

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: P209018

Luminaire Tested: **LDSQA6A55935D010TE LARH20SP 6LSQA1H 30°**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P209018
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: LDSQA6A55935D010TE 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: 3997.3 lumens
Efficiency: N/A
Efficacy: 65.7 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

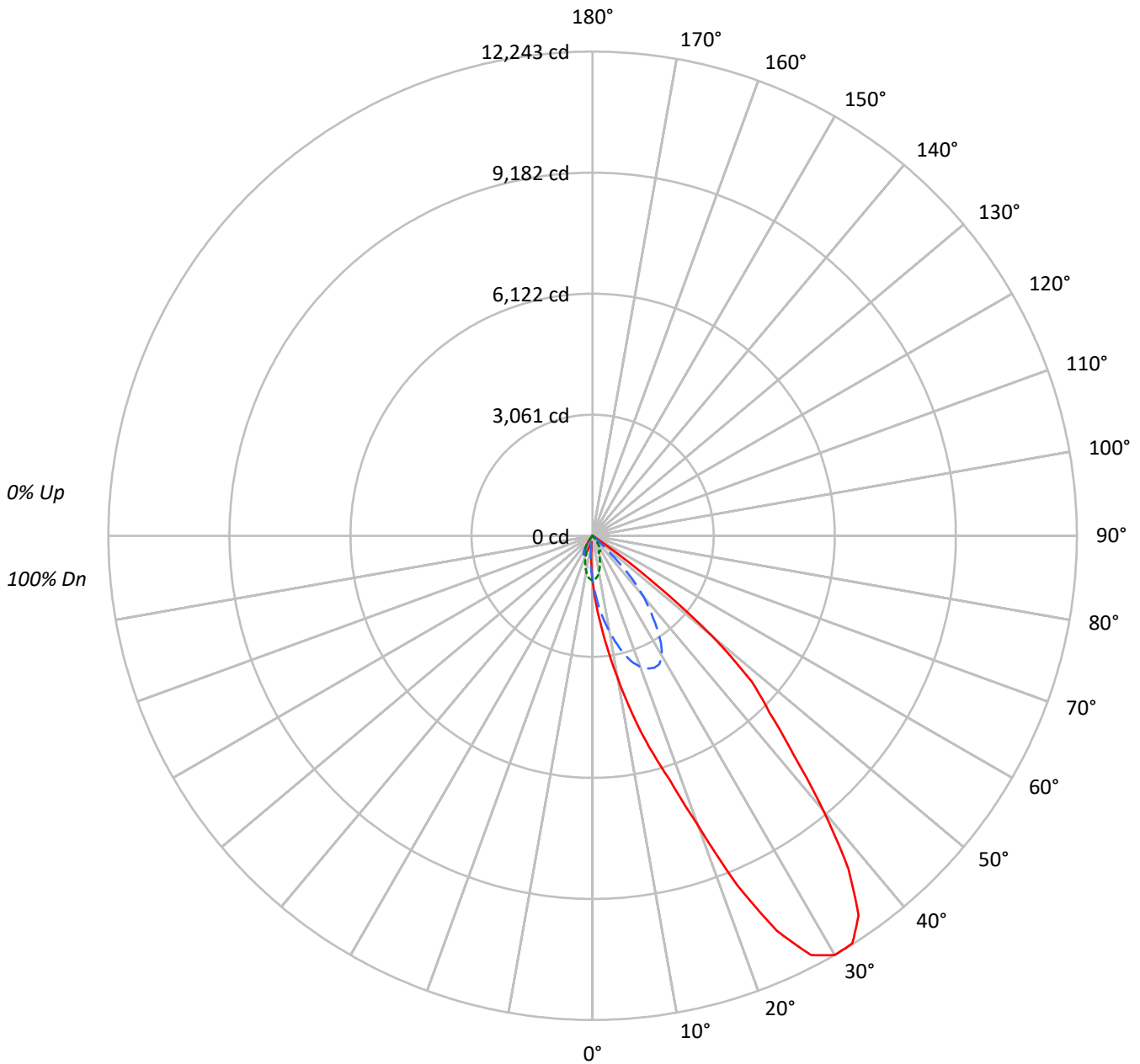
Input Watts (W): 60.8
Input Voltage (V): NR
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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	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	45	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°	48584	48584	48584
5°	94142	46302	15615
10°	159949	40515	7013
15°	246470	32317	11148
20°	356796	21031	19395
25°	523481	20295	24936
30°	608668	19225	19106
35°	616076	10186	10102
40°	510068	3839	4238
45°	385232	1303	1547
50°	263564	476	476
55°	36662	420	60
60°	956	413	0
65°	245	571	0
70°	101	705	0
75°	0	932	0
80°	0	1587	198
85°	0	3162	0



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	118.4	3.0
10°-20°	500.4	12.5
20°-30°	1141.6	28.6
30°-40°	1321.1	33.0
40°-50°	796.7	19.9
50°-60°	108.3	2.7
60°-70°	3.5	0.1
70°-80°	3.8	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°	1760.4	44.0
0°-40°	3081.4	77.1
0°-60°	3986.4	99.7
0°-90°	3997.3	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	3997.3	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	1128	1128	1128	1128	1128	
5°	2178	1784	1071	586	361	254
15°	5529	3108	725	223	250	1637
25°	11019	3683	427	514	525	4987
35°	11721	2808	194	198	192	7064
45°	6327	765	21	26	25	4947
55°	488	6	6	4	1	957
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	0



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CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	22.5°	25°	30°	35°	40°	45°
0°	1128.4	1128.4	1128.4	1128.4	1128.4	1128.4	1128.4	1128.4	1128.4	1128.4	1128.4
2.5°	1631.9	1616.8	1623.2	1606.5	1564.4	1555.7	1554.9	1543.8	1508.0	1480.2	1446.9
5°	2178.2	2177.5	2181.4	2145.7	2071.8	2048.8	2037.7	2010.7	1924.1	1857.4	1783.6
7.5°	2860.4	2855.6	2850.9	2785.7	2669.8	2625.3	2596.7	2499.1	2380.0	2261.6	2129.8
10°	3658.5	3656.1	3637.8	3523.5	3337.6	3255.9	3200.3	3045.4	2854.0	2685.7	2461.7
12.5°	4585.2	4563.8	4531.2	4363.6	4108.7	4019.8	3897.5	3652.1	3358.3	3100.2	2787.3
15°	5529.4	5498.4	5440.5	5225.3	4909.2	4757.5	4605.8	4282.6	3884.0	3509.2	3108.2
17.5°	6452.9	6418.8	6283.0	5917.7	5608.8	5423.8	5255.4	4811.5	4343.0	3861.0	3352.7
20°	7787.1	7663.2	7426.5	6850.8	6276.7	5943.1	5746.2	5276.9	4697.2	4135.7	3526.6
22.5°	9569.0	9294.3	8790.0	7854.6	7034.2	6553.0	6230.6	5606.4	4952.1	4315.2	3633.9
25°	11019.1	10894.4	10321.1	8990.1	7710.0	7143.0	6694.4	5868.5	5137.9	4435.1	3683.1
27.5°	11953.8	11922.8	11267.6	9930.4	8261.9	7517.8	7016.8	6041.6	5227.6	4460.5	3659.3
30°	12242.8	12291.3	11662.3	10249.6	8421.5	7593.3	7045.4	6044.0	5158.5	4345.4	3506.8
32.5°	12221.4	12223.8	11452.7	9974.0	8161.9	7374.1	6807.1	5843.1	4903.6	4057.1	3216.9
35°	11721.1	11598.0	10726.1	9127.5	7557.6	6862.7	6335.4	5454.0	4483.6	3623.5	2808.0
37.5°	10622.8	10461.6	9445.2	8043.6	6842.1	6199.6	5774.0	4943.3	3983.3	3160.6	2385.5
40°	9075.1	8846.4	8007.8	7035.8	6059.1	5576.2	5218.9	4372.4	3448.0	2706.3	1989.2
42.5°	7525.8	7413.8	6859.5	6069.4	5400.7	4946.5	4573.3	3774.4	2933.4	2258.5	1488.2
45°	6326.7	6230.6	5858.2	5337.2	4681.3	4266.8	3907.0	3151.0	2279.1	1515.2	764.7
47.5°	5453.2	5375.3	5018.8	4471.6	3752.2	3298.7	2927.9	2066.3	1291.2	654.3	191.4
50°	3934.8	3855.4	3506.0	2872.3	2222.7	1843.1	1576.3	922.8	366.1	132.6	19.9
52.5°	1928.9	1863.8	1626.3	1217.4	817.1	587.6	429.6	173.1	42.1	14.3	9.5
55°	488.4	448.7	374.0	235.1	115.1	69.1	44.5	15.9	10.3	7.9	5.6
57.5°	27.8	27.0	24.6	18.3	13.5	11.9	10.3	7.9	5.6	4.8	4.0
60°	11.1	10.3	9.5	7.9	6.4	5.6	5.6	4.0	3.2	3.2	3.2
62.5°	4.8	4.8	4.8	4.0	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	4.0
72.5°	0.0	0.8	0.8	0.8	1.6	1.6	1.6	2.4	2.4	3.2	4.0
75°	0.0	0.8	0.8	0.8	1.6	1.6	1.6	2.4	3.2	3.2	4.0
77.5°	0.0	0.8	0.8	0.8	1.6	1.6	1.6	2.4	3.2	3.2	4.0
80°	0.0	0.8	0.8	0.8	1.6	1.6	1.6	2.4	3.2	3.2	4.0
82.5°	0.0	0.0	0.8	0.8	1.6	1.6	1.6	2.4	3.2	3.2	4.0
85°	0.0	0.0	0.8	0.8	1.6	1.6	1.6	2.4	3.2	3.2	4.0
87.5°	0.0	0.0	0.8	0.8	1.6	1.6	1.6	2.4	2.4	3.2	4.0
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°	1128.4	1128.4	1128.4	1128.4	1128.4	1128.4	1128.4	1128.4	1128.4	1128.4	1128.4
2.5°	1404.0	1375.4	1333.3	1305.5	1278.5	1253.1	1211.0	1187.2	1144.3	1104.6	1070.5
5°	1694.6	1623.2	1536.6	1462.8	1415.1	1368.3	1283.3	1220.5	1141.9	1071.3	1006.1
7.5°	1988.5	1862.2	1720.0	1598.5	1524.7	1452.4	1325.4	1223.7	1112.5	1011.7	915.6
10°	2255.3	2065.5	1864.6	1690.7	1590.6	1496.9	1329.3	1194.3	1051.4	926.7	806.0
12.5°	2503.0	2243.4	1981.3	1754.2	1630.3	1517.5	1312.7	1147.5	977.6	829.8	689.3
15°	2723.8	2390.3	2066.3	1790.7	1645.4	1512.0	1273.8	1081.6	890.2	725.0	547.1
17.5°	2891.4	2481.6	2103.6	1785.2	1618.4	1469.9	1207.0	999.0	797.3	597.2	396.3
20°	2993.0	2520.5	2095.7	1742.3	1560.4	1403.2	1127.6	909.3	685.3	459.0	349.4
22.5°	3035.9	2517.3	2058.3	1678.0	1489.0	1330.1	1051.4	821.9	567.8	415.3	364.5
25°	3043.0	2484.8	2005.9	1607.3	1418.3	1260.3	974.4	722.6	493.1	427.2	408.2
27.5°	2988.2	2408.5	1907.5	1505.6	1319.0	1155.4	859.2	574.1	463.0	425.6	438.3
30°	2826.2	2234.6	1733.5	1327.0	1146.7	983.1	613.8	450.3	384.3	386.7	389.9
32.5°	2541.2	1945.6	1454.0	1065.7	868.8	648.0	382.0	301.0	292.2	292.2	290.6
35°	2160.8	1592.2	1141.1	674.2	432.0	311.3	197.7	198.5	194.6	193.8	193.0
37.5°	1767.7	1256.3	722.6	278.7	187.4	130.2	116.7	118.3	116.7	119.1	117.5
40°	1393.7	775.8	263.6	88.9	65.9	63.5	65.1	66.7	66.7	68.3	68.3
42.5°	810.0	257.3	69.1	35.7	35.7	34.1	34.9	36.5	37.3	38.1	37.3
45°	240.6	53.2	22.2	19.9	19.9	19.1	19.1	19.9	20.6	21.4	21.4
47.5°	38.1	15.1	12.7	11.1	11.1	11.1	11.1	11.1	11.9	11.9	12.7
50°	11.9	9.5	7.9	7.1	7.1	6.4	6.4	7.1	7.1	7.1	7.9
52.5°	7.1	5.6	5.6	4.8	5.6	5.6	4.8	5.6	5.6	5.6	6.4
55°	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8	5.6	5.6	5.6
57.5°	4.0	4.0	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8
60°	4.0	4.0	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8	5.6
62.5°	4.0	4.0	4.8	4.8	4.8	4.8	4.8	4.8	5.6	5.6	5.6
65°	4.0	4.0	4.8	4.8	4.8	4.8	4.8	5.6	5.6	5.6	5.6
67.5°	4.0	4.8	4.8	4.8	4.8	5.6	5.6	5.6	5.6	5.6	5.6
70°	4.0	4.8	4.8	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6
72.5°	4.0	4.8	4.8	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6
75°	4.8	4.8	4.8	5.6	5.6	5.6	5.6	5.6	5.6	5.6	6.4
77.5°	4.8	4.8	5.6	5.6	5.6	5.6	5.6	5.6	6.4	6.4	6.4
80°	4.8	4.8	5.6	5.6	5.6	5.6	5.6	6.4	6.4	6.4	6.4
82.5°	4.8	4.8	5.6	5.6	5.6	5.6	5.6	6.4	6.4	6.4	6.4
85°	4.8	4.8	5.6	5.6	5.6	5.6	5.6	6.4	6.4	6.4	6.4
87.5°	4.8	4.8	5.6	5.6	5.6	5.6	5.6	6.4	6.4	6.4	6.4
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):

	100°	105°	110°	112.5°	115°	120°	125°	130°	135°	140°	145°
0°	1128.4	1128.4	1128.4	1128.4	1128.4	1128.4	1128.4	1128.4	1128.4	1128.4	1128.4
2.5°	1041.1	1004.6	987.1	962.5	945.0	906.1	890.2	863.2	841.0	804.4	806.8
5°	950.6	881.5	834.6	798.1	772.7	710.7	669.4	625.8	586.1	536.8	518.6
7.5°	825.1	740.1	668.6	625.0	592.4	509.8	418.5	347.0	293.0	254.1	239.0
10°	699.6	589.2	475.7	408.2	361.3	281.9	241.4	222.4	204.9	183.4	169.1
12.5°	553.5	396.3	293.0	266.0	247.0	220.8	194.6	173.9	177.9	178.7	184.2
15°	378.0	285.1	252.5	234.3	213.6	198.5	207.3	212.8	223.1	223.9	231.1
17.5°	307.3	267.6	241.4	240.6	242.2	250.9	264.4	271.6	285.1	288.3	298.6
20°	307.3	284.3	306.5	306.5	310.5	322.4	339.9	350.2	365.3	370.8	383.6
22.5°	350.2	366.1	393.9	397.1	398.6	411.3	433.6	443.9	461.4	464.6	478.1
25°	427.2	441.5	466.9	469.3	470.1	479.6	496.3	501.9	513.8	507.4	515.4
27.5°	451.8	458.2	474.1	475.7	471.7	475.7	482.0	482.0	486.0	473.3	475.7
30°	397.1	398.6	406.6	407.4	398.6	400.2	401.0	400.2	399.4	385.9	385.9
32.5°	294.6	294.6	304.9	302.6	293.0	295.4	295.4	295.4	294.6	283.5	281.9
35°	195.4	196.1	204.9	203.3	196.1	197.7	197.7	200.1	197.7	191.4	189.8
37.5°	119.1	119.9	123.9	124.7	122.3	123.1	123.9	123.1	124.7	121.5	119.9
40°	69.1	70.7	73.9	74.6	73.9	73.9	74.6	75.4	78.6	74.6	73.1
42.5°	40.5	41.3	42.9	42.9	42.9	42.9	43.7	44.5	45.3	44.5	43.7
45°	23.0	23.8	24.6	24.6	25.4	24.6	25.4	25.4	26.2	25.4	25.4
47.5°	13.5	13.5	14.3	14.3	15.1	14.3	15.1	15.1	15.1	14.3	14.3
50°	7.9	8.7	8.7	8.7	8.7	8.7	8.7	8.7	8.7	7.9	7.9
52.5°	6.4	6.4	6.4	6.4	6.4	5.6	5.6	5.6	5.6	4.8	4.8
55°	5.6	5.6	5.6	5.6	5.6	5.6	4.8	4.0	4.0	3.2	3.2
57.5°	4.8	5.6	5.6	5.6	5.6	4.8	4.8	4.0	3.2	2.4	2.4
60°	5.6	5.6	5.6	5.6	4.8	4.8	4.8	4.0	3.2	2.4	2.4
62.5°	5.6	5.6	5.6	5.6	5.6	4.8	4.8	4.0	3.2	2.4	2.4
65°	5.6	5.6	5.6	5.6	5.6	4.8	4.8	4.0	3.2	2.4	2.4
67.5°	5.6	5.6	5.6	5.6	5.6	4.8	4.8	4.0	3.2	3.2	2.4
70°	5.6	6.4	6.4	5.6	5.6	5.6	4.8	4.0	4.0	3.2	2.4
72.5°	5.6	6.4	6.4	5.6	5.6	5.6	4.8	4.0	4.0	3.2	2.4
75°	6.4	6.4	6.4	6.4	5.6	5.6	4.8	4.8	4.0	3.2	2.4
77.5°	6.4	6.4	6.4	6.4	5.6	5.6	4.8	4.8	4.0	3.2	2.4
80°	6.4	6.4	6.4	6.4	6.4	5.6	5.6	4.8	4.0	3.2	3.2
82.5°	6.4	6.4	6.4	6.4	6.4	5.6	5.6	4.8	4.0	3.2	3.2
85°	6.4	6.4	6.4	6.4	6.4	5.6	5.6	4.8	4.0	3.2	2.4
87.5°	6.4	6.4	6.4	6.4	5.6	5.6	4.8	4.8	4.0	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: P209018

CATALOG NUMBER: LDSQA6A55935D010TE LARH20SP 6LSQA1H 30°

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	1128.4	1128.4	1128.4	1128.4	1128.4	1128.4	1128.4	1128.4
2.5°	777.4	759.2	751.2	763.9	757.6	738.5	742.5	730.6
5°	463.8	436.0	418.5	426.4	401.0	378.0	378.0	361.3
7.5°	223.9	215.2	210.4	212.0	206.5	199.3	195.4	195.4
10°	157.2	154.1	154.9	154.9	159.6	158.8	161.2	160.4
12.5°	186.6	188.2	189.0	192.2	196.1	196.1	198.5	196.9
15°	239.0	237.4	242.2	243.0	249.4	250.1	253.3	250.1
17.5°	304.1	307.3	312.1	311.3	324.0	324.8	324.8	324.0
20°	391.5	393.9	398.6	400.2	415.3	416.9	422.5	423.3
22.5°	486.8	486.8	489.2	492.3	506.6	507.4	509.8	509.8
25°	519.3	514.6	515.4	519.3	527.3	524.1	526.5	524.9
27.5°	477.3	470.1	468.5	474.1	479.6	470.9	474.1	474.1
30°	387.5	381.2	379.6	385.1	389.1	379.6	382.8	384.3
32.5°	283.5	279.5	278.7	282.7	285.9	277.9	281.1	283.5
35°	191.4	189.8	188.2	189.0	193.8	187.4	190.6	192.2
37.5°	121.5	118.3	119.1	120.7	123.9	119.9	123.1	123.1
40°	74.6	73.1	73.1	74.6	76.2	73.1	74.6	75.4
42.5°	43.7	43.7	43.7	44.5	45.3	43.7	43.7	44.5
45°	25.4	24.6	24.6	25.4	26.2	24.6	25.4	25.4
47.5°	14.3	13.5	13.5	14.3	14.3	13.5	14.3	14.3
50°	7.9	7.1	7.1	7.9	7.9	7.1	7.1	7.1
52.5°	4.0	4.0	4.0	4.0	4.0	4.0	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)