

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: P242579

Luminaire Tested: **S123RDR-S340D930-X4F0-XX-UDD-A-W**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P242579
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1802-639-30)
Test Lab: INNOVATION CENTER
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: NEO-RAY
Catalog Number: S123RDR-S340D930-X4F0-XX-UDD-A-W
Description: DEFINE 3 REGRESSED DIRECT RECESSED WITH ASYMMETRIC FLUSH DIFFUSER
STANDARD LIGHT ENGINE
Light Source: (92) 3000K CCT, 90 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 1035.3 lumens
Efficiency: N/A
Efficacy: 89.3 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.22 / 1.35
Luminous Opening: Rectangular (W 3.88' x L: 0.23' x H: 0')
CIE Type: Direct

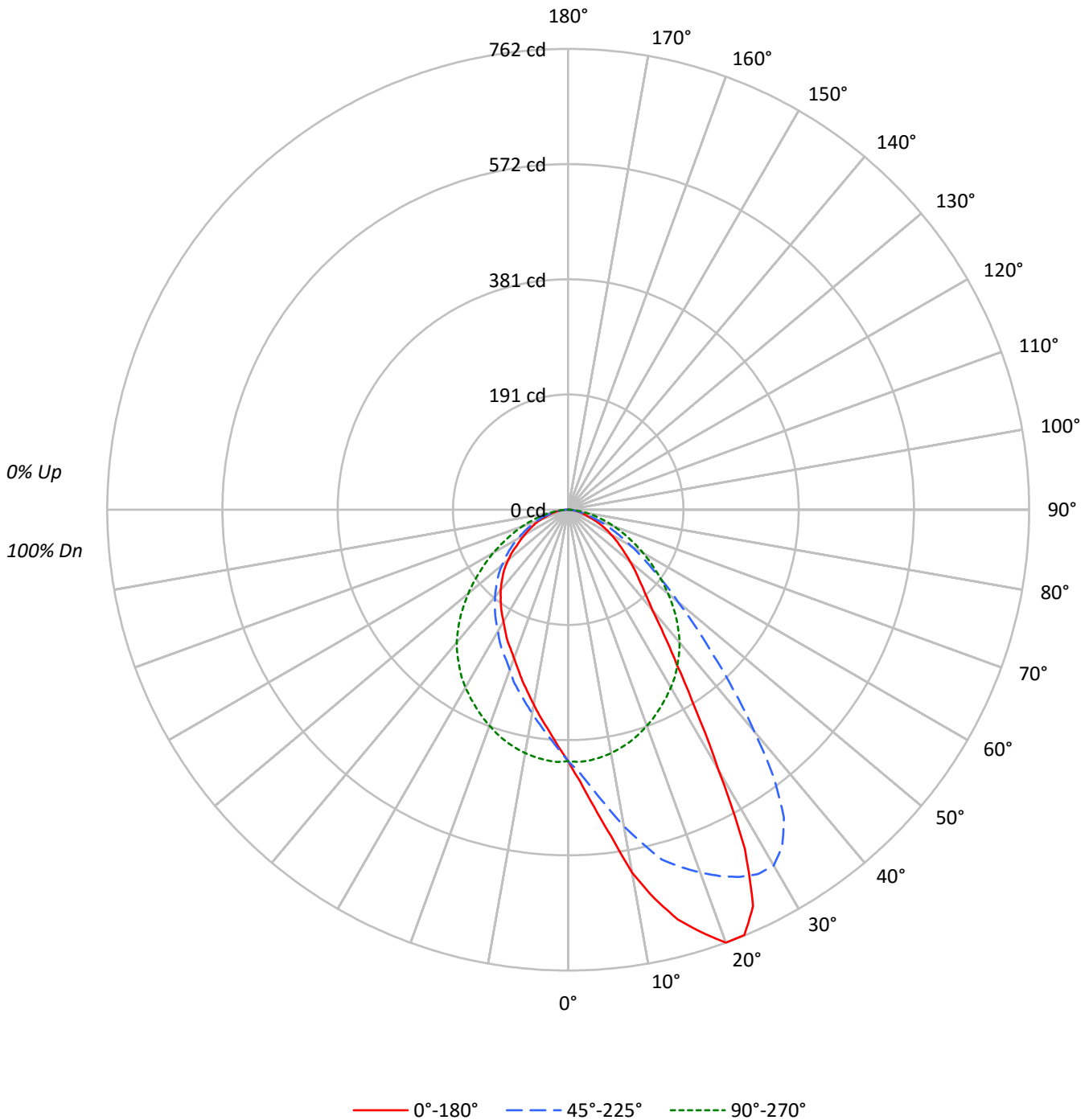
Input Watts (W): 11.6
Input Voltage (V): 120
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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	110	106	102	99	108	104	100	97	100	97	94	96	93	91	92	90	89	87
2	101	94	88	83	99	92	87	82	89	84	80	86	82	78	83	79	77	74
3	93	84	76	71	91	82	75	70	79	74	69	77	72	68	74	70	66	64
4	86	75	67	61	84	74	66	61	71	65	60	69	64	59	67	62	58	56
5	80	68	60	53	78	67	59	53	65	58	53	63	57	52	61	56	52	50
6	74	62	53	47	72	61	53	47	59	52	47	57	51	46	56	50	46	44
7	69	56	48	42	67	55	48	42	54	47	42	53	46	42	51	46	41	39
8	64	52	44	38	63	51	43	38	50	43	38	48	42	38	47	42	37	36
9	60	48	40	35	59	47	40	35	46	39	34	45	39	34	44	38	34	32
10	57	44	37	32	55	44	36	32	43	36	31	42	36	31	41	35	31	29

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	5040	5040	5040
5°	6008	5062	4457
10°	7501	5032	4027
15°	8804	4981	3672
20°	9827	4904	3371
25°	9670	4823	3186
30°	6951	4749	2994
35°	4640	4651	2871
40°	3419	4535	2744
45°	2868	4330	2618
50°	2531	4062	2444
55°	2219	3753	2204
60°	1976	3462	2019
65°	1735	3143	1879
70°	1361	2864	1715
75°	1199	2501	1569
80°	1047	2122	1543
85°	848	1711	1627



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	40.8	3.9
10°-20°	127.8	12.3
20°-30°	201.3	19.4
30°-40°	209.4	20.2
40°-50°	179.1	17.3
50°-60°	136.5	13.2
60°-70°	87.5	8.4
70°-80°	41.9	4.0
80°-90°	11.0	1.1
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°	370.0	35.7
0°-40°	579.3	56.0
0°-60°	894.9	86.4
0°-90°	1035.3	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1035.3	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	416	416	416	416	416	
5°	494	463	416	376	366	51
15°	702	599	397	312	293	199
25°	723	670	361	258	238	314
35°	314	622	314	210	194	204
45°	167	338	253	166	153	131
55°	105	168	178	120	104	95
65°	60	83	110	75	66	60
75°	26	30	53	38	34	27
85°	6	7	12	11	12	7
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°	415.8	415.8	415.8	415.8	415.8	415.8	415.8	415.8	415.8	415.8	415.8
2.5°	449.6	450.3	448.0	447.7	445.0	444.3	444.3	440.5	438.2	435.2	433.4
5°	493.8	496.6	495.2	492.0	486.6	485.4	482.0	476.7	470.6	463.1	459.6
7.5°	544.3	550.2	549.1	544.1	538.4	534.9	525.4	517.8	506.2	495.7	487.5
10°	609.4	605.4	602.2	597.3	592.2	583.8	573.8	560.1	544.3	531.8	518.0
12.5°	658.2	658.4	654.1	649.1	641.3	633.5	620.7	603.2	584.2	564.8	548.4
15°	701.6	702.7	700.0	694.9	684.6	670.5	652.0	645.0	618.7	599.1	579.5
17.5°	732.6	732.8	732.3	725.3	714.1	704.5	687.2	671.0	646.1	619.6	593.4
20°	761.8	760.0	760.4	752.4	744.5	733.0	716.2	689.7	670.1	638.3	611.0
22.5°	761.1	761.1	762.7	761.3	756.1	747.9	735.6	714.3	687.9	655.7	624.2
25°	723.0	721.6	729.9	732.3	741.3	742.9	739.0	726.7	703.1	670.0	632.1
27.5°	632.2	627.1	644.5	661.8	684.7	699.3	714.3	717.7	706.5	679.4	639.7
30°	496.6	513.3	521.2	549.3	580.6	618.0	650.7	681.9	689.5	679.2	648.1
32.5°	391.2	405.3	411.5	434.7	463.3	508.7	561.9	609.3	646.3	658.8	643.1
35°	313.6	313.8	328.8	339.4	366.5	411.5	459.2	518.3	577.1	621.6	626.2
37.5°	258.8	259.5	269.1	279.8	301.5	326.8	371.1	421.0	491.6	558.0	592.5
40°	216.1	217.7	224.4	235.0	249.5	267.5	300.3	346.6	403.2	479.2	541.3
42.5°	188.7	191.5	194.2	201.7	209.3	225.9	250.8	283.9	334.1	404.9	479.0
45°	167.3	168.7	171.4	175.1	183.3	195.1	212.9	236.9	279.6	337.5	409.2
47.5°	150.9	150.0	153.1	156.3	161.8	170.3	182.8	203.6	235.7	284.1	346.2
50°	134.2	134.0	136.0	138.3	143.5	149.3	159.1	173.9	198.1	236.6	292.3
52.5°	118.5	119.4	120.7	123.7	127.1	131.5	140.1	149.7	169.6	201.5	245.6
55°	105.0	105.5	107.5	109.1	111.8	116.6	122.1	131.0	145.2	168.4	206.6
57.5°	93.3	93.1	95.0	95.2	98.6	102.7	107.2	114.1	125.0	143.3	170.0
60°	81.5	81.0	82.6	83.8	85.4	88.6	92.2	99.0	107.2	119.8	141.9
62.5°	70.8	70.7	71.7	73.0	74.2	77.1	79.9	84.7	90.8	100.9	117.3
65°	60.5	61.1	61.6	62.1	62.8	64.6	67.5	71.0	75.5	82.9	95.6
67.5°	49.8	50.6	50.7	52.0	53.4	54.3	55.9	59.3	62.7	69.4	76.9
70°	38.4	38.3	38.4	39.0	40.9	42.9	45.2	47.5	49.5	53.9	60.0
72.5°	31.7	31.3	31.9	31.9	32.6	32.8	34.0	36.1	38.8	41.5	45.4
75°	25.6	25.6	25.6	25.6	26.3	26.7	27.2	27.8	28.7	30.1	33.3
77.5°	19.9	19.9	20.3	20.5	20.6	20.8	21.2	21.7	22.1	22.8	24.4
80°	15.0	15.1	15.0	15.1	15.1	15.5	15.7	16.2	16.4	17.3	17.8
82.5°	10.3	10.1	10.3	10.5	10.5	10.9	10.9	11.2	11.2	11.6	12.1
85°	6.1	5.7	6.1	5.9	6.2	5.9	6.1	6.4	6.4	6.6	7.3
87.5°	1.8	2.1	1.8	2.0	2.0	2.1	2.1	2.1	2.5	2.3	2.5
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°	415.8	415.8	415.8	415.8	415.8	415.8	415.8	415.8	415.8	415.8	415.8
2.5°	432.7	432.2	429.7	426.8	423.1	420.6	418.6	417.6	414.4	410.5	407.8
5°	455.8	450.5	444.8	437.9	431.5	424.9	420.8	416.0	410.1	403.5	398.9
7.5°	478.8	469.5	459.4	448.9	438.2	428.8	420.1	412.9	404.0	395.0	388.7
10°	506.0	490.7	474.9	458.7	443.9	430.0	419.4	408.8	397.6	386.8	378.6
12.5°	530.8	509.4	490.5	469.7	449.8	432.5	416.0	403.2	389.1	377.3	367.7
15°	550.9	530.2	508.2	477.9	452.8	431.8	413.1	396.9	380.5	366.3	357.2
17.5°	571.9	540.6	511.6	488.1	455.3	429.9	408.0	389.1	371.3	356.7	345.3
20°	584.0	553.9	521.7	489.5	457.4	428.1	401.6	380.2	361.5	344.4	334.1
22.5°	591.3	556.2	521.9	486.6	452.1	421.3	395.1	371.1	350.5	334.4	321.1
25°	596.6	556.1	518.7	484.5	449.8	416.7	385.5	360.6	338.7	321.5	307.9
27.5°	600.9	553.9	511.0	473.8	438.8	405.1	377.0	350.3	328.4	310.4	295.6
30°	602.0	551.2	501.9	460.8	425.0	394.8	364.5	339.3	315.8	296.4	282.8
32.5°	603.4	544.7	489.7	445.3	408.5	378.6	351.9	328.0	303.8	284.8	270.9
35°	598.4	543.1	477.2	427.0	390.3	361.3	336.6	314.3	290.7	272.2	258.1
37.5°	583.3	534.3	464.7	406.5	368.6	341.9	321.3	301.0	279.1	258.8	245.8
40°	557.8	520.1	449.8	388.2	348.2	320.6	302.4	286.6	265.6	246.9	232.6
42.5°	519.9	500.7	435.5	369.0	325.0	298.7	284.1	269.5	251.7	232.6	219.5
45°	471.9	474.9	415.1	348.3	304.0	277.3	262.9	252.6	236.2	220.5	206.8
47.5°	413.5	438.8	393.2	326.6	281.2	256.1	243.5	234.1	222.7	206.5	193.8
50°	356.5	396.9	365.8	304.7	260.0	235.1	222.7	215.4	205.8	193.7	181.7
52.5°	304.0	348.2	332.7	280.3	237.1	214.8	202.7	197.0	189.9	178.7	168.2
55°	256.5	300.5	296.2	255.8	214.1	193.7	184.4	177.6	172.5	163.9	155.4
57.5°	215.2	257.7	258.6	228.5	194.2	173.4	165.4	160.0	156.5	149.7	141.3
60°	176.6	214.8	222.3	201.0	172.5	154.7	146.8	142.8	140.1	134.9	128.9
62.5°	144.5	175.7	184.4	170.5	151.7	135.3	129.6	125.7	124.1	119.8	114.6
65°	115.5	142.6	150.8	142.2	131.4	118.0	113.0	109.6	108.0	105.5	101.6
67.5°	91.1	112.1	121.0	113.9	109.8	100.4	97.0	95.0	93.6	91.8	88.5
70°	69.8	84.4	93.6	92.0	88.8	84.4	82.1	80.8	79.4	78.0	75.1
72.5°	52.7	61.6	70.1	71.6	69.1	69.1	67.1	66.7	66.0	64.3	63.0
75°	37.2	44.1	50.2	52.5	53.6	54.5	53.6	53.4	53.2	51.8	50.9
77.5°	25.8	30.3	34.4	38.4	39.9	41.1	41.3	42.0	41.5	40.6	40.2
80°	18.7	19.6	22.2	25.6	28.3	29.4	30.1	30.4	30.3	30.1	29.4
82.5°	12.3	13.0	13.9	16.0	18.2	20.1	20.5	20.3	20.8	21.0	20.5
85°	7.3	7.5	7.8	8.2	9.4	11.4	11.9	12.3	12.6	12.6	11.6
87.5°	2.8	2.7	3.0	3.0	3.6	3.7	4.8	5.7	5.9	5.2	5.2
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°	415.8	415.8	415.8	415.8	415.8	415.8	415.8	415.8	415.8	415.8	415.8
2.5°	406.9	404.6	403.0	399.4	397.1	394.6	392.1	393.7	393.5	393.4	393.4
5°	395.0	390.9	387.1	382.3	379.3	375.6	372.7	372.4	373.1	370.6	369.2
7.5°	383.8	378.4	373.1	368.1	362.6	358.3	355.6	354.6	352.6	351.0	349.6
10°	371.8	365.2	360.1	353.5	347.4	342.1	338.7	336.4	335.2	333.9	331.6
12.5°	359.5	353.1	346.2	338.5	332.8	326.4	324.1	321.5	318.8	317.4	314.0
15°	347.6	339.3	332.3	324.5	318.1	312.0	308.5	303.3	302.6	300.8	297.6
17.5°	336.1	326.8	316.6	311.3	304.9	298.5	292.8	291.2	285.9	284.1	281.1
20°	321.8	313.4	306.1	298.5	288.0	282.1	277.8	275.5	271.4	268.9	267.2
22.5°	309.5	301.0	292.3	283.0	274.8	268.1	265.2	261.3	259.5	255.8	253.8
25°	298.0	288.7	278.6	268.9	262.7	257.7	252.8	249.5	246.3	244.7	241.2
27.5°	283.9	274.6	264.9	257.4	250.3	245.3	240.5	237.8	233.7	231.0	229.1
30°	272.7	261.3	253.1	246.5	236.7	232.1	228.7	225.2	222.3	219.5	217.5
32.5°	259.7	249.5	241.9	233.3	226.4	221.2	216.6	213.6	211.3	208.6	206.6
35°	246.0	237.3	229.3	221.1	215.5	210.4	205.2	202.6	200.2	197.8	196.0
37.5°	233.5	225.3	217.9	210.0	203.3	198.8	194.5	192.8	189.6	187.8	186.0
40°	222.1	214.1	205.9	198.5	191.3	188.1	184.4	181.4	178.5	177.3	175.3
42.5°	209.7	201.7	195.1	186.9	181.4	176.7	173.4	170.0	168.0	166.1	165.2
45°	197.4	190.3	183.5	175.5	170.0	166.2	162.3	159.3	157.3	156.1	154.1
47.5°	185.6	178.3	171.6	164.5	159.1	154.9	150.8	148.8	146.1	144.7	143.3
50°	172.7	166.2	158.9	152.5	147.2	142.9	139.7	137.1	134.7	132.8	131.9
52.5°	160.7	153.8	147.7	141.9	136.2	131.2	128.3	125.5	123.9	121.6	120.5
55°	147.4	140.8	135.5	129.6	124.1	120.0	116.4	113.9	112.1	109.6	108.2
57.5°	135.1	129.4	122.8	117.7	111.8	108.6	105.5	102.0	99.9	97.9	96.5
60°	122.6	115.9	110.4	105.5	100.6	96.1	93.4	90.8	88.5	86.5	85.3
62.5°	109.6	103.9	98.8	93.4	89.0	85.3	82.1	79.9	78.0	76.9	75.6
65°	96.3	91.7	86.3	82.1	77.8	74.9	72.4	70.5	69.1	68.2	67.1
67.5°	84.0	79.6	74.8	70.3	67.5	65.1	63.4	61.6	60.9	59.8	59.1
70°	72.1	67.5	63.4	60.2	57.3	55.7	54.6	53.4	52.7	51.3	50.6
72.5°	59.1	56.1	53.4	50.9	48.8	47.3	45.9	44.3	43.1	41.5	40.8
75°	48.6	45.6	43.3	41.5	40.0	38.1	36.1	34.5	34.0	33.5	33.3
77.5°	37.9	36.0	34.2	32.8	30.8	29.0	28.5	28.1	27.9	27.6	27.6
80°	28.3	26.5	25.3	23.5	22.4	22.4	22.4	22.1	22.2	22.2	22.2
82.5°	19.2	17.6	17.1	16.7	16.7	16.9	16.9	17.1	16.9	17.3	17.1
85°	10.9	11.0	11.4	11.2	11.4	11.4	11.7	11.6	11.7	11.4	11.7
87.5°	5.0	5.5	5.7	5.9	6.1	5.9	6.1	6.1	6.2	6.2	6.2
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°	415.8	415.8	415.8	415.8
2.5°	391.2	391.1	391.2	390.5
5°	368.6	368.4	367.9	366.3
7.5°	348.2	347.8	346.4	346.7
10°	330.4	330.5	328.4	327.2
12.5°	313.1	312.0	310.4	309.0
15°	298.3	296.5	292.3	292.6
17.5°	280.0	278.6	278.4	275.9
20°	264.3	263.4	263.8	261.3
22.5°	252.0	251.1	249.2	248.8
25°	240.1	238.7	237.3	238.2
27.5°	228.0	226.9	225.3	225.3
30°	216.6	215.5	214.8	213.9
32.5°	205.0	205.0	203.6	203.6
35°	195.3	194.2	193.8	194.0
37.5°	185.8	184.4	183.7	183.0
40°	175.5	174.1	173.7	173.4
42.5°	163.9	163.6	163.4	162.7
45°	153.6	153.4	152.4	152.7
47.5°	142.6	141.7	141.1	141.7
50°	131.2	130.8	129.2	129.6
52.5°	119.8	118.2	117.8	117.5
55°	107.0	105.4	104.7	104.3
57.5°	94.3	93.8	93.1	93.6
60°	83.5	83.5	83.5	83.3
62.5°	75.1	74.6	74.4	74.8
65°	66.6	66.4	65.7	65.5
67.5°	58.7	58.0	58.0	57.7
70°	49.7	49.3	48.2	48.4
72.5°	39.9	39.5	39.5	39.2
75°	33.1	32.9	32.8	33.5
77.5°	27.6	27.6	27.8	27.4
80°	22.2	22.2	22.1	22.1
82.5°	16.7	16.9	17.1	16.7
85°	11.7	11.6	11.9	11.7
87.5°	6.6	6.2	6.2	6.4
90°	0.0	0.0	0.0	0.0

(END OF REPORT)