

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: P209020

Luminaire Tested: **LDSQA6A65827D010TE LARH20SP 6LSQA1H 30°**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P209020
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: LDSQA6A65827D010TE 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: 5187.3 lumens
Efficiency: N/A
Efficacy: 65.9 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

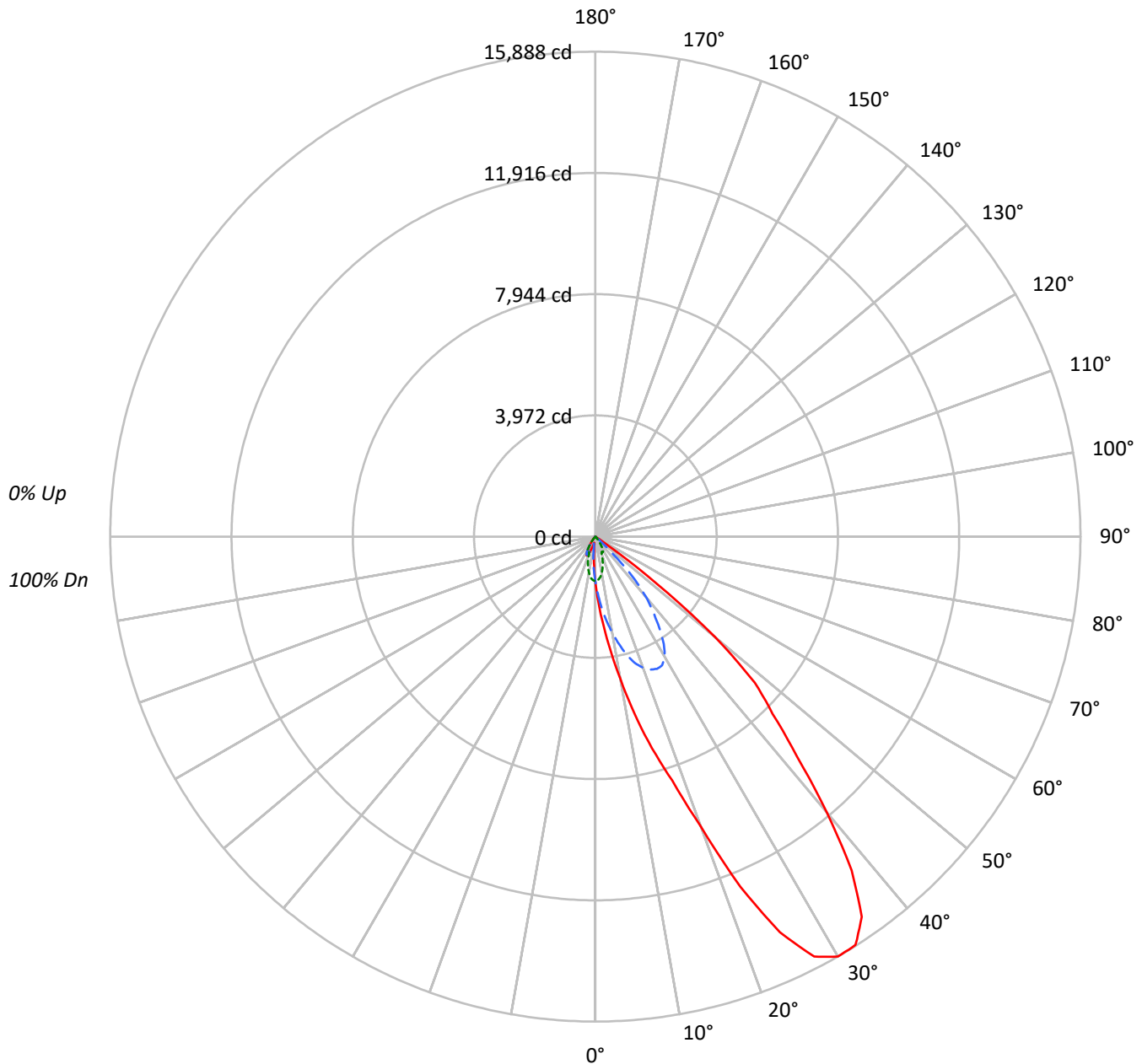
Input Watts (W): 78.67
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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	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°	63051	63051	63051
5°	122175	60085	20266
10°	207573	52582	9102
15°	319853	41940	14469
20°	463027	27294	25168
25°	679345	26338	32362
30°	789894	24953	24799
35°	799509	13219	13109
40°	661940	4980	5502
45°	499930	1693	2009
50°	342041	623	623
55°	47576	540	75
60°	1240	534	0
65°	316	734	0
70°	126	906	0
75°	0	1198	0
80°	0	2033	248
85°	0	4051	0



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	153.6	3.0
10°-20°	649.4	12.5
20°-30°	1481.4	28.6
30°-40°	1714.4	33.0
40°-50°	1033.9	19.9
50°-60°	140.5	2.7
60°-70°	4.5	0.1
70°-80°	4.9	0.1
80°-90°	4.6	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°	2284.5	44.0
0°-40°	3998.9	77.1
0°-60°	5173.3	99.7
0°-90°	5187.3	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	5187.3	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	1464	1464	1464	1464	1464	
5°	2827	2315	1390	760	469	329
15°	7176	4034	941	290	325	2124
25°	14300	4780	554	667	681	6471
35°	15211	3644	252	257	249	9167
45°	8210	992	28	34	33	6420
55°	634	7	7	5	1	1242
65°	3	4	7	4	0	5
75°	0	5	7	5	0	0
85°	0	5	8	5	0	0
90°	0	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°	1464.4	1464.4	1464.4	1464.4	1464.4	1464.4	1464.4	1464.4	1464.4	1464.4	1464.4
2.5°	2117.8	2098.2	2106.5	2084.8	2030.2	2018.9	2017.8	2003.4	1957.0	1921.0	1877.7
5°	2826.8	2825.8	2830.9	2784.6	2688.7	2658.8	2644.4	2609.4	2497.0	2410.5	2314.6
7.5°	3712.1	3705.9	3699.7	3615.2	3464.7	3407.0	3369.9	3243.2	3088.6	2935.0	2763.9
10°	4747.8	4744.7	4721.0	4572.6	4331.4	4225.3	4153.1	3952.2	3703.8	3485.3	3194.7
12.5°	5950.4	5922.6	5880.3	5662.9	5332.1	5216.7	5058.0	4739.5	4358.2	4023.3	3617.2
15°	7175.7	7135.6	7060.3	6781.0	6370.9	6174.0	5977.2	5557.8	5040.4	4554.0	4033.6
17.5°	8374.3	8330.0	8153.7	7679.7	7278.8	7038.7	6820.2	6244.1	5636.1	5010.5	4351.0
20°	10105.6	9944.8	9637.7	8890.6	8145.5	7712.7	7457.1	6848.0	6095.7	5367.1	4576.7
22.5°	12418.2	12061.6	11407.2	10193.2	9128.6	8504.1	8085.7	7275.7	6426.5	5600.0	4715.8
25°	14300.0	14138.2	13394.1	11666.9	10005.6	9269.8	8687.6	7615.8	6667.7	5755.6	4779.7
27.5°	15512.9	15472.7	14622.5	12887.1	10721.9	9756.2	9106.0	7840.4	6784.1	5788.6	4748.8
30°	15888.0	15950.9	15134.7	13301.4	10929.0	9854.2	9143.1	7843.5	6694.5	5639.2	4550.9
32.5°	15860.2	15863.3	14862.6	12943.7	10592.0	9569.7	8833.9	7582.8	6363.7	5265.1	4174.8
35°	15211.0	15051.2	13919.7	11845.2	9807.8	8906.0	8221.8	7077.8	5818.5	4702.4	3644.0
37.5°	13785.7	13576.5	12257.4	10438.5	8879.2	8045.5	7493.2	6415.2	5169.3	4101.6	3095.8
40°	11777.2	11480.4	10392.1	9130.7	7863.1	7236.5	6772.8	5674.2	4474.7	3512.1	2581.5
42.5°	9766.6	9621.2	8901.9	7876.5	7008.8	6419.3	5935.0	4898.2	3806.9	2930.9	1931.3
45°	8210.4	8085.7	7602.4	6926.3	6075.1	5537.2	5070.3	4089.2	2957.7	1966.3	992.4
47.5°	7076.8	6975.8	6513.1	5803.0	4869.4	4280.9	3799.6	2681.5	1675.7	849.2	248.4
50°	5106.4	5003.3	4549.9	3727.5	2884.5	2391.9	2045.6	1197.5	475.1	172.1	25.8
52.5°	2503.2	2418.7	2110.6	1579.8	1060.4	762.6	557.5	224.7	54.6	18.5	12.4
55°	633.8	582.3	485.4	305.0	149.4	89.7	57.7	20.6	13.4	10.3	7.2
57.5°	36.1	35.0	31.9	23.7	17.5	15.5	13.4	10.3	7.2	6.2	5.2
60°	14.4	13.4	12.4	10.3	8.2	7.2	7.2	5.2	4.1	4.1	4.1
62.5°	6.2	6.2	6.2	5.2	4.1	4.1	4.1	3.1	4.1	4.1	4.1
65°	3.1	3.1	3.1	2.1	2.1	2.1	3.1	3.1	3.1	4.1	4.1
67.5°	2.1	1.0	1.0	1.0	2.1	2.1	2.1	3.1	3.1	4.1	4.1
70°	1.0	1.0	1.0	1.0	2.1	2.1	2.1	3.1	3.1	4.1	5.2
72.5°	0.0	1.0	1.0	1.0	2.1	2.1	2.1	3.1	3.1	4.1	5.2
75°	0.0	1.0	1.0	1.0	2.1	2.1	2.1	3.1	4.1	4.1	5.2
77.5°	0.0	1.0	1.0	1.0	2.1	2.1	2.1	3.1	4.1	4.1	5.2
80°	0.0	1.0	1.0	1.0	2.1	2.1	2.1	3.1	4.1	4.1	5.2
82.5°	0.0	0.0	1.0	1.0	2.1	2.1	2.1	3.1	4.1	4.1	5.2
85°	0.0	0.0	1.0	1.0	2.1	2.1	2.1	3.1	4.1	4.1	5.2
87.5°	0.0	0.0	1.0	1.0	2.1	2.1	2.1	3.1	3.1	4.1	5.2
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°	1464.4	1464.4	1464.4	1464.4	1464.4	1464.4	1464.4	1464.4	1464.4	1464.4	1464.4
2.5°	1822.0	1784.9	1730.3	1694.2	1659.2	1626.2	1571.6	1540.7	1485.0	1433.5	1389.2
5°	2199.2	2106.5	1994.1	1898.3	1836.4	1775.6	1665.4	1584.0	1481.9	1390.2	1305.7
7.5°	2580.5	2416.6	2232.2	2074.5	1978.7	1884.9	1720.0	1588.1	1443.8	1312.9	1188.2
10°	2926.8	2680.5	2419.7	2194.0	2064.2	1942.6	1725.1	1550.0	1364.5	1202.7	1046.0
12.5°	3248.3	2911.3	2571.2	2276.5	2115.7	1969.4	1703.5	1489.1	1268.6	1076.9	894.5
15°	3534.8	3102.0	2681.5	2323.9	2135.3	1962.2	1653.0	1403.6	1155.3	940.9	710.1
17.5°	3752.2	3220.5	2729.9	2316.7	2100.3	1907.6	1566.4	1296.4	1034.7	775.0	514.2
20°	3884.2	3271.0	2719.6	2261.0	2025.0	1821.0	1463.4	1180.0	889.4	595.7	453.4
22.5°	3939.8	3266.9	2671.2	2177.6	1932.3	1726.2	1364.5	1066.6	736.8	539.0	473.0
25°	3949.1	3224.6	2603.2	2085.8	1840.6	1635.5	1264.5	937.8	640.0	554.4	529.7
27.5°	3878.0	3125.7	2475.4	1953.9	1711.7	1499.5	1115.1	745.1	600.8	552.4	568.9
30°	3667.7	2900.0	2249.7	1722.1	1488.1	1275.8	796.6	584.3	498.8	501.9	506.0
32.5°	3297.8	2524.9	1886.9	1383.0	1127.4	840.9	495.7	390.6	379.2	379.2	377.2
35°	2804.1	2066.3	1480.9	874.9	560.6	404.0	256.6	257.6	252.5	251.5	250.4
37.5°	2294.0	1630.3	937.8	361.7	243.2	169.0	151.5	153.6	151.5	154.6	152.5
40°	1808.6	1006.9	342.1	115.4	85.5	82.4	84.5	86.6	86.6	88.6	88.6
42.5°	1051.2	333.9	89.7	46.4	46.4	44.3	45.3	47.4	48.4	49.5	48.4
45°	312.3	69.0	28.9	25.8	25.8	24.7	24.7	25.8	26.8	27.8	27.8
47.5°	49.5	19.6	16.5	14.4	14.4	14.4	14.4	14.4	15.5	15.5	16.5
50°	15.5	12.4	10.3	9.3	9.3	8.2	8.2	9.3	9.3	9.3	10.3
52.5°	9.3	7.2	7.2	6.2	7.2	7.2	6.2	7.2	7.2	7.2	8.2
55°	6.2	6.2	6.2	6.2	6.2	6.2	6.2	6.2	7.2	7.2	7.2
57.5°	5.2	5.2	6.2	6.2	6.2	6.2	6.2	6.2	6.2	6.2	6.2
60°	5.2	5.2	6.2	6.2	6.2	6.2	6.2	6.2	6.2	6.2	7.2
62.5°	5.2	5.2	6.2	6.2	6.2	6.2	6.2	6.2	7.2	7.2	7.2
65°	5.2	5.2	6.2	6.2	6.2	6.2	6.2	7.2	7.2	7.2	7.2
67.5°	5.2	6.2	6.2	6.2	6.2	7.2	7.2	7.2	7.2	7.2	7.2
70°	5.2	6.2	6.2	7.2	7.2	7.2	7.2	7.2	7.2	7.2	7.2
72.5°	5.2	6.2	6.2	7.2	7.2	7.2	7.2	7.2	7.2	7.2	7.2
75°	6.2	6.2	6.2	7.2	7.2	7.2	7.2	7.2	7.2	7.2	8.2
77.5°	6.2	6.2	7.2	7.2	7.2	7.2	7.2	7.2	8.2	8.2	8.2
80°	6.2	6.2	7.2	7.2	7.2	7.2	7.2	8.2	8.2	8.2	8.2
82.5°	6.2	6.2	7.2	7.2	7.2	7.2	7.2	8.2	8.2	8.2	8.2
85°	6.2	6.2	7.2	7.2	7.2	7.2	7.2	8.2	8.2	8.2	8.2
87.5°	6.2	6.2	7.2	7.2	7.2	7.2	7.2	8.2	8.2	8.2	8.2
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°	1464.4	1464.4	1464.4	1464.4	1464.4	1464.4	1464.4	1464.4	1464.4	1464.4	1464.4
2.5°	1351.1	1303.6	1281.0	1249.0	1226.4	1175.9	1155.3	1120.2	1091.4	1044.0	1047.0
5°	1233.6	1143.9	1083.1	1035.7	1002.7	922.3	868.8	812.1	760.5	696.7	673.0
7.5°	1070.7	960.5	867.7	811.0	768.8	661.6	543.1	450.4	380.3	329.8	310.2
10°	907.9	764.7	617.3	529.7	468.9	365.8	313.3	288.6	265.9	238.1	219.5
12.5°	718.3	514.2	380.3	345.2	320.5	286.5	252.5	225.7	230.8	231.9	239.1
15°	490.5	370.0	327.7	304.0	277.2	257.6	269.0	276.2	289.6	290.6	299.9
17.5°	398.8	347.3	313.3	312.3	314.3	325.7	343.2	352.4	370.0	374.1	387.5
20°	398.8	368.9	397.8	397.8	402.9	418.4	441.1	454.5	474.1	481.3	497.8
22.5°	454.5	475.1	511.2	515.3	517.3	533.8	562.7	576.1	598.8	602.9	620.4
25°	554.4	573.0	606.0	609.1	610.1	622.5	644.1	651.3	666.8	658.5	668.8
27.5°	586.4	594.6	615.2	617.3	612.1	617.3	625.5	625.5	630.7	614.2	617.3
30°	515.3	517.3	527.6	528.7	517.3	519.4	520.4	519.4	518.4	500.8	500.8
32.5°	382.3	382.3	395.7	392.6	380.3	383.4	383.4	383.4	382.3	367.9	365.8
35°	253.5	254.5	265.9	263.8	254.5	256.6	256.6	259.7	256.6	248.4	246.3
37.5°	154.6	155.6	160.8	161.8	158.7	159.7	160.8	159.7	161.8	157.7	155.6
40°	89.7	91.7	95.8	96.9	95.8	95.8	96.9	97.9	102.0	96.9	94.8
42.5°	52.6	53.6	55.6	55.6	55.6	55.6	56.7	57.7	58.7	57.7	56.7
45°	29.9	30.9	31.9	31.9	33.0	31.9	33.0	33.0	34.0	33.0	33.0
47.5°	17.5	17.5	18.5	18.5	19.6	18.5	19.6	19.6	19.6	18.5	18.5
50°	10.3	11.3	11.3	11.3	11.3	11.3	11.3	11.3	11.3	10.3	10.3
52.5°	8.2	8.2	8.2	8.2	8.2	7.2	7.2	7.2	7.2	6.2	6.2
55°	7.2	7.2	7.2	7.2	7.2	7.2	6.2	5.2	5.2	4.1	4.1
57.5°	6.2	7.2	7.2	7.2	7.2	6.2	6.2	5.2	4.1	3.1	3.1
60°	7.2	7.2	7.2	7.2	6.2	6.2	6.2	5.2	4.1	3.1	3.1
62.5°	7.2	7.2	7.2	7.2	7.2	6.2	6.2	5.2	4.1	3.1	3.1
65°	7.2	7.2	7.2	7.2	7.2	6.2	6.2	5.2	4.1	3.1	3.1
67.5°	7.2	7.2	7.2	7.2	7.2	6.2	6.2	5.2	4.1	4.1	3.1
70°	7.2	8.2	8.2	7.2	7.2	7.2	6.2	5.2	5.2	4.1	3.1
72.5°	7.2	8.2	8.2	7.2	7.2	7.2	6.2	5.2	5.2	4.1	3.1
75°	8.2	8.2	8.2	8.2	7.2	7.2	6.2	6.2	5.2	4.1	3.1
77.5°	8.2	8.2	8.2	8.2	7.2	7.2	6.2	6.2	5.2	4.1	3.1
80°	8.2	8.2	8.2	8.2	8.2	7.2	7.2	6.2	5.2	4.1	4.1
82.5°	8.2	8.2	8.2	8.2	8.2	7.2	7.2	6.2	5.2	4.1	4.1
85°	8.2	8.2	8.2	8.2	8.2	7.2	7.2	6.2	5.2	4.1	3.1
87.5°	8.2	8.2	8.2	8.2	7.2	7.2	6.2	6.2	5.2	4.1	3.1
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: P209020

CATALOG NUMBER: LDSQA6A65827D010TE LARH20SP 6LSQA1H 30°

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	1464.4	1464.4	1464.4	1464.4	1464.4	1464.4	1464.4	1464.4
2.5°	1008.9	985.2	974.9	991.4	983.1	958.4	963.6	948.1
5°	601.8	565.8	543.1	553.4	520.4	490.5	490.5	468.9
7.5°	290.6	279.3	273.1	275.2	267.9	258.7	253.5	253.5
10°	204.0	199.9	201.0	201.0	207.1	206.1	209.2	208.2
12.5°	242.2	244.2	245.3	249.4	254.5	254.5	257.6	255.6
15°	310.2	308.1	314.3	315.3	323.6	324.6	328.7	324.6
17.5°	394.7	398.8	405.0	404.0	420.5	421.5	421.5	420.5
20°	508.1	511.2	517.3	519.4	539.0	541.0	548.3	549.3
22.5°	631.7	631.7	634.8	638.9	657.5	658.5	661.6	661.6
25°	674.0	667.8	668.8	674.0	684.3	680.2	683.3	681.2
27.5°	619.4	610.1	608.0	615.2	622.5	611.1	615.2	615.2
30°	502.9	494.7	492.6	499.8	505.0	492.6	496.7	498.8
32.5°	367.9	362.8	361.7	366.9	371.0	360.7	364.8	367.9
35°	248.4	246.3	244.2	245.3	251.5	243.2	247.3	249.4
37.5°	157.7	153.6	154.6	156.6	160.8	155.6	159.7	159.7
40°	96.9	94.8	94.8	96.9	98.9	94.8	96.9	97.9
42.5°	56.7	56.7	56.7	57.7	58.7	56.7	56.7	57.7
45°	33.0	31.9	31.9	33.0	34.0	31.9	33.0	33.0
47.5°	18.5	17.5	17.5	18.5	18.5	17.5	18.5	18.5
50°	10.3	9.3	9.3	10.3	10.3	9.3	9.3	9.3
52.5°	5.2	5.2	5.2	5.2	5.2	5.2	4.1	4.1
55°	3.1	3.1	2.1	2.1	2.1	2.1	2.1	1.0
57.5°	2.1	2.1	1.0	1.0	1.0	1.0	0.0	0.0
60°	2.1	2.1	1.0	1.0	1.0	0.0	0.0	0.0
62.5°	2.1	2.1	1.0	1.0	1.0	0.0	0.0	0.0
65°	2.1	2.1	1.0	1.0	1.0	0.0	0.0	0.0
67.5°	2.1	2.1	1.0	1.0	1.0	0.0	0.0	0.0
70°	3.1	2.1	2.1	1.0	1.0	1.0	0.0	0.0
72.5°	3.1	2.1	2.1	2.1	1.0	1.0	0.0	0.0
75°	3.1	2.1	2.1	2.1	1.0	1.0	0.0	0.0
77.5°	3.1	2.1	2.1	2.1	1.0	1.0	1.0	0.0
80°	3.1	2.1	2.1	2.1	1.0	1.0	1.0	1.0
82.5°	3.1	2.1	2.1	2.1	1.0	1.0	1.0	1.0
85°	3.1	2.1	2.1	2.1	1.0	1.0	1.0	0.0
87.5°	3.1	2.1	2.1	2.1	1.0	1.0	1.0	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)