

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: P243518

Luminaire Tested: **S124DR-H350D940-X4F0-XX-UDD-A-W**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P243518
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-H350D940-X4F0-XX-UDD-A-W
Description: DEFINE 4 DIRECT RECESSED WITH ASYMMETRIC FLUSH DIFFUSER.
HIGH PERFORMANCE LIGHT ENGINE
Light Source: (184) 4000K CCT, 90 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 1311.2 lumens
Efficiency: N/A
Efficacy: 117.1 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

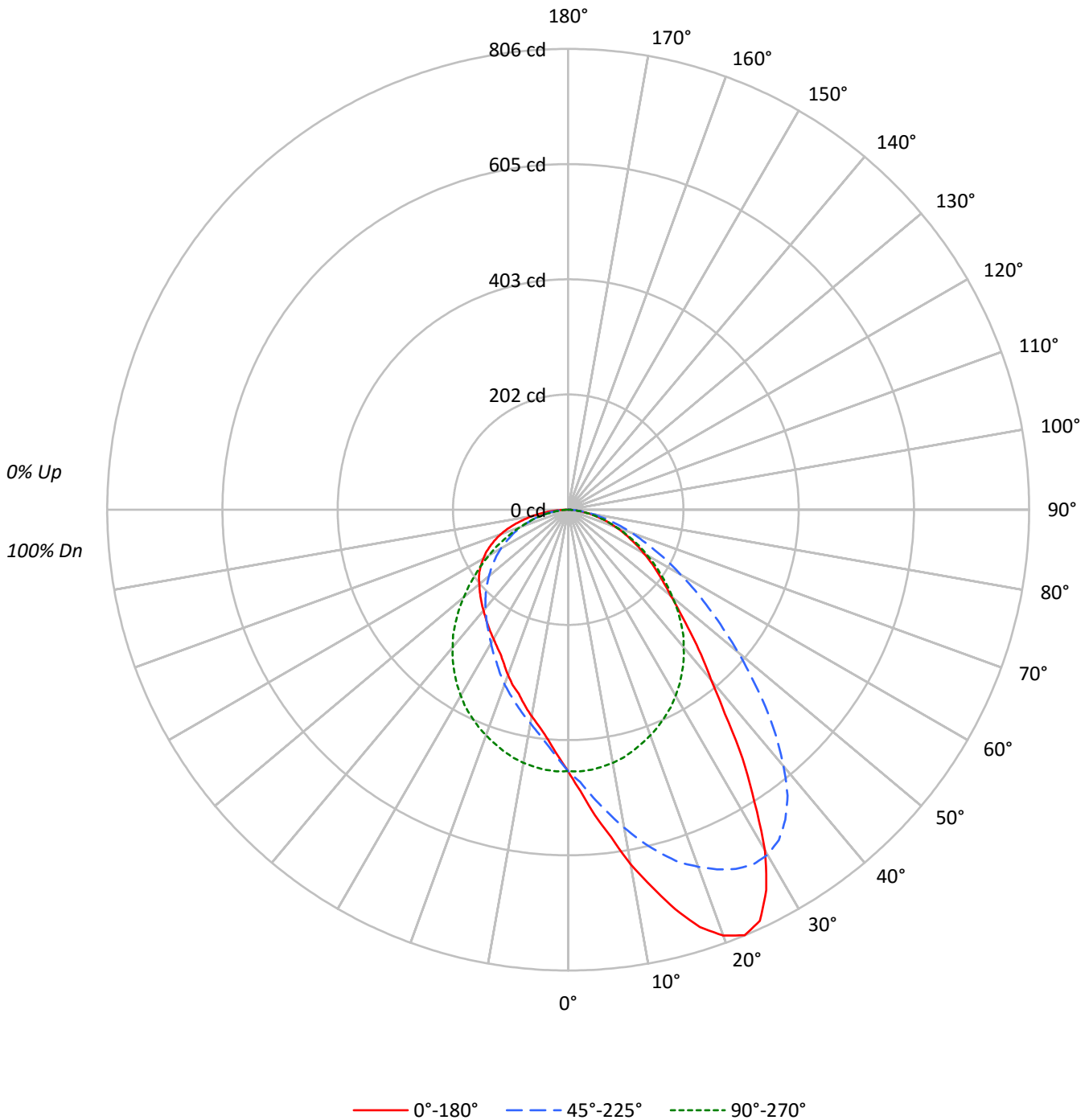
Input Watts (W): 11.2
Input Voltage (V): 120
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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	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°	4065	4065	4065
5°	4784	4075	3598
10°	5685	4057	3313
15°	6658	4021	3068
20°	7497	3974	2910
25°	7781	3921	2738
30°	7066	3854	2678
35°	5764	3763	2662
40°	4514	3645	2672
45°	3778	3498	2722
50°	3241	3294	2803
55°	2962	3072	2938
60°	2715	2844	3045
65°	2488	2602	3163
70°	2290	2347	3259
75°	2040	2064	3256
80°	1699	1689	3251
85°	1295	1275	3049



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	44.5	3.4
10°-20°	137.9	10.5
20°-30°	221.5	16.9
30°-40°	253.2	19.3
40°-50°	233.0	17.8
50°-60°	190.6	14.5
60°-70°	135.9	10.4
70°-80°	74.6	5.7
80°-90°	20.1	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°	403.8	30.8
0°-40°	657.0	50.1
0°-60°	1080.7	82.4
0°-90°	1311.2	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1311.2	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	457	457	457	457	457	
5°	536	505	457	413	403	54
15°	724	622	437	352	333	206
25°	793	693	400	296	279	356
35°	531	662	347	247	245	330
45°	300	488	278	203	216	235
55°	191	300	198	158	190	171
65°	118	166	124	111	150	118
75°	59	77	60	61	95	63
85°	13	16	12	17	30	15
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°	457.3	457.3	457.3	457.3	457.3	457.3	457.3	457.3	457.3	457.3	457.3
2.5°	492.4	490.9	490.1	489.2	489.0	488.1	486.2	483.6	480.2	476.7	476.7
5°	536.1	535.7	532.9	533.1	529.5	525.6	522.6	518.9	511.6	505.4	501.2
7.5°	577.9	581.8	580.9	577.9	572.6	567.0	561.1	555.8	542.4	534.9	528.8
10°	629.8	631.2	628.6	624.3	619.7	608.8	601.0	592.2	577.7	565.0	553.8
12.5°	675.3	678.8	674.2	670.1	659.1	651.0	643.2	625.6	610.3	594.3	578.1
15°	723.5	719.7	722.1	712.1	704.2	696.6	676.6	658.7	641.3	621.5	604.6
17.5°	765.3	765.3	760.8	754.2	746.0	731.7	711.7	691.9	672.7	646.7	622.7
20°	792.5	794.6	789.3	782.4	772.5	757.6	741.7	720.3	694.7	664.5	637.2
22.5°	805.6	806.0	804.1	798.3	790.3	777.6	761.3	740.4	713.4	680.9	652.3
25°	793.3	795.3	794.8	794.4	790.3	783.0	769.9	750.5	725.9	693.4	662.6
27.5°	750.0	755.0	759.3	761.2	765.6	766.0	762.1	750.3	730.2	699.6	665.2
30°	688.4	685.7	697.3	703.1	718.4	727.6	734.1	733.3	721.8	696.9	664.3
32.5°	606.2	613.3	621.5	635.2	653.3	674.6	690.6	702.5	701.4	685.2	657.9
35°	531.2	531.2	541.7	558.5	577.7	603.3	630.1	652.3	666.0	661.9	642.6
37.5°	449.8	454.9	466.8	479.9	503.4	528.0	563.5	593.0	621.5	630.1	620.2
40°	389.0	391.2	403.9	414.9	439.0	464.6	494.2	532.0	564.8	585.9	587.2
42.5°	343.8	343.6	348.8	358.7	378.2	400.9	433.0	470.0	508.4	538.3	552.3
45°	300.5	300.1	305.5	315.6	329.4	349.6	377.4	414.4	453.7	487.7	509.7
47.5°	263.9	267.3	269.7	277.5	288.9	306.1	330.0	359.5	397.4	435.5	465.1
50°	234.4	235.9	241.2	244.9	257.6	269.5	288.7	315.3	347.7	387.7	419.8
52.5°	210.9	211.8	215.0	219.9	227.2	237.6	252.9	277.4	306.7	341.4	374.6
55°	191.1	190.6	192.6	195.8	202.1	210.9	222.1	240.8	266.3	299.8	330.4
57.5°	171.7	171.7	173.6	175.8	179.4	186.6	197.7	212.4	232.9	262.6	289.7
60°	152.7	154.0	154.7	157.0	160.0	165.4	173.6	185.2	202.5	226.8	253.7
62.5°	135.9	135.9	137.2	137.9	141.9	145.8	151.7	161.6	175.3	196.9	217.8
65°	118.3	119.5	119.5	120.9	124.3	127.3	132.0	139.4	150.6	166.1	185.7
67.5°	103.4	103.4	104.3	105.1	106.9	109.0	113.1	118.9	128.4	140.7	158.5
70°	88.1	88.7	88.3	89.2	90.3	92.4	95.4	100.2	107.1	117.8	130.8
72.5°	74.3	73.5	73.9	74.8	75.4	76.7	78.6	82.3	87.9	96.5	106.0
75°	59.4	59.0	60.3	59.9	60.8	62.0	63.6	66.4	70.7	76.7	84.0
77.5°	46.3	45.7	46.3	46.7	47.0	48.0	49.3	51.0	53.9	57.9	64.4
80°	33.2	33.0	33.4	33.8	34.0	35.5	35.8	37.5	38.8	41.8	45.0
82.5°	22.0	22.4	22.6	23.0	22.8	23.5	23.9	25.0	26.1	27.6	30.1
85°	12.7	12.1	12.7	12.7	12.7	13.6	13.4	14.2	14.9	15.7	17.4
87.5°	4.5	4.5	4.7	4.9	4.9	5.4	5.2	5.6	6.3	6.3	6.9
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):

	55°	60°	65°	70°	75°	80°	85°	90°	95°	100°	105°
0°	457.3	457.3	457.3	457.3	457.3	457.3	457.3	457.3	457.3	457.3	457.3
2.5°	475.6	473.5	472.0	467.7	465.1	462.7	460.5	458.0	455.4	452.1	450.0
5°	496.7	492.2	485.7	479.7	473.0	467.0	462.1	456.7	450.8	444.6	439.2
7.5°	520.0	511.6	501.5	490.5	480.1	471.3	462.1	453.6	445.2	436.9	429.3
10°	543.3	528.8	515.5	500.4	486.6	473.3	461.4	449.5	439.0	428.2	418.5
12.5°	565.0	547.4	528.0	509.2	490.7	473.5	458.8	444.2	430.8	417.9	406.5
15°	581.6	559.6	536.6	514.2	492.9	475.0	455.8	436.9	422.9	407.3	394.8
17.5°	600.6	574.5	551.7	524.9	498.4	469.4	449.1	428.5	411.7	396.6	384.1
20°	613.3	584.6	551.7	521.3	494.1	468.1	443.7	420.1	402.4	384.9	369.8
22.5°	623.4	593.7	557.5	525.8	491.6	460.3	433.8	410.6	389.7	373.1	358.7
25°	628.6	592.4	557.9	519.4	485.3	455.2	425.4	399.8	378.7	360.2	347.9
27.5°	628.8	591.7	550.8	512.7	476.1	443.7	414.2	389.0	365.3	347.5	332.8
30°	627.9	586.8	543.7	502.1	465.7	432.5	401.7	375.5	353.9	335.0	321.0
32.5°	621.9	580.1	533.1	489.4	449.8	416.4	388.0	362.1	339.0	321.8	307.0
35°	608.5	565.4	518.1	473.2	435.6	400.9	372.9	346.8	326.1	307.4	292.3
37.5°	591.3	551.0	503.0	456.0	415.5	382.6	356.3	331.7	310.0	292.9	277.7
40°	569.7	531.8	484.5	435.6	395.1	361.9	337.1	314.1	295.7	278.1	263.4
42.5°	540.0	510.9	462.3	414.7	372.4	341.0	316.9	297.9	278.9	263.0	248.2
45°	508.2	481.7	438.6	391.4	350.7	318.4	295.8	278.3	262.1	246.0	234.1
47.5°	473.2	451.5	411.6	365.5	325.3	296.8	274.6	258.9	244.0	231.6	219.7
50°	431.3	420.0	382.6	340.8	301.8	272.5	254.2	238.2	227.2	215.2	204.0
52.5°	392.5	383.4	353.0	311.9	276.4	250.7	231.1	218.4	207.6	198.8	189.8
55°	350.3	345.7	319.9	284.5	252.3	226.6	209.8	198.2	189.6	181.4	174.9
57.5°	311.5	311.1	288.4	257.9	226.6	204.8	188.7	179.2	171.7	165.9	160.3
60°	271.8	274.9	256.3	228.5	203.6	183.1	168.5	160.0	154.9	149.5	144.8
62.5°	235.7	240.6	223.6	201.8	177.3	160.5	149.3	142.8	137.2	133.3	129.7
65°	201.2	207.4	193.6	174.0	155.3	139.4	129.9	123.7	119.5	117.2	114.8
67.5°	170.8	174.1	164.8	149.5	134.0	120.2	112.4	106.9	103.2	102.3	99.5
70°	140.4	144.3	137.7	123.7	111.8	101.7	94.6	90.3	88.1	86.8	84.9
72.5°	115.9	117.6	111.1	101.4	91.8	83.4	78.2	75.0	72.4	71.9	70.9
75°	90.7	93.1	87.9	80.4	72.6	66.6	62.7	60.1	58.8	57.9	57.9
77.5°	68.5	70.6	67.6	61.0	56.4	51.1	48.5	46.1	45.5	44.6	45.0
80°	48.7	49.6	48.0	43.5	39.4	36.6	34.3	33.0	32.9	32.1	32.9
82.5°	32.3	32.5	30.6	28.6	25.4	23.9	22.4	21.8	21.7	21.7	21.3
85°	17.9	18.3	17.0	15.7	14.6	13.3	12.9	12.5	12.1	12.7	13.1
87.5°	6.9	7.1	6.9	6.3	6.0	5.6	5.4	5.8	5.2	5.6	5.8
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°	457.3	457.3	457.3	457.3	457.3	457.3	457.3	457.3	457.3	457.3	457.3
2.5°	446.8	445.3	443.1	439.4	436.8	434.0	432.8	433.2	432.1	430.6	431.0
5°	435.1	430.8	427.1	421.8	417.0	412.9	411.6	409.9	408.4	407.5	406.5
7.5°	422.6	416.6	411.0	405.8	400.2	394.9	392.9	391.4	390.7	388.0	386.9
10°	410.6	403.7	397.0	390.8	385.1	379.3	377.2	375.4	372.7	371.6	370.3
12.5°	397.9	391.0	383.8	376.3	370.5	365.8	362.3	361.0	358.4	357.2	356.5
15°	385.6	377.2	371.4	365.6	356.9	351.6	350.2	345.5	344.0	341.8	340.3
17.5°	373.3	365.5	356.9	350.2	344.7	338.2	334.7	332.6	329.8	327.8	325.0
20°	361.2	352.0	345.3	336.9	330.9	325.0	320.5	318.6	316.2	313.4	309.5
22.5°	349.4	339.3	332.8	325.0	317.5	310.6	306.9	304.2	299.4	298.8	295.3
25°	335.6	326.6	318.1	309.8	302.6	295.7	293.2	289.1	287.4	284.1	283.5
27.5°	322.5	313.0	303.7	294.7	288.4	283.5	279.2	276.6	274.9	272.3	272.5
30°	308.9	298.5	289.7	281.5	274.6	269.9	267.1	265.8	263.4	263.0	261.7
32.5°	294.3	284.8	275.7	268.4	261.3	257.2	255.9	254.6	253.1	253.3	252.9
35°	279.8	271.4	261.7	255.0	249.2	246.8	244.7	244.3	243.8	244.1	244.1
37.5°	265.6	256.5	248.4	242.3	238.9	235.6	234.6	234.4	234.6	235.0	235.9
40°	251.8	243.4	235.6	230.5	226.8	225.3	224.0	224.5	225.3	226.6	227.7
42.5°	238.0	230.0	223.4	218.4	214.8	214.1	214.3	215.4	215.6	217.4	219.5
45°	223.4	216.5	210.4	206.4	204.2	203.3	203.6	204.8	206.1	208.7	211.3
47.5°	210.0	203.8	198.4	194.5	192.8	192.4	193.2	194.7	197.7	200.3	203.3
50°	196.4	190.8	185.7	182.2	182.0	180.7	182.4	184.2	187.8	191.3	195.8
52.5°	182.9	177.5	173.2	170.4	169.7	169.7	171.7	175.1	178.2	182.9	187.0
55°	168.9	164.1	160.0	159.0	157.9	158.5	160.7	164.1	168.5	173.8	178.2
57.5°	154.5	150.4	147.5	146.1	145.6	147.5	150.1	153.6	159.4	164.6	169.5
60°	140.9	137.4	134.2	133.8	133.5	135.9	139.1	142.8	148.6	153.8	159.8
62.5°	126.4	123.6	121.5	120.9	120.9	123.4	126.9	131.8	137.2	142.8	149.1
65°	111.6	109.2	108.6	107.9	109.6	111.1	114.6	119.3	125.1	131.2	137.9
67.5°	98.0	96.5	95.4	95.4	96.7	99.5	102.7	107.3	113.3	119.8	125.8
70°	84.4	82.9	81.9	82.9	83.6	87.0	90.3	94.8	100.4	106.8	113.1
72.5°	70.2	70.4	70.6	70.4	71.1	74.3	77.6	81.9	87.4	93.5	99.3
75°	57.7	56.7	56.9	57.3	59.7	61.4	64.8	68.9	74.7	80.3	85.1
77.5°	44.8	44.4	45.4	45.4	47.6	49.6	52.4	56.6	61.6	66.6	70.6
80°	32.9	33.0	33.8	34.0	35.8	38.1	41.1	43.9	48.3	51.9	55.6
82.5°	22.2	22.6	23.5	24.8	25.6	26.9	29.5	32.5	35.6	39.4	41.6
85°	12.9	13.4	14.2	15.1	15.9	17.2	19.0	21.5	23.7	25.8	27.6
87.5°	6.3	6.3	6.9	7.3	7.8	8.6	9.9	10.8	12.3	13.8	14.6
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°	457.3	457.3	457.3	457.3
2.5°	430.2	430.0	429.3	429.7
5°	406.0	404.1	403.9	403.2
7.5°	385.1	384.5	384.5	383.0
10°	369.0	367.3	367.7	367.0
12.5°	353.7	352.8	351.6	350.5
15°	336.5	336.5	336.5	333.4
17.5°	323.1	322.9	322.0	321.8
20°	309.1	308.3	305.9	307.6
22.5°	294.9	294.3	292.3	292.7
25°	281.7	281.1	280.7	279.2
27.5°	270.3	270.5	270.8	269.9
30°	261.7	261.1	261.9	260.9
32.5°	253.7	253.7	252.9	253.1
35°	244.5	245.3	245.4	245.3
37.5°	236.5	237.4	238.2	237.4
40°	229.0	229.8	230.5	230.3
42.5°	221.2	222.5	223.0	223.6
45°	213.7	215.4	216.3	216.5
47.5°	206.1	208.1	210.0	209.8
50°	198.6	201.2	202.9	202.7
52.5°	191.1	193.7	195.8	196.7
55°	182.7	186.1	188.0	189.6
57.5°	174.3	178.1	179.9	180.7
60°	165.0	168.4	170.8	171.3
62.5°	154.5	158.1	161.3	162.0
65°	143.7	147.6	150.1	150.4
67.5°	131.2	134.9	137.4	138.5
70°	118.3	121.1	123.7	125.4
72.5°	104.0	107.3	109.7	110.9
75°	89.0	92.8	94.1	94.8
77.5°	73.5	75.8	77.8	78.0
80°	58.0	60.8	61.6	63.5
82.5°	42.7	45.4	44.8	45.5
85°	28.2	29.1	29.7	29.9
87.5°	14.9	15.5	15.9	16.1
90°	0.0	0.0	0.0	0.0

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