

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: P209041

Luminaire Tested: **LDSQA6A45930D010TE LARH30NF 6LSQA1H 30°**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P209041
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: LDSQA6A45930D010TE 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 / 3000K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 3747.5 lumens
Efficiency: N/A
Efficacy: 68.9 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

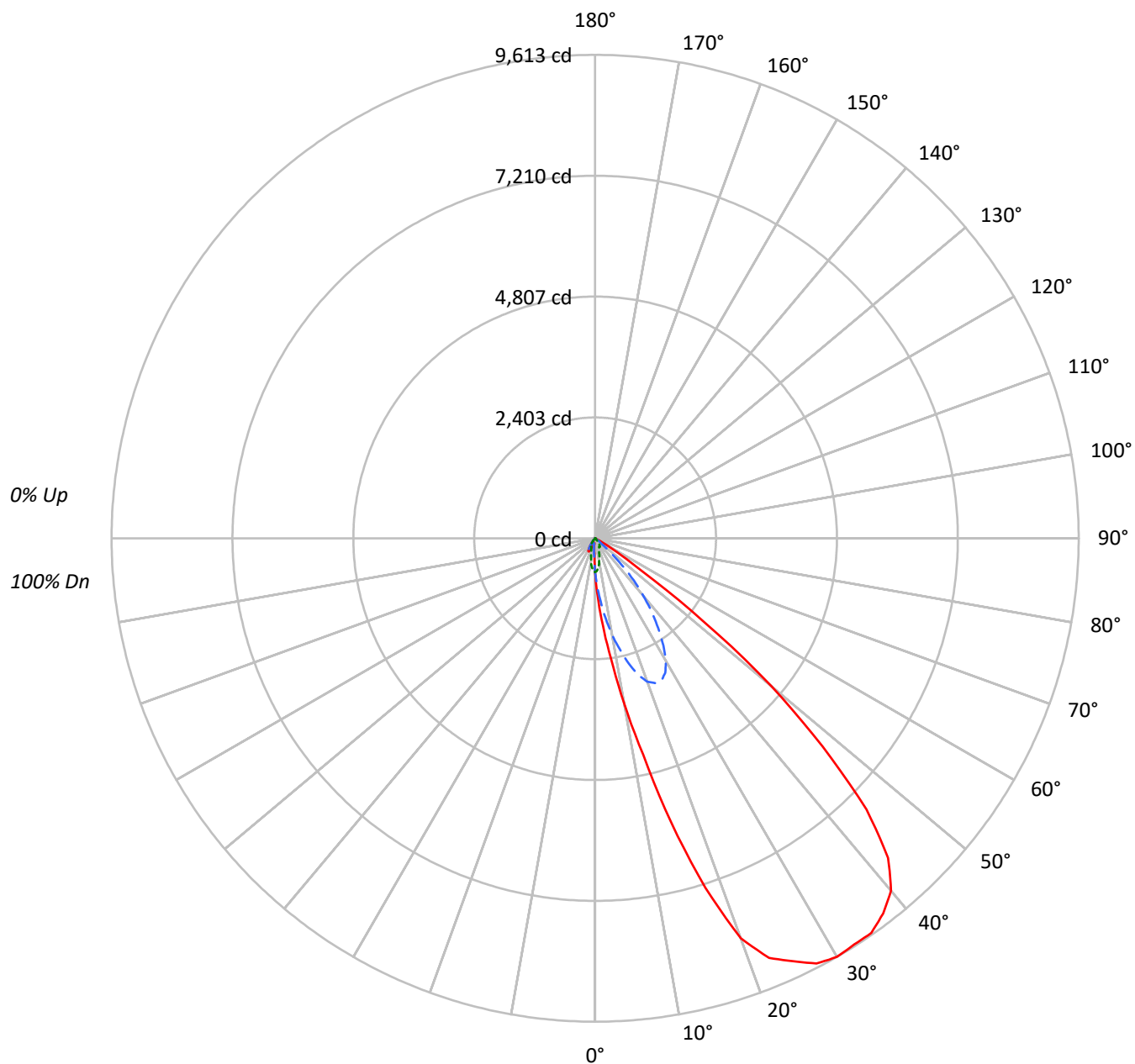
Input Watts (W): 54.4
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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°	29106	29106	29106
5°	74658	26477	8246
10°	145530	20347	3961
15°	261247	13818	5313
20°	387866	10493	8774
25°	440871	8641	13758
30°	477914	9451	12941
35°	503395	6123	8021
40°	514283	2720	3906
45°	464499	1035	1449
50°	305763	409	409
55°	83735	360	0
60°	16723	413	0
65°	1182	560	0
70°	176	692	0
75°	0	1015	0
80°	0	1512	174
85°	0	3013	346



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	82.8	2.2
10°-20°	439.9	11.7
20°-30°	997.0	26.6
30°-40°	1196.8	31.9
40°-50°	843.5	22.5
50°-60°	174.0	4.6
60°-70°	6.2	0.2
70°-80°	3.7	0.1
80°-90°	3.6	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°	1519.8	40.6
0°-40°	2716.6	72.5
0°-60°	3734.1	99.6
0°-90°	3747.5	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	3747.5	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	676	676	676	676	676	
5°	1727	1259	613	255	191	212
15°	5861	2578	310	110	119	1739
25°	9280	3119	182	255	290	4283
35°	9577	2184	116	153	153	5954
45°	7628	749	17	23	24	5611
55°	1116	15	5	3	0	1470
65°	12	3	6	3	0	34
75°	0	3	6	4	0	0
85°	0	4	6	4	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°	676.0	676.0	676.0	676.0	676.0	676.0	676.0	676.0	676.0	676.0	676.0
2.5°	1152.3	1117.5	1131.2	1090.9	1082.1	1074.6	1082.1	1038.5	1013.9	982.6	957.4
5°	1727.4	1685.8	1695.4	1625.2	1593.2	1571.3	1567.3	1477.3	1409.9	1335.6	1258.6
7.5°	2404.7	2365.2	2359.7	2250.7	2184.6	2147.1	2131.5	2002.7	1886.2	1754.0	1609.5
10°	3328.7	3238.8	3210.8	3052.7	2926.7	2847.0	2748.8	2543.0	2338.6	2139.0	1955.0
12.5°	4404.0	4354.9	4285.4	4006.7	3786.0	3672.8	3526.3	3204.7	2895.3	2565.5	2257.5
15°	5860.9	5686.4	5567.9	5165.1	4809.4	4635.0	4421.0	3929.1	3461.6	3043.9	2578.5
17.5°	7284.3	7193.0	7007.7	6485.0	5937.2	5661.9	5343.0	4674.5	4014.2	3420.0	2851.7
20°	8465.2	8379.4	8168.1	7675.5	7067.7	6661.5	6260.2	5343.0	4480.3	3719.9	3034.4
22.5°	9030.8	8976.3	8803.9	8382.1	7864.2	7477.9	7046.5	5912.0	4825.1	3916.1	3117.5
25°	9280.2	9255.0	9143.9	8811.4	8323.5	7995.7	7588.3	6314.7	5039.8	4007.4	3118.8
27.5°	9533.0	9537.8	9292.5	9029.5	8566.8	8252.0	7859.5	6493.2	5078.6	3956.3	3016.6
30°	9612.8	9562.3	9454.0	9076.5	8637.0	8302.4	7881.3	6410.8	4919.2	3746.4	2812.9
32.5°	9580.0	9560.3	9441.0	9041.7	8517.7	8149.1	7670.7	6083.7	4604.3	3446.6	2524.0
35°	9577.3	9540.5	9267.3	8924.5	8279.2	7824.0	7193.7	5554.9	4158.7	3051.4	2183.9
37.5°	9404.2	9312.9	9107.8	8645.8	7795.4	7218.3	6511.6	4908.9	3613.6	2607.8	1846.6
40°	9150.1	9027.4	8757.6	8058.4	6957.3	6292.2	5602.6	4175.0	3036.4	2170.3	1488.2
42.5°	8619.2	8433.9	8052.3	7090.8	5840.4	5240.8	4667.0	3431.6	2476.3	1768.3	1135.9
45°	7628.5	7375.0	6859.1	5803.6	4718.1	4228.9	3767.6	2761.1	1982.2	1311.7	748.9
47.5°	6131.4	5896.3	5426.8	4620.0	3700.1	3286.5	2918.5	2053.8	1343.8	759.8	357.7
50°	4564.8	4363.1	3996.5	3210.8	2483.8	2158.7	1843.9	1166.6	629.6	361.2	148.5
52.5°	2723.6	2623.5	2298.4	1780.5	1226.6	1056.9	848.4	494.0	317.5	130.8	40.2
55°	1115.5	1029.6	907.6	728.4	533.5	452.5	387.0	243.9	98.8	27.3	15.0
57.5°	504.2	485.2	430.0	338.0	245.3	205.8	139.0	46.3	21.8	13.6	8.9
60°	194.2	175.1	149.9	81.1	34.8	29.3	23.8	15.7	10.9	7.5	5.5
62.5°	27.9	26.6	23.8	19.1	15.0	13.6	11.6	8.2	6.1	4.8	4.1
65°	11.6	11.6	10.2	8.2	6.8	6.1	5.5	4.1	3.4	3.4	3.4
67.5°	4.8	4.8	4.1	3.4	2.7	2.7	2.7	2.0	2.7	2.7	3.4
70°	1.4	1.4	1.4	1.4	1.4	1.4	2.0	2.0	2.7	2.7	3.4
72.5°	0.0	0.0	0.7	0.7	1.4	1.4	1.4	2.0	2.7	3.4	3.4
75°	0.0	0.0	0.7	0.7	1.4	1.4	1.4	2.0	2.7	3.4	3.4
77.5°	0.0	0.0	0.7	0.7	1.4	1.4	2.0	2.0	2.7	3.4	3.4
80°	0.0	0.0	0.7	0.7	1.4	1.4	2.0	2.0	2.7	3.4	4.1
82.5°	0.0	0.0	0.7	0.7	1.4	1.4	2.0	2.0	2.7	3.4	4.1
85°	0.0	0.0	0.7	0.7	1.4	1.4	2.0	2.0	2.7	3.4	4.1
87.5°	0.0	0.0	0.7	0.7	1.4	1.4	2.0	2.0	2.7	3.4	4.1
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°	676.0	676.0	676.0	676.0	676.0	676.0	676.0	676.0	676.0	676.0	676.0
2.5°	935.6	892.0	879.7	841.6	809.5	793.9	774.1	729.8	696.4	652.1	625.5
5°	1204.7	1122.3	1056.9	977.2	924.7	890.6	837.5	756.4	691.0	612.6	556.7
7.5°	1495.7	1345.1	1227.2	1095.7	1020.1	960.8	870.2	753.6	657.6	553.3	466.8
10°	1776.5	1551.6	1366.2	1177.5	1078.0	995.6	870.9	724.3	596.9	465.4	374.1
12.5°	2023.8	1733.5	1472.5	1230.0	1106.6	1003.7	847.7	671.9	517.9	383.0	302.5
15°	2230.3	1874.6	1547.5	1249.7	1108.7	986.0	799.3	596.9	430.0	310.0	253.5
17.5°	2387.0	1948.9	1570.7	1225.9	1069.1	935.6	725.0	502.2	348.9	263.0	213.3
20°	2468.1	1963.2	1537.3	1161.1	996.2	859.3	627.6	407.5	295.7	229.0	178.5
22.5°	2478.3	1923.0	1457.6	1068.5	904.2	766.6	519.9	340.0	263.7	202.4	157.4
25°	2417.7	1835.7	1343.8	963.5	803.4	660.3	423.2	304.6	239.9	181.9	181.3
27.5°	2288.2	1685.8	1207.5	841.6	681.4	537.0	359.1	275.3	214.0	192.8	205.1
30°	2105.6	1493.7	1039.8	687.5	532.2	412.9	302.5	226.9	188.1	190.1	200.3
32.5°	1858.2	1255.2	842.9	503.6	380.9	310.7	226.9	154.7	156.0	156.7	165.6
35°	1547.5	1006.5	629.6	338.7	267.8	218.7	128.1	113.8	115.8	116.5	122.7
37.5°	1240.2	773.4	418.4	225.5	168.3	115.2	79.7	76.3	77.7	77.0	83.8
40°	949.9	539.0	250.8	111.8	64.7	53.8	49.1	47.0	47.7	48.4	52.5
42.5°	672.6	292.3	124.0	42.2	34.1	31.3	29.3	27.9	28.6	28.6	31.3
45°	341.4	138.3	42.2	23.2	21.1	19.1	17.7	17.0	17.0	17.0	18.4
47.5°	147.9	45.7	19.8	14.3	12.9	12.3	10.9	10.2	10.2	10.2	10.9
50°	46.3	18.4	12.3	9.5	8.2	7.5	6.8	6.8	6.8	6.1	6.8
52.5°	17.0	11.6	8.2	6.1	5.5	5.5	5.5	4.8	5.5	4.8	5.5
55°	10.2	7.5	5.5	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8
57.5°	6.8	5.5	4.8	4.8	4.1	4.1	4.8	4.8	4.8	4.8	4.8
60°	4.8	4.8	4.1	4.1	4.1	4.1	4.8	4.8	4.8	4.8	4.8
62.5°	4.1	4.1	4.1	4.1	4.1	4.1	4.8	4.8	4.8	4.8	5.5
65°	3.4	4.1	4.1	4.1	4.1	4.1	4.8	4.8	5.5	5.5	5.5
67.5°	3.4	4.1	4.1	4.8	4.8	4.8	4.8	5.5	5.5	5.5	5.5
70°	4.1	4.1	4.8	4.8	4.8	4.8	5.5	5.5	5.5	5.5	6.1
72.5°	4.1	4.1	4.8	4.8	4.8	4.8	5.5	5.5	6.1	6.1	6.1
75°	4.1	4.8	4.8	4.8	4.8	5.5	5.5	5.5	6.1	6.1	6.1
77.5°	4.1	4.8	4.8	5.5	5.5	5.5	5.5	6.1	6.1	6.1	6.1
80°	4.1	4.8	4.8	5.5	5.5	5.5	6.1	6.1	6.1	6.1	6.8
82.5°	4.1	4.8	4.8	5.5	5.5	5.5	6.1	6.1	6.1	6.1	6.8
85°	4.8	4.8	5.5	5.5	5.5	5.5	6.1	6.1	6.1	6.1	6.8
87.5°	4.8	4.8	5.5	5.5	5.5	5.5	6.1	6.1	6.8	6.1	6.8
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):

	100°	105°	110°	112.5°	115°	120°	125°	130°	135°	140°	145°
0°	676.0	676.0	676.0	676.0	676.0	676.0	676.0	676.0	676.0	676.0	676.0
2.5°	590.1	550.6	523.3	513.1	493.3	462.0	443.6	426.6	394.5	387.7	370.0
5°	492.7	429.3	384.3	367.3	344.8	318.2	292.3	275.3	254.9	246.7	234.4
7.5°	388.4	325.0	286.2	272.6	256.9	235.1	211.9	194.9	173.8	162.9	152.6
10°	305.3	258.3	225.5	211.9	195.6	172.4	148.5	126.1	107.7	96.1	94.0
12.5°	248.0	209.2	174.4	160.1	141.1	117.9	100.8	100.2	98.8	98.1	99.5
15°	203.1	165.6	128.8	113.1	107.7	107.0	109.0	111.1	110.4	112.4	113.8
17.5°	166.9	126.7	118.6	119.2	119.9	122.0	125.4	130.8	131.5	134.9	137.6
20°	136.3	134.2	137.6	140.4	142.4	146.5	154.0	160.8	162.9	167.6	173.1
22.5°	154.7	160.8	168.3	171.7	174.4	181.9	190.1	201.0	205.1	211.2	218.7
25°	186.7	196.9	208.5	212.6	216.7	229.0	238.5	251.4	254.9	262.3	269.8
27.5°	213.3	224.2	236.5	241.9	245.3	257.6	265.8	273.9	273.9	278.0	283.5
30°	209.2	218.1	228.3	232.4	233.7	242.6	250.8	253.5	252.1	254.2	258.3
32.5°	173.8	180.6	188.8	192.2	193.5	199.7	206.5	206.5	205.8	205.8	208.5
35°	128.8	133.6	137.6	141.1	143.1	147.2	153.3	152.6	152.6	151.3	153.3
37.5°	86.5	89.3	94.0	95.4	96.1	98.8	103.6	103.6	102.2	102.9	104.3
40°	52.5	55.9	58.6	59.3	60.6	62.7	66.1	66.1	66.1	66.1	66.8
42.5°	31.3	33.4	35.4	35.4	36.1	38.8	40.2	40.2	40.2	40.2	40.9
45°	18.4	19.1	20.4	21.1	21.1	22.5	23.2	23.2	23.2	23.2	23.8
47.5°	10.9	11.6	11.6	12.3	12.3	12.9	13.6	13.6	12.9	12.9	12.9
50°	6.8	6.8	6.8	6.8	7.5	7.5	7.5	7.5	7.5	7.5	6.8
52.5°	5.5	5.5	5.5	5.5	4.8	4.8	4.8	4.8	4.1	4.1	3.4
55°	4.8	4.8	4.8	4.8	4.8	4.1	4.1	4.1	3.4	2.7	2.0
57.5°	4.8	4.8	4.8	4.8	4.8	4.1	4.1	3.4	2.7	2.7	2.0
60°	4.8	4.8	4.8	4.8	4.8	4.1	4.1	3.4	2.7	2.7	2.0
62.5°	5.5	5.5	4.8	4.8	4.8	4.1	4.1	3.4	3.4	2.7	2.0
65°	5.5	5.5	4.8	4.8	4.8	4.8	4.1	4.1	3.4	2.7	2.0
67.5°	5.5	5.5	5.5	5.5	4.8	4.8	4.8	4.1	3.4	2.7	2.0
70°	6.1	6.1	5.5	5.5	5.5	4.8	4.8	4.1	3.4	3.4	2.7
72.5°	6.1	6.1	5.5	5.5	5.5	5.5	4.8	4.1	4.1	3.4	2.7
75°	6.1	6.1	6.1	6.1	5.5	5.5	4.8	4.8	4.1	3.4	2.7
77.5°	6.1	6.1	6.1	6.1	5.5	5.5	5.5	4.8	4.1	3.4	2.7
80°	6.1	6.1	6.1	6.1	6.1	5.5	5.5	4.8	4.1	3.4	2.7
82.5°	6.8	6.8	6.1	6.1	6.1	5.5	5.5	4.8	4.1	3.4	3.4
85°	6.8	6.8	6.1	6.1	6.1	5.5	5.5	4.8	4.1	4.1	3.4
87.5°	6.8	6.8	6.1	6.1	6.1	5.5	5.5	4.8	4.1	4.1	3.4
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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CATALOG NUMBER: LDSQA6A45930D010TE LARH30NF 6LSQA1H 30°

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	676.0	676.0	676.0	676.0	676.0	676.0	676.0	676.0
2.5°	359.1	338.7	331.9	336.6	331.2	327.1	321.6	318.9
5°	224.9	209.9	205.1	206.5	201.7	197.6	192.2	190.8
7.5°	138.3	124.0	118.6	118.6	113.1	108.3	104.9	102.9
10°	92.7	89.9	90.6	91.3	90.6	91.3	89.3	90.6
12.5°	99.5	98.1	99.5	100.2	100.2	101.5	98.8	100.8
15°	115.8	114.5	116.5	117.9	117.9	119.9	117.2	119.2
17.5°	141.7	141.1	144.5	145.8	146.5	149.9	146.5	149.2
20°	179.2	178.5	183.3	185.3	184.7	191.5	186.7	191.5
22.5°	227.6	226.2	233.0	235.1	235.8	244.6	240.5	243.9
25°	276.0	277.3	280.7	284.2	284.8	292.3	286.2	289.6
27.5°	286.2	284.2	286.2	290.3	291.0	294.4	288.9	291.6
30°	258.9	255.5	256.2	261.0	262.3	263.7	258.9	260.3
32.5°	210.6	205.1	205.1	209.9	211.2	213.3	205.1	208.5
35°	155.4	150.6	150.6	154.0	154.7	156.0	149.9	152.6
37.5°	106.3	102.2	103.6	104.9	105.6	107.0	106.3	105.6
40°	68.1	65.4	67.5	67.5	68.1	68.8	68.8	69.5
42.5°	41.6	39.5	40.9	40.9	41.6	41.6	41.6	42.2
45°	23.8	23.2	23.2	23.8	23.8	23.8	23.2	23.8
47.5°	12.9	12.3	12.9	12.9	12.9	12.9	12.9	12.9
50°	6.8	6.1	6.1	6.1	6.1	6.1	6.1	6.1
52.5°	3.4	2.7	2.7	2.7	2.0	2.7	2.0	2.0
55°	2.0	1.4	1.4	1.4	0.7	0.7	0.0	0.0
57.5°	1.4	0.7	0.7	0.7	0.0	0.0	0.0	0.0
60°	1.4	0.7	0.7	0.7	0.0	0.0	0.0	0.0
62.5°	1.4	0.7	0.7	0.7	0.0	0.0	0.0	0.0
65°	1.4	0.7	0.7	0.7	0.0	0.0	0.0	0.0
67.5°	2.0	1.4	0.7	0.7	0.7	0.0	0.0	0.0
70°	2.0	1.4	1.4	0.7	0.7	0.0	0.0	0.0
72.5°	2.0	1.4	1.4	1.4	0.7	0.7	0.0	0.0
75°	2.0	1.4	1.4	1.4	0.7	0.7	0.0	0.0
77.5°	2.0	2.0	1.4	1.4	0.7	0.7	0.7	0.0
80°	2.7	2.0	1.4	1.4	1.4	0.7	0.7	0.7
82.5°	2.7	2.0	1.4	1.4	1.4	0.7	0.7	0.7
85°	2.7	2.0	2.0	1.4	1.4	0.7	0.7	0.7
87.5°	2.7	2.0	2.0	1.4	1.4	0.7	0.7	0.7
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)