

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: P243321

Luminaire Tested: **S123DR-H340D830-X4F0-XX-UDD-A-W**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P243321
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1802-639-59)
Test Lab: INNOVATION CENTER
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: NEO-RAY
Catalog Number: S123DR-H340D830-X4F0-XX-UDD-A-W
Description: DEFINE 3 DIRECT RECESSED WITH ASYMMETRIC FLUSH DIFFUSER.
HIGH PERFORMANCE LIGHT ENGINE
Light Source: (184) 3000K CCT, 80 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 1298.5 lumens
Efficiency: N/A
Efficacy: 115.9 lumens/watt
Spacing Criteria (0/90/45): 1.39 / 1.21 / 1.5
Luminous Opening: Rectangular (W 3.88' x L: 0.23' x H: 0')
CIE Type: Direct

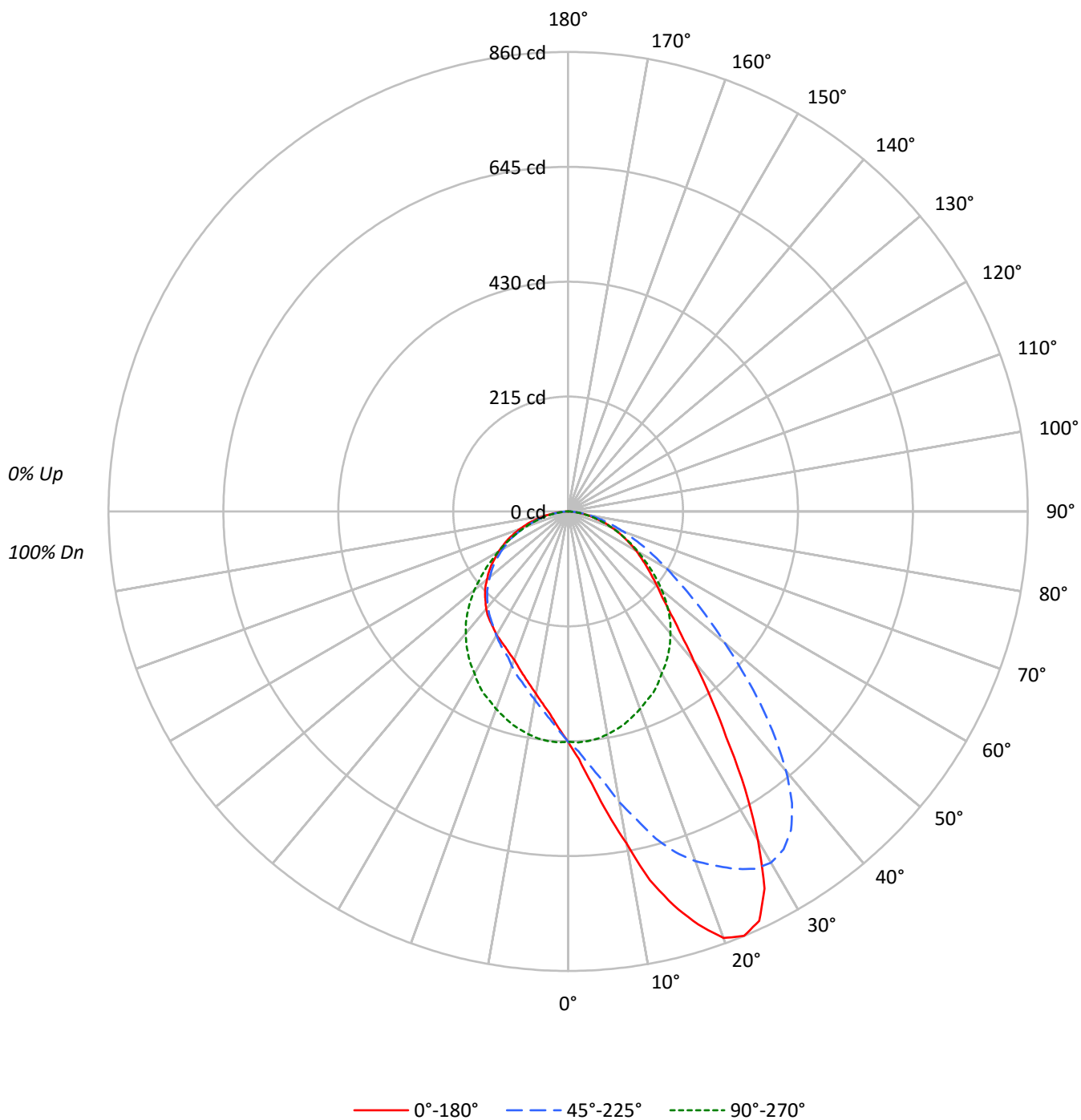
Input Watts (W): 11.2
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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					0
RW	70	50	30	10	70	50	30	10		50	30	10		50	30	10		50	30	10
RCR																				
0	119	119	119	119	116	116	116	116		111	111	111		106	106	106		102	102	102
1	110	105	101	98	107	103	99	96		99	96	93		95	92	90		91	89	87
2	100	92	86	81	98	91	85	80		87	82	78		84	80	76		81	77	74
3	92	82	74	68	89	80	73	67		77	71	66		75	69	65		72	68	64
4	84	73	64	58	82	72	64	58		69	62	57		67	61	56		65	60	55
5	78	65	57	50	76	64	56	50		62	55	50		60	54	49		58	53	49
6	72	59	50	44	70	58	50	44		56	49	44		55	48	43		53	47	43
7	67	54	45	39	65	53	45	39		51	44	39		50	43	39		49	43	38
8	62	49	41	35	61	48	41	35		47	40	35		46	39	35		45	39	34
9	58	45	37	32	57	45	37	32		43	36	31		42	36	31		41	35	31
10	55	42	34	29	53	41	34	29		40	33	29		39	33	28		38	33	28

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	5222	5222	5222
5°	6221	5247	4637
10°	7770	5215	4264
15°	9576	5159	4001
20°	10958	5077	3807
25°	11308	5021	3735
30°	9935	4902	3738
35°	7625	4828	3742
40°	5799	4711	3771
45°	4666	4558	3768
50°	4107	4315	3736
55°	3785	3998	3711
60°	3568	3658	3634
65°	3316	3344	3565
70°	3034	2998	3413
75°	2698	2613	3180
80°	2262	2164	2778
85°	1585	1558	2086

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	42.4	3.3
10°-20°	136.1	10.5
20°-30°	224.8	17.3
30°-40°	257.3	19.8
40°-50°	233.1	18.0
50°-60°	188.4	14.5
60°-70°	131.2	10.1
70°-80°	68.8	5.3
80°-90°	16.4	1.3
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°	403.3	31.1
0°-40°	660.5	50.9
0°-60°	1082.0	83.3
0°-90°	1298.5	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1298.5	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	431	431	431	431	431	
5°	511	478	431	390	381	53
15°	763	634	411	331	319	217
25°	846	738	375	286	279	378
35°	515	727	326	250	253	326
45°	272	508	266	214	220	215
55°	179	285	189	168	176	161
65°	116	156	117	115	124	115
75°	58	71	56	58	68	62
85°	11	15	11	13	15	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°	430.8	430.8	430.8	430.8	430.8	430.8	430.8	430.8	430.8	430.8	430.8
2.5°	464.0	465.0	463.4	464.4	462.0	460.6	458.5	457.5	452.7	449.4	448.2
5°	511.3	511.3	511.7	509.4	506.6	501.7	495.2	491.0	486.3	478.2	474.1
7.5°	570.9	568.0	566.0	561.6	557.9	549.8	542.7	534.2	523.2	509.8	502.7
10°	631.3	634.4	632.5	627.9	618.3	605.0	594.6	582.4	565.2	552.2	533.6
12.5°	706.6	702.5	699.3	692.4	681.8	667.8	651.6	633.4	611.4	589.9	569.1
15°	763.1	763.7	763.5	754.4	743.9	725.0	710.0	679.8	651.8	633.6	599.3
17.5°	810.8	813.4	810.4	796.8	787.5	776.3	757.1	723.6	698.2	668.8	630.9
20°	849.5	849.9	845.1	835.1	824.4	811.8	786.5	760.9	736.0	696.6	660.5
22.5°	859.7	860.7	859.7	855.4	846.7	833.3	814.4	790.7	759.3	717.3	683.8
25°	845.5	844.9	848.3	845.7	845.3	841.0	828.6	809.4	778.4	738.0	695.4
27.5°	795.8	791.7	800.1	811.2	812.8	819.7	819.9	811.0	788.7	754.2	707.8
30°	709.8	713.7	717.9	741.0	753.8	771.7	787.3	793.0	784.6	759.1	715.7
32.5°	616.3	628.9	640.6	656.5	675.3	705.7	730.3	752.0	761.3	750.0	715.7
35°	515.3	522.0	540.3	560.7	587.7	611.4	660.3	691.8	720.1	727.4	706.6
37.5°	436.4	442.5	448.8	464.6	495.0	534.4	574.9	616.3	658.1	688.1	686.9
40°	366.5	367.9	373.4	387.1	412.3	447.4	489.8	539.7	594.0	634.8	652.0
42.5°	312.9	312.9	319.8	335.6	350.2	375.8	416.8	460.8	520.2	572.7	609.4
45°	272.2	272.6	278.2	289.4	300.8	321.0	351.3	392.8	453.9	508.2	559.3
47.5°	239.1	242.8	246.0	251.9	263.4	281.1	303.2	338.5	382.1	441.3	500.9
50°	217.8	218.6	220.9	224.5	233.4	245.0	264.2	291.0	329.6	382.1	442.3
52.5°	196.9	196.9	199.2	203.6	208.7	218.2	232.0	254.3	283.3	330.8	384.9
55°	179.1	179.7	180.1	183.7	188.0	195.1	206.0	220.6	247.2	285.3	332.4
57.5°	161.8	163.9	163.3	166.1	169.3	174.4	182.1	194.7	215.0	244.0	286.4
60°	147.2	146.8	147.8	148.9	151.1	154.7	161.8	171.0	188.0	212.3	247.0
62.5°	130.6	130.2	131.4	132.8	134.7	137.7	142.8	149.9	163.3	181.5	211.7
65°	115.6	115.2	115.8	116.6	118.8	121.1	125.1	131.0	139.9	155.8	178.9
67.5°	100.6	100.6	101.0	101.8	103.2	105.0	108.1	111.7	120.5	131.2	149.3
70°	85.6	85.8	85.8	86.6	87.8	89.2	91.7	94.9	100.4	109.9	124.5
72.5°	72.6	72.6	72.2	72.6	73.4	74.0	75.6	78.5	82.7	89.6	100.6
75°	57.6	58.6	58.4	58.2	58.8	59.8	61.2	63.5	66.1	71.0	79.3
77.5°	44.2	44.8	44.8	45.0	45.6	46.4	46.8	49.1	51.5	54.4	60.6
80°	32.4	32.7	32.4	32.6	32.9	33.7	34.5	34.9	36.7	39.3	42.2
82.5°	21.7	21.1	21.9	21.7	22.1	22.3	22.7	22.9	24.1	25.6	27.6
85°	11.4	12.4	12.2	12.6	12.2	12.4	12.6	13.4	13.6	14.6	15.8
87.5°	4.3	4.7	4.7	4.7	4.7	4.7	5.1	5.3	5.7	5.9	6.3
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°	430.8	430.8	430.8	430.8	430.8	430.8	430.8	430.8	430.8	430.8	430.8
2.5°	449.0	447.2	444.7	441.9	438.9	436.0	434.6	432.8	429.3	425.7	423.0
5°	470.7	465.8	459.1	454.1	447.0	440.3	435.0	431.2	425.5	418.6	414.1
7.5°	495.0	486.1	475.4	464.6	453.9	443.9	435.6	428.5	419.6	411.1	404.2
10°	523.6	506.4	491.6	475.8	460.0	445.8	434.0	423.7	412.3	402.0	393.6
12.5°	548.8	528.9	508.4	486.1	464.8	446.4	431.2	417.8	404.0	392.2	383.5
15°	576.6	548.6	520.2	495.0	469.1	446.6	426.7	411.1	395.3	381.9	371.9
17.5°	608.6	571.1	535.4	499.1	476.2	447.2	422.8	402.2	386.1	372.7	359.6
20°	627.5	590.2	546.5	509.2	471.3	441.5	414.3	393.6	374.6	359.2	348.6
22.5°	637.8	598.5	552.8	514.5	470.3	437.0	408.0	383.5	363.2	347.8	335.8
25°	652.2	598.5	556.1	510.2	471.9	431.6	398.9	375.4	354.1	336.4	323.7
27.5°	658.7	603.9	556.5	501.9	462.4	421.6	388.4	363.6	339.9	322.5	311.7
30°	664.0	604.8	548.6	495.4	451.4	410.3	378.0	350.2	328.1	311.5	300.1
32.5°	664.4	602.3	538.0	483.1	436.6	397.1	365.6	339.3	316.2	298.7	287.4
35°	660.9	596.0	525.7	464.4	419.4	383.5	351.9	326.3	302.8	286.0	274.6
37.5°	651.8	588.9	514.3	446.8	399.1	364.2	337.3	312.9	289.6	272.8	263.4
40°	632.5	577.4	499.3	428.1	378.6	343.7	320.2	297.7	277.0	259.6	250.1
42.5°	606.8	560.3	481.2	408.2	355.7	322.0	301.2	283.1	262.0	247.0	237.3
45°	570.5	537.0	463.0	387.3	333.0	299.9	280.9	265.9	247.8	232.8	224.3
47.5°	529.5	509.0	439.5	363.8	309.1	278.0	260.0	248.0	232.6	219.8	211.3
50°	483.3	475.6	413.7	340.1	286.8	254.9	238.3	228.8	215.8	205.6	198.3
52.5°	433.2	438.0	386.5	316.0	265.3	233.0	217.2	208.5	200.2	191.6	184.6
55°	382.3	393.6	353.5	289.8	240.7	212.5	197.1	189.2	183.1	175.8	170.8
57.5°	334.6	352.1	319.4	261.8	218.0	191.0	176.4	169.5	164.9	161.0	156.4
60°	288.2	308.5	284.3	235.5	195.3	170.6	157.6	150.9	148.7	145.8	141.4
62.5°	247.2	267.9	249.7	208.5	172.4	151.3	139.5	133.9	130.8	129.8	127.2
65°	208.7	228.0	214.2	180.3	150.7	132.0	121.5	116.6	114.8	114.6	112.6
67.5°	175.4	194.1	181.5	152.9	127.8	112.6	104.8	100.8	99.0	99.2	97.8
70°	144.6	157.8	150.3	127.8	108.5	95.1	89.0	84.6	83.2	83.2	82.9
72.5°	116.0	126.5	120.7	103.6	88.4	78.1	72.8	70.2	69.0	68.8	69.0
75°	90.7	99.8	94.7	81.3	69.8	62.1	57.6	55.8	55.2	54.8	55.0
77.5°	67.9	73.6	70.4	61.7	52.3	47.0	44.8	43.0	42.4	42.6	43.0
80°	47.9	51.1	49.3	43.8	37.5	33.9	32.4	31.0	30.4	31.0	31.0
82.5°	30.4	32.7	31.2	27.6	24.5	22.1	20.5	20.1	19.9	19.5	20.1
85°	16.6	17.8	17.0	15.8	13.6	12.6	11.4	11.2	11.2	11.2	11.2
87.5°	6.5	7.3	6.3	6.3	5.9	4.9	4.9	4.7	4.5	4.7	4.7
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°	430.8	430.8	430.8	430.8	430.8	430.8	430.8	430.8	430.8	430.8	430.8
2.5°	421.8	419.2	417.6	415.5	412.9	409.5	408.2	409.5	408.8	407.4	408.0
5°	410.1	406.8	402.4	398.9	394.9	390.0	388.4	387.6	386.5	385.9	384.9
7.5°	398.7	393.8	388.4	383.5	377.8	373.4	371.5	370.1	369.7	366.7	365.6
10°	386.9	380.7	375.4	368.7	363.8	358.1	355.7	354.1	352.3	350.4	349.0
12.5°	374.4	368.3	361.6	355.3	350.4	344.0	340.9	339.1	337.7	336.4	334.8
15°	363.6	357.5	348.2	343.5	337.5	331.2	329.3	325.3	325.7	323.3	321.8
17.5°	352.1	343.1	336.6	329.4	325.1	320.6	316.8	312.7	312.1	310.3	309.7
20°	339.3	329.8	325.3	318.0	312.1	307.6	304.2	303.8	302.6	300.1	299.1
22.5°	326.7	319.0	312.7	306.0	300.6	294.7	293.2	293.7	291.6	291.0	288.8
25°	315.2	308.5	300.6	294.3	290.0	286.2	284.1	283.3	282.5	281.9	280.9
27.5°	303.0	295.9	289.2	284.1	279.9	277.4	276.0	274.2	274.0	274.0	273.6
30°	290.8	284.5	279.9	273.4	269.7	268.1	266.9	266.3	266.9	266.9	267.1
32.5°	279.5	273.4	268.1	263.6	259.8	258.6	258.4	258.4	259.2	259.2	259.8
35°	267.9	261.8	256.9	253.7	250.5	250.3	250.5	250.9	251.9	252.1	252.9
37.5°	255.3	250.5	246.8	242.8	242.1	242.5	242.8	243.2	243.6	245.2	245.2
40°	243.6	240.1	236.3	233.8	232.4	233.4	234.0	234.2	235.3	236.3	237.1
42.5°	232.2	228.8	225.9	223.7	223.1	223.9	224.5	225.1	226.3	227.1	228.4
45°	219.4	217.2	214.6	212.9	213.1	214.2	214.2	216.2	217.0	217.4	218.4
47.5°	207.5	205.2	203.4	202.6	202.4	203.4	204.0	205.6	206.0	207.3	208.1
50°	194.9	193.1	191.8	190.8	191.0	191.4	192.7	194.3	194.7	196.3	197.7
52.5°	181.7	180.1	178.9	179.3	179.9	179.9	181.3	182.3	183.3	184.5	185.8
55°	168.7	166.5	166.7	166.1	166.7	168.1	168.7	170.2	171.0	171.6	173.6
57.5°	154.5	154.1	153.5	152.9	154.1	154.7	155.6	156.6	158.0	158.8	160.2
60°	139.9	139.3	139.3	140.1	140.5	141.6	143.2	143.8	144.2	145.8	147.6
62.5°	126.5	125.9	125.7	126.8	126.8	128.0	128.6	129.6	131.2	131.8	134.1
65°	112.1	111.7	111.7	112.6	112.8	115.0	115.0	115.0	116.0	118.2	119.4
67.5°	97.1	97.3	97.8	98.4	99.2	99.8	100.0	101.2	102.8	104.2	106.5
70°	82.1	83.1	84.2	84.0	84.6	85.6	85.8	87.0	88.4	90.2	92.9
72.5°	68.7	69.2	70.4	70.4	71.2	71.8	72.8	73.6	75.4	76.9	78.1
75°	55.2	55.4	56.4	57.0	57.6	58.0	59.0	60.4	61.4	62.7	64.5
77.5°	43.4	43.0	43.8	44.0	44.4	45.2	46.0	47.3	48.1	49.7	50.3
80°	30.8	31.6	31.8	32.0	32.4	33.3	33.9	34.5	35.3	36.7	37.3
82.5°	20.3	20.7	21.3	21.5	21.9	22.1	22.3	23.3	23.9	24.3	26.2
85°	11.8	12.4	12.0	12.0	12.4	12.6	13.4	13.4	14.2	13.8	14.8
87.5°	5.1	4.9	4.9	5.1	4.9	4.7	5.3	5.3	5.1	5.3	5.3
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°	430.8	430.8	430.8	430.8
2.5°	407.0	407.0	405.4	406.0
5°	382.9	383.7	381.7	381.1
7.5°	365.2	364.4	363.0	363.0
10°	347.8	347.0	346.4	346.4
12.5°	332.8	332.0	330.8	331.8
15°	319.4	319.6	318.8	318.8
17.5°	309.1	307.4	306.8	306.6
20°	296.9	297.3	296.5	295.1
22.5°	289.2	288.2	287.4	287.2
25°	281.3	280.3	280.1	279.3
27.5°	273.4	273.6	273.0	273.0
30°	266.9	267.5	266.9	267.1
32.5°	260.4	260.4	260.4	259.6
35°	253.3	253.5	253.3	252.9
37.5°	246.0	246.0	246.2	246.6
40°	237.9	237.9	238.3	238.3
42.5°	228.2	229.2	229.8	228.8
45°	219.6	219.8	220.0	219.8
47.5°	209.9	209.3	209.5	209.9
50°	197.9	199.2	199.2	198.1
52.5°	186.2	186.6	187.4	187.4
55°	174.8	175.0	175.2	175.6
57.5°	161.8	162.0	162.0	161.8
60°	148.7	149.9	149.7	149.9
62.5°	134.7	136.5	137.1	136.9
65°	121.5	121.9	122.9	124.3
67.5°	107.5	108.5	110.1	109.7
70°	93.7	95.1	95.5	96.3
72.5°	79.9	81.7	82.1	82.5
75°	66.5	67.3	68.1	67.9
77.5°	51.9	53.1	54.4	53.7
80°	38.9	39.1	40.2	39.8
82.5°	25.6	27.2	27.2	26.4
85°	15.0	15.0	15.0	15.0
87.5°	5.1	4.9	5.3	5.1
90°	0.0	0.0	0.0	0.0

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