

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: P209015

Luminaire Tested: **LDSQA6A55840D010TE LARH20SP 6LSQA1H 30°**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-41-14  
Report Number: P209015  
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: LDSQA6A55840D010TE LARH20SP 6LSQA1H 30°  
Description: PORTFOLIO 6" SQUARE ADJUSTABLE REFLECTOR, ANGLE-CUT TRIM,  
SELF-FLANGED, 20° SPOT, 30° Tilt  
Light Source: (1) HIGH LUMEN LED 80CRI / 4000K CCT  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 4798.4 lumens  
Efficiency: N/A  
Efficacy: 78.9 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

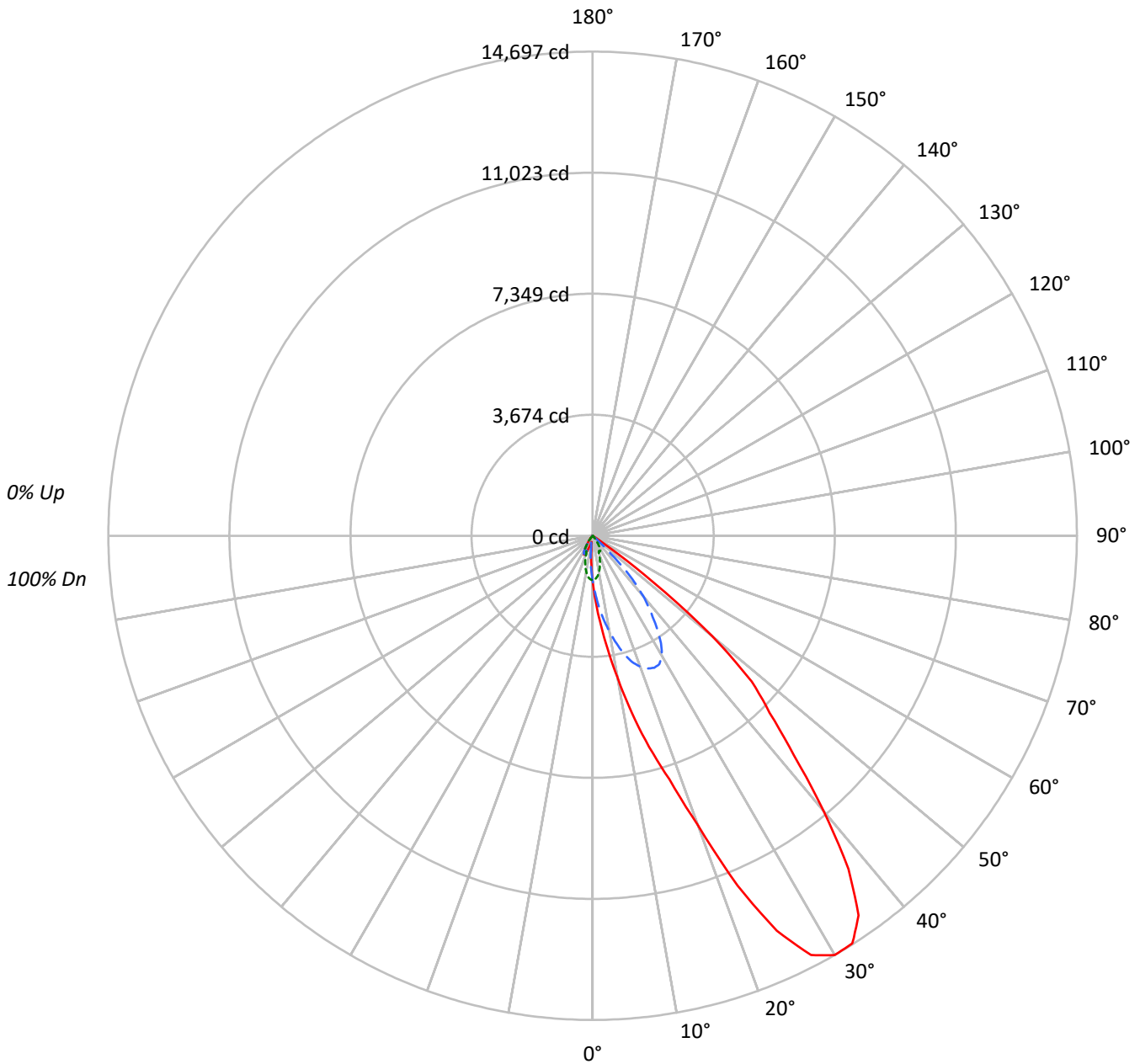
Input Watts (W): 60.8  
Input Voltage (V): NR  
Input Current (A<sub>in</sub>): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



TEST NUMBER: P209015

CATALOG NUMBER: LDSQA6A55840D010TE LARH20SP 6LSQA1H 30°

### 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	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°	58323	58323	58323
5°	113012	55581	18745
10°	192005	48638	8420
15°	295868	38793	13386
20°	428306	25246	23281
25°	628399	24366	29934
30°	730662	23078	22939
35°	739553	12226	12126
40°	612299	4609	5092
45°	462441	1565	1857
50°	316393	576	576
55°	44011	503	75
60°	1145	491	0
65°	295	683	0
70°	126	843	0
75°	0	1115	0
80°	0	1884	248
85°	0	3754	0



TEST NUMBER: P209015

CATALOG NUMBER: LDSQA6A55840D010TE LARH20SP 6LSQA1H 30°

**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	142.1	3.0
10°-20°	600.7	12.5
20°-30°	1370.4	28.6
30°-40°	1585.8	33.0
40°-50°	956.4	19.9
50°-60°	129.9	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°	2113.2	44.0
0°-40°	3699.0	77.1
0°-60°	4785.3	99.7
0°-90°	4798.4	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	4798.4	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	1355	1355	1355	1355	1355	
5°	2615	2141	1286	704	434	304
15°	6638	3731	870	268	300	1965
25°	13228	4421	513	617	630	5986
35°	14070	3371	233	237	231	8479
45°	7595	918	26	32	30	5939
55°	586	7	7	5	1	1149
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	



TEST NUMBER: P209015

CATALOG NUMBER: LDSQA6A55840D010TE LARH20SP 6LSQA1H 30°

**CANDELA DISTRIBUTION (FULL):**

	0°	5°	10°	15°	20°	22.5°	25°	30°	35°	40°	45°
0°	1354.6	1354.6	1354.6	1354.6	1354.6	1354.6	1354.6	1354.6	1354.6	1354.6	1354.6
2.5°	1959.0	1940.9	1948.5	1928.5	1877.9	1867.5	1866.5	1853.2	1810.3	1776.9	1736.9
5°	2614.8	2613.9	2618.6	2575.7	2487.1	2459.4	2446.1	2413.7	2309.8	2229.7	2141.0
7.5°	3433.7	3428.0	3422.2	3344.1	3204.9	3151.5	3117.2	2999.9	2857.0	2714.9	2556.7
10°	4391.7	4388.9	4366.9	4229.7	4006.6	3908.4	3841.7	3655.8	3426.1	3224.0	2955.1
12.5°	5504.2	5478.4	5439.4	5238.2	4932.2	4825.5	4678.6	4384.1	4031.4	3721.6	3346.0
15°	6637.6	6600.4	6530.9	6272.5	5893.1	5711.0	5529.0	5141.0	4662.4	4212.5	3731.1
17.5°	7746.3	7705.3	7542.3	7103.8	6732.9	6510.8	6308.7	5775.9	5213.4	4634.8	4024.7
20°	9347.8	9199.1	8915.0	8223.9	7534.6	7134.3	6897.9	6334.5	5638.6	4964.6	4233.5
22.5°	11486.9	11157.1	10551.7	9428.8	8444.1	7866.4	7479.4	6730.1	5944.6	5180.1	4362.2
25°	13227.6	13077.9	12389.7	10792.0	9255.3	8574.7	8036.1	7044.7	6167.7	5324.0	4421.3
27.5°	14349.6	14312.4	13525.9	11920.6	9917.8	9024.6	8423.1	7252.5	6275.4	5354.5	4392.7
30°	14696.6	14754.7	13999.7	12303.9	10109.4	9115.2	8457.4	7255.3	6192.4	5216.3	4209.6
32.5°	14670.8	14673.7	13748.1	11973.1	9797.7	8852.1	8171.4	7014.2	5886.4	4870.3	3861.7
35°	14070.3	13922.5	12875.8	10956.9	9072.3	8238.2	7605.2	6547.1	5382.2	4349.8	3370.8
37.5°	12751.9	12558.4	11338.2	9655.7	8213.4	7442.2	6931.2	5934.1	4781.6	3794.0	2863.6
40°	10894.0	10619.4	9612.8	8446.0	7273.5	6693.9	6264.9	5248.7	4139.1	3248.7	2387.9
42.5°	9034.1	8899.7	8234.3	7285.8	6483.2	5937.9	5489.9	4530.9	3521.4	2711.1	1786.4
45°	7594.7	7479.4	7032.3	6406.9	5619.5	5121.9	4690.1	3782.6	2735.9	1818.8	918.0
47.5°	6546.1	6452.7	6024.7	5367.9	4504.2	3959.9	3514.7	2480.4	1550.0	785.5	229.7
50°	4723.5	4628.1	4208.7	3448.0	2668.2	2212.5	1892.2	1107.7	439.5	159.2	23.8
52.5°	2315.5	2237.3	1952.3	1461.4	980.9	705.4	515.7	207.8	50.5	17.2	11.4
55°	586.3	538.6	449.0	282.2	138.2	82.9	53.4	19.1	12.4	9.5	6.7
57.5°	33.4	32.4	29.6	21.9	16.2	14.3	12.4	9.5	6.7	5.7	4.8
60°	13.3	12.4	11.4	9.5	7.6	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



TEST NUMBER: P209015

CATALOG NUMBER: LDSQA6A55840D010TE LARH20SP 6LSQA1H 30°

**CANDELA DISTRIBUTION (continued):**

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°	95°
0°	1354.6	1354.6	1354.6	1354.6	1354.6	1354.6	1354.6	1354.6	1354.6	1354.6	1354.6
2.5°	1685.4	1651.1	1600.5	1567.2	1534.8	1504.3	1453.7	1425.1	1373.7	1326.0	1285.0
5°	2034.3	1948.5	1844.6	1755.9	1698.7	1642.5	1540.5	1465.2	1370.8	1286.0	1207.8
7.5°	2387.0	2235.4	2064.8	1918.9	1830.3	1743.5	1591.0	1469.0	1335.5	1214.5	1099.1
10°	2707.3	2479.5	2238.3	2029.5	1909.4	1796.9	1595.8	1433.7	1262.1	1112.5	967.6
12.5°	3004.7	2693.0	2378.4	2105.8	1957.1	1821.7	1575.8	1377.5	1173.5	996.2	827.4
15°	3269.7	2869.3	2480.4	2149.6	1975.2	1815.0	1529.0	1298.4	1068.6	870.3	656.8
17.5°	3470.9	2979.0	2525.2	2143.0	1942.8	1764.5	1449.0	1199.2	957.1	716.9	475.7
20°	3592.9	3025.7	2515.7	2091.5	1873.2	1684.4	1353.6	1091.5	822.7	551.0	419.4
22.5°	3644.4	3021.9	2470.9	2014.3	1787.4	1596.7	1262.1	986.6	681.6	498.6	437.6
25°	3652.9	2982.8	2408.0	1929.4	1702.5	1512.8	1169.7	867.5	592.0	512.9	490.0
27.5°	3587.2	2891.3	2289.8	1807.4	1583.4	1387.0	1031.4	689.2	555.8	511.0	526.2
30°	3392.7	2682.5	2081.0	1592.9	1376.5	1180.1	736.9	540.5	461.4	464.2	468.1
32.5°	3050.5	2335.5	1745.4	1279.3	1042.9	777.9	458.5	361.3	350.8	350.8	348.9
35°	2593.8	1911.3	1369.8	809.3	518.6	373.7	237.4	238.3	233.6	232.6	231.6
37.5°	2122.0	1508.1	867.5	334.6	225.0	156.3	140.1	142.0	140.1	143.0	141.1
40°	1673.0	931.3	316.5	106.8	79.1	76.3	78.2	80.1	80.1	82.0	82.0
42.5°	972.3	308.9	82.9	42.9	42.9	41.0	41.9	43.9	44.8	45.8	44.8
45°	288.8	63.9	26.7	23.8	23.8	22.9	22.9	23.8	24.8	25.7	25.7
47.5°	45.8	18.1	15.3	13.3	13.3	13.3	13.3	13.3	14.3	14.3	15.3
50°	14.3	11.4	9.5	8.6	8.6	7.6	7.6	8.6	8.6	8.6	9.5
52.5°	8.6	6.7	6.7	5.7	6.7	6.7	5.7	6.7	6.7	6.7	7.6
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	7.6
77.5°	5.7	5.7	6.7	6.7	6.7	6.7	6.7	6.7	7.6	7.6	7.6
80°	5.7	5.7	6.7	6.7	6.7	6.7	6.7	7.6	7.6	7.6	7.6
82.5°	5.7	5.7	6.7	6.7	6.7	6.7	6.7	7.6	7.6	7.6	7.6
85°	5.7	5.7	6.7	6.7	6.7	6.7	6.7	7.6	7.6	7.6	7.6
87.5°	5.7	5.7	6.7	6.7	6.7	6.7	6.7	7.6	7.6	7.6	7.6
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: P209015

CATALOG NUMBER: LDSQA6A55840D010TE LARH20SP 6LSQA1H 30°

**CANDELA DISTRIBUTION (continued):**

	100°	105°	110°	112.5°	115°	120°	125°	130°	135°	140°	145°
0°	1354.6	1354.6	1354.6	1354.6	1354.6	1354.6	1354.6	1354.6	1354.6	1354.6	1354.6
2.5°	1249.7	1205.9	1184.9	1155.4	1134.4	1087.7	1068.6	1036.2	1009.5	965.7	968.5
5°	1141.1	1058.1	1001.9	958.0	927.5	853.2	803.6	751.2	703.5	644.4	622.5
7.5°	990.4	888.4	802.7	750.2	711.1	612.0	502.4	416.6	351.8	305.0	286.9
10°	839.8	707.3	571.0	490.0	433.7	338.4	289.8	266.9	245.9	220.2	203.0
12.5°	664.4	475.7	351.8	319.3	296.5	265.0	233.6	208.8	213.5	214.5	221.2
15°	453.8	342.2	303.1	281.2	256.4	238.3	248.8	255.5	267.9	268.8	277.4
17.5°	368.9	321.3	289.8	288.8	290.7	301.2	317.4	326.0	342.2	346.0	358.4
20°	368.9	341.3	368.0	368.0	372.7	387.0	408.0	420.4	438.5	445.2	460.4
22.5°	420.4	439.5	472.8	476.6	478.5	493.8	520.5	532.9	553.8	557.7	573.9
25°	512.9	530.0	560.5	563.4	564.3	575.8	595.8	602.5	616.8	609.1	618.7
27.5°	542.4	550.0	569.1	571.0	566.2	571.0	578.6	578.6	583.4	568.1	571.0
30°	476.6	478.5	488.1	489.0	478.5	480.4	481.4	480.4	479.5	463.3	463.3
32.5°	353.7	353.7	366.1	363.2	351.8	354.6	354.6	354.6	353.7	340.3	338.4
35°	234.5	235.5	245.9	244.0	235.5	237.4	237.4	240.2	237.4	229.7	227.8
37.5°	143.0	143.9	148.7	149.7	146.8	147.8	148.7	147.8	149.7	145.9	143.9
40°	82.9	84.8	88.7	89.6	88.7	88.7	89.6	90.6	94.4	89.6	87.7
42.5°	48.6	49.6	51.5	51.5	51.5	51.5	52.4	53.4	54.3	53.4	52.4
45°	27.6	28.6	29.6	29.6	30.5	29.6	30.5	30.5	31.5	30.5	30.5
47.5°	16.2	16.2	17.2	17.2	18.1	17.2	18.1	18.1	18.1	17.2	17.2
50°	9.5	10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.5	9.5	9.5
52.5°	7.6	7.6	7.6	7.6	7.6	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	7.6	7.6	6.7	6.7	6.7	5.7	4.8	4.8	3.8	2.9
72.5°	6.7	7.6	7.6	6.7	6.7	6.7	5.7	4.8	4.8	3.8	2.9
75°	7.6	7.6	7.6	7.6	6.7	6.7	5.7	5.7	4.8	3.8	2.9
77.5°	7.6	7.6	7.6	7.6	6.7	6.7	5.7	5.7	4.8	3.8	2.9
80°	7.6	7.6	7.6	7.6	7.6	6.7	6.7	5.7	4.8	3.8	3.8
82.5°	7.6	7.6	7.6	7.6	7.6	6.7	6.7	5.7	4.8	3.8	3.8
85°	7.6	7.6	7.6	7.6	7.6	6.7	6.7	5.7	4.8	3.8	2.9
87.5°	7.6	7.6	7.6	7.6	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: P209015

CATALOG NUMBER: LDSQA6A55840D010TE LARH20SP 6LSQA1H 30°

**CANDELA DISTRIBUTION (continued):**

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	1354.6	1354.6	1354.6	1354.6	1354.6	1354.6	1354.6	1354.6
2.5°	933.3	911.3	901.8	917.0	909.4	886.5	891.3	877.0
5°	556.7	523.3	502.4	511.9	481.4	453.8	453.8	433.7
7.5°	268.8	258.3	252.6	254.5	247.9	239.3	234.5	234.5
10°	188.7	184.9	185.9	185.9	191.6	190.7	193.5	192.6
12.5°	224.0	225.9	226.9	230.7	235.5	235.5	238.3	236.4
15°	286.9	285.0	290.7	291.7	299.3	300.3	304.1	300.3
17.5°	365.1	368.9	374.6	373.7	388.9	389.9	389.9	388.9
20°	470.0	472.8	478.5	480.4	498.6	500.5	507.1	508.1
22.5°	584.4	584.4	587.2	591.0	608.2	609.1	612.0	612.0
25°	623.4	617.7	618.7	623.4	633.0	629.2	632.0	630.1
27.5°	572.9	564.3	562.4	569.1	575.8	565.3	569.1	569.1
30°	465.2	457.6	455.7	462.3	467.1	455.7	459.5	461.4
32.5°	340.3	335.6	334.6	339.4	343.2	333.6	337.5	340.3
35°	229.7	227.8	225.9	226.9	232.6	225.0	228.8	230.7
37.5°	145.9	142.0	143.0	144.9	148.7	143.9	147.8	147.8
40°	89.6	87.7	87.7	89.6	91.5	87.7	89.6	90.6
42.5°	52.4	52.4	52.4	53.4	54.3	52.4	52.4	53.4
45°	30.5	29.6	29.6	30.5	31.5	29.6	30.5	30.5
47.5°	17.2	16.2	16.2	17.2	17.2	16.2	17.2	17.2
50°	9.5	8.6	8.6	9.5	9.5	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)