

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: P209012

Luminaire Tested: **LDSQA6A55827D010TE LARH20SP 6LSQA1H 30°**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P209012
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: LDSQA6A55827D010TE 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 / 2700K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 4399.8 lumens
Efficiency: N/A
Efficacy: 72.4 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

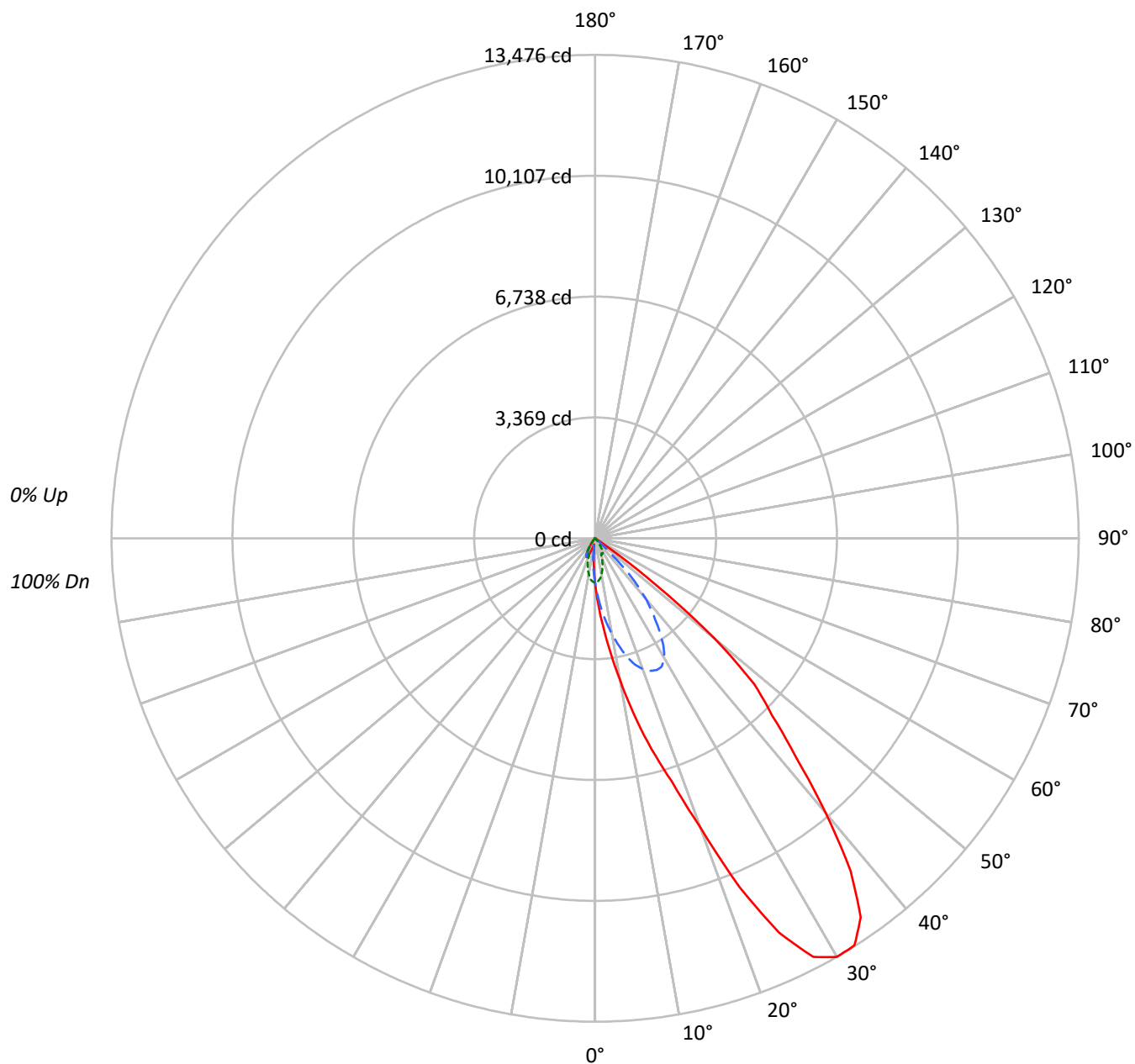
Input Watts (W): 60.8
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	50	30	10
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°	53479	53479	53479
5°	103629	50965	17189
10°	176060	44599	7721
15°	271298	35575	12271
20°	392737	23148	21347
25°	576218	22342	27449
30°	669988	21164	21035
35°	678140	11211	11117
40°	561450	4227	4665
45°	424037	1437	1705
50°	290116	529	529
55°	40355	458	68
60°	1051	448	0
65°	265	621	0
70°	113	768	0
75°	0	1015	0
80°	0	1736	223
85°	0	3458	0



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	130.3	3.0
10°-20°	550.8	12.5
20°-30°	1256.6	28.6
30°-40°	1454.1	33.1
40°-50°	877.0	19.9
50°-60°	119.1	2.7
60°-70°	3.8	0.1
70°-80°	4.2	0.1
80°-90°	3.9	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°	1937.7	44.0
0°-40°	3391.9	77.1
0°-60°	4388.0	99.7
0°-90°	4399.8	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	4399.8	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	1242	1242	1242	1242	1242	
5°	2398	1963	1179	645	398	279
15°	6086	3421	798	246	275	1802
25°	12129	4054	470	566	578	5489
35°	12902	3091	213	218	212	7775
45°	6964	842	24	29	28	5445
55°	538	6	6	4	1	1054
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°	1242.1	1242.1	1242.1	1242.1	1242.1	1242.1	1242.1	1242.1	1242.1	1242.1	1242.1
2.5°	1796.3	1779.7	1786.7	1768.3	1722.0	1712.4	1711.5	1699.3	1659.9	1629.3	1592.6
5°	2397.7	2396.8	2401.2	2361.8	2280.6	2255.2	2243.0	2213.3	2118.0	2044.5	1963.3
7.5°	3148.6	3143.3	3138.1	3066.4	2938.8	2889.8	2858.3	2750.8	2619.7	2489.5	2344.4
10°	4027.0	4024.4	4004.3	3878.4	3673.9	3583.9	3522.7	3352.2	3141.6	2956.2	2709.7
12.5°	5047.1	5023.5	4987.7	4803.2	4522.7	4424.8	4290.1	4020.0	3696.6	3412.5	3068.1
15°	6086.4	6052.3	5988.5	5751.7	5403.8	5236.8	5069.8	4714.1	4275.3	3862.7	3421.3
17.5°	7103.0	7065.4	6916.0	6513.9	6173.9	5970.2	5784.9	5296.2	4780.5	4249.9	3690.5
20°	8571.5	8435.2	8174.7	7541.0	6909.0	6541.9	6325.1	5808.5	5170.4	4552.4	3881.9
22.5°	10533.0	10230.6	9675.5	8645.8	7742.9	7213.2	6858.3	6171.2	5451.0	4749.9	3999.9
25°	12129.2	11991.9	11360.8	9895.8	8486.8	7862.6	7368.8	6459.7	5655.5	4881.9	4054.1
27.5°	13158.0	13123.9	12402.8	10930.8	9094.3	8275.2	7723.7	6650.2	5754.3	4909.9	4027.9
30°	13476.2	13529.5	12837.2	11282.2	9270.0	8358.3	7755.1	6652.9	5678.2	4783.1	3860.1
32.5°	13452.6	13455.2	12606.4	10978.8	8984.1	8117.0	7492.9	6431.7	5397.6	4465.8	3541.0
35°	12901.9	12766.4	11806.6	10047.0	8318.9	7554.1	6973.7	6003.4	4935.2	3988.6	3090.9
37.5°	11693.0	11515.5	10396.7	8853.9	7531.3	6824.2	6355.7	5441.3	4384.5	3479.0	2625.8
40°	9989.3	9737.6	8814.5	7744.6	6669.5	6138.0	5744.7	4812.9	3795.4	2979.0	2189.6
42.5°	8284.0	8160.7	7550.6	6680.8	5944.8	5444.8	5034.0	4154.7	3229.0	2486.0	1638.1
45°	6964.0	6858.3	6448.3	5874.9	5152.9	4696.6	4300.6	3468.5	2508.7	1667.8	841.8
47.5°	6002.5	5916.9	5524.4	4922.1	4130.2	3631.1	3222.8	2274.4	1421.3	720.3	210.7
50°	4331.2	4243.8	3859.2	3161.7	2446.6	2028.8	1735.1	1015.7	403.0	146.0	21.9
52.5°	2123.2	2051.5	1790.2	1340.0	899.5	646.8	472.9	190.6	46.3	15.7	10.5
55°	537.6	493.9	411.7	258.7	126.7	76.0	49.0	17.5	11.4	8.7	6.1
57.5°	30.6	29.7	27.1	20.1	14.9	13.1	11.4	8.7	6.1	5.2	4.4
60°	12.2	11.4	10.5	8.7	7.0	6.1	6.1	4.4	3.5	3.5	3.5
62.5°	5.2	5.2	5.2	4.4	3.5	3.5	3.5	2.6	3.5	3.5	3.5
65°	2.6	2.6	2.6	1.7	1.7	1.7	2.6	2.6	2.6	3.5	3.5
67.5°	1.7	0.9	0.9	0.9	1.7	1.7	1.7	2.6	2.6	3.5	3.5
70°	0.9	0.9	0.9	0.9	1.7	1.7	1.7	2.6	2.6	3.5	4.4
72.5°	0.0	0.9	0.9	0.9	1.7	1.7	1.7	2.6	2.6	3.5	4.4
75°	0.0	0.9	0.9	0.9	1.7	1.7	1.7	2.6	3.5	3.5	4.4
77.5°	0.0	0.9	0.9	0.9	1.7	1.7	1.7	2.6	3.5	3.5	4.4
80°	0.0	0.9	0.9	0.9	1.7	1.7	1.7	2.6	3.5	3.5	4.4
82.5°	0.0	0.0	0.9	0.9	1.7	1.7	1.7	2.6	3.5	3.5	4.4
85°	0.0	0.0	0.9	0.9	1.7	1.7	1.7	2.6	3.5	3.5	4.4
87.5°	0.0	0.0	0.9	0.9	1.7	1.7	1.7	2.6	2.6	3.5	4.4
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°	1242.1	1242.1	1242.1	1242.1	1242.1	1242.1	1242.1	1242.1	1242.1	1242.1	1242.1
2.5°	1545.4	1514.0	1467.6	1437.0	1407.3	1379.3	1333.0	1306.8	1259.6	1215.9	1178.3
5°	1865.4	1786.7	1691.4	1610.1	1557.7	1506.1	1412.6	1343.5	1257.0	1179.2	1107.5
7.5°	2188.8	2049.8	1893.3	1759.6	1678.3	1598.8	1458.9	1347.0	1224.6	1113.6	1007.9
10°	2482.5	2273.6	2052.4	1861.0	1750.8	1647.7	1463.3	1314.7	1157.3	1020.1	887.2
12.5°	2755.2	2469.4	2180.9	1930.9	1794.6	1670.4	1444.9	1263.1	1076.0	913.4	758.7
15°	2998.2	2631.1	2274.4	1971.1	1811.2	1664.3	1402.1	1190.5	979.9	798.1	602.3
17.5°	3182.6	2731.6	2315.5	1965.0	1781.4	1618.0	1328.6	1099.6	877.6	657.3	436.2
20°	3294.5	2774.4	2306.8	1917.8	1717.6	1544.6	1241.2	1000.9	754.4	505.2	384.6
22.5°	3341.7	2770.9	2265.7	1847.0	1639.0	1464.1	1157.3	904.7	625.0	457.2	401.2
25°	3349.6	2735.1	2208.0	1769.2	1561.2	1387.2	1072.5	795.4	542.8	470.3	449.3
27.5°	3289.3	2651.2	2099.6	1657.3	1451.9	1271.8	945.8	632.0	509.6	468.5	482.5
30°	3111.0	2459.8	1908.2	1460.6	1262.2	1082.2	675.7	495.6	423.1	425.7	429.2
32.5°	2797.2	2141.6	1600.5	1173.1	956.3	713.3	420.4	331.3	321.7	321.7	319.9
35°	2378.5	1752.6	1256.1	742.1	475.5	342.7	217.7	218.5	214.2	213.3	212.4
37.5°	1945.8	1382.8	795.4	306.8	206.3	143.4	128.5	130.2	128.5	131.1	129.4
40°	1534.1	854.0	290.2	97.9	72.6	69.9	71.7	73.4	73.4	75.2	75.2
42.5°	891.6	283.2	76.0	39.3	39.3	37.6	38.5	40.2	41.1	42.0	41.1
45°	264.9	58.6	24.5	21.9	21.9	21.0	21.0	21.9	22.7	23.6	23.6
47.5°	42.0	16.6	14.0	12.2	12.2	12.2	12.2	12.2	13.1	13.1	14.0
50°	13.1	10.5	8.7	7.9	7.9	7.0	7.0	7.9	7.9	7.9	8.7
52.5°	7.9	6.1	6.1	5.2	6.1	6.1	5.2	6.1	6.1	6.1	7.0
55°	5.2	5.2	5.2	5.2	5.2	5.2	5.2	5.2	6.1	6.1	6.1
57.5°	4.4	4.4	5.2	5.2	5.2	5.2	5.2	5.2	5.2	5.2	5.2
60°	4.4	4.4	5.2	5.2	5.2	5.2	5.2	5.2	5.2	5.2	6.1
62.5°	4.4	4.4	5.2	5.2	5.2	5.2	5.2	5.2	6.1	6.1	6.1
65°	4.4	4.4	5.2	5.2	5.2	5.2	5.2	6.1	6.1	6.1	6.1
67.5°	4.4	5.2	5.2	5.2	5.2	6.1	6.1	6.1	6.1	6.1	6.1
70°	4.4	5.2	5.2	6.1	6.1	6.1	6.1	6.1	6.1	6.1	6.1
72.5°	4.4	5.2	5.2	6.1	6.1	6.1	6.1	6.1	6.1	6.1	6.1
75°	5.2	5.2	5.2	6.1	6.1	6.1	6.1	6.1	6.1	6.1	7.0
77.5°	5.2	5.2	6.1	6.1	6.1	6.1	6.1	6.1	7.0	7.0	7.0
80°	5.2	5.2	6.1	6.1	6.1	6.1	6.1	7.0	7.0	7.0	7.0
82.5°	5.2	5.2	6.1	6.1	6.1	6.1	6.1	7.0	7.0	7.0	7.0
85°	5.2	5.2	6.1	6.1	6.1	6.1	6.1	7.0	7.0	7.0	7.0
87.5°	5.2	5.2	6.1	6.1	6.1	6.1	6.1	7.0	7.0	7.0	7.0
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):

	100°	105°	110°	112.5°	115°	120°	125°	130°	135°	140°	145°
0°	1242.1	1242.1	1242.1	1242.1	1242.1	1242.1	1242.1	1242.1	1242.1	1242.1	1242.1
2.5°	1146.0	1105.8	1086.5	1059.4	1040.2	997.4	979.9	950.2	925.7	885.5	888.1
5°	1046.3	970.3	918.7	878.5	850.5	782.3	736.9	688.8	645.1	590.9	570.8
7.5°	908.2	814.7	736.0	687.9	652.1	561.2	460.7	382.0	322.5	279.7	263.1
10°	770.1	648.6	523.6	449.3	397.7	310.3	265.7	244.8	225.5	201.9	186.2
12.5°	609.3	436.2	322.5	292.8	271.8	243.0	214.2	191.4	195.8	196.7	202.8
15°	416.1	313.8	278.0	257.9	235.1	218.5	228.1	234.3	245.6	246.5	254.4
17.5°	338.3	294.6	265.7	264.9	266.6	276.2	291.1	298.9	313.8	317.3	328.7
20°	338.3	312.9	337.4	337.4	341.8	354.9	374.1	385.5	402.1	408.2	422.2
22.5°	385.5	403.0	433.6	437.1	438.8	452.8	477.3	488.6	507.9	511.4	526.2
25°	470.3	486.0	514.0	516.6	517.5	528.0	546.3	552.4	565.6	558.6	567.3
27.5°	497.4	504.4	521.8	523.6	519.2	523.6	530.6	530.6	535.0	521.0	523.6
30°	437.1	438.8	447.5	448.4	438.8	440.6	441.4	440.6	439.7	424.8	424.8
32.5°	324.3	324.3	335.7	333.0	322.5	325.2	325.2	325.2	324.3	312.1	310.3
35°	215.0	215.9	225.5	223.8	215.9	217.7	217.7	220.3	217.7	210.7	208.9
37.5°	131.1	132.0	136.4	137.2	134.6	135.5	136.4	135.5	137.2	133.7	132.0
40°	76.0	77.8	81.3	82.2	81.3	81.3	82.2	83.0	86.5	82.2	80.4
42.5°	44.6	45.5	47.2	47.2	47.2	47.2	48.1	49.0	49.8	49.0	48.1
45°	25.3	26.2	27.1	27.1	28.0	27.1	28.0	28.0	28.8	28.0	28.0
47.5°	14.9	14.9	15.7	15.7	16.6	15.7	16.6	16.6	16.6	15.7	15.7
50°	8.7	9.6	9.6	9.6	9.6	9.6	9.6	9.6	9.6	8.7	8.7
52.5°	7.0	7.0	7.0	7.0	7.0	6.1	6.1	6.1	6.1	5.2	5.2
55°	6.1	6.1	6.1	6.1	6.1	6.1	5.2	4.4	4.4	3.5	3.5
57.5°	5.2	6.1	6.1	6.1	6.1	5.2	5.2	4.4	3.5	2.6	2.6
60°	6.1	6.1	6.1	6.1	5.2	5.2	5.2	4.4	3.5	2.6	2.6
62.5°	6.1	6.1	6.1	6.1	6.1	5.2	5.2	4.4	3.5	2.6	2.6
65°	6.1	6.1	6.1	6.1	6.1	5.2	5.2	4.4	3.5	2.6	2.6
67.5°	6.1	6.1	6.1	6.1	6.1	5.2	5.2	4.4	3.5	3.5	2.6
70°	6.1	7.0	7.0	6.1	6.1	6.1	5.2	4.4	4.4	3.5	2.6
72.5°	6.1	7.0	7.0	6.1	6.1	6.1	5.2	4.4	4.4	3.5	2.6
75°	7.0	7.0	7.0	7.0	6.1	6.1	5.2	5.2	4.4	3.5	2.6
77.5°	7.0	7.0	7.0	7.0	6.1	6.1	5.2	5.2	4.4	3.5	2.6
80°	7.0	7.0	7.0	7.0	7.0	6.1	6.1	5.2	4.4	3.5	3.5
82.5°	7.0	7.0	7.0	7.0	7.0	6.1	6.1	5.2	4.4	3.5	3.5
85°	7.0	7.0	7.0	7.0	7.0	6.1	6.1	5.2	4.4	3.5	2.6
87.5°	7.0	7.0	7.0	7.0	6.1	6.1	5.2	5.2	4.4	3.5	2.6
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: P209012

CATALOG NUMBER: LDSQA6A55827D010TE LARH20SP 6LSQA1H 30°

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	1242.1	1242.1	1242.1	1242.1	1242.1	1242.1	1242.1	1242.1
2.5°	855.8	835.7	826.9	840.9	833.9	812.9	817.3	804.2
5°	510.5	479.9	460.7	469.4	441.4	416.1	416.1	397.7
7.5°	246.5	236.9	231.6	233.4	227.3	219.4	215.0	215.0
10°	173.1	169.6	170.5	170.5	175.7	174.8	177.4	176.6
12.5°	205.4	207.2	208.0	211.5	215.9	215.9	218.5	216.8
15°	263.1	261.4	266.6	267.5	274.5	275.3	278.8	275.3
17.5°	334.8	338.3	343.5	342.7	356.6	357.5	357.5	356.6
20°	430.9	433.6	438.8	440.6	457.2	458.9	465.0	465.9
22.5°	535.8	535.8	538.5	541.9	557.7	558.6	561.2	561.2
25°	571.7	566.4	567.3	571.7	580.4	576.9	579.5	577.8
27.5°	525.3	517.5	515.7	521.8	528.0	518.3	521.8	521.8
30°	426.6	419.6	417.8	423.9	428.3	417.8	421.3	423.1
32.5°	312.1	307.7	306.8	311.2	314.7	305.9	309.4	312.1
35°	210.7	208.9	207.2	208.0	213.3	206.3	209.8	211.5
37.5°	133.7	130.2	131.1	132.9	136.4	132.0	135.5	135.5
40°	82.2	80.4	80.4	82.2	83.9	80.4	82.2	83.0
42.5°	48.1	48.1	48.1	49.0	49.8	48.1	48.1	49.0
45°	28.0	27.1	27.1	28.0	28.8	27.1	28.0	28.0
47.5°	15.7	14.9	14.9	15.7	15.7	14.9	15.7	15.7
50°	8.7	7.9	7.9	8.7	8.7	7.9	7.9	7.9
52.5°	4.4	4.4	4.4	4.4	4.4	4.4	3.5	3.5
55°	2.6	2.6	1.7	1.7	1.7	1.7	1.7	0.9
57.5°	1.7	1.7	0.9	0.9	0.9	0.9	0.0	0.0
60°	1.7	1.7	0.9	0.9	0.9	0.0	0.0	0.0
62.5°	1.7	1.7	0.9	0.9	0.9	0.0	0.0	0.0
65°	1.7	1.7	0.9	0.9	0.9	0.0	0.0	0.0
67.5°	1.7	1.7	0.9	0.9	0.9	0.0	0.0	0.0
70°	2.6	1.7	1.7	0.9	0.9	0.9	0.0	0.0
72.5°	2.6	1.7	1.7	1.7	0.9	0.9	0.0	0.0
75°	2.6	1.7	1.7	1.7	0.9	0.9	0.0	0.0
77.5°	2.6	1.7	1.7	1.7	0.9	0.9	0.9	0.0
80°	2.6	1.7	1.7	1.7	0.9	0.9	0.9	0.9
82.5°	2.6	1.7	1.7	1.7	0.9	0.9	0.9	0.9
85°	2.6	1.7	1.7	1.7	0.9	0.9	0.9	0.0
87.5°	2.6	1.7	1.7	1.7	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)