

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: P209038

Luminaire Tested: **LDSQA6A45835D010TE LARH30NF 6LSQA1H 30°**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P209038
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: LDSQA6A45835D010TE 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 / 3500K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 4679.1 lumens
Efficiency: N/A
Efficacy: 86.0 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

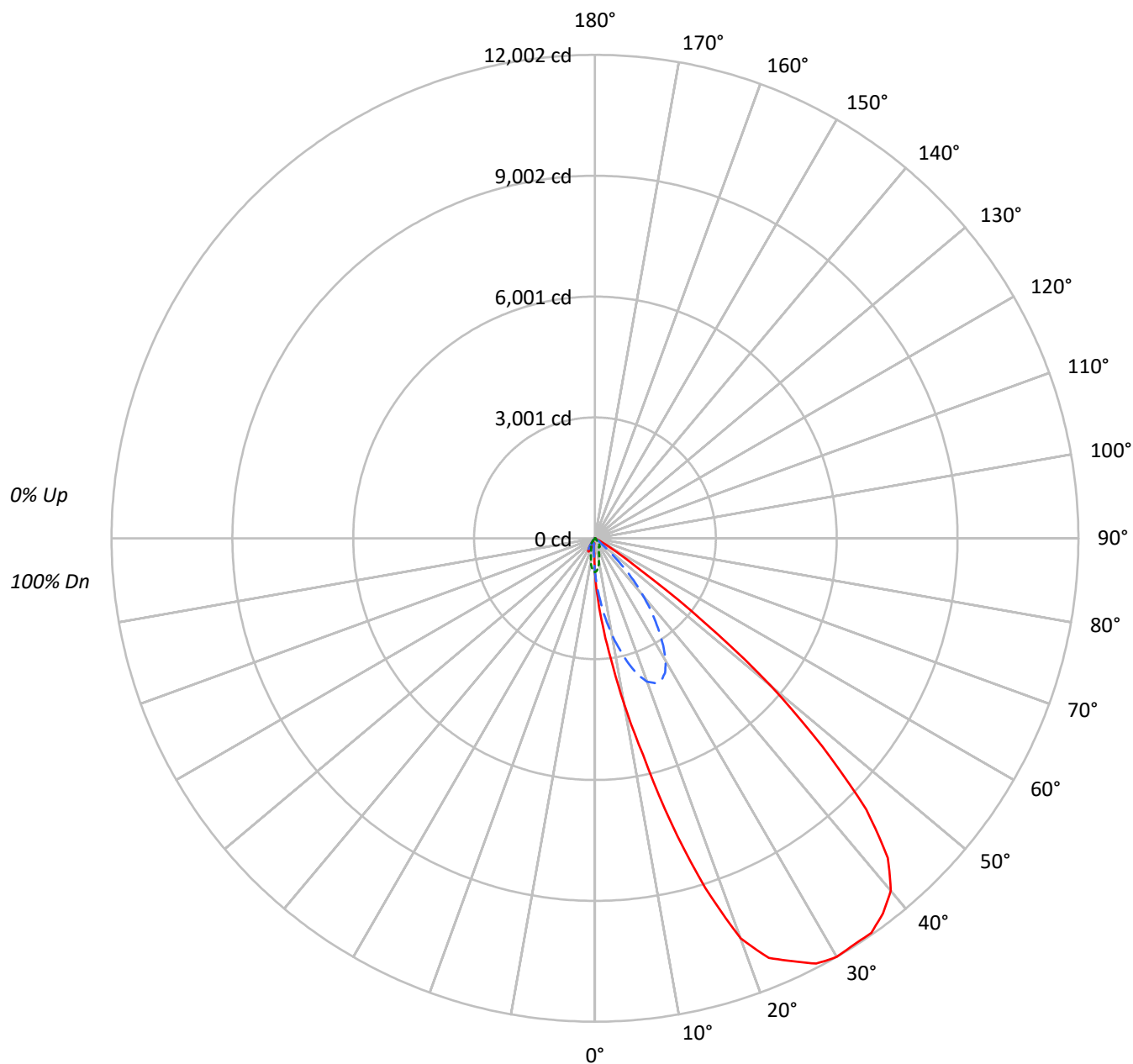
Input Watts (W): 54.4
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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°	36339	36339	36339
5°	93217	33059	10295
10°	181708	25406	4949
15°	326187	17255	6637
20°	484287	13100	10955
25°	550464	10794	17178
30°	596711	11803	16158
35°	628533	7648	10018
40°	642122	3395	4879
45°	579964	1297	1815
50°	381775	516	516
55°	104551	450	0
60°	20882	517	0
65°	1477	693	0
70°	214	856	0
75°	0	1281	0
80°	0	1909	223
85°	0	3804	445



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	103.4	2.2
10°-20°	549.3	11.7
20°-30°	1244.9	26.6
30°-40°	1494.3	31.9
40°-50°	1053.2	22.5
50°-60°	217.3	4.6
60°-70°	7.7	0.2
70°-80°	4.6	0.1
80°-90°	4.5	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°	1897.5	40.6
0°-40°	3391.9	72.5
0°-60°	4662.3	99.6
0°-90°	4679.1	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	4679.1	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	844	844	844	844	844	
5°	2157	1571	765	318	238	265
15°	7318	3220	387	138	149	2172
25°	11587	3894	227	318	362	5347
35°	11958	2727	146	191	191	7434
45°	9525	935	21	29	30	7005
55°	1393	19	6	4	0	1835
65°	14	4	7	4	0	43
75°	0	4	8	5	0	0
85°	0	5	8	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°	844.0	844.0	844.0	844.0	844.0	844.0	844.0	844.0	844.0	844.0	844.0
2.5°	1438.7	1395.3	1412.3	1362.1	1351.1	1341.7	1351.1	1296.6	1266.0	1226.9	1195.4
5°	2156.8	2104.9	2116.8	2029.2	1989.2	1962.0	1956.9	1844.6	1760.3	1667.6	1571.4
7.5°	3002.5	2953.2	2946.3	2810.2	2727.7	2680.9	2661.3	2500.5	2355.0	2190.0	2009.6
10°	4156.2	4043.9	4009.0	3811.6	3654.2	3554.7	3432.2	3175.2	2920.0	2670.7	2441.0
12.5°	5498.8	5437.5	5350.7	5002.7	4727.1	4585.9	4402.9	4001.3	3615.1	3203.3	2818.7
15°	7317.8	7100.0	6951.9	6449.1	6005.0	5787.2	5520.0	4905.8	4322.1	3800.6	3219.5
17.5°	9095.1	8981.1	8749.7	8097.1	7413.1	7069.4	6671.2	5836.5	5012.1	4270.2	3560.6
20°	10569.6	10462.4	10198.6	9583.5	8824.6	8317.5	7816.4	6671.2	5594.1	4644.6	3788.6
22.5°	11275.7	11207.7	10992.4	10465.8	9819.2	9336.8	8798.2	7381.6	6024.6	4889.6	3892.4
25°	11587.1	11555.7	11417.0	11001.8	10392.6	9983.4	9474.6	7884.4	6292.6	5003.6	3894.1
27.5°	11902.8	11908.7	11602.5	11274.0	10696.3	10303.3	9813.2	8107.3	6341.1	4939.8	3766.5
30°	12002.3	11939.4	11804.1	11332.8	10784.0	10366.2	9840.4	8004.4	6142.0	4677.7	3512.1
32.5°	11961.5	11936.8	11787.9	11289.4	10635.1	10174.8	9577.5	7596.0	5748.9	4303.4	3151.4
35°	11958.1	11912.2	11571.0	11143.0	10337.3	9769.0	8982.0	6935.8	5192.5	3809.9	2726.8
37.5°	11742.0	11628.0	11371.9	10795.0	9733.2	9012.6	8130.3	6129.2	4511.8	3256.0	2305.7
40°	11424.6	11271.5	10934.6	10061.6	8686.7	7856.4	6995.3	5212.9	3791.2	2709.8	1858.2
42.5°	10761.9	10530.4	10054.0	8853.5	7292.3	6543.6	5827.2	4284.7	3091.8	2207.8	1418.3
45°	9524.8	9208.3	8564.2	7246.3	5891.0	5280.1	4704.1	3447.5	2475.0	1637.8	935.0
47.5°	7655.6	7362.0	6775.8	5768.5	4619.9	4103.4	3644.0	2564.3	1677.8	948.7	446.7
50°	5699.6	5447.7	4990.0	4009.0	3101.2	2695.4	2302.3	1456.6	786.1	450.9	185.5
52.5°	3400.7	3275.6	2869.8	2223.2	1531.5	1319.6	1059.3	616.8	396.5	163.4	50.2
55°	1392.8	1285.6	1133.3	909.5	666.2	564.9	483.3	304.6	123.4	34.0	18.7
57.5°	629.6	605.8	536.9	422.0	306.3	256.9	173.6	57.9	27.2	17.0	11.1
60°	242.5	218.7	187.2	101.2	43.4	36.6	29.8	19.6	13.6	9.4	6.8
62.5°	34.9	33.2	29.8	23.8	18.7	17.0	14.5	10.2	7.7	6.0	5.1
65°	14.5	14.5	12.8	10.2	8.5	7.7	6.8	5.1	4.3	4.3	4.3
67.5°	6.0	6.0	5.1	4.3	3.4	3.4	3.4	2.6	3.4	3.4	4.3
70°	1.7	1.7	1.7	1.7	1.7	1.7	2.6	2.6	3.4	3.4	4.3
72.5°	0.0	0.0	0.9	0.9	1.7	1.7	1.7	2.6	3.4	4.3	4.3
75°	0.0	0.0	0.9	0.9	1.7	1.7	1.7	2.6	3.4	4.3	4.3
77.5°	0.0	0.0	0.9	0.9	1.7	1.7	2.6	2.6	3.4	4.3	4.3
80°	0.0	0.0	0.9	0.9	1.7	1.7	2.6	2.6	3.4	4.3	5.1
82.5°	0.0	0.0	0.9	0.9	1.7	1.7	2.6	2.6	3.4	4.3	5.1
85°	0.0	0.0	0.9	0.9	1.7	1.7	2.6	2.6	3.4	4.3	5.1
87.5°	0.0	0.0	0.9	0.9	1.7	1.7	2.6	2.6	3.4	4.3	5.1
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°	844.0	844.0	844.0	844.0	844.0	844.0	844.0	844.0	844.0	844.0	844.0
2.5°	1168.2	1113.7	1098.4	1050.7	1010.8	991.2	966.5	911.2	869.5	814.2	781.0
5°	1504.2	1401.3	1319.6	1220.1	1154.5	1112.0	1045.6	944.4	862.7	764.9	695.1
7.5°	1867.5	1679.5	1532.3	1368.1	1273.7	1199.6	1086.5	941.0	821.0	690.9	582.8
10°	2218.1	1937.3	1705.9	1470.2	1346.0	1243.0	1087.3	904.4	745.3	581.1	467.1
12.5°	2526.9	2164.5	1838.6	1535.7	1381.7	1253.2	1058.4	838.9	646.6	478.2	377.8
15°	2784.7	2340.6	1932.2	1560.4	1384.3	1231.1	998.0	745.3	536.9	387.1	316.5
17.5°	2980.4	2433.3	1961.1	1530.6	1334.9	1168.2	905.3	627.0	435.6	328.4	266.3
20°	3081.6	2451.2	1919.4	1449.8	1243.9	1072.9	783.6	508.8	369.3	285.9	222.9
22.5°	3094.4	2401.0	1819.9	1334.1	1129.0	957.2	649.2	424.6	329.3	252.7	196.5
25°	3018.7	2292.1	1677.8	1203.0	1003.1	824.4	528.4	380.3	299.5	227.2	226.3
27.5°	2857.0	2104.9	1507.6	1050.7	850.8	670.4	448.4	343.7	267.2	240.8	256.1
30°	2629.0	1865.0	1298.3	858.5	664.5	515.6	377.8	283.3	234.8	237.4	250.1
32.5°	2320.2	1567.2	1052.4	628.7	475.6	388.0	283.3	193.1	194.8	195.7	206.7
35°	1932.2	1256.6	786.1	422.9	334.4	273.1	160.0	142.1	144.6	145.5	153.1
37.5°	1548.5	965.7	522.4	281.6	210.1	143.8	99.5	95.3	97.0	96.1	104.6
40°	1186.0	673.0	313.1	139.5	80.8	67.2	61.3	58.7	59.6	60.4	65.5
42.5°	839.7	365.0	154.8	52.8	42.5	39.1	36.6	34.9	35.7	35.7	39.1
45°	426.3	172.7	52.8	28.9	26.4	23.8	22.1	21.3	21.3	21.3	23.0
47.5°	184.6	57.0	24.7	17.9	16.2	15.3	13.6	12.8	12.8	12.8	13.6
50°	57.9	23.0	15.3	11.9	10.2	9.4	8.5	8.5	8.5	7.7	8.5
52.5°	21.3	14.5	10.2	7.7	6.8	6.8	6.8	6.0	6.8	6.0	6.8
55°	12.8	9.4	6.8	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
57.5°	8.5	6.8	6.0	6.0	5.1	5.1	6.0	6.0	6.0	6.0	6.0
60°	6.0	6.0	5.1	5.1	5.1	5.1	6.0	6.0	6.0	6.0	6.0
62.5°	5.1	5.1	5.1	5.1	5.1	5.1	6.0	6.0	6.0	6.0	6.8
65°	4.3	5.1	5.1	5.1	5.1	5.1	6.0	6.0	6.8	6.8	6.8
67.5°	4.3	5.1	5.1	6.0	6.0	6.0	6.0	6.8	6.8	6.8	6.8
70°	5.1	5.1	6.0	6.0	6.0	6.0	6.8	6.8	6.8	6.8	7.7
72.5°	5.1	5.1	6.0	6.0	6.0	6.0	6.8	6.8	7.7	7.7	7.7
75°	5.1	6.0	6.0	6.0	6.0	6.8	6.8	6.8	7.7	7.7	7.7
77.5°	5.1	6.0	6.0	6.8	6.8	6.8	6.8	7.7	7.7	7.7	7.7
80°	5.1	6.0	6.0	6.8	6.8	6.8	7.7	7.7	7.7	7.7	8.5
82.5°	5.1	6.0	6.0	6.8	6.8	6.8	7.7	7.7	7.7	7.7	8.5
85°	6.0	6.0	6.8	6.8	6.8	6.8	7.7	7.7	7.7	7.7	8.5
87.5°	6.0	6.0	6.8	6.8	6.8	6.8	7.7	7.7	8.5	7.7	8.5
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°	844.0	844.0	844.0	844.0	844.0	844.0	844.0	844.0	844.0	844.0	844.0
2.5°	736.8	687.5	653.4	640.7	616.0	576.8	553.9	532.6	492.6	484.1	462.0
5°	615.1	536.0	479.9	458.6	430.5	397.3	365.0	343.7	318.2	308.0	292.7
7.5°	485.0	405.8	357.3	340.3	320.8	293.5	264.6	243.3	217.0	203.3	190.6
10°	381.2	322.5	281.6	264.6	244.2	215.3	185.5	157.4	134.4	120.0	117.4
12.5°	309.7	261.2	217.8	199.9	176.1	147.2	125.9	125.1	123.4	122.5	124.2
15°	253.5	206.7	160.8	141.2	134.4	133.6	136.1	138.7	137.8	140.4	142.1
17.5°	208.4	158.3	148.0	148.9	149.7	152.3	156.5	163.4	164.2	168.5	171.9
20°	170.2	167.6	171.9	175.3	177.8	182.9	192.3	200.8	203.3	209.3	216.1
22.5°	193.1	200.8	210.1	214.4	217.8	227.2	237.4	251.0	256.1	263.8	273.1
25°	233.1	245.9	260.3	265.5	270.6	285.9	297.8	313.9	318.2	327.6	336.9
27.5°	266.3	279.9	295.2	302.0	306.3	321.6	331.8	342.0	342.0	347.1	353.9
30°	261.2	272.3	285.0	290.1	291.8	302.9	313.1	316.5	314.8	317.4	322.5
32.5°	217.0	225.5	235.7	239.9	241.6	249.3	257.8	257.8	256.9	256.9	260.3
35°	160.8	166.8	171.9	176.1	178.7	183.8	191.4	190.6	190.6	188.9	191.4
37.5°	108.1	111.5	117.4	119.1	120.0	123.4	129.3	129.3	127.6	128.5	130.2
40°	65.5	69.8	73.2	74.0	75.7	78.3	82.5	82.5	82.5	82.5	83.4
42.5°	39.1	41.7	44.2	44.2	45.1	48.5	50.2	50.2	50.2	50.2	51.0
45°	23.0	23.8	25.5	26.4	26.4	28.1	28.9	28.9	28.9	28.9	29.8
47.5°	13.6	14.5	14.5	15.3	15.3	16.2	17.0	17.0	16.2	16.2	16.2
50°	8.5	8.5	8.5	8.5	9.4	9.4	9.4	9.4	9.4	9.4	8.5
52.5°	6.8	6.8	6.8	6.8	6.0	6.0	6.0	6.0	5.1	5.1	4.3
55°	6.0	6.0	6.0	6.0	6.0	5.1	5.1	5.1	4.3	3.4	2.6
57.5°	6.0	6.0	6.0	6.0	6.0	5.1	5.1	4.3	3.4	3.4	2.6
60°	6.0	6.0	6.0	6.0	6.0	5.1	5.1	4.3	3.4	3.4	2.6
62.5°	6.8	6.8	6.0	6.0	6.0	5.1	5.1	4.3	4.3	3.4	2.6
65°	6.8	6.8	6.0	6.0	6.0	6.0	5.1	5.1	4.3	3.4	2.6
67.5°	6.8	6.8	6.8	6.8	6.0	6.0	6.0	5.1	4.3	3.4	2.6
70°	7.7	7.7	6.8	6.8	6.8	6.0	6.0	5.1	4.3	4.3	3.4
72.5°	7.7	7.7	6.8	6.8	6.8	6.8	6.0	5.1	5.1	4.3	3.4
75°	7.7	7.7	7.7	7.7	6.8	6.8	6.0	6.0	5.1	4.3	3.4
77.5°	7.7	7.7	7.7	7.7	6.8	6.8	6.8	6.0	5.1	4.3	3.4
80°	7.7	7.7	7.7	7.7	7.7	6.8	6.8	6.0	5.1	4.3	3.4
82.5°	8.5	8.5	7.7	7.7	7.7	6.8	6.8	6.0	5.1	4.3	4.3
85°	8.5	8.5	7.7	7.7	7.7	6.8	6.8	6.0	5.1	5.1	4.3
87.5°	8.5	8.5	7.7	7.7	7.7	6.8	6.8	6.0	5.1	5.1	4.3
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: P209038

CATALOG NUMBER: LDSQA6A45835D010TE LARH30NF 6LSQA1H 30°

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	844.0	844.0	844.0	844.0	844.0	844.0	844.0	844.0
2.5°	448.4	422.9	414.3	420.3	413.5	408.4	401.6	398.2
5°	280.8	262.0	256.1	257.8	251.8	246.7	239.9	238.2
7.5°	172.7	154.8	148.0	148.0	141.2	135.3	131.0	128.5
10°	115.7	112.3	113.2	114.0	113.2	114.0	111.5	113.2
12.5°	124.2	122.5	124.2	125.1	125.1	126.8	123.4	125.9
15°	144.6	142.9	145.5	147.2	147.2	149.7	146.3	148.9
17.5°	177.0	176.1	180.4	182.1	182.9	187.2	182.9	186.3
20°	223.8	222.9	228.9	231.4	230.6	239.1	233.1	239.1
22.5°	284.2	282.5	291.0	293.5	294.4	305.4	300.3	304.6
25°	344.6	346.3	350.5	354.8	355.6	365.0	357.3	361.6
27.5°	357.3	354.8	357.3	362.4	363.3	367.5	360.7	364.1
30°	323.3	319.1	319.9	325.9	327.6	329.3	323.3	325.0
32.5°	262.9	256.1	256.1	262.0	263.8	266.3	256.1	260.3
35°	194.0	188.0	188.0	192.3	193.1	194.8	187.2	190.6
37.5°	132.7	127.6	129.3	131.0	131.9	133.6	132.7	131.9
40°	85.1	81.7	84.2	84.2	85.1	85.9	85.9	86.8
42.5°	51.9	49.3	51.0	51.0	51.9	51.9	51.9	52.8
45°	29.8	28.9	28.9	29.8	29.8	29.8	28.9	29.8
47.5°	16.2	15.3	16.2	16.2	16.2	16.2	16.2	16.2
50°	8.5	7.7	7.7	7.7	7.7	7.7	7.7	7.7
52.5°	4.3	3.4	3.4	3.4	2.6	3.4	2.6	2.6
55°	2.6	1.7	1.7	1.7	0.9	0.9	0.0	0.0
57.5°	1.7	0.9	0.9	0.9	0.0	0.0	0.0	0.0
60°	1.7	0.9	0.9	0.9	0.0	0.0	0.0	0.0
62.5°	1.7	0.9	0.9	0.9	0.0	0.0	0.0	0.0
65°	1.7	0.9	0.9	0.9	0.0	0.0	0.0	0.0
67.5°	2.6	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	0.0	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	2.6	1.7	1.7	0.9	0.9	0.9	0.0
80°	3.4	2.6	1.7	1.7	1.7	0.9	0.9	0.9
82.5°	3.4	2.6	1.7	1.7	1.7	0.9	0.9	0.9
85°	3.4	2.6	2.6	1.7	1.7	0.9	0.9	0.9
87.5°	3.4	2.6	2.6	1.7	1.7	0.9	0.9	0.9
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)