

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: P243331

Luminaire Tested: **S123DR-H340D840-X4F0-XX-UDD-A-W**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P243331
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-H340D840-X4F0-XX-UDD-A-W
Description: DEFINE 3 DIRECT RECESSED WITH ASYMMETRIC FLUSH DIFFUSER.
HIGH PERFORMANCE LIGHT ENGINE
Light Source: (184) 4000K CCT, 80 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 1391.2 lumens
Efficiency: N/A
Efficacy: 124.2 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

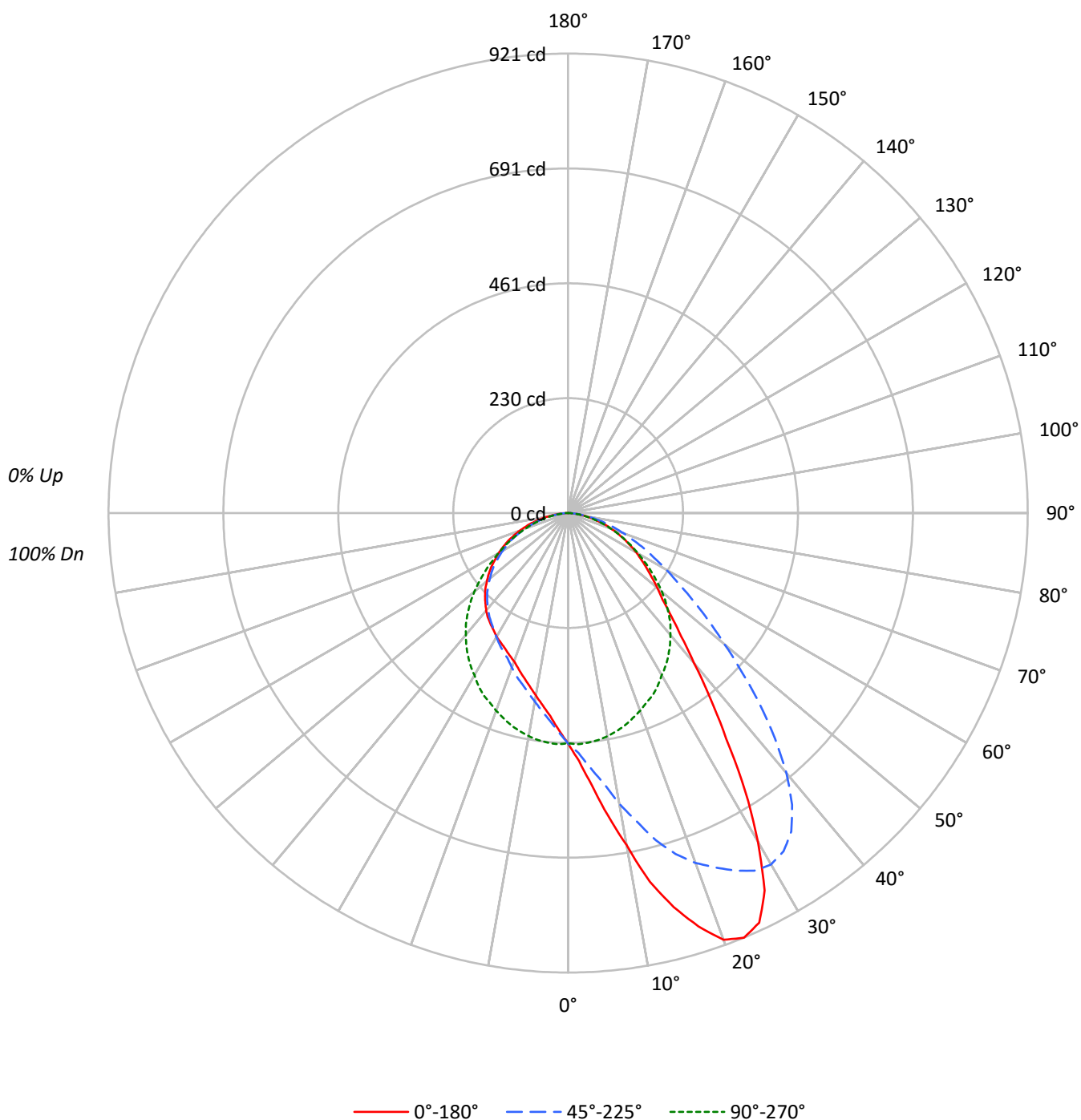
Input Watts (W): 11.2
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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					10
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°	5595	5595	5595
5°	6667	5621	4969
10°	8325	5588	4569
15°	10260	5528	4287
20°	11740	5440	4079
25°	12116	5379	4003
30°	10644	5251	4006
35°	8170	5173	4010
40°	6214	5048	4040
45°	5000	4884	4037
50°	4399	4624	4002
55°	4055	4284	3975
60°	3823	3920	3893
65°	3554	3582	3820
70°	3250	3214	3654
75°	2890	2801	3405
80°	2422	2317	2981
85°	1711	1669	2239

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	45.4	3.3
10°-20°	145.8	10.5
20°-30°	240.8	17.3
30°-40°	275.6	19.8
40°-50°	249.8	18.0
50°-60°	201.8	14.5
60°-70°	140.6	10.1
70°-80°	73.7	5.3
80°-90°	17.6	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°	432.1	31.1
0°-40°	707.7	50.9
0°-60°	1159.3	83.3
0°-90°	1391.2	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1391.2	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	462	462	462	462	462	
5°	548	512	462	418	408	56
15°	818	679	440	355	342	233
25°	906	791	402	307	299	405
35°	552	779	350	268	271	350
45°	292	544	285	230	236	230
55°	192	306	203	180	188	172
65°	124	167	125	123	133	123
75°	62	76	60	62	73	66
85°	12	16	12	14	16	16
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°	461.6	461.6	461.6	461.6	461.6	461.6	461.6	461.6	461.6	461.6	461.6
2.5°	497.1	498.2	496.5	497.6	495.0	493.5	491.2	490.2	485.1	481.5	480.2
5°	547.9	547.9	548.3	545.7	542.8	537.5	530.5	526.1	521.0	512.3	507.9
7.5°	611.7	608.5	606.4	601.8	597.7	589.1	581.5	572.4	560.5	546.2	538.6
10°	676.4	679.8	677.6	672.8	662.4	648.3	637.1	624.0	605.6	591.6	571.7
12.5°	757.1	752.7	749.3	741.9	730.5	715.5	698.1	678.7	655.0	632.0	609.8
15°	817.6	818.2	818.0	808.3	797.1	776.8	760.7	728.4	698.4	678.9	642.1
17.5°	868.7	871.5	868.3	853.7	843.8	831.7	811.2	775.3	748.0	716.5	675.9
20°	910.1	910.6	905.5	894.7	883.3	869.8	842.7	815.2	788.6	746.3	707.7
22.5°	921.1	922.2	921.1	916.5	907.2	892.8	872.5	847.2	813.5	768.5	732.6
25°	905.9	905.3	908.9	906.1	905.7	901.1	887.7	867.2	834.0	790.7	745.1
27.5°	852.6	848.2	857.3	869.1	870.8	878.2	878.4	868.9	845.0	808.1	758.4
30°	760.5	764.7	769.2	793.9	807.6	826.9	843.6	849.7	840.6	813.3	766.8
32.5°	660.3	673.8	686.3	703.4	723.5	756.1	782.5	805.7	815.7	803.6	766.8
35°	552.1	559.3	578.9	600.7	629.7	655.0	707.4	741.3	771.5	779.3	757.1
37.5°	467.5	474.1	480.9	497.8	530.3	572.6	615.9	660.3	705.1	737.2	736.0
40°	392.7	394.2	400.1	414.7	441.8	479.4	524.8	578.3	636.4	680.2	698.6
42.5°	335.2	335.2	342.6	359.5	375.2	402.7	446.6	493.7	557.4	613.6	652.9
45°	291.7	292.1	298.0	310.1	322.3	343.9	376.4	420.8	486.4	544.5	599.2
47.5°	256.2	260.2	263.6	269.9	282.2	301.2	324.9	362.7	409.4	472.8	536.7
50°	233.3	234.2	236.7	240.5	250.0	262.5	283.0	311.8	353.2	409.4	473.9
52.5°	210.9	210.9	213.5	218.1	223.6	233.8	248.6	272.5	303.5	354.5	412.4
55°	191.9	192.6	193.0	196.8	201.4	209.0	220.7	236.3	264.8	305.6	356.2
57.5°	173.3	175.6	175.0	178.0	181.4	186.8	195.1	208.6	230.4	261.5	306.9
60°	157.7	157.3	158.3	159.6	161.9	165.7	173.3	183.3	201.4	227.4	264.6
62.5°	139.9	139.5	140.8	142.2	144.4	147.5	153.0	160.6	175.0	194.5	226.8
65°	123.9	123.4	124.1	124.9	127.2	129.8	134.0	140.3	149.9	167.0	191.7
67.5°	107.8	107.8	108.2	109.1	110.5	112.4	115.8	119.6	129.1	140.6	160.0
70°	91.7	91.9	91.9	92.8	94.1	95.5	98.3	101.7	107.6	117.7	133.4
72.5°	77.8	77.8	77.4	77.8	78.6	79.3	81.0	84.1	88.6	96.0	107.8
75°	61.7	62.8	62.6	62.4	63.0	64.0	65.5	68.1	70.8	76.1	85.0
77.5°	47.3	48.0	48.0	48.2	48.8	49.7	50.1	52.6	55.2	58.3	64.9
80°	34.7	35.1	34.7	34.9	35.3	36.1	37.0	37.4	39.3	42.1	45.2
82.5°	23.3	22.6	23.5	23.3	23.7	23.9	24.3	24.5	25.8	27.5	29.6
85°	12.3	13.3	13.1	13.5	13.1	13.3	13.5	14.4	14.6	15.6	16.9
87.5°	4.7	5.1	5.1	5.1	5.1	5.1	5.5	5.7	6.1	6.3	6.8
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°	461.6	461.6	461.6	461.6	461.6	461.6	461.6	461.6	461.6	461.6	461.6
2.5°	481.1	479.2	476.4	473.5	470.3	467.1	465.6	463.7	459.9	456.1	453.2
5°	504.3	499.0	491.8	486.6	479.0	471.8	466.1	462.0	455.9	448.5	443.7
7.5°	530.3	520.8	509.4	497.8	486.4	475.6	466.7	459.1	449.6	440.5	433.1
10°	561.0	542.6	526.7	509.8	492.9	477.7	465.0	454.0	441.8	430.8	421.7
12.5°	588.0	566.7	544.7	520.8	498.0	478.3	462.0	447.7	432.9	420.2	410.9
15°	617.8	587.8	557.4	530.3	502.6	478.5	457.2	440.5	423.6	409.2	398.4
17.5°	652.1	611.9	573.6	534.8	510.2	479.2	453.0	431.0	413.6	399.3	385.3
20°	672.4	632.4	585.5	545.5	505.0	473.0	443.9	421.7	401.4	384.9	373.5
22.5°	683.3	641.3	592.2	551.2	503.9	468.2	437.1	410.9	389.1	372.6	359.7
25°	698.8	641.3	595.8	546.6	505.6	462.5	427.4	402.2	379.4	360.4	346.9
27.5°	705.7	647.0	596.3	537.7	495.4	451.7	416.2	389.5	364.2	345.6	334.0
30°	711.5	648.0	587.8	530.7	483.6	439.6	405.0	375.2	351.5	333.7	321.5
32.5°	711.9	645.3	576.4	517.6	467.8	425.5	391.7	363.5	338.8	320.0	308.0
35°	708.1	638.5	563.3	497.6	449.4	410.9	377.1	349.6	324.4	306.5	294.2
37.5°	698.4	630.9	551.0	478.7	427.6	390.2	361.4	335.2	310.3	292.3	282.2
40°	677.6	618.7	535.0	458.7	405.6	368.2	343.0	319.0	296.8	278.2	268.0
42.5°	650.2	600.3	515.5	437.3	381.1	344.9	322.8	303.3	280.7	264.6	254.3
45°	611.3	575.3	496.1	414.9	356.8	321.3	301.0	284.9	265.5	249.4	240.3
47.5°	567.3	545.3	470.9	389.8	331.2	297.8	278.6	265.7	249.2	235.5	226.4
50°	517.8	509.6	443.2	364.4	307.3	273.1	255.3	245.2	231.2	220.2	212.4
52.5°	464.2	469.2	414.1	338.6	284.3	249.6	232.7	223.4	214.5	205.2	197.8
55°	409.6	421.7	378.8	310.5	257.9	227.6	211.2	202.7	196.1	188.3	183.0
57.5°	358.5	377.3	342.2	280.5	233.6	204.6	189.0	181.6	176.7	172.5	167.6
60°	308.8	330.6	304.6	252.4	209.3	182.8	168.9	161.7	159.4	156.2	151.5
62.5°	264.8	287.0	267.6	223.4	184.7	162.1	149.4	143.5	140.1	139.1	136.3
65°	223.6	244.3	229.5	193.2	161.5	141.4	130.2	124.9	123.0	122.8	120.7
67.5°	187.9	208.0	194.5	163.8	137.0	120.7	112.2	108.0	106.1	106.3	104.8
70°	154.9	169.1	161.1	137.0	116.3	101.9	95.3	90.7	89.2	89.2	88.8
72.5°	124.3	135.5	129.4	111.0	94.7	83.7	78.0	75.2	74.0	73.8	74.0
75°	97.2	107.0	101.5	87.1	74.8	66.6	61.7	59.8	59.2	58.8	59.0
77.5°	72.7	78.8	75.5	66.2	56.0	50.3	48.0	46.1	45.4	45.7	46.1
80°	51.4	54.7	52.8	46.9	40.2	36.4	34.7	33.2	32.6	33.2	33.2
82.5°	32.6	35.1	33.4	29.6	26.2	23.7	22.0	21.6	21.3	20.9	21.6
85°	17.8	19.0	18.2	16.9	14.6	13.5	12.3	12.0	12.0	12.0	12.0
87.5°	7.0	7.8	6.8	6.8	6.3	5.3	5.3	5.1	4.9	5.1	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°	461.6	461.6	461.6	461.6	461.6	461.6	461.6	461.6	461.6	461.6	461.6
2.5°	451.9	449.2	447.5	445.1	442.4	438.8	437.3	438.8	437.9	436.5	437.1
5°	439.4	435.8	431.2	427.4	423.2	417.9	416.2	415.3	414.1	413.4	412.4
7.5°	427.2	421.9	416.2	410.9	404.8	400.1	398.0	396.5	396.1	392.9	391.7
10°	414.5	407.9	402.2	395.0	389.8	383.6	381.1	379.4	377.5	375.4	373.9
12.5°	401.2	394.6	387.4	380.7	375.4	368.6	365.2	363.3	361.9	360.4	358.7
15°	389.5	383.0	373.1	368.0	361.6	354.9	352.8	348.5	349.0	346.4	344.7
17.5°	377.3	367.6	360.6	353.0	348.3	343.5	339.5	335.0	334.4	332.5	331.8
20°	363.5	353.4	348.5	340.7	334.4	329.5	325.9	325.5	324.2	321.5	320.4
22.5°	350.0	341.8	335.0	327.8	322.1	315.8	314.1	314.7	312.4	311.8	309.4
25°	337.8	330.6	322.1	315.4	310.7	306.7	304.4	303.5	302.7	302.0	301.0
27.5°	324.7	317.0	309.9	304.4	299.9	297.2	295.7	293.8	293.6	293.6	293.2
30°	311.6	304.8	299.9	293.0	288.9	287.2	286.0	285.3	286.0	286.0	286.2
32.5°	299.5	293.0	287.2	282.4	278.4	277.1	276.9	276.9	277.7	277.7	278.4
35°	287.0	280.5	275.2	271.8	268.4	268.2	268.4	268.9	269.9	270.1	271.0
37.5°	273.5	268.4	264.4	260.2	259.3	259.8	260.2	260.6	261.0	262.7	262.7
40°	261.0	257.2	253.2	250.5	249.0	250.0	250.7	250.9	252.2	253.2	254.1
42.5°	248.8	245.2	242.0	239.7	239.1	239.9	240.5	241.2	242.4	243.3	244.8
45°	235.0	232.7	230.0	228.1	228.3	229.5	229.5	231.7	232.5	232.9	234.0
47.5°	222.4	219.8	217.9	217.1	216.9	217.9	218.6	220.2	220.7	222.1	223.0
50°	208.8	206.9	205.4	204.4	204.6	205.0	206.5	208.2	208.6	210.3	211.8
52.5°	194.7	193.0	191.7	192.1	192.8	192.8	194.2	195.3	196.4	197.6	199.1
55°	180.7	178.4	178.6	178.0	178.6	180.1	180.7	182.4	183.3	183.9	186.0
57.5°	165.5	165.1	164.4	163.8	165.1	165.7	166.8	167.8	169.3	170.1	171.6
60°	149.9	149.2	149.2	150.1	150.5	151.8	153.5	154.1	154.5	156.2	158.1
62.5°	135.5	134.9	134.6	135.9	135.9	137.2	137.8	138.9	140.6	141.2	143.7
65°	120.1	119.6	119.6	120.7	120.9	123.2	123.2	123.2	124.3	126.6	127.9
67.5°	104.0	104.2	104.8	105.5	106.3	107.0	107.2	108.4	110.1	111.6	114.1
70°	87.9	89.0	90.3	90.0	90.7	91.7	91.9	93.2	94.7	96.6	99.6
72.5°	73.6	74.2	75.5	75.5	76.3	76.9	78.0	78.8	80.7	82.4	83.7
75°	59.2	59.4	60.5	61.1	61.7	62.1	63.2	64.7	65.7	67.2	69.1
77.5°	46.5	46.1	46.9	47.1	47.6	48.4	49.2	50.7	51.6	53.3	53.9
80°	33.0	33.8	34.0	34.2	34.7	35.7	36.4	37.0	37.8	39.3	39.9
82.5°	21.8	22.2	22.8	23.0	23.5	23.7	23.9	24.9	25.6	26.0	28.1
85°	12.7	13.3	12.9	12.9	13.3	13.5	14.4	14.4	15.2	14.8	15.9
87.5°	5.5	5.3	5.3	5.5	5.3	5.1	5.7	5.7	5.5	5.7	5.7
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):

	165°	170°	175°	180°
0°	461.6	461.6	461.6	461.6
2.5°	436.0	436.0	434.4	435.0
5°	410.3	411.1	409.0	408.4
7.5°	391.2	390.4	388.9	388.9
10°	372.6	371.8	371.2	371.2
12.5°	356.6	355.7	354.5	355.5
15°	342.2	342.4	341.6	341.6
17.5°	331.2	329.3	328.7	328.5
20°	318.1	318.5	317.7	316.2
22.5°	309.9	308.8	308.0	307.7
25°	301.4	300.4	300.1	299.3
27.5°	293.0	293.2	292.5	292.5
30°	286.0	286.6	286.0	286.2
32.5°	279.0	279.0	279.0	278.2
35°	271.4	271.6	271.4	271.0
37.5°	263.6	263.6	263.8	264.2
40°	254.9	254.9	255.3	255.3
42.5°	244.5	245.6	246.2	245.2
45°	235.2	235.5	235.7	235.5
47.5°	224.9	224.3	224.5	224.9
50°	212.0	213.5	213.5	212.2
52.5°	199.5	200.0	200.8	200.8
55°	187.3	187.5	187.7	188.1
57.5°	173.3	173.5	173.5	173.3
60°	159.4	160.6	160.4	160.6
62.5°	144.4	146.3	146.9	146.7
65°	130.2	130.6	131.7	133.2
67.5°	115.2	116.3	117.9	117.5
70°	100.4	101.9	102.3	103.1
72.5°	85.6	87.5	87.9	88.4
75°	71.2	72.1	72.9	72.7
77.5°	55.6	56.9	58.3	57.5
80°	41.6	41.9	43.1	42.7
82.5°	27.5	29.2	29.2	28.3
85°	16.1	16.1	16.1	16.1
87.5°	5.5	5.3	5.7	5.5
90°	0.0	0.0	0.0	0.0

(END OF REPORT)