	1275.2	1049.5	854.8	645.1
17.5°	3408.8	2925.7	2480.1	2104.7	1908.0	1733.0	1423.1	1177.8	940.0	704.0	467.2
20°	3528.7	2971.6	2470.7	2054.1	1839.7	1654.3	1329.5	1072.0	808.0	541.1	411.9
22.5°	3579.2	2967.9	2426.7	1978.3	1755.4	1568.2	1239.6	969.0	669.4	489.7	429.7
25°	3587.7	2929.5	2364.9	1894.9	1672.1	1485.8	1148.8	852.0	581.4	503.7	481.2
27.5°	3523.1	2839.6	2248.8	1775.1	1555.1	1362.2	1013.0	676.9	545.8	501.8	516.8
30°	3332.1	2634.6	2043.8	1564.4	1351.9	1159.1	723.7	530.8	453.1	455.9	459.7
32.5°	2996.0	2293.8	1714.2	1256.4	1024.2	764.0	450.3	354.8	344.5	344.5	342.7
35°	2547.5	1877.2	1345.4	794.9	509.3	367.0	233.1	234.1	229.4	228.4	227.5
37.5°	2084.1	1481.1	852.0	328.6	221.0	153.5	137.6	139.5	137.6	140.4	138.6
40°	1643.1	914.7	310.8	104.9	77.7	74.9	76.8	78.6	78.6	80.5	80.5
42.5°	955.0	303.3	81.5	42.1	42.1	40.3	41.2	43.1	44.0	44.9	44.0
45°	283.7	62.7	26.2	23.4	23.4	22.5	22.5	23.4	24.3	25.3	25.3
47.5°	44.9	17.8	15.0	13.1	13.1	13.1	13.1	13.1	14.0	14.0	15.0
50°	14.0	11.2	9.4	8.4	8.4	7.5	7.5	8.4	8.4	8.4	9.4
52.5°	8.4	6.6	6.6	5.6	6.6	6.6	5.6	6.6	6.6	6.6	7.5
55°	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6	6.6	6.6	6.6
57.5°	4.7	4.7	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6
60°	4.7	4.7	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6	6.6
62.5°	4.7	4.7	5.6	5.6	5.6	5.6	5.6	5.6	6.6	6.6	6.6
65°	4.7	4.7	5.6	5.6	5.6	5.6	5.6	6.6	6.6	6.6	6.6
67.5°	4.7	5.6	5.6	5.6	5.6	6.6	6.6	6.6	6.6	6.6	6.6
70°	4.7	5.6	5.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6
72.5°	4.7	5.6	5.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6
75°	5.6	5.6	5.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	7.5
77.5°	5.6	5.6	6.6	6.6	6.6	6.6	6.6	6.6	7.5	7.5	7.5
80°	5.6	5.6	6.6	6.6	6.6	6.6	6.6	7.5	7.5	7.5	7.5
82.5°	5.6	5.6	6.6	6.6	6.6	6.6	6.6	7.5	7.5	7.5	7.5
85°	5.6	5.6	6.6	6.6	6.6	6.6	6.6	7.5	7.5	7.5	7.5
87.5°	5.6	5.6	6.6	6.6	6.6	6.6	6.6	7.5	7.5	7.5	7.5
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°	1330.4	1330.4	1330.4	1330.4	1330.4	1330.4	1330.4	1330.4	1330.4	1330.4	1330.4
2.5°	1227.4	1184.3	1163.7	1134.7	1114.1	1068.2	1049.5	1017.7	991.5	948.4	951.2
5°	1120.7	1039.2	984.0	940.9	911.0	837.9	789.2	737.8	690.9	632.9	611.4
7.5°	972.7	872.6	788.3	736.8	698.4	601.1	493.4	409.1	345.5	299.6	281.8
10°	824.8	694.7	560.8	481.2	426.0	332.4	284.6	262.1	241.5	216.3	199.4
12.5°	652.6	467.2	345.5	313.6	291.2	260.3	229.4	205.0	209.7	210.7	217.2
15°	445.6	336.1	297.7	276.2	251.8	234.1	244.4	250.9	263.1	264.0	272.4
17.5°	362.3	315.5	284.6	283.7	285.6	295.9	311.8	320.2	336.1	339.9	352.0
20°	362.3	335.2	361.4	361.4	366.1	380.1	400.7	412.9	430.7	437.2	452.2
22.5°	412.9	431.6	464.4	468.1	470.0	485.0	511.2	523.4	544.0	547.7	563.6
25°	503.7	520.5	550.5	553.3	554.3	565.5	585.1	591.7	605.7	598.3	607.6
27.5°	532.7	540.2	558.9	560.8	556.1	560.8	568.3	568.3	573.0	558.0	560.8
30°	468.1	470.0	479.4	480.3	470.0	471.9	472.8	471.9	470.9	455.0	455.0
32.5°	347.3	347.3	359.5	356.7	345.5	348.3	348.3	348.3	347.3	334.2	332.4
35°	230.3	231.2	241.5	239.7	231.2	233.1	233.1	235.9	233.1	225.6	223.8
37.5°	140.4	141.4	146.1	147.0	144.2	145.1	146.1	145.1	147.0	143.2	141.4
40°	81.5	83.3	87.1	88.0	87.1	87.1	88.0	88.9	92.7	88.0	86.1
42.5°	47.7	48.7	50.6	50.6	50.6	50.6	51.5	52.4	53.4	52.4	51.5
45°	27.2	28.1	29.0	29.0	30.0	29.0	30.0	30.0	30.9	30.0	30.0
47.5°	15.9	15.9	16.9	16.9	17.8	16.9	17.8	17.8	17.8	16.9	16.9
50°	9.4	10.3	10.3	10.3	10.3	10.3	10.3	10.3	10.3	9.4	9.4
52.5°	7.5	7.5	7.5	7.5	7.5	6.6	6.6	6.6	6.6	5.6	5.6
55°	6.6	6.6	6.6	6.6	6.6	6.6	5.6	4.7	4.7	3.7	3.7
57.5°	5.6	6.6	6.6	6.6	6.6	5.6	5.6	4.7	3.7	2.8	2.8
60°	6.6	6.6	6.6	6.6	5.6	5.6	5.6	4.7	3.7	2.8	2.8
62.5°	6.6	6.6	6.6	6.6	6.6	5.6	5.6	4.7	3.7	2.8	2.8
65°	6.6	6.6	6.6	6.6	6.6	5.6	5.6	4.7	3.7	2.8	2.8
67.5°	6.6	6.6	6.6	6.6	6.6	5.6	5.6	4.7	3.7	3.7	2.8
70°	6.6	7.5	7.5	6.6	6.6	6.6	5.6	4.7	4.7	3.7	2.8
72.5°	6.6	7.5	7.5	6.6	6.6	6.6	5.6	4.7	4.7	3.7	2.8
75°	7.5	7.5	7.5	7.5	6.6	6.6	5.6	5.6	4.7	3.7	2.8
77.5°	7.5	7.5	7.5	7.5	6.6	6.6	5.6	5.6	4.7	3.7	2.8
80°	7.5	7.5	7.5	7.5	7.5	6.6	6.6	5.6	4.7	3.7	3.7
82.5°	7.5	7.5	7.5	7.5	7.5	6.6	6.6	5.6	4.7	3.7	3.7
85°	7.5	7.5	7.5	7.5	7.5	6.6	6.6	5.6	4.7	3.7	2.8
87.5°	7.5	7.5	7.5	7.5	6.6	6.6	5.6	5.6	4.7	3.7	2.8
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: P209026

CATALOG NUMBER: LDSQA6A65935D010TE LARH20SP 6LSQA1H 30°

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	1330.4	1330.4	1330.4	1330.4	1330.4	1330.4	1330.4	1330.4
2.5°	916.6	895.0	885.7	900.7	893.2	870.7	875.4	861.3
5°	546.8	514.0	493.4	502.8	472.8	445.6	445.6	426.0
7.5°	264.0	253.7	248.1	250.0	243.4	235.0	230.3	230.3
10°	185.4	181.6	182.6	182.6	188.2	187.2	190.1	189.1
12.5°	220.0	221.9	222.8	226.6	231.2	231.2	234.1	232.2
15°	281.8	279.9	285.6	286.5	294.0	294.9	298.7	294.9
17.5°	358.6	362.3	367.9	367.0	382.0	382.9	382.9	382.0
20°	461.6	464.4	470.0	471.9	489.7	491.5	498.1	499.0
22.5°	573.9	573.9	576.7	580.5	597.3	598.3	601.1	601.1
25°	612.3	606.7	607.6	612.3	621.7	617.9	620.7	618.9
27.5°	562.7	554.3	552.4	558.9	565.5	555.2	558.9	558.9
30°	456.9	449.4	447.5	454.1	458.8	447.5	451.3	453.1
32.5°	334.2	329.6	328.6	333.3	337.0	327.7	331.4	334.2
35°	225.6	223.8	221.9	222.8	228.4	221.0	224.7	226.6
37.5°	143.2	139.5	140.4	142.3	146.1	141.4	145.1	145.1
40°	88.0	86.1	86.1	88.0	89.9	86.1	88.0	88.9
42.5°	51.5	51.5	51.5	52.4	53.4	51.5	51.5	52.4
45°	30.0	29.0	29.0	30.0	30.9	29.0	30.0	30.0
47.5°	16.9	15.9	15.9	16.9	16.9	15.9	16.9	16.9
50°	9.4	8.4	8.4	9.4	9.4	8.4	8.4	8.4
52.5°	4.7	4.7	4.7	4.7	4.7	4.7	3.7	3.7
55°	2.8	2.8	1.9	1.9	1.9	1.9	1.9	0.9
57.5°	1.9	1.9	0.9	0.9	0.9	0.9	0.0	0.0
60°	1.9	1.9	0.9	0.9	0.9	0.0	0.0	0.0
62.5°	1.9	1.9	0.9	0.9	0.9	0.0	0.0	0.0
65°	1.9	1.9	0.9	0.9	0.9	0.0	0.0	0.0
67.5°	1.9	1.9	0.9	0.9	0.9	0.0	0.0	0.0
70°	2.8	1.9	1.9	0.9	0.9	0.9	0.0	0.0
72.5°	2.8	1.9	1.9	1.9	0.9	0.9	0.0	0.0
75°	2.8	1.9	1.9	1.9	0.9	0.9	0.0	0.0
77.5°	2.8	1.9	1.9	1.9	0.9	0.9	0.9	0.0
80°	2.8	1.9	1.9	1.9	0.9	0.9	0.9	0.9
82.5°	2.8	1.9	1.9	1.9	0.9	0.9	0.9	0.9
85°	2.8	1.9	1.9	1.9	0.9	0.9	0.9	0.0
87.5°	2.8	1.9	1.9	1.9	0.9	0.9	0.9	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)