

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: P209050

Luminaire Tested: **LDSQA6A55935D010TE LARH30NF 6LSQA1H 30°**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P209050
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: LDSQA6A55935D010TE 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 90CRI / 3500K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 4367.3 lumens
Efficiency: N/A
Efficacy: 71.8 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

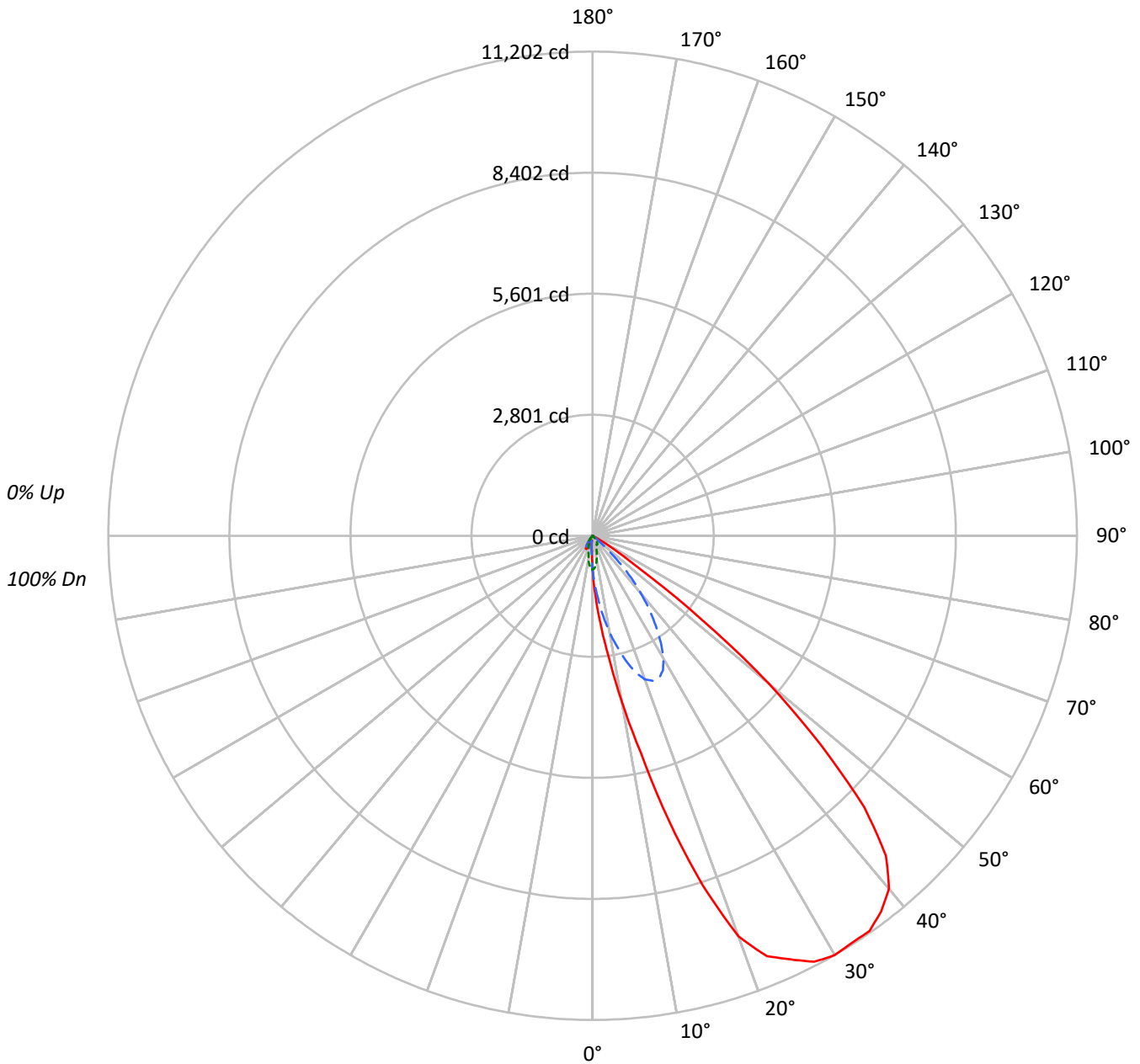
Input Watts (W): 60.8
Input Voltage (V): NR
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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Luminous Intensity Polar Plot





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COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:

RF	20									20									20									20									
RC	80									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	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°	33915	33915	33915
5°	87002	30855	9608
10°	169598	23714	4617
15°	304448	16105	6196
20°	452008	12224	10222
25°	513780	10071	16033
30°	556943	11017	15079
35°	586641	7138	9351
40°	599327	3170	4553
45°	541311	1212	1693
50°	356328	476	476
55°	97577	420	0
60°	19487	482	0
65°	1375	652	0
70°	201	806	0
75°	0	1181	0
80°	0	1760	198
85°	0	3507	395



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	96.5	2.2
10°-20°	512.6	11.7
20°-30°	1161.9	26.6
30°-40°	1394.7	31.9
40°-50°	983.0	22.5
50°-60°	202.8	4.6
60°-70°	7.2	0.2
70°-80°	4.3	0.1
80°-90°	4.2	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°	1771.1	40.6
0°-40°	3165.8	72.5
0°-60°	4351.6	99.6
0°-90°	4367.3	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	4367.3	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	788	788	788	788	788	
5°	2013	1467	714	297	222	248
15°	6830	3005	361	129	139	2027
25°	10815	3635	212	297	338	4991
35°	11161	2545	136	178	178	6938
45°	8890	873	20	27	28	6538
55°	1300	18	6	4	0	1713
65°	14	4	6	4	0	40
75°	0	4	7	5	0	0
85°	0	5	7	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°	787.7	787.7	787.7	787.7	787.7	787.7	787.7	787.7	787.7	787.7	787.7
2.5°	1342.8	1302.3	1318.2	1271.4	1261.0	1252.3	1261.0	1210.2	1181.6	1145.1	1115.7
5°	2013.0	1964.6	1975.7	1893.9	1856.6	1831.2	1826.4	1721.6	1643.0	1556.4	1466.7
7.5°	2802.4	2756.3	2750.0	2622.9	2545.9	2502.2	2483.9	2333.9	2198.1	2044.0	1875.7
10°	3879.2	3774.4	3741.8	3557.6	3410.7	3317.8	3203.4	2963.6	2725.4	2492.7	2278.3
12.5°	5132.3	5075.1	4994.1	4669.3	4412.0	4280.2	4109.5	3734.7	3374.1	2989.8	2630.9
15°	6830.1	6626.8	6488.6	6019.3	5604.8	5401.5	5152.1	4578.8	4034.0	3547.2	3004.9
17.5°	8488.9	8382.5	8166.5	7557.5	6919.0	6598.2	6226.5	5447.5	4678.0	3985.6	3323.3
20°	9865.1	9765.1	9518.9	8944.7	8236.4	7763.1	7295.4	6226.5	5221.2	4335.0	3536.1
22.5°	10524.2	10460.7	10259.8	9768.2	9164.7	8714.5	8211.8	6889.6	5623.0	4563.7	3633.0
25°	10814.9	10785.5	10656.0	10268.5	9699.9	9318.0	8843.1	7358.9	5873.2	4670.1	3634.6
27.5°	11109.5	11115.0	10829.1	10522.6	9983.4	9616.6	9159.2	7567.0	5918.4	4610.5	3515.5
30°	11202.4	11143.6	11017.3	10577.4	10065.2	9675.3	9184.6	7470.9	5732.6	4366.0	3278.0
32.5°	11164.3	11141.2	11002.3	10536.9	9926.3	9496.6	8939.2	7089.7	5365.7	4016.6	2941.3
35°	11161.1	11118.2	10799.8	10400.3	9648.3	9117.9	8383.3	6473.5	4846.4	3556.0	2545.1
37.5°	10959.4	10853.0	10613.9	10075.5	9084.5	8411.9	7588.4	5720.7	4211.1	3039.0	2152.0
40°	10663.2	10520.2	10205.8	9391.0	8107.8	7332.7	6529.1	4865.5	3538.5	2529.2	1734.3
42.5°	10044.6	9828.6	9383.9	8263.4	6806.2	6107.4	5438.8	3999.1	2885.8	2060.7	1323.8
45°	8890.0	8594.5	7993.4	6763.4	5498.4	4928.2	4390.6	3217.7	2310.0	1528.6	872.7
47.5°	7145.3	6871.4	6324.2	5384.0	4312.0	3829.9	3401.1	2393.4	1566.0	885.4	416.9
50°	5319.7	5084.6	4657.4	3741.8	2894.5	2515.7	2148.8	1359.5	733.7	420.9	173.1
52.5°	3174.0	3057.3	2678.5	2075.0	1429.4	1231.6	988.7	575.7	370.1	152.5	46.9
55°	1299.9	1199.9	1057.7	848.9	621.8	527.3	451.0	284.3	115.1	31.8	17.5
57.5°	587.6	565.4	501.1	393.9	285.9	239.8	162.0	54.0	25.4	15.9	10.3
60°	226.3	204.1	174.7	94.5	40.5	34.1	27.8	18.3	12.7	8.7	6.4
62.5°	32.6	31.0	27.8	22.2	17.5	15.9	13.5	9.5	7.1	5.6	4.8
65°	13.5	13.5	11.9	9.5	7.9	7.1	6.4	4.8	4.0	4.0	4.0
67.5°	5.6	5.6	4.8	4.0	3.2	3.2	3.2	2.4	3.2	3.2	4.0
70°	1.6	1.6	1.6	1.6	1.6	1.6	2.4	2.4	3.2	3.2	4.0
72.5°	0.0	0.0	0.8	0.8	1.6	1.6	1.6	2.4	3.2	4.0	4.0
75°	0.0	0.0	0.8	0.8	1.6	1.6	1.6	2.4	3.2	4.0	4.0
77.5°	0.0	0.0	0.8	0.8	1.6	1.6	2.4	2.4	3.2	4.0	4.0
80°	0.0	0.0	0.8	0.8	1.6	1.6	2.4	2.4	3.2	4.0	4.8
82.5°	0.0	0.0	0.8	0.8	1.6	1.6	2.4	2.4	3.2	4.0	4.8
85°	0.0	0.0	0.8	0.8	1.6	1.6	2.4	2.4	3.2	4.0	4.8
87.5°	0.0	0.0	0.8	0.8	1.6	1.6	2.4	2.4	3.2	4.0	4.8
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):

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°	95°
0°	787.7	787.7	787.7	787.7	787.7	787.7	787.7	787.7	787.7	787.7	787.7
2.5°	1090.3	1039.5	1025.2	980.7	943.4	925.1	902.1	850.5	811.6	760.0	729.0
5°	1404.0	1307.9	1231.6	1138.7	1077.6	1037.9	975.9	881.5	805.2	713.9	648.8
7.5°	1743.1	1567.6	1430.2	1276.9	1188.8	1119.7	1014.1	878.3	766.3	644.8	544.0
10°	2070.2	1808.2	1592.2	1372.2	1256.3	1160.2	1014.9	844.1	695.6	542.4	436.0
12.5°	2358.5	2020.2	1716.1	1433.4	1289.6	1169.7	987.9	783.0	603.5	446.3	352.6
15°	2599.1	2184.6	1803.4	1456.4	1292.0	1149.1	931.5	695.6	501.1	361.3	295.4
17.5°	2781.7	2271.1	1830.4	1428.6	1245.9	1090.3	844.9	585.3	406.6	306.5	248.6
20°	2876.2	2287.8	1791.5	1353.1	1161.0	1001.4	731.4	474.9	344.6	266.8	208.1
22.5°	2888.1	2241.0	1698.6	1245.1	1053.8	893.4	605.9	396.3	307.3	235.8	183.4
25°	2817.5	2139.3	1566.0	1122.9	936.2	769.5	493.1	355.0	279.5	212.0	211.2
27.5°	2666.6	1964.6	1407.1	980.7	794.1	625.8	418.5	320.8	249.3	224.7	239.0
30°	2453.8	1740.7	1211.8	801.2	620.2	481.2	352.6	264.4	219.2	221.6	233.5
32.5°	2165.5	1462.7	982.3	586.8	443.9	362.1	264.4	180.3	181.8	182.6	193.0
35°	1803.4	1172.9	733.7	394.7	312.1	254.9	149.3	132.6	135.0	135.8	142.9
37.5°	1445.3	901.3	487.6	262.8	196.1	134.2	92.9	88.9	90.5	89.7	97.7
40°	1107.0	628.1	292.2	130.2	75.4	62.7	57.2	54.8	55.6	56.4	61.1
42.5°	783.8	340.7	144.5	49.2	39.7	36.5	34.1	32.6	33.4	33.4	36.5
45°	397.8	161.2	49.2	27.0	24.6	22.2	20.6	19.9	19.9	19.9	21.4
47.5°	172.3	53.2	23.0	16.7	15.1	14.3	12.7	11.9	11.9	11.9	12.7
50°	54.0	21.4	14.3	11.1	9.5	8.7	7.9	7.9	7.9	7.1	7.9
52.5°	19.9	13.5	9.5	7.1	6.4	6.4	6.4	5.6	6.4	5.6	6.4
55°	11.9	8.7	6.4	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6
57.5°	7.9	6.4	5.6	5.6	4.8	4.8	5.6	5.6	5.6	5.6	5.6
60°	5.6	5.6	4.8	4.8	4.8	4.8	5.6	5.6	5.6	5.6	5.6
62.5°	4.8	4.8	4.8	4.8	4.8	4.8	5.6	5.6	5.6	5.6	6.4
65°	4.0	4.8	4.8	4.8	4.8	4.8	5.6	5.6	6.4	6.4	6.4
67.5°	4.0	4.8	4.8	5.6	5.6	5.6	5.6	6.4	6.4	6.4	6.4
70°	4.8	4.8	5.6	5.6	5.6	5.6	6.4	6.4	6.4	6.4	7.1
72.5°	4.8	4.8	5.6	5.6	5.6	5.6	6.4	6.4	7.1	7.1	7.1
75°	4.8	5.6	5.6	5.6	5.6	6.4	6.4	6.4	7.1	7.1	7.1
77.5°	4.8	5.6	5.6	6.4	6.4	6.4	6.4	7.1	7.1	7.1	7.1
80°	4.8	5.6	5.6	6.4	6.4	6.4	7.1	7.1	7.1	7.1	7.9
82.5°	4.8	5.6	5.6	6.4	6.4	6.4	7.1	7.1	7.1	7.1	7.9
85°	5.6	5.6	6.4	6.4	6.4	6.4	7.1	7.1	7.1	7.1	7.9
87.5°	5.6	5.6	6.4	6.4	6.4	6.4	7.1	7.1	7.9	7.1	7.9
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°	787.7	787.7	787.7	787.7	787.7	787.7	787.7	787.7	787.7	787.7	787.7
2.5°	687.7	641.6	609.9	598.0	574.9	538.4	517.0	497.1	459.8	451.8	431.2
5°	574.1	500.3	447.9	428.0	401.8	370.8	340.7	320.8	297.0	287.5	273.2
7.5°	452.6	378.8	333.5	317.6	299.4	274.0	247.0	227.1	202.5	189.8	177.9
10°	355.8	301.0	262.8	247.0	227.9	200.9	173.1	146.9	125.5	112.0	109.6
12.5°	289.1	243.8	203.3	186.6	164.4	137.4	117.5	116.7	115.1	114.4	115.9
15°	236.6	193.0	150.1	131.8	125.5	124.7	127.1	129.4	128.6	131.0	132.6
17.5°	194.6	147.7	138.2	139.0	139.8	142.1	146.1	152.5	153.3	157.2	160.4
20°	158.8	156.4	160.4	163.6	166.0	170.7	179.5	187.4	189.8	195.3	201.7
22.5°	180.3	187.4	196.1	200.1	203.3	212.0	221.6	234.3	239.0	246.2	254.9
25°	217.6	229.5	243.0	247.8	252.5	266.8	277.9	293.0	297.0	305.7	314.5
27.5°	248.6	261.3	275.6	281.9	285.9	300.2	309.7	319.2	319.2	324.0	330.3
30°	243.8	254.1	266.0	270.8	272.4	282.7	292.2	295.4	293.8	296.2	301.0
32.5°	202.5	210.4	220.0	223.9	225.5	232.7	240.6	240.6	239.8	239.8	243.0
35°	150.1	155.6	160.4	164.4	166.8	171.5	178.7	177.9	177.9	176.3	178.7
37.5°	100.9	104.0	109.6	111.2	112.0	115.1	120.7	120.7	119.1	119.9	121.5
40°	61.1	65.1	68.3	69.1	70.7	73.1	77.0	77.0	77.0	77.0	77.8
42.5°	36.5	38.9	41.3	41.3	42.1	45.3	46.9	46.9	46.9	46.9	47.6
45°	21.4	22.2	23.8	24.6	24.6	26.2	27.0	27.0	27.0	27.0	27.8
47.5°	12.7	13.5	13.5	14.3	14.3	15.1	15.9	15.9	15.1	15.1	15.1
50°	7.9	7.9	7.9	7.9	8.7	8.7	8.7	8.7	8.7	8.7	7.9
52.5°	6.4	6.4	6.4	6.4	5.6	5.6	5.6	5.6	4.8	4.8	4.0
55°	5.6	5.6	5.6	5.6	5.6	4.8	4.8	4.8	4.0	3.2	2.4
57.5°	5.6	5.6	5.6	5.6	5.6	4.8	4.8	4.0	3.2	3.2	2.4
60°	5.6	5.6	5.6	5.6	5.6	4.8	4.8	4.0	3.2	3.2	2.4
62.5°	6.4	6.4	5.6	5.6	5.6	4.8	4.8	4.0	4.0	3.2	2.4
65°	6.4	6.4	5.6	5.6	5.6	5.6	4.8	4.8	4.0	3.2	2.4
67.5°	6.4	6.4	6.4	6.4	5.6	5.6	5.6	4.8	4.0	3.2	2.4
70°	7.1	7.1	6.4	6.4	6.4	5.6	5.6	4.8	4.0	4.0	3.2
72.5°	7.1	7.1	6.4	6.4	6.4	6.4	5.6	4.8	4.8	4.0	3.2
75°	7.1	7.1	7.1	7.1	6.4	6.4	5.6	5.6	4.8	4.0	3.2
77.5°	7.1	7.1	7.1	7.1	6.4	6.4	6.4	5.6	4.8	4.0	3.2
80°	7.1	7.1	7.1	7.1	7.1	6.4	6.4	5.6	4.8	4.0	3.2
82.5°	7.9	7.9	7.1	7.1	7.1	6.4	6.4	5.6	4.8	4.0	4.0
85°	7.9	7.9	7.1	7.1	7.1	6.4	6.4	5.6	4.8	4.8	4.0
87.5°	7.9	7.9	7.1	7.1	7.1	6.4	6.4	5.6	4.8	4.8	4.0
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: P209050

CATALOG NUMBER: LDSQA6A55935D010TE LARH30NF 6LSQA1H 30°

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	787.7	787.7	787.7	787.7	787.7	787.7	787.7	787.7
2.5°	418.5	394.7	386.7	392.3	385.9	381.2	374.8	371.6
5°	262.1	244.6	239.0	240.6	235.1	230.3	223.9	222.3
7.5°	161.2	144.5	138.2	138.2	131.8	126.3	122.3	119.9
10°	108.0	104.8	105.6	106.4	105.6	106.4	104.0	105.6
12.5°	115.9	114.4	115.9	116.7	116.7	118.3	115.1	117.5
15°	135.0	133.4	135.8	137.4	137.4	139.8	136.6	139.0
17.5°	165.2	164.4	168.3	169.9	170.7	174.7	170.7	173.9
20°	208.8	208.1	213.6	216.0	215.2	223.1	217.6	223.1
22.5°	265.2	263.6	271.6	274.0	274.8	285.1	280.3	284.3
25°	321.6	323.2	327.2	331.1	331.9	340.7	333.5	337.5
27.5°	333.5	331.1	333.5	338.3	339.1	343.1	336.7	339.9
30°	301.8	297.8	298.6	304.1	305.7	307.3	301.8	303.3
32.5°	245.4	239.0	239.0	244.6	246.2	248.6	239.0	243.0
35°	181.1	175.5	175.5	179.5	180.3	181.8	174.7	177.9
37.5°	123.9	119.1	120.7	122.3	123.1	124.7	123.9	123.1
40°	79.4	76.2	78.6	78.6	79.4	80.2	80.2	81.0
42.5°	48.4	46.1	47.6	47.6	48.4	48.4	48.4	49.2
45°	27.8	27.0	27.0	27.8	27.8	27.8	27.0	27.8
47.5°	15.1	14.3	15.1	15.1	15.1	15.1	15.1	15.1
50°	7.9	7.1	7.1	7.1	7.1	7.1	7.1	7.1
52.5°	4.0	3.2	3.2	3.2	2.4	3.2	2.4	2.4
55°	2.4	1.6	1.6	1.6	0.8	0.8	0.0	0.0
57.5°	1.6	0.8	0.8	0.8	0.0	0.0	0.0	0.0
60°	1.6	0.8	0.8	0.8	0.0	0.0	0.0	0.0
62.5°	1.6	0.8	0.8	0.8	0.0	0.0	0.0	0.0
65°	1.6	0.8	0.8	0.8	0.0	0.0	0.0	0.0
67.5°	2.4	1.6	0.8	0.8	0.8	0.0	0.0	0.0
70°	2.4	1.6	1.6	0.8	0.8	0.0	0.0	0.0
72.5°	2.4	1.6	1.6	1.6	0.8	0.8	0.0	0.0
75°	2.4	1.6	1.6	1.6	0.8	0.8	0.0	0.0
77.5°	2.4	2.4	1.6	1.6	0.8	0.8	0.8	0.0
80°	3.2	2.4	1.6	1.6	1.6	0.8	0.8	0.8
82.5°	3.2	2.4	1.6	1.6	1.6	0.8	0.8	0.8
85°	3.2	2.4	2.4	1.6	1.6	0.8	0.8	0.8
87.5°	3.2	2.4	2.4	1.6	1.6	0.8	0.8	0.8
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)