

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: P209024

Luminaire Tested: **LDSQA6A65927D010TE LARH20SP 6LSQA1H 30°**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P209024
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: LDSQA6A65927D010TE 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 / 2700K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 4124.9 lumens
Efficiency: N/A
Efficacy: 52.4 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

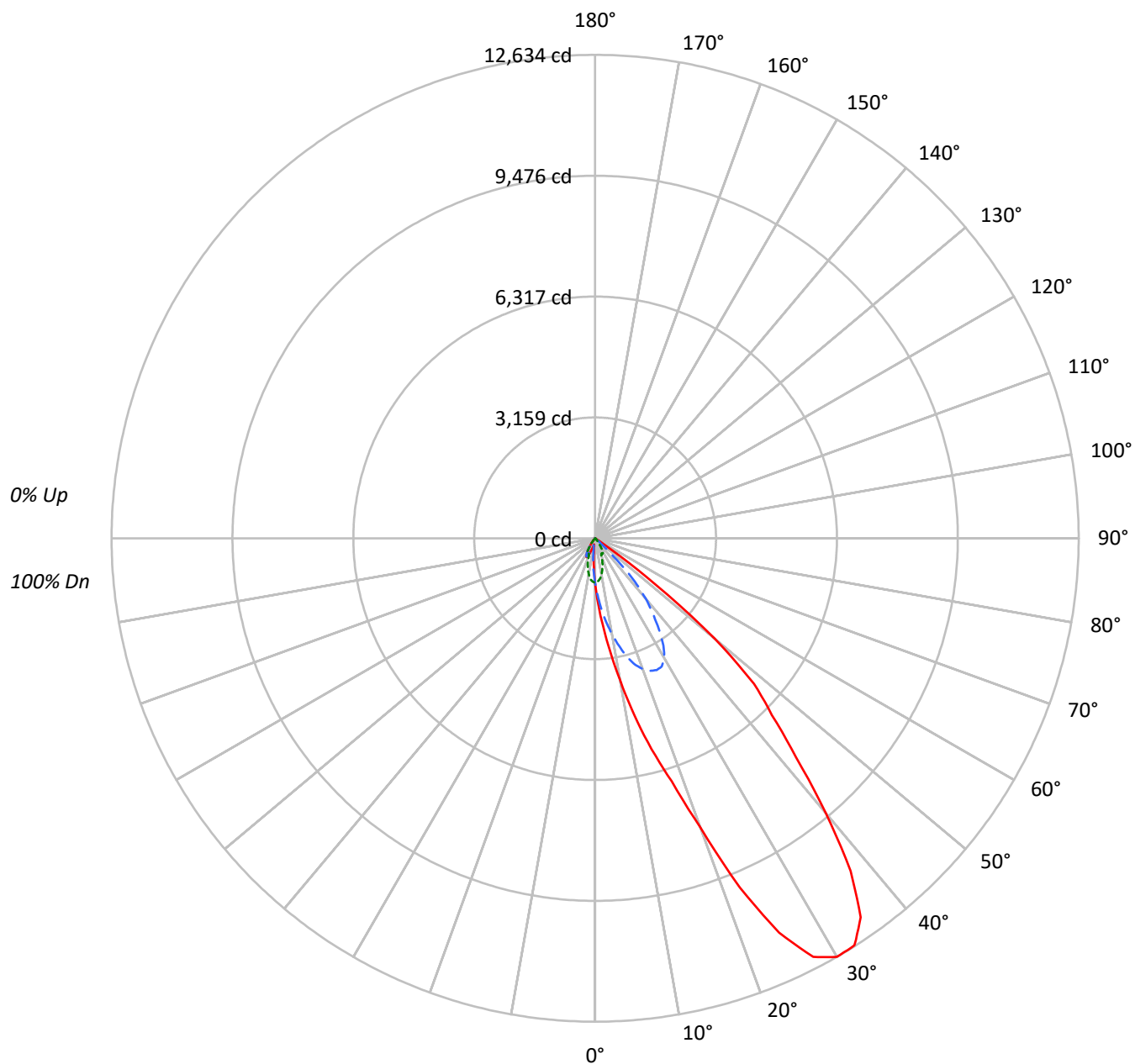
Input Watts (W): 78.67
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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
RCR																	
0	119	119	119	119	116	116	116	116	111	111	111		106	106	106		102
1	112	109	106	104	110	107	104	102	103	101	99		99	97	96		96
2	105	100	95	91	103	98	94	90	95	91	88		92	89	86		89
3	99	91	85	80	96	89	84	80	87	82	78		84	80	77		82
4	92	83	76	71	90	82	76	71	79	74	70		77	73	69		75
5	86	76	69	64	84	75	68	63	73	67	63		71	66	62		69
6	80	69	62	57	79	69	62	57	67	61	56		65	60	56		64
7	75	64	56	51	73	63	56	51	62	55	51		60	55	50		59
8	70	59	51	46	69	58	51	46	57	50	46		56	50	46		54
9	66	54	47	42	64	53	47	42	52	46	42		51	46	42		50
10	61	50	43	38	60	49	43	38	48	42	38		48	42	38		47

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	50138	50138	50138
5°	97150	47780	16117
10°	165056	41809	7236
15°	254342	33351	11505
20°	368191	21704	20014
25°	540203	20946	25734
30°	628112	19842	19718
35°	635755	10512	10423
40°	526361	3962	4378
45°	397538	1346	1595
50°	271983	496	496
55°	37833	428	60
60°	990	422	0
65°	255	581	0
70°	101	718	0
75°	0	948	0
80°	0	1636	198
85°	0	3260	0



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	122.2	3.0
10°-20°	516.4	12.5
20°-30°	1178.0	28.6
30°-40°	1363.3	33.0
40°-50°	822.2	19.9
50°-60°	111.7	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°	1816.6	44.0
0°-40°	3179.9	77.1
0°-60°	4113.7	99.7
0°-90°	4124.9	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	4124.9	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	1164	1164	1164	1164	1164	
5°	2248	1840	1106	605	373	262
15°	5706	3207	748	230	258	1689
25°	11371	3801	441	530	542	5146
35°	12096	2898	200	204	198	7289
45°	6529	789	22	27	26	5105
55°	504	6	6	4	1	988
65°	2	3	6	3	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°	1164.5	1164.5	1164.5	1164.5	1164.5	1164.5	1164.5	1164.5	1164.5	1164.5	1164.5
2.5°	1684.0	1668.5	1675.0	1657.8	1614.4	1605.4	1604.5	1593.1	1556.2	1527.5	1493.1
5°	2247.8	2247.0	2251.1	2214.2	2138.0	2114.3	2102.8	2074.9	1985.6	1916.8	1840.5
7.5°	2951.8	2946.8	2941.9	2874.7	2755.1	2709.2	2679.7	2578.9	2456.0	2333.9	2197.8
10°	3775.3	3772.9	3754.0	3636.0	3444.3	3359.9	3302.5	3142.7	2945.2	2771.5	2540.4
12.5°	4731.7	4709.5	4675.9	4503.0	4240.0	4148.2	4022.0	3768.8	3465.6	3199.2	2876.4
15°	5706.0	5674.1	5614.2	5392.2	5066.0	4909.5	4753.0	4419.4	4008.1	3621.3	3207.4
17.5°	6659.1	6623.8	6483.7	6106.8	5788.0	5597.0	5423.3	4965.2	4481.7	3984.3	3459.8
20°	8035.8	7908.0	7663.8	7069.6	6477.2	6133.0	5929.7	5445.4	4847.2	4267.8	3639.3
22.5°	9874.7	9591.2	9070.8	8105.5	7258.9	6762.3	6429.6	5785.5	5110.3	4453.0	3749.9
25°	11371.1	11242.4	10650.8	9277.3	7956.3	7371.2	6908.2	6055.9	5302.0	4576.8	3800.7
27.5°	12335.6	12303.6	11627.6	10247.6	8525.9	7758.0	7240.9	6234.6	5394.6	4603.0	3776.2
30°	12633.9	12683.9	12034.9	10577.0	8690.6	7835.9	7270.4	6237.1	5323.3	4484.2	3618.8
32.5°	12611.8	12614.2	11818.5	10292.6	8422.6	7609.7	7024.6	6029.7	5060.3	4186.7	3319.7
35°	12095.5	11968.5	11068.7	9419.1	7799.0	7081.9	6537.8	5628.2	4626.8	3739.3	2897.7
37.5°	10962.2	10795.8	9746.9	8300.5	7060.6	6397.7	5958.4	5101.3	4110.5	3261.5	2461.7
40°	9365.0	9129.0	8263.6	7260.6	6252.6	5754.4	5385.6	4512.0	3558.2	2792.8	2052.8
42.5°	7766.2	7650.7	7078.7	6263.3	5573.3	5104.5	4719.4	3895.0	3027.2	2330.6	1535.7
45°	6528.8	6429.6	6045.3	5507.7	4830.8	4403.1	4031.8	3251.7	2351.9	1563.6	789.2
47.5°	5627.4	5547.0	5179.1	4614.5	3872.0	3404.1	3021.4	2132.3	1332.5	675.3	197.5
50°	4060.5	3978.6	3618.0	2964.1	2293.7	1902.0	1626.7	952.2	377.8	136.9	20.5
52.5°	1990.5	1923.3	1678.3	1256.3	843.2	606.4	443.3	178.6	43.4	14.8	9.8
55°	504.0	463.0	386.0	242.6	118.8	71.3	45.9	16.4	10.7	8.2	5.7
57.5°	28.7	27.9	25.4	18.8	13.9	12.3	10.7	8.2	5.7	4.9	4.1
60°	11.5	10.7	9.8	8.2	6.6	5.7	5.7	4.1	3.3	3.3	3.3
62.5°	4.9	4.9	4.9	4.1	3.3	3.3	3.3	2.5	3.3	3.3	3.3
65°	2.5	2.5	2.5	1.6	1.6	1.6	2.5	2.5	2.5	3.3	3.3
67.5°	1.6	0.8	0.8	0.8	1.6	1.6	1.6	2.5	2.5	3.3	3.3
70°	0.8	0.8	0.8	0.8	1.6	1.6	1.6	2.5	2.5	3.3	4.1
72.5°	0.0	0.8	0.8	0.8	1.6	1.6	1.6	2.5	2.5	3.3	4.1
75°	0.0	0.8	0.8	0.8	1.6	1.6	1.6	2.5	3.3	3.3	4.1
77.5°	0.0	0.8	0.8	0.8	1.6	1.6	1.6	2.5	3.3	3.3	4.1
80°	0.0	0.8	0.8	0.8	1.6	1.6	1.6	2.5	3.3	3.3	4.1
82.5°	0.0	0.0	0.8	0.8	1.6	1.6	1.6	2.5	3.3	3.3	4.1
85°	0.0	0.0	0.8	0.8	1.6	1.6	1.6	2.5	3.3	3.3	4.1
87.5°	0.0	0.0	0.8	0.8	1.6	1.6	1.6	2.5	2.5	3.3	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°	1164.5	1164.5	1164.5	1164.5	1164.5	1164.5	1164.5	1164.5	1164.5	1164.5	1164.5
2.5°	1448.8	1419.3	1375.9	1347.2	1319.4	1293.1	1249.7	1225.1	1180.9	1139.9	1104.7
5°	1748.8	1675.0	1585.7	1509.5	1460.3	1412.0	1324.3	1259.5	1178.4	1105.5	1038.3
7.5°	2052.0	1921.7	1775.0	1649.6	1573.4	1498.8	1367.7	1262.8	1148.1	1044.0	944.9
10°	2327.3	2131.5	1924.1	1744.7	1641.4	1544.7	1371.8	1232.5	1085.0	956.3	831.8
12.5°	2583.0	2315.0	2044.6	1810.2	1682.4	1566.0	1354.6	1184.1	1008.8	856.4	711.3
15°	2810.8	2466.6	2132.3	1847.9	1698.0	1560.3	1314.4	1116.1	918.6	748.2	564.6
17.5°	2983.7	2560.9	2170.8	1842.2	1670.1	1516.9	1245.6	1030.9	822.8	616.2	408.9
20°	3088.6	2601.0	2162.6	1797.9	1610.3	1448.0	1163.7	938.3	707.2	473.7	360.6
22.5°	3132.9	2597.7	2124.1	1731.6	1536.5	1372.6	1085.0	848.2	585.9	428.6	376.1
25°	3140.2	2564.1	2070.0	1658.6	1463.6	1300.5	1005.5	745.7	508.9	440.9	421.2
27.5°	3083.7	2485.5	1968.4	1553.7	1361.2	1192.3	886.7	592.5	477.8	439.2	452.4
30°	2916.5	2306.0	1788.9	1369.3	1183.3	1014.5	633.5	464.6	396.6	399.1	402.4
32.5°	2622.3	2007.7	1500.5	1099.7	896.5	668.7	394.2	310.6	301.6	301.6	299.9
35°	2229.8	1643.1	1177.6	695.7	445.8	321.2	204.1	204.9	200.8	200.0	199.1
37.5°	1824.2	1296.4	745.7	287.6	193.4	134.4	120.5	122.1	120.5	122.9	121.3
40°	1438.2	800.6	272.1	91.8	68.0	65.6	67.2	68.8	68.8	70.5	70.5
42.5°	835.9	265.5	71.3	36.9	36.9	35.2	36.1	37.7	38.5	39.3	38.5
45°	248.3	54.9	22.9	20.5	20.5	19.7	19.7	20.5	21.3	22.1	22.1
47.5°	39.3	15.6	13.1	11.5	11.5	11.5	11.5	11.5	12.3	12.3	13.1
50°	12.3	9.8	8.2	7.4	7.4	6.6	6.6	7.4	7.4	7.4	8.2
52.5°	7.4	5.7	5.7	4.9	5.7	5.7	4.9	5.7	5.7	5.7	6.6
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	6.6
77.5°	4.9	4.9	5.7	5.7	5.7	5.7	5.7	5.7	6.6	6.6	6.6
80°	4.9	4.9	5.7	5.7	5.7	5.7	5.7	6.6	6.6	6.6	6.6
82.5°	4.9	4.9	5.7	5.7	5.7	5.7	5.7	6.6	6.6	6.6	6.6
85°	4.9	4.9	5.7	5.7	5.7	5.7	5.7	6.6	6.6	6.6	6.6
87.5°	4.9	4.9	5.7	5.7	5.7	5.7	5.7	6.6	6.6	6.6	6.6
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°	1164.5	1164.5	1164.5	1164.5	1164.5	1164.5	1164.5	1164.5	1164.5	1164.5	1164.5
2.5°	1074.3	1036.6	1018.6	993.2	975.2	935.0	918.6	890.8	867.8	830.1	832.6
5°	980.9	909.6	861.3	823.6	797.4	733.4	690.8	645.7	604.8	554.0	535.1
7.5°	851.4	763.8	690.0	644.9	611.3	526.1	431.9	358.1	302.4	262.2	246.7
10°	722.0	608.1	490.9	421.2	372.9	290.9	249.1	229.5	211.4	189.3	174.5
12.5°	571.2	408.9	302.4	274.5	254.9	227.8	200.8	179.5	183.6	184.4	190.1
15°	390.1	294.2	260.6	241.7	220.4	204.9	213.9	219.6	230.3	231.1	238.5
17.5°	317.1	276.2	249.1	248.3	249.9	259.0	272.9	280.3	294.2	297.5	308.1
20°	317.1	293.4	316.3	316.3	320.4	332.7	350.7	361.4	377.0	382.7	395.8
22.5°	361.4	377.8	406.5	409.7	411.4	424.5	447.4	458.1	476.1	479.4	493.3
25°	440.9	455.6	481.9	484.3	485.1	495.0	512.2	517.9	530.2	523.6	531.8
27.5°	466.3	472.8	489.2	490.9	486.8	490.9	497.4	497.4	501.5	488.4	490.9
30°	409.7	411.4	419.6	420.4	411.4	413.0	413.8	413.0	412.2	398.3	398.3
32.5°	304.0	304.0	314.7	312.2	302.4	304.8	304.8	304.8	304.0	292.6	290.9
35°	201.6	202.4	211.4	209.8	202.4	204.1	204.1	206.5	204.1	197.5	195.9
37.5°	122.9	123.7	127.8	128.7	126.2	127.0	127.8	127.0	128.7	125.4	123.7
40°	71.3	72.9	76.2	77.0	76.2	76.2	77.0	77.9	81.1	77.0	75.4
42.5°	41.8	42.6	44.3	44.3	44.3	44.3	45.1	45.9	46.7	45.9	45.1
45°	23.8	24.6	25.4	25.4	26.2	25.4	26.2	26.2	27.0	26.2	26.2
47.5°	13.9	13.9	14.8	14.8	15.6	14.8	15.6	15.6	15.6	14.8	14.8
50°	8.2	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	8.2	8.2
52.5°	6.6	6.6	6.6	6.6	6.6	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	3.3	3.3
57.5°	4.9	5.7	5.7	5.7	5.7	4.9	4.9	4.1	3.3	2.5	2.5
60°	5.7	5.7	5.7	5.7	4.9	4.9	4.9	4.1	3.3	2.5	2.5
62.5°	5.7	5.7	5.7	5.7	5.7	4.9	4.9	4.1	3.3	2.5	2.5
65°	5.7	5.7	5.7	5.7	5.7	4.9	4.9	4.1	3.3	2.5	2.5
67.5°	5.7	5.7	5.7	5.7	5.7	4.9	4.9	4.1	3.3	3.3	2.5
70°	5.7	6.6	6.6	5.7	5.7	5.7	4.9	4.1	4.1	3.3	2.5
72.5°	5.7	6.6	6.6	5.7	5.7	5.7	4.9	4.1	4.1	3.3	2.5
75°	6.6	6.6	6.6	6.6	5.7	5.7	4.9	4.9	4.1	3.3	2.5
77.5°	6.6	6.6	6.6	6.6	5.7	5.7	4.9	4.9	4.1	3.3	2.5
80°	6.6	6.6	6.6	6.6	6.6	5.7	5.7	4.9	4.1	3.3	3.3
82.5°	6.6	6.6	6.6	6.6	6.6	5.7	5.7	4.9	4.1	3.3	3.3
85°	6.6	6.6	6.6	6.6	6.6	5.7	5.7	4.9	4.1	3.3	2.5
87.5°	6.6	6.6	6.6	6.6	5.7	5.7	4.9	4.9	4.1	3.3	2.5
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: P209024

CATALOG NUMBER: LDSQA6A65927D010TE LARH20SP 6LSQA1H 30°

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	1164.5	1164.5	1164.5	1164.5	1164.5	1164.5	1164.5	1164.5
2.5°	802.3	783.4	775.2	788.3	781.8	762.1	766.2	753.9
5°	478.6	449.9	431.9	440.1	413.8	390.1	390.1	372.9
7.5°	231.1	222.1	217.2	218.8	213.1	205.7	201.6	201.6
10°	162.3	159.0	159.8	159.8	164.7	163.9	166.4	165.5
12.5°	192.6	194.2	195.0	198.3	202.4	202.4	204.9	203.2
15°	246.7	245.0	249.9	250.8	257.3	258.1	261.4	258.1
17.5°	313.9	317.1	322.1	321.2	334.3	335.2	335.2	334.3
20°	404.0	406.5	411.4	413.0	428.6	430.2	436.0	436.8
22.5°	502.3	502.3	504.8	508.1	522.8	523.6	526.1	526.1
25°	535.9	531.0	531.8	535.9	544.1	540.9	543.3	541.7
27.5°	492.5	485.1	483.5	489.2	495.0	486.0	489.2	489.2
30°	399.9	393.3	391.7	397.4	401.5	391.7	395.0	396.6
32.5°	292.6	288.5	287.6	291.7	295.0	286.8	290.1	292.6
35°	197.5	195.9	194.2	195.0	200.0	193.4	196.7	198.3
37.5°	125.4	122.1	122.9	124.6	127.8	123.7	127.0	127.0
40°	77.0	75.4	75.4	77.0	78.7	75.4	77.0	77.9
42.5°	45.1	45.1	45.1	45.9	46.7	45.1	45.1	45.9
45°	26.2	25.4	25.4	26.2	27.0	25.4	26.2	26.2
47.5°	14.8	13.9	13.9	14.8	14.8	13.9	14.8	14.8
50°	8.2	7.4	7.4	8.2	8.2	7.4	7.4	7.4
52.5°	4.1	4.1	4.1	4.1	4.1	4.1	3.3	3.3
55°	2.5	2.5	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°	2.5	1.6	1.6	0.8	0.8	0.8	0.0	0.0
72.5°	2.5	1.6	1.6	1.6	0.8	0.8	0.0	0.0
75°	2.5	1.6	1.6	1.6	0.8	0.8	0.0	0.0
77.5°	2.5	1.6	1.6	1.6	0.8	0.8	0.8	0.0
80°	2.5	1.6	1.6	1.6	0.8	0.8	0.8	0.8
82.5°	2.5	1.6	1.6	1.6	0.8	0.8	0.8	0.8
85°	2.5	1.6	1.6	1.6	0.8	0.8	0.8	0.0
87.5°	2.5	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)