

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: P209019

Luminaire Tested: **LDSQA6A55940D010TE LARH20SP 6LSQA1H 30°**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P209019
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: LDSQA6A55940D010TE 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: 4087.9 lumens
Efficiency: N/A
Efficacy: 67.2 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

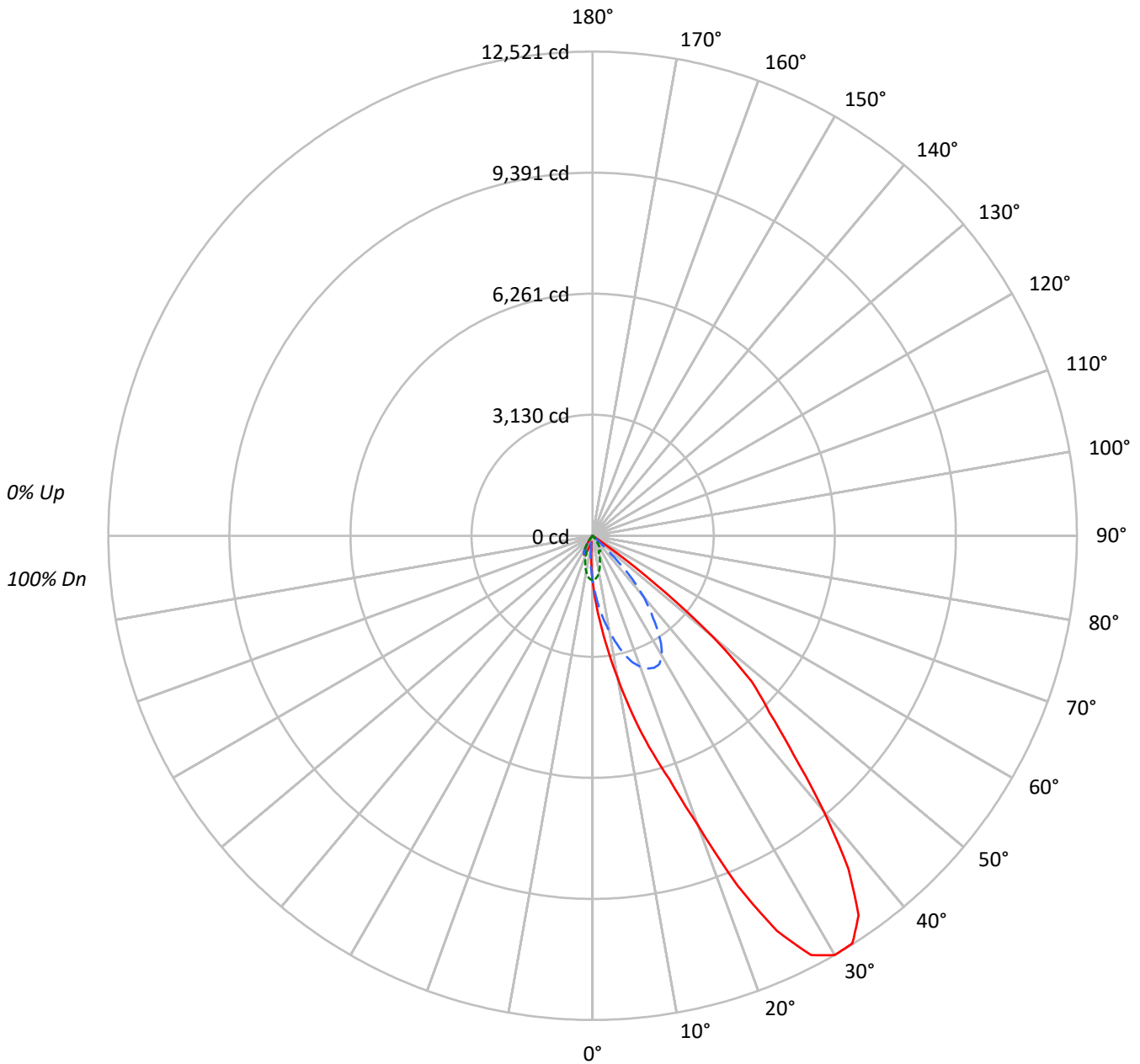
Input Watts (W): 60.8
Input Voltage (V): NR
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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	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°	49686	49686	49686
5°	96281	47352	15970
10°	163578	41438	7174
15°	252064	33052	11402
20°	364892	21507	19835
25°	535357	20756	25502
30°	622479	19663	19544
35°	630057	10418	10328
40°	521640	3923	4339
45°	393976	1333	1583
50°	269545	489	489
55°	37495	428	60
60°	982	422	0
65°	245	581	0
70°	101	718	0
75°	0	948	0
80°	0	1612	198
85°	0	3211	0



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	121.1	3.0
10°-20°	511.8	12.5
20°-30°	1167.5	28.6
30°-40°	1351.0	33.0
40°-50°	814.8	19.9
50°-60°	110.7	2.7
60°-70°	3.6	0.1
70°-80°	3.9	0.1
80°-90°	3.6	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°	1800.3	44.0
0°-40°	3151.4	77.1
0°-60°	4076.8	99.7
0°-90°	4087.9	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	4087.9	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	1154	1154	1154	1154	1154	
5°	2228	1824	1096	599	370	259
15°	5655	3179	742	228	256	1674
25°	11269	3767	437	525	537	5100
35°	11987	2872	198	202	196	7224
45°	6470	782	22	27	26	5059
55°	500	6	6	4	1	979
65°	2	3	6	3	0	4
75°	0	4	6	4	0	0
85°	0	4	6	4	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°	1154.0	1154.0	1154.0	1154.0	1154.0	1154.0	1154.0	1154.0	1154.0	1154.0	1154.0
2.5°	1668.9	1653.5	1660.0	1642.9	1599.9	1591.0	1590.2	1578.8	1542.2	1513.8	1479.7
5°	2227.7	2226.9	2230.9	2194.4	2118.9	2095.3	2083.9	2056.3	1967.8	1899.6	1824.0
7.5°	2925.3	2920.4	2915.6	2849.0	2730.4	2684.9	2655.7	2555.8	2434.0	2313.0	2178.1
10°	3741.5	3739.1	3720.4	3603.4	3413.4	3329.7	3272.9	3114.5	2918.8	2746.6	2517.6
12.5°	4689.3	4667.3	4634.0	4462.7	4202.0	4111.0	3985.9	3735.0	3434.5	3170.6	2850.6
15°	5654.9	5623.2	5563.9	5343.8	5020.6	4865.5	4710.4	4379.8	3972.1	3588.8	3178.7
17.5°	6599.4	6564.5	6425.6	6052.0	5736.1	5546.9	5374.7	4920.7	4441.6	3948.6	3428.8
20°	7963.8	7837.1	7595.1	7006.3	6419.1	6078.0	5876.6	5396.6	4803.8	4229.6	3606.7
22.5°	9786.2	9505.2	8989.5	8032.8	7193.9	6701.7	6372.0	5733.7	5064.5	4413.1	3716.3
25°	11269.1	11141.6	10555.3	9194.1	7885.0	7305.1	6846.3	6001.7	5254.5	4535.8	3766.7
27.5°	12225.0	12193.4	11523.3	10155.7	8449.4	7688.5	7176.0	6178.7	5346.3	4561.7	3742.3
30°	12520.6	12570.2	11927.0	10482.2	8612.7	7765.6	7205.2	6181.1	5275.6	4444.0	3586.4
32.5°	12498.7	12501.2	11712.6	10200.4	8347.1	7541.5	6961.6	5975.7	5014.9	4149.2	3289.9
35°	11987.1	11861.2	10969.5	9334.6	7729.1	7018.4	6479.2	5577.7	4585.3	3705.8	2871.7
37.5°	10863.9	10699.0	9659.5	8226.1	6997.3	6340.3	5905.0	5055.5	4073.7	3232.3	2439.6
40°	9281.0	9047.2	8189.5	7195.5	6196.6	5702.8	5337.3	4471.6	3526.3	2767.7	2034.4
42.5°	7696.6	7582.1	7015.2	6207.1	5523.3	5058.8	4677.1	3860.1	3000.0	2309.7	1521.9
45°	6470.3	6372.0	5991.1	5458.3	4787.5	4363.6	3995.7	3222.5	2330.8	1549.5	782.1
47.5°	5576.9	5497.3	5132.7	4573.1	3837.3	3373.6	2994.3	2113.2	1320.5	669.2	195.7
50°	4024.1	3942.9	3585.6	2937.5	2273.2	1885.0	1612.1	943.7	374.4	135.6	20.3
52.5°	1972.7	1906.1	1663.2	1245.0	835.7	601.0	439.4	177.0	43.0	14.6	9.7
55°	499.5	458.9	382.5	240.4	117.8	70.7	45.5	16.2	10.6	8.1	5.7
57.5°	28.4	27.6	25.2	18.7	13.8	12.2	10.6	8.1	5.7	4.9	4.1
60°	11.4	10.6	9.7	8.1	6.5	5.7	5.7	4.1	3.2	3.2	3.2
62.5°	4.9	4.9	4.9	4.1	3.2	3.2	3.2	2.4	3.2	3.2	3.2
65°	2.4	2.4	2.4	1.6	1.6	1.6	2.4	2.4	2.4	3.2	3.2
67.5°	1.6	0.8	0.8	0.8	1.6	1.6	1.6	2.4	2.4	3.2	3.2
70°	0.8	0.8	0.8	0.8	1.6	1.6	1.6	2.4	2.4	3.2	4.1
72.5°	0.0	0.8	0.8	0.8	1.6	1.6	1.6	2.4	2.4	3.2	4.1
75°	0.0	0.8	0.8	0.8	1.6	1.6	1.6	2.4	3.2	3.2	4.1
77.5°	0.0	0.8	0.8	0.8	1.6	1.6	1.6	2.4	3.2	3.2	4.1
80°	0.0	0.8	0.8	0.8	1.6	1.6	1.6	2.4	3.2	3.2	4.1
82.5°	0.0	0.0	0.8	0.8	1.6	1.6	1.6	2.4	3.2	3.2	4.1
85°	0.0	0.0	0.8	0.8	1.6	1.6	1.6	2.4	3.2	3.2	4.1
87.5°	0.0	0.0	0.8	0.8	1.6	1.6	1.6	2.4	2.4	3.2	4.1
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°	1154.0	1154.0	1154.0	1154.0	1154.0	1154.0	1154.0	1154.0	1154.0	1154.0	1154.0
2.5°	1435.8	1406.6	1363.6	1335.1	1307.5	1281.5	1238.5	1214.1	1170.3	1129.7	1094.8
5°	1733.1	1660.0	1571.5	1495.9	1447.2	1399.3	1312.4	1248.2	1167.8	1095.6	1029.0
7.5°	2033.6	1904.5	1759.1	1634.8	1559.3	1485.4	1355.4	1251.5	1137.8	1034.7	936.4
10°	2306.5	2112.4	1906.9	1729.0	1626.7	1530.9	1359.5	1221.4	1075.3	947.8	824.3
12.5°	2559.8	2294.3	2026.3	1794.0	1667.3	1552.0	1342.5	1173.5	999.7	848.7	704.9
15°	2785.6	2444.5	2113.2	1831.4	1682.7	1546.3	1302.7	1106.1	910.4	741.5	559.6
17.5°	2957.0	2537.9	2151.3	1825.7	1655.1	1503.3	1234.4	1021.7	815.4	610.7	405.3
20°	3060.9	2577.7	2143.2	1781.8	1595.8	1435.0	1153.2	929.9	700.9	469.4	357.3
22.5°	3104.8	2574.5	2105.0	1716.0	1522.7	1360.3	1075.3	840.6	580.7	424.7	372.8
25°	3112.1	2541.2	2051.4	1643.8	1450.5	1288.9	996.5	739.0	504.3	436.9	417.4
27.5°	3056.1	2463.2	1950.7	1539.8	1349.0	1181.7	878.7	587.2	473.5	435.3	448.3
30°	2890.4	2285.3	1772.9	1357.1	1172.7	1005.4	627.8	460.5	393.1	395.5	398.8
32.5°	2598.8	1989.7	1487.0	1089.9	888.5	662.7	390.6	307.8	298.9	298.9	297.2
35°	2209.8	1628.3	1167.0	689.5	441.8	318.4	202.2	203.0	199.0	198.2	197.3
37.5°	1807.8	1284.8	739.0	285.1	191.7	133.2	119.4	121.0	119.4	121.8	120.2
40°	1425.3	793.5	269.6	91.0	67.4	65.0	66.6	68.2	68.2	69.8	69.8
42.5°	828.4	263.1	70.7	36.5	36.5	34.9	35.7	37.4	38.2	39.0	38.2
45°	246.1	54.4	22.7	20.3	20.3	19.5	19.5	20.3	21.1	21.9	21.9
47.5°	39.0	15.4	13.0	11.4	11.4	11.4	11.4	11.4	12.2	12.2	13.0
50°	12.2	9.7	8.1	7.3	7.3	6.5	6.5	7.3	7.3	7.3	8.1
52.5°	7.3	5.7	5.7	4.9	5.7	5.7	4.9	5.7	5.7	5.7	6.5
55°	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9	5.7	5.7	5.7
57.5°	4.1	4.1	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9
60°	4.1	4.1	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9	5.7
62.5°	4.1	4.1	4.9	4.9	4.9	4.9	4.9	4.9	5.7	5.7	5.7
65°	4.1	4.1	4.9	4.9	4.9	4.9	4.9	5.7	5.7	5.7	5.7
67.5°	4.1	4.9	4.9	4.9	4.9	5.7	5.7	5.7	5.7	5.7	5.7
70°	4.1	4.9	4.9	5.7	5.7	5.7	5.7	5.7	5.7	5.7	5.7
72.5°	4.1	4.9	4.9	5.7	5.7	5.7	5.7	5.7	5.7	5.7	5.7
75°	4.9	4.9	4.9	5.7	5.7	5.7	5.7	5.7	5.7	5.7	6.5
77.5°	4.9	4.9	5.7	5.7	5.7	5.7	5.7	5.7	6.5	6.5	6.5
80°	4.9	4.9	5.7	5.7	5.7	5.7	5.7	6.5	6.5	6.5	6.5
82.5°	4.9	4.9	5.7	5.7	5.7	5.7	5.7	6.5	6.5	6.5	6.5
85°	4.9	4.9	5.7	5.7	5.7	5.7	5.7	6.5	6.5	6.5	6.5
87.5°	4.9	4.9	5.7	5.7	5.7	5.7	5.7	6.5	6.5	6.5	6.5
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°	1154.0	1154.0	1154.0	1154.0	1154.0	1154.0	1154.0	1154.0	1154.0	1154.0	1154.0
2.5°	1064.7	1027.3	1009.5	984.3	966.4	926.6	910.4	882.8	860.0	822.7	825.1
5°	972.1	901.5	853.6	816.2	790.2	726.9	684.6	640.0	599.4	549.0	530.3
7.5°	843.8	756.9	683.8	639.1	605.9	521.4	428.0	354.9	299.7	259.9	244.5
10°	715.5	602.6	486.5	417.4	369.5	288.3	246.9	227.4	209.5	187.6	173.0
12.5°	566.1	405.3	299.7	272.1	252.6	225.8	199.0	177.9	181.9	182.7	188.4
15°	386.6	291.6	258.3	239.6	218.5	203.0	212.0	217.7	228.2	229.0	236.3
17.5°	314.3	273.7	246.9	246.1	247.7	256.6	270.4	277.7	291.6	294.8	305.4
20°	314.3	290.7	313.5	313.5	317.5	329.7	347.6	358.2	373.6	379.3	392.3
22.5°	358.2	374.4	402.8	406.1	407.7	420.7	443.4	454.0	471.8	475.1	488.9
25°	436.9	451.5	477.5	480.0	480.8	490.5	507.6	513.3	525.4	519.0	527.1
27.5°	462.1	468.6	484.8	486.5	482.4	486.5	493.0	493.0	497.0	484.0	486.5
30°	406.1	407.7	415.8	416.6	407.7	409.3	410.1	409.3	408.5	394.7	394.7
32.5°	301.3	301.3	311.9	309.4	299.7	302.1	302.1	302.1	301.3	289.9	288.3
35°	199.8	200.6	209.5	207.9	200.6	202.2	202.2	204.7	202.2	195.7	194.1
37.5°	121.8	122.6	126.7	127.5	125.1	125.9	126.7	125.9	127.5	124.3	122.6
40°	70.7	72.3	75.5	76.3	75.5	75.5	76.3	77.2	80.4	76.3	74.7
42.5°	41.4	42.2	43.9	43.9	43.9	43.9	44.7	45.5	46.3	45.5	44.7
45°	23.6	24.4	25.2	25.2	26.0	25.2	26.0	26.0	26.8	26.0	26.0
47.5°	13.8	13.8	14.6	14.6	15.4	14.6	15.4	15.4	15.4	14.6	14.6
50°	8.1	8.9	8.9	8.9	8.9	8.9	8.9	8.9	8.9	8.1	8.1
52.5°	6.5	6.5	6.5	6.5	6.5	5.7	5.7	5.7	5.7	4.9	4.9
55°	5.7	5.7	5.7	5.7	5.7	5.7	4.9	4.1	4.1	3.2	3.2
57.5°	4.9	5.7	5.7	5.7	5.7	4.9	4.9	4.1	3.2	2.4	2.4
60°	5.7	5.7	5.7	5.7	4.9	4.9	4.9	4.1	3.2	2.4	2.4
62.5°	5.7	5.7	5.7	5.7	5.7	4.9	4.9	4.1	3.2	2.4	2.4
65°	5.7	5.7	5.7	5.7	5.7	4.9	4.9	4.1	3.2	2.4	2.4
67.5°	5.7	5.7	5.7	5.7	5.7	4.9	4.9	4.1	3.2	3.2	2.4
70°	5.7	6.5	6.5	5.7	5.7	5.7	4.9	4.1	4.1	3.2	2.4
72.5°	5.7	6.5	6.5	5.7	5.7	5.7	4.9	4.1	4.1	3.2	2.4
75°	6.5	6.5	6.5	6.5	5.7	5.7	4.9	4.9	4.1	3.2	2.4
77.5°	6.5	6.5	6.5	6.5	5.7	5.7	4.9	4.9	4.1	3.2	2.4
80°	6.5	6.5	6.5	6.5	6.5	5.7	5.7	4.9	4.1	3.2	3.2
82.5°	6.5	6.5	6.5	6.5	6.5	5.7	5.7	4.9	4.1	3.2	3.2
85°	6.5	6.5	6.5	6.5	6.5	5.7	5.7	4.9	4.1	3.2	2.4
87.5°	6.5	6.5	6.5	6.5	5.7	5.7	4.9	4.9	4.1	3.2	2.4
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: P209019

CATALOG NUMBER: LDSQA6A55940D010TE LARH20SP 6LSQA1H 30°

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	1154.0	1154.0	1154.0	1154.0	1154.0	1154.0	1154.0	1154.0
2.5°	795.1	776.4	768.3	781.3	774.8	755.3	759.3	747.2
5°	474.3	445.9	428.0	436.1	410.1	386.6	386.6	369.5
7.5°	229.0	220.1	215.2	216.8	211.2	203.8	199.8	199.8
10°	160.8	157.6	158.4	158.4	163.2	162.4	164.9	164.1
12.5°	190.9	192.5	193.3	196.5	200.6	200.6	203.0	201.4
15°	244.5	242.8	247.7	248.5	255.0	255.8	259.1	255.8
17.5°	311.0	314.3	319.2	318.4	331.3	332.2	332.2	331.3
20°	400.4	402.8	407.7	409.3	424.7	426.4	432.1	432.9
22.5°	497.8	497.8	500.3	503.5	518.1	519.0	521.4	521.4
25°	531.1	526.3	527.1	531.1	539.3	536.0	538.4	536.8
27.5°	488.1	480.8	479.2	484.8	490.5	481.6	484.8	484.8
30°	396.3	389.8	388.2	393.9	397.9	388.2	391.4	393.1
32.5°	289.9	285.9	285.1	289.1	292.4	284.2	287.5	289.9
35°	195.7	194.1	192.5	193.3	198.2	191.7	194.9	196.5
37.5°	124.3	121.0	121.8	123.4	126.7	122.6	125.9	125.9
40°	76.3	74.7	74.7	76.3	78.0	74.7	76.3	77.2
42.5°	44.7	44.7	44.7	45.5	46.3	44.7	44.7	45.5
45°	26.0	25.2	25.2	26.0	26.8	25.2	26.0	26.0
47.5°	14.6	13.8	13.8	14.6	14.6	13.8	14.6	14.6
50°	8.1	7.3	7.3	8.1	8.1	7.3	7.3	7.3
52.5°	4.1	4.1	4.1	4.1	4.1	4.1	3.2	3.2
55°	2.4	2.4	1.6	1.6	1.6	1.6	1.6	0.8
57.5°	1.6	1.6	0.8	0.8	0.8	0.8	0.0	0.0
60°	1.6	1.6	0.8	0.8	0.8	0.0	0.0	0.0
62.5°	1.6	1.6	0.8	0.8	0.8	0.0	0.0	0.0
65°	1.6	1.6	0.8	0.8	0.8	0.0	0.0	0.0
67.5°	1.6	1.6	0.8	0.8	0.8	0.0	0.0	0.0
70°	2.4	1.6	1.6	0.8	0.8	0.8	0.0	0.0
72.5°	2.4	1.6	1.6	1.6	0.8	0.8	0.0	0.0
75°	2.4	1.6	1.6	1.6	0.8	0.8	0.0	0.0
77.5°	2.4	1.6	1.6	1.6	0.8	0.8	0.8	0.0
80°	2.4	1.6	1.6	1.6	0.8	0.8	0.8	0.8
82.5°	2.4	1.6	1.6	1.6	0.8	0.8	0.8	0.8
85°	2.4	1.6	1.6	1.6	0.8	0.8	0.8	0.0
87.5°	2.4	1.6	1.6	1.6	0.8	0.8	0.8	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)