

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: P182642

Luminaire Tested: **LDSQA4A18927D010TE LAR15SP 4LSQA1H-LSF-20 30°**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P182642
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (P26830)
Test Lab: INNOVATION CENTER-P2
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: io LED
Catalog Number: LDSQA4A18927D010TE LAR15SP 4LSQA1H-LSF-20 30°
Description: PORTFOLIO 4" SQUARE ADJUSTABLE REFLECTOR, ANGLE-CUT TRIM,
SELF-FLANGED, 15° SPOT WITH SOLITE LENS, 30° Tilt
Light Source: (1) HIGH LUMEN LED 90CRI / 2700K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 1402.9 lumens
Efficiency: N/A
Efficacy: 48.2 lumens/watt
Spacing Criteria (0/90/45): 2.28 / 0.64 / 1.15
Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
CIE Type: Direct

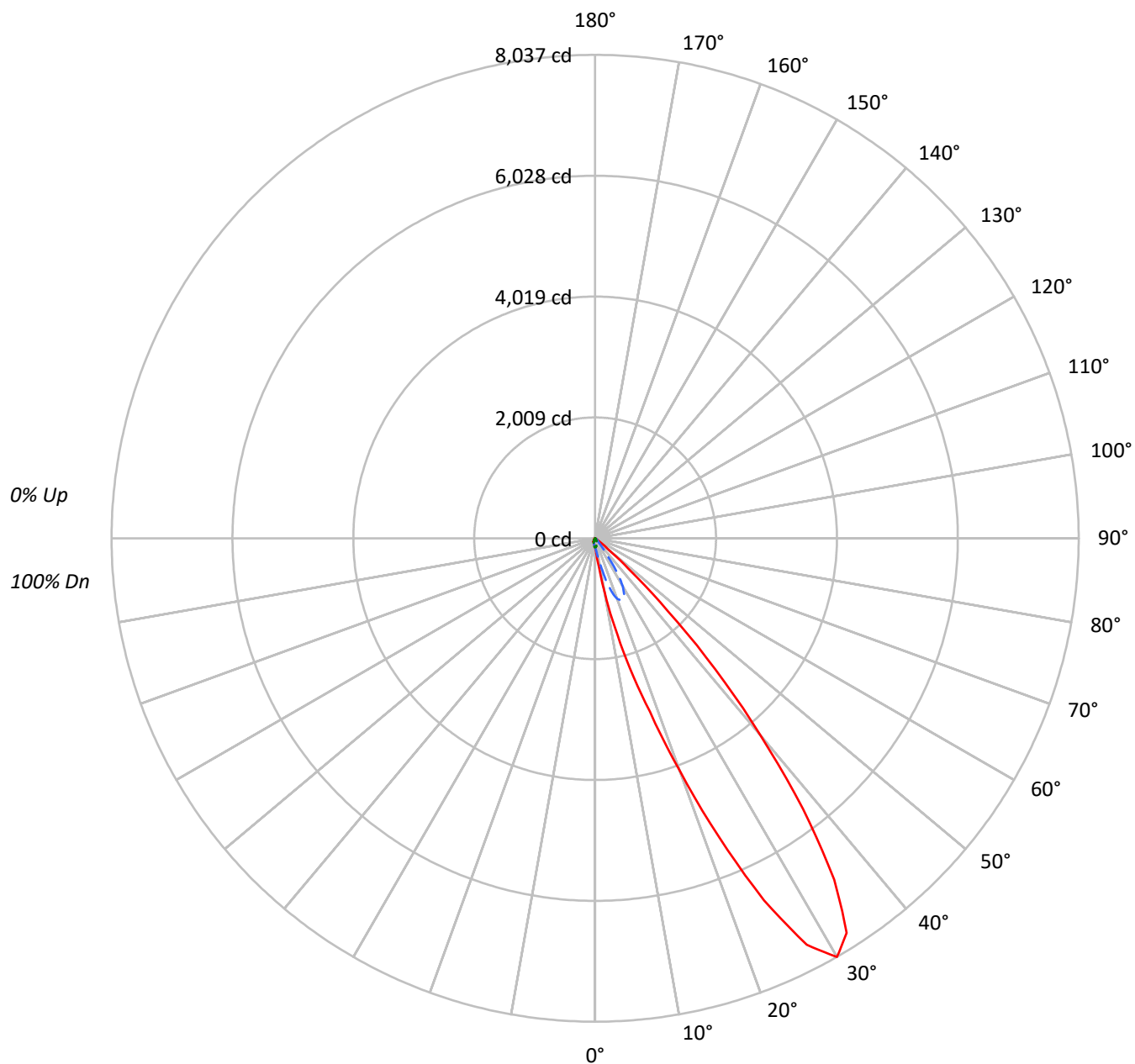
Input Watts (W): 29.12
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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	105	102	103	101	99		99	98	96		96
2	106	100	95	91	103	98	94	90	95	91	88		92	89	86		89
3	99	91	85	81	97	90	84	80	87	83	79		85	81	77		82
4	92	83	77	72	90	82	76	71	80	75	70		78	73	70		76
5	86	76	69	64	85	75	69	64	73	68	63		72	67	63		70
6	81	70	63	58	79	69	62	57	67	61	57		66	61	57		64
7	75	64	57	52	74	63	57	52	62	56	51		61	55	51		59
8	70	59	52	47	69	58	51	47	57	51	46		56	50	46		55
9	66	54	47	42	65	54	47	42	53	46	42		52	46	42		51
10	62	50	43	38	60	50	43	38	49	42	38		48	42	38		47

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	14667	14667	14667
5°	28104	13974	11349
10°	91887	12385	9650
15°	225017	10230	8525
20°	423979	7804	7649
25°	709719	5537	6691
30°	899081	3803	5705
35°	819232	2472	4837
40°	539524	1758	4097
45°	233713	1165	3384
50°	41446	814	2788
55°	6655	659	2348
60°	1647	601	1802
65°	527	711	1421
70°	425	878	1105
75°	561	861	861
80°	0	1283	837
85°	0	2556	889



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	19.4	1.4
10°-20°	156.1	11.1
20°-30°	470.0	33.5
30°-40°	535.0	38.1
40°-50°	197.8	14.1
50°-60°	15.7	1.1
60°-70°	4.2	0.3
70°-80°	2.9	0.2
80°-90°	1.7	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°	645.5	46.0
0°-40°	1180.5	84.1
0°-60°	1394.0	99.4
0°-90°	1402.9	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1402.9	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	151	151	151	151	151	
5°	289	212	144	120	117	47
15°	2244	758	102	80	85	704
25°	6640	1108	52	50	63	3031
35°	6927	388	21	29	41	4118
45°	1706	46	8	16	25	1444
55°	39	8	4	9	14	65
65°	2	2	3	6	6	3
75°	2	2	2	4	2	1
85°	0	2	2	2	1	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°	151.4	151.4	151.4	151.4	151.4	151.4	151.4	151.4	151.4	151.4	151.4
2.5°	194.7	196.2	194.7	191.6	191.6	187.7	186.2	184.7	180.8	178.5	175.4
5°	289.0	284.3	280.5	271.2	268.1	259.6	253.4	244.9	233.3	223.3	212.5
7.5°	494.5	487.5	472.8	445.0	428.0	407.2	390.9	363.9	329.1	300.5	272.0
10°	934.1	903.9	869.2	806.6	761.0	712.3	673.7	601.1	513.8	441.9	372.4
12.5°	1505.0	1507.3	1442.4	1336.6	1252.4	1166.6	1100.2	965.8	811.2	676.0	542.4
15°	2243.6	2201.1	2133.9	1971.7	1803.3	1678.9	1573.0	1369.1	1150.4	952.6	757.9
17.5°	3021.6	3039.4	2882.6	2617.6	2351.0	2164.8	2004.9	1695.9	1436.3	1191.4	953.4
20°	4112.6	3990.5	3766.4	3336.9	2922.8	2653.1	2415.9	2014.9	1652.6	1341.2	1073.9
22.5°	5370.4	5173.3	4717.5	4112.6	3486.0	3112.8	2782.1	2230.5	1790.1	1417.7	1114.9
25°	6639.7	6489.1	5762.8	4858.9	3961.1	3477.5	3049.5	2376.5	1855.8	1435.5	1107.9
27.5°	7619.4	7373.7	6546.3	5368.0	4244.7	3673.7	3173.8	2421.3	1841.9	1392.2	1042.2
30°	8037.4	7726.8	6809.7	5483.9	4247.0	3641.3	3112.0	2332.5	1743.0	1282.5	918.6
32.5°	7779.3	7420.8	6496.0	5163.3	3956.5	3387.9	2873.3	2140.1	1579.2	1110.2	689.9
35°	6927.2	6570.2	5713.4	4530.5	3492.9	2996.2	2548.8	1889.0	1345.1	822.8	387.8
37.5°	5672.4	5368.0	4755.4	3797.3	2943.6	2540.3	2167.9	1591.6	1002.1	472.1	194.7
40°	4266.3	4052.3	3684.5	3011.6	2382.7	2076.0	1776.2	1219.2	608.8	237.2	110.5
42.5°	2957.5	2818.5	2633.8	2228.2	1838.0	1627.1	1386.8	814.3	312.9	130.6	68.8
45°	1705.9	1618.6	1567.6	1394.5	1242.3	1139.6	927.1	438.8	158.4	78.0	45.6
47.5°	753.3	695.3	670.6	598.0	556.3	528.5	419.5	187.0	85.0	50.2	37.9
50°	275.0	275.0	275.8	242.6	198.6	178.5	139.8	82.7	47.9	39.4	27.8
52.5°	97.3	95.8	99.7	94.3	82.7	74.2	61.8	41.7	29.4	24.7	15.5
55°	39.4	37.9	39.4	37.1	34.8	32.4	28.6	22.4	18.5	15.5	8.5
57.5°	17.8	17.8	18.5	17.8	17.8	16.2	14.7	17.0	13.1	8.5	5.4
60°	8.5	8.5	9.3	9.3	9.3	8.5	8.5	9.3	7.7	5.4	3.9
62.5°	3.9	3.9	4.6	4.6	4.6	4.6	4.6	5.4	3.9	3.1	2.3
65°	2.3	1.5	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3
67.5°	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	2.3	2.3
70°	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	2.3
72.5°	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	2.3
75°	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	2.3
77.5°	0.0	0.0	0.0	0.8	0.8	0.8	0.8	0.8	1.5	1.5	2.3
80°	0.0	0.0	0.0	0.0	0.8	0.8	0.8	0.8	1.5	1.5	1.5
82.5°	0.0	0.0	0.0	0.0	0.8	0.8	0.8	0.8	1.5	1.5	1.5
85°	0.0	0.0	0.0	0.0	0.8	0.8	0.8	0.8	0.8	1.5	1.5
87.5°	0.0	0.0	0.0	0.0	0.8	0.8	0.8	0.8	0.8	1.5	1.5
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°	151.4	151.4	151.4	151.4	151.4	151.4	151.4	151.4	151.4	151.4	151.4
2.5°	172.3	170.0	165.3	163.0	159.9	157.6	156.1	153.0	149.9	147.6	146.0
5°	202.4	193.9	183.9	176.2	170.0	166.1	159.9	154.5	148.3	143.7	139.8
7.5°	246.5	225.6	203.2	187.7	179.2	171.5	160.7	151.4	142.9	136.8	131.3
10°	315.2	270.4	231.0	200.9	186.2	175.4	158.4	145.2	134.4	125.9	120.5
12.5°	429.6	337.6	268.1	217.1	194.7	178.5	154.5	136.8	123.6	115.1	108.2
15°	586.4	436.5	319.1	236.4	204.7	181.6	148.3	126.7	112.0	102.0	95.8
17.5°	734.0	540.0	377.0	259.6	214.8	183.1	139.8	113.6	98.1	88.8	82.7
20°	826.7	607.3	415.7	272.7	217.9	178.5	128.3	99.7	84.2	75.7	69.5
22.5°	848.3	615.0	412.6	260.4	204.7	164.6	112.0	85.8	71.1	63.4	57.9
25°	816.6	571.7	369.3	224.8	174.6	138.3	93.5	69.5	58.7	51.8	47.9
27.5°	737.1	486.7	292.0	169.2	130.6	102.0	71.1	54.1	47.1	41.7	39.4
30°	594.1	342.3	183.1	105.1	83.4	67.2	51.0	41.7	36.3	34.0	31.7
32.5°	360.0	176.2	96.6	62.6	52.5	45.6	37.1	30.9	27.8	26.3	25.5
35°	171.5	92.7	59.5	42.5	37.1	32.4	27.0	23.2	21.6	20.9	20.9
37.5°	97.3	60.3	40.2	28.6	25.5	22.4	20.1	17.8	17.0	17.0	17.0
40°	61.8	38.6	26.3	20.9	18.5	17.0	15.5	13.9	13.9	13.9	13.9
42.5°	40.2	27.8	20.1	15.5	13.9	13.1	11.6	10.8	10.8	10.8	11.6
45°	31.7	23.2	16.2	12.4	10.8	10.0	9.3	8.5	8.5	8.5	9.3
47.5°	27.0	16.2	10.8	8.5	7.0	7.0	6.2	6.2	6.2	7.0	7.7
50°	16.2	10.0	7.0	5.4	4.6	4.6	4.6	4.6	4.6	5.4	6.2
52.5°	9.3	6.2	4.6	3.9	3.1	3.1	3.1	3.1	3.9	4.6	4.6
55°	6.2	4.6	3.1	3.1	2.3	2.3	2.3	3.1	3.1	3.9	4.6
57.5°	3.9	3.1	2.3	2.3	2.3	2.3	2.3	2.3	3.1	3.9	3.9
60°	3.1	2.3	2.3	2.3	2.3	2.3	2.3	2.3	3.1	3.1	3.9
62.5°	2.3	2.3	3.1	2.3	2.3	2.3	2.3	2.3	3.1	3.1	3.9
65°	2.3	2.3	3.1	3.1	2.3	2.3	2.3	2.3	2.3	3.1	3.9
67.5°	2.3	2.3	3.1	3.1	3.1	3.1	2.3	2.3	2.3	3.1	3.1
70°	2.3	3.1	3.1	3.1	3.1	3.1	3.1	2.3	2.3	3.1	3.1
72.5°	2.3	3.1	3.1	3.1	3.1	3.1	3.1	2.3	2.3	3.1	3.1
75°	2.3	2.3	3.1	3.1	3.1	3.1	3.1	2.3	2.3	2.3	3.1
77.5°	2.3	2.3	3.1	3.1	3.1	3.1	3.1	2.3	2.3	2.3	3.1
80°	2.3	2.3	2.3	3.1	2.3	3.1	2.3	2.3	2.3	2.3	2.3
82.5°	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3
85°	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3
87.5°	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3
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°	151.4	151.4	151.4	151.4	151.4	151.4	151.4	151.4	151.4	151.4	151.4
2.5°	143.7	142.2	139.8	139.1	139.8	139.1	135.2	134.4	132.9	132.9	132.9
5°	136.0	133.7	130.6	129.0	129.0	127.5	123.6	122.8	120.5	120.5	119.8
7.5°	126.7	123.6	119.8	118.2	118.2	116.7	112.8	111.3	109.7	109.7	108.9
10°	115.9	112.0	108.2	107.4	106.6	104.3	102.0	101.2	98.9	99.7	98.9
12.5°	103.5	100.4	97.3	95.8	95.8	93.5	91.9	91.2	90.4	90.4	90.4
15°	91.9	88.1	85.0	84.2	84.2	83.4	81.9	81.9	80.4	81.9	81.9
17.5°	78.8	75.7	74.9	73.4	74.2	73.4	71.9	72.6	72.6	73.4	74.2
20°	66.4	64.1	63.4	62.6	63.4	63.4	62.6	63.4	64.1	66.4	68.0
22.5°	55.6	54.1	54.1	53.3	54.1	54.9	54.1	55.6	57.2	58.7	61.0
25°	46.4	45.6	45.6	45.6	46.4	47.1	47.9	49.4	50.2	52.5	54.1
27.5°	37.9	37.9	37.9	38.6	39.4	40.2	40.9	43.3	44.0	46.4	47.9
30°	31.7	30.9	31.7	32.4	33.2	34.8	35.5	37.1	37.9	40.2	41.7
32.5°	25.5	26.3	27.0	27.8	28.6	29.4	30.1	31.7	33.2	34.8	36.3
35°	21.6	21.6	22.4	23.2	24.0	25.5	26.3	27.0	28.6	30.1	30.9
37.5°	17.8	18.5	19.3	20.1	20.9	21.6	22.4	23.2	24.0	25.5	27.0
40°	14.7	15.5	16.2	17.0	17.0	18.5	18.5	20.1	20.9	22.4	24.0
42.5°	12.4	13.1	13.9	14.7	14.7	15.5	16.2	17.0	17.8	19.3	20.9
45°	10.0	10.8	11.6	12.4	12.4	13.1	13.9	14.7	15.5	17.0	17.8
47.5°	8.5	9.3	10.0	10.8	10.8	11.6	12.4	13.1	13.1	14.7	15.5
50°	7.0	7.7	8.5	9.3	9.3	10.0	10.8	11.6	11.6	12.4	13.1
52.5°	5.4	6.2	7.7	7.7	8.5	9.3	9.3	10.0	10.0	10.8	11.6
55°	5.4	6.2	7.0	7.0	7.7	8.5	8.5	9.3	9.3	9.3	10.0
57.5°	4.6	5.4	6.2	7.0	7.0	7.7	7.7	7.7	7.7	8.5	8.5
60°	4.6	5.4	5.4	6.2	6.2	7.0	7.0	7.0	7.0	7.7	7.7
62.5°	4.6	4.6	5.4	5.4	6.2	6.2	6.2	7.0	7.0	7.0	7.0
65°	3.9	4.6	5.4	5.4	5.4	6.2	6.2	6.2	6.2	6.2	6.2
67.5°	3.9	4.6	4.6	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4
70°	3.9	3.9	4.6	4.6	4.6	5.4	5.4	5.4	4.6	5.4	4.6
72.5°	3.1	3.9	3.9	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6
75°	3.1	3.9	3.9	3.9	3.9	4.6	4.6	3.9	3.9	3.9	3.9
77.5°	3.1	3.1	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.1
80°	3.1	3.1	3.1	3.1	3.9	3.9	3.1	3.1	3.1	3.1	3.1
82.5°	2.3	3.1	3.1	3.1	3.1	3.1	3.1	3.1	2.3	2.3	2.3
85°	2.3	2.3	3.1	3.1	3.1	3.1	2.3	2.3	2.3	2.3	1.5
87.5°	2.3	2.3	2.3	3.1	2.3	2.3	2.3	2.3	1.5	1.5	1.5
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: P182642

CATALOG NUMBER: LDSQA4A18927D010TE LAR15SP 4LSQA1H-LSF-20 30°

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	151.4	151.4	151.4	151.4	151.4	151.4	151.4	151.4
2.5°	130.6	129.8	130.6	129.8	129.8	130.6	128.3	129.8
5°	118.2	116.7	117.4	116.7	115.9	116.7	115.1	116.7
7.5°	107.4	106.6	106.6	106.6	105.8	106.6	105.1	106.6
10°	98.1	97.3	97.3	97.3	97.3	98.1	96.6	98.1
12.5°	88.8	88.8	89.6	88.8	89.6	90.4	88.8	90.4
15°	81.1	81.9	82.7	82.7	83.4	84.2	83.4	85.0
17.5°	74.9	75.7	77.3	77.3	78.0	79.6	78.8	80.4
20°	68.8	69.5	71.1	71.1	71.9	73.4	72.6	74.2
22.5°	61.8	63.4	64.1	64.9	65.7	67.2	66.4	68.0
25°	54.9	57.2	57.9	58.7	59.5	61.0	61.0	62.6
27.5°	49.4	51.0	51.8	52.5	54.1	55.6	55.6	56.4
30°	43.3	44.8	46.4	47.1	47.9	49.4	49.4	51.0
32.5°	37.9	39.4	40.2	40.9	42.5	44.0	44.8	45.6
35°	32.4	34.8	35.5	37.1	37.9	40.2	40.2	40.9
37.5°	28.6	30.1	31.7	32.4	34.0	35.5	35.5	37.1
40°	25.5	27.0	27.8	28.6	30.1	31.7	31.7	32.4
42.5°	21.6	24.0	24.7	25.5	26.3	27.8	28.6	29.4
45°	19.3	20.1	20.9	21.6	22.4	24.0	24.0	24.7
47.5°	16.2	17.0	17.8	18.5	19.3	20.1	20.9	21.6
50°	13.9	14.7	15.5	15.5	16.2	17.8	17.8	18.5
52.5°	11.6	12.4	13.1	13.1	13.9	15.5	15.5	16.2
55°	10.0	10.8	11.6	11.6	12.4	13.1	13.1	13.9
57.5°	9.3	9.3	10.0	10.0	10.8	10.8	11.6	11.6
60°	7.7	8.5	8.5	8.5	9.3	9.3	9.3	9.3
62.5°	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.7
65°	6.2	6.2	6.2	6.2	6.2	6.2	5.4	6.2
67.5°	5.4	5.4	5.4	5.4	4.6	4.6	4.6	4.6
70°	4.6	4.6	4.6	4.6	4.6	3.9	3.9	3.9
72.5°	3.9	3.9	3.9	3.9	3.9	3.1	3.1	3.1
75°	3.9	3.9	3.1	3.1	3.1	3.1	3.1	2.3
77.5°	3.1	3.1	3.1	3.1	2.3	2.3	2.3	2.3
80°	2.3	2.3	2.3	2.3	2.3	2.3	1.5	1.5
82.5°	2.3	1.5	1.5	1.5	1.5	1.5	1.5	1.5
85°	1.5	1.5	1.5	1.5	0.8	0.8	0.8	0.8
87.5°	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
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)