

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: P209013

Luminaire Tested: **LDSQA6A55830D010TE LARH20SP 6LSQA1H 30°**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P209013
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: LDSQA6A55830D010TE 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 / 3000K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 4505.9 lumens
Efficiency: N/A
Efficacy: 74.1 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

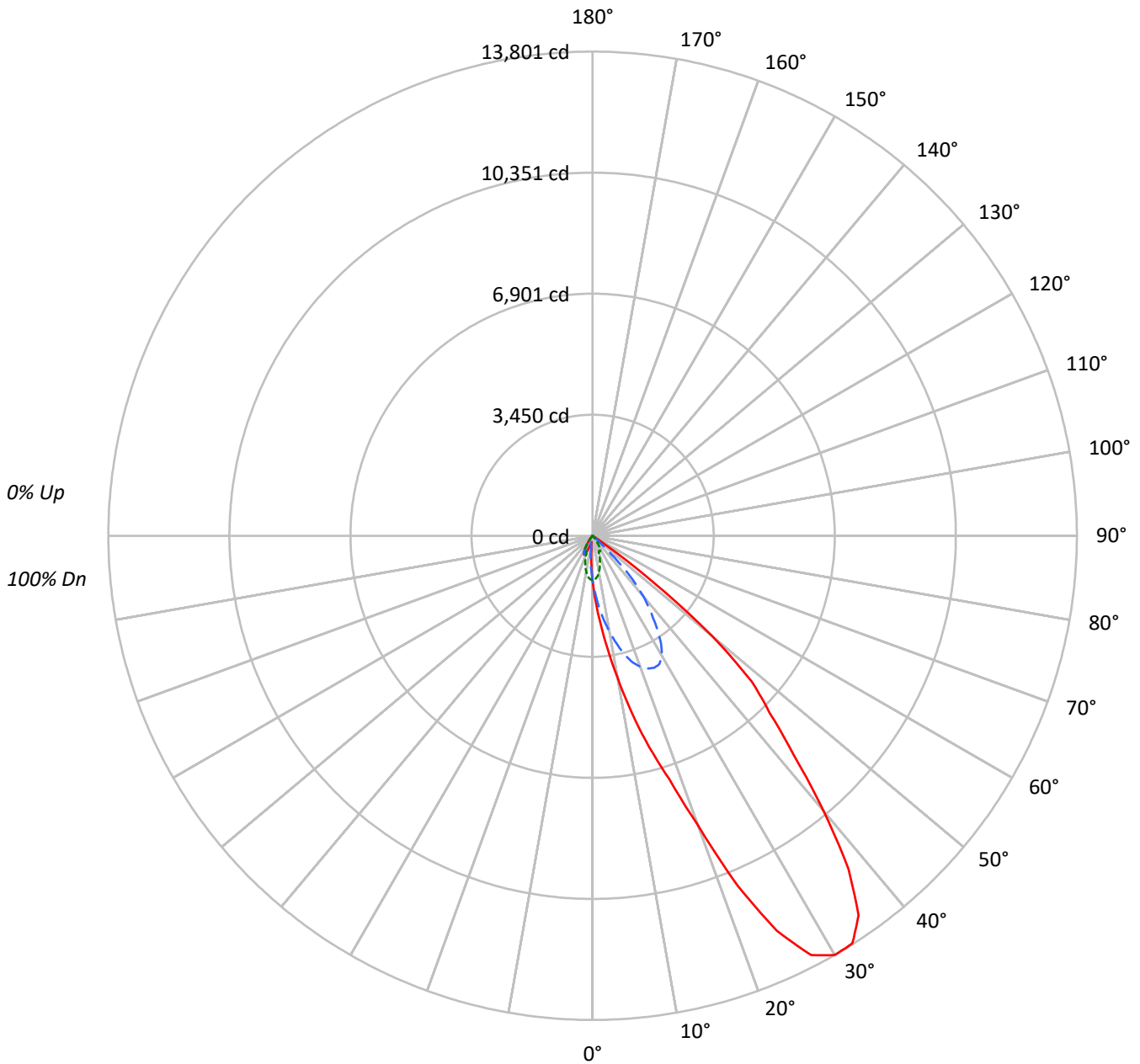
Input Watts (W): 60.8
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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°	54767	54767	54767
5°	106123	52193	17604
10°	180301	45674	7905
15°	277833	36431	12570
20°	402198	23707	21860
25°	590095	22879	28110
30°	686126	21671	21542
35°	694471	11479	11385
40°	574973	4328	4777
45°	434255	1474	1741
50°	297102	543	543
55°	41323	473	68
60°	1076	465	0
65°	275	642	0
70°	113	793	0
75°	0	1048	0
80°	0	1785	223
85°	0	3557	0



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	133.5	3.0
10°-20°	564.1	12.5
20°-30°	1286.8	28.6
30°-40°	1489.2	33.0
40°-50°	898.1	19.9
50°-60°	122.0	2.7
60°-70°	4.0	0.1
70°-80°	4.3	0.1
80°-90°	4.0	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°	1984.4	44.0
0°-40°	3473.5	77.1
0°-60°	4493.7	99.7
0°-90°	4505.9	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	4505.9	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	1272	1272	1272	1272	1272	
5°	2455	2010	1208	661	407	286
15°	6233	3504	817	252	282	1845
25°	12421	4152	482	579	592	5621
35°	13213	3165	218	223	217	7963
45°	7132	862	24	30	29	5577
55°	550	6	6	4	1	1079
65°	3	4	6	4	0	4
75°	0	4	6	4	0	0
85°	0	4	7	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°	1272.0	1272.0	1272.0	1272.0	1272.0	1272.0	1272.0	1272.0	1272.0	1272.0	1272.0
2.5°	1839.6	1822.6	1829.7	1810.9	1763.5	1753.6	1752.7	1740.2	1699.9	1668.6	1631.0
5°	2455.4	2454.5	2459.0	2418.7	2335.5	2309.5	2297.0	2266.6	2169.0	2093.8	2010.5
7.5°	3224.4	3219.0	3213.6	3140.2	3009.5	2959.4	2927.2	2817.1	2682.8	2549.4	2400.8
10°	4124.0	4121.3	4100.7	3971.8	3762.4	3670.2	3607.5	3433.0	3217.2	3027.4	2775.0
12.5°	5168.7	5144.5	5107.8	4918.9	4631.6	4531.3	4393.5	4116.9	3785.7	3494.7	3142.0
15°	6233.0	6198.1	6132.8	5890.2	5533.9	5362.9	5192.0	4827.6	4378.2	3955.7	3503.7
17.5°	7274.1	7235.6	7082.5	6670.8	6322.5	6114.0	5924.2	5423.8	4895.7	4352.3	3779.4
20°	8778.0	8638.3	8371.6	7722.6	7075.4	6699.4	6477.4	5948.4	5294.9	4662.0	3975.4
22.5°	10786.7	10477.0	9908.6	8854.1	7929.4	7386.9	7023.5	6319.9	5582.2	4864.3	4096.3
25°	12421.3	12280.8	11634.5	10134.2	8691.2	8052.0	7546.2	6615.3	5791.7	4999.5	4151.8
27.5°	13474.9	13440.0	12701.5	11194.0	9313.3	8474.5	7909.7	6810.4	5892.9	5028.1	4124.9
30°	13800.8	13855.4	13146.4	11553.9	9493.2	8559.6	7941.9	6813.1	5815.0	4898.3	3953.0
32.5°	13776.6	13779.3	12910.1	11243.3	9200.5	8312.5	7673.3	6586.6	5527.6	4573.4	3626.3
35°	13212.6	13073.9	12091.0	10289.0	8519.3	7736.0	7141.6	6148.0	5054.1	4084.6	3165.3
37.5°	11974.6	11792.9	10647.1	9067.1	7712.7	6988.5	6508.7	5572.4	4490.1	3562.8	2689.1
40°	10229.9	9972.1	9026.8	7931.2	6830.1	6285.8	5883.0	4928.8	3886.8	3050.7	2242.4
42.5°	8483.5	8357.3	7732.4	6841.7	6088.0	5576.0	5155.3	4254.7	3306.7	2545.8	1677.5
45°	7131.8	7023.5	6603.6	6016.4	5277.0	4809.7	4404.2	3552.0	2569.1	1708.0	862.0
47.5°	6147.1	6059.4	5657.4	5040.7	4229.7	3718.5	3300.5	2329.2	1455.5	737.6	215.7
50°	4435.5	4346.0	3952.2	3237.8	2505.6	2077.7	1776.9	1040.2	412.7	149.5	22.4
52.5°	2174.4	2101.0	1833.3	1372.3	921.1	662.4	484.3	195.1	47.4	16.1	10.7
55°	550.5	505.8	421.6	265.0	129.8	77.9	50.1	17.9	11.6	9.0	6.3
57.5°	31.3	30.4	27.8	20.6	15.2	13.4	11.6	9.0	6.3	5.4	4.5
60°	12.5	11.6	10.7	9.0	7.2	6.3	6.3	4.5	3.6	3.6	3.6
62.5°	5.4	5.4	5.4	4.5	3.6	3.6	3.6	2.7	3.6	3.6	3.6
65°	2.7	2.7	2.7	1.8	1.8	1.8	2.7	2.7	2.7	3.6	3.6
67.5°	1.8	0.9	0.9	0.9	1.8	1.8	1.8	2.7	2.7	3.6	3.6
70°	0.9	0.9	0.9	0.9	1.8	1.8	1.8	2.7	2.7	3.6	4.5
72.5°	0.0	0.9	0.9	0.9	1.8	1.8	1.8	2.7	2.7	3.6	4.5
75°	0.0	0.9	0.9	0.9	1.8	1.8	1.8	2.7	3.6	3.6	4.5
77.5°	0.0	0.9	0.9	0.9	1.8	1.8	1.8	2.7	3.6	3.6	4.5
80°	0.0	0.9	0.9	0.9	1.8	1.8	1.8	2.7	3.6	3.6	4.5
82.5°	0.0	0.0	0.9	0.9	1.8	1.8	1.8	2.7	3.6	3.6	4.5
85°	0.0	0.0	0.9	0.9	1.8	1.8	1.8	2.7	3.6	3.6	4.5
87.5°	0.0	0.0	0.9	0.9	1.8	1.8	1.8	2.7	2.7	3.6	4.5
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):

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°	95°
0°	1272.0	1272.0	1272.0	1272.0	1272.0	1272.0	1272.0	1272.0	1272.0	1272.0	1272.0
2.5°	1582.7	1550.4	1503.0	1471.7	1441.2	1412.6	1365.1	1338.3	1289.9	1245.2	1206.7
5°	1910.3	1829.7	1732.1	1648.9	1595.2	1542.4	1446.6	1375.9	1287.2	1207.6	1134.2
7.5°	2241.5	2099.2	1938.9	1802.0	1718.7	1637.3	1494.0	1379.4	1254.1	1140.4	1032.1
10°	2542.3	2328.3	2101.8	1905.8	1793.0	1687.4	1498.5	1346.3	1185.2	1044.7	908.6
12.5°	2821.6	2528.8	2233.4	1977.4	1837.8	1710.7	1479.7	1293.5	1101.9	935.4	777.0
15°	3070.4	2694.4	2329.2	2018.6	1854.8	1704.4	1435.8	1219.2	1003.5	817.3	616.8
17.5°	3259.3	2797.4	2371.3	2012.3	1824.3	1656.9	1360.6	1126.1	898.7	673.2	446.7
20°	3373.9	2841.3	2362.3	1964.0	1759.0	1581.8	1271.1	1025.0	772.5	517.4	393.9
22.5°	3422.2	2837.7	2320.3	1891.5	1678.4	1499.4	1185.2	926.5	640.0	468.2	410.9
25°	3430.3	2801.0	2261.2	1811.8	1598.8	1420.6	1098.4	814.6	555.9	481.6	460.1
27.5°	3368.5	2715.0	2150.2	1697.2	1486.9	1302.5	968.6	647.2	521.9	479.8	494.1
30°	3185.9	2519.0	1954.1	1495.8	1292.6	1108.2	692.0	507.6	433.3	435.9	439.5
32.5°	2864.5	2193.2	1639.0	1201.3	979.3	730.5	430.6	339.3	329.4	329.4	327.6
35°	2435.7	1794.8	1286.4	760.0	487.0	350.9	222.9	223.8	219.3	218.4	217.5
37.5°	1992.6	1416.2	814.6	314.2	211.3	146.8	131.6	133.4	131.6	134.3	132.5
40°	1571.0	874.6	297.2	100.3	74.3	71.6	73.4	75.2	75.2	77.0	77.0
42.5°	913.1	290.0	77.9	40.3	40.3	38.5	39.4	41.2	42.1	43.0	42.1
45°	271.2	60.0	25.1	22.4	22.4	21.5	21.5	22.4	23.3	24.2	24.2
47.5°	43.0	17.0	14.3	12.5	12.5	12.5	12.5	12.5	13.4	13.4	14.3
50°	13.4	10.7	9.0	8.1	8.1	7.2	7.2	8.1	8.1	8.1	9.0
52.5°	8.1	6.3	6.3	5.4	6.3	6.3	5.4	6.3	6.3	6.3	7.2
55°	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4	6.3	6.3	6.3
57.5°	4.5	4.5	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4
60°	4.5	4.5	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4	6.3
62.5°	4.5	4.5	5.4	5.4	5.4	5.4	5.4	5.4	6.3	6.3	6.3
65°	4.5	4.5	5.4	5.4	5.4	5.4	5.4	6.3	6.3	6.3	6.3
67.5°	4.5	5.4	5.4	5.4	5.4	6.3	6.3	6.3	6.3	6.3	6.3
70°	4.5	5.4	5.4	6.3	6.3	6.3	6.3	6.3	6.3	6.3	6.3
72.5°	4.5	5.4	5.4	6.3	6.3	6.3	6.3	6.3	6.3	6.3	6.3
75°	5.4	5.4	5.4	6.3	6.3	6.3	6.3	6.3	6.3	6.3	7.2
77.5°	5.4	5.4	6.3	6.3	6.3	6.3	6.3	6.3	7.2	7.2	7.2
80°	5.4	5.4	6.3	6.3	6.3	6.3	6.3	7.2	7.2	7.2	7.2
82.5°	5.4	5.4	6.3	6.3	6.3	6.3	6.3	7.2	7.2	7.2	7.2
85°	5.4	5.4	6.3	6.3	6.3	6.3	6.3	7.2	7.2	7.2	7.2
87.5°	5.4	5.4	6.3	6.3	6.3	6.3	6.3	7.2	7.2	7.2	7.2
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°	1272.0	1272.0	1272.0	1272.0	1272.0	1272.0	1272.0	1272.0	1272.0	1272.0	1272.0
2.5°	1173.6	1132.4	1112.7	1084.9	1065.2	1021.4	1003.5	973.0	948.0	906.8	909.5
5°	1071.5	993.6	940.8	899.6	871.0	801.2	754.6	705.4	660.6	605.1	584.5
7.5°	930.1	834.3	753.7	704.5	667.8	574.7	471.8	391.2	330.3	286.5	269.4
10°	788.6	664.2	536.2	460.1	407.3	317.8	272.1	250.6	231.0	206.8	190.7
12.5°	623.9	446.7	330.3	299.9	278.4	248.9	219.3	196.0	200.5	201.4	207.7
15°	426.1	321.4	284.7	264.1	240.8	223.8	233.6	239.9	251.5	252.4	260.5
17.5°	346.4	301.7	272.1	271.2	273.0	282.9	298.1	306.1	321.4	324.9	336.6
20°	346.4	320.5	345.5	345.5	350.0	363.4	383.1	394.8	411.8	418.0	432.4
22.5°	394.8	412.7	444.0	447.6	449.4	463.7	488.8	500.4	520.1	523.7	538.9
25°	481.6	497.7	526.4	529.0	529.9	540.7	559.5	565.7	579.2	572.0	581.0
27.5°	509.3	516.5	534.4	536.2	531.7	536.2	543.4	543.4	547.8	533.5	536.2
30°	447.6	449.4	458.3	459.2	449.4	451.2	452.1	451.2	450.3	435.0	435.0
32.5°	332.1	332.1	343.7	341.1	330.3	333.0	333.0	333.0	332.1	319.6	317.8
35°	220.2	221.1	231.0	229.2	221.1	222.9	222.9	225.6	222.9	215.7	213.9
37.5°	134.3	135.2	139.6	140.5	137.9	138.8	139.6	138.8	140.5	137.0	135.2
40°	77.9	79.7	83.3	84.1	83.3	83.3	84.1	85.0	88.6	84.1	82.4
42.5°	45.7	46.5	48.3	48.3	48.3	48.3	49.2	50.1	51.0	50.1	49.2
45°	26.0	26.9	27.8	27.8	28.6	27.8	28.6	28.6	29.5	28.6	28.6
47.5°	15.2	15.2	16.1	16.1	17.0	16.1	17.0	17.0	17.0	16.1	16.1
50°	9.0	9.8	9.8	9.8	9.8	9.8	9.8	9.8	9.8	9.0	9.0
52.5°	7.2	7.2	7.2	7.2	7.2	6.3	6.3	6.3	6.3	5.4	5.4
55°	6.3	6.3	6.3	6.3	6.3	6.3	5.4	4.5	4.5	3.6	3.6
57.5°	5.4	6.3	6.3	6.3	6.3	5.4	5.4	4.5	3.6	2.7	2.7
60°	6.3	6.3	6.3	6.3	5.4	5.4	5.4	4.5	3.6	2.7	2.7
62.5°	6.3	6.3	6.3	6.3	6.3	5.4	5.4	4.5	3.6	2.7	2.7
65°	6.3	6.3	6.3	6.3	6.3	5.4	5.4	4.5	3.6	2.7	2.7
67.5°	6.3	6.3	6.3	6.3	6.3	5.4	5.4	4.5	3.6	3.6	2.7
70°	6.3	7.2	7.2	6.3	6.3	6.3	5.4	4.5	4.5	3.6	2.7
72.5°	6.3	7.2	7.2	6.3	6.3	6.3	5.4	4.5	4.5	3.6	2.7
75°	7.2	7.2	7.2	7.2	6.3	6.3	5.4	5.4	4.5	3.6	2.7
77.5°	7.2	7.2	7.2	7.2	6.3	6.3	5.4	5.4	4.5	3.6	2.7
80°	7.2	7.2	7.2	7.2	7.2	6.3	6.3	5.4	4.5	3.6	3.6
82.5°	7.2	7.2	7.2	7.2	7.2	6.3	6.3	5.4	4.5	3.6	3.6
85°	7.2	7.2	7.2	7.2	7.2	6.3	6.3	5.4	4.5	3.6	2.7
87.5°	7.2	7.2	7.2	7.2	6.3	6.3	5.4	5.4	4.5	3.6	2.7
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: P209013

CATALOG NUMBER: LDSQA6A55830D010TE LARH20SP 6LSQA1H 30°

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	1272.0	1272.0	1272.0	1272.0	1272.0	1272.0	1272.0	1272.0
2.5°	876.4	855.8	846.8	861.1	854.0	832.5	837.0	823.6
5°	522.8	491.4	471.8	480.7	452.1	426.1	426.1	407.3
7.5°	252.4	242.6	237.2	239.0	232.7	224.7	220.2	220.2
10°	177.2	173.7	174.6	174.6	179.9	179.0	181.7	180.8
12.5°	210.4	212.2	213.0	216.6	221.1	221.1	223.8	222.0
15°	269.4	267.7	273.0	273.9	281.1	282.0	285.6	282.0
17.5°	342.8	346.4	351.8	350.9	365.2	366.1	366.1	365.2
20°	441.3	444.0	449.4	451.2	468.2	470.0	476.2	477.1
22.5°	548.7	548.7	551.4	555.0	571.1	572.0	574.7	574.7
25°	585.4	580.1	581.0	585.4	594.4	590.8	593.5	591.7
27.5°	538.0	529.9	528.1	534.4	540.7	530.8	534.4	534.4
30°	436.8	429.7	427.9	434.2	438.6	427.9	431.5	433.3
32.5°	319.6	315.1	314.2	318.7	322.3	313.3	316.9	319.6
35°	215.7	213.9	212.2	213.0	218.4	211.3	214.8	216.6
37.5°	137.0	133.4	134.3	136.1	139.6	135.2	138.8	138.8
40°	84.1	82.4	82.4	84.1	85.9	82.4	84.1	85.0
42.5°	49.2	49.2	49.2	50.1	51.0	49.2	49.2	50.1
45°	28.6	27.8	27.8	28.6	29.5	27.8	28.6	28.6
47.5°	16.1	15.2	15.2	16.1	16.1	15.2	16.1	16.1
50°	9.0	8.1	8.1	9.0	9.0	8.1	8.1	8.1
52.5°	4.5	4.5	4.5	4.5	4.5	4.5	3.6	3.6
55°	2.7	2.7	1.8	1.8	1.8	1.8	1.8	0.9
57.5°	1.8	1.8	0.9	0.9	0.9	0.9	0.0	0.0
60°	1.8	1.8	0.9	0.9	0.9	0.0	0.0	0.0
62.5°	1.8	1.8	0.9	0.9	0.9	0.0	0.0	0.0
65°	1.8	1.8	0.9	0.9	0.9	0.0	0.0	0.0
67.5°	1.8	1.8	0.9	0.9	0.9	0.0	0.0	0.0
70°	2.7	1.8	1.8	0.9	0.9	0.9	0.0	0.0
72.5°	2.7	1.8	1.8	1.8	0.9	0.9	0.0	0.0
75°	2.7	1.8	1.8	1.8	0.9	0.9	0.0	0.0
77.5°	2.7	1.8	1.8	1.8	0.9	0.9	0.9	0.0
80°	2.7	1.8	1.8	1.8	0.9	0.9	0.9	0.9
82.5°	2.7	1.8	1.8	1.8	0.9	0.9	0.9	0.9
85°	2.7	1.8	1.8	1.8	0.9	0.9	0.9	0.0
87.5°	2.7	1.8	1.8	1.8	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)