

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: P209017

Luminaire Tested: **LDSQA6A55930D010TE LARH20SP 6LSQA1H 30°**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P209017
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: LDSQA6A55930D010TE LARH20SP 6LSQA1H 30°
Description: PORTFOLIO 6" SQUARE ADJUSTABLE REFLECTOR, ANGLE-CUT TRIM,
SELF-FLANGED, 20° SPOT, 30° Tilt
Light Source: (1) HIGH LUMEN LED 90CRI / 3000K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 3744.6 lumens
Efficiency: N/A
Efficacy: 61.6 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

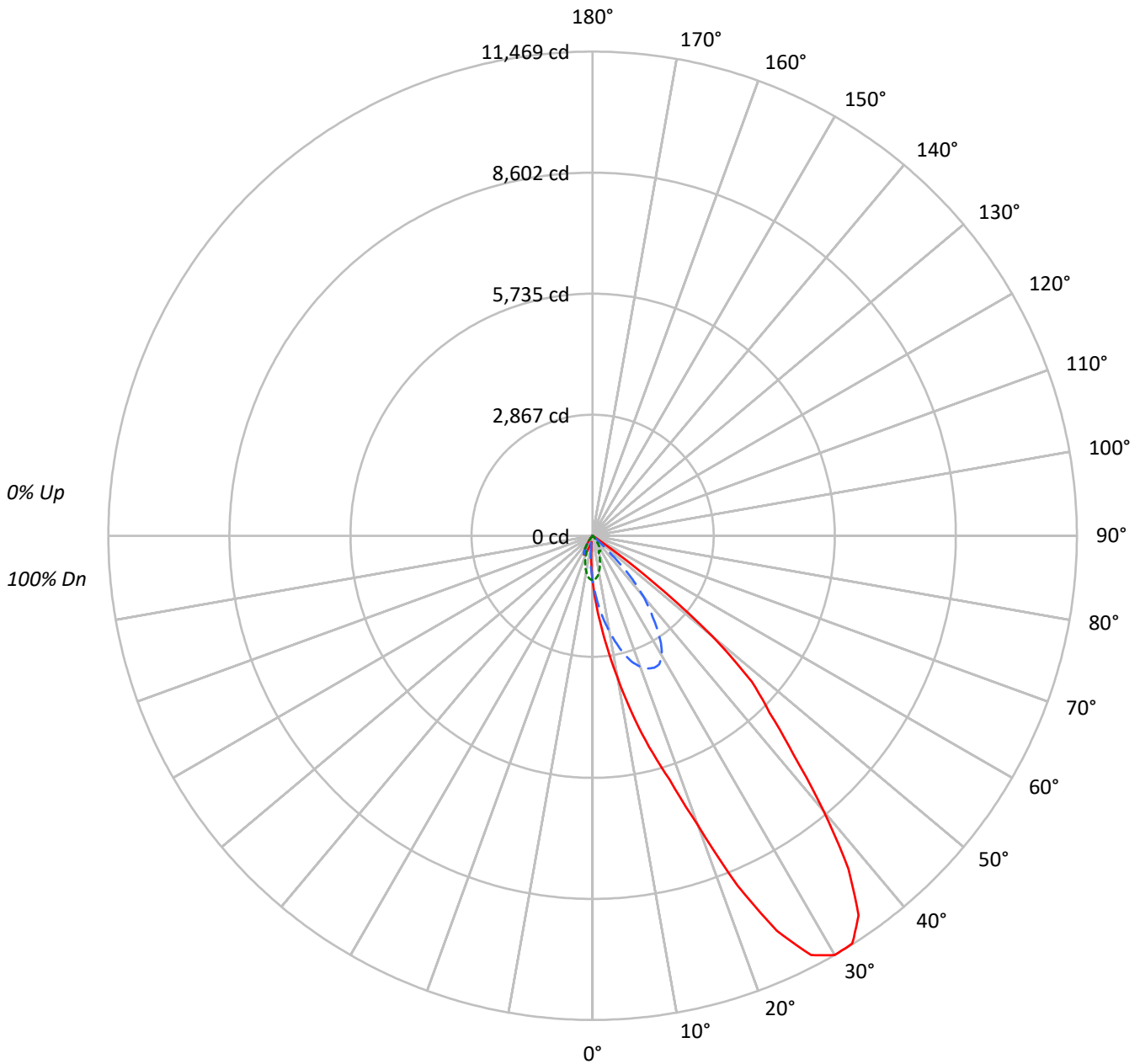
Input Watts (W): 60.8
Input Voltage (V): NR
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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					0
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	50	30	10	50	30	10	0		
RCR																										
0	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102	100					100			
1	112	109	106	104	110	107	104	102	103	101	99	99	97	96	96	94	93	91					91			
2	105	100	95	91	103	98	94	90	95	91	88	92	89	86	89	86	84	82					82			
3	99	91	85	80	96	89	84	80	87	82	78	84	80	77	82	79	76	74					74			
4	92	83	76	71	90	82	76	71	79	74	70	77	73	69	75	71	68	66					66			
5	86	76	69	64	84	75	68	63	73	67	63	71	66	62	69	65	61	60					60			
6	80	69	62	57	79	69	62	57	67	61	56	65	60	56	64	59	55	54					54			
7	75	64	56	51	73	63	56	51	62	55	51	60	55	50	59	54	50	49					49			
8	70	59	51	46	69	58	51	46	57	50	46	56	50	46	54	49	46	44					44			
9	66	54	47	42	64	53	47	42	52	46	42	51	46	42	50	45	41	40					40			
10	61	50	43	38	60	49	43	38	48	42	38	48	42	38	47	41	38	36					36			

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	45514	45514	45514
5°	88195	43371	14630
10°	149837	37958	6571
15°	230891	30275	10444
20°	334244	19702	18167
25°	490397	19012	23359
30°	570197	18012	17903
35°	577138	9540	9461
40°	477828	3597	3974
45°	360882	1224	1449
50°	246905	449	449
55°	34342	390	53
60°	896	388	0
65°	224	530	0
70°	88	655	0
75°	0	865	0
80°	0	1488	174
85°	0	2964	0



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	110.9	3.0
10°-20°	468.8	12.5
20°-30°	1069.4	28.6
30°-40°	1237.6	33.0
40°-50°	746.3	19.9
50°-60°	101.4	2.7
60°-70°	3.3	0.1
70°-80°	3.5	0.1
80°-90°	3.3	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°	1649.1	44.0
0°-40°	2886.7	77.1
0°-60°	3734.4	99.7
0°-90°	3744.6	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	3744.6	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	1057	1057	1057	1057	1057	
5°	2041	1671	1004	549	338	237
15°	5180	2912	679	209	234	1533
25°	10323	3450	400	481	492	4671
35°	10980	2630	182	185	180	6617
45°	5927	716	20	24	24	4634
55°	458	5	5	4	1	897
65°	2	3	5	3	0	3
75°	0	4	5	4	0	0
85°	0	4	6	4	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°	1057.1	1057.1	1057.1	1057.1	1057.1	1057.1	1057.1	1057.1	1057.1	1057.1	1057.1
2.5°	1528.8	1514.6	1520.6	1505.0	1465.5	1457.3	1456.6	1446.2	1412.7	1386.7	1355.4
5°	2040.6	2039.8	2043.6	2010.1	1940.9	1919.3	1908.9	1883.6	1802.5	1740.0	1670.8
7.5°	2679.6	2675.1	2670.7	2609.7	2501.1	2459.4	2432.6	2341.1	2229.5	2118.7	1995.2
10°	3427.2	3425.0	3407.9	3300.8	3126.7	3050.1	2998.0	2852.9	2673.7	2515.9	2306.2
12.5°	4295.4	4275.3	4244.8	4087.8	3849.0	3765.7	3651.2	3421.3	3146.0	2904.3	2611.2
15°	5179.9	5150.9	5096.6	4895.0	4598.9	4456.8	4314.7	4012.0	3638.5	3287.4	2911.7
17.5°	6045.1	6013.1	5885.9	5543.7	5254.3	5081.0	4923.3	4507.4	4068.5	3616.9	3140.8
20°	7294.9	7178.8	6957.2	6417.8	5880.0	5567.5	5383.0	4943.4	4400.3	3874.3	3303.8
22.5°	8964.3	8706.9	8234.5	7358.1	6589.7	6138.8	5836.8	5252.1	4639.1	4042.5	3404.2
25°	10322.7	10205.9	9668.7	8421.9	7222.7	6691.6	6271.3	5497.6	4813.2	4154.8	3450.3
27.5°	11198.2	11169.2	10555.5	9302.7	7739.8	7042.7	6573.3	5659.8	4897.2	4178.6	3428.0
30°	11469.0	11514.4	10925.2	9601.8	7889.3	7113.4	6600.1	5662.0	4832.5	4070.7	3285.2
32.5°	11448.9	11451.2	10728.8	9343.7	7646.0	6908.1	6376.9	5473.8	4593.7	3800.7	3013.6
35°	10980.3	10865.0	10048.1	8550.6	7079.9	6429.0	5935.0	5109.3	4200.2	3394.5	2630.5
37.5°	9951.4	9800.4	8848.2	7535.2	6409.6	5807.8	5409.1	4630.9	3731.5	2960.8	2234.7
40°	8501.5	8287.3	7501.7	6591.1	5676.1	5223.8	4889.1	4096.0	3230.1	2535.3	1863.5
42.5°	7050.1	6945.2	6426.0	5685.8	5059.4	4633.9	4284.2	3535.9	2748.0	2115.7	1394.1
45°	5926.8	5836.8	5487.9	4999.9	4385.4	3997.1	3660.1	2951.9	2135.1	1419.4	716.4
47.5°	5108.5	5035.6	4701.6	4189.0	3515.0	3090.2	2742.8	1935.7	1209.6	613.0	179.3
50°	3686.1	3611.7	3284.4	2690.8	2082.2	1726.6	1476.7	864.4	342.9	124.2	18.6
52.5°	1807.0	1746.0	1523.6	1140.4	765.5	550.5	402.5	162.2	39.4	13.4	8.9
55°	457.5	420.3	350.4	220.2	107.9	64.7	41.7	14.9	9.7	7.4	5.2
57.5°	26.0	25.3	23.1	17.1	12.6	11.2	9.7	7.4	5.2	4.5	3.7
60°	10.4	9.7	8.9	7.4	6.0	5.2	5.2	3.7	3.0	3.0	3.0
62.5°	4.5	4.5	4.5	3.7	3.0	3.0	3.0	2.2	3.0	3.0	3.0
65°	2.2	2.2	2.2	1.5	1.5	1.5	2.2	2.2	2.2	3.0	3.0
67.5°	1.5	0.7	0.7	0.7	1.5	1.5	1.5	2.2	2.2	3.0	3.0
70°	0.7	0.7	0.7	0.7	1.5	1.5	1.5	2.2	2.2	3.0	3.7
72.5°	0.0	0.7	0.7	0.7	1.5	1.5	1.5	2.2	2.2	3.0	3.7
75°	0.0	0.7	0.7	0.7	1.5	1.5	1.5	2.2	3.0	3.0	3.7
77.5°	0.0	0.7	0.7	0.7	1.5	1.5	1.5	2.2	3.0	3.0	3.7
80°	0.0	0.7	0.7	0.7	1.5	1.5	1.5	2.2	3.0	3.0	3.7
82.5°	0.0	0.0	0.7	0.7	1.5	1.5	1.5	2.2	3.0	3.0	3.7
85°	0.0	0.0	0.7	0.7	1.5	1.5	1.5	2.2	3.0	3.0	3.7
87.5°	0.0	0.0	0.7	0.7	1.5	1.5	1.5	2.2	2.2	3.0	3.7
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°	1057.1	1057.1	1057.1	1057.1	1057.1	1057.1	1057.1	1057.1	1057.1	1057.1	1057.1
2.5°	1315.3	1288.5	1249.0	1223.0	1197.7	1173.9	1134.5	1112.2	1072.0	1034.8	1002.8
5°	1587.5	1520.6	1439.5	1370.3	1325.7	1281.8	1202.2	1143.4	1069.8	1003.5	942.5
7.5°	1862.8	1744.5	1611.3	1497.5	1428.3	1360.6	1241.6	1146.4	1042.2	947.8	857.7
10°	2112.7	1934.9	1746.7	1583.8	1490.1	1402.3	1245.3	1118.9	985.0	868.2	755.1
12.5°	2344.8	2101.6	1856.1	1643.3	1527.3	1421.6	1229.7	1075.0	915.8	777.4	645.7
15°	2551.6	2239.2	1935.7	1677.5	1541.4	1416.4	1193.2	1013.2	833.9	679.2	512.6
17.5°	2708.6	2324.8	1970.6	1672.3	1516.1	1377.0	1130.8	935.9	746.9	559.4	371.2
20°	2803.8	2361.2	1963.2	1632.2	1461.8	1314.5	1056.4	851.8	642.0	430.0	327.3
22.5°	2844.0	2358.2	1928.2	1571.9	1394.9	1246.1	985.0	770.0	531.9	389.1	341.5
25°	2850.7	2327.7	1879.1	1505.7	1328.6	1180.6	912.8	677.0	462.0	400.2	382.4
27.5°	2799.4	2256.3	1786.9	1410.5	1235.7	1082.4	804.9	537.9	433.7	398.7	410.6
30°	2647.6	2093.4	1624.0	1243.1	1074.2	921.0	575.1	421.8	360.1	362.3	365.3
32.5°	2380.5	1822.6	1362.1	998.3	813.8	607.0	357.8	281.9	273.8	273.8	272.3
35°	2024.2	1491.6	1069.0	631.6	404.7	291.6	185.2	186.0	182.3	181.5	180.8
37.5°	1656.0	1176.9	677.0	261.1	175.6	122.0	109.4	110.8	109.4	111.6	110.1
40°	1305.6	726.8	247.0	83.3	61.7	59.5	61.0	62.5	62.5	64.0	64.0
42.5°	758.8	241.0	64.7	33.5	33.5	32.0	32.7	34.2	35.0	35.7	35.0
45°	225.4	49.8	20.8	18.6	18.6	17.9	17.9	18.6	19.3	20.1	20.1
47.5°	35.7	14.1	11.9	10.4	10.4	10.4	10.4	10.4	11.2	11.2	11.9
50°	11.2	8.9	7.4	6.7	6.7	6.0	6.0	6.7	6.7	6.7	7.4
52.5°	6.7	5.2	5.2	4.5	5.2	5.2	4.5	5.2	5.2	5.2	6.0
55°	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	5.2	5.2	5.2
57.5°	3.7	3.7	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
60°	3.7	3.7	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	5.2
62.5°	3.7	3.7	4.5	4.5	4.5	4.5	4.5	4.5	5.2	5.2	5.2
65°	3.7	3.7	4.5	4.5	4.5	4.5	4.5	5.2	5.2	5.2	5.2
67.5°	3.7	4.5	4.5	4.5	4.5	5.2	5.2	5.2	5.2	5.2	5.2
70°	3.7	4.5	4.5	5.2	5.2	5.2	5.2	5.2	5.2	5.2	5.2
72.5°	3.7	4.5	4.5	5.2	5.2	5.2	5.2	5.2	5.2	5.2	5.2
75°	4.5	4.5	4.5	5.2	5.2	5.2	5.2	5.2	5.2	5.2	6.0
77.5°	4.5	4.5	5.2	5.2	5.2	5.2	5.2	5.2	6.0	6.0	6.0
80°	4.5	4.5	5.2	5.2	5.2	5.2	5.2	6.0	6.0	6.0	6.0
82.5°	4.5	4.5	5.2	5.2	5.2	5.2	5.2	6.0	6.0	6.0	6.0
85°	4.5	4.5	5.2	5.2	5.2	5.2	5.2	6.0	6.0	6.0	6.0
87.5°	4.5	4.5	5.2	5.2	5.2	5.2	5.2	6.0	6.0	6.0	6.0
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°	1057.1	1057.1	1057.1	1057.1	1057.1	1057.1	1057.1	1057.1	1057.1	1057.1	1057.1
2.5°	975.3	941.1	924.7	901.6	885.3	848.8	833.9	808.6	787.8	753.6	755.8
5°	890.5	825.8	781.9	747.6	723.8	665.8	627.1	586.2	549.0	502.9	485.8
7.5°	772.9	693.3	626.4	585.5	555.0	477.6	392.0	325.1	274.5	238.1	223.9
10°	655.4	552.0	445.6	382.4	338.5	264.1	226.2	208.3	191.9	171.8	158.5
12.5°	518.5	371.2	274.5	249.2	231.4	206.8	182.3	162.9	166.6	167.4	172.6
15°	354.1	267.1	236.6	219.5	200.1	186.0	194.2	199.4	209.0	209.8	216.5
17.5°	287.9	250.7	226.2	225.4	226.9	235.1	247.7	254.4	267.1	270.0	279.7
20°	287.9	266.3	287.2	287.2	290.9	302.0	318.4	328.1	342.2	347.4	359.3
22.5°	328.1	342.9	369.0	372.0	373.4	385.4	406.2	415.9	432.2	435.2	447.8
25°	400.2	413.6	437.4	439.7	440.4	449.3	465.0	470.2	481.3	475.4	482.8
27.5°	423.3	429.2	444.1	445.6	441.9	445.6	451.6	451.6	455.3	443.4	445.6
30°	372.0	373.4	380.9	381.6	373.4	374.9	375.7	374.9	374.2	361.5	361.5
32.5°	276.0	276.0	285.7	283.4	274.5	276.7	276.7	276.7	276.0	265.6	264.1
35°	183.0	183.7	191.9	190.4	183.7	185.2	185.2	187.5	185.2	179.3	177.8
37.5°	111.6	112.3	116.1	116.8	114.6	115.3	116.1	115.3	116.8	113.8	112.3
40°	64.7	66.2	69.2	69.9	69.2	69.2	69.9	70.7	73.6	69.9	68.4
42.5°	37.9	38.7	40.2	40.2	40.2	40.2	40.9	41.7	42.4	41.7	40.9
45°	21.6	22.3	23.1	23.1	23.8	23.1	23.8	23.8	24.5	23.8	23.8
47.5°	12.6	12.6	13.4	13.4	14.1	13.4	14.1	14.1	14.1	13.4	13.4
50°	7.4	8.2	8.2	8.2	8.2	8.2	8.2	8.2	8.2	7.4	7.4
52.5°	6.0	6.0	6.0	6.0	6.0	5.2	5.2	5.2	5.2	4.5	4.5
55°	5.2	5.2	5.2	5.2	5.2	5.2	4.5	3.7	3.7	3.0	3.0
57.5°	4.5	5.2	5.2	5.2	5.2	4.5	4.5	3.7	3.0	2.2	2.2
60°	5.2	5.2	5.2	5.2	4.5	4.5	4.5	3.7	3.0	2.2	2.2
62.5°	5.2	5.2	5.2	5.2	5.2	4.5	4.5	3.7	3.0	2.2	2.2
65°	5.2	5.2	5.2	5.2	5.2	4.5	4.5	3.7	3.0	2.2	2.2
67.5°	5.2	5.2	5.2	5.2	5.2	4.5	4.5	3.7	3.0	3.0	2.2
70°	5.2	6.0	6.0	5.2	5.2	5.2	4.5	3.7	3.7	3.0	2.2
72.5°	5.2	6.0	6.0	5.2	5.2	5.2	4.5	3.7	3.7	3.0	2.2
75°	6.0	6.0	6.0	6.0	5.2	5.2	4.5	4.5	3.7	3.0	2.2
77.5°	6.0	6.0	6.0	6.0	5.2	5.2	4.5	4.5	3.7	3.0	2.2
80°	6.0	6.0	6.0	6.0	6.0	5.2	5.2	4.5	3.7	3.0	3.0
82.5°	6.0	6.0	6.0	6.0	6.0	5.2	5.2	4.5	3.7	3.0	3.0
85°	6.0	6.0	6.0	6.0	6.0	5.2	5.2	4.5	3.7	3.0	2.2
87.5°	6.0	6.0	6.0	6.0	5.2	5.2	4.5	4.5	3.7	3.0	2.2
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: P209017

CATALOG NUMBER: LDSQA6A55930D010TE LARH20SP 6LSQA1H 30°

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	1057.1	1057.1	1057.1	1057.1	1057.1	1057.1	1057.1	1057.1
2.5°	728.3	711.2	703.7	715.7	709.7	691.8	695.6	684.4
5°	434.4	408.4	392.0	399.5	375.7	354.1	354.1	338.5
7.5°	209.8	201.6	197.1	198.6	193.4	186.7	183.0	183.0
10°	147.3	144.3	145.1	145.1	149.5	148.8	151.0	150.3
12.5°	174.8	176.3	177.1	180.0	183.7	183.7	186.0	184.5
15°	223.9	222.4	226.9	227.6	233.6	234.3	237.3	234.3
17.5°	284.9	287.9	292.4	291.6	303.5	304.3	304.3	303.5
20°	366.8	369.0	373.4	374.9	389.1	390.6	395.8	396.5
22.5°	456.0	456.0	458.3	461.2	474.6	475.4	477.6	477.6
25°	486.5	482.1	482.8	486.5	494.0	491.0	493.2	491.7
27.5°	447.1	440.4	438.9	444.1	449.3	441.1	444.1	444.1
30°	363.0	357.1	355.6	360.8	364.5	355.6	358.6	360.1
32.5°	265.6	261.9	261.1	264.8	267.8	260.4	263.3	265.6
35°	179.3	177.8	176.3	177.1	181.5	175.6	178.5	180.0
37.5°	113.8	110.8	111.6	113.1	116.1	112.3	115.3	115.3
40°	69.9	68.4	68.4	69.9	71.4	68.4	69.9	70.7
42.5°	40.9	40.9	40.9	41.7	42.4	40.9	40.9	41.7
45°	23.8	23.1	23.1	23.8	24.5	23.1	23.8	23.8
47.5°	13.4	12.6	12.6	13.4	13.4	12.6	13.4	13.4
50°	7.4	6.7	6.7	7.4	7.4	6.7	6.7	6.7
52.5°	3.7	3.7	3.7	3.7	3.7	3.7	3.0	3.0
55°	2.2	2.2	1.5	1.5	1.5	1.5	1.5	0.7
57.5°	1.5	1.5	0.7	0.7	0.7	0.7	0.0	0.0
60°	1.5	1.5	0.7	0.7	0.7	0.0	0.0	0.0
62.5°	1.5	1.5	0.7	0.7	0.7	0.0	0.0	0.0
65°	1.5	1.5	0.7	0.7	0.7	0.0	0.0	0.0
67.5°	1.5	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	0.7	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	1.5	1.5	1.5	0.7	0.7	0.7	0.0
80°	2.2	1.5	1.5	1.5	0.7	0.7	0.7	0.7
82.5°	2.2	1.5	1.5	1.5	0.7	0.7	0.7	0.7
85°	2.2	1.5	1.5	1.5	0.7	0.7	0.7	0.0
87.5°	2.2	1.5	1.5	1.5	0.7	0.7	0.7	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)