

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: P209028

Luminaire Tested: **LDSQA6A75827D010TE LARH20SP 6LSQA1H 30°**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P209028
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: LDSQA6A75827D010TE 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 / 2700K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 5975.9 lumens
Efficiency: N/A
Efficacy: 75.2 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

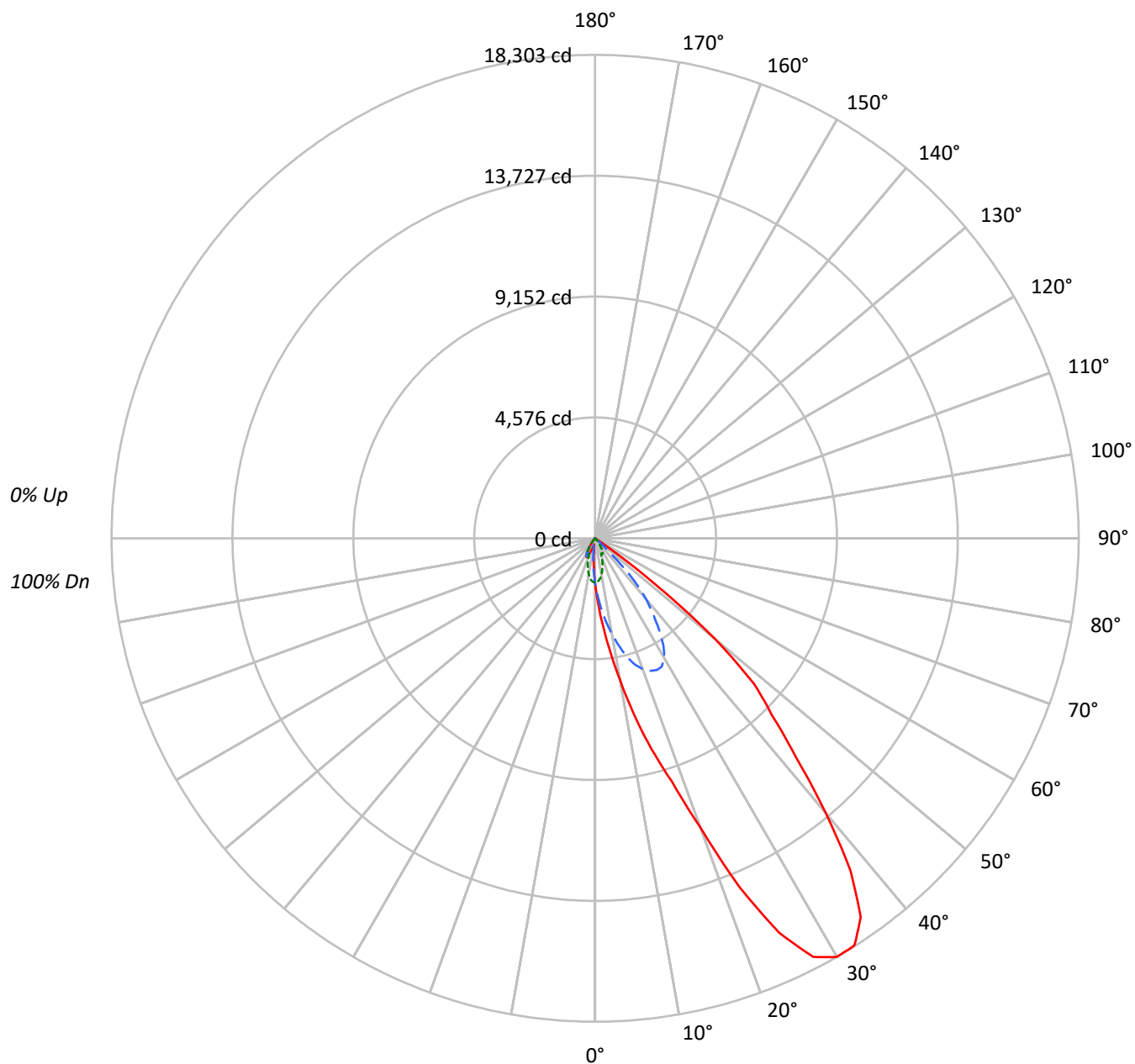
Input Watts (W): 79.45
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



TEST NUMBER: P209028

CATALOG NUMBER: LDSQA6A75827D010TE LARH20SP 6LSQA1H 30°

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

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	72635	72635	72635
5°	140751	69221	23348
10°	239126	60574	10484
15°	368480	48314	16671
20°	533419	31441	28994
25°	782620	30343	37283
30°	909979	28746	28567
35°	921052	15227	15101
40°	762569	5739	6340
45°	575933	1955	2314
50°	394039	717	717
55°	54805	623	90
60°	1429	611	0
65°	367	846	0
70°	151	1045	0
75°	0	1381	0
80°	0	2356	298
85°	0	4693	0



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CATALOG NUMBER: LDSQA6A75827D010TE LARH20SP 6LSQA1H 30°

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	177.0	3.0
10°-20°	748.1	12.5
20°-30°	1706.7	28.6
30°-40°	1975.0	33.0
40°-50°	1191.1	19.9
50°-60°	161.8	2.7
60°-70°	5.2	0.1
70°-80°	5.7	0.1
80°-90°	5.3	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°	2631.8	44.0
0°-40°	4606.8	77.1
0°-60°	5959.7	99.7
0°-90°	5975.9	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	5975.9	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	1687	1687	1687	1687	1687	
5°	3257	2666	1602	876	540	379
15°	8267	4647	1084	334	374	2447
25°	16474	5506	639	768	785	7455
35°	17523	4198	290	296	287	10560
45°	9459	1143	32	39	38	7396
55°	730	8	8	6	1	1431
65°	4	5	8	5	0	5
75°	0	6	8	6	0	0
85°	0	6	10	6	0	0
90°	0	0	0	0	0	



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CATALOG NUMBER: LDSQA6A75827D010TE LARH20SP 6LSQA1H 30°

CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	22.5°	25°	30°	35°	40°	45°
0°	1687.0	1687.0	1687.0	1687.0	1687.0	1687.0	1687.0	1687.0	1687.0	1687.0	1687.0
2.5°	2439.7	2417.2	2426.7	2401.8	2338.8	2325.8	2324.6	2308.0	2254.5	2213.0	2163.1
5°	3256.6	3255.4	3261.3	3207.9	3097.5	3063.0	3046.4	3006.0	2876.6	2776.9	2666.5
7.5°	4276.4	4269.3	4262.1	4164.8	3991.4	3925.0	3882.2	3736.2	3558.1	3381.2	3184.1
10°	5469.5	5466.0	5438.7	5267.7	4989.9	4867.6	4784.5	4553.0	4266.9	4015.2	3680.4
12.5°	6855.0	6823.0	6774.3	6523.8	6142.7	6009.7	5826.9	5460.0	5020.8	4634.9	4167.2
15°	8266.6	8220.3	8133.7	7811.9	7339.4	7112.7	6885.9	6402.7	5806.7	5246.3	4646.8
17.5°	9647.4	9596.3	9393.3	8847.2	8385.4	8108.7	7857.0	7193.4	6492.9	5772.3	5012.5
20°	11641.9	11456.7	11102.9	10242.2	9383.8	8885.2	8590.7	7889.1	7022.4	6183.1	5272.5
22.5°	14306.0	13895.3	13141.4	11742.8	10516.4	9797.0	9315.0	8381.8	7403.5	6451.4	5432.7
25°	16473.9	16287.5	15430.3	13440.6	11526.7	10679.1	10008.3	8773.6	7681.3	6630.6	5506.3
27.5°	17871.3	17825.0	16845.5	14846.2	12351.9	11239.4	10490.3	9032.4	7815.5	6668.6	5470.7
30°	18303.4	18375.8	17435.6	15323.5	12590.5	11352.2	10533.0	9036.0	7712.2	6496.5	5242.8
32.5°	18271.4	18274.9	17122.1	14911.5	12202.3	11024.6	10176.9	8735.6	7331.1	6065.5	4809.4
35°	17523.4	17339.4	16035.8	13645.9	11298.8	10260.0	9471.7	8153.8	6703.1	5417.3	4198.0
37.5°	15881.5	15640.5	14120.8	12025.4	10229.1	9268.6	8632.3	7390.5	5955.1	4725.1	3566.4
40°	13567.6	13225.7	11972.0	10518.8	9058.5	8336.7	7802.4	6536.8	5154.9	4046.1	2974.0
42.5°	11251.3	11083.9	10255.2	9073.9	8074.3	7395.2	6837.2	5642.9	4385.6	3376.5	2224.9
45°	9458.6	9315.0	8758.1	7979.3	6998.7	6378.9	5841.1	4710.9	3407.3	2265.2	1143.3
47.5°	8152.7	8036.3	7503.2	6685.3	5609.6	4931.7	4377.3	3089.2	1930.4	978.3	286.1
50°	5882.7	5764.0	5241.6	4294.2	3323.0	2755.5	2356.6	1379.6	547.3	198.3	29.7
52.5°	2883.8	2786.4	2431.4	1820.0	1221.7	878.5	642.3	258.8	62.9	21.4	14.2
55°	730.1	670.8	559.2	351.4	172.1	103.3	66.5	23.7	15.4	11.9	8.3
57.5°	41.6	40.4	36.8	27.3	20.2	17.8	15.4	11.9	8.3	7.1	5.9
60°	16.6	15.4	14.2	11.9	9.5	8.3	8.3	5.9	4.7	4.7	4.7
62.5°	7.1	7.1	7.1	5.9	4.7	4.7	4.7	3.6	4.7	4.7	4.7
65°	3.6	3.6	3.6	2.4	2.4	2.4	3.6	3.6	3.6	4.7	4.7
67.5°	2.4	1.2	1.2	1.2	2.4	2.4	2.4	3.6	3.6	4.7	4.7
70°	1.2	1.2	1.2	1.2	2.4	2.4	2.4	3.6	3.6	4.7	5.9
72.5°	0.0	1.2	1.2	1.2	2.4	2.4	2.4	3.6	3.6	4.7	5.9
75°	0.0	1.2	1.2	1.2	2.4	2.4	2.4	3.6	4.7	4.7	5.9
77.5°	0.0	1.2	1.2	1.2	2.4	2.4	2.4	3.6	4.7	4.7	5.9
80°	0.0	1.2	1.2	1.2	2.4	2.4	2.4	3.6	4.7	4.7	5.9
82.5°	0.0	0.0	1.2	1.2	2.4	2.4	2.4	3.6	4.7	4.7	5.9
85°	0.0	0.0	1.2	1.2	2.4	2.4	2.4	3.6	4.7	4.7	5.9
87.5°	0.0	0.0	1.2	1.2	2.4	2.4	2.4	3.6	3.6	4.7	5.9
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: P209028

CATALOG NUMBER: LDSQA6A75827D010TE LARH20SP 6LSQA1H 30°

CANDELA DISTRIBUTION (continued):

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°	95°
0°	1687.0	1687.0	1687.0	1687.0	1687.0	1687.0	1687.0	1687.0	1687.0	1687.0	1687.0
2.5°	2099.0	2056.3	1993.3	1951.8	1911.4	1873.4	1810.5	1774.9	1710.8	1651.4	1600.4
5°	2533.5	2426.7	2297.3	2186.9	2115.6	2045.6	1918.6	1824.8	1707.2	1601.6	1504.2
7.5°	2972.8	2784.0	2571.5	2389.9	2279.5	2171.4	1981.5	1829.5	1663.3	1512.5	1368.9
10°	3371.7	3088.0	2787.6	2527.6	2378.0	2237.9	1987.4	1785.6	1571.9	1385.5	1205.0
12.5°	3742.1	3353.9	2962.1	2622.6	2437.4	2268.8	1962.5	1715.5	1461.5	1240.6	1030.5
15°	4072.2	3573.5	3089.2	2677.2	2459.9	2260.5	1904.3	1617.0	1330.9	1083.9	818.0
17.5°	4322.7	3710.1	3145.0	2668.9	2419.6	2197.5	1804.6	1493.5	1192.0	892.8	592.4
20°	4474.6	3768.2	3133.1	2604.8	2332.9	2097.8	1685.9	1359.4	1024.6	686.2	522.4
22.5°	4538.8	3763.5	3077.3	2508.6	2226.0	1988.6	1571.9	1228.8	848.9	620.9	544.9
25°	4549.4	3714.8	2998.9	2402.9	2120.4	1884.1	1456.7	1080.4	737.3	638.7	610.2
27.5°	4467.5	3600.8	2851.7	2251.0	1972.0	1727.4	1284.6	858.4	692.2	636.4	655.3
30°	4225.3	3340.8	2591.7	1983.8	1714.3	1469.8	917.7	673.2	574.6	578.2	582.9
32.5°	3799.1	2908.7	2173.8	1593.3	1298.8	968.8	571.1	450.0	436.9	436.9	434.5
35°	3230.4	2380.4	1706.0	1008.0	645.8	465.4	295.6	296.8	290.9	289.7	288.5
37.5°	2642.8	1878.2	1080.4	416.7	280.2	194.7	174.5	176.9	174.5	178.1	175.7
40°	2083.6	1159.9	394.2	133.0	98.5	95.0	97.4	99.7	99.7	102.1	102.1
42.5°	1211.0	384.7	103.3	53.4	53.4	51.1	52.2	54.6	55.8	57.0	55.8
45°	359.7	79.5	33.2	29.7	29.7	28.5	28.5	29.7	30.9	32.1	32.1
47.5°	57.0	22.6	19.0	16.6	16.6	16.6	16.6	16.6	17.8	17.8	19.0
50°	17.8	14.2	11.9	10.7	10.7	9.5	9.5	10.7	10.7	10.7	11.9
52.5°	10.7	8.3	8.3	7.1	8.3	8.3	7.1	8.3	8.3	8.3	9.5
55°	7.1	7.1	7.1	7.1	7.1	7.1	7.1	7.1	8.3	8.3	8.3
57.5°	5.9	5.9	7.1	7.1	7.1	7.1	7.1	7.1	7.1	7.1	7.1
60°	5.9	5.9	7.1	7.1	7.1	7.1	7.1	7.1	7.1	7.1	8.3
62.5°	5.9	5.9	7.1	7.1	7.1	7.1	7.1	7.1	8.3	8.3	8.3
65°	5.9	5.9	7.1	7.1	7.1	7.1	7.1	8.3	8.3	8.3	8.3
67.5°	5.9	7.1	7.1	7.1	7.1	8.3	8.3	8.3	8.3	8.3	8.3
70°	5.9	7.1	7.1	8.3	8.3	8.3	8.3	8.3	8.3	8.3	8.3
72.5°	5.9	7.1	7.1	8.3	8.3	8.3	8.3	8.3	8.3	8.3	8.3
75°	7.1	7.1	7.1	8.3	8.3	8.3	8.3	8.3	8.3	8.3	9.5
77.5°	7.1	7.1	8.3	8.3	8.3	8.3	8.3	8.3	9.5	9.5	9.5
80°	7.1	7.1	8.3	8.3	8.3	8.3	8.3	9.5	9.5	9.5	9.5
82.5°	7.1	7.1	8.3	8.3	8.3	8.3	8.3	9.5	9.5	9.5	9.5
85°	7.1	7.1	8.3	8.3	8.3	8.3	8.3	9.5	9.5	9.5	9.5
87.5°	7.1	7.1	8.3	8.3	8.3	8.3	8.3	9.5	9.5	9.5	9.5
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: P209028

CATALOG NUMBER: LDSQA6A75827D010TE LARH20SP 6LSQA1H 30°

CANDELA DISTRIBUTION (continued):

	100°	105°	110°	112.5°	115°	120°	125°	130°	135°	140°	145°
0°	1687.0	1687.0	1687.0	1687.0	1687.0	1687.0	1687.0	1687.0	1687.0	1687.0	1687.0
2.5°	1556.4	1501.8	1475.7	1438.9	1412.8	1354.6	1330.9	1290.5	1257.3	1202.7	1206.2
5°	1421.1	1317.8	1247.8	1193.2	1155.2	1062.6	1000.8	935.5	876.2	802.6	775.3
7.5°	1233.5	1106.5	999.6	934.3	885.7	762.2	625.7	518.8	438.1	379.9	357.4
10°	1045.9	880.9	711.1	610.2	540.2	421.5	360.9	332.4	306.3	274.2	252.9
12.5°	827.5	592.4	438.1	397.7	369.2	330.0	290.9	260.0	265.9	267.1	275.4
15°	565.1	426.2	377.5	350.2	319.4	296.8	309.9	318.2	333.6	334.8	345.5
17.5°	459.5	400.1	360.9	359.7	362.1	375.2	395.3	406.0	426.2	431.0	446.4
20°	459.5	425.0	458.3	458.3	464.2	482.0	508.1	523.6	546.1	554.4	573.4
22.5°	523.6	547.3	588.9	593.6	596.0	615.0	648.2	663.7	689.8	694.5	714.7
25°	638.7	660.1	698.1	701.6	702.8	717.1	742.0	750.3	768.1	758.6	770.5
27.5°	675.5	685.0	708.8	711.1	705.2	711.1	720.6	720.6	726.6	707.6	711.1
30°	593.6	596.0	607.9	609.0	596.0	598.4	599.5	598.4	597.2	577.0	577.0
32.5°	440.5	440.5	455.9	452.3	438.1	441.6	441.6	441.6	440.5	423.8	421.5
35°	292.1	293.2	306.3	303.9	293.2	295.6	295.6	299.2	295.6	286.1	283.7
37.5°	178.1	179.3	185.2	186.4	182.8	184.0	185.2	184.0	186.4	181.6	179.3
40°	103.3	105.7	110.4	111.6	110.4	110.4	111.6	112.8	117.5	111.6	109.2
42.5°	60.5	61.7	64.1	64.1	64.1	64.1	65.3	66.5	67.7	66.5	65.3
45°	34.4	35.6	36.8	36.8	38.0	36.8	38.0	38.0	39.2	38.0	38.0
47.5°	20.2	20.2	21.4	21.4	22.6	21.4	22.6	22.6	22.6	21.4	21.4
50°	11.9	13.1	13.1	13.1	13.1	13.1	13.1	13.1	13.1	11.9	11.9
52.5°	9.5	9.5	9.5	9.5	9.5	8.3	8.3	8.3	8.3	7.1	7.1
55°	8.3	8.3	8.3	8.3	8.3	8.3	7.1	5.9	5.9	4.7	4.7
57.5°	7.1	8.3	8.3	8.3	8.3	7.1	7.1	5.9	4.7	3.6	3.6
60°	8.3	8.3	8.3	8.3	7.1	7.1	7.1	5.9	4.7	3.6	3.6
62.5°	8.3	8.3	8.3	8.3	8.3	7.1	7.1	5.9	4.7	3.6	3.6
65°	8.3	8.3	8.3	8.3	8.3	7.1	7.1	5.9	4.7	3.6	3.6
67.5°	8.3	8.3	8.3	8.3	8.3	7.1	7.1	5.9	4.7	4.7	3.6
70°	8.3	9.5	9.5	8.3	8.3	8.3	7.1	5.9	5.9	4.7	3.6
72.5°	8.3	9.5	9.5	8.3	8.3	8.3	7.1	5.9	5.9	4.7	3.6
75°	9.5	9.5	9.5	9.5	8.3	8.3	7.1	7.1	5.9	4.7	3.6
77.5°	9.5	9.5	9.5	9.5	8.3	8.3	7.1	7.1	5.9	4.7	3.6
80°	9.5	9.5	9.5	9.5	9.5	8.3	8.3	7.1	5.9	4.7	4.7
82.5°	9.5	9.5	9.5	9.5	9.5	8.3	8.3	7.1	5.9	4.7	4.7
85°	9.5	9.5	9.5	9.5	9.5	8.3	8.3	7.1	5.9	4.7	3.6
87.5°	9.5	9.5	9.5	9.5	8.3	8.3	7.1	7.1	5.9	4.7	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: P209028

CATALOG NUMBER: LDSQA6A75827D010TE LARH20SP 6LSQA1H 30°

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	1687.0	1687.0	1687.0	1687.0	1687.0	1687.0	1687.0	1687.0
2.5°	1162.3	1135.0	1123.1	1142.1	1132.6	1104.1	1110.1	1092.2
5°	693.3	651.8	625.7	637.5	599.5	565.1	565.1	540.2
7.5°	334.8	321.7	314.6	317.0	308.7	298.0	292.1	292.1
10°	235.1	230.3	231.5	231.5	238.6	237.4	241.0	239.8
12.5°	279.0	281.4	282.6	287.3	293.2	293.2	296.8	294.4
15°	357.4	355.0	362.1	363.3	372.8	374.0	378.7	374.0
17.5°	454.7	459.5	466.6	465.4	484.4	485.6	485.6	484.4
20°	585.3	588.9	596.0	598.4	620.9	623.3	631.6	632.8
22.5°	727.8	727.8	731.3	736.1	757.4	758.6	762.2	762.2
25°	776.4	769.3	770.5	776.4	788.3	783.6	787.1	784.8
27.5°	713.5	702.8	700.5	708.8	717.1	704.0	708.8	708.8
30°	579.4	569.9	567.5	575.8	581.7	567.5	572.2	574.6
32.5°	423.8	417.9	416.7	422.7	427.4	415.5	420.3	423.8
35°	286.1	283.7	281.4	282.6	289.7	280.2	284.9	287.3
37.5°	181.6	176.9	178.1	180.5	185.2	179.3	184.0	184.0
40°	111.6	109.2	109.2	111.6	114.0	109.2	111.6	112.8
42.5°	65.3	65.3	65.3	66.5	67.7	65.3	65.3	66.5
45°	38.0	36.8	36.8	38.0	39.2	36.8	38.0	38.0
47.5°	21.4	20.2	20.2	21.4	21.4	20.2	21.4	21.4
50°	11.9	10.7	10.7	11.9	11.9	10.7	10.7	10.7
52.5°	5.9	5.9	5.9	5.9	5.9	5.9	4.7	4.7
55°	3.6	3.6	2.4	2.4	2.4	2.4	2.4	1.2
57.5°	2.4	2.4	1.2	1.2	1.2	1.2	0.0	0.0
60°	2.4	2.4	1.2	1.2	1.2	0.0	0.0	0.0
62.5°	2.4	2.4	1.2	1.2	1.2	0.0	0.0	0.0
65°	2.4	2.4	1.2	1.2	1.2	0.0	0.0	0.0
67.5°	2.4	2.4	1.2	1.2	1.2	0.0	0.0	0.0
70°	3.6	2.4	2.4	1.2	1.2	1.2	0.0	0.0
72.5°	3.6	2.4	2.4	2.4	1.2	1.2	0.0	0.0
75°	3.6	2.4	2.4	2.4	1.2	1.2	0.0	0.0
77.5°	3.6	2.4	2.4	2.4	1.2	1.2	1.2	0.0
80°	3.6	2.4	2.4	2.4	1.2	1.2	1.2	1.2
82.5°	3.6	2.4	2.4	2.4	1.2	1.2	1.2	1.2
85°	3.6	2.4	2.4	2.4	1.2	1.2	1.2	0.0
87.5°	3.6	2.4	2.4	2.4	1.2	1.2	1.2	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)