

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: P209071

Luminaire Tested: **LDSQA6A45840D010TE LARH40FL 6LSQA1H 30°**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P209071
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: LDSQA6A45840D010TE LARH40FL 6LSQA1H 30°
Description: PORTFOLIO 6" SQUARE ADJUSTABLE REFLECTOR, ANGLE-CUT TRIM,
SELF-FLANGED, 40° FLOOD, 30° Tilt
Light Source: (1) HIGH LUMEN LED 80CRI / 4000K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 5050.1 lumens
Efficiency: N/A
Efficacy: 92.8 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

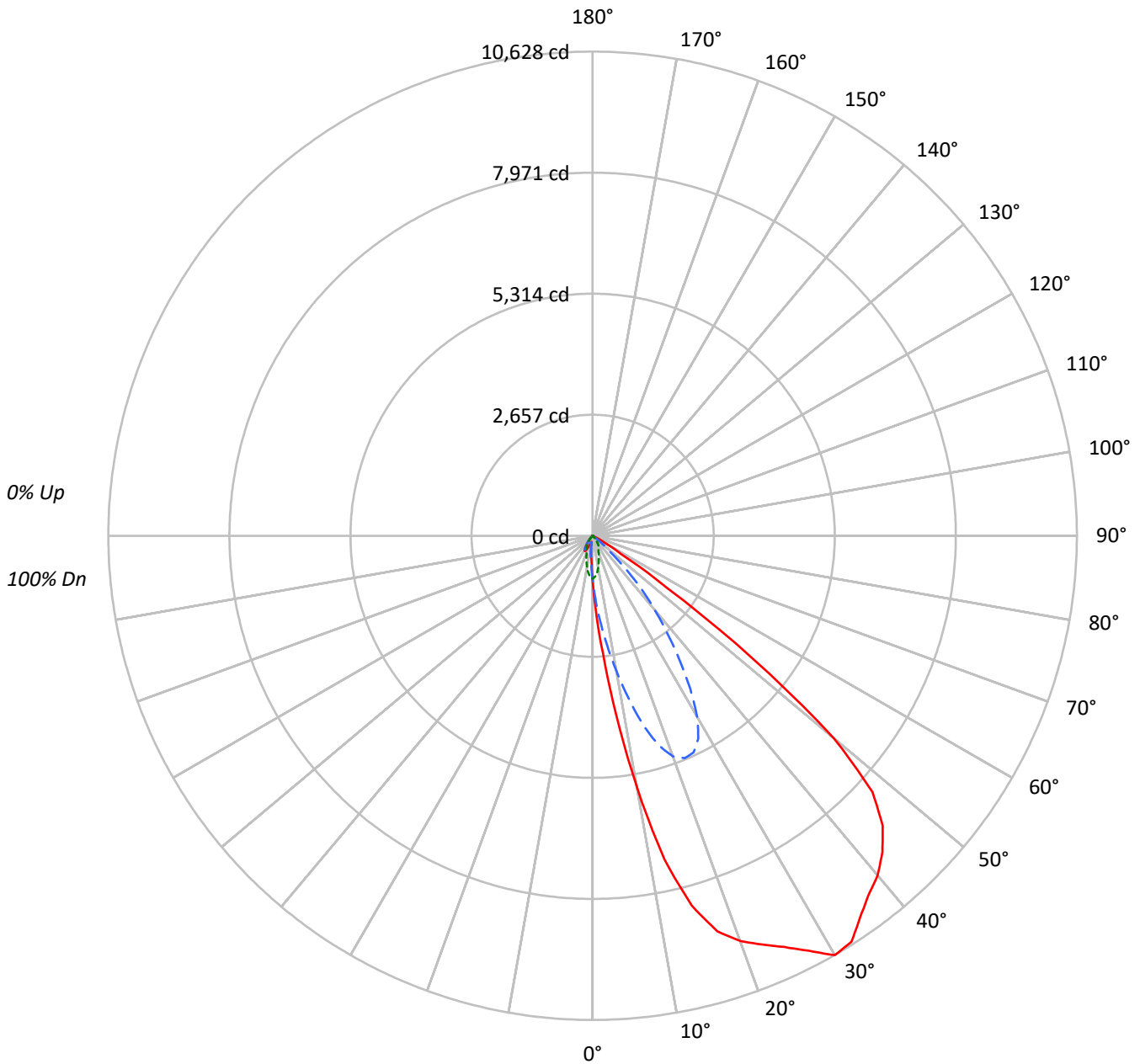
Input Watts (W): 54.4
Input Voltage (V): NR
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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					0
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	50	30	10	0					
RCR																										
0	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102	100								
1	112	109	106	103	110	107	104	102	103	100	98	99	97	95	95	94	93	91								
2	105	99	94	90	103	97	93	89	94	90	87	91	88	85	88	85	83	81								
3	98	90	84	79	96	88	83	78	86	81	77	83	79	76	81	77	74	73								
4	91	82	75	70	89	80	74	69	78	73	68	76	71	67	74	70	67	65								
5	85	74	67	62	83	73	66	61	71	65	61	70	64	60	68	63	60	58								
6	79	68	60	55	77	67	60	55	65	59	54	64	58	54	62	57	54	52								
7	74	62	55	49	72	61	54	49	60	53	49	59	53	49	57	52	48	46								
8	69	57	49	44	67	56	49	44	55	49	44	54	48	44	53	47	44	42								
9	64	52	45	40	63	52	45	40	51	44	40	50	44	40	49	43	39	38								
10	60	48	41	36	59	48	41	36	47	41	36	46	40	36	45	40	36	34								

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	40752	40752	40752
5°	111849	37550	15322
10°	245107	30731	5841
15°	374399	23388	6851
20°	433776	17402	10639
25°	473190	14309	17174
30°	528411	12981	17535
35°	537628	8904	12026
40°	547073	4221	6087
45°	547960	1754	2661
50°	463252	764	817
55°	149170	525	128
60°	29622	603	0
65°	3026	713	0
70°	327	995	0
75°	0	1314	0
80°	0	2157	223
85°	0	4298	445



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	128.5	2.5
10°-20°	664.5	13.2
20°-30°	1272.3	25.2
30°-40°	1499.0	29.7
40°-50°	1177.4	23.3
50°-60°	286.9	5.7
60°-70°	12.3	0.2
70°-80°	4.6	0.1
80°-90°	4.6	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°	2065.2	40.9
0°-40°	3564.2	70.6
0°-60°	5028.5	99.6
0°-90°	5050.1	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	5050.1	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	946	946	946	946	946	
5°	2588	1873	869	455	354	342
15°	8399	4314	525	150	154	2345
25°	9960	5246	301	315	362	4643
35°	10229	3316	169	218	229	6414
45°	8999	1025	29	40	44	6762
55°	1987	38	7	4	2	2365
65°	30	4	7	4	0	79
75°	0	4	8	5	0	0
85°	0	5	9	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°	946.5	946.5	946.5	946.5	946.5	946.5	946.5	946.5	946.5	946.5	946.5
2.5°	1622.3	1618.8	1595.2	1617.0	1550.7	1548.0	1518.4	1505.3	1466.8	1430.2	1377.8
5°	2587.9	2531.2	2484.9	2486.6	2359.2	2335.6	2269.2	2202.0	2099.0	2002.9	1872.8
7.5°	3944.7	3877.5	3779.7	3738.7	3495.1	3423.5	3286.4	3107.4	2883.0	2659.5	2418.5
10°	5606.3	5616.8	5490.2	5373.2	5004.7	4859.8	4638.0	4285.3	3860.1	3440.1	3013.1
12.5°	7278.3	7271.3	7120.3	6943.0	6489.0	6284.7	5989.6	5549.5	4986.4	4335.0	3667.1
15°	8399.4	8449.2	8385.4	8244.0	7856.3	7622.3	7289.7	6692.5	6006.2	5215.1	4314.1
17.5°	9103.1	9150.3	9127.6	9016.7	8674.4	8424.7	8147.1	7658.1	6864.5	5870.0	4824.0
20°	9467.2	9541.4	9531.0	9410.5	9152.0	8945.1	8638.6	8185.5	7498.3	6324.9	5154.0
22.5°	9710.0	9766.7	9782.4	9646.2	9379.0	9182.6	8958.2	8498.9	7852.8	6602.5	5285.0
25°	9960.5	10060.9	9962.3	9794.6	9549.3	9360.7	9121.5	8681.4	8022.2	6716.0	5245.7
27.5°	10267.9	10315.9	10092.4	9939.6	9667.2	9462.9	9208.8	8787.1	8051.9	6625.2	5021.3
30°	10628.5	10429.4	10273.1	9970.1	9661.1	9462.0	9203.5	8720.7	7895.6	6324.0	4586.5
32.5°	10569.1	10386.6	10209.4	9888.9	9583.3	9386.0	9097.9	8499.8	7526.3	5820.2	3986.7
35°	10228.6	10267.9	10076.7	9811.2	9465.5	9262.0	8947.7	8185.5	6899.4	5125.2	3316.1
37.5°	9941.3	10027.8	9902.9	9657.6	9306.6	9031.5	8607.2	7680.8	6081.3	4243.4	2680.5
40°	9733.5	9761.5	9694.2	9419.2	8997.5	8600.2	8109.5	6774.5	5087.7	3330.9	2115.6
42.5°	9411.3	9485.6	9366.8	9066.5	8427.3	7977.7	7267.0	5727.7	3951.7	2544.3	1592.6
45°	8999.2	9070.0	8923.3	8423.8	7535.0	6875.8	6008.8	4466.0	2923.2	1875.5	1025.0
47.5°	8326.9	8370.6	8086.8	7396.2	6104.0	5483.2	4594.3	3113.5	1883.3	1048.6	498.6
50°	6916.0	6895.0	6310.0	5460.5	4082.7	3431.4	2734.6	1687.7	846.1	496.8	311.7
52.5°	4457.3	4409.2	3830.4	3057.7	2067.5	1577.7	1185.7	728.2	440.9	277.7	123.1
55°	1987.2	1968.9	1611.8	1252.1	846.1	728.2	556.2	357.1	234.9	96.9	37.5
57.5°	736.9	720.3	634.8	532.6	408.6	339.6	269.8	171.1	60.2	32.3	20.1
60°	344.0	343.1	302.1	248.8	172.9	131.0	76.0	40.2	25.3	17.5	11.4
62.5°	110.0	107.4	75.1	55.0	39.3	34.1	27.1	20.1	13.1	9.6	7.0
65°	29.7	29.7	27.1	22.7	18.3	15.7	13.1	9.6	6.1	5.2	4.4
67.5°	11.4	11.4	10.5	9.6	7.0	6.1	5.2	4.4	3.5	4.4	4.4
70°	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	3.5	3.5	4.4
72.5°	0.0	0.0	0.9	0.9	1.7	1.7	2.6	2.6	3.5	4.4	4.4
75°	0.0	0.0	0.9	0.9	1.7	1.7	2.6	2.6	3.5	4.4	4.4
77.5°	0.0	0.0	0.9	0.9	1.7	1.7	2.6	2.6	3.5	4.4	4.4
80°	0.0	0.0	0.9	0.9	1.7	1.7	2.6	2.6	3.5	4.4	4.4
82.5°	0.0	0.0	0.9	1.7	1.7	1.7	2.6	3.5	3.5	4.4	5.2
85°	0.0	0.0	0.9	1.7	1.7	2.6	2.6	3.5	3.5	4.4	5.2
87.5°	0.0	0.0	0.9	1.7	1.7	2.6	2.6	3.5	3.5	4.4	5.2
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°	946.5	946.5	946.5	946.5	946.5	946.5	946.5	946.5	946.5	946.5	946.5
2.5°	1339.4	1281.7	1202.3	1156.0	1144.7	1120.2	1077.4	1013.7	961.3	910.7	881.0
5°	1762.8	1626.6	1473.8	1366.4	1322.8	1264.3	1160.4	1053.0	954.3	868.8	801.5
7.5°	2211.6	1987.2	1740.1	1541.1	1469.5	1376.9	1207.5	1047.7	912.4	793.7	703.7
10°	2657.8	2296.3	1961.0	1672.9	1555.9	1430.2	1206.6	999.7	840.8	702.9	603.3
12.5°	3103.9	2584.4	2123.4	1752.3	1600.4	1441.5	1170.9	926.4	750.0	609.4	514.3
15°	3516.0	2814.1	2233.4	1779.4	1596.1	1408.3	1098.4	837.3	654.8	524.7	436.6
17.5°	3823.4	2934.6	2258.8	1738.4	1527.1	1319.3	987.5	732.5	564.0	449.7	359.7
20°	3974.4	2953.8	2198.5	1621.4	1408.3	1192.7	866.1	632.1	486.3	379.8	303.8
22.5°	3974.4	2863.0	2067.5	1474.7	1259.9	1046.9	749.1	549.2	425.2	330.9	267.2
25°	3823.4	2682.2	1892.0	1305.3	1096.6	902.8	647.9	487.2	378.1	301.2	248.0
27.5°	3530.0	2432.5	1666.8	1116.7	936.0	774.5	567.5	430.4	342.3	271.5	272.4
30°	3126.6	2126.0	1408.3	917.6	771.0	636.5	477.6	360.6	274.2	261.1	268.9
32.5°	2660.4	1759.3	1115.8	711.6	597.2	501.2	363.2	255.0	218.3	220.0	228.8
35°	2181.9	1384.8	839.9	527.4	444.4	363.2	238.4	167.6	165.9	169.4	175.5
37.5°	1722.7	1036.4	607.7	385.9	298.6	223.5	128.3	115.3	115.3	118.7	122.2
40°	1290.5	735.2	418.2	228.8	144.9	102.2	81.2	75.1	74.2	75.1	79.5
42.5°	886.2	465.4	248.8	91.7	69.8	59.4	51.5	47.1	46.3	47.1	49.8
45°	497.7	286.4	96.9	48.9	41.9	37.5	32.3	29.7	28.8	28.8	30.6
47.5°	311.7	113.5	43.7	30.6	26.2	24.4	21.0	19.2	18.3	18.3	19.2
50°	119.6	44.5	27.1	20.1	17.5	15.7	14.0	12.2	11.4	11.4	12.2
52.5°	41.0	26.2	17.5	13.1	11.4	10.5	8.7	7.9	7.9	7.9	7.9
55°	22.7	15.7	10.5	7.9	7.0	7.0	7.0	7.0	7.0	7.0	7.0
57.5°	14.0	9.6	7.0	6.1	6.1	6.1	6.1	6.1	6.1	7.0	7.0
60°	7.9	6.1	5.2	5.2	5.2	5.2	6.1	6.1	6.1	7.0	7.0
62.5°	5.2	5.2	5.2	5.2	5.2	5.2	6.1	6.1	7.0	7.0	7.0
65°	4.4	4.4	4.4	5.2	5.2	5.2	6.1	6.1	7.0	7.0	7.0
67.5°	4.4	4.4	5.2	5.2	5.2	6.1	6.1	7.0	7.0	7.0	7.0
70°	4.4	5.2	5.2	6.1	6.1	6.1	7.0	7.0	7.0	7.9	7.9
72.5°	4.4	5.2	5.2	6.1	6.1	6.1	7.0	7.0	7.9	7.9	7.9
75°	5.2	5.2	5.2	6.1	6.1	6.1	7.0	7.9	7.9	7.9	7.9
77.5°	5.2	5.2	6.1	6.1	6.1	7.0	7.0	7.9	7.9	7.9	7.9
80°	5.2	5.2	6.1	6.1	7.0	7.0	7.9	7.9	7.9	8.7	8.7
82.5°	5.2	5.2	6.1	7.0	7.0	7.0	7.9	7.9	8.7	8.7	8.7
85°	5.2	6.1	6.1	7.0	7.0	7.0	7.9	7.9	8.7	8.7	8.7
87.5°	5.2	6.1	6.1	7.0	7.0	7.0	7.9	7.9	8.7	8.7	8.7
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°	946.5	946.5	946.5	946.5	946.5	946.5	946.5	946.5	946.5	946.5	946.5
2.5°	841.7	805.0	768.3	741.3	728.2	715.1	686.3	648.7	633.0	610.3	597.2
5°	733.4	671.4	622.5	590.2	571.0	545.7	512.5	475.8	454.9	431.3	415.6
7.5°	621.7	549.2	502.0	472.4	453.1	421.7	379.8	336.2	310.8	284.6	266.3
10°	523.9	454.9	401.6	367.6	343.1	306.5	264.6	234.0	212.2	189.5	171.1
12.5°	437.4	363.2	306.5	277.7	261.1	226.1	191.2	157.2	144.1	139.7	139.7
15°	354.5	287.3	239.2	214.8	197.3	159.8	152.8	151.0	150.2	149.3	151.0
17.5°	289.0	232.2	181.6	169.4	167.6	166.8	167.6	167.6	168.5	171.1	175.5
20°	242.7	190.3	186.8	187.7	187.7	191.2	195.6	199.1	202.6	206.9	214.8
22.5°	215.7	214.8	220.9	221.8	226.1	231.4	239.2	244.5	253.2	257.6	268.9
25°	248.8	255.0	266.3	269.8	276.8	285.5	297.7	304.7	315.2	320.4	333.5
27.5°	282.0	291.6	305.6	310.0	316.1	330.0	338.8	344.9	350.1	353.6	361.5
30°	279.4	288.1	302.1	303.0	311.7	321.3	326.5	331.8	335.3	334.4	338.8
32.5°	236.6	244.5	257.6	257.6	267.2	275.0	277.7	282.0	282.0	282.0	283.8
35°	181.6	186.8	195.6	198.2	206.1	211.3	213.0	218.3	218.3	216.5	216.5
37.5°	125.7	132.7	138.8	140.6	145.8	149.3	153.7	154.5	152.8	153.7	153.7
40°	82.1	86.4	90.8	91.7	96.0	98.7	103.0	103.0	103.9	103.0	104.8
42.5°	50.6	54.1	56.8	58.5	60.2	62.0	64.6	65.5	66.4	65.5	67.2
45°	31.4	33.2	34.9	35.8	36.7	37.5	40.2	40.2	40.2	40.2	41.0
47.5°	19.2	20.1	21.0	21.0	21.8	22.7	23.6	23.6	23.6	23.6	24.4
50°	11.4	12.2	12.2	12.2	13.1	13.1	14.0	14.0	14.0	13.1	14.0
52.5°	7.9	7.9	7.9	7.9	7.9	7.9	7.9	7.9	7.9	7.0	7.9
55°	7.0	7.0	6.1	6.1	6.1	6.1	6.1	5.2	4.4	4.4	3.5
57.5°	6.1	6.1	6.1	6.1	6.1	5.2	5.2	4.4	4.4	3.5	2.6
60°	6.1	6.1	6.1	6.1	6.1	5.2	5.2	4.4	3.5	3.5	2.6
62.5°	7.0	6.1	6.1	6.1	6.1	5.2	5.2	4.4	3.5	3.5	2.6
65°	7.0	7.0	6.1	6.1	6.1	5.2	5.2	4.4	4.4	3.5	2.6
67.5°	7.0	7.0	7.0	6.1	7.0	6.1	5.2	5.2	4.4	3.5	3.5
70°	7.9	7.0	7.0	7.0	7.0	6.1	6.1	5.2	4.4	3.5	3.5
72.5°	7.9	7.9	7.0	7.0	7.0	6.1	6.1	5.2	4.4	4.4	3.5
75°	7.9	7.9	7.0	7.0	7.0	6.1	6.1	5.2	5.2	4.4	3.5
77.5°	7.9	7.9	7.9	7.0	7.0	7.0	6.1	6.1	5.2	4.4	3.5
80°	7.9	7.9	7.9	7.9	7.9	7.0	7.0	6.1	5.2	4.4	3.5
82.5°	8.7	7.9	7.9	7.9	7.9	7.0	7.0	6.1	5.2	4.4	4.4
85°	8.7	8.7	7.9	7.9	7.9	7.0	7.0	6.1	5.2	5.2	4.4
87.5°	8.7	7.9	7.9	7.9	7.9	7.0	7.0	6.1	5.2	4.4	4.4
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: P209071

CATALOG NUMBER: LDSQA6A45840D010TE LARH40FL 6LSQA1H 30°

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	946.5	946.5	946.5	946.5	946.5	946.5	946.5	946.5
2.5°	584.1	577.1	577.1	564.9	563.2	553.6	561.4	556.2
5°	398.1	386.8	383.3	371.1	366.7	355.4	358.9	354.5
7.5°	250.6	239.2	235.7	227.0	221.8	213.0	213.9	211.3
10°	152.8	142.3	139.7	137.1	134.5	133.6	134.5	133.6
12.5°	138.8	138.0	136.2	137.1	135.3	136.2	137.1	136.2
15°	151.0	152.8	151.0	151.9	151.0	152.8	153.7	153.7
17.5°	177.2	180.7	179.0	181.6	180.7	185.1	185.1	185.1
20°	217.4	223.5	221.8	225.3	225.3	230.5	230.5	232.2
22.5°	273.3	281.1	280.3	288.1	286.4	292.5	292.5	294.2
25°	340.5	348.4	349.2	354.5	353.6	359.7	359.7	361.5
27.5°	368.5	372.8	371.9	374.6	375.4	378.9	381.6	379.8
30°	345.8	349.2	348.4	350.1	350.1	352.7	355.4	352.7
32.5°	290.7	293.4	293.4	296.9	294.2	295.1	299.5	296.9
35°	222.6	224.4	222.6	224.4	225.3	225.3	229.6	228.8
37.5°	158.9	159.8	159.8	162.4	159.8	159.8	164.1	165.0
40°	106.5	107.4	106.5	110.0	108.3	108.3	110.9	108.3
42.5°	68.1	69.0	68.1	70.7	69.0	70.7	71.6	72.5
45°	41.9	41.9	41.0	42.8	41.9	42.8	43.7	43.7
47.5°	24.4	24.4	23.6	25.3	24.4	24.4	24.4	25.3
50°	13.1	13.1	13.1	14.0	13.1	13.1	13.1	12.2
52.5°	7.0	7.0	6.1	7.0	6.1	6.1	6.1	6.1
55°	3.5	2.6	2.6	2.6	1.7	1.7	1.7	1.7
57.5°	2.6	1.7	1.7	0.9	0.9	0.9	0.0	0.0
60°	1.7	1.7	0.9	0.9	0.0	0.0	0.0	0.0
62.5°	1.7	1.7	0.9	0.9	0.0	0.0	0.0	0.0
65°	1.7	1.7	0.9	0.9	0.0	0.0	0.0	0.0
67.5°	2.6	1.7	1.7	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	2.6	1.7	1.7	0.9	0.9	0.0	0.0
77.5°	3.5	2.6	1.7	1.7	0.9	0.9	0.0	0.0
80°	3.5	2.6	1.7	1.7	1.7	0.9	0.9	0.9
82.5°	3.5	2.6	2.6	1.7	1.7	0.9	0.9	0.9
85°	3.5	2.6	2.6	1.7	1.7	0.9	0.9	0.9
87.5°	3.5	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)