

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: P209054

Luminaire Tested: **LDSQA6A65835D010TE LARH30NF 6LSQA1H 30°**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P209054
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: LDSQA6A65835D010TE 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: 6022.5 lumens
Efficiency: N/A
Efficacy: 76.6 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

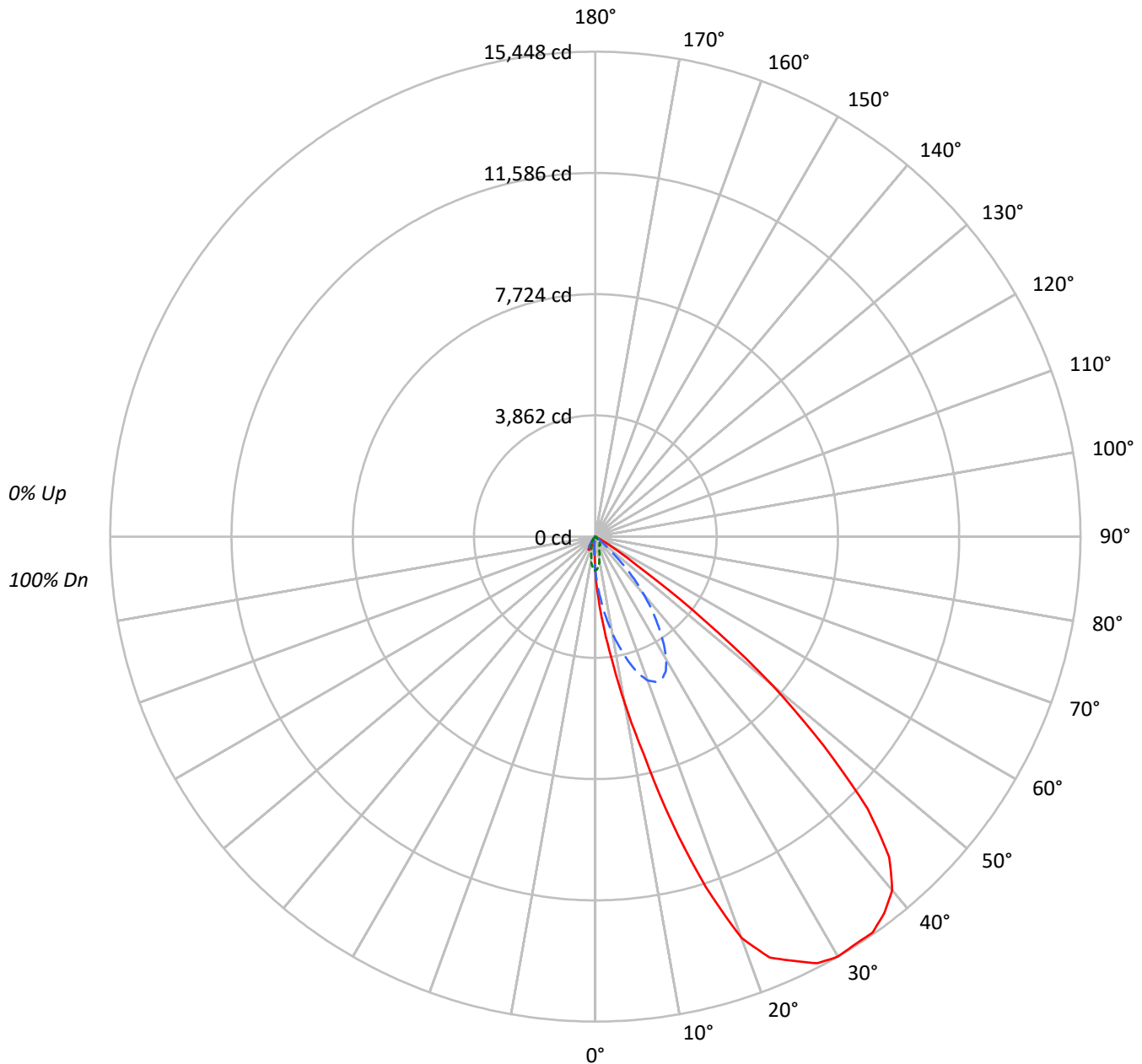
Input Watts (W): 78.67
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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					0
RW	70	50	30	10	70	50	30	10	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	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	89	83	78	86	81	77	83	79	76	81	77	74	73		
4	91	82	75	70	89	81	74	69	78	73	68	76	71	67	74	70	67	65		
5	85	74	67	62	83	73	67	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	43	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	40	36	46	40	36	45	40	36	34		

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	46771	46771	46771
5°	119979	42550	13251
10°	233875	32698	6366
15°	419834	22211	8540
20°	623325	16857	14098
25°	708505	13891	22110
30°	768029	15188	20796
35°	808981	9845	12893
40°	826475	4373	6278
45°	746468	1668	2332
50°	491379	663	663
55°	134562	578	0
60°	26875	663	0
65°	1895	897	0
70°	277	1108	0
75°	0	1647	0
80°	0	2455	273
85°	0	4891	543



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	133.1	2.2
10°-20°	706.9	11.7
20°-30°	1602.3	26.6
30°-40°	1923.3	31.9
40°-50°	1355.5	22.5
50°-60°	279.7	4.6
60°-70°	9.9	0.2
70°-80°	5.9	0.1
80°-90°	5.8	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°	2442.3	40.6
0°-40°	4365.6	72.5
0°-60°	6000.9	99.6
0°-90°	6022.5	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	6022.5	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	1086	1086	1086	1086	1086	
5°	2776	2023	984	410	307	341
15°	9419	4144	498	177	192	2795
25°	14914	5012	292	410	465	6883
35°	15391	3510	187	245	245	9568
45°	12259	1204	27	37	38	9016
55°	1793	24	8	6	0	2362
65°	19	6	9	6	0	55
75°	0	6	10	7	0	0
85°	0	7	10	7	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°	1086.3	1086.3	1086.3	1086.3	1086.3	1086.3	1086.3	1086.3	1086.3	1086.3	1086.3
2.5°	1851.8	1795.9	1817.8	1753.2	1739.0	1726.9	1739.0	1668.9	1629.5	1579.1	1538.6
5°	2776.0	2709.2	2724.5	2611.7	2560.3	2525.2	2518.7	2374.1	2265.7	2146.3	2022.6
7.5°	3864.5	3801.0	3792.2	3617.0	3510.8	3450.6	3425.4	3218.4	3031.2	2818.7	2586.6
10°	5349.4	5204.9	5160.0	4905.9	4703.3	4575.2	4417.5	4086.8	3758.3	3437.4	3141.8
12.5°	7077.5	6998.6	6886.9	6439.0	6084.2	5902.4	5667.0	5150.1	4653.0	4122.9	3628.0
15°	9418.7	9138.4	8947.8	8300.6	7729.0	7448.7	7104.8	6314.2	5563.0	4891.7	4143.8
17.5°	11706.3	11559.6	11261.7	10421.8	9541.4	9099.0	8586.5	7512.2	6451.1	5496.2	4582.9
20°	13604.1	13466.1	13126.6	12334.9	11358.1	10705.4	10060.4	8586.5	7200.1	5978.0	4876.4
22.5°	14513.0	14425.4	14148.3	13470.5	12638.2	12017.3	11324.1	9500.8	7754.2	6293.4	5010.0
25°	14913.8	14873.3	14694.8	14160.4	13376.3	12849.6	12194.7	10148.0	8099.2	6440.1	5012.1
27.5°	15320.1	15327.7	14933.5	14510.8	13767.2	13261.3	12630.6	10434.9	8161.6	6358.0	4847.9
30°	15448.2	15367.1	15193.0	14586.4	13880.0	13342.4	12665.6	10302.4	7905.3	6020.7	4520.5
32.5°	15395.6	15363.9	15172.2	14530.5	13688.4	13096.0	12327.2	9776.8	7399.4	5538.9	4056.1
35°	15391.2	15332.1	14893.0	14342.2	13305.1	12573.6	11560.7	8927.0	6683.2	4903.7	3509.7
37.5°	15113.1	14966.4	14636.7	13894.3	12527.6	11600.1	10464.5	7888.9	5807.2	4190.8	2967.6
40°	14704.6	14507.5	14073.9	12950.3	11180.7	10111.9	9003.7	6709.5	4879.6	3487.8	2391.6
42.5°	13851.6	13553.7	12940.5	11395.3	9385.9	8422.2	7500.1	5514.8	3979.5	2841.7	1825.5
45°	12259.3	11852.0	11023.0	9326.7	7582.3	6796.0	6054.7	4437.2	3185.6	2108.0	1203.5
47.5°	9853.5	9475.7	8721.2	7424.6	5946.2	5281.5	4690.2	3300.5	2159.5	1221.0	574.9
50°	7335.9	7011.7	6422.6	5160.0	3991.5	3469.2	2963.3	1874.8	1011.8	580.4	238.7
52.5°	4377.0	4216.0	3693.7	2861.4	1971.1	1698.5	1363.4	793.9	510.3	210.3	64.6
55°	1792.6	1654.7	1458.6	1170.6	857.4	727.1	622.0	392.0	158.8	43.8	24.1
57.5°	810.4	779.7	691.0	543.2	394.2	330.7	223.4	74.5	35.0	21.9	14.2
60°	312.1	281.4	240.9	130.3	55.8	47.1	38.3	25.2	17.5	12.0	8.8
62.5°	44.9	42.7	38.3	30.7	24.1	21.9	18.6	13.1	9.9	7.7	6.6
65°	18.6	18.6	16.4	13.1	11.0	9.9	8.8	6.6	5.5	5.5	5.5
67.5°	7.7	7.7	6.6	5.5	4.4	4.4	4.4	3.3	4.4	4.4	5.5
70°	2.2	2.2	2.2	2.2	2.2	2.2	3.3	3.3	4.4	4.4	5.5
72.5°	0.0	0.0	1.1	1.1	2.2	2.2	2.2	3.3	4.4	5.5	5.5
75°	0.0	0.0	1.1	1.1	2.2	2.2	2.2	3.3	4.4	5.5	5.5
77.5°	0.0	0.0	1.1	1.1	2.2	2.2	3.3	3.3	4.4	5.5	5.5
80°	0.0	0.0	1.1	1.1	2.2	2.2	3.3	3.3	4.4	5.5	6.6
82.5°	0.0	0.0	1.1	1.1	2.2	2.2	3.3	3.3	4.4	5.5	6.6
85°	0.0	0.0	1.1	1.1	2.2	2.2	3.3	3.3	4.4	5.5	6.6
87.5°	0.0	0.0	1.1	1.1	2.2	2.2	3.3	3.3	4.4	5.5	6.6
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):

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°	95°
0°	1086.3	1086.3	1086.3	1086.3	1086.3	1086.3	1086.3	1086.3	1086.3	1086.3	1086.3
2.5°	1503.5	1433.4	1413.7	1352.4	1300.9	1275.8	1244.0	1172.8	1119.2	1048.0	1005.3
5°	1936.1	1803.6	1698.5	1570.3	1486.0	1431.3	1345.8	1215.5	1110.4	984.5	894.7
7.5°	2403.7	2161.7	1972.2	1760.9	1639.3	1544.1	1398.4	1211.1	1056.7	889.2	750.1
10°	2854.9	2493.5	2195.6	1892.3	1732.4	1599.9	1399.5	1164.1	959.3	747.9	601.2
12.5°	3252.4	2785.9	2366.5	1976.6	1778.4	1613.0	1362.3	1079.7	832.3	615.4	486.2
15°	3584.2	3012.5	2486.9	2008.4	1781.7	1584.6	1284.5	959.3	691.0	498.3	407.4
17.5°	3836.0	3131.9	2524.1	1970.0	1718.2	1503.5	1165.2	807.1	560.7	422.7	342.8
20°	3966.4	3154.9	2470.5	1866.0	1601.0	1380.9	1008.6	654.9	475.3	367.9	286.9
22.5°	3982.8	3090.3	2342.4	1717.1	1453.2	1232.0	835.5	546.4	423.8	325.2	253.0
25°	3885.3	2950.1	2159.5	1548.4	1291.1	1061.1	680.0	489.5	385.5	292.4	291.3
27.5°	3677.3	2709.2	1940.5	1352.4	1095.1	862.9	577.1	442.4	343.9	309.9	329.6
30°	3383.8	2400.4	1671.1	1104.9	855.3	663.6	486.2	364.7	302.2	305.5	322.0
32.5°	2986.3	2017.1	1354.6	809.3	612.1	499.4	364.7	248.6	250.8	251.9	266.1
35°	2486.9	1617.4	1011.8	544.3	430.4	351.5	205.9	182.9	186.2	187.3	197.1
37.5°	1993.0	1242.9	672.4	362.5	270.5	185.1	128.1	122.6	124.8	123.7	134.7
40°	1526.5	866.2	403.0	179.6	104.0	86.5	78.8	75.6	76.7	77.8	84.3
42.5°	1080.8	469.8	199.3	67.9	54.8	50.4	47.1	44.9	46.0	46.0	50.4
45°	548.6	222.3	67.9	37.2	33.9	30.7	28.5	27.4	27.4	27.4	29.6
47.5°	237.6	73.4	31.8	23.0	20.8	19.7	17.5	16.4	16.4	16.4	17.5
50°	74.5	29.6	19.7	15.3	13.1	12.0	11.0	11.0	11.0	9.9	11.0
52.5°	27.4	18.6	13.1	9.9	8.8	8.8	8.8	7.7	8.8	7.7	8.8
55°	16.4	12.0	8.8	7.7	7.7	7.7	7.7	7.7	7.7	7.7	7.7
57.5°	11.0	8.8	7.7	7.7	6.6	6.6	7.7	7.7	7.7	7.7	7.7
60°	7.7	7.7	6.6	6.6	6.6	6.6	7.7	7.7	7.7	7.7	7.7
62.5°	6.6	6.6	6.6	6.6	6.6	6.6	7.7	7.7	7.7	7.7	8.8
65°	5.5	6.6	6.6	6.6	6.6	6.6	7.7	7.7	8.8	8.8	8.8
67.5°	5.5	6.6	6.6	7.7	7.7	7.7	7.7	8.8	8.8	8.8	8.8
70°	6.6	6.6	7.7	7.7	7.7	7.7	8.8	8.8	8.8	8.8	9.9
72.5°	6.6	6.6	7.7	7.7	7.7	7.7	8.8	8.8	9.9	9.9	9.9
75°	6.6	7.7	7.7	7.7	7.7	8.8	8.8	8.8	9.9	9.9	9.9
77.5°	6.6	7.7	7.7	8.8	8.8	8.8	8.8	9.9	9.9	9.9	9.9
80°	6.6	7.7	7.7	8.8	8.8	8.8	9.9	9.9	9.9	9.9	11.0
82.5°	6.6	7.7	7.7	8.8	8.8	8.8	9.9	9.9	9.9	9.9	11.0
85°	7.7	7.7	8.8	8.8	8.8	8.8	9.9	9.9	9.9	9.9	11.0
87.5°	7.7	7.7	8.8	8.8	8.8	8.8	9.9	9.9	11.0	9.9	11.0
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°	1086.3	1086.3	1086.3	1086.3	1086.3	1086.3	1086.3	1086.3	1086.3	1086.3	1086.3
2.5°	948.3	884.8	841.0	824.6	792.8	742.5	712.9	685.5	634.0	623.1	594.6
5°	791.7	689.9	617.6	590.2	554.1	511.4	469.8	442.4	409.6	396.4	376.7
7.5°	624.2	522.3	459.9	438.0	412.8	377.8	340.6	313.2	279.2	261.7	245.3
10°	490.6	415.0	362.5	340.6	314.3	277.1	238.7	202.6	173.0	154.4	151.1
12.5°	398.6	336.2	280.3	257.3	226.7	189.4	162.1	161.0	158.8	157.7	159.9
15°	326.3	266.1	207.0	181.8	173.0	171.9	175.2	178.5	177.4	180.7	182.9
17.5°	268.3	203.7	190.5	191.6	192.7	196.0	201.5	210.3	211.3	216.8	221.2
20°	219.0	215.7	221.2	225.6	228.9	235.4	247.5	258.4	261.7	269.4	278.1
22.5°	248.6	258.4	270.5	276.0	280.3	292.4	305.5	323.0	329.6	339.5	351.5
25°	300.0	316.5	335.1	341.7	348.2	367.9	383.3	404.1	409.6	421.6	433.6
27.5°	342.8	360.3	380.0	388.8	394.2	413.9	427.1	440.2	440.2	446.8	455.5
30°	336.2	350.4	366.8	373.4	375.6	389.8	403.0	407.4	405.2	408.5	415.0
32.5°	279.2	290.2	303.3	308.8	311.0	320.9	331.8	331.8	330.7	330.7	335.1
35°	207.0	214.6	221.2	226.7	230.0	236.5	246.4	245.3	245.3	243.1	246.4
37.5°	139.1	143.5	151.1	153.3	154.4	158.8	166.5	166.5	164.3	165.4	167.5
40°	84.3	89.8	94.2	95.3	97.5	100.7	106.2	106.2	106.2	106.2	107.3
42.5°	50.4	53.7	56.9	56.9	58.0	62.4	64.6	64.6	64.6	64.6	65.7
45°	29.6	30.7	32.9	33.9	33.9	36.1	37.2	37.2	37.2	37.2	38.3
47.5°	17.5	18.6	18.6	19.7	19.7	20.8	21.9	21.9	20.8	20.8	20.8
50°	11.0	11.0	11.0	11.0	12.0	12.0	12.0	12.0	12.0	12.0	11.0
52.5°	8.8	8.8	8.8	8.8	7.7	7.7	7.7	7.7	6.6	6.6	5.5
55°	7.7	7.7	7.7	7.7	7.7	6.6	6.6	6.6	5.5	4.4	3.3
57.5°	7.7	7.7	7.7	7.7	7.7	6.6	6.6	5.5	4.4	4.4	3.3
60°	7.7	7.7	7.7	7.7	7.7	6.6	6.6	5.5	4.4	4.4	3.3
62.5°	8.8	8.8	7.7	7.7	7.7	6.6	6.6	5.5	5.5	4.4	3.3
65°	8.8	8.8	7.7	7.7	7.7	7.7	6.6	6.6	5.5	4.4	3.3
67.5°	8.8	8.8	8.8	8.8	7.7	7.7	7.7	6.6	5.5	4.4	3.3
70°	9.9	9.9	8.8	8.8	8.8	7.7	7.7	6.6	5.5	5.5	4.4
72.5°	9.9	9.9	8.8	8.8	8.8	8.8	7.7	6.6	6.6	5.5	4.4
75°	9.9	9.9	9.9	9.9	8.8	8.8	7.7	7.7	6.6	5.5	4.4
77.5°	9.9	9.9	9.9	9.9	8.8	8.8	8.8	7.7	6.6	5.5	4.4
80°	9.9	9.9	9.9	9.9	9.9	8.8	8.8	7.7	6.6	5.5	4.4
82.5°	11.0	11.0	9.9	9.9	9.9	8.8	8.8	7.7	6.6	5.5	5.5
85°	11.0	11.0	9.9	9.9	9.9	8.8	8.8	7.7	6.6	6.6	5.5
87.5°	11.0	11.0	9.9	9.9	9.9	8.8	8.8	7.7	6.6	6.6	5.5
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: P209054

CATALOG NUMBER: LDSQA6A65835D010TE LARH30NF 6LSQA1H 30°

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	1086.3	1086.3	1086.3	1086.3	1086.3	1086.3	1086.3	1086.3
2.5°	577.1	544.3	533.3	541.0	532.2	525.6	516.9	512.5
5°	361.4	337.3	329.6	331.8	324.1	317.6	308.8	306.6
7.5°	222.3	199.3	190.5	190.5	181.8	174.1	168.6	165.4
10°	148.9	144.5	145.6	146.7	145.6	146.7	143.5	145.6
12.5°	159.9	157.7	159.9	161.0	161.0	163.2	158.8	162.1
15°	186.2	184.0	187.3	189.4	189.4	192.7	188.4	191.6
17.5°	227.8	226.7	232.2	234.3	235.4	240.9	235.4	239.8
20°	288.0	286.9	294.6	297.9	296.8	307.7	300.0	307.7
22.5°	365.8	363.6	374.5	377.8	378.9	393.1	386.6	392.0
25°	443.5	445.7	451.2	456.6	457.7	469.8	459.9	465.4
27.5°	459.9	456.6	459.9	466.5	467.6	473.1	464.3	468.7
30°	416.1	410.7	411.7	419.4	421.6	423.8	416.1	418.3
32.5°	338.4	329.6	329.6	337.3	339.5	342.8	329.6	335.1
35°	249.7	242.0	242.0	247.5	248.6	250.8	240.9	245.3
37.5°	170.8	164.3	166.5	168.6	169.7	171.9	170.8	169.7
40°	109.5	105.1	108.4	108.4	109.5	110.6	110.6	111.7
42.5°	66.8	63.5	65.7	65.7	66.8	66.8	66.8	67.9
45°	38.3	37.2	37.2	38.3	38.3	38.3	37.2	38.3
47.5°	20.8	19.7	20.8	20.8	20.8	20.8	20.8	20.8
50°	11.0	9.9	9.9	9.9	9.9	9.9	9.9	9.9
52.5°	5.5	4.4	4.4	4.4	3.3	4.4	3.3	3.3
55°	3.3	2.2	2.2	2.2	1.1	1.1	0.0	0.0
57.5°	2.2	1.1	1.1	1.1	0.0	0.0	0.0	0.0
60°	2.2	1.1	1.1	1.1	0.0	0.0	0.0	0.0
62.5°	2.2	1.1	1.1	1.1	0.0	0.0	0.0	0.0
65°	2.2	1.1	1.1	1.1	0.0	0.0	0.0	0.0
67.5°	3.3	2.2	1.1	1.1	1.1	0.0	0.0	0.0
70°	3.3	2.2	2.2	1.1	1.1	0.0	0.0	0.0
72.5°	3.3	2.2	2.2	2.2	1.1	1.1	0.0	0.0
75°	3.3	2.2	2.2	2.2	1.1	1.1	0.0	0.0
77.5°	3.3	3.3	2.2	2.2	1.1	1.1	1.1	0.0
80°	4.4	3.3	2.2	2.2	2.2	1.1	1.1	1.1
82.5°	4.4	3.3	2.2	2.2	2.2	1.1	1.1	1.1
85°	4.4	3.3	3.3	2.2	2.2	1.1	1.1	1.1
87.5°	4.4	3.3	3.3	2.2	2.2	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)