

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: P243488

Luminaire Tested: **S124DR-H350D927-X4F0-XX-UDD-A-W**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-79-08  
Report Number: P243488  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1802-639-60)  
Test Lab: INNOVATION CENTER  
Issue Date: 3/3/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: NEO-RAY  
Catalog Number: S124DR-H350D927-X4F0-XX-UDD-A-W  
Description: DEFINE 4 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: 1164.9 lumens  
Efficiency: N/A  
Efficacy: 104.0 lumens/watt  
Spacing Criteria (0/90/45): 1.35 / 1.22 / 1.45  
Luminous Opening: Rectangular (W 3.88' x L: 0.31' x H: 0')  
CIE Type: Direct

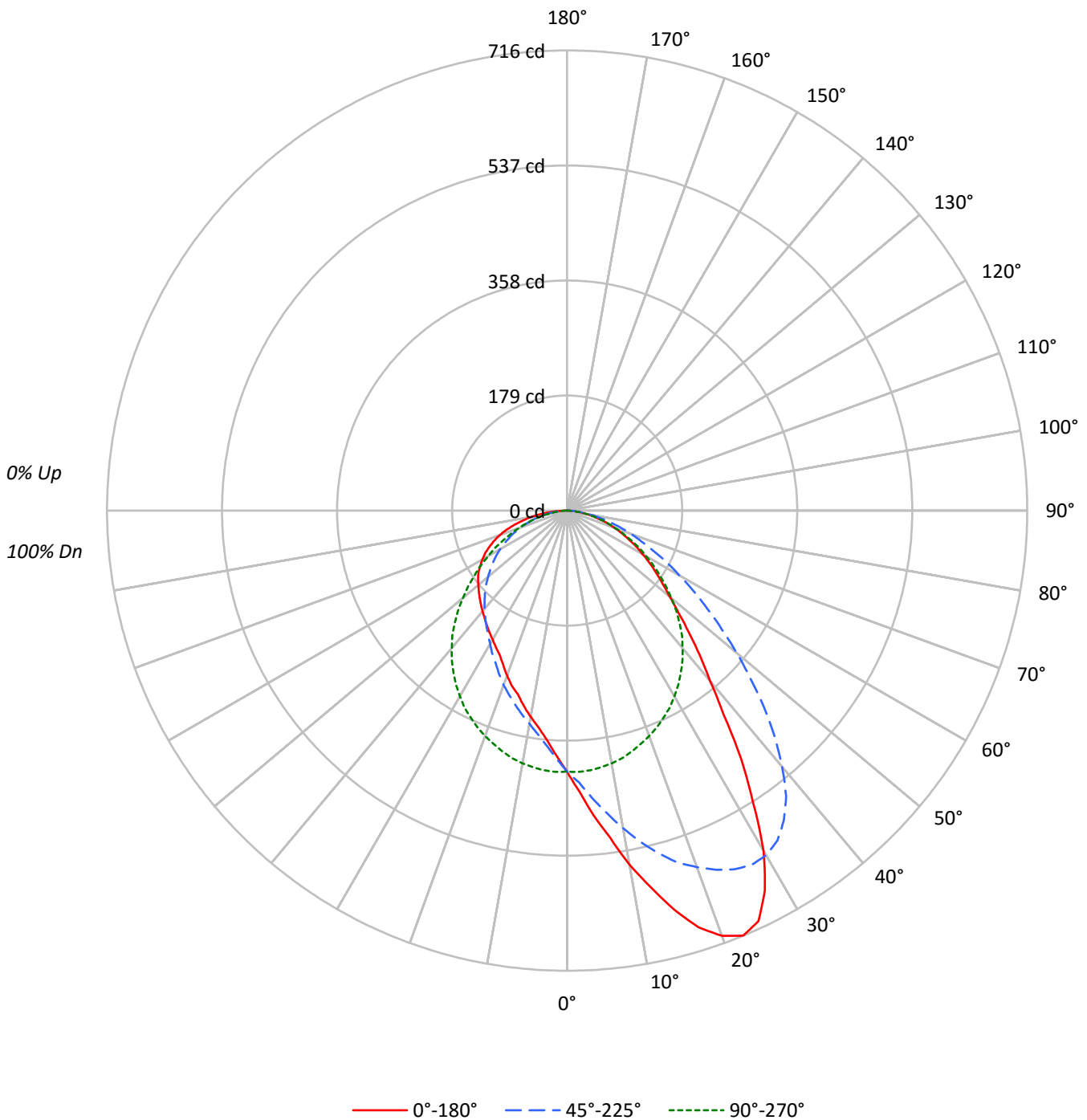
Input Watts (W): 11.2  
Input Voltage (V): 120  
Input Current (A<sub>in</sub>): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



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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	109	105	101	97	107	103	99	96	98	95	93	94	92	90	91	89	87	85
2	100	92	86	80	97	90	84	79	87	82	77	83	79	76	80	77	74	72
3	92	81	74	67	89	80	73	67	77	71	66	74	69	64	72	67	63	61
4	84	73	64	58	82	71	63	57	69	62	56	66	60	56	64	59	55	53
5	78	65	56	50	75	64	56	50	62	55	49	60	54	49	58	53	48	46
6	72	59	50	44	70	58	50	44	56	49	43	54	48	43	53	47	43	41
7	67	53	45	39	65	53	45	39	51	44	38	50	43	38	48	42	38	36
8	62	49	41	35	61	48	40	35	47	40	35	46	39	34	44	39	34	32
9	58	45	37	31	57	44	37	31	43	36	31	42	36	31	41	35	31	29
10	54	41	34	29	53	41	34	28	40	33	28	39	33	28	38	32	28	26

**AVERAGE LUMINANCE (cd/sqm):**

	0°	90°	180°
0°	3611	3611	3611
5°	4249	3621	3196
10°	5050	3604	2942
15°	5914	3572	2725
20°	6660	3531	2585
25°	6912	3484	2433
30°	6276	3424	2379
35°	5121	3343	2365
40°	4010	3239	2374
45°	3356	3108	2417
50°	2881	2926	2491
55°	2631	2729	2611
60°	2411	2526	2706
65°	2211	2312	2810
70°	2035	2087	2895
75°	1810	1834	2892
80°	1510	1500	2887
85°	1152	1132	2703



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	39.5	3.4
10°-20°	122.5	10.5
20°-30°	196.7	16.9
30°-40°	224.9	19.3
40°-50°	207.0	17.8
50°-60°	169.3	14.5
60°-70°	120.7	10.4
70°-80°	66.3	5.7
80°-90°	17.8	1.5
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°	358.8	30.8
0°-40°	583.7	50.1
0°-60°	960.1	82.4
0°-90°	1164.9	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1164.9	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	406	406	406	406	406	
5°	476	449	406	367	358	48
15°	643	552	388	312	296	183
25°	705	616	355	263	248	316
35°	472	588	308	219	218	293
45°	267	433	247	181	192	208
55°	170	266	176	141	168	152
65°	105	148	110	99	134	105
75°	53	68	53	55	84	56
85°	11	14	11	15	26	14
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°	406.2	406.2	406.2	406.2	406.2	406.2	406.2	406.2	406.2	406.2	406.2
2.5°	437.4	436.1	435.4	434.6	434.4	433.6	432.0	429.6	426.6	423.5	423.5
5°	476.2	475.9	473.4	473.6	470.4	466.9	464.3	461.0	454.5	449.0	445.2
7.5°	513.4	516.8	516.0	513.4	508.7	503.7	498.4	493.8	481.9	475.2	469.8
10°	559.5	560.8	558.5	554.7	550.5	540.9	533.9	526.1	513.2	501.9	492.0
12.5°	599.9	603.1	598.9	595.3	585.5	578.4	571.4	555.8	542.2	528.0	513.5
15°	642.7	639.4	641.5	632.6	625.6	618.8	601.1	585.2	569.7	552.2	537.1
17.5°	679.8	679.8	675.9	670.1	662.8	650.0	632.3	614.7	597.6	574.6	553.2
20°	704.1	705.9	701.2	695.1	686.3	673.0	659.0	639.9	617.2	590.3	566.1
22.5°	715.7	716.0	714.3	709.2	702.1	690.8	676.4	657.8	633.7	604.9	579.5
25°	704.7	706.5	706.0	705.7	702.1	695.6	684.0	666.7	644.9	616.0	588.6
27.5°	666.2	670.7	674.5	676.2	680.2	680.5	677.0	666.6	648.7	621.5	591.0
30°	611.5	609.2	619.5	624.6	638.2	646.4	652.2	651.5	641.2	619.2	590.1
32.5°	538.6	544.9	552.2	564.3	580.4	599.3	613.5	624.1	623.1	608.7	584.5
35°	471.9	471.9	481.2	496.1	513.2	535.9	559.8	579.5	591.6	588.0	570.9
37.5°	399.6	404.1	414.7	426.3	447.2	469.1	500.6	526.8	552.2	559.8	551.0
40°	345.6	347.6	358.8	368.6	390.0	412.7	439.1	472.6	501.8	520.5	521.7
42.5°	305.4	305.3	309.9	318.7	335.9	356.2	384.7	417.5	451.7	478.2	490.7
45°	267.0	266.6	271.4	280.4	292.7	310.6	335.3	368.1	403.1	433.3	452.8
47.5°	234.5	237.4	239.6	246.6	256.7	271.9	293.2	319.4	353.0	386.8	413.2
50°	208.3	209.6	214.2	217.6	228.8	239.4	256.5	280.1	308.9	344.4	372.9
52.5°	187.4	188.2	191.0	195.3	201.8	211.1	224.7	246.4	272.4	303.3	332.8
55°	169.8	169.3	171.1	173.9	179.6	187.4	197.3	213.9	236.6	266.3	293.5
57.5°	152.6	152.6	154.2	156.2	159.3	165.8	175.6	188.7	206.9	233.3	257.3
60°	135.6	136.8	137.5	139.5	142.1	146.9	154.2	164.5	179.9	201.5	225.3
62.5°	120.7	120.7	121.9	122.5	126.0	129.5	134.8	143.6	155.7	174.9	193.5
65°	105.1	106.1	106.1	107.4	110.4	113.1	117.2	123.9	133.8	147.6	165.0
67.5°	91.9	91.9	92.7	93.4	95.0	96.8	100.5	105.6	114.1	125.0	140.8
70°	78.3	78.8	78.4	79.3	80.3	82.1	84.7	89.0	95.2	104.6	116.2
72.5°	66.0	65.3	65.7	66.5	67.0	68.2	69.8	73.1	78.1	85.7	94.2
75°	52.7	52.4	53.6	53.2	54.1	55.1	56.5	59.0	62.8	68.2	74.6
77.5°	41.1	40.6	41.1	41.5	41.8	42.6	43.8	45.3	47.9	51.4	57.2
80°	29.5	29.3	29.7	30.0	30.2	31.5	31.8	33.3	34.5	37.1	40.0
82.5°	19.6	19.9	20.1	20.4	20.2	20.9	21.2	22.2	23.2	24.5	26.7
85°	11.3	10.8	11.3	11.3	11.3	12.1	11.9	12.6	13.3	13.9	15.4
87.5°	4.0	4.0	4.1	4.3	4.3	4.8	4.6	5.0	5.6	5.6	6.1
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°	406.2	406.2	406.2	406.2	406.2	406.2	406.2	406.2	406.2	406.2	406.2
2.5°	422.5	420.7	419.3	415.5	413.2	411.1	409.1	406.9	404.6	401.6	399.8
5°	441.2	437.3	431.5	426.1	420.2	414.9	410.6	405.8	400.4	395.0	390.2
7.5°	462.0	454.5	445.5	435.8	426.5	418.7	410.6	402.9	395.5	388.2	381.4
10°	482.7	469.8	458.0	444.6	432.3	420.5	409.9	399.3	390.0	380.4	371.8
12.5°	501.9	486.3	469.1	452.3	435.9	420.7	407.6	394.6	382.7	371.3	361.1
15°	516.7	497.1	476.7	456.8	437.9	422.0	404.9	388.2	375.7	361.8	350.7
17.5°	533.6	510.4	490.2	466.3	442.7	417.0	399.0	380.7	365.8	352.4	341.2
20°	544.9	519.3	490.2	463.1	438.9	415.9	394.1	373.3	357.5	341.9	328.5
22.5°	553.8	527.5	495.3	467.1	436.8	408.9	385.4	364.8	346.2	331.5	318.7
25°	558.5	526.3	495.6	461.5	431.1	404.4	377.9	355.2	336.4	320.0	309.1
27.5°	558.6	525.6	489.3	455.5	423.0	394.1	367.9	345.6	324.5	308.7	295.7
30°	557.8	521.3	483.0	446.0	413.7	384.2	356.8	333.6	314.4	297.6	285.2
32.5°	552.5	515.4	473.6	434.8	399.6	369.9	344.7	321.7	301.1	285.9	272.8
35°	540.6	502.3	460.3	420.3	387.0	356.2	331.3	308.1	289.7	273.1	259.7
37.5°	525.3	489.5	446.9	405.1	369.1	339.9	316.5	294.7	275.4	260.2	246.7
40°	506.1	472.4	430.5	387.0	351.0	321.5	299.5	279.1	262.7	247.1	234.0
42.5°	479.7	453.8	410.7	368.4	330.8	302.9	281.6	264.6	247.7	233.6	220.5
45°	451.5	428.0	389.7	347.7	311.6	282.9	262.8	247.2	232.8	218.5	207.9
47.5°	420.3	401.1	365.6	324.7	289.0	263.6	243.9	230.0	216.7	205.8	195.2
50°	383.2	373.1	339.9	302.8	268.1	242.1	225.8	211.6	201.8	191.2	181.2
52.5°	348.7	340.6	313.6	277.1	245.6	222.7	205.3	194.0	184.4	176.6	168.6
55°	311.2	307.1	284.2	252.7	224.2	201.3	186.4	176.1	168.5	161.2	155.4
57.5°	276.7	276.4	256.2	229.2	201.3	181.9	167.6	159.2	152.6	147.4	142.4
60°	241.4	244.2	227.7	203.0	180.9	162.7	149.7	142.1	137.6	132.8	128.7
62.5°	209.4	213.7	198.6	179.2	157.5	142.6	132.7	126.8	121.9	118.4	115.2
65°	178.7	184.2	172.0	154.5	138.0	123.9	115.4	109.9	106.1	104.1	102.0
67.5°	151.7	154.7	146.4	132.8	119.1	106.8	99.8	95.0	91.7	90.9	88.4
70°	124.7	128.2	122.4	109.9	99.3	90.4	84.1	80.3	78.3	77.1	75.4
72.5°	103.0	104.5	98.7	90.0	81.6	74.1	69.5	66.7	64.3	63.8	63.0
75°	80.6	82.7	78.1	71.5	64.5	59.2	55.7	53.4	52.2	51.4	51.4
77.5°	60.9	62.7	60.0	54.2	50.1	45.4	43.1	41.0	40.5	39.6	40.0
80°	43.3	44.1	42.6	38.6	35.0	32.5	30.5	29.3	29.2	28.5	29.2
82.5°	28.7	28.9	27.2	25.4	22.6	21.2	19.9	19.4	19.2	19.2	18.9
85°	15.9	16.2	15.1	13.9	12.9	11.8	11.4	11.1	10.8	11.3	11.6
87.5°	6.1	6.3	6.1	5.6	5.3	5.0	4.8	5.1	4.6	5.0	5.1
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°	406.2	406.2	406.2	406.2	406.2	406.2	406.2	406.2	406.2	406.2	406.2
2.5°	397.0	395.6	393.6	390.3	388.0	385.5	384.5	384.9	383.9	382.5	382.9
5°	386.5	382.7	379.4	374.7	370.4	366.8	365.6	364.1	362.8	362.0	361.1
7.5°	375.4	370.1	365.1	360.5	355.5	350.9	349.0	347.7	347.1	344.7	343.7
10°	364.8	358.7	352.7	347.2	342.1	336.9	335.1	333.5	331.1	330.1	329.0
12.5°	353.5	347.4	340.9	334.3	329.1	325.0	321.8	320.7	318.4	317.4	316.7
15°	342.6	335.1	330.0	324.8	317.0	312.4	311.1	306.9	305.6	303.6	302.3
17.5°	331.6	324.7	317.0	311.1	306.3	300.5	297.3	295.5	293.0	291.2	288.7
20°	320.9	312.7	306.8	299.3	294.0	288.7	284.7	283.0	280.9	278.4	274.9
22.5°	310.4	301.5	295.7	288.7	282.1	275.9	272.6	270.3	266.0	265.5	262.3
25°	298.1	290.2	282.6	275.3	268.8	262.7	260.5	256.8	255.4	252.4	251.9
27.5°	286.5	278.1	269.8	261.8	256.2	251.9	248.1	245.7	244.2	241.9	242.1
30°	274.4	265.1	257.3	250.1	243.9	239.8	237.3	236.1	234.0	233.6	232.5
32.5°	261.5	253.0	244.9	238.4	232.1	228.5	227.3	226.2	224.8	225.0	224.7
35°	248.6	241.1	232.5	226.5	221.4	219.2	217.4	217.1	216.6	216.9	216.9
37.5°	236.0	227.8	220.7	215.2	212.2	209.3	208.4	208.3	208.4	208.8	209.6
40°	223.7	216.2	209.3	204.8	201.5	200.1	199.0	199.5	200.1	201.3	202.3
42.5°	211.4	204.3	198.5	194.0	190.9	190.2	190.4	191.4	191.5	193.2	195.0
45°	198.5	192.3	186.9	183.4	181.4	180.6	180.9	181.9	183.1	185.4	187.7
47.5°	186.5	181.1	176.3	172.8	171.3	171.0	171.6	172.9	175.6	177.9	180.6
50°	174.4	169.5	165.0	161.8	161.7	160.5	162.0	163.7	166.8	170.0	173.9
52.5°	162.5	157.7	153.9	151.4	150.7	150.7	152.6	155.5	158.4	162.5	166.1
55°	150.1	145.8	142.1	141.3	140.3	140.8	142.8	145.8	149.7	154.4	158.4
57.5°	137.3	133.6	131.0	129.8	129.3	131.0	133.3	136.5	141.6	146.2	150.6
60°	125.2	122.0	119.2	118.9	118.6	120.7	123.5	126.8	132.0	136.6	141.9
62.5°	112.3	109.8	107.9	107.4	107.4	109.6	112.8	117.1	121.9	126.8	132.5
65°	99.2	97.0	96.5	95.8	97.3	98.7	101.8	106.0	111.1	116.6	122.5
67.5°	87.1	85.7	84.7	84.7	85.9	88.4	91.2	95.3	100.7	106.5	111.8
70°	74.9	73.6	72.8	73.6	74.3	77.3	80.3	84.2	89.2	94.8	100.5
72.5°	62.3	62.5	62.7	62.5	63.2	66.0	69.0	72.8	77.6	83.1	88.2
75°	51.2	50.4	50.6	50.9	53.1	54.6	57.5	61.2	66.3	71.3	75.6
77.5°	39.8	39.5	40.3	40.3	42.3	44.1	46.6	50.2	54.7	59.2	62.7
80°	29.2	29.3	30.0	30.2	31.8	33.8	36.5	39.0	42.9	46.1	49.4
82.5°	19.7	20.1	20.9	22.1	22.7	23.9	26.2	28.9	31.7	35.0	37.0
85°	11.4	11.9	12.6	13.4	14.1	15.3	16.9	19.1	21.1	22.9	24.5
87.5°	5.6	5.6	6.1	6.5	7.0	7.6	8.8	9.6	10.9	12.3	12.9
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°	406.2	406.2	406.2	406.2
2.5°	382.2	382.0	381.4	381.7
5°	360.7	359.0	358.8	358.2
7.5°	342.1	341.6	341.6	340.3
10°	327.8	326.3	326.7	326.0
12.5°	314.2	313.4	312.4	311.4
15°	299.0	299.0	299.0	296.1
17.5°	287.0	286.9	286.0	285.9
20°	274.6	273.9	271.8	273.3
22.5°	262.0	261.5	259.7	260.0
25°	250.2	249.7	249.4	248.1
27.5°	240.1	240.3	240.6	239.8
30°	232.5	232.0	232.6	231.8
32.5°	225.3	225.3	224.7	224.8
35°	217.2	217.9	218.0	217.9
37.5°	210.1	210.9	211.6	210.9
40°	203.5	204.1	204.8	204.6
42.5°	196.5	197.7	198.2	198.6
45°	189.9	191.4	192.2	192.3
47.5°	183.1	184.9	186.5	186.4
50°	176.4	178.7	180.2	180.1
52.5°	169.8	172.1	173.9	174.8
55°	162.3	165.3	167.0	168.5
57.5°	154.9	158.2	159.8	160.5
60°	146.6	149.6	151.7	152.2
62.5°	137.3	140.4	143.3	143.9
65°	127.7	131.2	133.3	133.6
67.5°	116.6	119.9	122.0	123.0
70°	105.1	107.6	109.9	111.4
72.5°	92.4	95.3	97.5	98.5
75°	79.1	82.4	83.6	84.2
77.5°	65.3	67.3	69.1	69.3
80°	51.6	54.1	54.7	56.4
82.5°	38.0	40.3	39.8	40.5
85°	25.0	25.9	26.4	26.5
87.5°	13.3	13.8	14.1	14.3
90°	0.0	0.0	0.0	0.0

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