

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: P209073

Luminaire Tested: **LDSQA6A45930D010TE LARH40FL 6LSQA1H 30°**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P209073
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (P26688)
Test Lab: INNOVATION CENTER-P2
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: io LED
Catalog Number: LDSQA6A45930D010TE LARH40FL 6LSQA1H 30°
Description: PORTFOLIO 6" SQUARE ADJUSTABLE REFLECTOR, ANGLE-CUT TRIM,
SELF-FLANGED, 40° FLOOD, 30° Tilt
Light Source: (1) HIGH LUMEN LED 90CRI / 3000K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 3941.0 lumens
Efficiency: N/A
Efficacy: 72.4 lumens/watt
Spacing Criteria (0/90/45): 2.63 / 0.54 / 1.37
Luminous Opening: Rectangular (W 0.5' x L: 0.5' x H: 0')
CIE Type: Direct

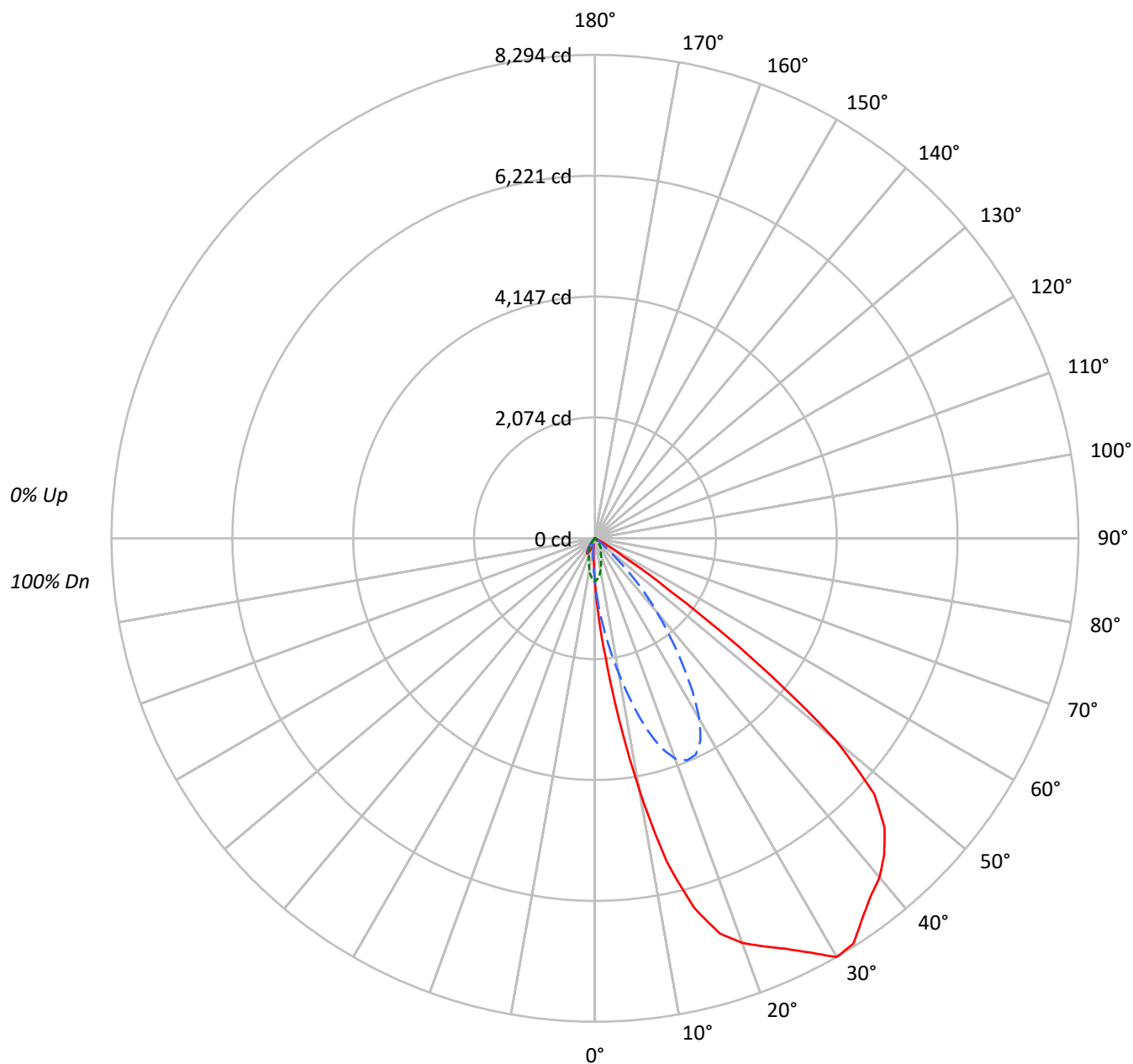
Input Watts (W): 54.4
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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					0
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	88	83	78		86	81	77		83	79	76		81	77	74
4	91	82	75	70	89	80	74	69		78	73	68		76	71	67		74	70	67
5	85	74	67	62	83	73	66	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	44
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	41	36		46	40	36		45	40	36

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	31801	31801	31801
5°	87287	29303	11955
10°	191279	23980	4556
15°	292177	18253	5344
20°	338514	13581	8302
25°	369274	11169	13402
30°	412363	10127	13687
35°	419560	6949	9382
40°	426929	3294	4749
45°	427624	1370	2076
50°	361512	596	636
55°	116411	413	105
60°	23121	474	0
65°	2364	560	0
70°	252	768	0
75°	0	1015	0
80°	0	1686	174
85°	0	3359	346



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	100.3	2.5
10°-20°	518.6	13.2
20°-30°	992.9	25.2
30°-40°	1169.8	29.7
40°-50°	918.8	23.3
50°-60°	223.9	5.7
60°-70°	9.6	0.2
70°-80°	3.6	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°	1611.7	40.9
0°-40°	2781.4	70.6
0°-60°	3924.2	99.6
0°-90°	3941.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	3941.0	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	739	739	739	739	739	
5°	2020	1462	678	355	277	267
15°	6555	3367	410	117	120	1830
25°	7773	4094	235	246	282	3623
35°	7982	2588	132	170	178	5005
45°	7023	800	22	31	34	5277
55°	1551	29	6	3	1	1846
65°	23	3	6	3	0	61
75°	0	3	6	4	0	0
85°	0	4	7	4	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°	738.6	738.6	738.6	738.6	738.6	738.6	738.6	738.6	738.6	738.6	738.6
2.5°	1266.0	1263.3	1244.9	1261.9	1210.1	1208.1	1184.9	1174.7	1144.7	1116.1	1075.2
5°	2019.6	1975.3	1939.2	1940.5	1841.1	1822.7	1770.9	1718.4	1638.0	1563.1	1461.5
7.5°	3078.4	3026.0	2949.7	2917.6	2727.5	2671.7	2564.7	2425.0	2249.9	2075.5	1887.4
10°	4375.1	4383.3	4284.5	4193.2	3905.6	3792.5	3619.4	3344.2	3012.3	2684.6	2351.4
12.5°	5679.9	5674.5	5556.6	5418.3	5064.0	4904.5	4674.2	4330.8	3891.3	3383.0	2861.8
15°	6554.8	6593.6	6543.9	6433.5	6131.0	5948.4	5688.8	5222.7	4687.2	4069.8	3366.7
17.5°	7104.0	7140.8	7123.1	7036.5	6769.4	6574.6	6357.9	5976.3	5356.9	4580.9	3764.6
20°	7388.1	7446.0	7437.9	7343.8	7142.1	6980.7	6741.5	6387.9	5851.6	4935.9	4022.1
22.5°	7577.5	7621.8	7634.1	7527.8	7319.3	7166.0	6990.9	6632.5	6128.3	5152.5	4124.3
25°	7773.1	7851.4	7774.5	7643.6	7452.2	7305.0	7118.3	6774.9	6260.4	5241.1	4093.7
27.5°	8012.9	8050.4	7876.0	7756.7	7544.1	7384.7	7186.4	6857.3	6283.6	5170.2	3918.6
30°	8294.3	8139.0	8017.0	7780.6	7539.4	7384.0	7182.3	6805.5	6161.6	4935.2	3579.2
32.5°	8248.0	8105.6	7967.3	7717.2	7478.7	7324.7	7099.9	6633.2	5873.4	4542.0	3111.1
35°	7982.3	8012.9	7863.7	7656.6	7386.8	7228.0	6982.7	6387.9	5384.2	3999.7	2587.9
37.5°	7758.1	7825.6	7728.1	7536.7	7262.7	7048.1	6717.0	5994.0	4745.8	3311.5	2091.8
40°	7595.9	7617.7	7565.3	7350.6	7021.5	6711.5	6328.6	5286.8	3970.4	2599.4	1651.0
42.5°	7344.5	7402.4	7309.8	7075.4	6576.6	6225.7	5671.1	4469.8	3083.9	1985.5	1242.8
45°	7022.9	7078.1	6963.6	6573.9	5880.2	5365.8	4689.2	3485.2	2281.2	1463.6	799.9
47.5°	6498.2	6532.3	6310.9	5771.9	4763.5	4279.0	3585.4	2429.8	1469.7	818.3	389.1
50°	5397.1	5380.8	4924.3	4261.3	3186.1	2677.8	2134.1	1317.1	660.2	387.7	243.2
52.5°	3478.4	3440.9	2989.2	2386.2	1613.5	1231.2	925.3	568.3	344.1	216.7	96.1
55°	1550.8	1536.5	1257.8	977.1	660.2	568.3	434.0	278.7	183.3	75.6	29.3
57.5°	575.1	562.1	495.4	415.6	318.9	265.1	210.5	133.5	47.0	25.2	15.7
60°	268.5	267.8	235.8	194.2	134.9	102.2	59.3	31.3	19.8	13.6	8.9
62.5°	85.9	83.8	58.6	42.9	30.7	26.6	21.1	15.7	10.2	7.5	5.5
65°	23.2	23.2	21.1	17.7	14.3	12.3	10.2	7.5	4.8	4.1	3.4
67.5°	8.9	8.9	8.2	7.5	5.5	4.8	4.1	3.4	2.7	3.4	3.4
70°	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.7	2.7	3.4
72.5°	0.0	0.0	0.7	0.7	1.4	1.4	2.0	2.0	2.7	3.4	3.4
75°	0.0	0.0	0.7	0.7	1.4	1.4	2.0	2.0	2.7	3.4	3.4
77.5°	0.0	0.0	0.7	0.7	1.4	1.4	2.0	2.0	2.7	3.4	3.4
80°	0.0	0.0	0.7	0.7	1.4	1.4	2.0	2.0	2.7	3.4	3.4
82.5°	0.0	0.0	0.7	1.4	1.4	1.4	2.0	2.7	2.7	3.4	4.1
85°	0.0	0.0	0.7	1.4	1.4	2.0	2.0	2.7	2.7	3.4	4.1
87.5°	0.0	0.0	0.7	1.4	1.4	2.0	2.0	2.7	2.7	3.4	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°	738.6	738.6	738.6	738.6	738.6	738.6	738.6	738.6	738.6	738.6	738.6
2.5°	1045.2	1000.3	938.2	902.1	893.3	874.2	840.8	791.1	750.2	710.7	687.5
5°	1375.7	1269.4	1150.2	1066.3	1032.3	986.6	905.5	821.7	744.7	678.0	625.5
7.5°	1725.9	1550.8	1358.0	1202.6	1146.7	1074.5	942.3	817.6	712.0	619.4	549.2
10°	2074.1	1792.0	1530.4	1305.5	1214.2	1116.1	941.7	780.2	656.2	548.5	470.8
12.5°	2422.3	2016.9	1657.1	1367.5	1249.0	1124.9	913.7	722.9	585.3	475.6	401.3
15°	2743.9	2196.1	1742.9	1388.6	1245.5	1099.1	857.2	653.4	511.0	409.5	340.7
17.5°	2983.7	2290.1	1762.7	1356.6	1191.7	1029.6	770.6	571.7	440.2	350.9	280.7
20°	3101.6	2305.1	1715.7	1265.3	1099.1	930.8	675.9	493.3	379.5	296.4	237.1
22.5°	3101.6	2234.2	1613.5	1150.8	983.2	817.0	584.6	428.6	331.8	258.2	208.5
25°	2983.7	2093.2	1476.5	1018.7	855.8	704.5	505.6	380.2	295.0	235.1	193.5
27.5°	2754.8	1898.3	1300.7	871.5	730.4	604.4	442.9	335.9	267.1	211.9	212.6
30°	2440.0	1659.1	1099.1	716.1	601.7	496.7	372.7	281.4	214.0	203.7	209.9
32.5°	2076.1	1373.0	870.8	555.3	466.1	391.1	283.5	199.0	170.3	171.7	178.5
35°	1702.7	1080.7	655.5	411.5	346.8	283.5	186.0	130.8	129.5	132.2	137.0
37.5°	1344.3	808.8	474.2	301.2	233.0	174.4	100.2	89.9	89.9	92.7	95.4
40°	1007.1	573.7	326.4	178.5	113.1	79.7	63.4	58.6	57.9	58.6	62.0
42.5°	691.6	363.2	194.2	71.5	54.5	46.3	40.2	36.8	36.1	36.8	38.8
45°	388.4	223.5	75.6	38.2	32.7	29.3	25.2	23.2	22.5	22.5	23.8
47.5°	243.2	88.6	34.1	23.8	20.4	19.1	16.4	15.0	14.3	14.3	15.0
50°	93.3	34.7	21.1	15.7	13.6	12.3	10.9	9.5	8.9	8.9	9.5
52.5°	32.0	20.4	13.6	10.2	8.9	8.2	6.8	6.1	6.1	6.1	6.1
55°	17.7	12.3	8.2	6.1	5.5	5.5	5.5	5.5	5.5	5.5	5.5
57.5°	10.9	7.5	5.5	4.8	4.8	4.8	4.8	4.8	4.8	5.5	5.5
60°	6.1	4.8	4.1	4.1	4.1	4.1	4.8	4.8	4.8	5.5	5.5
62.5°	4.1	4.1	4.1	4.1	4.1	4.1	4.8	4.8	5.5	5.5	5.5
65°	3.4	3.4	3.4	4.1	4.1	4.1	4.8	4.8	5.5	5.5	5.5
67.5°	3.4	3.4	4.1	4.1	4.1	4.8	4.8	5.5	5.5	5.5	5.5
70°	3.4	4.1	4.1	4.8	4.8	4.8	5.5	5.5	5.5	6.1	6.1
72.5°	3.4	4.1	4.1	4.8	4.8	4.8	5.5	5.5	6.1	6.1	6.1
75°	4.1	4.1	4.1	4.8	4.8	4.8	5.5	6.1	6.1	6.1	6.1
77.5°	4.1	4.1	4.8	4.8	4.8	5.5	5.5	6.1	6.1	6.1	6.1
80°	4.1	4.1	4.8	4.8	5.5	5.5	6.1	6.1	6.1	6.8	6.8
82.5°	4.1	4.1	4.8	5.5	5.5	5.5	6.1	6.1	6.8	6.8	6.8
85°	4.1	4.8	4.8	5.5	5.5	5.5	6.1	6.1	6.8	6.8	6.8
87.5°	4.1	4.8	4.8	5.5	5.5	5.5	6.1	6.1	6.8	6.8	6.8
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):

	100°	105°	110°	112.5°	115°	120°	125°	130°	135°	140°	145°
0°	738.6	738.6	738.6	738.6	738.6	738.6	738.6	738.6	738.6	738.6	738.6
2.5°	656.8	628.2	599.6	578.5	568.3	558.0	535.6	506.3	494.0	476.3	466.1
5°	572.4	524.0	485.8	460.6	445.6	425.9	400.0	371.3	355.0	336.6	324.3
7.5°	485.1	428.6	391.8	368.6	353.6	329.1	296.4	262.3	242.6	222.1	207.8
10°	408.8	355.0	313.4	286.9	267.8	239.2	206.5	182.6	165.6	147.9	133.5
12.5°	341.4	283.5	239.2	216.7	203.7	176.5	149.2	122.6	112.4	109.0	109.0
15°	276.6	224.2	186.7	167.6	154.0	124.7	119.2	117.9	117.2	116.5	117.9
17.5°	225.5	181.2	141.7	132.2	130.8	130.1	130.8	130.8	131.5	133.5	137.0
20°	189.4	148.5	145.8	146.5	146.5	149.2	152.6	155.4	158.1	161.5	167.6
22.5°	168.3	167.6	172.4	173.1	176.5	180.6	186.7	190.8	197.6	201.0	209.9
25°	194.2	199.0	207.8	210.5	216.0	222.8	232.3	237.8	246.0	250.1	260.3
27.5°	220.1	227.6	238.5	241.9	246.7	257.6	264.4	269.1	273.2	276.0	282.1
30°	218.0	224.9	235.8	236.4	243.2	250.7	254.8	258.9	261.6	261.0	264.4
32.5°	184.7	190.8	201.0	201.0	208.5	214.6	216.7	220.1	220.1	220.1	221.4
35°	141.7	145.8	152.6	154.7	160.8	164.9	166.3	170.3	170.3	169.0	169.0
37.5°	98.1	103.6	108.3	109.7	113.8	116.5	119.9	120.6	119.2	119.9	119.9
40°	64.0	67.5	70.9	71.5	75.0	77.0	80.4	80.4	81.1	80.4	81.8
42.5°	39.5	42.2	44.3	45.7	47.0	48.4	50.4	51.1	51.8	51.1	52.5
45°	24.5	25.9	27.3	27.9	28.6	29.3	31.3	31.3	31.3	31.3	32.0
47.5°	15.0	15.7	16.4	16.4	17.0	17.7	18.4	18.4	18.4	18.4	19.1
50°	8.9	9.5	9.5	9.5	10.2	10.2	10.9	10.9	10.9	10.2	10.9
52.5°	6.1	6.1	6.1	6.1	6.1	6.1	6.1	6.1	6.1	5.5	6.1
55°	5.5	5.5	4.8	4.8	4.8	4.8	4.8	4.1	3.4	3.4	2.7
57.5°	4.8	4.8	4.8	4.8	4.8	4.1	4.1	3.4	3.4	2.7	2.0
60°	4.8	4.8	4.8	4.8	4.8	4.1	4.1	3.4	2.7	2.7	2.0
62.5°	5.5	4.8	4.8	4.8	4.8	4.1	4.1	3.4	2.7	2.7	2.0
65°	5.5	5.5	4.8	4.8	4.8	4.1	4.1	3.4	3.4	2.7	2.0
67.5°	5.5	5.5	5.5	4.8	5.5	4.8	4.1	4.1	3.4	2.7	2.7
70°	6.1	5.5	5.5	5.5	5.5	4.8	4.8	4.1	3.4	2.7	2.7
72.5°	6.1	6.1	5.5	5.5	5.5	4.8	4.8	4.1	3.4	3.4	2.7
75°	6.1	6.1	5.5	5.5	5.5	4.8	4.8	4.1	4.1	3.4	2.7
77.5°	6.1	6.1	6.1	5.5	5.5	5.5	4.8	4.8	4.1	3.4	2.7
80°	6.1	6.1	6.1	6.1	6.1	5.5	5.5	4.8	4.1	3.4	2.7
82.5°	6.8	6.1	6.1	6.1	6.1	5.5	5.5	4.8	4.1	3.4	3.4
85°	6.8	6.8	6.1	6.1	6.1	5.5	5.5	4.8	4.1	4.1	3.4
87.5°	6.8	6.1	6.1	6.1	6.1	5.5	5.5	4.8	4.1	3.4	3.4
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: P209073

CATALOG NUMBER: LDSQA6A45930D010TE LARH40FL 6LSQA1H 30°

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	738.6	738.6	738.6	738.6	738.6	738.6	738.6	738.6
2.5°	455.8	450.4	450.4	440.8	439.5	432.0	438.1	434.0
5°	310.7	301.8	299.1	289.6	286.2	277.3	280.0	276.6
7.5°	195.6	186.7	184.0	177.2	173.1	166.3	166.9	164.9
10°	119.2	111.1	109.0	107.0	104.9	104.2	104.9	104.2
12.5°	108.3	107.7	106.3	107.0	105.6	106.3	107.0	106.3
15°	117.9	119.2	117.9	118.6	117.9	119.2	119.9	119.9
17.5°	138.3	141.0	139.7	141.7	141.0	144.5	144.5	144.5
20°	169.7	174.4	173.1	175.8	175.8	179.9	179.9	181.2
22.5°	213.3	219.4	218.7	224.9	223.5	228.3	228.3	229.6
25°	265.7	271.9	272.5	276.6	276.0	280.7	280.7	282.1
27.5°	287.5	290.9	290.3	292.3	293.0	295.7	297.8	296.4
30°	269.8	272.5	271.9	273.2	273.2	275.3	277.3	275.3
32.5°	226.9	228.9	228.9	231.7	229.6	230.3	233.7	231.7
35°	173.7	175.1	173.7	175.1	175.8	175.8	179.2	178.5
37.5°	124.0	124.7	124.7	126.7	124.7	124.7	128.1	128.8
40°	83.1	83.8	83.1	85.9	84.5	84.5	86.5	84.5
42.5°	53.1	53.8	53.1	55.2	53.8	55.2	55.9	56.6
45°	32.7	32.7	32.0	33.4	32.7	33.4	34.1	34.1
47.5°	19.1	19.1	18.4	19.8	19.1	19.1	19.1	19.8
50°	10.2	10.2	10.2	10.9	10.2	10.2	10.2	9.5
52.5°	5.5	5.5	4.8	5.5	4.8	4.8	4.8	4.8
55°	2.7	2.0	2.0	2.0	1.4	1.4	1.4	1.4
57.5°	2.0	1.4	1.4	0.7	0.7	0.7	0.0	0.0
60°	1.4	1.4	0.7	0.7	0.0	0.0	0.0	0.0
62.5°	1.4	1.4	0.7	0.7	0.0	0.0	0.0	0.0
65°	1.4	1.4	0.7	0.7	0.0	0.0	0.0	0.0
67.5°	2.0	1.4	1.4	0.7	0.7	0.0	0.0	0.0
70°	2.0	1.4	1.4	0.7	0.7	0.0	0.0	0.0
72.5°	2.0	1.4	1.4	1.4	0.7	0.7	0.0	0.0
75°	2.0	2.0	1.4	1.4	0.7	0.7	0.0	0.0
77.5°	2.7	2.0	1.4	1.4	0.7	0.7	0.0	0.0
80°	2.7	2.0	1.4	1.4	1.4	0.7	0.7	0.7
82.5°	2.7	2.0	2.0	1.4	1.4	0.7	0.7	0.7
85°	2.7	2.0	2.0	1.4	1.4	0.7	0.7	0.7
87.5°	2.7	2.0	2.0	1.4	1.4	0.7	0.7	0.7
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)