

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: P242982

Luminaire Tested: **S121DR-H305D835-X4F0-XX-UDD-A-W**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P242982
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1802-639-57)
Test Lab: INNOVATION CENTER
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: NEO-RAY
Catalog Number: S121DR-H305D835-X4F0-XX-UDD-A-W
Description: DEFINE 1 DIRECT RECESSED WITH ASYMMETRIC FLUSH DIFFUSER.
HIGH PERFORMANCE LIGHT ENGINE
Light Source: (184) 3500K CCT, 80 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 1205.2 lumens
Efficiency: N/A
Efficacy: 107.6 lumens/watt
Spacing Criteria (0/90/45): 1.13 / 1.2 / 1.28
Luminous Opening: Rectangular (W 3.88' x L: 0.09' x H: 0')
CIE Type: Direct

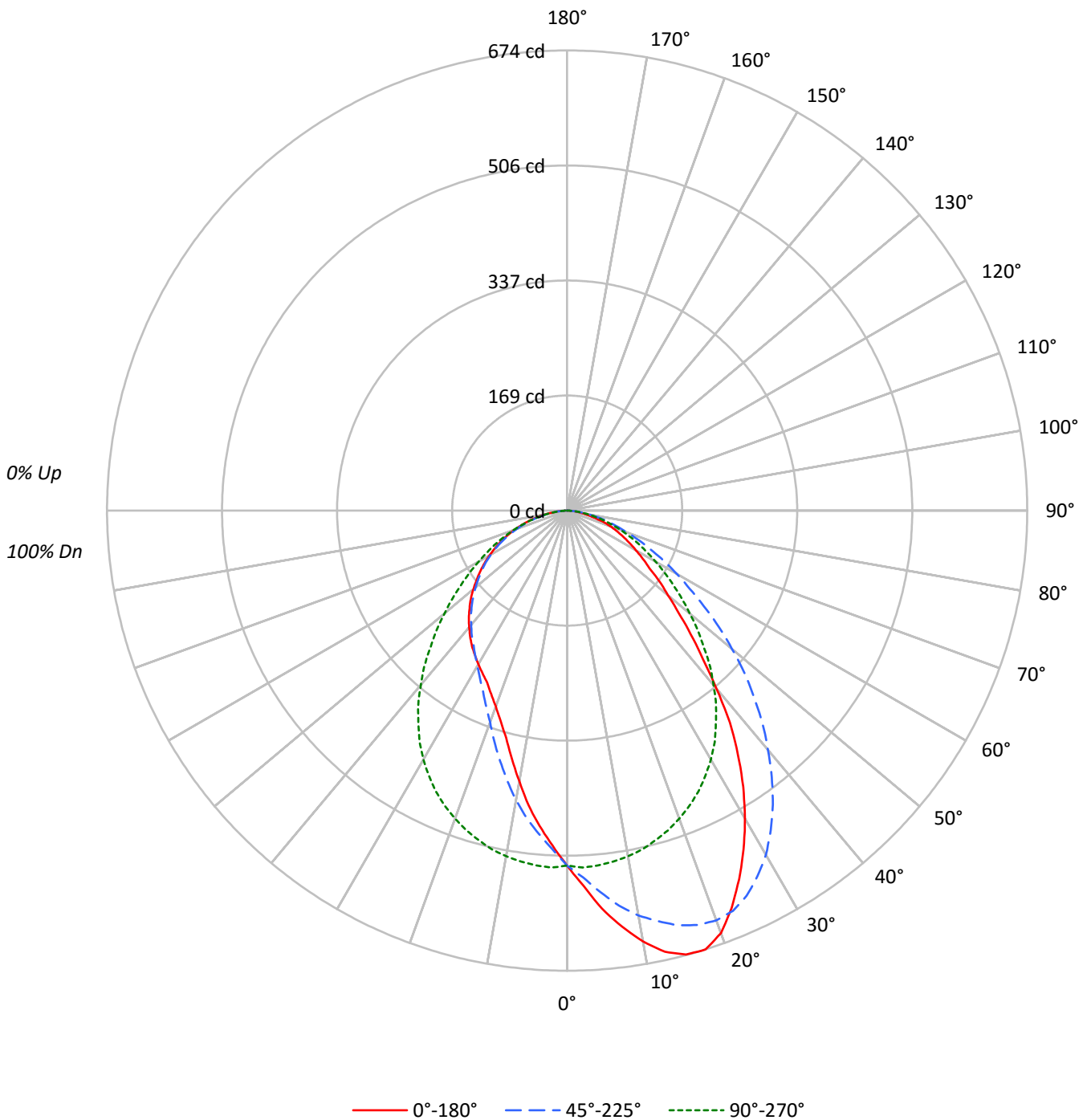
Input Watts (W): 11.2
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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	0
RW	70	50	30	10	70	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	110	105	102	98	107	103	100	96	99	96	93	95	93	91	92	90	88				86	
2	101	93	87	81	98	91	85	80	88	83	79	84	80	77	81	78	75				73	
3	92	83	75	69	90	81	74	68	78	72	67	75	70	66	73	69	65				63	
4	85	74	66	59	83	72	65	59	70	63	58	68	62	57	66	61	57				54	
5	79	66	58	52	77	65	57	51	63	56	51	61	55	50	60	54	50				48	
6	73	60	52	46	71	59	51	45	57	50	45	56	49	45	54	49	44				42	
7	68	55	46	41	66	54	46	40	53	45	40	51	45	40	50	44	40				38	
8	63	50	42	37	62	50	42	36	48	41	36	47	41	36	46	40	36				34	
9	59	46	38	33	58	46	38	33	45	38	33	44	37	33	43	37	33				31	
10	56	43	35	30	54	42	35	30	41	35	30	41	34	30	40	34	30				28	

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	15407	15407	15407
5°	17409	15517	13786
10°	19286	15468	12119
15°	20650	15334	10571
20°	20766	15135	9623
25°	19478	14852	9076
30°	17818	14404	8895
35°	15781	13741	8782
40°	13151	12892	8629
45°	10719	11858	8473
50°	8896	10809	8260
55°	7614	9799	8043
60°	6898	8871	7793
65°	6373	8070	7516
70°	5874	7268	7069
75°	4739	6445	6514
80°	3788	5221	5580
85°	2856	3842	4556



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	49.7	4.1
10°-20°	142.3	11.8
20°-30°	207.2	17.2
30°-40°	231.0	19.2
40°-50°	213.6	17.7
50°-60°	170.2	14.1
60°-70°	116.5	9.7
70°-80°	60.5	5.0
80°-90°	14.3	1.2
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°	399.2	33.1
0°-40°	630.2	52.3
0°-60°	1013.9	84.1
0°-90°	1205.2	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1205.2	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	520	520	520	520	520	
5°	585	561	522	475	464	57
15°	673	629	500	380	345	189
25°	596	622	454	292	278	273
35°	436	525	380	239	243	271
45°	256	387	283	198	202	199
55°	147	244	190	152	156	135
65°	91	135	115	104	107	90
75°	41	61	56	53	57	45
85°	8	12	11	12	13	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°	520.0	520.0	520.0	520.0	520.0	520.0	520.0	520.0	520.0	520.0	520.0
2.5°	550.1	550.1	548.7	549.3	548.5	547.0	544.7	542.2	539.0	537.8	537.1
5°	585.3	586.1	585.1	583.0	582.6	580.9	575.9	572.9	566.2	561.0	559.3
7.5°	614.6	616.1	616.1	612.3	610.6	606.4	602.9	598.1	589.7	583.8	579.0
10°	641.0	641.6	639.3	637.2	633.9	630.5	624.4	618.4	609.4	602.3	594.3
12.5°	661.9	663.2	661.5	658.1	654.2	649.8	642.2	634.5	625.7	616.1	607.5
15°	673.2	675.1	675.3	672.6	669.7	664.4	659.0	650.6	641.0	629.0	615.0
17.5°	674.1	674.9	675.5	673.4	671.5	669.7	664.2	657.3	648.1	636.4	623.4
20°	658.6	660.4	662.5	660.7	661.5	661.5	659.2	655.6	648.1	638.7	626.1
22.5°	629.7	634.1	636.8	638.7	640.6	643.3	646.0	644.3	641.4	634.5	623.2
25°	595.8	599.3	604.6	606.2	607.7	615.6	620.5	623.8	623.8	622.3	614.8
27.5°	559.8	562.1	566.5	572.3	577.8	582.6	592.6	598.9	603.9	603.9	599.9
30°	520.8	524.2	529.4	533.4	540.1	549.9	558.3	565.8	577.3	582.4	581.5
32.5°	479.8	483.1	488.6	491.9	501.6	509.5	522.5	534.2	547.4	554.9	559.5
35°	436.3	436.5	445.7	451.1	459.5	469.3	485.2	498.4	512.9	525.4	535.3
37.5°	391.5	391.2	397.7	407.4	414.1	427.9	444.2	458.9	479.0	492.4	507.8
40°	340.0	344.4	349.8	358.6	370.1	386.4	401.9	421.0	441.1	457.8	474.3
42.5°	293.9	297.5	306.3	316.1	328.4	342.3	361.1	382.2	401.9	423.7	442.1
45°	255.8	257.7	262.9	270.9	283.9	299.6	319.2	341.6	364.9	387.1	407.6
47.5°	220.6	226.3	229.0	236.3	245.8	260.4	280.9	301.0	327.8	352.5	374.9
50°	193.0	194.1	198.9	204.3	215.4	226.3	241.8	262.5	287.4	315.3	338.1
52.5°	170.4	170.0	174.0	178.8	186.5	198.0	211.4	231.5	252.7	280.3	305.2
55°	147.4	149.5	151.3	156.2	163.1	171.9	183.2	200.1	220.0	244.5	270.7
57.5°	131.5	131.7	132.7	136.7	141.3	148.2	159.1	173.5	191.3	212.7	238.0
60°	116.4	116.6	118.5	119.7	122.9	128.7	137.1	149.0	164.7	185.3	207.4
62.5°	103.4	103.6	104.7	105.9	108.9	111.2	118.3	128.5	141.3	159.5	178.6
65°	90.9	91.1	91.1	92.7	94.6	96.7	101.7	108.2	120.6	135.0	152.0
67.5°	78.7	80.0	79.5	80.8	82.5	83.5	87.1	92.9	101.3	113.5	128.1
70°	67.8	67.6	68.2	68.9	69.5	71.2	73.5	77.5	84.6	93.2	106.1
72.5°	56.1	54.8	55.7	56.5	57.6	58.8	60.7	63.6	69.1	76.0	85.6
75°	41.4	40.8	42.1	42.3	44.2	45.8	47.9	50.9	54.8	60.7	67.0
77.5°	30.1	31.0	31.4	31.8	32.0	33.9	36.2	38.7	41.0	46.5	51.3
80°	22.2	22.2	22.4	22.8	23.2	23.7	25.1	26.8	28.7	32.0	36.8
82.5°	15.5	15.3	15.3	15.5	15.7	16.1	16.7	17.4	19.0	20.7	23.2
85°	8.4	8.6	8.8	8.4	8.6	8.8	9.2	9.8	10.3	11.5	12.6
87.5°	2.9	3.6	3.3	3.3	3.6	3.6	3.6	4.0	4.0	4.0	4.6
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):

	55°	60°	65°	70°	75°	80°	85°	90°	95°	100°	105°
0°	520.0	520.0	520.0	520.0	520.0	520.0	520.0	520.0	520.0	520.0	520.0
2.5°	536.5	535.9	534.2	530.9	528.6	524.4	523.5	523.3	519.6	513.9	513.5
5°	556.4	551.6	547.6	541.8	535.9	528.8	524.6	521.7	515.0	506.6	502.8
7.5°	574.6	567.7	559.5	550.3	541.8	531.7	524.4	518.5	508.7	498.0	491.5
10°	589.3	580.7	570.4	558.1	546.4	533.2	522.9	514.1	501.1	488.0	479.2
12.5°	599.3	589.7	578.0	563.5	549.3	534.2	519.4	508.3	491.9	476.7	465.3
15°	610.6	594.7	582.6	566.2	549.5	531.5	515.8	499.9	481.0	463.9	449.2
17.5°	613.3	598.7	584.2	566.2	548.9	526.9	508.7	491.1	470.2	449.0	434.8
20°	615.9	599.1	581.3	561.8	543.6	521.0	500.5	480.0	455.7	432.9	415.1
22.5°	614.0	597.6	577.8	555.8	536.1	512.9	490.7	468.1	440.9	417.0	396.9
25°	608.5	593.5	572.9	548.9	525.2	501.6	478.3	454.3	424.7	397.1	374.9
27.5°	597.4	584.0	564.4	538.8	513.9	487.7	463.5	438.3	406.7	378.5	354.8
30°	582.6	571.9	552.0	526.5	499.5	471.4	446.5	421.0	388.1	357.3	332.2
32.5°	562.1	554.5	537.4	512.4	483.3	453.6	428.1	402.1	367.0	337.7	312.1
35°	539.0	535.5	520.2	495.3	465.1	433.9	406.5	379.9	347.5	316.5	292.0
37.5°	512.0	514.5	500.7	476.0	444.8	413.0	384.1	358.4	325.5	295.8	271.7
40°	485.2	489.0	478.5	455.5	423.1	390.2	360.9	333.3	302.7	276.5	252.7
42.5°	455.5	463.0	454.9	432.5	400.9	366.1	335.6	309.8	280.7	256.6	235.7
45°	423.9	433.5	430.2	407.4	376.2	342.1	309.8	283.0	259.6	238.2	219.2
47.5°	391.9	403.0	401.5	382.5	352.5	317.6	285.7	259.4	237.8	220.6	204.7
50°	359.0	370.3	370.5	353.6	325.7	292.4	258.3	234.5	217.3	202.2	189.2
52.5°	327.0	338.3	338.5	325.3	297.5	265.0	233.6	211.8	197.2	185.5	174.6
55°	293.5	306.7	307.9	295.2	270.5	239.3	210.4	189.7	176.7	169.1	159.7
57.5°	259.6	273.8	276.3	266.1	242.2	213.1	188.8	168.9	158.5	153.2	146.1
60°	228.0	242.0	246.0	234.2	214.6	189.7	166.4	149.7	141.3	137.1	132.1
62.5°	198.9	212.9	215.0	204.9	185.5	164.5	147.0	131.7	124.8	121.6	117.6
65°	170.4	183.0	185.7	176.7	159.1	141.7	126.2	115.1	109.1	106.3	103.8
67.5°	144.2	156.0	157.8	149.7	135.0	120.2	108.9	99.2	95.0	91.5	90.4
70°	119.5	130.2	131.9	123.7	112.2	100.1	90.6	83.9	80.0	77.9	76.4
72.5°	96.7	105.1	106.6	101.5	92.5	81.8	74.5	68.9	66.4	64.5	63.8
75°	75.6	83.7	83.9	79.5	72.2	64.9	59.2	56.3	53.4	51.5	51.1
77.5°	58.0	62.6	63.2	60.9	53.8	49.2	44.8	42.7	41.7	39.8	39.8
80°	41.4	44.2	45.2	41.9	38.5	34.5	32.2	30.6	29.7	28.5	28.5
82.5°	25.7	28.1	29.3	26.8	25.1	23.0	21.4	20.3	19.7	19.0	18.8
85°	14.0	15.7	15.7	14.9	13.4	12.4	11.7	11.3	11.1	10.9	10.7
87.5°	5.0	6.3	5.7	5.9	5.2	5.0	4.8	4.8	5.0	4.6	4.6
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):

	110°	115°	120°	125°	130°	135°	140°	145°	150°	155°	160°
0°	520.0	520.0	520.0	520.0	520.0	520.0	520.0	520.0	520.0	520.0	520.0
2.5°	510.8	509.7	506.6	503.7	501.4	496.3	495.3	495.7	495.7	495.9	493.6
5°	498.4	494.0	489.0	484.4	480.8	475.2	472.0	471.2	470.6	469.3	467.0
7.5°	484.4	479.4	472.3	468.1	460.5	454.3	449.9	446.9	445.0	442.3	438.6
10°	470.2	462.8	454.9	446.5	439.0	430.6	423.7	420.3	416.4	413.6	409.5
12.5°	455.9	445.7	434.8	425.2	414.9	405.1	397.9	393.3	386.2	382.2	377.8
15°	437.3	424.7	415.5	398.8	393.8	379.5	370.9	367.4	360.5	359.2	352.3
17.5°	419.7	405.3	391.7	377.6	364.2	354.4	347.1	342.5	337.0	333.7	329.1
20°	397.7	382.7	366.3	351.7	340.4	329.9	325.3	319.4	316.3	313.0	309.6
22.5°	376.8	358.4	342.1	330.1	318.6	310.0	305.0	301.0	298.3	295.0	292.6
25°	354.4	337.2	322.2	309.8	298.7	292.0	287.8	285.5	283.9	281.3	279.9
27.5°	333.0	315.7	300.8	291.4	282.4	276.5	274.4	272.3	270.2	269.4	269.2
30°	310.2	294.3	282.2	274.0	265.9	262.7	261.7	259.6	260.0	260.2	259.6
32.5°	291.0	275.5	266.3	259.4	253.1	250.8	250.6	249.7	249.9	251.0	250.6
35°	271.1	259.6	250.4	244.7	240.7	239.1	239.3	239.5	240.7	240.9	241.8
37.5°	254.1	243.0	237.0	231.5	229.6	229.6	229.8	230.1	231.1	232.4	232.8
40°	237.4	228.4	223.1	219.6	218.5	218.5	219.4	220.4	221.1	222.3	222.5
42.5°	222.3	214.8	210.8	207.2	207.7	208.7	208.9	209.5	211.2	211.4	211.8
45°	207.4	201.8	197.8	196.8	196.8	197.6	198.7	199.1	200.3	200.5	201.0
47.5°	194.7	188.8	185.9	184.8	185.5	186.5	188.0	188.6	189.7	189.4	190.5
50°	180.4	175.6	173.3	172.9	173.3	175.2	175.8	177.3	178.4	179.0	179.4
52.5°	166.8	163.1	162.0	161.8	162.7	163.9	164.7	166.2	167.5	167.5	167.3
55°	153.9	150.5	149.3	150.3	151.3	152.0	153.7	154.5	155.7	156.0	155.7
57.5°	140.7	137.7	137.3	137.7	139.8	141.1	142.1	142.1	142.8	143.0	143.6
60°	127.1	125.2	124.8	125.8	128.1	128.9	129.6	129.8	130.6	130.2	131.5
62.5°	114.3	112.4	113.2	114.3	115.1	116.4	116.8	117.9	117.6	118.1	118.7
65°	101.1	100.1	100.3	101.5	102.6	104.2	104.2	104.2	105.3	105.3	105.7
67.5°	88.3	87.7	88.5	89.6	89.8	90.9	90.6	91.9	92.7	93.2	93.6
70°	76.0	75.6	75.6	76.6	77.7	78.1	78.5	79.3	79.5	80.2	81.2
72.5°	64.3	63.0	63.2	64.7	64.7	65.5	66.6	66.6	67.8	68.0	69.1
75°	51.5	51.1	51.5	52.3	53.4	53.2	54.4	54.2	54.6	56.1	56.3
77.5°	40.2	39.6	40.6	41.0	41.2	41.4	41.9	42.9	43.8	44.4	44.6
80°	28.9	28.7	29.7	30.1	29.9	30.4	31.0	32.0	32.0	32.4	33.1
82.5°	19.5	19.0	19.7	20.3	20.7	20.9	20.9	21.4	21.6	22.0	22.0
85°	11.1	11.1	11.5	11.7	12.1	11.9	12.4	12.1	12.6	13.0	12.8
87.5°	4.8	4.8	4.8	4.8	5.0	5.0	5.2	5.2	5.0	5.2	4.8
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°	520.0	520.0	520.0	520.0
2.5°	492.8	493.2	492.1	491.1
5°	466.8	465.3	463.9	463.5
7.5°	437.7	437.7	434.2	435.0
10°	406.5	405.3	402.5	402.8
12.5°	376.2	375.1	373.7	373.0
15°	348.7	349.4	350.4	344.6
17.5°	327.2	325.5	324.7	323.6
20°	307.9	307.1	305.4	305.2
22.5°	293.1	291.2	290.8	291.0
25°	278.8	278.8	278.8	277.6
27.5°	268.8	268.8	268.2	268.4
30°	260.0	260.4	259.8	260.0
32.5°	251.6	251.8	251.4	251.2
35°	242.2	242.8	242.6	242.8
37.5°	233.2	233.6	233.2	233.2
40°	222.9	224.0	223.8	223.1
42.5°	212.7	212.7	213.3	213.1
45°	202.0	201.6	201.6	202.2
47.5°	190.7	191.5	191.1	191.3
50°	180.2	180.0	179.4	179.2
52.5°	167.9	168.3	168.1	167.0
55°	156.0	156.0	155.7	155.7
57.5°	143.2	143.8	143.6	143.6
60°	131.0	131.5	131.7	131.5
62.5°	118.7	118.9	118.7	118.9
65°	106.8	106.8	106.6	107.2
67.5°	93.8	94.0	93.8	94.2
70°	81.4	81.8	82.1	81.6
72.5°	69.7	69.3	69.5	69.1
75°	56.7	56.9	56.7	56.9
77.5°	44.6	44.8	44.6	44.8
80°	32.9	32.9	33.1	32.7
82.5°	22.2	22.2	22.8	22.2
85°	13.0	13.0	12.6	13.4
87.5°	5.0	5.0	5.0	5.0
90°	0.0	0.0	0.0	0.0

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