

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: P209031

Luminaire Tested: **LDSQA6A75840D010TE LARH20SP 6LSQA1H 30°**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P209031
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (P26686)
Test Lab: INNOVATION CENTER-P2
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: io LED
Catalog Number: LDSQA6A75840D010TE LARH20SP 6LSQA1H 30°
Description: PORTFOLIO 6" SQUARE ADJUSTABLE REFLECTOR, ANGLE-CUT TRIM,
SELF-FLANGED, 20° SPOT, 30° Tilt
Light Source: (1) HIGH LUMEN LED 80CRI / 4000K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 6517.2 lumens
Efficiency: N/A
Efficacy: 82.0 lumens/watt
Spacing Criteria (0/90/45): 2.35 / 0.6 / 1.31
Luminous Opening: Rectangular (W 0.5' x L: 0.5' x H: 0')
CIE Type: Direct

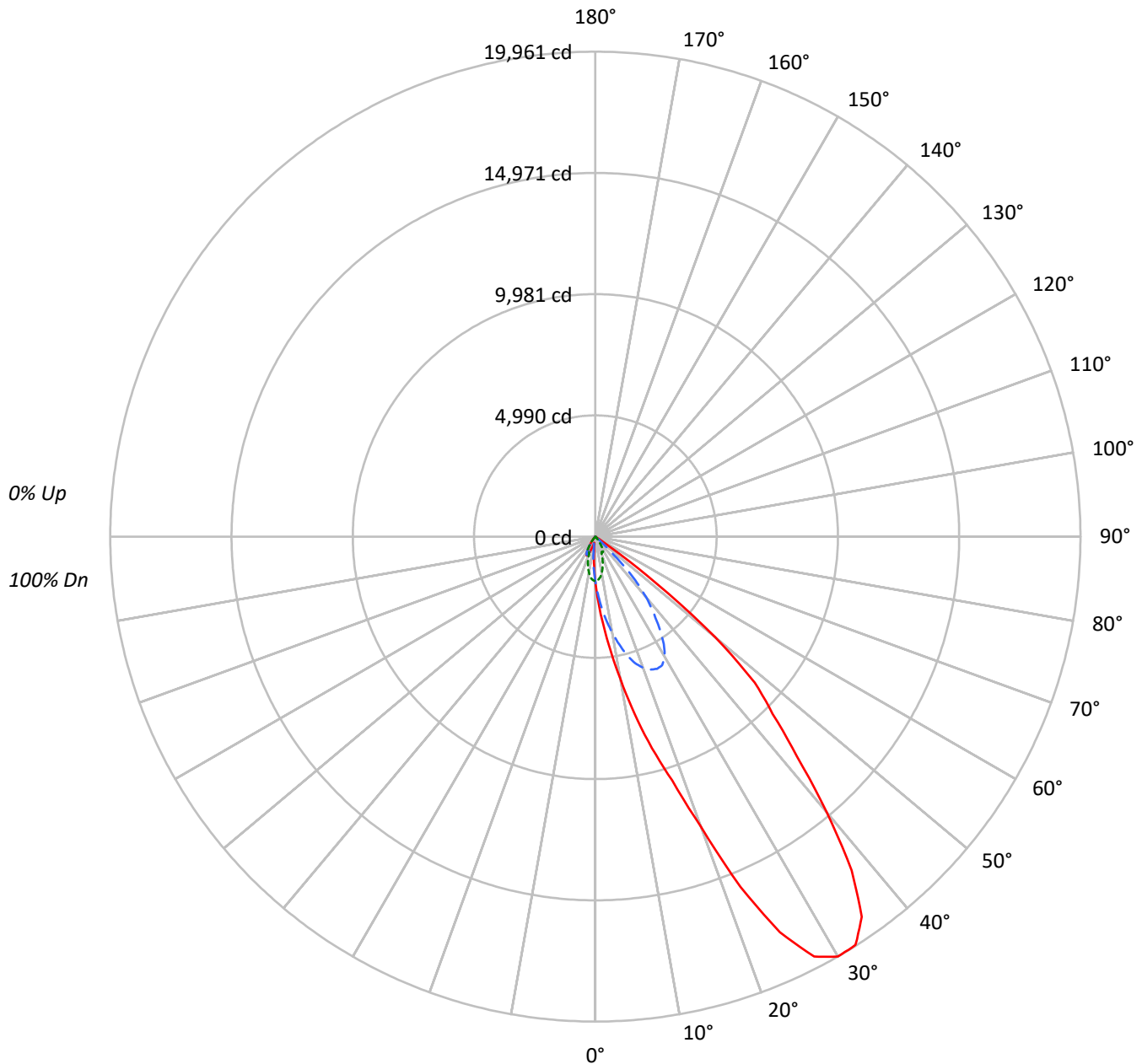
Input Watts (W): 79.45
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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	104	110	107	104	102	103	101	99	99	97	96	96	94	93	91		
2	105	100	95	91	103	98	94	90	95	91	88	92	89	86	89	86	84	82		
3	99	91	85	80	96	89	84	80	87	82	78	84	80	77	82	79	76	74		
4	92	83	76	71	90	82	76	71	79	74	70	77	73	69	75	71	68	66		
5	86	76	69	64	84	75	68	63	73	67	63	71	66	62	69	65	61	60		
6	80	69	62	57	79	69	62	57	67	61	56	65	60	56	64	59	55	54		
7	75	64	56	51	73	63	56	51	62	55	51	60	55	50	59	54	50	49		
8	70	59	51	46	69	58	51	46	57	50	46	56	50	46	54	49	45	44		
9	66	54	47	42	64	53	47	42	52	46	42	51	46	42	50	45	41	40		
10	61	50	43	38	60	49	43	38	48	42	38	48	42	38	47	41	38	36		

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	79214	79214	79214
5°	153496	75488	25461
10°	260785	66061	11433
15°	401848	52692	18177
20°	581726	34291	31620
25°	853495	33093	40656
30°	992384	31346	31157
35°	1004461	16604	16467
40°	831623	6256	6913
45°	628091	2131	2521
50°	429721	784	784
55°	59774	683	98
60°	1559	672	0
65°	397	927	0
70°	164	1146	0
75°	0	1514	0
80°	0	2579	322
85°	0	5138	0



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	193.0	3.0
10°-20°	815.9	12.5
20°-30°	1861.2	28.6
30°-40°	2153.9	33.0
40°-50°	1299.0	19.9
50°-60°	176.5	2.7
60°-70°	5.7	0.1
70°-80°	6.2	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°	2870.1	44.0
0°-40°	5024.0	77.1
0°-60°	6499.5	99.7
0°-90°	6517.2	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	6517.2	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	1840	1840	1840	1840	1840	
5°	3552	2908	1747	956	589	413
15°	9015	5068	1182	364	408	2669
25°	17966	6005	697	838	856	8130
35°	19110	4578	316	322	313	11517
45°	10315	1247	35	43	41	8066
55°	796	9	9	6	1	1561
65°	4	5	9	5	0	6
75°	0	6	9	6	0	0
85°	0	6	10	6	0	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°	1839.8	1839.8	1839.8	1839.8	1839.8	1839.8	1839.8	1839.8	1839.8	1839.8	1839.8
2.5°	2660.7	2636.1	2646.4	2619.3	2550.6	2536.4	2535.1	2517.0	2458.7	2413.4	2359.0
5°	3551.5	3550.2	3556.6	3498.4	3378.0	3340.4	3322.3	3278.3	3137.1	3028.4	2908.0
7.5°	4663.6	4655.9	4648.1	4541.9	4352.9	4280.4	4233.8	4074.5	3880.3	3687.4	3472.5
10°	5964.9	5961.0	5931.2	5744.7	5441.8	5308.4	5217.8	4965.3	4653.3	4378.8	4013.7
12.5°	7475.8	7440.8	7387.8	7114.6	6699.0	6554.0	6354.6	5954.5	5475.4	5054.7	4544.5
15°	9015.2	8964.8	8870.2	8519.4	8004.1	7756.8	7509.5	6982.5	6332.6	5721.4	5067.6
17.5°	10521.0	10465.4	10244.0	9648.4	9144.7	8843.0	8568.6	7844.8	7080.9	6295.0	5466.4
20°	12696.2	12494.2	12108.4	11169.7	10233.6	9689.8	9368.7	8603.5	7658.4	6743.0	5749.9
22.5°	15601.6	15153.6	14331.4	12806.2	11468.8	10684.2	10158.5	9140.8	8074.0	7035.6	5924.7
25°	17965.8	17762.5	16827.7	14657.7	12570.6	11646.2	10914.6	9568.1	8376.9	7231.1	6005.0
27.5°	19489.7	19439.2	18371.0	16190.7	13470.4	12257.3	11440.3	9850.4	8523.2	7272.5	5966.1
30°	19960.9	20039.9	19014.5	16711.2	13730.7	12380.3	11486.9	9854.2	8410.6	7084.8	5717.6
32.5°	19926.0	19929.9	18672.7	16261.9	13307.3	12022.9	11098.5	9526.7	7995.0	6614.8	5245.0
35°	19110.3	18909.6	17488.0	14881.7	12322.0	11189.1	10329.4	8892.2	7310.1	5907.9	4578.2
37.5°	17319.7	17056.9	15399.6	13114.4	11155.4	10108.0	9414.0	8059.7	6494.4	5153.1	3889.4
40°	14796.2	14423.4	13056.1	11471.4	9878.8	9091.6	8509.0	7128.8	5621.7	4412.5	3243.3
42.5°	12270.2	12087.7	11183.9	9895.7	8805.5	8064.9	7456.4	6153.9	4782.8	3682.2	2426.3
45°	10315.2	10158.5	9551.3	8701.9	7632.5	6956.6	6370.1	5137.5	3715.9	2470.4	1246.8
47.5°	8891.0	8764.1	8182.7	7290.7	6117.6	5378.3	4773.7	3368.9	2105.2	1066.9	312.0
50°	6415.4	6285.9	5716.3	4683.1	3624.0	3005.1	2570.1	1504.5	596.9	216.2	32.4
52.5°	3144.9	3038.7	2651.6	1984.8	1332.3	958.1	700.5	282.3	68.6	23.3	15.5
55°	796.3	731.5	609.8	383.2	187.7	112.6	72.5	25.9	16.8	12.9	9.1
57.5°	45.3	44.0	40.1	29.8	22.0	19.4	16.8	12.9	9.1	7.8	6.5
60°	18.1	16.8	15.5	12.9	10.4	9.1	9.1	6.5	5.2	5.2	5.2
62.5°	7.8	7.8	7.8	6.5	5.2	5.2	5.2	3.9	5.2	5.2	5.2
65°	3.9	3.9	3.9	2.6	2.6	2.6	3.9	3.9	3.9	5.2	5.2
67.5°	2.6	1.3	1.3	1.3	2.6	2.6	2.6	3.9	3.9	5.2	5.2
70°	1.3	1.3	1.3	1.3	2.6	2.6	2.6	3.9	3.9	5.2	6.5
72.5°	0.0	1.3	1.3	1.3	2.6	2.6	2.6	3.9	3.9	5.2	6.5
75°	0.0	1.3	1.3	1.3	2.6	2.6	2.6	3.9	5.2	5.2	6.5
77.5°	0.0	1.3	1.3	1.3	2.6	2.6	2.6	3.9	5.2	5.2	6.5
80°	0.0	1.3	1.3	1.3	2.6	2.6	2.6	3.9	5.2	5.2	6.5
82.5°	0.0	0.0	1.3	1.3	2.6	2.6	2.6	3.9	5.2	5.2	6.5
85°	0.0	0.0	1.3	1.3	2.6	2.6	2.6	3.9	5.2	5.2	6.5
87.5°	0.0	0.0	1.3	1.3	2.6	2.6	2.6	3.9	3.9	5.2	6.5
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°	1839.8	1839.8	1839.8	1839.8	1839.8	1839.8	1839.8	1839.8	1839.8	1839.8	1839.8
2.5°	2289.1	2242.5	2173.9	2128.5	2084.5	2043.1	1974.5	1935.6	1865.7	1801.0	1745.3
5°	2763.0	2646.4	2505.3	2384.9	2307.2	2230.8	2092.3	1990.0	1861.8	1746.6	1640.4
7.5°	3242.0	3036.2	2804.4	2606.3	2485.9	2368.1	2160.9	1995.2	1813.9	1649.5	1492.8
10°	3677.1	3367.6	3040.0	2756.5	2593.4	2440.6	2167.4	1947.3	1714.2	1511.0	1314.2
12.5°	4081.0	3657.6	3230.4	2860.1	2658.1	2474.2	2140.2	1870.9	1593.8	1353.0	1123.8
15°	4440.9	3897.2	3368.9	2919.6	2682.7	2465.2	2076.8	1763.4	1451.4	1182.1	892.1
17.5°	4714.1	4046.1	3429.8	2910.6	2638.7	2396.6	1968.0	1628.8	1299.9	973.6	646.1
20°	4879.9	4109.5	3416.8	2840.7	2544.2	2287.8	1838.5	1482.5	1117.4	748.4	569.7
22.5°	4949.8	4104.3	3356.0	2735.8	2427.6	2168.7	1714.2	1340.1	925.7	677.1	594.3
25°	4961.4	4051.2	3270.5	2620.5	2312.4	2054.7	1588.6	1178.2	804.0	696.6	665.5
27.5°	4872.1	3926.9	3110.0	2454.8	2150.6	1883.8	1400.9	936.1	754.8	694.0	714.7
30°	4608.0	3643.4	2826.4	2163.5	1869.6	1602.9	1000.8	734.1	626.7	630.5	635.7
32.5°	4143.2	3172.1	2370.7	1737.5	1416.4	1056.5	622.8	490.7	476.5	476.5	473.9
35°	3523.0	2595.9	1860.5	1099.2	704.3	507.5	322.4	323.7	317.2	315.9	314.6
37.5°	2882.1	2048.3	1178.2	454.5	305.6	212.3	190.3	192.9	190.3	194.2	191.6
40°	2272.3	1265.0	429.9	145.0	107.5	103.6	106.2	108.8	108.8	111.3	111.3
42.5°	1320.6	419.5	112.6	58.3	58.3	55.7	57.0	59.6	60.9	62.1	60.9
45°	392.3	86.7	36.3	32.4	32.4	31.1	31.1	32.4	33.7	35.0	35.0
47.5°	62.1	24.6	20.7	18.1	18.1	18.1	18.1	18.1	19.4	19.4	20.7
50°	19.4	15.5	12.9	11.7	11.7	10.4	10.4	11.7	11.7	11.7	12.9
52.5°	11.7	9.1	9.1	7.8	9.1	9.1	7.8	9.1	9.1	9.1	10.4
55°	7.8	7.8	7.8	7.8	7.8	7.8	7.8	7.8	9.1	9.1	9.1
57.5°	6.5	6.5	7.8	7.8	7.8	7.8	7.8	7.8	7.8	7.8	7.8
60°	6.5	6.5	7.8	7.8	7.8	7.8	7.8	7.8	7.8	7.8	9.1
62.5°	6.5	6.5	7.8	7.8	7.8	7.8	7.8	7.8	9.1	9.1	9.1
65°	6.5	6.5	7.8	7.8	7.8	7.8	7.8	9.1	9.1	9.1	9.1
67.5°	6.5	7.8	7.8	7.8	7.8	9.1	9.1	9.1	9.1	9.1	9.1
70°	6.5	7.8	7.8	9.1	9.1	9.1	9.1	9.1	9.1	9.1	9.1
72.5°	6.5	7.8	7.8	9.1	9.1	9.1	9.1	9.1	9.1	9.1	9.1
75°	7.8	7.8	7.8	9.1	9.1	9.1	9.1	9.1	9.1	9.1	10.4
77.5°	7.8	7.8	9.1	9.1	9.1	9.1	9.1	9.1	10.4	10.4	10.4
80°	7.8	7.8	9.1	9.1	9.1	9.1	9.1	10.4	10.4	10.4	10.4
82.5°	7.8	7.8	9.1	9.1	9.1	9.1	9.1	10.4	10.4	10.4	10.4
85°	7.8	7.8	9.1	9.1	9.1	9.1	9.1	10.4	10.4	10.4	10.4
87.5°	7.8	7.8	9.1	9.1	9.1	9.1	9.1	10.4	10.4	10.4	10.4
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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CANDELA DISTRIBUTION (continued):

	100°	105°	110°	112.5°	115°	120°	125°	130°	135°	140°	145°
0°	1839.8	1839.8	1839.8	1839.8	1839.8	1839.8	1839.8	1839.8	1839.8	1839.8	1839.8
2.5°	1697.4	1637.8	1609.4	1569.2	1540.7	1477.3	1451.4	1407.4	1371.1	1311.6	1315.5
5°	1549.8	1437.2	1360.8	1301.2	1259.8	1158.8	1091.5	1020.3	955.5	875.2	845.5
7.5°	1345.2	1206.7	1090.2	1019.0	965.9	831.2	682.3	565.8	477.8	414.3	389.7
10°	1140.7	960.7	775.5	665.5	589.1	459.6	393.6	362.5	334.0	299.1	275.8
12.5°	902.4	646.1	477.8	433.7	402.7	359.9	317.2	283.5	290.0	291.3	300.4
15°	616.3	464.8	411.7	381.9	348.3	323.7	337.9	347.0	363.8	365.1	376.8
17.5°	501.1	436.3	393.6	392.3	394.9	409.1	431.1	442.8	464.8	470.0	486.8
20°	501.1	463.5	499.8	499.8	506.2	525.7	554.1	571.0	595.6	604.6	625.4
22.5°	571.0	596.9	642.2	647.4	650.0	670.7	706.9	723.8	752.2	757.4	779.4
25°	696.6	719.9	761.3	765.2	766.5	782.0	809.2	818.3	837.7	827.3	840.3
27.5°	736.7	747.1	773.0	775.5	769.1	775.5	785.9	785.9	792.4	771.7	775.5
30°	647.4	650.0	662.9	664.2	650.0	652.5	653.8	652.5	651.3	629.2	629.2
32.5°	480.3	480.3	497.2	493.3	477.8	481.6	481.6	481.6	480.3	462.2	459.6
35°	318.5	319.8	334.0	331.5	319.8	322.4	322.4	326.3	322.4	312.0	309.4
37.5°	194.2	195.5	202.0	203.3	199.4	200.7	202.0	200.7	203.3	198.1	195.5
40°	112.6	115.2	120.4	121.7	120.4	120.4	121.7	123.0	128.2	121.7	119.1
42.5°	66.0	67.3	69.9	69.9	69.9	69.9	71.2	72.5	73.8	72.5	71.2
45°	37.5	38.8	40.1	40.1	41.4	40.1	41.4	41.4	42.7	41.4	41.4
47.5°	22.0	22.0	23.3	23.3	24.6	23.3	24.6	24.6	24.6	23.3	23.3
50°	12.9	14.2	14.2	14.2	14.2	14.2	14.2	14.2	14.2	12.9	12.9
52.5°	10.4	10.4	10.4	10.4	10.4	9.1	9.1	9.1	9.1	7.8	7.8
55°	9.1	9.1	9.1	9.1	9.1	9.1	7.8	6.5	6.5	5.2	5.2
57.5°	7.8	9.1	9.1	9.1	9.1	7.8	7.8	6.5	5.2	3.9	3.9
60°	9.1	9.1	9.1	9.1	7.8	7.8	7.8	6.5	5.2	3.9	3.9
62.5°	9.1	9.1	9.1	9.1	9.1	7.8	7.8	6.5	5.2	3.9	3.9
65°	9.1	9.1	9.1	9.1	9.1	7.8	7.8	6.5	5.2	3.9	3.9
67.5°	9.1	9.1	9.1	9.1	9.1	7.8	7.8	6.5	5.2	5.2	3.9
70°	9.1	10.4	10.4	9.1	9.1	9.1	7.8	6.5	6.5	5.2	3.9
72.5°	9.1	10.4	10.4	9.1	9.1	9.1	7.8	6.5	6.5	5.2	3.9
75°	10.4	10.4	10.4	10.4	9.1	9.1	7.8	7.8	6.5	5.2	3.9
77.5°	10.4	10.4	10.4	10.4	9.1	9.1	7.8	7.8	6.5	5.2	3.9
80°	10.4	10.4	10.4	10.4	10.4	9.1	9.1	7.8	6.5	5.2	5.2
82.5°	10.4	10.4	10.4	10.4	10.4	9.1	9.1	7.8	6.5	5.2	5.2
85°	10.4	10.4	10.4	10.4	10.4	9.1	9.1	7.8	6.5	5.2	3.9
87.5°	10.4	10.4	10.4	10.4	9.1	9.1	7.8	7.8	6.5	5.2	3.9
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: P209031

CATALOG NUMBER: LDSQA6A75840D010TE LARH20SP 6LSQA1H 30°

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	1839.8	1839.8	1839.8	1839.8	1839.8	1839.8	1839.8	1839.8
2.5°	1267.5	1237.8	1224.8	1245.5	1235.2	1204.1	1210.6	1191.2
5°	756.1	710.8	682.3	695.3	653.8	616.3	616.3	589.1
7.5°	365.1	350.9	343.1	345.7	336.6	325.0	318.5	318.5
10°	256.4	251.2	252.5	252.5	260.2	258.9	262.8	261.5
12.5°	304.3	306.9	308.1	313.3	319.8	319.8	323.7	321.1
15°	389.7	387.1	394.9	396.2	406.5	407.8	413.0	407.8
17.5°	495.9	501.1	508.8	507.5	528.3	529.5	529.5	528.3
20°	638.3	642.2	650.0	652.5	677.1	679.7	688.8	690.1
22.5°	793.7	793.7	797.6	802.7	826.0	827.3	831.2	831.2
25°	846.8	839.0	840.3	846.8	859.7	854.5	858.4	855.8
27.5°	778.1	766.5	763.9	773.0	782.0	767.8	773.0	773.0
30°	631.8	621.5	618.9	627.9	634.4	618.9	624.1	626.7
32.5°	462.2	455.7	454.5	460.9	466.1	453.2	458.3	462.2
35°	312.0	309.4	306.9	308.1	315.9	305.6	310.7	313.3
37.5°	198.1	192.9	194.2	196.8	202.0	195.5	200.7	200.7
40°	121.7	119.1	119.1	121.7	124.3	119.1	121.7	123.0
42.5°	71.2	71.2	71.2	72.5	73.8	71.2	71.2	72.5
45°	41.4	40.1	40.1	41.4	42.7	40.1	41.4	41.4
47.5°	23.3	22.0	22.0	23.3	23.3	22.0	23.3	23.3
50°	12.9	11.7	11.7	12.9	12.9	11.7	11.7	11.7
52.5°	6.5	6.5	6.5	6.5	6.5	6.5	5.2	5.2
55°	3.9	3.9	2.6	2.6	2.6	2.6	2.6	1.3
57.5°	2.6	2.6	1.3	1.3	1.3	1.3	0.0	0.0
60°	2.6	2.6	1.3	1.3	1.3	0.0	0.0	0.0
62.5°	2.6	2.6	1.3	1.3	1.3	0.0	0.0	0.0
65°	2.6	2.6	1.3	1.3	1.3	0.0	0.0	0.0
67.5°	2.6	2.6	1.3	1.3	1.3	0.0	0.0	0.0
70°	3.9	2.6	2.6	1.3	1.3	1.3	0.0	0.0
72.5°	3.9	2.6	2.6	2.6	1.3	1.3	0.0	0.0
75°	3.9	2.6	2.6	2.6	1.3	1.3	0.0	0.0
77.5°	3.9	2.6	2.6	2.6	1.3	1.3	1.3	0.0
80°	3.9	2.6	2.6	2.6	1.3	1.3	1.3	1.3
82.5°	3.9	2.6	2.6	2.6	1.3	1.3	1.3	1.3
85°	3.9	2.6	2.6	2.6	1.3	1.3	1.3	0.0
87.5°	3.9	2.6	2.6	2.6	1.3	1.3	1.3	0.0
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)