

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: P209042

Luminaire Tested: **LDSQA6A45935D010TE LARH30NF 6LSQA1H 30°**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P209042
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: LDSQA6A45935D010TE 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: 4000.3 lumens
Efficiency: N/A
Efficacy: 73.5 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

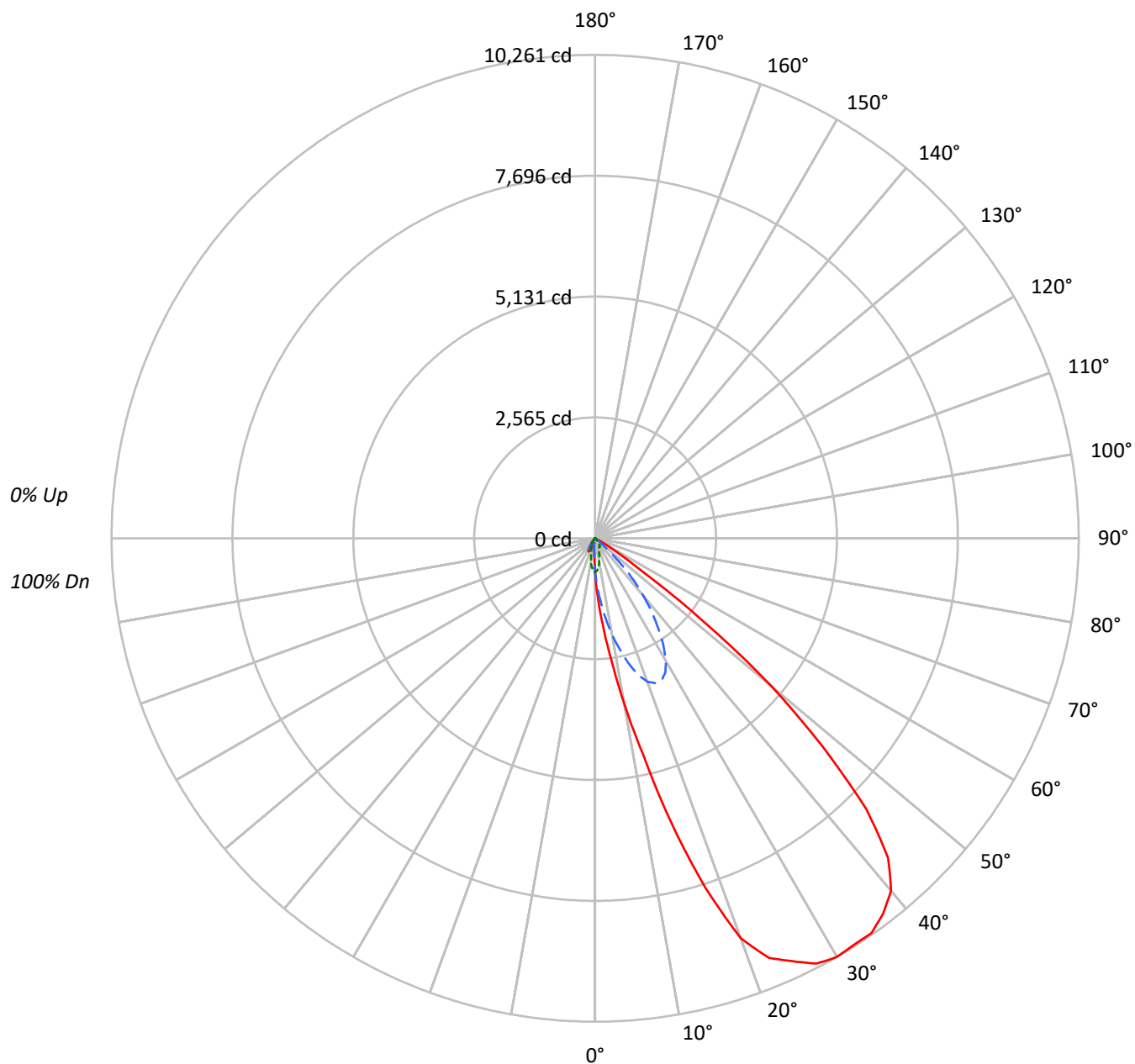
Input Watts (W): 54.4
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



TEST NUMBER: P209042

CATALOG NUMBER: LDSQA6A45935D010TE LARH30NF 6LSQA1H 30°

Luminous Intensity Polar Plot





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CATALOG NUMBER: LDSQA6A45935D010TE LARH30NF 6LSQA1H 30°

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
RCR																				
0	119	119	119	119	116	116	116	116		111	111	111		106	106	106		102	102	102
1	112	109	106	103	110	107	104	102		103	100	98		99	97	95		95	94	93
2	105	99	94	90	103	97	93	89		94	90	87		91	88	85		88	85	83
3	98	90	84	79	96	89	83	78		86	81	77		83	79	76		81	77	74
4	91	82	75	70	89	81	74	69		78	73	68		76	71	67		74	70	67
5	85	74	67	62	83	73	67	61		71	65	61		70	64	60		68	63	60
6	79	68	60	55	77	67	60	55		65	59	54		64	58	54		62	57	54
7	74	62	55	49	72	61	54	49		60	53	49		59	53	49		57	52	48
8	69	57	49	44	67	56	49	44		55	49	44		54	48	44		53	47	43
9	64	52	45	40	63	52	45	40		51	44	40		50	44	40		49	43	39
10	60	48	41	36	59	48	41	36		47	40	36		46	40	36		45	40	36

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	31069	31069	31069
5°	79694	28262	8804
10°	155350	21720	4228
15°	278871	14754	5674
20°	414038	11198	9365
25°	470615	9226	14684
30°	510155	10087	13816
35°	537360	6539	8562
40°	548978	2900	4170
45°	495833	1108	1553
50°	326393	435	435
55°	89380	383	0
60°	17851	439	0
65°	1263	591	0
70°	189	730	0
75°	0	1081	0
80°	0	1612	174
85°	0	3211	346



TEST NUMBER: P209042

CATALOG NUMBER: LDSQA6A45935D010TE LARH30NF 6LSQA1H 30°

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	88.4	2.2
10°-20°	469.6	11.7
20°-30°	1064.3	26.6
30°-40°	1277.5	31.9
40°-50°	900.4	22.5
50°-60°	185.8	4.6
60°-70°	6.6	0.2
70°-80°	3.9	0.1
80°-90°	3.8	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°	1622.3	40.6
0°-40°	2899.8	72.5
0°-60°	3986.0	99.6
0°-90°	4000.3	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	4000.3	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	722	722	722	722	722	
5°	1844	1344	654	272	204	227
15°	6256	2752	331	118	127	1857
25°	9906	3329	194	272	309	4572
35°	10224	2331	124	163	163	6356
45°	8143	799	18	25	26	5989
55°	1191	16	5	4	0	1569
65°	12	4	6	4	0	37
75°	0	4	6	4	0	0
85°	0	4	6	4	1	0
90°	0	0	0	0	0	



TEST NUMBER: P209042

CATALOG NUMBER: LDSQA6A45935D010TE LARH30NF 6LSQA1H 30°

CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	22.5°	25°	30°	35°	40°	45°
0°	721.6	721.6	721.6	721.6	721.6	721.6	721.6	721.6	721.6	721.6	721.6
2.5°	1230.0	1192.9	1207.5	1164.6	1155.1	1147.1	1155.1	1108.5	1082.4	1048.9	1022.0
5°	1843.9	1799.6	1809.7	1734.8	1700.6	1677.4	1673.0	1577.0	1505.0	1425.7	1343.5
7.5°	2567.0	2524.8	2519.0	2402.6	2332.0	2292.0	2275.3	2137.8	2013.4	1872.3	1718.1
10°	3553.3	3457.3	3427.5	3258.7	3124.1	3039.0	2934.3	2714.6	2496.4	2283.3	2086.9
12.5°	4701.1	4648.8	4574.6	4277.1	4041.4	3920.6	3764.2	3420.9	3090.7	2738.6	2409.8
15°	6256.3	6070.1	5943.5	5513.6	5133.9	4947.7	4719.3	4194.1	3695.1	3249.3	2752.4
17.5°	7775.8	7678.3	7480.5	6922.6	6337.7	6043.9	5703.5	4989.9	4285.1	3650.8	3044.1
20°	9036.4	8944.7	8719.2	8193.3	7544.5	7111.0	6682.5	5703.5	4782.6	3970.8	3239.1
22.5°	9640.1	9581.9	9397.9	8947.6	8394.8	7982.4	7521.9	6310.8	5150.6	4180.3	3327.8
25°	9906.3	9879.4	9760.8	9405.9	8885.1	8535.2	8100.2	6740.7	5379.8	4277.8	3329.3
27.5°	10176.2	10181.3	9919.4	9638.6	9144.7	8808.7	8389.7	6931.3	5421.2	4223.2	3220.2
30°	10261.3	10207.5	10091.8	9688.8	9219.7	8862.5	8413.0	6843.3	5251.0	3999.2	3002.7
32.5°	10226.4	10205.3	10078.0	9651.7	9092.4	8698.9	8188.2	6494.1	4915.0	3679.1	2694.3
35°	10223.5	10184.2	9892.5	9526.6	8837.8	8351.9	7679.1	5929.7	4439.3	3257.3	2331.3
37.5°	10038.7	9941.2	9722.3	9229.1	8321.3	7705.2	6950.9	5240.1	3857.3	2783.7	1971.2
40°	9767.4	9636.5	9348.4	8602.1	7426.7	6716.7	5980.6	4456.7	3241.3	2316.7	1588.6
42.5°	9200.8	9002.9	8595.6	7569.2	6234.5	5594.4	4981.9	3663.1	2643.3	1887.6	1212.6
45°	8143.1	7872.5	7321.9	6195.2	5036.4	4514.2	4021.7	2947.4	2116.0	1400.2	799.4
47.5°	6545.1	6294.1	5792.9	4931.7	3949.7	3508.2	3115.4	2192.4	1434.4	811.0	381.9
50°	4872.8	4657.5	4266.1	3427.5	2651.3	2304.4	1968.3	1245.3	672.1	385.5	158.6
52.5°	2907.4	2800.5	2453.5	1900.7	1309.3	1128.2	905.6	527.4	339.0	139.7	42.9
55°	1190.7	1099.1	968.9	777.6	569.5	483.0	413.2	260.4	105.5	29.1	16.0
57.5°	538.3	517.9	459.0	360.8	261.9	219.7	148.4	49.5	23.3	14.5	9.5
60°	207.3	186.9	160.0	86.6	37.1	31.3	25.5	16.7	11.6	8.0	5.8
62.5°	29.8	28.4	25.5	20.4	16.0	14.5	12.4	8.7	6.5	5.1	4.4
65°	12.4	12.4	10.9	8.7	7.3	6.5	5.8	4.4	3.6	3.6	3.6
67.5°	5.1	5.1	4.4	3.6	2.9	2.9	2.9	2.2	2.9	2.9	3.6
70°	1.5	1.5	1.5	1.5	1.5	1.5	2.2	2.2	2.9	2.9	3.6
72.5°	0.0	0.0	0.7	0.7	1.5	1.5	1.5	2.2	2.9	3.6	3.6
75°	0.0	0.0	0.7	0.7	1.5	1.5	1.5	2.2	2.9	3.6	3.6
77.5°	0.0	0.0	0.7	0.7	1.5	1.5	2.2	2.2	2.9	3.6	3.6
80°	0.0	0.0	0.7	0.7	1.5	1.5	2.2	2.2	2.9	3.6	4.4
82.5°	0.0	0.0	0.7	0.7	1.5	1.5	2.2	2.2	2.9	3.6	4.4
85°	0.0	0.0	0.7	0.7	1.5	1.5	2.2	2.2	2.9	3.6	4.4
87.5°	0.0	0.0	0.7	0.7	1.5	1.5	2.2	2.2	2.9	3.6	4.4
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: P209042

CATALOG NUMBER: LDSQA6A45935D010TE LARH30NF 6LSQA1H 30°

CANDELA DISTRIBUTION (continued):

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°	95°
0°	721.6	721.6	721.6	721.6	721.6	721.6	721.6	721.6	721.6	721.6	721.6
2.5°	998.7	952.2	939.1	898.3	864.1	847.4	826.3	779.0	743.4	696.1	667.7
5°	1286.0	1198.0	1128.2	1043.1	987.1	950.7	894.0	807.4	737.6	653.9	594.3
7.5°	1596.6	1435.9	1310.0	1169.6	1088.9	1025.6	928.9	804.5	701.9	590.6	498.3
10°	1896.3	1656.3	1458.4	1256.9	1150.7	1062.7	929.6	773.2	637.2	496.8	399.3
12.5°	2160.3	1850.5	1571.9	1312.9	1181.3	1071.4	904.9	717.2	552.8	408.8	323.0
15°	2380.7	2001.1	1651.9	1334.0	1183.5	1052.5	853.2	637.2	459.0	331.0	270.6
17.5°	2548.0	2080.3	1676.6	1308.6	1141.3	998.7	773.9	536.1	372.4	280.8	227.7
20°	2634.6	2095.6	1641.0	1239.5	1063.4	917.2	669.9	435.0	315.7	244.4	190.6
22.5°	2645.5	2052.7	1555.9	1140.5	965.2	818.3	555.0	363.0	281.5	216.0	168.0
25°	2580.8	1959.6	1434.4	1028.5	857.6	704.8	451.7	325.1	256.0	194.2	193.5
27.5°	2442.6	1799.6	1288.9	898.3	727.4	573.2	383.3	293.9	228.4	205.9	218.9
30°	2247.6	1594.4	1110.0	733.9	568.1	440.8	323.0	242.2	200.8	202.9	213.9
32.5°	1983.6	1339.9	899.8	537.5	406.6	331.7	242.2	165.1	166.6	167.3	176.8
35°	1651.9	1074.4	672.1	361.5	285.9	233.5	136.7	121.5	123.7	124.4	130.9
37.5°	1323.8	825.6	446.6	240.8	179.7	122.9	85.1	81.5	82.9	82.2	89.5
40°	1014.0	575.4	267.7	119.3	69.1	57.5	52.4	50.2	50.9	51.6	56.0
42.5°	717.9	312.1	132.4	45.1	36.4	33.5	31.3	29.8	30.6	30.6	33.5
45°	364.4	147.7	45.1	24.7	22.5	20.4	18.9	18.2	18.2	18.2	19.6
47.5°	157.8	48.7	21.1	15.3	13.8	13.1	11.6	10.9	10.9	10.9	11.6
50°	49.5	19.6	13.1	10.2	8.7	8.0	7.3	7.3	7.3	6.5	7.3
52.5°	18.2	12.4	8.7	6.5	5.8	5.8	5.8	5.1	5.8	5.1	5.8
55°	10.9	8.0	5.8	5.1	5.1	5.1	5.1	5.1	5.1	5.1	5.1
57.5°	7.3	5.8	5.1	5.1	4.4	4.4	5.1	5.1	5.1	5.1	5.1
60°	5.1	5.1	4.4	4.4	4.4	4.4	5.1	5.1	5.1	5.1	5.1
62.5°	4.4	4.4	4.4	4.4	4.4	4.4	5.1	5.1	5.1	5.1	5.8
65°	3.6	4.4	4.4	4.4	4.4	4.4	5.1	5.1	5.8	5.8	5.8
67.5°	3.6	4.4	4.4	5.1	5.1	5.1	5.1	5.8	5.8	5.8	5.8
70°	4.4	4.4	5.1	5.1	5.1	5.1	5.8	5.8	5.8	5.8	6.5
72.5°	4.4	4.4	5.1	5.1	5.1	5.1	5.8	5.8	6.5	6.5	6.5
75°	4.4	5.1	5.1	5.1	5.1	5.8	5.8	5.8	6.5	6.5	6.5
77.5°	4.4	5.1	5.1	5.8	5.8	5.8	5.8	6.5	6.5	6.5	6.5
80°	4.4	5.1	5.1	5.8	5.8	5.8	6.5	6.5	6.5	6.5	7.3
82.5°	4.4	5.1	5.1	5.8	5.8	5.8	6.5	6.5	6.5	6.5	7.3
85°	5.1	5.1	5.8	5.8	5.8	5.8	6.5	6.5	6.5	6.5	7.3
87.5°	5.1	5.1	5.8	5.8	5.8	5.8	6.5	6.5	7.3	6.5	7.3
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: P209042

CATALOG NUMBER: LDSQA6A45935D010TE LARH30NF 6LSQA1H 30°

CANDELA DISTRIBUTION (continued):

	100°	105°	110°	112.5°	115°	120°	125°	130°	135°	140°	145°
0°	721.6	721.6	721.6	721.6	721.6	721.6	721.6	721.6	721.6	721.6	721.6
2.5°	629.9	587.7	558.6	547.7	526.6	493.2	473.5	455.3	421.2	413.9	395.0
5°	525.9	458.3	410.2	392.1	368.1	339.7	312.1	293.9	272.0	263.3	250.2
7.5°	414.6	347.0	305.5	291.0	274.2	250.9	226.2	208.0	185.5	173.8	162.9
10°	325.9	275.7	240.8	226.2	208.8	184.0	158.6	134.6	114.9	102.6	100.4
12.5°	264.8	223.3	186.2	170.9	150.6	125.8	107.7	106.9	105.5	104.7	106.2
15°	216.8	176.8	137.5	120.7	114.9	114.2	116.4	118.6	117.8	120.0	121.5
17.5°	178.2	135.3	126.6	127.3	128.0	130.2	133.8	139.7	140.4	144.0	146.9
20°	145.5	143.3	146.9	149.8	152.0	156.4	164.4	171.7	173.8	178.9	184.8
22.5°	165.1	171.7	179.7	183.3	186.2	194.2	202.9	214.6	218.9	225.5	233.5
25°	199.3	210.2	222.6	226.9	231.3	244.4	254.6	268.4	272.0	280.0	288.0
27.5°	227.7	239.3	252.4	258.2	261.9	275.0	283.7	292.4	292.4	296.8	302.6
30°	223.3	232.8	243.7	248.0	249.5	259.0	267.7	270.6	269.1	271.3	275.7
32.5°	185.5	192.8	201.5	205.1	206.6	213.1	220.4	220.4	219.7	219.7	222.6
35°	137.5	142.6	146.9	150.6	152.8	157.1	163.7	162.9	162.9	161.5	163.7
37.5°	92.4	95.3	100.4	101.8	102.6	105.5	110.6	110.6	109.1	109.8	111.3
40°	56.0	59.6	62.6	63.3	64.7	66.9	70.6	70.6	70.6	70.6	71.3
42.5°	33.5	35.6	37.8	37.8	38.6	41.5	42.9	42.9	42.9	42.9	43.6
45°	19.6	20.4	21.8	22.5	22.5	24.0	24.7	24.7	24.7	24.7	25.5
47.5°	11.6	12.4	12.4	13.1	13.1	13.8	14.5	14.5	13.8	13.8	13.8
50°	7.3	7.3	7.3	7.3	8.0	8.0	8.0	8.0	8.0	8.0	7.3
52.5°	5.8	5.8	5.8	5.8	5.1	5.1	5.1	5.1	4.4	4.4	3.6
55°	5.1	5.1	5.1	5.1	5.1	5.1	4.4	4.4	4.4	3.6	2.9
57.5°	5.1	5.1	5.1	5.1	5.1	5.1	4.4	4.4	3.6	2.9	2.2
60°	5.1	5.1	5.1	5.1	5.1	5.1	4.4	4.4	3.6	2.9	2.2
62.5°	5.8	5.8	5.1	5.1	5.1	5.1	4.4	4.4	3.6	2.9	2.2
65°	5.8	5.8	5.1	5.1	5.1	5.1	4.4	4.4	3.6	2.9	2.2
67.5°	5.8	5.8	5.8	5.8	5.1	5.1	5.1	4.4	3.6	2.9	2.2
70°	6.5	6.5	5.8	5.8	5.8	5.1	5.1	4.4	3.6	3.6	2.9
72.5°	6.5	6.5	5.8	5.8	5.8	5.8	5.1	4.4	4.4	3.6	2.9
75°	6.5	6.5	6.5	6.5	5.8	5.8	5.1	5.1	4.4	3.6	2.9
77.5°	6.5	6.5	6.5	6.5	5.8	5.8	5.8	5.1	4.4	3.6	2.9
80°	6.5	6.5	6.5	6.5	6.5	5.8	5.8	5.1	4.4	3.6	2.9
82.5°	7.3	7.3	6.5	6.5	6.5	5.8	5.8	5.1	4.4	3.6	3.6
85°	7.3	7.3	6.5	6.5	6.5	5.8	5.8	5.1	4.4	4.4	3.6
87.5°	7.3	7.3	6.5	6.5	6.5	5.8	5.8	5.1	4.4	4.4	3.6
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: P209042

CATALOG NUMBER: LDSQA6A45935D010TE LARH30NF 6LSQA1H 30°

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	721.6	721.6	721.6	721.6	721.6	721.6	721.6	721.6
2.5°	383.3	361.5	354.2	359.3	353.5	349.1	343.3	340.4
5°	240.0	224.0	218.9	220.4	215.3	210.9	205.1	203.7
7.5°	147.7	132.4	126.6	126.6	120.7	115.7	112.0	109.8
10°	98.9	96.0	96.7	97.5	96.7	97.5	95.3	96.7
12.5°	106.2	104.7	106.2	106.9	106.9	108.4	105.5	107.7
15°	123.7	122.2	124.4	125.8	125.8	128.0	125.1	127.3
17.5°	151.3	150.6	154.2	155.7	156.4	160.0	156.4	159.3
20°	191.3	190.6	195.7	197.9	197.1	204.4	199.3	204.4
22.5°	242.9	241.5	248.8	250.9	251.7	261.1	256.8	260.4
25°	294.6	296.0	299.7	303.3	304.0	312.1	305.5	309.1
27.5°	305.5	303.3	305.5	309.9	310.6	314.2	308.4	311.3
30°	276.4	272.8	273.5	278.6	280.0	281.5	276.4	277.9
32.5°	224.8	218.9	218.9	224.0	225.5	227.7	218.9	222.6
35°	165.8	160.8	160.8	164.4	165.1	166.6	160.0	162.9
37.5°	113.5	109.1	110.6	112.0	112.7	114.2	113.5	112.7
40°	72.7	69.8	72.0	72.0	72.7	73.5	73.5	74.2
42.5°	44.4	42.2	43.6	43.6	44.4	44.4	44.4	45.1
45°	25.5	24.7	24.7	25.5	25.5	25.5	24.7	25.5
47.5°	13.8	13.1	13.8	13.8	13.8	13.8	13.8	13.8
50°	7.3	6.5	6.5	6.5	6.5	6.5	6.5	6.5
52.5°	3.6	2.9	2.9	2.9	2.2	2.9	2.2	2.2
55°	2.2	1.5	1.5	1.5	0.7	0.7	0.0	0.0
57.5°	1.5	0.7	0.7	0.7	0.0	0.0	0.0	0.0
60°	1.5	0.7	0.7	0.7	0.0	0.0	0.0	0.0
62.5°	1.5	0.7	0.7	0.7	0.0	0.0	0.0	0.0
65°	1.5	0.7	0.7	0.7	0.0	0.0	0.0	0.0
67.5°	2.2	1.5	0.7	0.7	0.7	0.0	0.0	0.0
70°	2.2	1.5	1.5	0.7	0.7	0.0	0.0	0.0
72.5°	2.2	1.5	1.5	1.5	0.7	0.7	0.0	0.0
75°	2.2	1.5	1.5	1.5	0.7	0.7	0.0	0.0
77.5°	2.2	2.2	1.5	1.5	0.7	0.7	0.7	0.0
80°	2.9	2.2	1.5	1.5	1.5	0.7	0.7	0.7
82.5°	2.9	2.2	1.5	1.5	1.5	0.7	0.7	0.7
85°	2.9	2.2	2.2	1.5	1.5	0.7	0.7	0.7
87.5°	2.9	2.2	2.2	1.5	1.5	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)