

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: P209005

Luminaire Tested: **LDSQA6A45830D010TE LARH20SP 6LSQA1H 30°**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P209005
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: LDSQA6A45830D010TE 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: 4127.3 lumens
Efficiency: N/A
Efficacy: 75.9 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

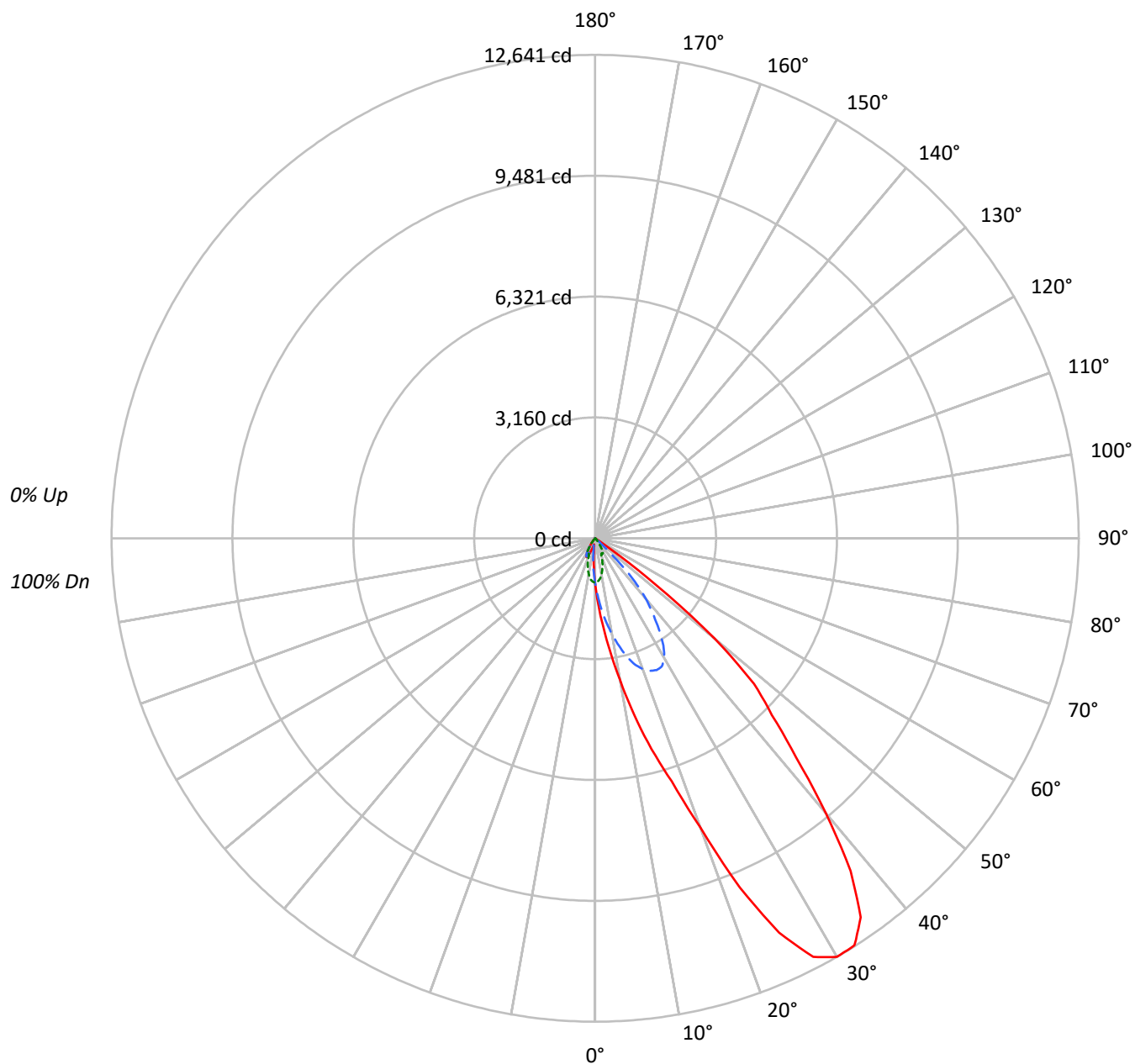
Input Watts (W): 54.4
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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°	50168	50168	50168
5°	97211	47806	16125
10°	165156	41836	7240
15°	254494	33368	11514
20°	368411	21714	20023
25°	540521	20955	25749
30°	628485	19852	19732
35°	636133	10518	10428
40°	526671	3962	4378
45°	397775	1346	1595
50°	272144	496	496
55°	37855	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°	516.7	12.5
20°-30°	1178.7	28.6
30°-40°	1364.1	33.1
40°-50°	822.6	19.9
50°-60°	111.8	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°	1817.7	44.0
0°-40°	3181.7	77.1
0°-60°	4116.1	99.7
0°-90°	4127.3	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	4127.3	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	1165	1165	1165	1165	1165	
5°	2249	1842	1106	605	373	262
15°	5709	3209	749	230	258	1690
25°	11378	3803	441	530	542	5149
35°	12103	2899	200	204	198	7294
45°	6533	790	22	27	26	5108
55°	504	6	6	4	1	989
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°	1165.2	1165.2	1165.2	1165.2	1165.2	1165.2	1165.2	1165.2	1165.2	1165.2	1165.2
2.5°	1685.0	1669.4	1676.0	1658.8	1615.3	1606.3	1605.5	1594.0	1557.1	1528.4	1494.0
5°	2249.2	2248.3	2252.4	2215.5	2139.3	2115.5	2104.0	2076.1	1986.8	1917.9	1841.6
7.5°	2953.5	2948.6	2943.7	2876.4	2756.7	2710.8	2681.3	2580.4	2457.4	2335.3	2199.1
10°	3777.6	3775.1	3756.3	3638.2	3446.3	3361.9	3304.5	3144.6	2947.0	2773.1	2541.9
12.5°	4734.5	4712.3	4678.7	4505.7	4242.5	4150.7	4024.4	3771.0	3467.6	3201.1	2878.1
15°	5709.4	5677.4	5617.6	5395.4	5069.0	4912.4	4755.8	4422.1	4010.4	3623.4	3209.3
17.5°	6663.0	6627.8	6487.6	6110.4	5791.4	5600.4	5426.5	4968.2	4484.4	3986.7	3461.9
20°	8040.6	7912.7	7668.3	7073.8	6481.0	6136.6	5933.3	5448.7	4850.1	4270.4	3641.5
22.5°	9880.6	9596.9	9076.2	8110.3	7263.2	6766.3	6433.4	5788.9	5113.3	4455.7	3752.2
25°	11377.8	11249.1	10657.1	9282.8	7961.0	7375.6	6912.3	6059.5	5305.2	4579.5	3803.0
27.5°	12342.9	12310.9	11634.5	10253.7	8530.9	7762.6	7245.2	6238.3	5397.8	4605.7	3778.4
30°	12641.4	12691.4	12042.0	10583.3	8695.7	7840.5	7274.7	6240.7	5326.5	4486.8	3621.0
32.5°	12619.2	12621.7	11825.5	10298.7	8427.6	7614.2	7028.7	6033.3	5063.3	4189.2	3321.7
35°	12102.7	11975.6	11075.3	9424.7	7803.6	7086.1	6541.7	5631.5	4629.5	3741.5	2899.4
37.5°	10968.7	10802.2	9752.7	8305.4	7064.8	6401.5	5962.0	5104.3	4112.9	3263.5	2463.2
40°	9370.5	9134.4	8268.5	7264.9	6256.3	5757.8	5388.8	4514.7	3560.3	2794.4	2054.0
42.5°	7770.8	7655.2	7082.8	6267.0	5576.6	5107.6	4722.2	3897.3	3028.9	2332.0	1536.6
45°	6532.7	6433.4	6048.9	5511.0	4833.7	4405.7	4034.2	3253.6	2353.3	1564.5	789.6
47.5°	5630.7	5550.3	5182.2	4617.2	3874.3	3406.1	3023.2	2133.5	1333.3	675.7	197.6
50°	4062.9	3980.9	3620.1	2965.8	2295.1	1903.1	1627.6	952.8	378.0	136.9	20.5
52.5°	1991.7	1924.5	1679.3	1257.0	843.7	606.8	443.6	178.8	43.5	14.8	9.8
55°	504.3	463.3	386.2	242.7	118.9	71.3	45.9	16.4	10.7	8.2	5.7
57.5°	28.7	27.9	25.4	18.9	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°	1165.2	1165.2	1165.2	1165.2	1165.2	1165.2	1165.2	1165.2	1165.2	1165.2	1165.2
2.5°	1449.7	1420.2	1376.7	1348.0	1320.1	1293.9	1250.4	1225.8	1181.6	1140.6	1105.3
5°	1749.8	1676.0	1586.6	1510.4	1461.2	1412.8	1325.1	1260.3	1179.1	1106.1	1038.9
7.5°	2053.2	1922.8	1776.0	1650.6	1574.3	1499.7	1368.5	1263.6	1148.8	1044.6	945.4
10°	2328.7	2132.7	1925.3	1745.7	1642.4	1545.6	1372.6	1233.2	1085.6	956.9	832.3
12.5°	2584.5	2316.4	2045.8	1811.3	1683.4	1567.0	1355.4	1184.8	1009.4	856.9	711.7
15°	2812.5	2468.1	2133.5	1849.0	1699.0	1561.2	1315.2	1116.8	919.2	748.6	565.0
17.5°	2985.5	2562.4	2172.1	1843.3	1671.1	1517.8	1246.3	1031.5	823.2	616.6	409.2
20°	3090.4	2602.6	2163.9	1799.0	1611.2	1448.9	1164.3	938.9	707.6	473.9	360.8
22.5°	3134.7	2599.3	2125.3	1732.6	1537.4	1373.4	1085.6	848.7	586.3	428.8	376.4
25°	3142.1	2565.7	2071.2	1659.6	1464.5	1301.3	1006.1	746.2	509.2	441.1	421.5
27.5°	3085.5	2487.0	1969.6	1554.7	1362.0	1193.0	887.2	592.8	478.0	439.5	452.6
30°	2918.3	2307.4	1790.0	1370.2	1184.0	1015.1	633.8	464.9	396.9	399.3	402.6
32.5°	2623.9	2008.9	1501.4	1100.4	897.0	669.1	394.4	310.8	301.7	301.7	300.1
35°	2231.1	1644.0	1178.3	696.1	446.1	321.4	204.2	205.0	200.9	200.1	199.3
37.5°	1825.2	1297.2	746.2	287.8	193.5	134.5	120.5	122.2	120.5	123.0	121.4
40°	1439.0	801.1	272.2	91.8	68.1	65.6	67.2	68.9	68.9	70.5	70.5
42.5°	836.4	265.7	71.3	36.9	36.9	35.3	36.1	37.7	38.5	39.4	38.5
45°	248.4	54.9	23.0	20.5	20.5	19.7	19.7	20.5	21.3	22.1	22.1
47.5°	39.4	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°	1165.2	1165.2	1165.2	1165.2	1165.2	1165.2	1165.2	1165.2	1165.2	1165.2	1165.2
2.5°	1075.0	1037.3	1019.2	993.8	975.8	935.6	919.2	891.3	868.3	830.6	833.1
5°	981.5	910.2	861.8	824.1	797.8	733.9	691.2	646.1	605.1	554.3	535.4
7.5°	851.9	764.2	690.4	645.3	611.7	526.4	432.1	358.3	302.6	262.4	246.8
10°	722.4	608.4	491.2	421.5	373.1	291.1	249.3	229.6	211.6	189.4	174.7
12.5°	571.5	409.2	302.6	274.7	255.0	228.0	200.9	179.6	183.7	184.5	190.2
15°	390.3	294.4	260.7	241.9	220.6	205.0	214.0	219.8	230.4	231.2	238.6
17.5°	317.3	276.3	249.3	248.4	250.1	259.1	273.0	280.4	294.4	297.6	308.3
20°	317.3	293.5	316.5	316.5	320.6	332.9	350.9	361.6	377.2	382.9	396.0
22.5°	361.6	378.0	406.7	410.0	411.6	424.7	447.7	458.4	476.4	479.7	493.6
25°	441.1	455.9	482.1	484.6	485.4	495.3	512.5	518.2	530.5	524.0	532.2
27.5°	466.6	473.1	489.5	491.2	487.1	491.2	497.7	497.7	501.8	488.7	491.2
30°	410.0	411.6	419.8	420.6	411.6	413.3	414.1	413.3	412.4	398.5	398.5
32.5°	304.2	304.2	314.9	312.4	302.6	305.0	305.0	305.0	304.2	292.7	291.1
35°	201.7	202.5	211.6	209.9	202.5	204.2	204.2	206.6	204.2	197.6	196.0
37.5°	123.0	123.8	127.9	128.7	126.3	127.1	127.9	127.1	128.7	125.5	123.8
40°	71.3	73.0	76.3	77.1	76.3	76.3	77.1	77.9	81.2	77.1	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	27.1	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: P209005

CATALOG NUMBER: LDSQA6A45830D010TE LARH20SP 6LSQA1H 30°

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	1165.2	1165.2	1165.2	1165.2	1165.2	1165.2	1165.2	1165.2
2.5°	802.7	783.9	775.7	788.8	782.2	762.6	766.7	754.4
5°	478.9	450.2	432.1	440.3	414.1	390.3	390.3	373.1
7.5°	231.2	222.2	217.3	218.9	213.2	205.8	201.7	201.7
10°	162.4	159.1	159.9	159.9	164.8	164.0	166.5	165.6
12.5°	192.7	194.3	195.2	198.4	202.5	202.5	205.0	203.4
15°	246.8	245.2	250.1	250.9	257.5	258.3	261.6	258.3
17.5°	314.0	317.3	322.2	321.4	334.5	335.4	335.4	334.5
20°	404.2	406.7	411.6	413.3	428.8	430.5	436.2	437.0
22.5°	502.6	502.6	505.1	508.4	523.1	524.0	526.4	526.4
25°	536.3	531.3	532.2	536.3	544.5	541.2	543.6	542.0
27.5°	492.8	485.4	483.8	489.5	495.3	486.2	489.5	489.5
30°	400.1	393.6	391.9	397.7	401.8	391.9	395.2	396.9
32.5°	292.7	288.6	287.8	291.9	295.2	287.0	290.3	292.7
35°	197.6	196.0	194.3	195.2	200.1	193.5	196.8	198.4
37.5°	125.5	122.2	123.0	124.6	127.9	123.8	127.1	127.1
40°	77.1	75.4	75.4	77.1	78.7	75.4	77.1	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	27.1	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)