

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: P242992

Luminaire Tested: **S121DR-H305D930-X4F0-XX-UDD-A-W**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P242992
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-H305D930-X4F0-XX-UDD-A-W
Description: DEFINE 1 DIRECT RECESSED WITH ASYMMETRIC FLUSH DIFFUSER.
HIGH PERFORMANCE LIGHT ENGINE
Light Source: (184) 3000K CCT, 90 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 982.6 lumens
Efficiency: N/A
Efficacy: 87.7 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

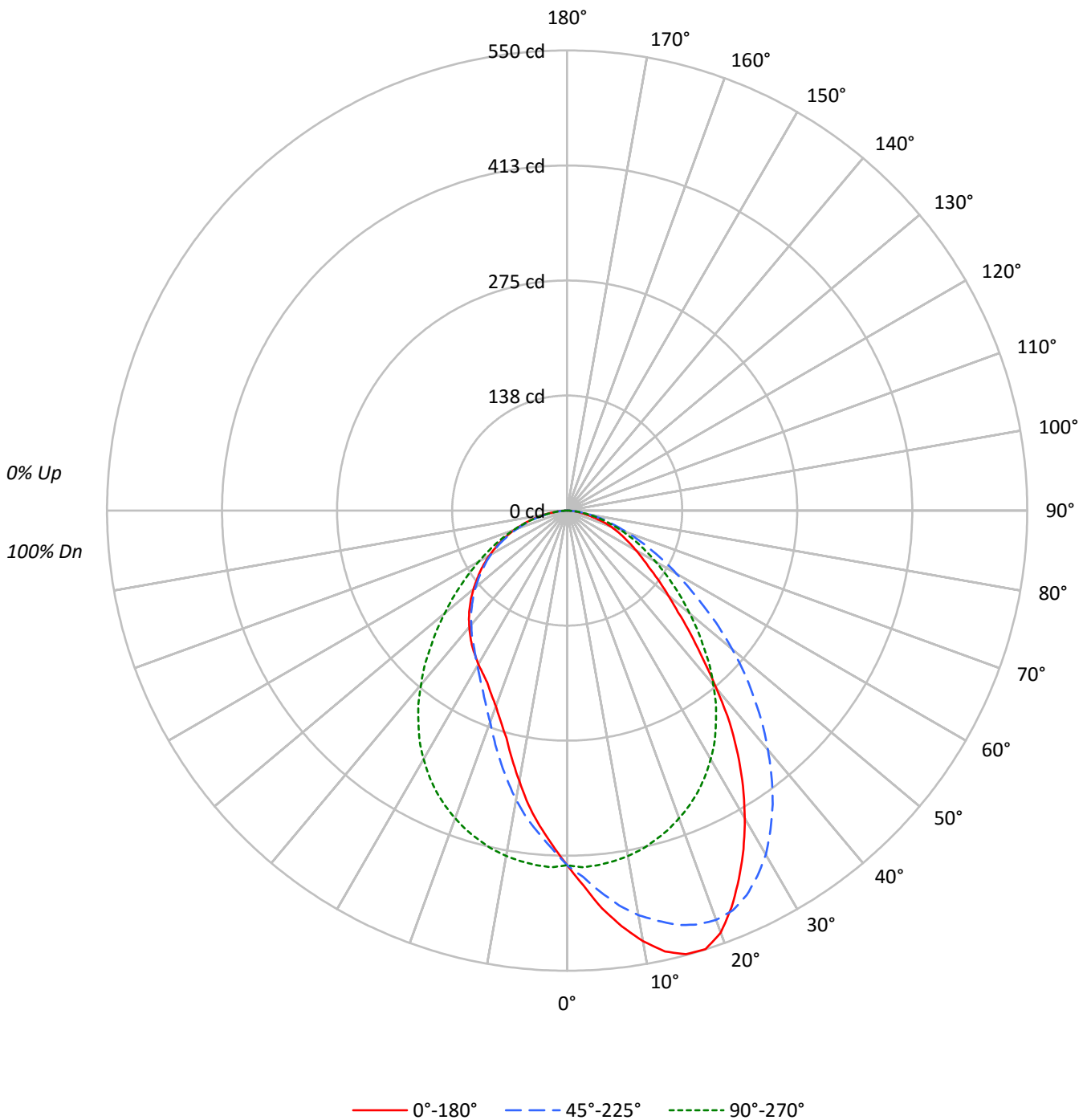
Input Watts (W): 11.2
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	12560	12560	12560
5°	14193	12650	11240
10°	15723	12612	9881
15°	16837	12503	8617
20°	16929	12338	7845
25°	15879	12109	7398
30°	14527	11742	7253
35°	12866	11206	7162
40°	10722	10509	7036
45°	8741	9667	6910
50°	7255	8809	6735
55°	6209	7986	6561
60°	5624	7230	6353
65°	5195	6583	6128
70°	4791	5926	5770
75°	3869	5255	5312
80°	3088	4249	4539
85°	2312	3128	3706



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	40.5	4.1
10°-20°	116.0	11.8
20°-30°	168.9	17.2
30°-40°	188.3	19.2
40°-50°	174.1	17.7
50°-60°	138.7	14.1
60°-70°	95.0	9.7
70°-80°	49.3	5.0
80°-90°	11.7	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°	325.5	33.1
0°-40°	513.8	52.3
0°-60°	826.7	84.1
0°-90°	982.6	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	982.6	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	424	424	424	424	424	
5°	477	457	425	387	378	47
15°	549	513	408	309	281	154
25°	486	507	370	238	226	223
35°	356	428	310	195	198	221
45°	209	316	231	161	165	162
55°	120	199	155	124	127	110
65°	74	110	94	85	87	74
75°	34	50	46	43	46	37
85°	7	9	9	10	11	8
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°	423.9	423.9	423.9	423.9	423.9	423.9	423.9	423.9	423.9	423.9	423.9
2.5°	448.5	448.5	447.3	447.8	447.2	446.0	444.1	442.0	439.5	438.4	437.9
5°	477.2	477.9	477.0	475.3	475.0	473.6	469.5	467.1	461.7	457.4	456.0
7.5°	501.1	502.3	502.3	499.2	497.8	494.4	491.5	487.6	480.8	476.0	472.1
10°	522.6	523.1	521.2	519.5	516.8	514.1	509.1	504.2	496.8	491.0	484.5
12.5°	539.7	540.7	539.3	536.6	533.3	529.8	523.6	517.3	510.1	502.3	495.3
15°	548.9	550.4	550.6	548.4	546.0	541.7	537.3	530.4	522.6	512.9	501.4
17.5°	549.6	550.2	550.7	549.0	547.5	546.0	541.5	535.9	528.4	518.8	508.3
20°	536.9	538.5	540.2	538.6	539.3	539.3	537.4	534.5	528.4	520.7	510.5
22.5°	513.4	517.0	519.2	520.7	522.2	524.5	526.7	525.3	522.9	517.3	508.1
25°	485.7	488.6	492.9	494.3	495.5	501.9	505.9	508.6	508.6	507.4	501.3
27.5°	456.4	458.2	461.8	466.6	471.0	475.0	483.2	488.3	492.4	492.4	489.1
30°	424.6	427.4	431.6	434.9	440.3	448.3	455.2	461.3	470.7	474.8	474.1
32.5°	391.2	393.9	398.3	401.1	408.9	415.4	426.0	435.5	446.3	452.4	456.2
35°	355.7	355.8	363.4	367.8	374.6	382.6	395.6	406.4	418.1	428.4	436.4
37.5°	319.2	319.0	324.3	332.1	337.6	348.8	362.2	374.1	390.5	401.4	414.0
40°	277.2	280.8	285.2	292.4	301.7	315.1	327.7	343.2	359.6	373.3	386.7
42.5°	239.6	242.5	249.7	257.7	267.8	279.0	294.4	311.6	327.7	345.4	360.5
45°	208.6	210.1	214.4	220.8	231.4	244.2	260.3	278.5	297.5	315.6	332.3
47.5°	179.9	184.5	186.7	192.7	200.4	212.3	229.0	245.4	267.3	287.4	305.7
50°	157.4	158.2	162.1	166.6	175.6	184.5	197.1	214.0	234.3	257.0	275.6
52.5°	138.9	138.6	141.8	145.8	152.1	161.5	172.4	188.8	206.0	228.5	248.8
55°	120.2	121.9	123.4	127.3	133.0	140.1	149.3	163.2	179.4	199.3	220.7
57.5°	107.2	107.4	108.2	111.4	115.2	120.8	129.7	141.5	156.0	173.4	194.1
60°	94.9	95.1	96.6	97.6	100.2	105.0	111.8	121.5	134.3	151.0	169.1
62.5°	84.3	84.5	85.3	86.4	88.7	90.6	96.4	104.8	115.2	130.0	145.6
65°	74.1	74.2	74.2	75.6	77.1	78.8	82.9	88.2	98.3	110.1	123.9
67.5°	64.2	65.2	64.9	65.9	67.2	68.1	71.0	75.8	82.6	92.5	104.4
70°	55.3	55.1	55.6	56.2	56.7	58.0	59.9	63.1	69.0	75.9	86.5
72.5°	45.7	44.7	45.4	46.1	46.9	48.0	49.5	51.9	56.3	62.0	69.8
75°	33.8	33.3	34.3	34.5	36.0	37.4	39.1	41.5	44.7	49.5	54.6
77.5°	24.6	25.3	25.6	25.9	26.1	27.6	29.5	31.6	33.5	37.9	41.8
80°	18.1	18.1	18.3	18.6	18.9	19.3	20.5	21.8	23.4	26.1	30.0
82.5°	12.6	12.5	12.5	12.6	12.8	13.1	13.7	14.2	15.5	16.9	18.9
85°	6.8	7.0	7.2	6.8	7.0	7.2	7.5	8.0	8.4	9.4	10.2
87.5°	2.4	2.9	2.7	2.7	2.9	2.9	2.9	3.2	3.2	3.2	3.8
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):

	55°	60°	65°	70°	75°	80°	85°	90°	95°	100°	105°
0°	423.9	423.9	423.9	423.9	423.9	423.9	423.9	423.9	423.9	423.9	423.9
2.5°	437.4	436.9	435.5	432.8	430.9	427.5	426.8	426.7	423.6	419.0	418.7
5°	453.6	449.7	446.5	441.7	436.9	431.1	427.7	425.3	419.8	413.0	409.9
7.5°	468.5	462.9	456.2	448.7	441.7	433.5	427.5	422.7	414.7	406.0	400.7
10°	480.4	473.4	465.1	455.0	445.4	434.7	426.3	419.2	408.6	397.8	390.7
12.5°	488.6	480.8	471.2	459.4	447.8	435.5	423.4	414.4	401.1	388.6	379.4
15°	497.8	484.9	475.0	461.7	448.0	433.3	420.5	407.6	392.2	378.2	366.3
17.5°	500.1	488.1	476.3	461.7	447.5	429.6	414.7	400.4	383.3	366.1	354.5
20°	502.1	488.5	473.9	458.1	443.2	424.8	408.1	391.3	371.5	352.9	338.4
22.5°	500.6	487.3	471.0	453.1	437.1	418.1	400.0	381.6	359.4	340.0	323.6
25°	496.1	483.8	467.1	447.5	428.2	408.9	390.0	370.4	346.3	323.8	305.7
27.5°	487.1	476.2	460.1	439.3	419.0	397.7	377.9	357.4	331.6	308.6	289.3
30°	475.0	466.3	450.1	429.2	407.2	384.3	364.0	343.2	316.4	291.3	270.9
32.5°	458.2	452.1	438.1	417.8	394.1	369.8	349.0	327.9	299.2	275.3	254.5
35°	439.5	436.6	424.1	403.8	379.2	353.8	331.4	309.8	283.3	258.1	238.1
37.5°	417.5	419.5	408.2	388.1	362.7	336.7	313.2	292.2	265.4	241.2	221.5
40°	395.6	398.7	390.1	371.4	344.9	318.1	294.2	271.7	246.8	225.5	206.0
42.5°	371.4	377.5	370.9	352.6	326.8	298.5	273.6	252.6	228.9	209.2	192.2
45°	345.6	353.5	350.7	332.1	306.7	278.9	252.6	230.7	211.6	194.2	178.7
47.5°	319.5	328.5	327.3	311.8	287.4	258.9	233.0	211.5	193.9	179.9	166.9
50°	292.7	301.9	302.1	288.3	265.6	238.4	210.6	191.1	177.2	164.9	154.3
52.5°	266.6	275.8	276.0	265.2	242.5	216.1	190.5	172.7	160.8	151.2	142.3
55°	239.3	250.0	251.1	240.6	220.5	195.1	171.5	154.6	144.0	137.9	130.2
57.5°	211.6	223.2	225.3	216.9	197.5	173.7	153.9	137.7	129.2	124.9	119.1
60°	185.9	197.3	200.5	191.0	174.9	154.6	135.7	122.0	115.2	111.8	107.7
62.5°	162.1	173.6	175.3	167.1	151.2	134.1	119.8	107.4	101.7	99.2	95.9
65°	138.9	149.2	151.4	144.0	129.7	115.5	102.9	93.9	88.9	86.7	84.7
67.5°	117.6	127.1	128.7	122.0	110.1	98.0	88.7	80.9	77.5	74.6	73.7
70°	97.5	106.2	107.5	100.9	91.5	81.6	73.9	68.4	65.2	63.5	62.3
72.5°	78.8	85.7	86.9	82.8	75.4	66.7	60.8	56.2	54.1	52.6	52.1
75°	61.6	68.3	68.4	64.9	58.9	52.9	48.3	45.9	43.5	42.0	41.6
77.5°	47.3	51.0	51.5	49.7	43.9	40.1	36.5	34.8	34.0	32.4	32.4
80°	33.8	36.0	36.9	34.1	31.4	28.2	26.3	24.9	24.2	23.2	23.2
82.5°	21.0	22.9	23.9	21.8	20.5	18.8	17.4	16.6	16.0	15.5	15.4
85°	11.4	12.8	12.8	12.1	10.9	10.1	9.6	9.2	9.0	8.9	8.7
87.5°	4.1	5.1	4.6	4.8	4.3	4.1	3.9	3.9	4.1	3.8	3.8
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):

	110°	115°	120°	125°	130°	135°	140°	145°	150°	155°	160°
0°	423.9	423.9	423.9	423.9	423.9	423.9	423.9	423.9	423.9	423.9	423.9
2.5°	416.4	415.6	413.0	410.6	408.8	404.7	403.8	404.1	404.1	404.3	402.4
5°	406.4	402.8	398.7	394.9	392.0	387.4	384.9	384.2	383.7	382.6	380.8
7.5°	394.9	390.8	385.0	381.6	375.5	370.4	366.8	364.4	362.8	360.6	357.6
10°	383.3	377.3	370.9	364.0	357.9	351.1	345.4	342.7	339.5	337.2	333.8
12.5°	371.7	363.4	354.5	346.6	338.3	330.2	324.4	320.7	314.9	311.6	308.1
15°	356.5	346.3	338.8	325.1	321.0	309.4	302.4	299.5	293.9	292.9	287.2
17.5°	342.2	330.4	319.3	307.9	297.0	288.9	283.0	279.2	274.8	272.0	268.3
20°	324.3	312.0	298.7	286.7	277.5	269.0	265.2	260.4	257.9	255.2	252.4
22.5°	307.2	292.2	278.9	269.1	259.8	252.8	248.7	245.4	243.2	240.5	238.6
25°	288.9	274.9	262.7	252.6	243.5	238.1	234.7	232.8	231.4	229.4	228.2
27.5°	271.5	257.4	245.3	237.6	230.2	225.5	223.7	222.0	220.3	219.7	219.5
30°	252.9	240.0	230.1	223.4	216.7	214.2	213.3	211.6	212.0	212.1	211.6
32.5°	237.2	224.6	217.1	211.5	206.3	204.5	204.3	203.6	203.8	204.6	204.3
35°	221.0	211.6	204.1	199.5	196.3	194.9	195.1	195.2	196.3	196.4	197.1
37.5°	207.2	198.1	193.2	188.8	187.2	187.2	187.4	187.6	188.4	189.4	189.8
40°	193.5	186.2	181.9	179.0	178.2	178.2	178.9	179.7	180.2	181.3	181.4
42.5°	181.3	175.1	171.9	169.0	169.3	170.2	170.3	170.8	172.2	172.4	172.7
45°	169.1	164.5	161.3	160.4	160.4	161.1	162.0	162.3	163.3	163.5	163.8
47.5°	158.7	153.9	151.6	150.7	151.2	152.1	153.3	153.8	154.6	154.5	155.3
50°	147.1	143.2	141.3	141.0	141.3	142.9	143.4	144.6	145.4	145.9	146.3
52.5°	136.0	133.0	132.1	131.9	132.6	133.6	134.3	135.5	136.5	136.5	136.4
55°	125.4	122.7	121.7	122.5	123.4	123.9	125.3	126.0	127.0	127.1	127.0
57.5°	114.7	112.3	112.0	112.3	114.0	115.0	115.9	115.9	116.4	116.6	117.1
60°	103.6	102.1	101.7	102.6	104.4	105.1	105.6	105.8	106.5	106.2	107.2
62.5°	93.2	91.6	92.3	93.2	93.9	94.9	95.2	96.1	95.9	96.3	96.8
65°	82.4	81.6	81.8	82.8	83.6	85.0	85.0	85.0	85.8	85.8	86.2
67.5°	72.0	71.5	72.2	73.0	73.2	74.1	73.9	74.9	75.6	75.9	76.3
70°	62.0	61.6	61.6	62.5	63.3	63.7	64.0	64.7	64.9	65.4	66.2
72.5°	52.4	51.4	51.5	52.7	52.7	53.4	54.3	54.3	55.3	55.5	56.3
75°	42.0	41.6	42.0	42.7	43.5	43.3	44.4	44.2	44.5	45.7	45.9
77.5°	32.8	32.3	33.1	33.5	33.6	33.8	34.1	35.0	35.7	36.2	36.4
80°	23.6	23.4	24.2	24.6	24.4	24.7	25.3	26.1	26.1	26.5	27.0
82.5°	15.9	15.5	16.0	16.6	16.9	17.1	17.1	17.4	17.6	17.9	17.9
85°	9.0	9.0	9.4	9.6	9.9	9.7	10.1	9.9	10.2	10.6	10.4
87.5°	3.9	3.9	3.9	3.9	4.1	4.1	4.3	4.3	4.1	4.3	3.9
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°	423.9	423.9	423.9	423.9
2.5°	401.8	402.1	401.2	400.4
5°	380.6	379.4	378.2	377.9
7.5°	356.9	356.9	354.0	354.7
10°	331.4	330.4	328.2	328.4
12.5°	306.7	305.8	304.6	304.1
15°	284.3	284.8	285.7	280.9
17.5°	266.8	265.4	264.7	263.9
20°	251.1	250.4	249.0	248.8
22.5°	238.9	237.4	237.1	237.2
25°	227.3	227.3	227.3	226.3
27.5°	219.1	219.1	218.6	218.8
30°	212.0	212.3	211.8	212.0
32.5°	205.1	205.3	205.0	204.8
35°	197.5	198.0	197.8	198.0
37.5°	190.1	190.5	190.1	190.1
40°	181.8	182.6	182.4	181.9
42.5°	173.4	173.4	173.9	173.7
45°	164.7	164.4	164.4	164.9
47.5°	155.5	156.2	155.8	156.0
50°	146.9	146.8	146.3	146.1
52.5°	136.9	137.2	137.0	136.2
55°	127.1	127.1	127.0	127.0
57.5°	116.7	117.2	117.1	117.1
60°	106.8	107.2	107.4	107.2
62.5°	96.8	96.9	96.8	96.9
65°	87.0	87.0	86.9	87.4
67.5°	76.5	76.6	76.5	76.8
70°	66.4	66.7	66.9	66.6
72.5°	56.8	56.5	56.7	56.3
75°	46.3	46.4	46.3	46.4
77.5°	36.4	36.5	36.4	36.5
80°	26.8	26.8	27.0	26.6
82.5°	18.1	18.1	18.6	18.1
85°	10.6	10.6	10.2	10.9
87.5°	4.1	4.1	4.1	4.1
90°	0.0	0.0	0.0	0.0

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