

Scaled data based on original data using
LM-79-08 Approved Method: Electrical and Photometric Measurements of Solid-State
Lighting Products

Test Report Prepared for

Cooper Lighting Solutions

(formerly Eaton)

Brand: NEO-RAY

Report Number: P243076

Luminaire Tested: **S121RDR-H490D927-X4F0-XX-UDD-A-W**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P243076
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1802-639-67)
Test Lab: INNOVATION CENTER
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: NEO-RAY
Catalog Number: S121RDR-H490D927-X4F0-XX-UDD-A-W
Description: DEFINE 1 REGRESSED DIRECT RECESSED WITH ASYMMETRIC FLUSH DIFFUSER.
HIGH PERFORMANCE LIGHT ENGINE
Light Source: (184) 2700K CCT, 90 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 1234.7 lumens
Efficiency: N/A
Efficacy: 71.8 lumens/watt
Spacing Criteria (0/90/45): 0.89 / 1.21 / 1.07
Luminous Opening: Rectangular (W 3.88' x L: 0.09' x H: 0')
CIE Type: Direct

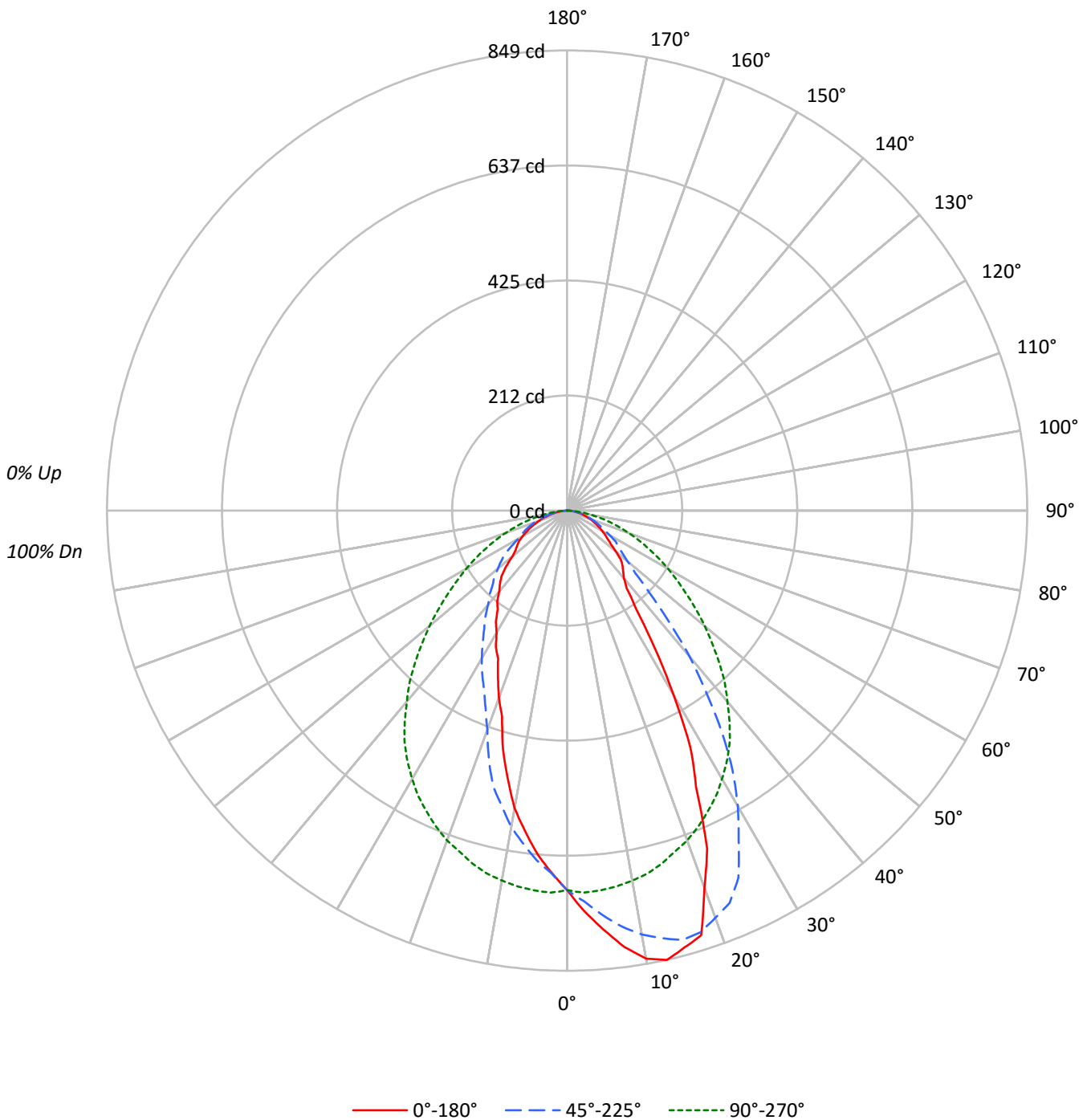
Input Watts (W): 17.2
Input Voltage (V): 120
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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	0
RCR																		
0	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102	100
1	111	107	103	100	108	104	101	98	100	97	95	96	94	92	93	91	89	87
2	102	95	89	84	100	93	88	83	90	85	81	87	83	80	84	81	78	76
3	94	85	78	73	92	84	77	72	81	75	71	78	73	70	76	72	68	66
4	87	77	69	63	85	76	69	63	73	67	62	71	66	61	69	64	61	59
5	81	70	62	56	79	69	61	56	67	60	55	65	59	55	63	58	54	52
6	76	64	56	50	74	63	55	50	61	55	50	60	54	49	58	53	49	47
7	71	59	51	45	69	58	50	45	56	50	45	55	49	44	54	48	44	42
8	66	54	46	41	65	53	46	41	52	46	41	51	45	41	50	44	40	39
9	62	50	43	38	61	50	42	38	49	42	37	48	42	37	47	41	37	35
10	59	47	39	35	58	46	39	35	45	39	34	44	38	34	44	38	34	33

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	20750	20750	20750
5°	23092	20918	18899
10°	25252	20856	16779
15°	25614	20681	14015
20°	23349	20416	11591
25°	18390	20047	9860
30°	13446	19560	8892
35°	8023	18914	8081
40°	6293	17792	7539
45°	6063	16610	7170
50°	5407	15276	6085
55°	4722	13901	5812
60°	4415	12723	5636
65°	4108	11575	5223
70°	3890	10430	4756
75°	3572	9284	4236
80°	3242	7525	3703
85°	3060	5745	2686



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	66.9	5.4
10°-20°	186.5	15.1
20°-30°	248.0	20.1
30°-40°	236.6	19.2
40°-50°	196.3	15.9
50°-60°	146.0	11.8
60°-70°	94.5	7.7
70°-80°	48.1	3.9
80°-90°	11.8	1.0
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°	501.4	40.6
0°-40°	737.9	59.8
0°-60°	1080.2	87.5
0°-90°	1234.7	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1234.7	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	700	700	700	700	700	
5°	776	749	703	647	635	76
15°	835	820	674	527	457	232
25°	562	748	613	363	302	261
35°	222	497	523	266	223	151
45°	145	214	396	194	171	110
55°	91	116	269	140	112	83
65°	59	66	165	84	74	59
75°	31	34	81	42	37	33
85°	9	9	17	9	8	10
90°	0	0	0	0	0	



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CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
0°	700.3	700.3	700.3	700.3	700.3	700.3	700.3	700.3	700.3	700.3	700.3
2.5°	740.5	738.6	740.8	740.0	736.5	737.3	733.1	730.5	724.1	721.7	721.7
5°	776.4	779.0	777.5	778.0	774.6	772.4	768.0	762.9	755.0	749.2	747.1
7.5°	812.3	813.1	813.9	811.8	807.8	804.1	797.8	790.4	781.7	774.3	768.5
10°	839.3	841.1	840.0	836.9	834.0	828.4	821.6	813.6	804.1	794.4	787.2
12.5°	849.3	850.9	853.2	851.4	851.1	848.5	841.6	831.9	820.2	808.1	799.9
15°	835.0	834.0	840.3	838.7	838.2	837.1	839.0	836.9	830.8	820.2	810.2
17.5°	821.8	821.3	827.6	829.2	826.8	823.4	821.3	818.7	815.7	816.0	814.7
20°	740.5	756.6	759.8	768.2	786.2	798.1	809.9	809.4	801.0	799.6	799.1
22.5°	675.0	681.1	678.2	691.9	701.7	723.1	743.9	770.3	788.0	783.5	780.6
25°	562.5	581.5	590.2	607.4	632.2	659.4	671.3	699.3	726.5	747.6	763.7
27.5°	492.8	497.0	502.5	520.2	529.5	554.3	598.7	636.7	662.1	685.0	727.5
30°	393.0	394.8	414.1	423.9	451.1	475.3	513.9	544.5	595.5	629.6	662.3
32.5°	300.0	298.4	319.5	330.9	357.8	390.6	433.6	462.1	512.1	567.8	606.9
35°	221.8	221.6	232.9	240.8	270.4	295.5	350.2	387.4	442.1	496.7	547.2
37.5°	180.6	180.4	182.7	189.6	202.0	230.3	256.7	311.9	365.2	419.1	482.2
40°	162.7	164.0	164.5	167.7	171.9	180.4	196.5	235.0	287.3	351.5	414.9
42.5°	153.2	153.2	153.7	154.5	156.6	159.0	168.7	183.5	225.5	276.8	347.8
45°	144.7	145.0	145.5	146.0	145.5	146.8	151.3	157.4	173.8	214.2	282.8
47.5°	134.7	134.4	135.7	136.5	137.6	139.2	139.4	142.6	149.7	170.9	220.8
50°	117.3	117.5	118.8	122.0	125.4	128.3	130.2	132.3	134.7	144.7	171.1
52.5°	101.4	101.7	102.5	104.8	108.0	111.7	117.5	122.3	124.1	127.3	142.1
55°	91.4	91.4	92.4	93.7	94.5	97.2	101.1	106.4	113.3	115.9	122.3
57.5°	82.9	82.9	83.4	83.4	84.5	85.8	88.5	91.1	96.9	105.4	109.3
60°	74.5	74.5	75.0	75.0	76.3	76.8	78.7	80.3	83.4	89.3	97.2
62.5°	66.5	66.0	66.5	66.8	67.6	68.4	69.7	71.6	73.4	76.8	82.7
65°	58.6	58.4	58.9	59.4	59.9	61.0	61.8	63.1	64.7	66.5	69.5
67.5°	51.8	51.5	51.8	52.6	52.3	52.8	54.1	54.7	56.2	58.1	60.5
70°	44.9	44.4	44.9	44.9	45.2	46.0	46.0	47.3	48.6	49.6	51.8
72.5°	37.5	37.8	37.5	37.8	38.3	38.6	39.1	39.9	40.7	41.7	43.0
75°	31.2	31.2	31.4	31.7	32.2	32.2	32.5	33.0	33.5	34.1	35.7
77.5°	24.8	25.1	25.4	25.6	25.6	25.9	26.1	26.4	27.2	27.5	28.3
80°	19.0	19.3	19.3	19.3	19.8	19.3	19.8	20.3	20.3	20.6	21.1
82.5°	13.7	14.0	13.7	14.0	14.3	14.3	14.0	14.3	14.3	14.8	14.8
85°	9.0	8.5	8.5	8.5	8.5	8.5	8.7	9.0	8.7	8.7	9.0
87.5°	3.7	3.7	3.7	3.7	4.0	3.7	4.0	4.0	4.0	3.7	4.0
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):

	55°	60°	65°	70°	75°	80°	85°	90°	95°	100°	105°
0°	700.3	700.3	700.3	700.3	700.3	700.3	700.3	700.3	700.3	700.3	700.3
2.5°	723.1	720.9	719.1	715.9	712.0	706.2	705.4	705.6	698.5	691.6	690.6
5°	742.6	739.2	733.4	726.5	720.2	710.4	706.2	703.3	692.4	683.2	679.5
7.5°	763.5	755.3	747.4	736.5	726.0	713.3	705.4	699.3	685.0	672.9	666.5
10°	779.8	769.8	758.4	744.7	730.2	714.6	702.7	693.2	676.1	661.0	653.1
12.5°	791.5	780.1	766.6	750.3	733.6	713.0	698.5	685.8	665.0	647.0	637.5
15°	797.5	785.4	768.7	750.8	733.6	712.0	692.7	674.2	653.6	631.2	619.3
17.5°	803.1	787.2	768.5	747.9	730.5	707.7	684.0	659.9	636.7	615.6	596.3
20°	799.1	785.6	764.8	743.4	723.8	697.4	672.4	647.5	618.5	593.9	574.6
22.5°	780.6	778.3	755.8	732.8	710.4	685.0	656.0	631.4	600.3	571.2	548.0
25°	759.0	756.1	743.9	719.4	694.0	667.6	641.5	613.2	577.3	547.2	520.5
27.5°	740.8	734.1	725.4	702.5	675.3	648.8	621.9	594.4	556.2	522.6	492.2
30°	703.8	710.1	700.3	684.5	653.1	627.5	601.6	571.7	533.7	495.2	464.0
32.5°	645.2	683.4	673.7	661.0	630.1	602.1	577.5	548.2	506.2	468.2	436.0
35°	593.4	626.4	648.6	633.3	606.1	573.6	548.5	522.9	479.0	440.2	409.3
37.5°	543.2	578.3	615.3	601.3	578.9	544.0	517.6	492.2	451.6	412.5	381.6
40°	477.5	528.7	564.3	569.9	546.9	511.8	486.2	460.0	424.1	385.3	352.3
42.5°	414.3	480.1	508.9	537.4	513.9	480.9	452.4	430.2	395.6	361.5	325.6
45°	348.3	423.1	465.6	487.5	479.0	448.9	417.8	396.4	367.3	335.6	301.6
47.5°	291.0	362.1	422.8	435.2	443.4	413.8	384.8	363.1	338.0	311.9	279.4
50°	230.8	304.5	369.5	391.9	407.5	380.5	350.2	331.4	310.3	286.8	258.0
52.5°	179.6	248.5	316.6	354.9	360.2	346.2	318.2	299.7	282.8	261.7	235.6
55°	142.6	195.9	264.1	308.7	313.7	310.3	285.2	269.1	256.7	239.0	217.1
57.5°	118.3	152.4	213.9	265.4	272.8	276.0	255.4	240.8	229.8	215.8	195.9
60°	102.2	120.2	167.2	217.6	237.9	243.5	225.3	214.7	205.5	192.8	174.3
62.5°	90.3	98.5	127.8	176.4	202.6	207.3	198.1	190.1	182.5	170.3	154.0
65°	75.3	84.0	98.5	136.3	168.5	170.9	172.7	165.1	159.0	148.9	134.4
67.5°	63.1	70.0	79.5	104.6	135.2	142.1	146.8	143.4	137.6	127.6	115.1
70°	53.6	57.6	64.4	78.4	103.3	118.0	123.1	120.4	117.5	106.7	96.1
72.5°	44.6	47.8	51.8	60.2	77.9	93.7	101.1	99.8	96.7	88.5	79.8
75°	37.0	38.3	41.5	46.2	56.5	71.3	80.0	81.1	77.4	69.7	62.9
77.5°	29.0	30.4	32.2	35.1	41.7	51.8	58.9	61.5	59.2	53.6	46.7
80°	22.2	23.0	24.3	25.6	28.3	35.1	42.5	44.1	42.8	38.3	34.1
82.5°	14.8	15.3	16.4	17.4	18.7	21.9	28.3	29.3	29.0	25.1	22.2
85°	9.0	9.0	9.2	10.0	10.6	11.9	15.3	16.9	16.1	13.5	12.1
87.5°	3.7	4.0	3.7	3.7	3.7	4.0	5.0	6.9	5.3	4.0	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):

	110°	115°	120°	125°	130°	135°	140°	145°	150°	155°	160°
0°	700.3	700.3	700.3	700.3	700.3	700.3	700.3	700.3	700.3	700.3	700.3
2.5°	687.7	686.6	682.7	679.0	674.7	669.7	670.0	670.8	668.9	668.4	670.2
5°	674.2	670.5	664.4	658.4	653.6	647.3	643.6	645.4	644.1	641.7	640.1
7.5°	659.9	654.7	645.9	638.3	631.9	620.1	617.4	614.3	611.6	606.3	605.3
10°	643.0	635.4	624.3	613.5	601.8	592.6	583.9	580.2	573.1	568.3	567.0
12.5°	625.6	612.9	600.5	584.7	571.5	558.0	550.3	545.1	537.9	526.3	520.8
15°	607.7	588.4	571.7	554.3	545.3	527.1	512.6	496.2	487.5	468.0	456.6
17.5°	583.6	561.4	539.0	524.7	506.0	480.6	456.3	447.9	434.7	422.0	409.3
20°	551.1	530.8	509.4	488.0	459.5	430.2	420.9	406.4	391.9	384.2	377.6
22.5°	521.3	499.4	474.0	445.8	416.5	393.5	381.3	370.8	361.8	354.9	347.3
25°	493.0	470.3	434.2	405.4	379.8	362.8	356.8	343.0	333.5	328.5	321.9
27.5°	461.9	430.7	401.7	371.8	349.1	339.6	325.6	314.8	304.8	295.0	292.6
30°	432.3	397.7	368.9	344.6	328.0	314.8	300.5	287.8	281.2	277.6	271.5
32.5°	403.0	367.9	340.9	321.9	304.0	290.0	276.5	269.9	259.9	251.7	246.4
35°	371.6	340.9	319.5	297.4	280.2	266.5	259.6	244.5	239.0	236.6	231.1
37.5°	343.8	316.6	295.0	278.1	259.3	248.2	234.8	231.3	223.9	217.6	215.8
40°	320.9	295.2	274.9	253.0	241.4	226.8	220.2	211.0	208.4	206.0	201.8
42.5°	295.8	273.9	250.6	235.8	218.7	212.1	201.8	199.1	192.8	190.4	188.8
45°	274.4	254.0	231.9	213.9	204.1	194.4	190.4	183.8	180.9	178.0	175.1
47.5°	253.5	232.4	214.7	197.8	187.0	182.5	175.4	170.6	167.4	164.5	161.6
50°	234.2	212.9	193.0	180.9	173.2	166.9	162.4	158.4	154.0	147.6	141.0
52.5°	213.4	194.1	178.0	166.1	159.2	153.2	149.2	142.3	133.6	126.8	123.6
55°	192.5	174.3	160.3	150.8	146.0	140.2	131.2	121.2	115.7	114.6	113.8
57.5°	174.8	157.7	144.7	137.3	131.8	121.5	112.0	108.3	106.7	106.2	105.6
60°	155.0	139.7	130.5	122.5	113.3	103.5	100.6	100.1	98.5	97.7	97.2
62.5°	136.8	123.6	115.1	105.6	95.9	94.0	91.9	90.6	89.8	87.9	87.1
65°	119.1	108.5	99.3	89.3	85.8	84.5	82.7	80.8	78.7	77.4	76.3
67.5°	102.2	91.9	82.1	78.4	76.6	74.5	72.1	69.5	68.4	66.5	66.3
70°	85.6	76.1	70.8	68.4	65.0	63.1	60.5	59.4	57.6	56.8	56.0
72.5°	69.7	62.9	60.7	57.3	54.9	52.0	50.7	49.6	48.6	47.3	47.3
75°	54.4	52.6	48.6	46.0	43.6	42.0	41.5	39.6	39.3	38.6	38.0
77.5°	43.3	39.6	38.3	35.4	33.8	33.0	32.5	31.4	30.4	30.1	29.8
80°	30.6	28.8	27.2	25.9	24.6	24.0	23.5	23.2	22.7	22.2	21.9
82.5°	20.1	19.0	18.0	17.2	16.9	16.1	15.6	15.3	14.8	14.8	14.8
85°	10.8	10.6	10.0	9.5	9.0	9.0	8.7	8.5	8.5	7.7	7.7
87.5°	3.4	3.4	3.2	3.2	2.6	2.9	2.6	2.6	2.4	2.6	2.6
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):

	165°	170°	175°	180°
0°	700.3	700.3	700.3	700.3
2.5°	668.1	668.1	667.1	668.1
5°	639.1	636.7	635.9	635.4
7.5°	602.1	600.0	597.9	595.8
10°	564.3	561.2	559.3	557.7
12.5°	515.2	511.3	503.9	506.0
15°	454.7	455.0	437.8	456.9
17.5°	405.4	406.7	399.8	398.8
20°	373.9	373.4	370.8	367.6
22.5°	341.7	339.3	338.3	333.3
25°	311.6	307.4	308.7	301.6
27.5°	289.7	286.3	285.2	284.7
30°	267.8	260.6	258.3	259.9
32.5°	245.6	245.1	244.3	244.5
35°	226.8	225.8	223.4	223.4
37.5°	213.9	214.2	212.9	211.8
40°	198.1	196.7	196.5	194.9
42.5°	186.7	184.1	183.0	183.3
45°	173.5	171.9	170.6	171.1
47.5°	157.9	156.3	153.4	152.6
50°	136.8	134.7	133.4	132.0
52.5°	120.9	120.7	120.2	119.9
55°	113.3	112.5	112.5	112.5
57.5°	105.4	104.8	104.6	105.1
60°	96.7	96.1	95.1	95.1
62.5°	85.8	85.3	85.0	84.0
65°	75.0	74.7	74.2	74.5
67.5°	65.0	64.7	64.7	63.9
70°	55.2	55.2	54.4	54.9
72.5°	46.2	46.0	46.0	46.0
75°	37.5	37.2	37.0	37.0
77.5°	29.6	29.6	29.0	29.0
80°	21.4	21.4	21.1	21.7
82.5°	14.3	14.8	14.3	14.3
85°	7.7	7.9	7.9	7.9
87.5°	2.4	2.1	2.1	2.1
90°	0.0	0.0	0.0	0.0

(END OF REPORT)