

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: P242574

Luminaire Tested: **S123RDR-S340D840-X4F0-XX-UDD-A-W**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P242574
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-S340D840-X4F0-XX-UDD-A-W
Description: DEFINE 3 REGRESSED DIRECT RECESSED WITH ASYMMETRIC FLUSH DIFFUSER
STANDARD LIGHT ENGINE
Light Source: (92) 4000K CCT, 80 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 1282.4 lumens
Efficiency: N/A
Efficacy: 110.6 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

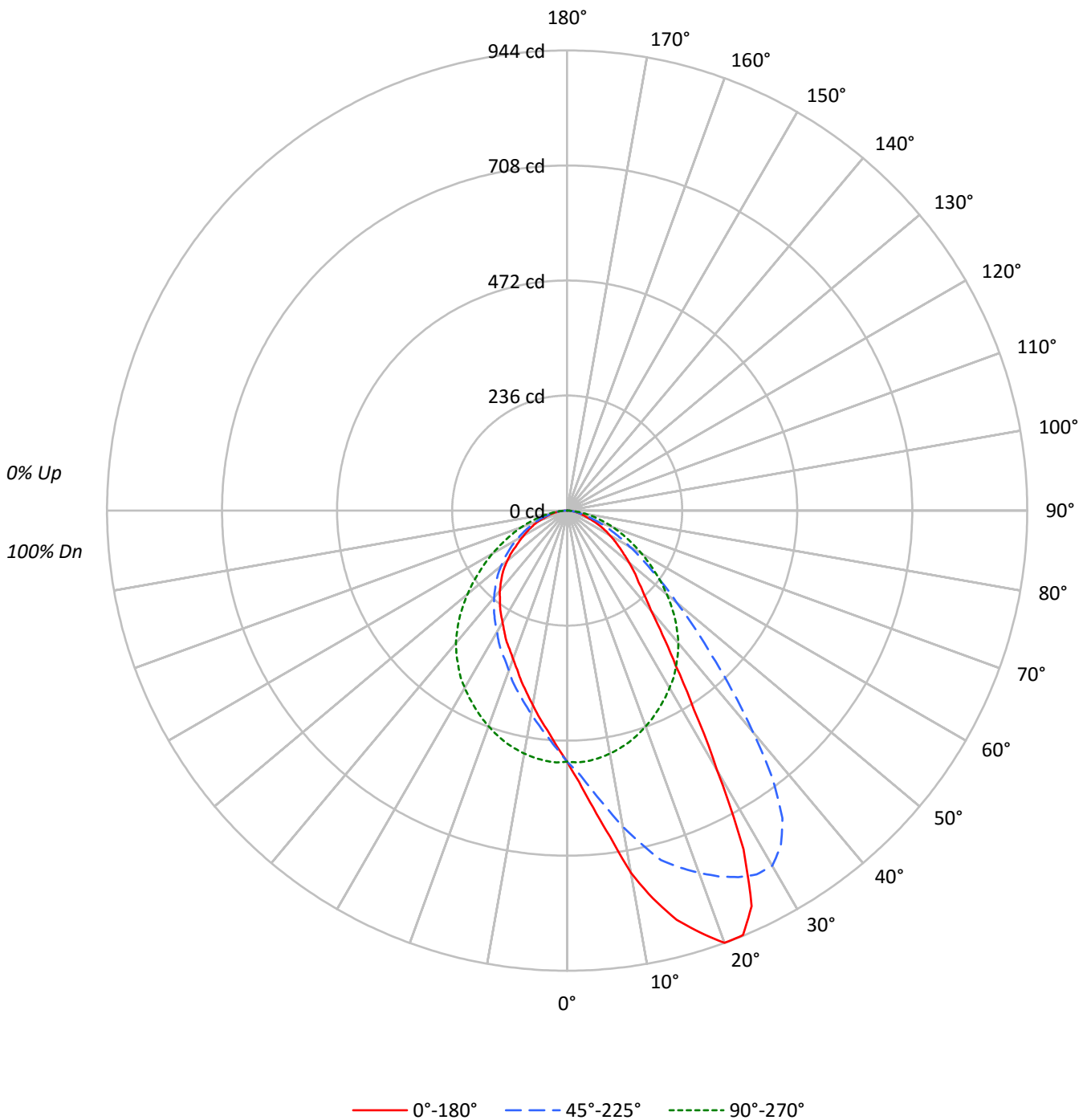
Input Watts (W): 11.6
Input Voltage (V): 120
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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°	6242	6242	6242
5°	7442	6269	5520
10°	9291	6233	4987
15°	10906	6169	4549
20°	12172	6074	4174
25°	11977	5974	3945
30°	8609	5881	3709
35°	5749	5761	3556
40°	4236	5617	3397
45°	3552	5362	3243
50°	3134	5031	3027
55°	2749	4649	2730
60°	2448	4286	2502
65°	2151	3895	2326
70°	1687	3548	2126
75°	1485	3096	1939
80°	1291	2632	1906
85°	1043	2114	2031



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	50.6	3.9
10°-20°	158.3	12.3
20°-30°	249.4	19.4
30°-40°	259.3	20.2
40°-50°	221.9	17.3
50°-60°	169.1	13.2
60°-70°	108.3	8.4
70°-80°	51.9	4.0
80°-90°	13.7	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°	458.3	35.7
0°-40°	717.6	56.0
0°-60°	1108.5	86.4
0°-90°	1282.4	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1282.4	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	515	515	515	515	515	
5°	612	574	515	465	454	63
15°	869	742	492	386	362	247
25°	896	830	447	319	295	389
35°	388	770	389	261	240	253
45°	207	418	313	206	189	163
55°	130	209	220	149	129	117
65°	75	103	136	93	81	74
75°	32	37	66	47	41	34
85°	8	8	15	14	15	9
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°	515.0	515.0	515.0	515.0	515.0	515.0	515.0	515.0	515.0	515.0	515.0
2.5°	556.9	557.8	554.9	554.5	551.2	550.3	550.3	545.7	542.8	539.0	536.8
5°	611.6	615.1	613.3	609.4	602.8	601.2	597.0	590.4	582.9	573.7	569.3
7.5°	674.2	681.5	680.1	674.0	666.9	662.5	650.8	641.3	627.0	614.0	603.9
10°	754.9	749.8	745.8	739.9	733.5	723.1	710.8	693.8	674.2	658.8	641.6
12.5°	815.3	815.5	810.2	804.1	794.4	784.7	768.8	747.2	723.6	699.6	679.3
15°	869.1	870.4	867.1	860.7	847.9	830.5	807.6	799.0	766.4	742.1	717.8
17.5°	907.5	907.7	907.0	898.4	884.5	872.6	851.2	831.2	800.3	767.5	735.0
20°	943.6	941.4	941.8	931.9	922.2	907.9	887.2	854.3	830.1	790.6	756.9
22.5°	942.7	942.7	944.7	942.9	936.6	926.4	911.2	884.7	852.1	812.2	773.2
25°	895.5	893.8	904.1	907.0	918.3	920.2	915.4	900.2	870.9	829.8	782.9
27.5°	783.1	776.7	798.3	819.7	848.1	866.2	884.7	888.9	875.0	841.5	792.4
30°	615.1	635.8	645.5	680.4	719.2	765.5	806.0	844.6	854.1	841.3	802.7
32.5°	484.6	502.0	509.7	538.4	573.9	630.1	696.0	754.7	800.5	816.0	796.6
35°	388.5	388.7	407.2	420.4	453.9	509.7	568.8	642.0	714.8	769.9	775.6
37.5°	320.6	321.4	333.4	346.6	373.5	404.8	459.7	521.4	608.9	691.2	733.9
40°	267.7	269.6	278.0	291.0	309.1	331.4	371.9	429.3	499.4	593.5	670.4
42.5°	233.7	237.2	240.5	249.8	259.3	279.8	310.6	351.6	413.8	501.6	593.3
45°	207.2	209.0	212.3	216.9	227.1	241.6	263.7	293.4	346.4	418.0	506.9
47.5°	187.0	185.9	189.6	193.6	200.4	211.0	226.4	252.2	291.9	351.9	428.8
50°	166.2	166.0	168.4	171.3	177.7	185.0	197.1	215.4	245.4	293.0	362.0
52.5°	146.8	147.9	149.5	153.2	157.4	162.9	173.5	185.4	210.1	249.6	304.2
55°	130.1	130.7	133.2	135.1	138.5	144.4	151.2	162.3	179.9	208.6	256.0
57.5°	115.5	115.3	117.7	118.0	122.1	127.2	132.7	141.3	154.8	177.5	210.5
60°	101.0	100.3	102.3	103.8	105.8	109.8	114.2	122.6	132.7	148.4	175.7
62.5°	87.7	87.5	88.8	90.4	91.9	95.5	99.0	104.9	112.4	125.0	145.3
65°	75.0	75.6	76.3	76.9	77.8	80.0	83.6	88.0	93.5	102.7	118.4
67.5°	61.7	62.6	62.8	64.4	66.1	67.2	69.2	73.4	77.6	86.0	95.2
70°	47.6	47.4	47.6	48.3	50.7	53.1	56.0	58.9	61.3	66.8	74.3
72.5°	39.2	38.8	39.5	39.5	40.3	40.6	42.1	44.8	48.1	51.4	56.2
75°	31.7	31.7	31.7	31.7	32.6	33.1	33.7	34.4	35.5	37.3	41.2
77.5°	24.7	24.7	25.1	25.4	25.6	25.8	26.2	26.9	27.3	28.2	30.2
80°	18.5	18.7	18.5	18.7	18.7	19.2	19.4	20.1	20.3	21.4	22.0
82.5°	12.8	12.6	12.8	13.0	13.0	13.4	13.4	13.9	13.9	14.3	15.0
85°	7.5	7.1	7.5	7.3	7.7	7.3	7.5	7.9	7.9	8.2	9.0
87.5°	2.2	2.6	2.2	2.4	2.4	2.6	2.6	2.6	3.1	2.9	3.1
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):

	55°	60°	65°	70°	75°	80°	85°	90°	95°	100°	105°
0°	515.0	515.0	515.0	515.0	515.0	515.0	515.0	515.0	515.0	515.0	515.0
2.5°	536.0	535.3	532.2	528.7	524.1	521.0	518.5	517.2	513.3	508.4	505.1
5°	564.6	558.0	551.0	542.4	534.4	526.3	521.2	515.2	508.0	499.8	494.1
7.5°	593.1	581.6	569.0	556.0	542.8	531.1	520.3	511.5	500.5	489.2	481.5
10°	626.8	607.8	588.2	568.2	549.9	532.7	519.4	506.4	492.5	479.1	468.9
12.5°	657.4	631.0	607.6	581.8	557.1	535.7	515.2	499.4	481.9	467.4	455.5
15°	682.4	656.8	629.4	592.0	560.9	534.9	511.7	491.6	471.4	453.7	442.5
17.5°	708.4	669.6	633.6	604.5	564.0	532.4	505.3	481.9	459.9	441.8	427.7
20°	723.4	686.1	646.2	606.3	566.6	530.2	497.4	470.9	447.8	426.6	413.8
22.5°	732.4	689.0	646.4	602.8	560.0	521.9	489.4	459.7	434.1	414.3	397.7
25°	739.0	688.7	642.4	600.1	557.1	516.1	477.5	446.7	419.6	398.2	381.4
27.5°	744.3	686.1	633.0	586.9	543.5	501.8	467.0	433.9	406.8	384.5	366.2
30°	745.6	682.8	621.7	570.8	526.5	489.0	451.5	420.2	391.1	367.1	350.3
32.5°	747.4	674.6	606.5	551.6	506.0	468.9	435.9	406.3	376.3	352.8	335.6
35°	741.2	672.7	591.1	528.9	483.5	447.6	416.9	389.3	360.0	337.1	319.7
37.5°	722.5	661.9	575.6	503.6	456.6	423.5	397.9	372.8	345.7	320.6	304.5
40°	691.0	644.2	557.1	480.8	431.2	397.1	374.6	355.0	328.9	305.8	288.2
42.5°	644.0	620.2	539.5	457.0	402.6	369.9	351.9	333.8	311.7	288.2	271.8
45°	584.5	588.2	514.1	431.5	376.6	343.5	325.6	312.8	292.6	273.2	256.2
47.5°	512.2	543.5	487.0	404.6	348.3	317.3	301.6	289.9	275.8	255.7	240.1
50°	441.6	491.6	453.1	377.4	322.1	291.2	275.8	266.8	254.9	239.9	225.1
52.5°	376.6	431.2	412.1	347.2	293.7	266.1	251.1	244.1	235.2	221.4	208.3
55°	317.7	372.2	366.9	316.8	265.2	239.9	228.4	220.0	213.6	203.1	192.5
57.5°	266.5	319.2	320.3	283.1	240.5	214.7	204.8	198.2	193.8	185.4	175.1
60°	218.7	266.1	275.4	248.9	213.6	191.6	181.9	176.8	173.5	167.1	159.6
62.5°	179.0	217.6	228.4	211.2	187.8	167.6	160.5	155.7	153.7	148.4	142.0
65°	143.1	176.6	186.7	176.2	162.7	146.2	140.0	135.8	133.8	130.7	125.9
67.5°	112.9	138.9	149.9	141.1	136.0	124.3	120.2	117.7	116.0	113.8	109.6
70°	86.4	104.5	116.0	114.0	110.0	104.5	101.6	100.1	98.3	96.6	93.0
72.5°	65.3	76.3	86.9	88.6	85.5	85.5	83.1	82.7	81.8	79.6	78.0
75°	46.1	54.7	62.2	65.0	66.4	67.5	66.4	66.1	65.9	64.2	63.1
77.5°	32.0	37.5	42.6	47.6	49.4	50.9	51.1	52.0	51.4	50.3	49.8
80°	23.1	24.3	27.6	31.7	35.1	36.4	37.3	37.7	37.5	37.3	36.4
82.5°	15.2	16.1	17.2	19.8	22.5	24.9	25.4	25.1	25.8	26.0	25.4
85°	9.0	9.3	9.7	10.1	11.7	14.1	14.8	15.2	15.7	15.7	14.3
87.5°	3.5	3.3	3.7	3.7	4.4	4.6	6.0	7.1	7.3	6.4	6.4
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°	515.0	515.0	515.0	515.0	515.0	515.0	515.0	515.0	515.0	515.0	515.0
2.5°	504.0	501.1	499.1	494.7	491.9	488.8	485.7	487.7	487.5	487.2	487.2
5°	489.2	484.2	479.5	473.6	469.8	465.2	461.7	461.2	462.1	459.0	457.3
7.5°	475.3	468.7	462.1	455.9	449.1	443.8	440.5	439.2	436.8	434.8	433.0
10°	460.6	452.4	446.0	437.9	430.4	423.7	419.6	416.7	415.1	413.6	410.7
12.5°	445.3	437.4	428.8	419.3	412.3	404.3	401.5	398.2	394.9	393.1	388.9
15°	430.6	420.2	411.6	401.9	394.0	386.5	382.1	375.7	374.8	372.6	368.6
17.5°	416.2	404.8	392.2	385.6	377.7	369.7	362.7	360.7	354.1	351.9	348.1
20°	398.6	388.2	379.2	369.7	356.7	349.4	344.2	341.3	336.2	333.1	330.9
22.5°	383.4	372.8	362.0	350.5	340.4	332.0	328.5	323.6	321.4	316.8	314.4
25°	369.1	357.6	345.0	333.1	325.4	319.2	313.1	309.1	305.1	303.1	298.7
27.5°	351.6	340.2	328.1	318.8	310.0	303.8	297.9	294.5	289.5	286.2	283.7
30°	337.8	323.6	313.5	305.4	293.2	287.5	283.3	278.9	275.4	271.8	269.4
32.5°	321.7	309.1	299.6	289.0	280.4	274.0	268.3	264.6	261.7	258.4	256.0
35°	304.7	293.9	284.0	273.8	267.0	260.6	254.2	250.9	248.0	244.9	242.7
37.5°	289.3	279.1	269.9	260.2	251.8	246.3	241.0	238.8	234.8	232.6	230.4
40°	275.1	265.2	255.1	245.8	237.0	233.0	228.4	224.7	221.1	219.6	217.2
42.5°	259.7	249.8	241.6	231.5	224.7	218.9	214.7	210.5	208.1	205.7	204.6
45°	244.5	235.7	227.3	217.4	210.5	205.9	201.1	197.3	194.9	193.4	190.9
47.5°	230.0	220.9	212.5	203.7	197.1	191.8	186.7	184.3	181.0	179.2	177.5
50°	213.9	205.9	196.9	188.9	182.3	177.0	173.1	169.8	166.9	164.5	163.4
52.5°	199.1	190.5	183.0	175.7	168.7	162.5	159.0	155.4	153.4	150.6	149.3
55°	182.5	174.4	167.8	160.5	153.7	148.6	144.2	141.1	138.9	135.8	134.0
57.5°	167.3	160.3	152.1	145.7	138.5	134.5	130.7	126.3	123.7	121.3	119.5
60°	151.9	143.5	136.7	130.7	124.6	119.1	115.7	112.4	109.6	107.1	105.6
62.5°	135.8	128.8	122.4	115.7	110.2	105.6	101.6	99.0	96.6	95.2	93.7
65°	119.3	113.5	106.9	101.6	96.3	92.8	89.7	87.3	85.5	84.4	83.1
67.5°	104.1	98.6	92.6	87.1	83.6	80.7	78.5	76.3	75.4	74.1	73.2
70°	89.3	83.6	78.5	74.5	71.0	69.0	67.7	66.1	65.3	63.5	62.6
72.5°	73.2	69.4	66.1	63.1	60.4	58.6	56.9	54.9	53.4	51.4	50.5
75°	60.2	56.4	53.6	51.4	49.6	47.2	44.8	42.8	42.1	41.4	41.2
77.5°	47.0	44.5	42.3	40.6	38.1	35.9	35.3	34.8	34.6	34.2	34.2
80°	35.1	32.9	31.3	29.1	27.8	27.8	27.8	27.3	27.6	27.6	27.6
82.5°	23.8	21.8	21.2	20.7	20.7	20.9	20.9	21.2	20.9	21.4	21.2
85°	13.4	13.7	14.1	13.9	14.1	14.1	14.6	14.3	14.6	14.1	14.6
87.5°	6.2	6.8	7.1	7.3	7.5	7.3	7.5	7.5	7.7	7.7	7.7
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°	515.0	515.0	515.0	515.0
2.5°	484.6	484.4	484.6	483.7
5°	456.6	456.4	455.7	453.7
7.5°	431.2	430.8	429.0	429.5
10°	409.2	409.4	406.8	405.2
12.5°	387.8	386.5	384.5	382.7
15°	369.5	367.3	362.0	362.5
17.5°	346.8	345.0	344.8	341.7
20°	327.4	326.3	326.7	323.6
22.5°	312.2	311.1	308.7	308.2
25°	297.4	295.7	293.9	295.0
27.5°	282.4	281.1	279.1	279.1
30°	268.3	267.0	266.1	265.0
32.5°	254.0	254.0	252.2	252.2
35°	241.9	240.5	240.1	240.3
37.5°	230.2	228.4	227.5	226.6
40°	217.4	215.6	215.2	214.7
42.5°	203.1	202.6	202.4	201.5
45°	190.3	190.0	188.7	189.2
47.5°	176.6	175.5	174.8	175.5
50°	162.5	162.0	160.1	160.5
52.5°	148.4	146.4	146.0	145.5
55°	132.5	130.5	129.6	129.2
57.5°	116.8	116.2	115.3	116.0
60°	103.4	103.4	103.4	103.2
62.5°	93.0	92.4	92.2	92.6
65°	82.5	82.2	81.4	81.1
67.5°	72.8	71.9	71.9	71.4
70°	61.5	61.1	59.7	60.0
72.5°	49.4	48.9	48.9	48.5
75°	41.0	40.8	40.6	41.4
77.5°	34.2	34.2	34.4	34.0
80°	27.6	27.6	27.3	27.3
82.5°	20.7	20.9	21.2	20.7
85°	14.6	14.3	14.8	14.6
87.5°	8.2	7.7	7.7	7.9
90°	0.0	0.0	0.0	0.0

(END OF REPORT)