

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: P242972

Luminaire Tested: **S121DR-H305D927-X4F0-XX-UDD-A-W**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P242972
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1802-639-57)
Test Lab: INNOVATION CENTER
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: NEO-RAY
Catalog Number: S121DR-H305D927-X4F0-XX-UDD-A-W
Description: DEFINE 1 DIRECT RECESSED WITH ASYMMETRIC FLUSH DIFFUSER.
HIGH PERFORMANCE LIGHT ENGINE
Light Source: (184) 2700K CCT, 90 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 954.7 lumens
Efficiency: N/A
Efficacy: 85.2 lumens/watt
Spacing Criteria (0/90/45): 1.13 / 1.2 / 1.28
Luminous Opening: Rectangular (W 3.88' x L: 0.09' x H: 0')
CIE Type: Direct

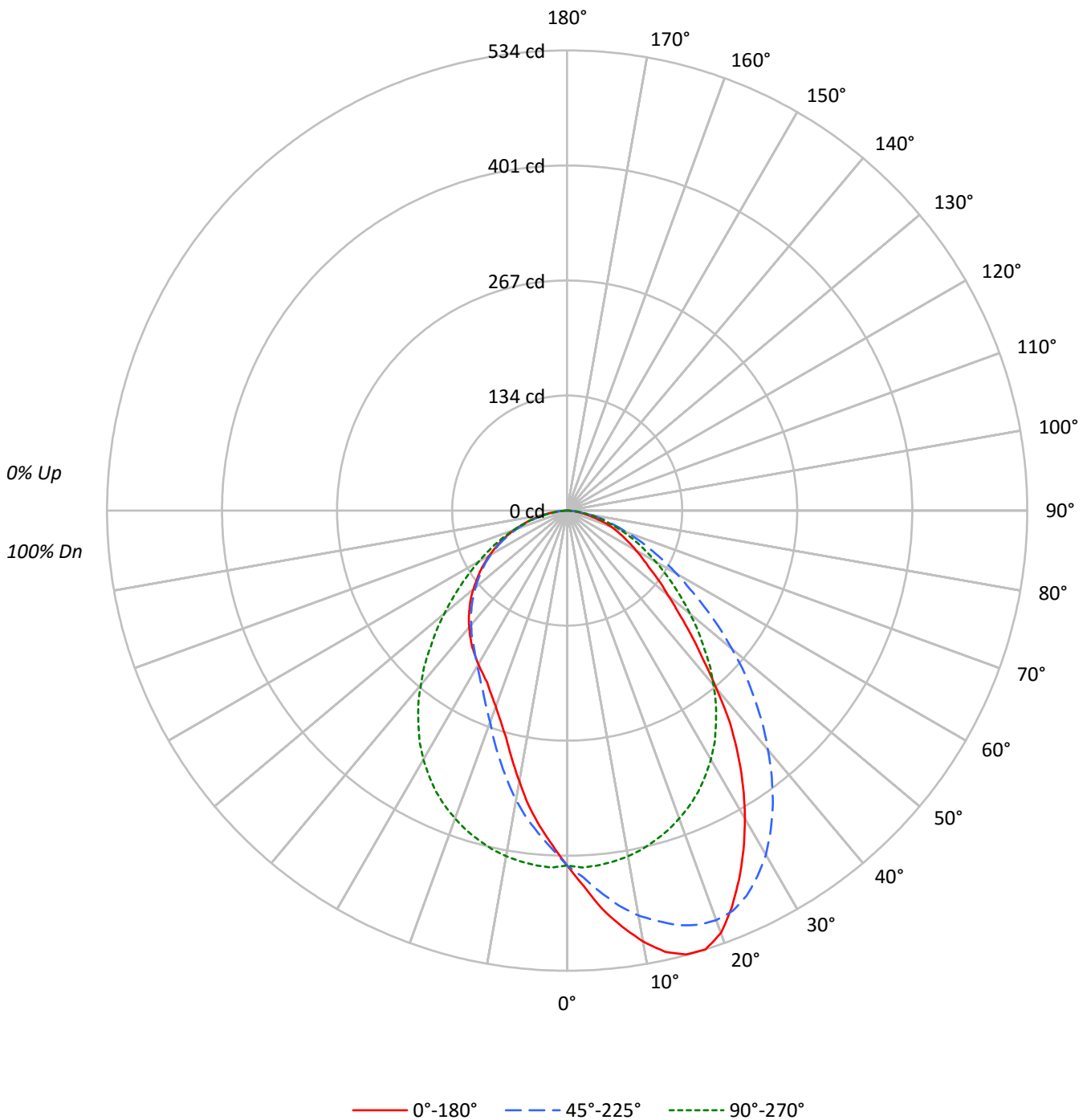
Input Watts (W): 11.2
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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					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	81	98	91	85	80	88	83	79	84	80	77	81	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	72	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	53	45	40	51	45	40	50	44	40					38				
8	63	50	42	37	62	50	42	36	48	41	36	47	41	36	46	40	36					34				
9	59	46	38	33	58	46	38	33	45	38	33	44	37	33	43	37	33					31				
10	56	43	35	30	54	42	35	30	41	35	30	41	34	30	40	34	30					28				

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	12204	12204	12204
5°	13792	12290	10919
10°	15278	12254	9601
15°	16359	12147	8374
20°	16450	11988	7624
25°	15431	11766	7189
30°	14116	11410	7048
35°	12501	10888	6959
40°	10416	10211	6838
45°	8489	9395	6713
50°	7048	8560	6546
55°	6028	7759	6375
60°	5464	7028	6169
65°	5048	6394	5952
70°	4652	5761	5605
75°	3755	5106	5163
80°	3003	4129	4419
85°	2244	3060	3604



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	39.3	4.1
10°-20°	112.7	11.8
20°-30°	164.2	17.2
30°-40°	183.0	19.2
40°-50°	169.2	17.7
50°-60°	134.8	14.1
60°-70°	92.3	9.7
70°-80°	47.9	5.0
80°-90°	11.3	1.2
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°	316.2	33.1
0°-40°	499.2	52.3
0°-60°	803.2	84.1
0°-90°	954.7	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	954.7	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	412	412	412	412	412	
5°	464	444	413	376	367	46
15°	533	498	396	301	273	150
25°	472	493	360	231	220	216
35°	346	416	301	189	192	214
45°	203	307	224	156	160	158
55°	117	194	150	120	123	107
65°	72	107	91	83	85	72
75°	33	48	45	42	45	36
85°	7	9	9	10	11	8
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°	411.9	411.9	411.9	411.9	411.9	411.9	411.9	411.9	411.9	411.9	411.9
2.5°	435.8	435.8	434.6	435.1	434.5	433.3	431.5	429.5	427.0	426.0	425.5
5°	463.7	464.3	463.5	461.8	461.5	460.2	456.2	453.9	448.6	444.4	443.1
7.5°	486.9	488.0	488.0	485.1	483.7	480.4	477.6	473.8	467.1	462.5	458.7
10°	507.8	508.3	506.4	504.8	502.1	499.5	494.7	489.9	482.7	477.1	470.8
12.5°	524.4	525.3	524.0	521.4	518.2	514.7	508.8	502.6	495.7	488.0	481.2
15°	533.3	534.8	535.0	532.8	530.5	526.3	522.0	515.4	507.8	498.3	487.2
17.5°	534.0	534.6	535.1	533.5	532.0	530.5	526.2	520.7	513.4	504.1	493.8
20°	521.7	523.2	524.9	523.4	524.0	524.0	522.2	519.4	513.4	505.9	496.0
22.5°	498.8	502.3	504.5	505.9	507.4	509.6	511.8	510.4	508.1	502.6	493.7
25°	472.0	474.8	478.9	480.2	481.4	487.7	491.5	494.2	494.2	493.0	487.0
27.5°	443.4	445.3	448.7	453.4	457.7	461.5	469.5	474.4	478.4	478.4	475.3
30°	412.6	415.2	419.4	422.5	427.8	435.6	442.3	448.2	457.4	461.3	460.7
32.5°	380.1	382.7	387.0	389.7	397.3	403.6	413.9	423.2	433.6	439.6	443.3
35°	345.6	345.8	353.1	357.4	364.0	371.8	384.4	394.8	406.3	416.2	424.0
37.5°	310.1	309.9	315.1	322.7	328.0	339.0	351.9	363.5	379.4	390.0	402.3
40°	269.3	272.8	277.1	284.1	293.2	306.1	318.4	333.5	349.4	362.7	375.8
42.5°	232.8	235.6	242.6	250.4	260.2	271.1	286.1	302.8	318.4	335.6	350.2
45°	202.6	204.1	208.3	214.6	224.9	237.3	252.9	270.6	289.0	306.6	322.9
47.5°	174.8	179.3	181.4	187.2	194.7	206.3	222.5	238.5	259.7	279.3	297.0
50°	152.9	153.7	157.5	161.9	170.6	179.3	191.5	208.0	227.7	249.7	267.8
52.5°	135.0	134.7	137.8	141.6	147.8	156.9	167.5	183.4	200.2	222.0	241.8
55°	116.7	118.4	119.9	123.7	129.2	136.1	145.1	158.5	174.3	193.7	214.4
57.5°	104.1	104.3	105.1	108.3	111.9	117.4	126.0	137.5	151.6	168.5	188.5
60°	92.2	92.4	93.9	94.9	97.3	102.0	108.6	118.1	130.5	146.8	164.3
62.5°	81.9	82.1	82.9	83.9	86.2	88.1	93.7	101.8	111.9	126.4	141.5
65°	72.0	72.1	72.1	73.5	75.0	76.6	80.6	85.7	95.5	107.0	120.4
67.5°	62.4	63.3	63.0	64.0	65.3	66.2	69.0	73.6	80.3	89.9	101.5
70°	53.7	53.6	54.1	54.6	55.1	56.4	58.2	61.4	67.0	73.8	84.1
72.5°	44.4	43.4	44.1	44.8	45.6	46.6	48.1	50.4	54.7	60.2	67.8
75°	32.8	32.3	33.3	33.5	35.0	36.3	38.0	40.3	43.4	48.1	53.1
77.5°	23.9	24.5	24.9	25.2	25.4	26.9	28.7	30.7	32.5	36.8	40.6
80°	17.6	17.6	17.7	18.1	18.4	18.7	19.9	21.2	22.7	25.4	29.2
82.5°	12.3	12.1	12.1	12.3	12.4	12.8	13.3	13.8	15.1	16.4	18.4
85°	6.6	6.8	7.0	6.6	6.8	7.0	7.3	7.8	8.1	9.1	9.9
87.5°	2.3	2.8	2.7	2.7	2.8	2.8	2.8	3.2	3.2	3.2	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):

	55°	60°	65°	70°	75°	80°	85°	90°	95°	100°	105°
0°	411.9	411.9	411.9	411.9	411.9	411.9	411.9	411.9	411.9	411.9	411.9
2.5°	425.0	424.5	423.2	420.5	418.7	415.4	414.7	414.6	411.6	407.1	406.8
5°	440.8	437.0	433.8	429.2	424.5	418.9	415.6	413.2	407.9	401.3	398.3
7.5°	455.2	449.7	443.3	436.0	429.2	421.2	415.4	410.8	403.0	394.5	389.4
10°	466.8	460.0	451.9	442.1	432.8	422.4	414.2	407.3	397.0	386.5	379.6
12.5°	474.8	467.1	457.9	446.4	435.1	423.2	411.4	402.6	389.7	377.6	368.6
15°	483.7	471.1	461.5	448.6	435.3	421.0	408.6	396.0	381.1	367.5	355.9
17.5°	485.9	474.3	462.8	448.6	434.8	417.4	403.0	389.0	372.5	355.7	344.4
20°	487.9	474.6	460.5	445.1	430.7	412.8	396.5	380.2	361.0	342.9	328.8
22.5°	486.4	473.4	457.7	440.3	424.7	406.3	388.7	370.8	349.2	330.3	314.4
25°	482.1	470.1	453.9	434.8	416.1	397.3	378.9	359.9	336.5	314.6	297.0
27.5°	473.3	462.7	447.1	426.8	407.1	386.4	367.1	347.2	322.2	299.8	281.1
30°	461.5	453.0	437.3	417.1	395.7	373.4	353.7	333.5	307.4	283.1	263.2
32.5°	445.3	439.3	425.7	406.0	382.9	359.4	339.1	318.6	290.7	267.5	247.3
35°	427.0	424.2	412.1	392.4	368.5	343.8	322.0	301.0	275.3	250.7	231.3
37.5°	405.6	407.6	396.7	377.1	352.4	327.2	304.3	283.9	257.9	234.3	215.2
40°	384.4	387.4	379.1	360.8	335.1	309.1	285.9	264.0	239.8	219.1	200.2
42.5°	360.8	366.8	360.3	342.6	317.6	290.0	265.8	245.4	222.4	203.3	186.7
45°	335.8	343.4	340.8	322.7	298.0	271.0	245.4	224.2	205.6	188.7	173.6
47.5°	310.4	319.2	318.1	303.0	279.3	251.6	226.4	205.5	188.4	174.8	162.2
50°	284.4	293.4	293.5	280.1	258.0	231.7	204.6	185.7	172.1	160.2	149.9
52.5°	259.0	268.0	268.1	257.7	235.6	209.9	185.1	167.8	156.2	146.9	138.3
55°	232.5	242.9	243.9	233.8	214.3	189.5	166.7	150.2	140.0	134.0	126.5
57.5°	205.6	216.9	218.9	210.8	191.9	168.8	149.6	133.8	125.5	121.4	115.7
60°	180.6	191.7	194.9	185.6	170.0	150.2	131.8	118.6	111.9	108.6	104.6
62.5°	157.5	168.6	170.3	162.3	146.9	130.3	116.4	104.3	98.8	96.3	93.2
65°	135.0	144.9	147.1	140.0	126.0	112.3	100.0	91.2	86.4	84.2	82.3
67.5°	114.3	123.5	125.0	118.6	107.0	95.2	86.2	78.6	75.3	72.5	71.6
70°	94.7	103.1	104.5	98.0	88.9	79.3	71.8	66.5	63.3	61.7	60.5
72.5°	76.6	83.2	84.4	80.4	73.3	64.8	59.0	54.6	52.6	51.1	50.6
75°	59.9	66.3	66.5	63.0	57.2	51.4	46.9	44.6	42.3	40.8	40.5
77.5°	45.9	49.6	50.1	48.3	42.6	39.0	35.5	33.8	33.0	31.5	31.5
80°	32.8	35.0	35.8	33.2	30.5	27.4	25.5	24.2	23.5	22.6	22.6
82.5°	20.4	22.2	23.2	21.2	19.9	18.2	16.9	16.1	15.6	15.1	14.9
85°	11.1	12.4	12.4	11.8	10.6	9.8	9.3	9.0	8.8	8.6	8.5
87.5°	4.0	5.0	4.5	4.6	4.1	4.0	3.8	3.8	4.0	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°	411.9	411.9	411.9	411.9	411.9	411.9	411.9	411.9	411.9	411.9	411.9
2.5°	404.6	403.8	401.3	399.0	397.2	393.2	392.4	392.7	392.7	392.9	391.0
5°	394.8	391.4	387.4	383.7	380.9	376.4	373.9	373.3	372.8	371.8	370.0
7.5°	383.7	379.8	374.1	370.8	364.8	359.9	356.4	354.0	352.6	350.4	347.4
10°	372.5	366.6	360.3	353.7	347.7	341.1	335.6	333.0	329.8	327.7	324.4
12.5°	361.2	353.1	344.4	336.8	328.7	320.9	315.2	311.6	306.0	302.8	299.3
15°	346.4	336.5	329.2	315.9	311.9	300.6	293.9	291.0	285.6	284.6	279.1
17.5°	332.5	321.0	310.3	299.2	288.5	280.8	274.9	271.3	267.0	264.3	260.7
20°	315.1	303.1	290.2	278.6	269.6	261.3	257.7	253.1	250.6	247.9	245.3
22.5°	298.5	283.9	271.0	261.5	252.4	245.6	241.6	238.5	236.3	233.7	231.8
25°	280.8	267.2	255.2	245.4	236.6	231.3	228.0	226.2	224.9	222.9	221.7
27.5°	263.8	250.1	238.3	230.8	223.7	219.1	217.4	215.7	214.1	213.4	213.3
30°	245.8	233.2	223.5	217.1	210.6	208.1	207.3	205.6	206.0	206.1	205.6
32.5°	230.5	218.2	210.9	205.5	200.5	198.7	198.5	197.8	198.0	198.8	198.5
35°	214.7	205.6	198.3	193.9	190.7	189.4	189.5	189.7	190.7	190.9	191.5
37.5°	201.3	192.5	187.7	183.4	181.9	181.9	182.1	182.2	183.1	184.1	184.4
40°	188.1	180.9	176.8	174.0	173.1	173.1	173.8	174.6	175.1	176.1	176.3
42.5°	176.1	170.1	167.0	164.2	164.5	165.3	165.5	166.0	167.3	167.5	167.8
45°	164.3	159.9	156.7	155.9	155.9	156.5	157.4	157.7	158.7	158.9	159.2
47.5°	154.2	149.6	147.3	146.4	146.9	147.8	148.9	149.4	150.2	150.1	150.9
50°	142.9	139.1	137.3	137.0	137.3	138.8	139.3	140.5	141.3	141.8	142.1
52.5°	132.2	129.2	128.4	128.2	128.8	129.8	130.5	131.7	132.7	132.7	132.5
55°	121.9	119.2	118.2	119.1	119.9	120.4	121.7	122.4	123.4	123.5	123.4
57.5°	111.4	109.1	108.8	109.1	110.8	111.8	112.6	112.6	113.1	113.3	113.8
60°	100.7	99.2	98.8	99.7	101.5	102.2	102.6	102.8	103.5	103.1	104.1
62.5°	90.5	89.1	89.7	90.5	91.2	92.2	92.5	93.4	93.2	93.5	94.0
65°	80.1	79.3	79.4	80.4	81.3	82.6	82.6	82.6	83.4	83.4	83.7
67.5°	70.0	69.5	70.1	71.0	71.1	72.0	71.8	72.8	73.5	73.8	74.1
70°	60.2	59.9	59.9	60.7	61.5	61.9	62.2	62.8	63.0	63.5	64.3
72.5°	50.9	49.9	50.1	51.2	51.2	51.9	52.7	52.7	53.7	53.9	54.7
75°	40.8	40.5	40.8	41.5	42.3	42.1	43.1	42.9	43.3	44.4	44.6
77.5°	31.8	31.3	32.2	32.5	32.7	32.8	33.2	34.0	34.7	35.2	35.3
80°	22.9	22.7	23.5	23.9	23.7	24.0	24.5	25.4	25.4	25.7	26.2
82.5°	15.4	15.1	15.6	16.1	16.4	16.6	16.6	16.9	17.1	17.4	17.4
85°	8.8	8.8	9.1	9.3	9.6	9.5	9.8	9.6	9.9	10.3	10.1
87.5°	3.8	3.8	3.8	3.8	4.0	4.0	4.1	4.1	4.0	4.1	3.8
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°	411.9	411.9	411.9	411.9
2.5°	390.4	390.7	389.9	389.0
5°	369.8	368.6	367.5	367.1
7.5°	346.8	346.8	343.9	344.6
10°	322.0	321.0	318.9	319.1
12.5°	298.0	297.2	296.0	295.5
15°	276.3	276.8	277.6	273.0
17.5°	259.2	257.9	257.2	256.4
20°	243.9	243.3	241.9	241.8
22.5°	232.2	230.7	230.3	230.5
25°	220.9	220.9	220.9	219.9
27.5°	212.9	212.9	212.4	212.6
30°	206.0	206.3	205.8	206.0
32.5°	199.3	199.5	199.2	199.0
35°	191.9	192.4	192.2	192.4
37.5°	184.7	185.1	184.7	184.7
40°	176.6	177.4	177.3	176.8
42.5°	168.5	168.5	169.0	168.8
45°	160.0	159.7	159.7	160.2
47.5°	151.1	151.7	151.4	151.6
50°	142.8	142.6	142.1	142.0
52.5°	133.0	133.3	133.2	132.3
55°	123.5	123.5	123.4	123.4
57.5°	113.4	113.9	113.8	113.8
60°	103.8	104.1	104.3	104.1
62.5°	94.0	94.2	94.0	94.2
65°	84.6	84.6	84.4	84.9
67.5°	74.3	74.5	74.3	74.6
70°	64.5	64.8	65.0	64.7
72.5°	55.2	54.9	55.1	54.7
75°	44.9	45.1	44.9	45.1
77.5°	35.3	35.5	35.3	35.5
80°	26.0	26.0	26.2	25.9
82.5°	17.6	17.6	18.1	17.6
85°	10.3	10.3	9.9	10.6
87.5°	4.0	4.0	4.0	4.0
90°	0.0	0.0	0.0	0.0

(END OF REPORT)