

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: P209036

Luminaire Tested: **LDSQA6A45827D010TE LARH30NF 6LSQA1H 30°**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P209036
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (P26687)
Test Lab: INNOVATION CENTER-P2
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: io LED
Catalog Number: LDSQA6A45827D010TE LARH30NF 6LSQA1H 30°
Description: PORTFOLIO 6" SQUARE ADJUSTABLE REFLECTOR, ANGLE-CUT TRIM,
SELF-FLANGED, 30° NARROW FLOOD, 30° Tilt
Light Source: (1) HIGH LUMEN LED 80CRI / 2700K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 4403.3 lumens
Efficiency: N/A
Efficacy: 80.9 lumens/watt
Spacing Criteria (0/90/45): 2.58 / 0.47 / 1.37
Luminous Opening: Rectangular (W 0.5' x L: 0.5' x H: 0')
CIE Type: Direct

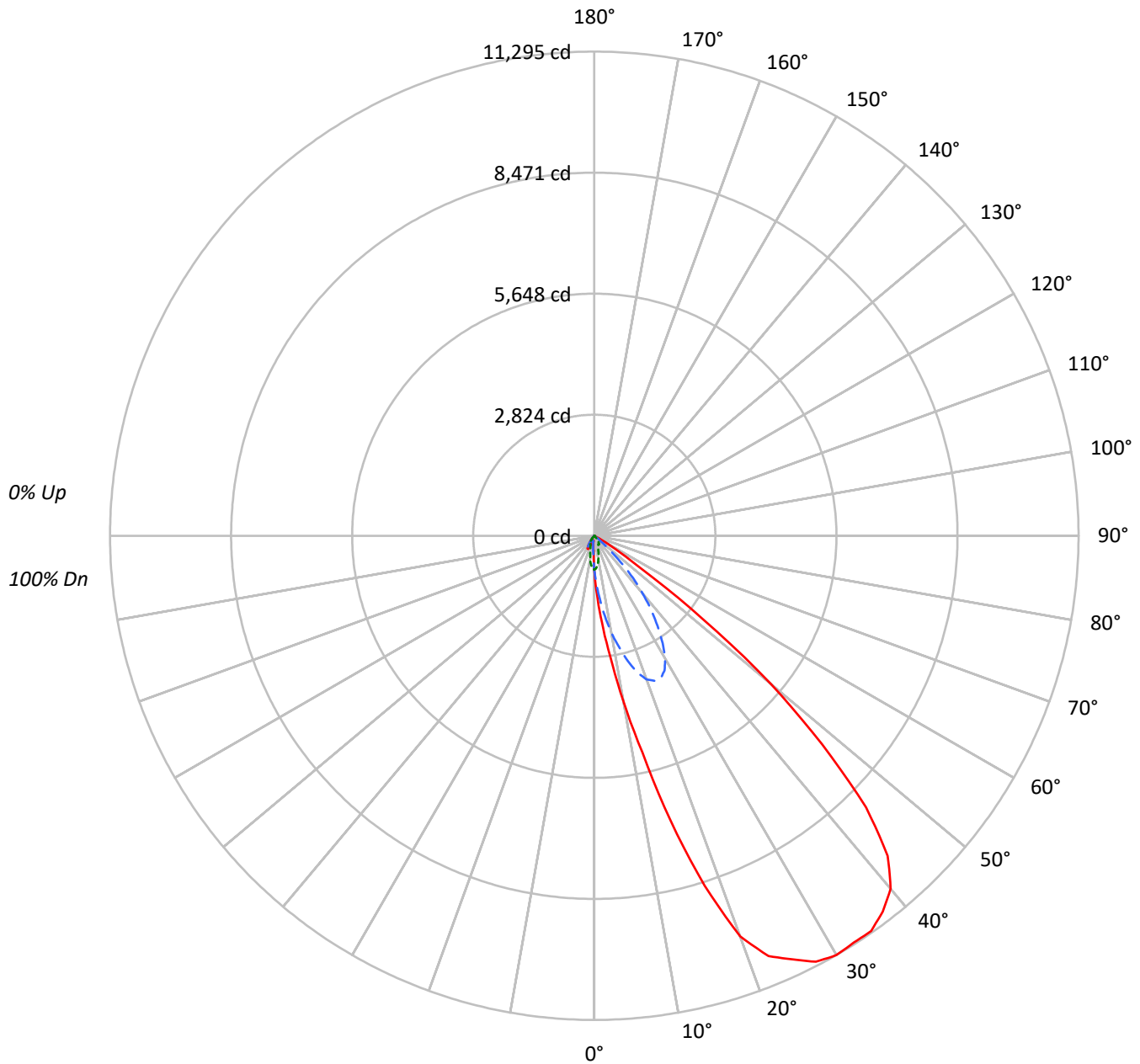
Input Watts (W): 54.4
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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	30	10
RCR																					
0	119	119	119	119		116	116	116	116		111	111	111		106	106	106		102	102	102
1	112	109	106	103		110	107	104	102		103	100	98		99	97	95		95	94	93
2	105	99	94	90		103	97	93	89		94	90	87		91	88	85		88	85	83
3	98	90	84	79		96	89	83	78		86	81	77		83	79	76		81	77	74
4	91	82	75	70		89	81	74	69		78	73	68		76	71	67		74	70	67
5	85	74	67	62		83	73	67	61		71	65	61		70	64	60		68	63	60
6	79	68	60	55		77	67	60	55		65	59	54		64	58	54		62	57	54
7	74	62	55	49		72	61	54	49		60	53	49		59	53	49		57	52	48
8	69	57	49	44		67	56	49	44		55	49	44		54	48	44		53	47	43
9	64	52	45	40		63	52	45	40		51	44	40		50	44	40		49	43	39
10	60	48	41	36		59	48	41	36		47	40	36		46	40	36		45	40	36

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	34199	34199	34199
5°	87724	31110	9690
10°	171002	23910	4656
15°	306967	16238	6245
20°	455747	12325	10309
25°	518027	10157	16167
30°	561547	11107	15208
35°	591493	7196	9424
40°	604284	3192	4592
45°	545787	1218	1705
50°	359275	482	482
55°	98388	420	0
60°	19651	482	0
65°	1386	652	0
70°	201	806	0
75°	0	1198	0
80°	0	1785	198
85°	0	3557	395



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	97.3	2.2
10°-20°	516.9	11.7
20°-30°	1171.5	26.6
30°-40°	1406.3	31.9
40°-50°	991.1	22.5
50°-60°	204.5	4.6
60°-70°	7.2	0.2
70°-80°	4.3	0.1
80°-90°	4.2	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°	1785.7	40.6
0°-40°	3192.0	72.5
0°-60°	4387.5	99.6
0°-90°	4403.3	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	4403.3	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	794	794	794	794	794	
5°	2030	1479	720	300	224	250
15°	6887	3030	364	130	140	2044
25°	10904	3665	214	300	340	5032
35°	11253	2566	137	179	179	6996
45°	8964	880	20	27	28	6592
55°	1311	18	6	4	0	1727
65°	14	4	6	4	0	40
75°	0	4	7	5	0	0
85°	0	5	7	5	1	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°	794.3	794.3	794.3	794.3	794.3	794.3	794.3	794.3	794.3	794.3	794.3
2.5°	1353.9	1313.1	1329.1	1281.9	1271.5	1262.7	1271.5	1220.2	1191.4	1154.6	1124.9
5°	2029.7	1980.9	1992.1	1909.6	1872.0	1846.3	1841.5	1735.9	1656.6	1569.3	1478.8
7.5°	2825.6	2779.1	2772.7	2644.6	2566.9	2522.9	2504.5	2353.2	2216.3	2060.9	1891.2
10°	3911.3	3805.6	3772.8	3587.0	3438.9	3345.2	3229.9	2988.1	2747.9	2513.3	2297.1
12.5°	5174.7	5117.1	5035.4	4707.9	4448.5	4315.6	4143.5	3765.5	3402.0	3014.5	2652.6
15°	6886.6	6681.6	6542.3	6069.1	5651.1	5446.2	5194.7	4616.7	4067.4	3576.6	3029.7
17.5°	8559.2	8451.9	8234.1	7620.0	6976.2	6652.8	6278.0	5492.6	4716.7	4018.6	3350.8
20°	9946.7	9845.8	9597.6	9018.7	8304.5	7827.3	7355.7	6278.0	5264.4	4370.9	3565.4
22.5°	10611.3	10547.2	10344.6	9849.0	9240.5	8786.5	8279.7	6946.6	5669.5	4601.4	3663.1
25°	10904.3	10874.7	10744.2	10353.5	9780.2	9395.1	8916.3	7419.8	5921.7	4708.7	3664.7
27.5°	11201.4	11207.0	10918.7	10609.7	10066.0	9696.1	9234.9	7629.6	5967.4	4648.7	3544.6
30°	11295.0	11235.8	11108.5	10664.9	10148.5	9755.4	9260.5	7532.7	5780.0	4402.1	3305.2
32.5°	11256.6	11233.4	11093.3	10624.1	10008.4	9575.2	9013.1	7148.4	5410.1	4049.8	2965.7
35°	11253.4	11210.2	10889.1	10486.4	9728.1	9193.3	8452.7	6527.1	4886.5	3585.4	2566.1
37.5°	11050.0	10942.7	10701.7	10158.9	9159.7	8481.5	7651.2	5768.0	4245.9	3064.2	2169.8
40°	10751.4	10607.3	10290.2	9468.7	8174.8	7393.4	6583.1	4905.7	3567.8	2550.1	1748.7
42.5°	10127.7	9909.9	9461.5	8331.8	6862.5	6157.9	5483.8	4032.2	2909.6	2077.7	1334.7
45°	8963.5	8665.6	8059.5	6819.3	5543.8	4969.0	4426.9	3244.3	2329.1	1541.3	879.9
47.5°	7204.4	6928.2	6376.5	5428.5	4347.6	3861.6	3429.3	2413.2	1578.9	892.7	420.4
50°	5363.7	5126.7	4695.9	3772.8	2918.4	2536.5	2166.6	1370.7	739.8	424.4	174.5
52.5°	3200.3	3082.6	2700.7	2092.1	1441.2	1241.8	996.8	580.5	373.1	153.7	47.2
55°	1310.7	1209.8	1066.5	855.9	626.9	531.6	454.8	286.6	116.1	32.0	17.6
57.5°	592.5	570.1	505.2	397.1	288.2	241.8	163.3	54.4	25.6	16.0	10.4
60°	228.2	205.8	176.1	95.3	40.8	34.4	28.0	18.4	12.8	8.8	6.4
62.5°	32.8	31.2	28.0	22.4	17.6	16.0	13.6	9.6	7.2	5.6	4.8
65°	13.6	13.6	12.0	9.6	8.0	7.2	6.4	4.8	4.0	4.0	4.0
67.5°	5.6	5.6	4.8	4.0	3.2	3.2	3.2	2.4	3.2	3.2	4.0
70°	1.6	1.6	1.6	1.6	1.6	1.6	2.4	2.4	3.2	3.2	4.0
72.5°	0.0	0.0	0.8	0.8	1.6	1.6	1.6	2.4	3.2	4.0	4.0
75°	0.0	0.0	0.8	0.8	1.6	1.6	1.6	2.4	3.2	4.0	4.0
77.5°	0.0	0.0	0.8	0.8	1.6	1.6	2.4	2.4	3.2	4.0	4.0
80°	0.0	0.0	0.8	0.8	1.6	1.6	2.4	2.4	3.2	4.0	4.8
82.5°	0.0	0.0	0.8	0.8	1.6	1.6	2.4	2.4	3.2	4.0	4.8
85°	0.0	0.0	0.8	0.8	1.6	1.6	2.4	2.4	3.2	4.0	4.8
87.5°	0.0	0.0	0.8	0.8	1.6	1.6	2.4	2.4	3.2	4.0	4.8
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°	794.3	794.3	794.3	794.3	794.3	794.3	794.3	794.3	794.3	794.3	794.3
2.5°	1099.3	1048.1	1033.7	988.8	951.2	932.8	909.6	857.5	818.3	766.2	735.0
5°	1415.6	1318.7	1241.8	1148.2	1086.5	1046.5	984.0	888.7	811.9	719.8	654.1
7.5°	1757.5	1580.5	1442.0	1287.5	1198.6	1128.9	1022.5	885.5	772.6	650.1	548.5
10°	2087.3	1823.1	1605.3	1383.6	1266.7	1169.8	1023.3	851.1	701.4	546.9	439.6
12.5°	2378.0	2036.9	1730.2	1445.2	1300.3	1179.4	996.0	789.5	608.5	450.0	355.5
15°	2620.6	2202.6	1818.3	1468.4	1302.7	1158.6	939.2	701.4	505.2	364.3	297.8
17.5°	2804.7	2289.9	1845.5	1440.4	1256.2	1099.3	851.9	590.1	409.9	309.1	250.6
20°	2900.0	2306.7	1806.3	1364.3	1170.6	1009.6	737.4	478.8	347.5	269.0	209.8
22.5°	2912.0	2259.5	1712.6	1255.4	1062.5	900.8	610.9	399.5	309.9	237.8	185.0
25°	2840.8	2157.0	1578.9	1132.1	944.0	775.8	497.2	357.9	281.8	213.8	213.0
27.5°	2688.6	1980.9	1418.8	988.8	800.7	630.9	422.0	323.5	251.4	226.6	241.0
30°	2474.1	1755.1	1221.8	807.9	625.3	485.2	355.5	266.6	221.0	223.4	235.4
32.5°	2183.4	1474.8	990.4	591.7	447.6	365.1	266.6	181.8	183.4	184.2	194.6
35°	1818.3	1182.6	739.8	397.9	314.7	257.0	150.5	133.7	136.1	136.9	144.1
37.5°	1457.2	908.8	491.6	265.0	197.8	135.3	93.7	89.7	91.3	90.5	98.5
40°	1116.1	633.3	294.6	131.3	76.1	63.3	57.6	55.2	56.0	56.8	61.7
42.5°	790.3	343.5	145.7	49.6	40.0	36.8	34.4	32.8	33.6	33.6	36.8
45°	401.1	162.5	49.6	27.2	24.8	22.4	20.8	20.0	20.0	20.0	21.6
47.5°	173.7	53.6	23.2	16.8	15.2	14.4	12.8	12.0	12.0	12.0	12.8
50°	54.4	21.6	14.4	11.2	9.6	8.8	8.0	8.0	8.0	7.2	8.0
52.5°	20.0	13.6	9.6	7.2	6.4	6.4	6.4	5.6	6.4	5.6	6.4
55°	12.0	8.8	6.4	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6
57.5°	8.0	6.4	5.6	5.6	4.8	4.8	5.6	5.6	5.6	5.6	5.6
60°	5.6	5.6	4.8	4.8	4.8	4.8	5.6	5.6	5.6	5.6	5.6
62.5°	4.8	4.8	4.8	4.8	4.8	4.8	5.6	5.6	5.6	5.6	6.4
65°	4.0	4.8	4.8	4.8	4.8	4.8	5.6	5.6	6.4	6.4	6.4
67.5°	4.0	4.8	4.8	5.6	5.6	5.6	5.6	6.4	6.4	6.4	6.4
70°	4.8	4.8	5.6	5.6	5.6	5.6	6.4	6.4	6.4	6.4	7.2
72.5°	4.8	4.8	5.6	5.6	5.6	5.6	6.4	6.4	7.2	7.2	7.2
75°	4.8	5.6	5.6	5.6	5.6	6.4	6.4	6.4	7.2	7.2	7.2
77.5°	4.8	5.6	5.6	6.4	6.4	6.4	6.4	7.2	7.2	7.2	7.2
80°	4.8	5.6	5.6	6.4	6.4	6.4	7.2	7.2	7.2	7.2	8.0
82.5°	4.8	5.6	5.6	6.4	6.4	6.4	7.2	7.2	7.2	7.2	8.0
85°	5.6	5.6	6.4	6.4	6.4	6.4	7.2	7.2	7.2	7.2	8.0
87.5°	5.6	5.6	6.4	6.4	6.4	6.4	7.2	7.2	8.0	7.2	8.0
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°	794.3	794.3	794.3	794.3	794.3	794.3	794.3	794.3	794.3	794.3	794.3
2.5°	693.4	646.9	614.9	602.9	579.7	542.9	521.2	501.2	463.6	455.6	434.8
5°	578.9	504.4	451.6	431.6	405.1	373.9	343.5	323.5	299.5	289.8	275.4
7.5°	456.4	381.9	336.3	320.3	301.9	276.2	249.0	229.0	204.2	191.4	179.3
10°	358.7	303.5	265.0	249.0	229.8	202.6	174.5	148.1	126.5	112.9	110.5
12.5°	291.4	245.8	205.0	188.2	165.7	138.5	118.5	117.7	116.1	115.3	116.9
15°	238.6	194.6	151.3	132.9	126.5	125.7	128.1	130.5	129.7	132.1	133.7
17.5°	196.2	148.9	139.3	140.1	140.9	143.3	147.3	153.7	154.5	158.5	161.7
20°	160.1	157.7	161.7	164.9	167.3	172.1	181.0	189.0	191.4	197.0	203.4
22.5°	181.8	189.0	197.8	201.8	205.0	213.8	223.4	236.2	241.0	248.2	257.0
25°	219.4	231.4	245.0	249.8	254.6	269.0	280.2	295.4	299.5	308.3	317.1
27.5°	250.6	263.4	277.8	284.2	288.2	302.7	312.3	321.9	321.9	326.7	333.1
30°	245.8	256.2	268.2	273.0	274.6	285.0	294.6	297.8	296.2	298.6	303.5
32.5°	204.2	212.2	221.8	225.8	227.4	234.6	242.6	242.6	241.8	241.8	245.0
35°	151.3	156.9	161.7	165.7	168.1	172.9	180.2	179.3	179.3	177.7	180.2
37.5°	101.7	104.9	110.5	112.1	112.9	116.1	121.7	121.7	120.1	120.9	122.5
40°	61.7	65.7	68.9	69.7	71.3	73.7	77.7	77.7	77.7	77.7	78.5
42.5°	36.8	39.2	41.6	41.6	42.4	45.6	47.2	47.2	47.2	47.2	48.0
45°	21.6	22.4	24.0	24.8	24.8	26.4	27.2	27.2	27.2	27.2	28.0
47.5°	12.8	13.6	13.6	14.4	14.4	15.2	16.0	16.0	15.2	15.2	15.2
50°	8.0	8.0	8.0	8.0	8.8	8.8	8.8	8.8	8.8	8.8	8.0
52.5°	6.4	6.4	6.4	6.4	5.6	5.6	5.6	5.6	4.8	4.8	4.0
55°	5.6	5.6	5.6	5.6	5.6	4.8	4.8	4.8	4.0	3.2	2.4
57.5°	5.6	5.6	5.6	5.6	5.6	4.8	4.8	4.0	3.2	3.2	2.4
60°	5.6	5.6	5.6	5.6	5.6	4.8	4.8	4.0	3.2	3.2	2.4
62.5°	6.4	6.4	5.6	5.6	5.6	4.8	4.8	4.0	4.0	3.2	2.4
65°	6.4	6.4	5.6	5.6	5.6	5.6	4.8	4.8	4.0	3.2	2.4
67.5°	6.4	6.4	6.4	6.4	5.6	5.6	5.6	4.8	4.0	3.2	2.4
70°	7.2	7.2	6.4	6.4	6.4	5.6	5.6	4.8	4.0	4.0	3.2
72.5°	7.2	7.2	6.4	6.4	6.4	6.4	5.6	4.8	4.8	4.0	3.2
75°	7.2	7.2	7.2	7.2	6.4	6.4	5.6	5.6	4.8	4.0	3.2
77.5°	7.2	7.2	7.2	7.2	6.4	6.4	6.4	5.6	4.8	4.0	3.2
80°	7.2	7.2	7.2	7.2	7.2	6.4	6.4	5.6	4.8	4.0	3.2
82.5°	8.0	8.0	7.2	7.2	7.2	6.4	6.4	5.6	4.8	4.0	4.0
85°	8.0	8.0	7.2	7.2	7.2	6.4	6.4	5.6	4.8	4.8	4.0
87.5°	8.0	8.0	7.2	7.2	7.2	6.4	6.4	5.6	4.8	4.8	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



TEST NUMBER: P209036

CATALOG NUMBER: LDSQA6A45827D010TE LARH30NF 6LSQA1H 30°

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	794.3	794.3	794.3	794.3	794.3	794.3	794.3	794.3
2.5°	422.0	397.9	389.9	395.5	389.1	384.3	377.9	374.7
5°	264.2	246.6	241.0	242.6	237.0	232.2	225.8	224.2
7.5°	162.5	145.7	139.3	139.3	132.9	127.3	123.3	120.9
10°	108.9	105.7	106.5	107.3	106.5	107.3	104.9	106.5
12.5°	116.9	115.3	116.9	117.7	117.7	119.3	116.1	118.5
15°	136.1	134.5	136.9	138.5	138.5	140.9	137.7	140.1
17.5°	166.5	165.7	169.7	171.3	172.1	176.1	172.1	175.3
20°	210.6	209.8	215.4	217.8	217.0	225.0	219.4	225.0
22.5°	267.4	265.8	273.8	276.2	277.0	287.4	282.6	286.6
25°	324.3	325.9	329.9	333.9	334.7	343.5	336.3	340.3
27.5°	336.3	333.9	336.3	341.1	341.9	345.9	339.5	342.7
30°	304.3	300.3	301.1	306.7	308.3	309.9	304.3	305.9
32.5°	247.4	241.0	241.0	246.6	248.2	250.6	241.0	245.0
35°	182.6	176.9	176.9	181.0	181.8	183.4	176.1	179.3
37.5°	124.9	120.1	121.7	123.3	124.1	125.7	124.9	124.1
40°	80.1	76.9	79.3	79.3	80.1	80.9	80.9	81.7
42.5°	48.8	46.4	48.0	48.0	48.8	48.8	48.8	49.6
45°	28.0	27.2	27.2	28.0	28.0	28.0	27.2	28.0
47.5°	15.2	14.4	15.2	15.2	15.2	15.2	15.2	15.2
50°	8.0	7.2	7.2	7.2	7.2	7.2	7.2	7.2
52.5°	4.0	3.2	3.2	3.2	2.4	3.2	2.4	2.4
55°	2.4	1.6	1.6	1.6	0.8	0.8	0.0	0.0
57.5°	1.6	0.8	0.8	0.8	0.0	0.0	0.0	0.0
60°	1.6	0.8	0.8	0.8	0.0	0.0	0.0	0.0
62.5°	1.6	0.8	0.8	0.8	0.0	0.0	0.0	0.0
65°	1.6	0.8	0.8	0.8	0.0	0.0	0.0	0.0
67.5°	2.4	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	0.0	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	2.4	1.6	1.6	0.8	0.8	0.8	0.0
80°	3.2	2.4	1.6	1.6	1.6	0.8	0.8	0.8
82.5°	3.2	2.4	1.6	1.6	1.6	0.8	0.8	0.8
85°	3.2	2.4	2.4	1.6	1.6	0.8	0.8	0.8
87.5°	3.2	2.4	2.4	1.6	1.6	0.8	0.8	0.8
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)