

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: P209034

Luminaire Tested: **LDSQA6A75935D010TE LARH20SP 6LSQA1H 30°**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P209034
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: LDSQA6A75935D010TE 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: 5429.0 lumens
Efficiency: N/A
Efficacy: 68.3 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

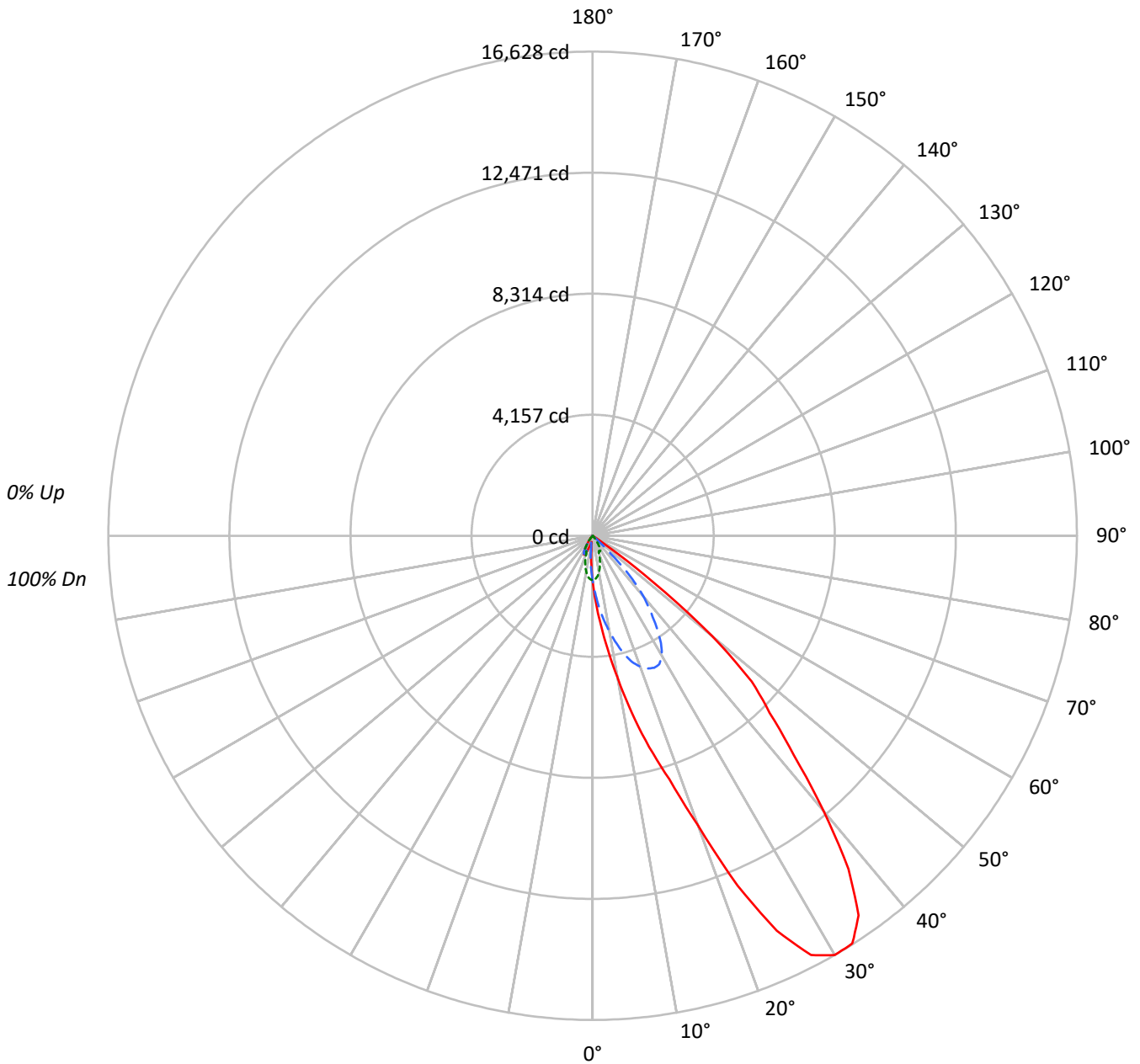
Input Watts (W): 79.45
Input Voltage (V): NR
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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	50	30	10	0		
RCR																										
0	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102	100					100			
1	112	109	106	104	110	107	104	102	103	101	99	99	97	96	96	94	93	91					91			
2	105	100	95	91	103	98	94	90	95	91	88	92	89	86	89	86	84	82					82			
3	99	91	85	80	96	89	84	80	87	82	78	84	80	77	82	79	76	74					74			
4	92	83	76	71	90	82	76	71	79	74	70	77	73	69	75	71	68	66					66			
5	86	76	69	64	84	75	68	63	73	67	63	71	66	62	69	65	61	60					60			
6	80	69	62	57	79	69	62	57	67	61	56	65	60	56	64	59	55	54					54			
7	75	64	56	51	73	63	56	51	62	55	51	60	55	50	59	54	50	49					49			
8	70	59	51	46	69	58	51	46	57	50	46	56	50	46	54	49	46	44					44			
9	66	54	47	42	64	53	47	42	52	46	42	51	46	42	50	45	41	40					40			
10	61	50	43	38	60	49	43	38	48	42	38	48	42	38	47	41	38	36					36			

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	65987	65987	65987
5°	127867	62885	21208
10°	217244	55030	9527
15°	334759	43893	15142
20°	484599	28563	26341
25°	710994	27568	33868
30°	826694	26116	25952
35°	836754	13834	13718
40°	692774	5216	5761
45°	523221	1772	2101
50°	357976	650	650
55°	49791	563	83
60°	1300	560	0
65°	326	764	0
70°	138	944	0
75°	0	1248	0
80°	0	2132	273
85°	0	4248	0



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	160.8	3.0
10°-20°	679.7	12.5
20°-30°	1550.5	28.6
30°-40°	1794.3	33.0
40°-50°	1082.1	19.9
50°-60°	147.0	2.7
60°-70°	4.7	0.1
70°-80°	5.1	0.1
80°-90°	4.8	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°	2390.9	44.0
0°-40°	4185.2	77.1
0°-60°	5414.3	99.7
0°-90°	5429.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	5429.0	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	1533	1533	1533	1533	1533	
5°	2958	2422	1455	796	491	344
15°	7510	4222	985	303	340	2223
25°	14966	5002	580	698	713	6773
35°	15920	3814	263	269	261	9594
45°	8593	1039	29	36	34	6719
55°	663	8	8	5	1	1300
65°	3	4	8	4	0	5
75°	0	5	8	5	0	0
85°	0	5	9	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°	1532.6	1532.6	1532.6	1532.6	1532.6	1532.6	1532.6	1532.6	1532.6	1532.6	1532.6
2.5°	2216.5	2196.0	2204.6	2181.9	2124.8	2112.9	2111.8	2096.7	2048.2	2010.4	1965.1
5°	2958.5	2957.4	2962.8	2914.3	2814.0	2782.7	2767.6	2730.9	2613.4	2522.8	2422.5
7.5°	3885.0	3878.5	3872.1	3783.6	3626.1	3565.7	3526.9	3394.2	3232.5	3071.8	2892.7
10°	4969.0	4965.7	4940.9	4785.6	4533.2	4422.1	4346.6	4136.3	3876.4	3647.7	3343.6
12.5°	6227.6	6198.5	6154.3	5926.7	5580.5	5459.7	5293.6	4960.3	4561.3	4210.7	3785.8
15°	7510.1	7468.0	7389.3	7097.0	6667.7	6461.7	6255.7	5816.7	5275.3	4766.2	4221.5
17.5°	8764.4	8718.0	8533.6	8037.5	7617.9	7366.6	7137.9	6535.0	5898.7	5244.0	4553.7
20°	10576.4	10408.2	10086.7	9304.8	8525.0	8072.0	7804.5	7167.1	6379.7	5617.2	4789.9
22.5°	12996.7	12623.5	11938.6	10668.1	9553.9	8900.3	8462.4	7614.7	6725.9	5860.9	4935.5
25°	14966.2	14796.8	14018.1	12210.4	10471.8	9701.7	9092.3	7970.6	6978.3	6023.8	5002.4
27.5°	16235.6	16193.6	15303.8	13487.5	11221.4	10210.8	9530.2	8205.7	7100.2	6058.3	4970.0
30°	16628.2	16694.0	15839.8	13921.0	11438.2	10313.2	9569.0	8209.0	7006.4	5901.9	4762.9
32.5°	16599.1	16602.4	15555.1	13546.8	11085.5	10015.6	9245.5	7936.1	6660.1	5510.4	4369.3
35°	15919.6	15752.5	14568.2	12397.0	10264.7	9321.0	8604.8	7407.6	6089.6	4921.5	3813.8
37.5°	14428.0	14209.0	12828.5	10924.8	9292.9	8420.4	7842.3	6714.1	5410.1	4292.7	3240.0
40°	12325.8	12015.2	10876.3	9556.1	8229.5	7573.7	7088.3	5938.6	4683.1	3675.8	2701.8
42.5°	10221.6	10069.5	9316.7	8243.5	7335.3	6718.4	6211.5	5126.4	3984.2	3067.4	2021.2
45°	8592.9	8462.4	7956.6	7249.0	6358.1	5795.1	5306.5	4279.7	3095.5	2057.9	1038.7
47.5°	7406.5	7300.8	6816.5	6073.4	5096.2	4480.4	3976.7	2806.4	1753.7	888.7	259.9
50°	5344.3	5236.4	4761.9	3901.2	3018.9	2503.4	2141.0	1253.3	497.2	180.1	27.0
52.5°	2619.8	2531.4	2208.9	1653.4	1109.8	798.1	583.5	235.1	57.2	19.4	12.9
55°	663.3	609.4	508.0	319.3	156.4	93.8	60.4	21.6	14.0	10.8	7.5
57.5°	37.7	36.7	33.4	24.8	18.3	16.2	14.0	10.8	7.5	6.5	5.4
60°	15.1	14.0	12.9	10.8	8.6	7.5	7.5	5.4	4.3	4.3	4.3
62.5°	6.5	6.5	6.5	5.4	4.3	4.3	4.3	3.2	4.3	4.3	4.3
65°	3.2	3.2	3.2	2.2	2.2	2.2	3.2	3.2	3.2	4.3	4.3
67.5°	2.2	1.1	1.1	1.1	2.2	2.2	2.2	3.2	3.2	4.3	4.3
70°	1.1	1.1	1.1	1.1	2.2	2.2	2.2	3.2	3.2	4.3	5.4
72.5°	0.0	1.1	1.1	1.1	2.2	2.2	2.2	3.2	3.2	4.3	5.4
75°	0.0	1.1	1.1	1.1	2.2	2.2	2.2	3.2	4.3	4.3	5.4
77.5°	0.0	1.1	1.1	1.1	2.2	2.2	2.2	3.2	4.3	4.3	5.4
80°	0.0	1.1	1.1	1.1	2.2	2.2	2.2	3.2	4.3	4.3	5.4
82.5°	0.0	0.0	1.1	1.1	2.2	2.2	2.2	3.2	4.3	4.3	5.4
85°	0.0	0.0	1.1	1.1	2.2	2.2	2.2	3.2	4.3	4.3	5.4
87.5°	0.0	0.0	1.1	1.1	2.2	2.2	2.2	3.2	3.2	4.3	5.4
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°	1532.6	1532.6	1532.6	1532.6	1532.6	1532.6	1532.6	1532.6	1532.6	1532.6	1532.6
2.5°	1906.9	1868.1	1810.9	1773.2	1736.5	1702.0	1644.8	1612.5	1554.2	1500.3	1453.9
5°	2301.7	2204.6	2087.0	1986.7	1922.0	1858.4	1743.0	1657.8	1551.0	1455.0	1366.5
7.5°	2700.7	2529.2	2336.2	2171.2	2070.8	1972.7	1800.1	1662.1	1511.1	1374.1	1243.6
10°	3063.1	2805.3	2532.5	2296.3	2160.4	2033.1	1805.5	1622.2	1428.0	1258.7	1094.7
12.5°	3399.6	3046.9	2691.0	2382.6	2214.3	2061.1	1782.9	1558.5	1327.7	1127.1	936.2
15°	3699.5	3246.5	2806.4	2432.2	2234.8	2053.6	1730.0	1469.0	1209.1	984.7	743.1
17.5°	3927.1	3370.5	2857.1	2424.6	2198.1	1996.4	1639.4	1356.8	1082.9	811.1	538.2
20°	4065.1	3423.4	2846.3	2366.4	2119.4	1905.8	1531.6	1235.0	930.8	623.4	474.6
22.5°	4123.4	3419.1	2795.6	2279.0	2022.3	1806.6	1428.0	1116.3	771.2	564.1	495.1
25°	4133.1	3374.8	2724.5	2183.0	1926.3	1711.7	1323.4	981.5	669.8	580.3	554.4
27.5°	4058.6	3271.3	2590.7	2045.0	1791.5	1569.3	1167.0	779.8	628.8	578.1	595.4
30°	3838.6	3035.1	2354.5	1802.3	1557.4	1335.3	833.7	611.5	522.0	525.3	529.6
32.5°	3451.4	2642.5	1974.9	1447.4	1180.0	880.1	518.8	408.8	396.9	396.9	394.8
35°	2934.8	2162.5	1549.9	915.7	586.7	422.8	268.6	269.6	264.2	263.2	262.1
37.5°	2400.9	1706.3	981.5	378.6	254.5	176.9	158.5	160.7	158.5	161.8	159.6
40°	1892.9	1053.8	358.1	120.8	89.5	86.3	88.4	90.6	90.6	92.8	92.8
42.5°	1100.1	349.5	93.8	48.5	48.5	46.4	47.5	49.6	50.7	51.8	50.7
45°	326.8	72.3	30.2	27.0	27.0	25.9	25.9	27.0	28.0	29.1	29.1
47.5°	51.8	20.5	17.3	15.1	15.1	15.1	15.1	15.1	16.2	16.2	17.3
50°	16.2	12.9	10.8	9.7	9.7	8.6	8.6	9.7	9.7	9.7	10.8
52.5°	9.7	7.5	7.5	6.5	7.5	7.5	6.5	7.5	7.5	7.5	8.6
55°	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	7.5	7.5
57.5°	5.4	5.4	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5
60°	5.4	5.4	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	7.5
62.5°	5.4	5.4	6.5	6.5	6.5	6.5	6.5	6.5	6.5	7.5	7.5
65°	5.4	5.4	6.5	6.5	6.5	6.5	6.5	7.5	7.5	7.5	7.5
67.5°	5.4	6.5	6.5	6.5	6.5	7.5	7.5	7.5	7.5	7.5	7.5
70°	5.4	6.5	6.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5
72.5°	5.4	6.5	6.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5
75°	6.5	6.5	6.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	8.6
77.5°	6.5	6.5	7.5	7.5	7.5	7.5	7.5	7.5	8.6	8.6	8.6
80°	6.5	6.5	7.5	7.5	7.5	7.5	7.5	8.6	8.6	8.6	8.6
82.5°	6.5	6.5	7.5	7.5	7.5	7.5	7.5	8.6	8.6	8.6	8.6
85°	6.5	6.5	7.5	7.5	7.5	7.5	7.5	8.6	8.6	8.6	8.6
87.5°	6.5	6.5	7.5	7.5	7.5	7.5	7.5	8.6	8.6	8.6	8.6
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°	1532.6	1532.6	1532.6	1532.6	1532.6	1532.6	1532.6	1532.6	1532.6	1532.6	1532.6
2.5°	1414.0	1364.4	1340.7	1307.2	1283.5	1230.6	1209.1	1172.4	1142.2	1092.6	1095.8
5°	1291.0	1197.2	1133.6	1084.0	1049.4	965.3	909.2	849.9	796.0	729.1	704.3
7.5°	1120.6	1005.2	908.2	848.8	804.6	692.4	568.4	471.3	398.0	345.1	324.6
10°	950.2	800.3	646.1	554.4	490.7	382.9	327.9	302.0	278.3	249.1	229.7
12.5°	751.8	538.2	398.0	361.3	335.4	299.8	264.2	236.2	241.6	242.7	250.2
15°	513.4	387.2	343.0	318.2	290.1	269.6	281.5	289.1	303.1	304.2	313.9
17.5°	417.4	363.5	327.9	326.8	329.0	340.8	359.2	368.9	387.2	391.5	405.5
20°	417.4	386.1	416.3	416.3	421.7	437.9	461.6	475.6	496.1	503.7	520.9
22.5°	475.6	497.2	535.0	539.3	541.4	558.7	588.9	602.9	626.6	631.0	649.3
25°	580.3	599.7	634.2	637.4	638.5	651.5	674.1	681.7	697.8	689.2	700.0
27.5°	613.7	622.3	643.9	646.1	640.7	646.1	654.7	654.7	660.1	642.8	646.1
30°	539.3	541.4	552.2	553.3	541.4	543.6	544.7	543.6	542.5	524.2	524.2
32.5°	400.1	400.1	414.2	410.9	398.0	401.2	401.2	401.2	400.1	385.0	382.9
35°	265.3	266.4	278.3	276.1	266.4	268.6	268.6	271.8	268.6	259.9	257.8
37.5°	161.8	162.9	168.3	169.3	166.1	167.2	168.3	167.2	169.3	165.0	162.9
40°	93.8	96.0	100.3	101.4	100.3	100.3	101.4	102.5	106.8	101.4	99.2
42.5°	55.0	56.1	58.2	58.2	58.2	58.2	59.3	60.4	61.5	60.4	59.3
45°	31.3	32.4	33.4	33.4	34.5	33.4	34.5	34.5	35.6	34.5	34.5
47.5°	18.3	18.3	19.4	19.4	20.5	19.4	20.5	20.5	20.5	19.4	19.4
50°	10.8	11.9	11.9	11.9	11.9	11.9	11.9	11.9	11.9	10.8	10.8
52.5°	8.6	8.6	8.6	8.6	8.6	7.5	7.5	7.5	7.5	6.5	6.5
55°	7.5	7.5	7.5	7.5	7.5	7.5	6.5	5.4	5.4	4.3	4.3
57.5°	6.5	7.5	7.5	7.5	7.5	6.5	6.5	5.4	4.3	3.2	3.2
60°	7.5	7.5	7.5	7.5	6.5	6.5	6.5	5.4	4.3	3.2	3.2
62.5°	7.5	7.5	7.5	7.5	7.5	6.5	6.5	5.4	4.3	3.2	3.2
65°	7.5	7.5	7.5	7.5	7.5	6.5	6.5	5.4	4.3	3.2	3.2
67.5°	7.5	7.5	7.5	7.5	7.5	6.5	6.5	5.4	4.3	4.3	3.2
70°	7.5	8.6	8.6	7.5	7.5	7.5	6.5	5.4	5.4	4.3	3.2
72.5°	7.5	8.6	8.6	7.5	7.5	7.5	6.5	5.4	5.4	4.3	3.2
75°	8.6	8.6	8.6	8.6	7.5	7.5	6.5	6.5	5.4	4.3	3.2
77.5°	8.6	8.6	8.6	8.6	7.5	7.5	6.5	6.5	5.4	4.3	3.2
80°	8.6	8.6	8.6	8.6	8.6	7.5	7.5	6.5	5.4	4.3	4.3
82.5°	8.6	8.6	8.6	8.6	8.6	7.5	7.5	6.5	5.4	4.3	4.3
85°	8.6	8.6	8.6	8.6	8.6	7.5	7.5	6.5	5.4	4.3	3.2
87.5°	8.6	8.6	8.6	8.6	7.5	7.5	6.5	6.5	5.4	4.3	3.2
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: P209034

CATALOG NUMBER: LDSQA6A75935D010TE LARH20SP 6LSQA1H 30°

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	1532.6	1532.6	1532.6	1532.6	1532.6	1532.6	1532.6	1532.6
2.5°	1055.9	1031.1	1020.3	1037.6	1029.0	1003.1	1008.5	992.3
5°	629.9	592.1	568.4	579.2	544.7	513.4	513.4	490.7
7.5°	304.2	292.3	285.8	288.0	280.4	270.7	265.3	265.3
10°	213.6	209.2	210.3	210.3	216.8	215.7	218.9	217.9
12.5°	253.5	255.6	256.7	261.0	266.4	266.4	269.6	267.5
15°	324.6	322.5	329.0	330.0	338.7	339.7	344.1	339.7
17.5°	413.1	417.4	423.9	422.8	440.1	441.1	441.1	440.1
20°	531.7	535.0	541.4	543.6	564.1	566.2	573.8	574.9
22.5°	661.2	661.2	664.4	668.7	688.1	689.2	692.4	692.4
25°	705.4	698.9	700.0	705.4	716.2	711.9	715.1	712.9
27.5°	648.2	638.5	636.4	643.9	651.5	639.6	643.9	643.9
30°	526.3	517.7	515.6	523.1	528.5	515.6	519.9	522.0
32.5°	385.0	379.7	378.6	384.0	388.3	377.5	381.8	385.0
35°	259.9	257.8	255.6	256.7	263.2	254.5	258.9	261.0
37.5°	165.0	160.7	161.8	163.9	168.3	162.9	167.2	167.2
40°	101.4	99.2	99.2	101.4	103.5	99.2	101.4	102.5
42.5°	59.3	59.3	59.3	60.4	61.5	59.3	59.3	60.4
45°	34.5	33.4	33.4	34.5	35.6	33.4	34.5	34.5
47.5°	19.4	18.3	18.3	19.4	19.4	18.3	19.4	19.4
50°	10.8	9.7	9.7	10.8	10.8	9.7	9.7	9.7
52.5°	5.4	5.4	5.4	5.4	5.4	5.4	4.3	4.3
55°	3.2	3.2	2.2	2.2	2.2	2.2	2.2	1.1
57.5°	2.2	2.2	1.1	1.1	1.1	1.1	0.0	0.0
60°	2.2	2.2	1.1	1.1	1.1	0.0	0.0	0.0
62.5°	2.2	2.2	1.1	1.1	1.1	0.0	0.0	0.0
65°	2.2	2.2	1.1	1.1	1.1	0.0	0.0	0.0
67.5°	2.2	2.2	1.1	1.1	1.1	0.0	0.0	0.0
70°	3.2	2.2	2.2	1.1	1.1	1.1	0.0	0.0
72.5°	3.2	2.2	2.2	2.2	1.1	1.1	0.0	0.0
75°	3.2	2.2	2.2	2.2	1.1	1.1	0.0	0.0
77.5°	3.2	2.2	2.2	2.2	1.1	1.1	1.1	0.0
80°	3.2	2.2	2.2	2.2	1.1	1.1	1.1	1.1
82.5°	3.2	2.2	2.2	2.2	1.1	1.1	1.1	1.1
85°	3.2	2.2	2.2	2.2	1.1	1.1	1.1	0.0
87.5°	3.2	2.2	2.2	2.2	1.1	1.1	1.1	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)