

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: P182644

Luminaire Tested: **LDSQA4A18935D010TE LAR15SP 4LSQA1H-LSF-20 30°**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P182644
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: LDSQA4A18935D010TE 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 / 3500K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 1481.9 lumens
Efficiency: N/A
Efficacy: 50.9 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

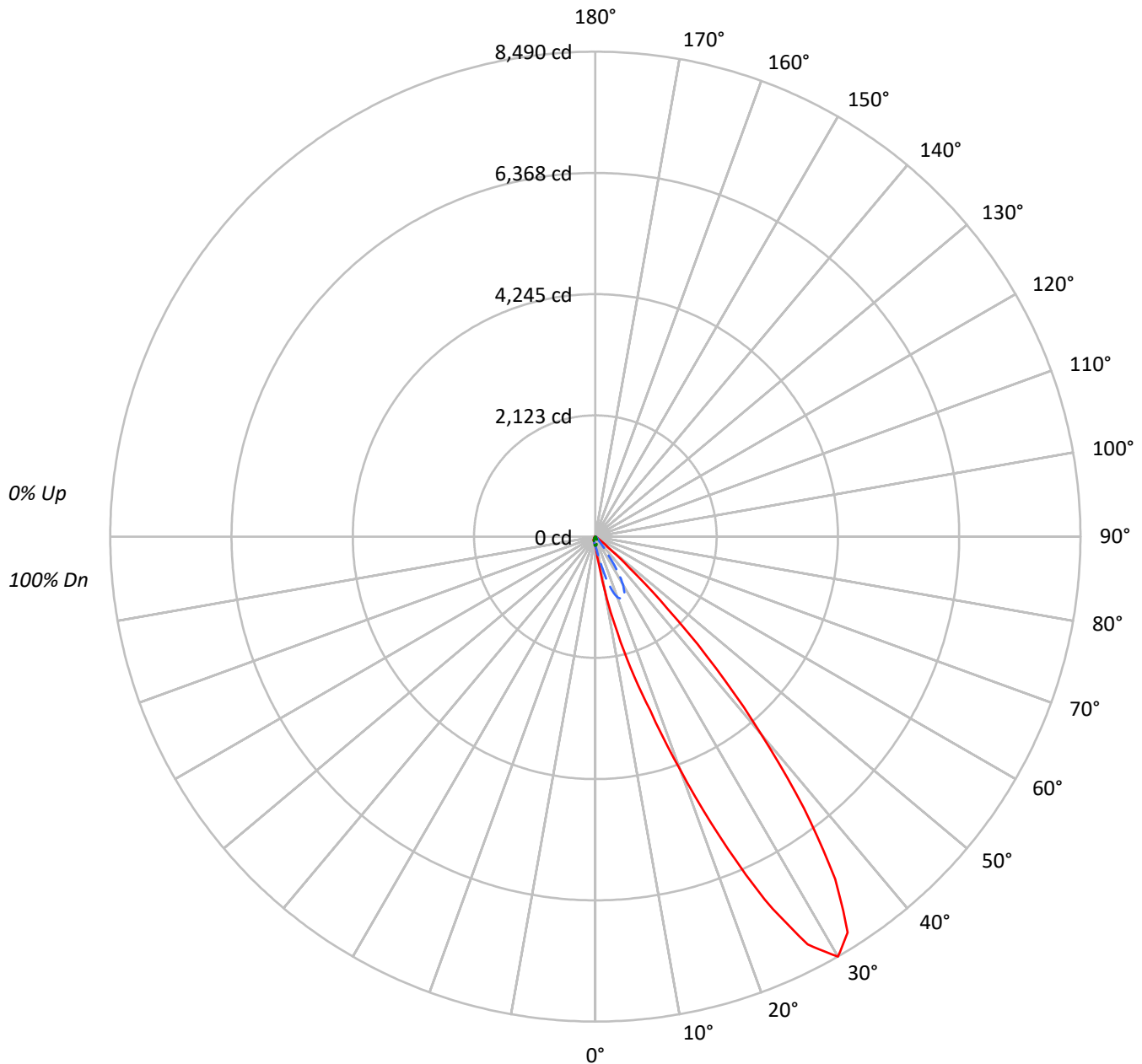
Input Watts (W): 29.12
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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°	15500	15500	15500
5°	29679	14762	11981
10°	97062	13083	10191
15°	237694	10802	9006
20°	447855	8247	8072
25°	749707	5847	7065
30°	949721	4016	6029
35°	865378	2602	5121
40°	569913	1859	4338
45°	246879	1233	3576
50°	43782	859	2954
55°	7026	692	2483
60°	1744	639	1899
65°	550	756	1490
70°	453	935	1161
75°	599	898	898
80°	0	1339	893
85°	0	2668	889



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	20.5	1.4
10°-20°	164.8	11.1
20°-30°	496.5	33.5
30°-40°	565.1	38.1
40°-50°	208.9	14.1
50°-60°	16.6	1.1
60°-70°	4.4	0.3
70°-80°	3.1	0.2
80°-90°	1.8	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°	681.9	46.0
0°-40°	1247.0	84.2
0°-60°	1472.5	99.4
0°-90°	1481.9	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1481.9	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	160	160	160	160	160	
5°	305	224	152	127	123	49
15°	2370	801	108	85	90	743
25°	7014	1170	55	53	66	3201
35°	7317	410	22	30	43	4350
45°	1802	48	9	16	26	1526
55°	42	9	4	10	15	68
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°	160.0	160.0	160.0	160.0	160.0	160.0	160.0	160.0	160.0	160.0	160.0
2.5°	205.7	207.3	205.7	202.4	202.4	198.3	196.7	195.1	191.0	188.5	185.3
5°	305.2	300.3	296.3	286.5	283.2	274.2	267.7	258.7	246.5	235.9	224.4
7.5°	522.3	515.0	499.5	470.1	452.1	430.1	413.0	384.4	347.7	317.5	287.3
10°	986.7	954.9	918.1	852.0	803.9	752.5	711.7	634.9	542.7	466.8	393.4
12.5°	1589.8	1592.3	1523.7	1411.9	1322.9	1232.3	1162.2	1020.2	856.9	714.1	572.9
15°	2370.0	2325.1	2254.1	2082.7	1904.8	1773.4	1661.6	1446.2	1215.2	1006.3	800.6
17.5°	3191.9	3210.6	3045.0	2765.0	2483.5	2286.8	2117.8	1791.4	1517.2	1258.5	1007.1
20°	4344.2	4215.3	3978.6	3524.8	3087.4	2802.6	2552.0	2128.4	1745.7	1416.8	1134.4
22.5°	5672.9	5464.8	4983.2	4344.2	3682.3	3288.2	2938.9	2356.1	1891.0	1497.6	1177.7
25°	7013.8	6854.6	6087.5	5132.6	4184.3	3673.4	3221.2	2510.4	1960.3	1516.4	1170.3
27.5°	8048.6	7789.1	6915.0	5670.4	4483.8	3880.7	3352.6	2557.7	1945.6	1470.7	1100.9
30°	8490.1	8162.0	7193.3	5792.8	4486.2	3846.4	3287.3	2463.9	1841.2	1354.8	970.4
32.5°	8217.5	7838.9	6862.0	5454.1	4179.4	3578.7	3035.2	2260.7	1668.2	1172.8	728.8
35°	7317.4	6940.3	6035.2	4785.7	3689.7	3164.9	2692.4	1995.4	1420.9	869.2	409.7
37.5°	5992.0	5670.4	5023.2	4011.2	3109.4	2683.4	2290.0	1681.2	1058.5	498.7	205.7
40°	4506.6	4280.6	3892.1	3181.2	2516.9	2192.9	1876.3	1287.8	643.1	250.5	116.7
42.5°	3124.1	2977.2	2782.2	2353.7	1941.6	1718.8	1464.9	860.2	330.5	137.9	72.6
45°	1802.0	1709.8	1655.9	1473.1	1312.3	1203.8	979.3	463.6	167.3	82.4	48.2
47.5°	795.7	734.5	708.4	631.7	587.6	558.2	443.2	197.5	89.8	53.0	40.0
50°	290.5	290.5	291.4	256.3	209.7	188.5	147.7	87.3	50.6	41.6	29.4
52.5°	102.8	101.2	105.3	99.6	87.3	78.3	65.3	44.1	31.0	26.1	16.3
55°	41.6	40.0	41.6	39.2	36.7	34.3	30.2	23.7	19.6	16.3	9.0
57.5°	18.8	18.8	19.6	18.8	18.8	17.1	15.5	18.0	13.9	9.0	5.7
60°	9.0	9.0	9.8	9.8	9.8	9.0	9.0	9.8	8.2	5.7	4.1
62.5°	4.1	4.1	4.9	4.9	4.9	4.9	4.9	5.7	4.1	3.3	2.4
65°	2.4	1.6	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4
67.5°	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	2.4	2.4
70°	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	2.4
72.5°	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	2.4
75°	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	2.4
77.5°	0.0	0.0	0.0	0.8	0.8	0.8	0.8	0.8	1.6	1.6	2.4
80°	0.0	0.0	0.0	0.0	0.8	0.8	0.8	0.8	1.6	1.6	1.6
82.5°	0.0	0.0	0.0	0.0	0.8	0.8	0.8	0.8	1.6	1.6	1.6
85°	0.0	0.0	0.0	0.0	0.8	0.8	0.8	0.8	0.8	1.6	1.6
87.5°	0.0	0.0	0.0	0.0	0.8	0.8	0.8	0.8	0.8	1.6	1.6
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°	160.0	160.0	160.0	160.0	160.0	160.0	160.0	160.0	160.0	160.0	160.0
2.5°	182.0	179.5	174.7	172.2	168.9	166.5	164.9	161.6	158.3	155.9	154.2
5°	213.8	204.8	194.2	186.1	179.5	175.5	168.9	163.2	156.7	151.8	147.7
7.5°	260.3	238.3	214.6	198.3	189.3	181.2	169.8	160.0	151.0	144.5	138.7
10°	333.0	285.6	244.0	212.2	196.7	185.3	167.3	153.4	142.0	133.0	127.3
12.5°	453.8	356.6	283.2	229.3	205.7	188.5	163.2	144.5	130.6	121.6	114.3
15°	619.4	461.1	337.1	249.7	216.3	191.8	156.7	133.8	118.3	107.7	101.2
17.5°	775.3	570.5	398.3	274.2	226.9	193.4	147.7	120.0	103.6	93.9	87.3
20°	873.3	641.5	439.1	288.1	230.1	188.5	135.5	105.3	89.0	80.0	73.5
22.5°	896.1	649.6	435.8	275.0	216.3	173.8	118.3	90.6	75.1	66.9	61.2
25°	862.6	603.9	390.1	237.5	184.4	146.1	98.8	73.5	62.0	54.7	50.6
27.5°	778.6	514.2	308.5	178.7	137.9	107.7	75.1	57.1	49.8	44.1	41.6
30°	627.6	361.5	193.4	111.0	88.1	71.0	53.9	44.1	38.4	35.9	33.5
32.5°	380.3	186.1	102.0	66.1	55.5	48.2	39.2	32.6	29.4	27.7	26.9
35°	181.2	97.9	62.8	44.9	39.2	34.3	28.6	24.5	22.9	22.0	22.0
37.5°	102.8	63.7	42.4	30.2	26.9	23.7	21.2	18.8	18.0	18.0	18.0
40°	65.3	40.8	27.7	22.0	19.6	18.0	16.3	14.7	14.7	14.7	14.7
42.5°	42.4	29.4	21.2	16.3	14.7	13.9	12.2	11.4	11.4	11.4	12.2
45°	33.5	24.5	17.1	13.1	11.4	10.6	9.8	9.0	9.0	9.0	9.8
47.5°	28.6	17.1	11.4	9.0	7.3	7.3	6.5	6.5	6.5	7.3	8.2
50°	17.1	10.6	7.3	5.7	4.9	4.9	4.9	4.9	4.9	5.7	6.5
52.5°	9.8	6.5	4.9	4.1	3.3	3.3	3.3	3.3	4.1	4.9	4.9
55°	6.5	4.9	3.3	3.3	2.4	2.4	2.4	3.3	3.3	4.1	4.9
57.5°	4.1	3.3	2.4	2.4	2.4	2.4	2.4	2.4	3.3	4.1	4.1
60°	3.3	2.4	2.4	2.4	2.4	2.4	2.4	2.4	3.3	3.3	4.1
62.5°	2.4	2.4	3.3	2.4	2.4	2.4	2.4	2.4	3.3	3.3	4.1
65°	2.4	2.4	3.3	3.3	2.4	2.4	2.4	2.4	2.4	3.3	4.1
67.5°	2.4	2.4	3.3	3.3	3.3	3.3	2.4	2.4	2.4	3.3	3.3
70°	2.4	3.3	3.3	3.3	3.3	3.3	3.3	2.4	2.4	3.3	3.3
72.5°	2.4	3.3	3.3	3.3	3.3	3.3	3.3	2.4	2.4	3.3	3.3
75°	2.4	2.4	3.3	3.3	3.3	3.3	3.3	2.4	2.4	2.4	3.3
77.5°	2.4	2.4	3.3	3.3	3.3	3.3	3.3	2.4	2.4	2.4	3.3
80°	2.4	2.4	2.4	3.3	2.4	3.3	2.4	2.4	2.4	2.4	2.4
82.5°	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4
85°	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4
87.5°	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4
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°	160.0	160.0	160.0	160.0	160.0	160.0	160.0	160.0	160.0	160.0	160.0
2.5°	151.8	150.2	147.7	146.9	147.7	146.9	142.8	142.0	140.4	140.4	140.4
5°	143.6	141.2	137.9	136.3	136.3	134.7	130.6	129.8	127.3	127.3	126.5
7.5°	133.8	130.6	126.5	124.9	124.9	123.2	119.2	117.5	115.9	115.9	115.1
10°	122.4	118.3	114.3	113.4	112.6	110.2	107.7	106.9	104.5	105.3	104.5
12.5°	109.4	106.1	102.8	101.2	101.2	98.8	97.1	96.3	95.5	95.5	95.5
15°	97.1	93.0	89.8	89.0	89.0	88.1	86.5	86.5	84.9	86.5	86.5
17.5°	83.2	80.0	79.2	77.5	78.3	77.5	75.9	76.7	76.7	77.5	78.3
20°	70.2	67.7	66.9	66.1	66.9	66.9	66.1	66.9	67.7	70.2	71.8
22.5°	58.8	57.1	57.1	56.3	57.1	57.9	57.1	58.8	60.4	62.0	64.5
25°	49.0	48.2	48.2	48.2	49.0	49.8	50.6	52.2	53.0	55.5	57.1
27.5°	40.0	40.0	40.0	40.8	41.6	42.4	43.3	45.7	46.5	49.0	50.6
30°	33.5	32.6	33.5	34.3	35.1	36.7	37.5	39.2	40.0	42.4	44.1
32.5°	26.9	27.7	28.6	29.4	30.2	31.0	31.8	33.5	35.1	36.7	38.4
35°	22.9	22.9	23.7	24.5	25.3	26.9	27.7	28.6	30.2	31.8	32.6
37.5°	18.8	19.6	20.4	21.2	22.0	22.9	23.7	24.5	25.3	26.9	28.6
40°	15.5	16.3	17.1	18.0	18.0	19.6	19.6	21.2	22.0	23.7	25.3
42.5°	13.1	13.9	14.7	15.5	15.5	16.3	17.1	18.0	18.8	20.4	22.0
45°	10.6	11.4	12.2	13.1	13.1	13.9	14.7	15.5	16.3	18.0	18.8
47.5°	9.0	9.8	10.6	11.4	11.4	12.2	13.1	13.9	13.9	15.5	16.3
50°	7.3	8.2	9.0	9.8	9.8	10.6	11.4	12.2	12.2	13.1	13.9
52.5°	5.7	6.5	8.2	8.2	9.0	9.8	9.8	10.6	10.6	11.4	12.2
55°	5.7	6.5	7.3	7.3	8.2	9.0	9.0	9.8	9.8	9.8	10.6
57.5°	4.9	5.7	6.5	7.3	7.3	8.2	8.2	8.2	8.2	9.0	9.0
60°	4.9	5.7	5.7	6.5	6.5	7.3	7.3	7.3	7.3	8.2	8.2
62.5°	4.9	4.9	5.7	5.7	6.5	6.5	6.5	7.3	7.3	7.3	7.3
65°	4.1	4.9	5.7	5.7	5.7	6.5	6.5	6.5	6.5	6.5	6.5
67.5°	4.1	4.9	4.9	5.7	5.7	5.7	5.7	5.7	5.7	5.7	5.7
70°	4.1	4.1	4.9	4.9	4.9	5.7	5.7	5.7	4.9	5.7	4.9
72.5°	3.3	4.1	4.1	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9
75°	3.3	4.1	4.1	4.1	4.1	4.9	4.9	4.1	4.1	4.1	4.1
77.5°	3.3	3.3	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	3.3
80°	3.3	3.3	3.3	3.3	4.1	4.1	3.3	3.3	3.3	3.3	3.3
82.5°	2.4	3.3	3.3	3.3	3.3	3.3	3.3	3.3	2.4	2.4	2.4
85°	2.4	2.4	3.3	3.3	3.3	3.3	2.4	2.4	2.4	2.4	1.6
87.5°	2.4	2.4	2.4	3.3	2.4	2.4	2.4	2.4	1.6	1.6	1.6
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: P182644

CATALOG NUMBER: LDSQA4A18935D010TE LAR15SP 4LSQA1H-LSF-20 30°

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	160.0	160.0	160.0	160.0	160.0	160.0	160.0	160.0
2.5°	137.9	137.1	137.9	137.1	137.1	137.9	135.5	137.1
5°	124.9	123.2	124.1	123.2	122.4	123.2	121.6	123.2
7.5°	113.4	112.6	112.6	112.6	111.8	112.6	111.0	112.6
10°	103.6	102.8	102.8	102.8	102.8	103.6	102.0	103.6
12.5°	93.9	93.9	94.7	93.9	94.7	95.5	93.9	95.5
15°	85.7	86.5	87.3	87.3	88.1	89.0	88.1	89.8
17.5°	79.2	80.0	81.6	81.6	82.4	84.1	83.2	84.9
20°	72.6	73.5	75.1	75.1	75.9	77.5	76.7	78.3
22.5°	65.3	66.9	67.7	68.6	69.4	71.0	70.2	71.8
25°	57.9	60.4	61.2	62.0	62.8	64.5	64.5	66.1
27.5°	52.2	53.9	54.7	55.5	57.1	58.8	58.8	59.6
30°	45.7	47.3	49.0	49.8	50.6	52.2	52.2	53.9
32.5°	40.0	41.6	42.4	43.3	44.9	46.5	47.3	48.2
35°	34.3	36.7	37.5	39.2	40.0	42.4	42.4	43.3
37.5°	30.2	31.8	33.5	34.3	35.9	37.5	37.5	39.2
40°	26.9	28.6	29.4	30.2	31.8	33.5	33.5	34.3
42.5°	22.9	25.3	26.1	26.9	27.7	29.4	30.2	31.0
45°	20.4	21.2	22.0	22.9	23.7	25.3	25.3	26.1
47.5°	17.1	18.0	18.8	19.6	20.4	21.2	22.0	22.9
50°	14.7	15.5	16.3	16.3	17.1	18.8	18.8	19.6
52.5°	12.2	13.1	13.9	13.9	14.7	16.3	16.3	17.1
55°	10.6	11.4	12.2	12.2	13.1	13.9	13.9	14.7
57.5°	9.8	9.8	10.6	10.6	11.4	11.4	12.2	12.2
60°	8.2	9.0	9.0	9.0	9.8	9.8	9.8	9.8
62.5°	7.3	7.3	7.3	7.3	7.3	7.3	7.3	8.2
65°	6.5	6.5	6.5	6.5	6.5	6.5	5.7	6.5
67.5°	5.7	5.7	5.7	5.7	4.9	4.9	4.9	4.9
70°	4.9	4.9	4.9	4.9	4.9	4.1	4.1	4.1
72.5°	4.1	4.1	4.1	4.1	4.1	3.3	3.3	3.3
75°	4.1	4.1	3.3	3.3	3.3	3.3	3.3	2.4
77.5°	3.3	3.3	3.3	3.3	2.4	2.4	2.4	2.4
80°	2.4	2.4	2.4	2.4	2.4	2.4	1.6	1.6
82.5°	2.4	1.6	1.6	1.6	1.6	1.6	1.6	1.6
85°	1.6	1.6	1.6	1.6	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)