

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: P242112

Luminaire Tested: **S121DR-S305D927-X4F0-XX-UDD-A-W**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P242112
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1802-639-18)
Test Lab: INNOVATION CENTER
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: NEO-RAY
Catalog Number: S121DR-S305D927-X4F0-XX-UDD-A-W
Description: DEFINE 1 DIRECT RECESSED WITH ASYMMETRIC FLUSH DIFFUSER
STANDARD LIGHT ENGINE
Light Source: (92) 2700K CCT, 90 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 990.4 lumens
Efficiency: N/A
Efficacy: 85.4 lumens/watt
Spacing Criteria (0/90/45): 1.27 / 1.22 / 1.37
Luminous Opening: Rectangular (W 3.88' x L: 0.09' x H: 0')
CIE Type: Direct

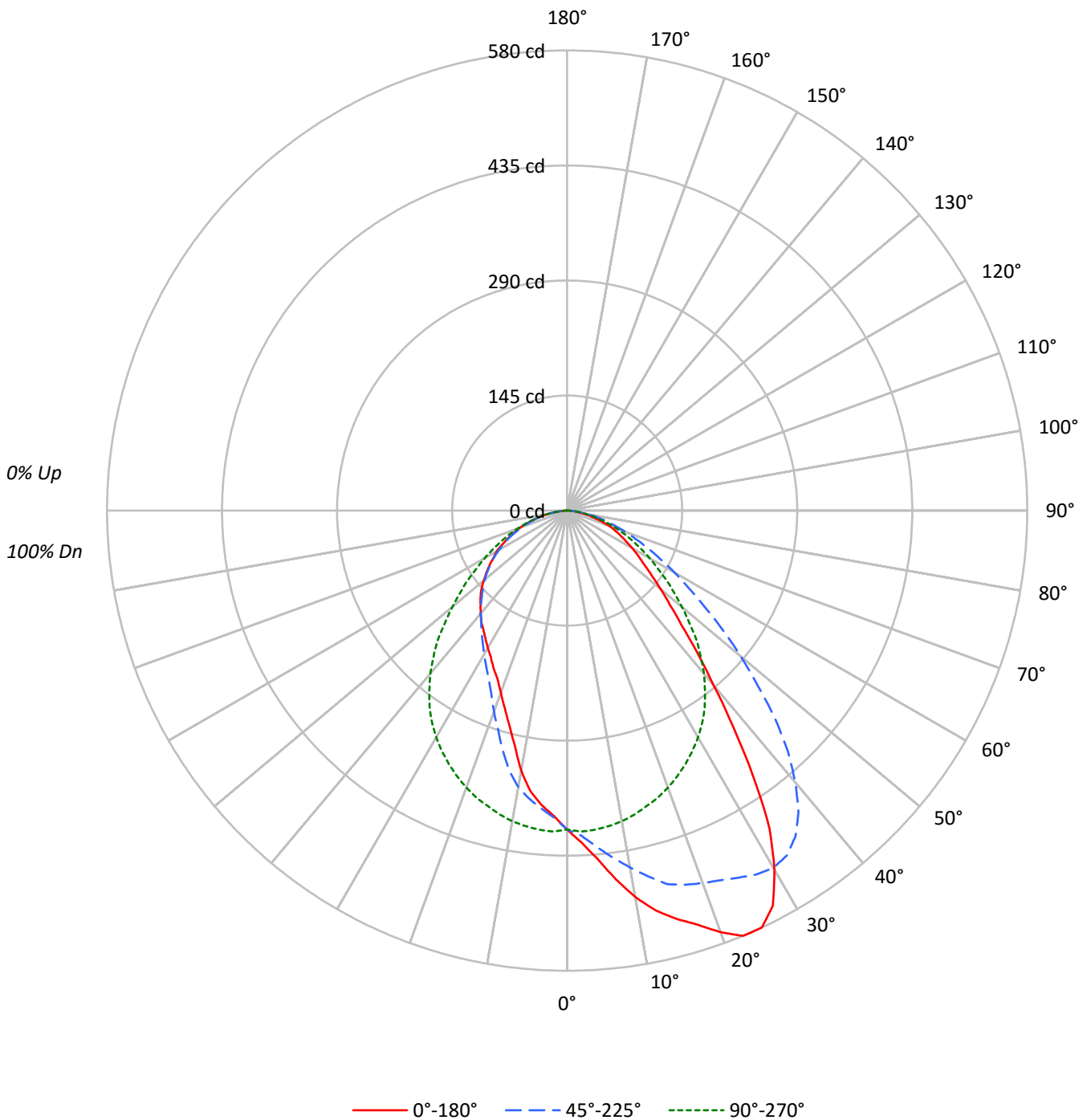
Input Watts (W): 11.6
Input Voltage (V): 120
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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	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					100			
1	110	105	102	98	107	103	100	96	99	96	93	95	93	91	92	90	88					86				
2	101	93	87	82	98	91	85	81	88	83	79	85	80	77	82	78	75					73				
3	92	83	75	69	90	81	74	68	78	72	67	75	70	66	73	69	65					63				
4	85	74	66	59	83	73	65	59	70	63	58	68	62	57	66	61	57					54				
5	79	66	58	52	77	65	57	51	63	56	51	61	55	50	60	54	50					48				
6	73	60	52	46	71	59	51	45	57	50	45	56	49	45	54	49	44					42				
7	68	55	46	41	66	54	46	40	52	45	40	51	45	40	50	44	40					38				
8	63	50	42	36	62	50	42	36	48	41	36	47	41	36	46	40	36					34				
9	59	46	38	33	58	46	38	33	44	38	33	43	37	33	42	37	32					31				
10	56	43	35	30	54	42	35	30	41	34	30	40	34	30	39	34	30					28				

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	11908	11908	11908
5°	13108	12007	11070
10°	14881	11963	10013
15°	16341	11831	8604
20°	17831	11714	7700
25°	18965	11527	7170
30°	17880	11290	6839
35°	14776	10935	6645
40°	11078	10370	6556
45°	8536	9667	6478
50°	7080	8698	6329
55°	6111	7898	6147
60°	5618	7123	6068
65°	5188	6436	5721
70°	4912	5787	5484
75°	4041	5106	4865
80°	3191	4163	4010
85°	2482	3060	2720



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	38.6	3.9
10°-20°	112.7	11.4
20°-30°	172.6	17.4
30°-40°	197.0	19.9
40°-50°	176.7	17.8
50°-60°	138.6	14.0
60°-70°	94.3	9.5
70°-80°	48.6	4.9
80°-90°	11.2	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°	324.0	32.7
0°-40°	521.0	52.6
0°-60°	836.4	84.4
0°-90°	990.4	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	990.4	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	402	402	402	402	402	
5°	441	425	404	377	372	44
15°	533	488	386	313	280	152
25°	580	510	353	234	219	262
35°	408	502	302	188	184	253
45°	204	370	231	152	155	162
55°	118	211	153	118	119	108
65°	74	112	92	80	82	74
75°	35	50	45	41	42	38
85°	7	10	9	8	8	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°	401.9	401.9	401.9	401.9	401.9	401.9	401.9	401.9	401.9	401.9	401.9
2.5°	418.9	418.9	419.6	419.4	418.7	417.5	416.5	415.2	412.1	410.1	412.0
5°	440.7	441.5	442.4	442.2	439.6	437.4	434.1	433.2	427.7	425.1	424.2
7.5°	468.3	468.2	468.5	465.6	463.3	461.1	456.8	451.4	444.8	441.2	437.7
10°	494.6	496.2	495.5	491.9	488.4	486.0	479.1	472.5	464.4	456.6	452.3
12.5°	516.1	515.2	518.2	514.7	510.5	506.0	499.3	493.4	482.9	472.3	463.5
15°	532.7	531.8	532.2	529.6	525.2	521.3	514.3	508.1	498.1	487.5	478.2
17.5°	547.2	548.1	546.5	543.4	537.5	532.9	524.2	515.7	505.2	494.6	485.5
20°	565.5	566.4	563.5	559.0	553.3	545.3	536.3	524.2	512.4	499.5	488.1
22.5°	580.1	579.5	578.5	574.2	568.1	560.7	547.7	534.4	520.4	504.3	489.6
25°	580.1	580.8	581.3	579.0	575.1	568.8	560.0	546.0	530.3	510.5	490.0
27.5°	561.4	564.5	566.8	566.8	565.9	565.7	560.5	551.7	537.0	517.1	494.3
30°	522.6	526.8	530.3	535.6	542.0	546.2	547.7	544.3	536.7	519.9	496.2
32.5°	474.9	474.6	481.7	490.3	502.9	511.8	520.6	525.8	525.4	515.4	495.7
35°	408.5	413.3	421.8	433.9	450.2	464.7	483.9	493.9	501.9	501.5	488.9
37.5°	343.8	344.5	354.0	370.6	385.0	407.5	432.5	453.5	472.7	478.9	474.7
40°	286.4	291.2	297.6	311.5	325.8	345.6	377.4	405.4	429.1	447.4	452.4
42.5°	242.1	244.7	250.9	263.1	275.9	299.4	322.7	352.6	382.6	411.8	426.8
45°	203.7	206.2	211.9	220.3	232.3	250.8	274.8	303.9	335.9	370.1	391.6
47.5°	175.7	176.6	180.9	187.3	198.5	212.0	231.4	259.6	291.9	325.3	356.8
50°	153.6	155.0	157.9	162.9	171.2	183.8	199.2	220.5	250.4	285.0	317.0
52.5°	134.2	135.2	138.7	141.5	147.9	158.6	171.9	191.3	216.5	247.7	280.7
55°	118.3	119.3	121.1	124.2	129.2	136.5	147.9	163.3	184.9	211.2	242.1
57.5°	106.2	106.7	107.1	109.1	113.1	119.0	128.7	140.8	157.6	181.6	209.1
60°	94.8	94.6	96.0	97.5	100.0	103.6	110.7	121.6	136.6	156.2	181.8
62.5°	83.4	84.2	85.1	86.3	87.9	89.9	95.6	103.8	115.7	132.5	153.6
65°	74.0	74.2	74.9	75.1	77.0	79.0	83.4	88.9	98.8	112.4	129.9
67.5°	65.0	65.2	65.0	65.5	66.4	68.1	70.4	74.9	82.5	93.6	108.8
70°	56.7	56.2	55.5	56.4	57.2	58.1	59.7	63.1	68.8	77.1	89.8
72.5°	45.7	46.0	46.4	46.7	46.9	48.1	49.5	51.9	56.4	62.8	72.5
75°	35.3	35.3	35.8	36.1	37.7	38.0	39.6	41.3	45.0	49.5	57.1
77.5°	25.9	25.8	26.6	26.8	27.7	28.7	29.6	31.3	34.1	37.9	42.9
80°	18.7	18.9	18.7	18.7	19.2	19.9	21.1	22.0	23.9	26.3	29.9
82.5°	12.5	12.5	12.6	12.6	13.1	13.1	13.8	14.5	15.7	17.3	19.9
85°	7.3	7.3	7.1	7.1	7.3	7.3	8.0	8.5	8.6	9.7	10.5
87.5°	3.1	3.1	2.9	3.1	2.9	3.1	2.9	3.3	3.5	3.6	4.0
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°	401.9	401.9	401.9	401.9	401.9	401.9	401.9	401.9	401.9	401.9	401.9
2.5°	411.4	410.9	410.8	408.8	406.9	404.7	404.4	405.0	402.1	398.5	398.3
5°	422.2	420.3	417.5	413.9	410.8	406.6	404.5	403.7	399.2	394.0	392.9
7.5°	434.1	429.4	424.4	418.9	413.3	407.3	403.5	401.2	395.0	388.6	386.0
10°	445.5	439.5	431.9	423.4	415.6	407.3	401.6	397.6	390.0	382.0	378.1
12.5°	458.7	448.6	437.9	427.4	417.8	407.1	398.5	392.4	383.6	375.1	369.2
15°	468.2	453.6	445.3	430.3	418.4	405.4	394.8	385.7	376.0	366.6	360.8
17.5°	475.6	464.2	449.7	433.1	417.0	403.0	389.8	379.6	366.8	356.6	350.2
20°	478.0	466.4	451.6	433.4	417.3	399.3	383.8	371.5	357.8	345.4	336.6
22.5°	477.2	464.0	448.8	431.0	414.7	393.5	377.2	362.5	347.3	334.0	321.9
25°	475.3	460.0	443.3	426.5	408.3	387.4	368.7	352.6	334.3	319.8	305.3
27.5°	474.2	454.3	435.5	417.3	400.0	379.8	359.7	341.7	321.5	303.9	285.2
30°	473.9	450.2	426.5	405.4	389.5	368.9	349.0	330.0	306.3	286.4	267.4
32.5°	473.2	446.7	418.9	393.6	375.5	357.0	335.9	317.0	290.2	269.5	249.0
35°	468.5	440.7	410.1	381.4	360.1	340.9	322.0	302.3	274.5	252.2	232.6
37.5°	458.5	434.1	401.4	369.1	343.6	324.1	306.6	285.2	258.2	233.8	215.7
40°	443.6	423.7	392.1	357.0	327.0	305.6	287.1	268.1	240.2	216.9	200.4
42.5°	424.2	408.8	379.1	342.8	311.0	286.9	268.1	249.2	223.6	201.1	186.4
45°	398.8	389.3	363.2	327.4	295.4	267.6	247.1	230.7	207.0	186.4	172.9
47.5°	370.6	366.5	344.7	310.3	276.5	249.6	225.7	208.4	189.9	172.4	160.5
50°	336.6	339.8	322.7	291.1	258.4	230.7	207.4	188.7	172.6	159.1	148.6
52.5°	304.7	312.5	298.7	268.6	239.4	210.7	187.1	170.0	157.4	146.3	137.1
55°	269.3	280.5	272.2	246.3	217.2	191.8	168.3	152.9	142.0	133.5	125.7
57.5°	235.2	251.1	245.1	221.7	197.0	172.3	150.1	134.9	127.1	120.9	114.3
60°	204.9	219.5	218.6	198.7	174.0	152.0	133.9	120.2	113.3	109.1	103.4
62.5°	177.8	192.5	191.1	173.1	153.6	133.2	117.8	105.3	100.3	95.8	92.2
65°	150.1	162.7	163.4	150.1	131.3	114.8	101.7	91.8	87.3	84.6	82.0
67.5°	125.0	137.3	138.5	128.0	111.4	97.2	87.3	79.0	75.1	72.6	70.7
70°	103.1	113.1	115.4	106.5	92.5	81.5	73.2	66.8	64.2	61.7	61.1
72.5°	83.5	91.7	93.2	85.1	74.7	66.4	60.0	55.2	53.3	50.8	50.3
75°	66.4	72.1	72.3	66.9	59.1	52.7	47.6	44.6	42.5	40.8	40.5
77.5°	48.3	53.3	54.8	50.8	44.4	39.1	36.1	33.9	32.5	31.6	31.5
80°	34.9	38.2	38.9	35.5	31.6	28.4	26.3	24.4	23.5	22.7	22.3
82.5°	21.8	24.7	24.9	22.5	20.6	18.3	16.6	15.9	15.4	14.9	14.9
85°	11.8	13.3	13.1	12.1	11.2	10.0	9.3	9.0	8.6	8.3	8.3
87.5°	4.5	5.0	5.0	5.2	4.5	4.0	3.6	3.8	3.6	3.6	3.6
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):

	110°	115°	120°	125°	130°	135°	140°	145°	150°	155°	160°
0°	401.9	401.9	401.9	401.9	401.9	401.9	401.9	401.9	401.9	401.9	401.9
2.5°	397.1	396.4	394.7	391.9	390.3	386.9	387.1	387.7	387.9	387.4	387.2
5°	390.0	387.9	385.2	381.7	379.3	376.7	375.0	376.0	375.5	375.3	374.4
7.5°	382.2	379.4	376.0	372.5	369.8	366.3	364.9	363.7	362.3	362.2	361.5
10°	374.4	371.0	367.0	362.0	358.2	353.9	349.7	347.5	344.9	343.0	339.0
12.5°	365.3	359.4	354.9	349.7	342.8	335.9	331.2	324.8	321.3	317.9	313.2
15°	354.7	347.1	339.3	328.9	322.9	313.2	306.3	301.6	296.3	292.8	288.8
17.5°	339.7	331.7	321.9	310.1	299.4	289.5	284.5	278.4	276.2	268.6	267.9
20°	324.8	312.9	300.6	288.7	276.7	269.6	263.2	259.2	255.1	250.3	248.7
22.5°	308.0	292.5	279.5	268.4	257.5	249.7	246.6	242.1	238.1	235.4	232.8
25°	287.6	273.3	260.1	249.7	239.9	234.0	230.0	226.7	225.0	221.9	220.9
27.5°	268.8	254.4	243.9	234.2	226.2	221.0	217.6	214.6	212.4	211.9	210.7
30°	249.6	237.3	227.3	219.0	211.9	209.1	205.8	204.4	203.0	202.3	201.0
32.5°	232.3	221.4	212.6	204.6	200.4	197.9	196.1	194.7	193.7	193.4	193.0
35°	216.5	206.5	199.2	193.5	190.4	187.6	186.8	185.6	185.1	184.9	184.7
37.5°	202.7	193.4	187.8	182.8	180.6	178.0	178.1	177.6	177.3	176.2	176.9
40°	188.7	181.4	175.7	171.7	170.2	169.3	169.0	168.6	168.8	168.8	168.6
42.5°	175.9	169.5	165.9	162.1	161.4	160.7	160.7	160.1	160.3	161.2	161.5
45°	164.3	159.3	156.0	152.9	152.9	152.0	152.7	152.5	153.1	153.6	153.9
47.5°	152.7	148.2	145.8	144.2	143.5	143.5	144.1	144.9	145.3	145.4	145.8
50°	141.1	137.8	135.8	134.9	134.7	135.6	136.1	135.9	136.5	137.1	137.7
52.5°	130.9	128.0	126.6	126.3	126.3	126.9	127.1	127.6	128.0	128.0	128.7
55°	120.4	118.3	117.3	117.1	117.3	117.6	118.3	118.6	118.5	118.8	118.8
57.5°	109.8	108.3	107.7	108.3	108.3	109.0	109.0	109.0	108.8	109.5	109.3
60°	100.0	98.2	98.8	98.6	99.1	99.1	99.6	99.6	99.1	99.8	100.1
62.5°	90.1	89.8	89.1	89.1	89.6	89.8	89.2	89.8	89.9	90.5	90.8
65°	79.7	78.5	79.0	78.9	79.4	80.2	79.6	79.6	80.1	80.8	81.1
67.5°	69.9	68.8	69.4	69.5	69.5	69.9	69.4	69.7	70.4	71.3	71.8
70°	59.8	59.5	59.7	59.5	59.5	60.4	60.5	60.4	61.1	61.9	62.1
72.5°	49.6	50.0	49.6	50.0	50.3	49.8	50.0	50.5	51.2	51.7	52.6
75°	40.3	39.8	40.0	40.8	40.6	41.0	40.8	41.3	42.5	42.2	42.4
77.5°	31.1	31.0	31.1	31.3	31.5	32.0	31.8	32.7	32.9	33.0	33.4
80°	22.1	22.3	22.5	22.8	23.3	23.2	23.5	23.7	24.4	23.7	24.2
82.5°	15.0	14.9	15.2	15.2	15.7	16.1	15.6	15.6	15.6	15.4	15.4
85°	8.3	8.8	8.8	8.8	8.5	8.5	8.6	8.5	8.5	8.5	8.3
87.5°	3.6	3.6	3.5	3.3	3.5	3.3	3.3	3.1	2.9	2.9	2.8
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):

	165°	170°	175°	180°
0°	401.9	401.9	401.9	401.9
2.5°	386.2	387.1	386.0	385.3
5°	373.6	373.6	372.5	372.2
7.5°	359.4	359.6	357.7	356.3
10°	338.1	337.1	334.3	332.8
12.5°	309.7	311.3	307.2	304.0
15°	285.0	280.7	282.4	280.5
17.5°	264.3	262.9	261.0	261.2
20°	246.1	245.1	244.0	244.2
22.5°	231.8	230.9	230.5	229.3
25°	219.8	220.2	219.3	219.3
27.5°	210.0	209.4	208.9	208.2
30°	200.6	200.8	200.3	199.9
32.5°	192.3	192.5	192.1	191.6
35°	184.2	184.0	184.2	183.7
37.5°	176.8	176.6	176.8	177.4
40°	169.1	169.3	168.8	169.5
42.5°	161.7	161.9	161.9	161.5
45°	153.6	154.1	154.3	154.6
47.5°	145.6	146.5	146.1	146.3
50°	137.7	137.5	137.5	137.3
52.5°	128.8	128.3	128.2	128.3
55°	118.3	119.0	119.0	119.0
57.5°	109.6	109.8	110.3	109.6
60°	100.8	100.8	101.0	102.4
62.5°	91.0	91.1	91.5	91.7
65°	81.5	82.0	81.8	81.6
67.5°	72.1	72.1	72.3	71.9
70°	62.4	62.4	62.4	63.3
72.5°	52.4	52.4	52.6	52.9
75°	43.1	43.1	43.1	42.5
77.5°	32.9	33.0	33.0	33.2
80°	23.9	23.7	23.7	23.5
82.5°	15.0	15.2	15.0	14.9
85°	8.3	8.5	8.0	8.0
87.5°	2.9	2.9	2.8	3.1
90°	0.0	0.0	0.0	0.0

(END OF REPORT)