

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: P209053

Luminaire Tested: **LDSQA6A65830D010TE LARH30NF 6LSQA1H 30°**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P209053
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: LDSQA6A65830D010TE 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 / 3000K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 5804.0 lumens
Efficiency: N/A
Efficacy: 73.8 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

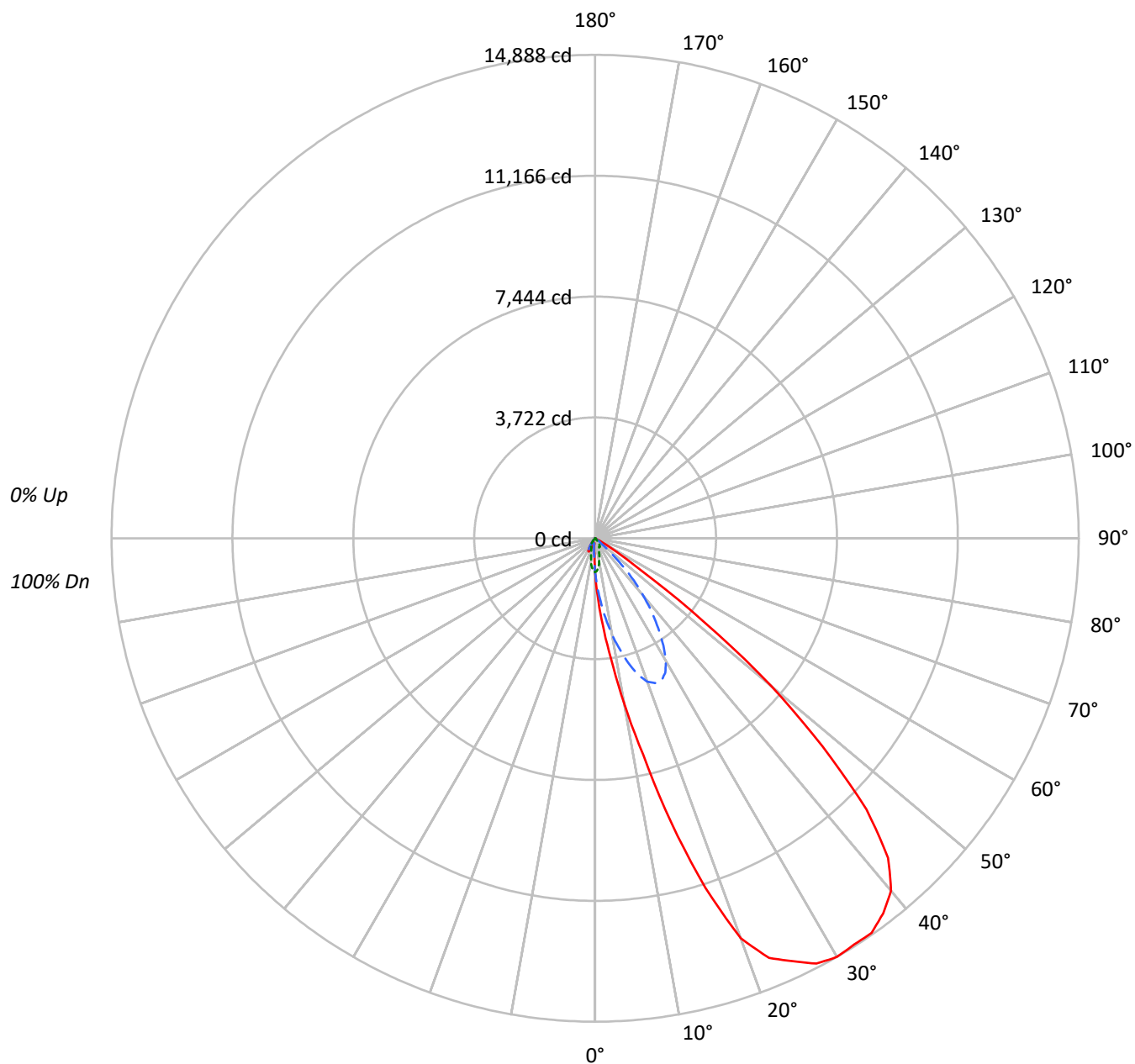
Input Watts (W): 78.67
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	45075	45075	45075
5°	115627	41007	12772
10°	225393	31513	6138
15°	404607	21405	8233
20°	600718	16247	13590
25°	682809	13387	21307
30°	740178	14637	20041
35°	779646	9487	12425
40°	796506	4210	6048
45°	719402	1607	2247
50°	473561	636	636
55°	129683	555	0
60°	25902	637	0
65°	1824	856	0
70°	264	1057	0
75°	0	1580	0
80°	0	2356	273
85°	0	4693	543



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	128.3	2.2
10°-20°	681.3	11.7
20°-30°	1544.2	26.6
30°-40°	1853.6	31.9
40°-50°	1306.4	22.5
50°-60°	269.5	4.6
60°-70°	9.5	0.2
70°-80°	5.7	0.1
80°-90°	5.6	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°	2353.8	40.6
0°-40°	4207.3	72.5
0°-60°	5783.2	99.6
0°-90°	5804.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	5804.0	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	1047	1047	1047	1047	1047	
5°	2675	1949	949	395	296	329
15°	9077	3994	480	171	185	2694
25°	14373	4830	282	395	448	6633
35°	14833	3382	180	236	236	9221
45°	11815	1160	26	36	37	8690
55°	1728	23	7	5	0	2277
65°	18	5	8	5	0	53
75°	0	5	10	6	0	0
85°	0	6	10	6	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°	1046.9	1046.9	1046.9	1046.9	1046.9	1046.9	1046.9	1046.9	1046.9	1046.9	1046.9
2.5°	1784.6	1730.8	1751.9	1689.6	1675.9	1664.3	1675.9	1608.4	1570.4	1521.8	1482.8
5°	2675.3	2611.0	2625.7	2517.0	2467.4	2433.7	2427.3	2288.0	2183.5	2068.5	1949.2
7.5°	3724.4	3663.2	3654.7	3485.9	3383.5	3325.4	3301.2	3101.7	2921.2	2716.5	2492.8
10°	5155.4	5016.1	4972.9	4728.0	4532.8	4409.3	4257.3	3938.6	3622.0	3312.8	3027.8
12.5°	6820.8	6744.8	6637.2	6205.5	5863.6	5688.4	5461.5	4963.4	4484.2	3973.4	3496.4
15°	9077.1	8807.0	8623.3	7999.6	7448.7	7178.6	6847.2	6085.2	5361.2	4714.3	3993.5
17.5°	11281.8	11140.4	10853.3	10043.9	9195.3	8769.0	8275.1	7239.8	6217.1	5296.8	4416.7
20°	13110.7	12977.8	12650.6	11887.6	10946.2	10317.2	9695.6	8275.1	6939.0	5761.2	4699.5
22.5°	13986.7	13902.3	13635.2	12982.0	12179.9	11581.5	10913.5	9156.3	7473.0	6065.2	4828.3
25°	14372.9	14333.9	14161.9	13646.9	12891.2	12383.6	11752.5	9780.0	7805.4	6206.6	4830.4
27.5°	14764.5	14771.9	14391.9	13984.6	13268.0	12780.4	12172.5	10056.5	7865.6	6127.4	4672.1
30°	14888.0	14809.9	14642.1	14057.4	13376.7	12858.5	12206.3	9928.8	7618.6	5802.4	4356.5
32.5°	14837.3	14806.7	14622.0	14003.6	13192.0	12621.0	11880.2	9422.3	7131.1	5338.0	3909.1
35°	14833.1	14776.1	14352.9	13822.0	12822.6	12117.6	11141.4	8603.3	6440.9	4725.9	3382.4
37.5°	14565.0	14423.6	14105.9	13390.4	12073.3	11179.4	10085.0	7602.8	5596.6	4038.9	2860.0
40°	14171.4	13981.4	13563.5	12480.7	10775.2	9745.2	8677.2	6466.2	4702.7	3361.3	2304.9
42.5°	13349.2	13062.2	12471.2	10982.1	9045.5	8116.8	7228.2	5314.8	3835.2	2738.7	1759.3
45°	11814.8	11422.2	10623.2	8988.5	7307.3	6549.6	5835.1	4276.3	3070.0	2031.6	1159.8
47.5°	9496.1	9132.0	8404.9	7155.3	5730.6	5090.0	4520.1	3180.9	2081.2	1176.7	554.1
50°	7069.9	6757.5	6189.7	4972.9	3846.8	3343.4	2855.8	1806.8	975.2	559.3	230.1
52.5°	4218.3	4063.1	3559.7	2757.7	1899.6	1636.9	1313.9	765.1	491.8	202.6	62.3
55°	1727.6	1594.6	1405.7	1128.2	826.3	700.8	599.4	377.8	153.0	42.2	23.2
57.5°	781.0	751.4	665.9	523.5	379.9	318.7	215.3	71.8	33.8	21.1	13.7
60°	300.8	271.2	232.2	125.6	53.8	45.4	36.9	24.3	16.9	11.6	8.4
62.5°	43.3	41.2	36.9	29.6	23.2	21.1	17.9	12.7	9.5	7.4	6.3
65°	17.9	17.9	15.8	12.7	10.6	9.5	8.4	6.3	5.3	5.3	5.3
67.5°	7.4	7.4	6.3	5.3	4.2	4.2	4.2	3.2	4.2	4.2	5.3
70°	2.1	2.1	2.1	2.1	2.1	2.1	3.2	3.2	4.2	4.2	5.3
72.5°	0.0	0.0	1.1	1.1	2.1	2.1	2.1	3.2	4.2	5.3	5.3
75°	0.0	0.0	1.1	1.1	2.1	2.1	2.1	3.2	4.2	5.3	5.3
77.5°	0.0	0.0	1.1	1.1	2.1	2.1	3.2	3.2	4.2	5.3	5.3
80°	0.0	0.0	1.1	1.1	2.1	2.1	3.2	3.2	4.2	5.3	6.3
82.5°	0.0	0.0	1.1	1.1	2.1	2.1	3.2	3.2	4.2	5.3	6.3
85°	0.0	0.0	1.1	1.1	2.1	2.1	3.2	3.2	4.2	5.3	6.3
87.5°	0.0	0.0	1.1	1.1	2.1	2.1	3.2	3.2	4.2	5.3	6.3
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°	1046.9	1046.9	1046.9	1046.9	1046.9	1046.9	1046.9	1046.9	1046.9	1046.9	1046.9
2.5°	1449.0	1381.5	1362.5	1303.4	1253.8	1229.5	1198.9	1130.3	1078.6	1010.0	968.8
5°	1865.9	1738.2	1636.9	1513.4	1432.1	1379.4	1297.0	1171.4	1070.1	948.8	862.2
7.5°	2316.5	2083.3	1900.7	1697.0	1579.9	1488.1	1347.7	1167.2	1018.4	857.0	722.9
10°	2751.3	2403.1	2116.0	1823.7	1669.6	1541.9	1348.7	1121.8	924.5	720.8	579.4
12.5°	3134.4	2684.8	2280.6	1904.9	1713.9	1554.5	1312.9	1040.6	802.1	593.1	468.6
15°	3454.2	2903.3	2396.7	1935.5	1717.1	1527.1	1237.9	924.5	665.9	480.2	392.6
17.5°	3696.9	3018.3	2432.6	1898.6	1655.9	1449.0	1122.9	777.8	540.3	407.4	330.3
20°	3822.5	3040.5	2380.9	1798.3	1542.9	1330.8	972.0	631.1	458.0	354.6	276.5
22.5°	3838.3	2978.2	2257.4	1654.8	1400.5	1187.3	805.2	526.6	408.4	313.4	243.8
25°	3744.4	2843.1	2081.2	1492.3	1244.3	1022.6	655.4	471.7	371.5	281.8	280.7
27.5°	3543.9	2611.0	1870.1	1303.4	1055.4	831.6	556.2	426.4	331.4	298.7	317.7
30°	3261.1	2313.3	1610.5	1064.9	824.2	639.5	468.6	351.4	291.3	294.4	310.3
32.5°	2878.0	1944.0	1305.5	779.9	589.9	481.2	351.4	239.6	241.7	242.7	256.5
35°	2396.7	1558.8	975.2	524.5	414.8	338.8	198.4	176.2	179.4	180.5	190.0
37.5°	1920.8	1197.8	648.0	349.3	260.7	178.4	123.5	118.2	120.3	119.3	129.8
40°	1471.2	834.8	388.4	173.1	100.3	83.4	76.0	72.8	73.9	74.9	81.3
42.5°	1041.6	452.7	192.1	65.4	52.8	48.5	45.4	43.3	44.3	44.3	48.5
45°	528.7	214.2	65.4	35.9	32.7	29.6	27.4	26.4	26.4	26.4	28.5
47.5°	229.0	70.7	30.6	22.2	20.1	19.0	16.9	15.8	15.8	15.8	16.9
50°	71.8	28.5	19.0	14.8	12.7	11.6	10.6	10.6	10.6	9.5	10.6
52.5°	26.4	17.9	12.7	9.5	8.4	8.4	8.4	7.4	8.4	7.4	8.4
55°	15.8	11.6	8.4	7.4	7.4	7.4	7.4	7.4	7.4	7.4	7.4
57.5°	10.6	8.4	7.4	7.4	6.3	6.3	7.4	7.4	7.4	7.4	7.4
60°	7.4	7.4	6.3	6.3	6.3	6.3	7.4	7.4	7.4	7.4	7.4
62.5°	6.3	6.3	6.3	6.3	6.3	6.3	7.4	7.4	7.4	7.4	8.4
65°	5.3	6.3	6.3	6.3	6.3	6.3	7.4	7.4	8.4	8.4	8.4
67.5°	5.3	6.3	6.3	7.4	7.4	7.4	7.4	8.4	8.4	8.4	8.4
70°	6.3	6.3	7.4	7.4	7.4	7.4	8.4	8.4	8.4	8.4	9.5
72.5°	6.3	6.3	7.4	7.4	7.4	7.4	8.4	8.4	9.5	9.5	9.5
75°	6.3	7.4	7.4	7.4	7.4	8.4	8.4	8.4	9.5	9.5	9.5
77.5°	6.3	7.4	7.4	8.4	8.4	8.4	8.4	9.5	9.5	9.5	9.5
80°	6.3	7.4	7.4	8.4	8.4	8.4	9.5	9.5	9.5	9.5	10.6
82.5°	6.3	7.4	7.4	8.4	8.4	8.4	9.5	9.5	9.5	9.5	10.6
85°	7.4	7.4	8.4	8.4	8.4	8.4	9.5	9.5	9.5	9.5	10.6
87.5°	7.4	7.4	8.4	8.4	8.4	8.4	9.5	9.5	10.6	9.5	10.6
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°	1046.9	1046.9	1046.9	1046.9	1046.9	1046.9	1046.9	1046.9	1046.9	1046.9	1046.9
2.5°	913.9	852.7	810.5	794.7	764.1	715.5	687.0	660.7	611.1	600.5	573.1
5°	763.0	664.9	595.2	568.8	534.0	492.9	452.7	426.4	394.7	382.0	363.0
7.5°	601.6	503.4	443.3	422.1	397.9	364.1	328.2	301.8	269.1	252.2	236.4
10°	472.8	400.0	349.3	328.2	302.9	267.0	230.1	195.2	166.7	148.8	145.6
12.5°	384.2	324.0	270.2	248.0	218.5	182.6	156.2	155.1	153.0	152.0	154.1
15°	314.5	256.5	199.5	175.2	166.7	165.7	168.9	172.0	171.0	174.1	176.2
17.5°	258.6	196.3	183.6	184.7	185.7	188.9	194.2	202.6	203.7	209.0	213.2
20°	211.1	207.9	213.2	217.4	220.6	226.9	238.5	249.1	252.2	259.6	268.1
22.5°	239.6	249.1	260.7	266.0	270.2	281.8	294.4	311.3	317.7	327.2	338.8
25°	289.2	305.0	322.9	329.3	335.6	354.6	369.4	389.4	394.7	406.3	417.9
27.5°	330.3	347.2	366.2	374.7	379.9	398.9	411.6	424.3	424.3	430.6	439.0
30°	324.0	337.7	353.5	359.9	362.0	375.7	388.4	392.6	390.5	393.6	400.0
32.5°	269.1	279.7	292.3	297.6	299.7	309.2	319.8	319.8	318.7	318.7	322.9
35°	199.5	206.9	213.2	218.5	221.6	228.0	237.5	236.4	236.4	234.3	237.5
37.5°	134.0	138.3	145.6	147.8	148.8	153.0	160.4	160.4	158.3	159.4	161.5
40°	81.3	86.5	90.8	91.8	93.9	97.1	102.4	102.4	102.4	102.4	103.4
42.5°	48.5	51.7	54.9	54.9	55.9	60.2	62.3	62.3	62.3	62.3	63.3
45°	28.5	29.6	31.7	32.7	32.7	34.8	35.9	35.9	35.9	35.9	36.9
47.5°	16.9	17.9	17.9	19.0	19.0	20.1	21.1	21.1	20.1	20.1	20.1
50°	10.6	10.6	10.6	10.6	11.6	11.6	11.6	11.6	11.6	11.6	10.6
52.5°	8.4	8.4	8.4	8.4	7.4	7.4	7.4	7.4	6.3	6.3	5.3
55°	7.4	7.4	7.4	7.4	7.4	6.3	6.3	6.3	5.3	4.2	3.2
57.5°	7.4	7.4	7.4	7.4	7.4	6.3	6.3	5.3	4.2	4.2	3.2
60°	7.4	7.4	7.4	7.4	7.4	6.3	6.3	5.3	4.2	4.2	3.2
62.5°	8.4	8.4	7.4	7.4	7.4	6.3	6.3	5.3	5.3	4.2	3.2
65°	8.4	8.4	7.4	7.4	7.4	7.4	6.3	6.3	5.3	4.2	3.2
67.5°	8.4	8.4	8.4	8.4	7.4	7.4	7.4	6.3	5.3	4.2	3.2
70°	9.5	9.5	8.4	8.4	8.4	7.4	7.4	6.3	5.3	5.3	4.2
72.5°	9.5	9.5	8.4	8.4	8.4	8.4	7.4	6.3	6.3	5.3	4.2
75°	9.5	9.5	9.5	9.5	8.4	8.4	7.4	7.4	6.3	5.3	4.2
77.5°	9.5	9.5	9.5	9.5	8.4	8.4	8.4	7.4	6.3	5.3	4.2
80°	9.5	9.5	9.5	9.5	9.5	8.4	8.4	7.4	6.3	5.3	4.2
82.5°	10.6	10.6	9.5	9.5	9.5	8.4	8.4	7.4	6.3	5.3	5.3
85°	10.6	10.6	9.5	9.5	9.5	8.4	8.4	7.4	6.3	6.3	5.3
87.5°	10.6	10.6	9.5	9.5	9.5	8.4	8.4	7.4	6.3	6.3	5.3
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: P209053

CATALOG NUMBER: LDSQA6A65830D010TE LARH30NF 6LSQA1H 30°

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	1046.9	1046.9	1046.9	1046.9	1046.9	1046.9	1046.9	1046.9
2.5°	556.2	524.5	514.0	521.3	512.9	506.6	498.1	493.9
5°	348.3	325.1	317.7	319.8	312.4	306.1	297.6	295.5
7.5°	214.2	192.1	183.6	183.6	175.2	167.8	162.5	159.4
10°	143.5	139.3	140.4	141.4	140.4	141.4	138.3	140.4
12.5°	154.1	152.0	154.1	155.1	155.1	157.2	153.0	156.2
15°	179.4	177.3	180.5	182.6	182.6	185.7	181.5	184.7
17.5°	219.5	218.5	223.7	225.8	226.9	232.2	226.9	231.1
20°	277.6	276.5	283.9	287.1	286.0	296.6	289.2	296.6
22.5°	352.5	350.4	360.9	364.1	365.2	378.9	372.5	377.8
25°	427.4	429.5	434.8	440.1	441.1	452.7	443.3	448.5
27.5°	443.3	440.1	443.3	449.6	450.6	455.9	447.5	451.7
30°	401.0	395.8	396.8	404.2	406.3	408.4	401.0	403.1
32.5°	326.1	317.7	317.7	325.1	327.2	330.3	317.7	322.9
35°	240.6	233.2	233.2	238.5	239.6	241.7	232.2	236.4
37.5°	164.6	158.3	160.4	162.5	163.6	165.7	164.6	163.6
40°	105.5	101.3	104.5	104.5	105.5	106.6	106.6	107.6
42.5°	64.4	61.2	63.3	63.3	64.4	64.4	64.4	65.4
45°	36.9	35.9	35.9	36.9	36.9	36.9	35.9	36.9
47.5°	20.1	19.0	20.1	20.1	20.1	20.1	20.1	20.1
50°	10.6	9.5	9.5	9.5	9.5	9.5	9.5	9.5
52.5°	5.3	4.2	4.2	4.2	3.2	4.2	3.2	3.2
55°	3.2	2.1	2.1	2.1	1.1	1.1	0.0	0.0
57.5°	2.1	1.1	1.1	1.1	0.0	0.0	0.0	0.0
60°	2.1	1.1	1.1	1.1	0.0	0.0	0.0	0.0
62.5°	2.1	1.1	1.1	1.1	0.0	0.0	0.0	0.0
65°	2.1	1.1	1.1	1.1	0.0	0.0	0.0	0.0
67.5°	3.2	2.1	1.1	1.1	1.1	0.0	0.0	0.0
70°	3.2	2.1	2.1	1.1	1.1	0.0	0.0	0.0
72.5°	3.2	2.1	2.1	2.1	1.1	1.1	0.0	0.0
75°	3.2	2.1	2.1	2.1	1.1	1.1	0.0	0.0
77.5°	3.2	3.2	2.1	2.1	1.1	1.1	1.1	0.0
80°	4.2	3.2	2.1	2.1	2.1	1.1	1.1	1.1
82.5°	4.2	3.2	2.1	2.1	2.1	1.1	1.1	1.1
85°	4.2	3.2	3.2	2.1	2.1	1.1	1.1	1.1
87.5°	4.2	3.2	3.2	2.1	2.1	1.1	1.1	1.1
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)