

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: P209059

Luminaire Tested: **LDSQA6A65940D010TE LARH30NF 6LSQA1H 30°**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P209059
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: LDSQA6A65940D010TE 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 / 4000K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 5265.7 lumens
Efficiency: N/A
Efficacy: 66.9 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

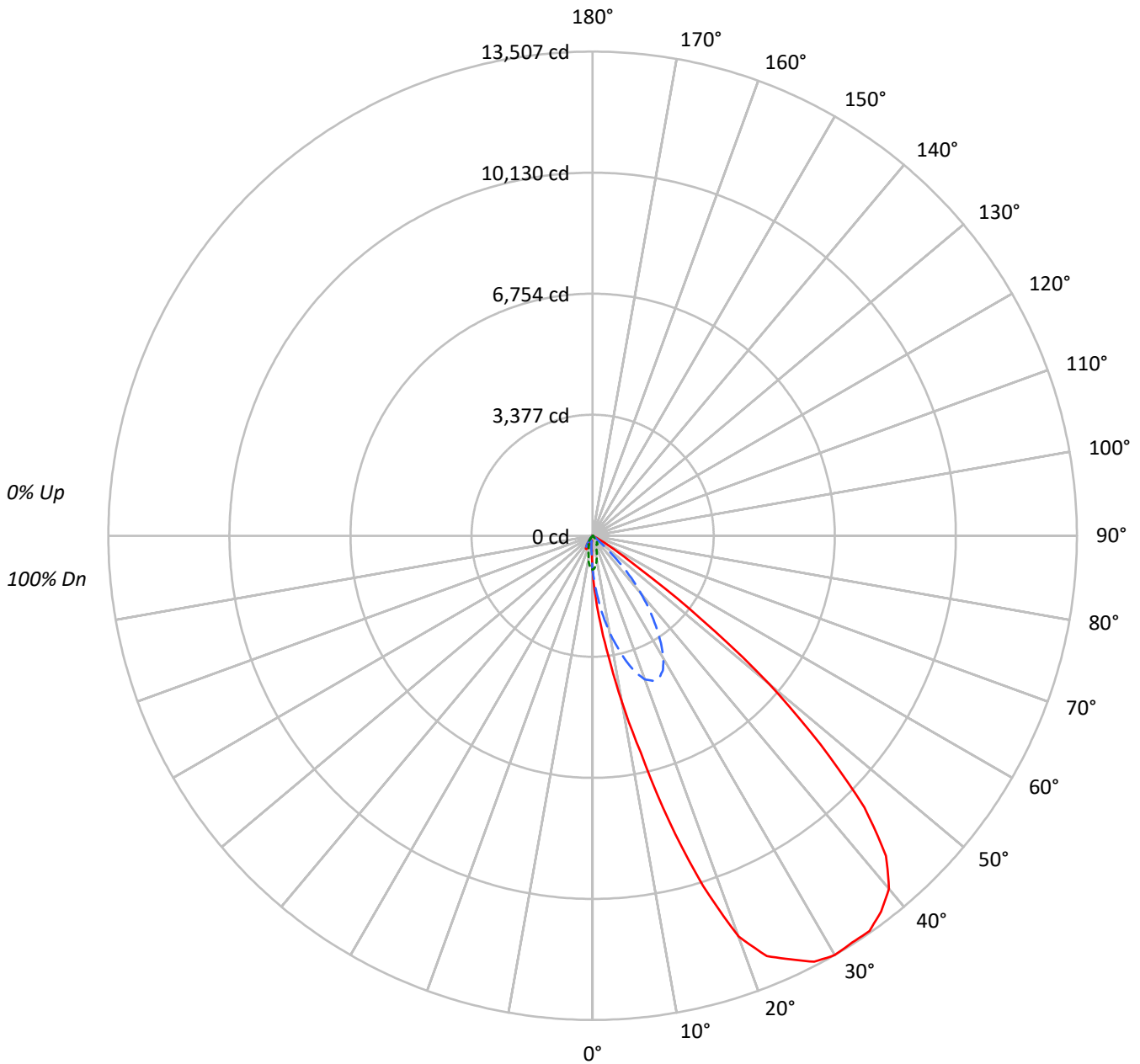
Input Watts (W): 78.67
Input Voltage (V): NR
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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°	40894	40894	40894
5°	104904	37204	11587
10°	204487	28593	5566
15°	367080	19417	7471
20°	544997	14740	12325
25°	619477	12143	19330
30°	671519	13279	18186
35°	707327	8604	11274
40°	722624	3822	5491
45°	652673	1455	2040
50°	429634	576	576
55°	117657	503	0
60°	23500	577	0
65°	1661	784	0
70°	239	969	0
75°	0	1431	0
80°	0	2132	248
85°	0	4248	494



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	116.4	2.2
10°-20°	618.1	11.7
20°-30°	1401.0	26.6
30°-40°	1681.6	31.9
40°-50°	1185.2	22.5
50°-60°	244.5	4.6
60°-70°	8.7	0.2
70°-80°	5.2	0.1
80°-90°	5.1	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°	2135.4	40.6
0°-40°	3817.1	72.5
0°-60°	5246.8	99.6
0°-90°	5265.7	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	5265.7	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	950	950	950	950	950	
5°	2427	1768	861	358	268	299
15°	8235	3623	436	155	168	2444
25°	13040	4382	256	358	407	6018
35°	13457	3069	164	214	214	8366
45°	10719	1052	24	33	34	7884
55°	1567	21	7	5	0	2065
65°	16	5	8	5	0	48
75°	0	5	9	6	0	0
85°	0	6	9	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°	949.8	949.8	949.8	949.8	949.8	949.8	949.8	949.8	949.8	949.8	949.8
2.5°	1619.1	1570.2	1589.4	1532.9	1520.5	1509.9	1520.5	1459.2	1424.7	1380.7	1345.2
5°	2427.2	2368.8	2382.2	2283.6	2238.6	2207.9	2202.2	2075.8	1981.0	1876.6	1768.4
7.5°	3378.9	3323.4	3315.7	3162.5	3069.6	3017.0	2995.0	2814.0	2650.3	2464.5	2261.5
10°	4677.2	4550.8	4511.6	4289.5	4112.3	4000.3	3862.4	3573.3	3286.0	3005.5	2747.0
12.5°	6188.1	6119.2	6021.5	5629.9	5319.7	5160.8	4954.9	4503.0	4068.3	3604.9	3172.1
15°	8235.2	7990.1	7823.5	7257.6	6757.8	6512.7	6212.1	5520.8	4863.9	4277.0	3623.1
17.5°	10235.3	10107.0	9846.6	9112.2	8342.4	7955.6	7507.5	6568.2	5640.4	4805.5	4007.0
20°	11894.6	11774.0	11477.2	10784.9	9930.9	9360.2	8796.3	7507.5	6295.4	5226.8	4263.6
22.5°	12689.3	12612.7	12370.5	11777.8	11050.1	10507.3	9901.2	8307.0	6779.8	5502.6	4380.4
25°	13039.8	13004.3	12848.3	12381.0	11695.5	11234.9	10662.4	8872.9	7081.4	5630.9	4382.3
27.5°	13395.0	13401.7	13057.0	12687.4	12037.3	11594.9	11043.4	9123.7	7136.0	5559.1	4238.7
30°	13507.0	13436.2	13283.9	12753.5	12135.9	11665.8	11074.1	9007.9	6912.0	5264.2	3952.4
32.5°	13461.0	13433.3	13265.7	12704.6	11968.4	11450.4	10778.2	8548.3	6469.6	4842.9	3546.5
35°	13457.2	13405.5	13021.6	12540.0	11633.2	10993.7	10108.0	7805.3	5843.4	4287.5	3068.7
37.5°	13214.0	13085.7	12797.5	12148.4	10953.4	10142.5	9149.6	6897.6	5077.5	3664.2	2594.7
40°	12856.9	12684.5	12305.4	11323.0	9775.8	8841.3	7872.3	5866.4	4266.5	3049.5	2091.1
42.5°	12111.0	11850.6	11314.4	9963.4	8206.5	7363.9	6557.7	4821.8	3479.4	2484.6	1596.1
45°	10718.9	10362.7	9637.9	8154.8	6629.5	5942.0	5293.8	3879.7	2785.3	1843.1	1052.3
47.5°	8615.3	8285.0	7625.3	6491.6	5199.1	4617.9	4100.8	2885.8	1888.1	1067.6	502.7
50°	6414.1	6130.7	5615.6	4511.6	3490.0	3033.3	2590.9	1639.2	884.7	507.5	208.7
52.5°	3827.0	3686.3	3229.5	2501.9	1723.4	1485.0	1192.0	694.2	446.2	183.8	56.5
55°	1567.4	1446.7	1275.3	1023.5	749.7	635.8	543.8	342.8	138.8	38.3	21.1
57.5°	708.5	681.7	604.2	474.9	344.7	289.2	195.3	65.1	30.6	19.1	12.4
60°	272.9	246.1	210.6	113.9	48.8	41.2	33.5	22.0	15.3	10.5	7.7
62.5°	39.3	37.3	33.5	26.8	21.1	19.1	16.3	11.5	8.6	6.7	5.7
65°	16.3	16.3	14.4	11.5	9.6	8.6	7.7	5.7	4.8	4.8	4.8
67.5°	6.7	6.7	5.7	4.8	3.8	3.8	3.8	2.9	3.8	3.8	4.8
70°	1.9	1.9	1.9	1.9	1.9	1.9	2.9	2.9	3.8	3.8	4.8
72.5°	0.0	0.0	1.0	1.0	1.9	1.9	1.9	2.9	3.8	4.8	4.8
75°	0.0	0.0	1.0	1.0	1.9	1.9	1.9	2.9	3.8	4.8	4.8
77.5°	0.0	0.0	1.0	1.0	1.9	1.9	2.9	2.9	3.8	4.8	4.8
80°	0.0	0.0	1.0	1.0	1.9	1.9	2.9	2.9	3.8	4.8	5.7
82.5°	0.0	0.0	1.0	1.0	1.9	1.9	2.9	2.9	3.8	4.8	5.7
85°	0.0	0.0	1.0	1.0	1.9	1.9	2.9	2.9	3.8	4.8	5.7
87.5°	0.0	0.0	1.0	1.0	1.9	1.9	2.9	2.9	3.8	4.8	5.7
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):

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°	95°
0°	949.8	949.8	949.8	949.8	949.8	949.8	949.8	949.8	949.8	949.8	949.8
2.5°	1314.6	1253.3	1236.1	1182.5	1137.5	1115.5	1087.7	1025.4	978.5	916.3	879.0
5°	1692.8	1577.0	1485.0	1373.0	1299.3	1251.4	1176.7	1062.8	970.9	860.8	782.3
7.5°	2101.6	1890.0	1724.4	1539.6	1433.3	1350.0	1222.7	1059.0	924.0	777.5	655.9
10°	2496.1	2180.2	1919.7	1654.5	1514.7	1398.9	1223.6	1017.8	838.7	654.0	525.7
12.5°	2843.7	2435.8	2069.1	1728.2	1554.9	1410.4	1191.1	944.1	727.7	538.1	425.1
15°	3133.8	2634.0	2174.4	1756.0	1557.8	1385.5	1123.1	838.7	604.2	435.6	356.2
17.5°	3354.0	2738.4	2207.0	1722.5	1502.3	1314.6	1018.7	705.7	490.2	369.6	299.7
20°	3468.0	2758.5	2160.0	1631.5	1399.8	1207.4	881.8	572.6	415.5	321.7	250.9
22.5°	3482.3	2702.0	2048.0	1501.3	1270.6	1077.2	730.5	477.8	370.5	284.4	221.2
25°	3397.1	2579.4	1888.1	1353.9	1128.9	927.8	594.6	428.0	337.0	255.6	254.7
27.5°	3215.2	2368.8	1696.6	1182.5	957.5	754.5	504.6	386.8	300.6	271.0	288.2
30°	2958.6	2098.8	1461.1	966.1	747.8	580.2	425.1	318.8	264.3	267.1	281.5
32.5°	2611.0	1763.7	1184.4	707.6	535.2	436.6	318.8	217.3	219.3	220.2	232.7
35°	2174.4	1414.2	884.7	475.9	376.3	307.3	180.0	159.9	162.8	163.7	172.3
37.5°	1742.6	1086.7	587.9	316.9	236.5	161.8	112.0	107.2	109.2	108.2	117.8
40°	1334.7	757.4	352.3	157.0	91.0	75.6	68.9	66.1	67.0	68.0	73.7
42.5°	945.0	410.8	174.3	59.4	47.9	44.0	41.2	39.3	40.2	40.2	44.0
45°	479.7	194.4	59.4	32.6	29.7	26.8	24.9	23.9	23.9	23.9	25.9
47.5°	207.8	64.2	27.8	20.1	18.2	17.2	15.3	14.4	14.4	14.4	15.3
50°	65.1	25.9	17.2	13.4	11.5	10.5	9.6	9.6	9.6	8.6	9.6
52.5°	23.9	16.3	11.5	8.6	7.7	7.7	7.7	6.7	7.7	6.7	7.7
55°	14.4	10.5	7.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7
57.5°	9.6	7.7	6.7	6.7	5.7	5.7	6.7	6.7	6.7	6.7	6.7
60°	6.7	6.7	5.7	5.7	5.7	5.7	6.7	6.7	6.7	6.7	6.7
62.5°	5.7	5.7	5.7	5.7	5.7	5.7	6.7	6.7	6.7	6.7	7.7
65°	4.8	5.7	5.7	5.7	5.7	5.7	6.7	6.7	7.7	7.7	7.7
67.5°	4.8	5.7	5.7	6.7	6.7	6.7	6.7	7.7	7.7	7.7	7.7
70°	5.7	5.7	6.7	6.7	6.7	6.7	7.7	7.7	7.7	7.7	8.6
72.5°	5.7	5.7	6.7	6.7	6.7	6.7	7.7	7.7	8.6	8.6	8.6
75°	5.7	6.7	6.7	6.7	6.7	7.7	7.7	7.7	8.6	8.6	8.6
77.5°	5.7	6.7	6.7	7.7	7.7	7.7	7.7	8.6	8.6	8.6	8.6
80°	5.7	6.7	6.7	7.7	7.7	7.7	8.6	8.6	8.6	8.6	9.6
82.5°	5.7	6.7	6.7	7.7	7.7	7.7	8.6	8.6	8.6	8.6	9.6
85°	6.7	6.7	7.7	7.7	7.7	7.7	8.6	8.6	8.6	8.6	9.6
87.5°	6.7	6.7	7.7	7.7	7.7	7.7	8.6	8.6	9.6	8.6	9.6
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°	949.8	949.8	949.8	949.8	949.8	949.8	949.8	949.8	949.8	949.8	949.8
2.5°	829.2	773.6	735.3	721.0	693.2	649.2	623.3	599.4	554.4	544.8	519.9
5°	692.2	603.2	540.0	516.1	484.5	447.1	410.8	386.8	358.1	346.6	329.4
7.5°	545.8	456.7	402.1	383.0	361.0	330.3	297.8	273.8	244.2	228.8	214.5
10°	428.9	362.9	316.9	297.8	274.8	242.2	208.7	177.1	151.3	135.0	132.1
12.5°	348.5	293.9	245.1	225.0	198.2	165.6	141.7	140.7	138.8	137.9	139.8
15°	285.3	232.7	181.0	158.9	151.3	150.3	153.2	156.1	155.1	158.0	159.9
17.5°	234.6	178.1	166.6	167.6	168.5	171.4	176.2	183.8	184.8	189.6	193.4
20°	191.5	188.6	193.4	197.2	200.1	205.9	216.4	226.0	228.8	235.5	243.2
22.5°	217.3	226.0	236.5	241.3	245.1	255.6	267.1	282.5	288.2	296.8	307.3
25°	262.3	276.7	293.0	298.7	304.5	321.7	335.1	353.3	358.1	368.6	379.2
27.5°	299.7	315.0	332.2	339.9	344.7	361.9	373.4	384.9	384.9	390.6	398.3
30°	293.9	306.4	320.8	326.5	328.4	340.9	352.3	356.2	354.3	357.1	362.9
32.5°	244.2	253.7	265.2	270.0	271.9	280.5	290.1	290.1	289.2	289.2	293.0
35°	181.0	187.7	193.4	198.2	201.1	206.8	215.4	214.5	214.5	212.6	215.4
37.5°	121.6	125.4	132.1	134.0	135.0	138.8	145.5	145.5	143.6	144.6	146.5
40°	73.7	78.5	82.3	83.3	85.2	88.1	92.9	92.9	92.9	92.9	93.8
42.5°	44.0	46.9	49.8	49.8	50.7	54.6	56.5	56.5	56.5	56.5	57.4
45°	25.9	26.8	28.7	29.7	29.7	31.6	32.6	32.6	32.6	32.6	33.5
47.5°	15.3	16.3	16.3	17.2	17.2	18.2	19.1	19.1	18.2	18.2	18.2
50°	9.6	9.6	9.6	9.6	10.5	10.5	10.5	10.5	10.5	10.5	9.6
52.5°	7.7	7.7	7.7	7.7	6.7	6.7	6.7	6.7	5.7	5.7	4.8
55°	6.7	6.7	6.7	6.7	6.7	5.7	5.7	5.7	4.8	3.8	2.9
57.5°	6.7	6.7	6.7	6.7	6.7	5.7	5.7	4.8	3.8	3.8	2.9
60°	6.7	6.7	6.7	6.7	6.7	5.7	5.7	4.8	3.8	3.8	2.9
62.5°	7.7	7.7	6.7	6.7	6.7	5.7	5.7	4.8	4.8	3.8	2.9
65°	7.7	7.7	6.7	6.7	6.7	6.7	5.7	5.7	4.8	3.8	2.9
67.5°	7.7	7.7	7.7	7.7	6.7	6.7	6.7	5.7	4.8	3.8	2.9
70°	8.6	8.6	7.7	7.7	7.7	6.7	6.7	5.7	4.8	4.8	3.8
72.5°	8.6	8.6	7.7	7.7	7.7	7.7	6.7	5.7	5.7	4.8	3.8
75°	8.6	8.6	8.6	8.6	7.7	7.7	6.7	6.7	5.7	4.8	3.8
77.5°	8.6	8.6	8.6	8.6	7.7	7.7	7.7	6.7	5.7	4.8	3.8
80°	8.6	8.6	8.6	8.6	8.6	7.7	7.7	6.7	5.7	4.8	3.8
82.5°	9.6	9.6	8.6	8.6	8.6	7.7	7.7	6.7	5.7	4.8	4.8
85°	9.6	9.6	8.6	8.6	8.6	7.7	7.7	6.7	5.7	5.7	4.8
87.5°	9.6	9.6	8.6	8.6	8.6	7.7	7.7	6.7	5.7	5.7	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



TEST NUMBER: P209059

CATALOG NUMBER: LDSQA6A65940D010TE LARH30NF 6LSQA1H 30°

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	949.8	949.8	949.8	949.8	949.8	949.8	949.8	949.8
2.5°	504.6	475.9	466.3	473.0	465.3	459.6	451.9	448.1
5°	316.0	294.9	288.2	290.1	283.4	277.7	270.0	268.1
7.5°	194.4	174.3	166.6	166.6	158.9	152.2	147.5	144.6
10°	130.2	126.4	127.3	128.3	127.3	128.3	125.4	127.3
12.5°	139.8	137.9	139.8	140.7	140.7	142.7	138.8	141.7
15°	162.8	160.9	163.7	165.6	165.6	168.5	164.7	167.6
17.5°	199.2	198.2	203.0	204.9	205.9	210.6	205.9	209.7
20°	251.8	250.9	257.6	260.4	259.5	269.0	262.3	269.0
22.5°	319.8	317.9	327.5	330.3	331.3	343.7	338.0	342.8
25°	387.8	389.7	394.5	399.3	400.2	410.8	402.1	406.9
27.5°	402.1	399.3	402.1	407.9	408.8	413.6	406.0	409.8
30°	363.8	359.1	360.0	366.7	368.6	370.5	363.8	365.8
32.5°	295.9	288.2	288.2	294.9	296.8	299.7	288.2	293.0
35°	218.3	211.6	211.6	216.4	217.3	219.3	210.6	214.5
37.5°	149.4	143.6	145.5	147.5	148.4	150.3	149.4	148.4
40°	95.7	91.9	94.8	94.8	95.7	96.7	96.7	97.7
42.5°	58.4	55.5	57.4	57.4	58.4	58.4	58.4	59.4
45°	33.5	32.6	32.6	33.5	33.5	33.5	32.6	33.5
47.5°	18.2	17.2	18.2	18.2	18.2	18.2	18.2	18.2
50°	9.6	8.6	8.6	8.6	8.6	8.6	8.6	8.6
52.5°	4.8	3.8	3.8	3.8	2.9	3.8	2.9	2.9
55°	2.9	1.9	1.9	1.9	1.0	1.0	0.0	0.0
57.5°	1.9	1.0	1.0	1.0	0.0	0.0	0.0	0.0
60°	1.9	1.0	1.0	1.0	0.0	0.0	0.0	0.0
62.5°	1.9	1.0	1.0	1.0	0.0	0.0	0.0	0.0
65°	1.9	1.0	1.0	1.0	0.0	0.0	0.0	0.0
67.5°	2.9	1.9	1.0	1.0	1.0	0.0	0.0	0.0
70°	2.9	1.9	1.9	1.0	1.0	0.0	0.0	0.0
72.5°	2.9	1.9	1.9	1.9	1.0	1.0	0.0	0.0
75°	2.9	1.9	1.9	1.9	1.0	1.0	0.0	0.0
77.5°	2.9	2.9	1.9	1.9	1.0	1.0	1.0	0.0
80°	3.8	2.9	1.9	1.9	1.9	1.0	1.0	1.0
82.5°	3.8	2.9	1.9	1.9	1.9	1.0	1.0	1.0
85°	3.8	2.9	2.9	1.9	1.9	1.0	1.0	1.0
87.5°	3.8	2.9	2.9	1.9	1.9	1.0	1.0	1.0
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)