

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: P242628

Luminaire Tested: **S124DR-S350D927-X4F0-XX-UDD-A-W**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-79-08  
Report Number: P242628  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1802-639-21)  
Test Lab: INNOVATION CENTER  
Issue Date: 3/3/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: NEO-RAY  
Catalog Number: S124DR-S350D927-X4F0-XX-UDD-A-W  
Description: DEFINE 4 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: 1152.0 lumens  
Efficiency: N/A  
Efficacy: 99.3 lumens/watt  
Spacing Criteria (0/90/45): 1.3 / 1.22 / 1.41  
Luminous Opening: Rectangular (W 3.88' x L: 0.31' x H: 0')  
CIE Type: Direct

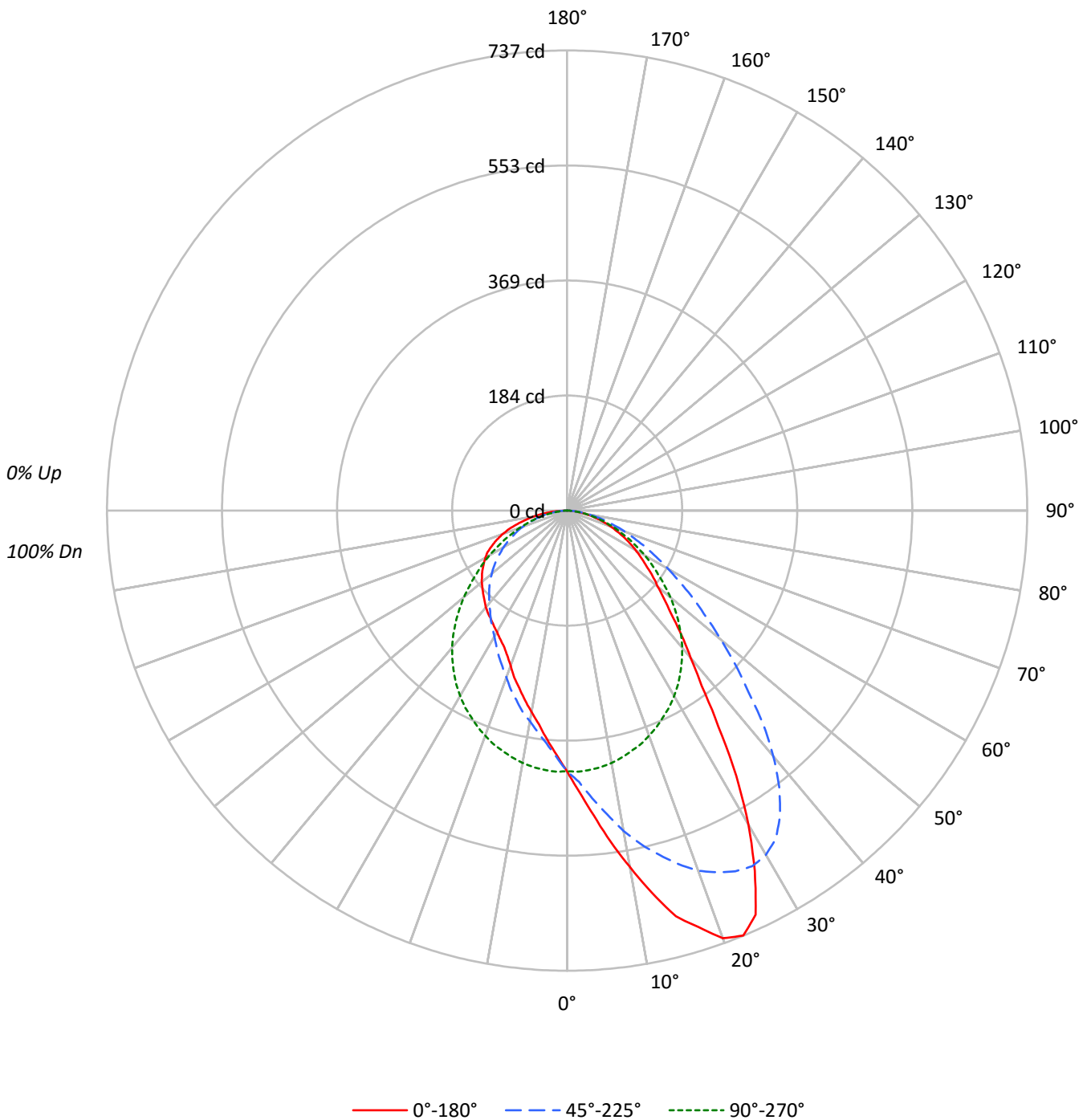
Input Watts (W): 11.6  
Input Voltage (V): 120  
Input Current (A<sub>in</sub>): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



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### Luminous Intensity Polar Plot





TEST NUMBER: P242628

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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	109	105	101	97	107	103	99	96	98	95	93	95	92	90	91	89	87	85
2	100	92	86	80	98	90	84	79	87	82	78	84	79	76	81	77	74	72
3	92	82	74	68	89	80	73	67	77	71	66	74	69	65	72	67	64	62
4	84	73	64	58	82	72	64	58	69	62	57	67	61	56	65	60	55	53
5	78	65	57	50	76	64	56	50	62	55	50	60	54	49	58	53	49	46
6	72	59	51	44	70	58	50	44	56	49	44	55	48	43	53	47	43	41
7	67	54	45	39	65	53	45	39	52	44	39	50	44	39	49	43	38	36
8	62	49	41	35	61	49	41	35	47	40	35	46	40	35	45	39	35	33
9	58	45	37	32	57	45	37	32	44	37	32	43	36	32	42	36	31	30
10	55	42	34	29	54	41	34	29	40	34	29	39	33	29	39	33	29	27

**AVERAGE LUMINANCE (cd/sqm):**

	0°	90°	180°
0°	3711	3711	3711
5°	4370	3721	3284
10°	5232	3704	2957
15°	6191	3667	2715
20°	6894	3629	2500
25°	7006	3572	2351
30°	5960	3519	2304
35°	4583	3430	2305
40°	3572	3327	2347
45°	2978	3172	2387
50°	2621	2983	2468
55°	2402	2755	2568
60°	2251	2551	2688
65°	2095	2324	2787
70°	1915	2100	2848
75°	1710	1848	2816
80°	1433	1515	2728
85°	1061	1091	2611



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	40.6	3.5
10°-20°	125.4	10.9
20°-30°	199.2	17.3
30°-40°	221.4	19.2
40°-50°	201.3	17.5
50°-60°	164.5	14.3
60°-70°	117.4	10.2
70°-80°	64.6	5.6
80°-90°	17.5	1.5
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°	365.3	31.7
0°-40°	586.7	50.9
0°-60°	952.5	82.7
0°-90°	1152.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1152.0	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	418	418	418	418	418	
5°	490	463	417	375	368	50
15°	673	571	398	314	295	190
25°	714	638	364	258	240	317
35°	422	595	316	213	212	267
45°	237	411	252	177	190	186
55°	155	247	178	138	166	140
65°	100	138	110	96	132	99
75°	50	64	54	53	82	53
85°	10	13	11	15	26	13
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°	417.5	417.5	417.5	417.5	417.5	417.5	417.5	417.5	417.5	417.5	417.5
2.5°	451.0	450.9	449.1	448.8	447.6	446.0	445.7	442.9	437.4	434.8	434.1
5°	489.8	493.2	488.7	487.9	487.4	481.6	478.7	475.2	467.3	462.6	459.0
7.5°	535.1	535.3	533.4	531.5	528.2	523.3	516.8	509.1	500.0	490.6	484.1
10°	579.7	581.1	578.8	578.5	569.7	564.1	553.1	543.7	533.0	521.1	510.2
12.5°	626.7	624.0	623.1	614.0	614.1	602.9	589.6	579.9	561.9	547.7	532.3
15°	672.8	668.9	666.5	656.3	651.3	637.3	623.6	613.1	591.5	570.9	555.3
17.5°	699.4	704.1	697.8	693.7	680.0	670.8	657.2	635.6	619.5	593.9	576.1
20°	728.8	729.1	726.0	721.7	711.5	699.0	683.8	659.6	639.4	614.0	587.0
22.5°	736.7	736.7	735.9	731.9	724.8	715.3	699.9	680.7	655.1	626.9	599.9
25°	714.3	713.6	715.1	719.6	716.7	713.6	704.7	689.7	666.9	637.6	608.6
27.5°	650.6	655.1	664.4	675.5	683.5	690.6	690.0	683.6	667.4	642.1	611.2
30°	580.7	586.6	593.2	604.3	625.7	638.0	651.5	661.7	656.0	636.8	608.4
32.5°	504.0	504.3	514.9	527.8	547.0	573.5	596.8	620.2	630.2	622.4	599.9
35°	422.3	424.7	435.3	447.8	471.8	500.7	532.8	561.5	585.2	594.8	582.6
37.5°	353.8	361.5	369.4	383.6	405.6	431.7	466.3	502.1	536.8	557.9	560.2
40°	307.8	312.2	317.5	327.7	345.7	371.3	400.0	442.6	480.1	514.0	525.1
42.5°	271.5	273.6	276.4	285.4	298.0	323.4	349.0	385.1	422.8	465.0	485.5
45°	236.9	239.5	245.1	250.4	260.8	278.4	302.8	333.6	371.5	410.6	444.8
47.5°	211.0	212.7	216.2	222.1	231.4	243.3	264.1	290.2	327.2	365.1	401.7
50°	189.5	190.9	193.5	198.7	205.5	215.8	232.1	256.1	283.6	321.8	357.6
52.5°	172.6	172.9	174.7	177.8	182.8	191.1	203.7	222.6	247.7	280.7	316.3
55°	155.0	155.6	157.4	160.0	164.6	170.2	180.4	195.3	217.6	247.1	278.1
57.5°	140.4	141.1	142.5	143.5	147.7	152.4	160.7	171.4	188.9	215.1	243.3
60°	126.6	126.2	128.0	128.8	131.4	135.2	141.3	151.5	166.2	186.4	211.9
62.5°	113.1	112.6	114.0	115.2	116.4	119.5	124.2	131.6	142.9	160.7	181.8
65°	99.6	98.9	99.8	101.2	102.6	104.3	107.9	115.0	124.5	137.7	154.4
67.5°	85.8	86.6	86.6	87.5	88.4	90.8	93.4	98.9	105.7	116.4	131.3
70°	73.7	73.8	74.5	74.5	75.1	77.1	79.2	82.1	88.7	98.4	110.0
72.5°	61.6	62.4	61.9	62.6	63.0	64.2	65.5	68.3	73.7	80.2	89.6
75°	49.8	50.3	50.3	50.5	51.0	51.5	52.7	54.8	58.8	64.2	70.9
77.5°	38.4	38.4	38.7	39.4	39.4	40.3	41.3	42.9	45.1	49.1	53.4
80°	28.0	28.4	28.2	28.5	28.5	29.2	29.6	31.6	32.5	34.9	38.2
82.5°	18.7	19.0	19.0	19.5	19.9	19.9	20.4	20.9	21.8	23.9	24.7
85°	10.4	10.7	10.4	10.7	11.2	11.4	11.9	12.1	12.8	13.3	14.5
87.5°	3.8	4.3	4.3	4.5	4.8	5.0	5.2	5.0	5.7	5.9	6.6
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°	417.5	417.5	417.5	417.5	417.5	417.5	417.5	417.5	417.5	417.5	417.5
2.5°	434.3	431.8	430.1	428.7	424.9	422.7	420.9	418.5	415.8	412.8	409.2
5°	455.4	449.5	445.2	438.6	432.4	427.2	421.8	417.0	411.1	404.7	400.0
7.5°	477.0	468.9	458.0	449.5	439.3	430.5	422.7	414.5	405.9	397.6	389.8
10°	497.4	486.1	473.7	459.0	445.2	432.9	421.5	410.4	399.7	389.0	379.8
12.5°	519.4	504.6	484.8	466.9	451.0	433.6	419.2	405.0	391.5	380.1	369.1
15°	538.5	518.3	497.0	474.0	453.6	434.4	415.6	398.5	383.9	369.1	358.7
17.5°	550.7	525.6	502.7	478.7	455.2	431.1	411.6	392.4	374.4	359.9	346.9
20°	562.6	537.7	507.4	483.4	454.0	429.1	405.6	383.6	364.6	348.8	335.3
22.5°	573.0	543.2	513.0	479.4	450.2	423.4	397.1	374.9	355.4	338.6	325.8
25°	575.4	542.4	509.5	478.0	444.8	413.5	390.2	364.2	343.5	326.0	312.2
27.5°	576.2	541.3	504.8	470.6	436.3	407.8	377.4	354.7	333.3	314.8	301.6
30°	574.3	537.5	497.6	459.7	425.3	393.6	368.0	342.8	320.8	302.5	288.6
32.5°	568.3	529.6	488.2	447.6	411.6	380.8	354.2	330.5	309.2	291.2	276.5
35°	555.5	517.6	473.9	432.2	395.7	364.4	340.5	316.1	294.7	277.6	263.6
37.5°	538.4	503.1	458.6	415.2	380.1	348.3	324.3	301.8	282.4	264.8	250.2
40°	514.5	484.4	439.8	397.8	359.0	329.1	307.0	286.7	267.5	251.1	237.5
42.5°	487.0	461.8	421.5	376.3	339.3	309.2	287.8	270.1	252.3	237.5	223.8
45°	453.3	436.0	397.3	356.1	317.2	288.8	268.2	252.3	237.1	222.2	210.8
47.5°	415.8	406.1	372.3	332.9	295.6	267.2	249.4	234.2	220.3	207.4	197.2
50°	377.9	373.7	345.5	307.8	272.6	246.3	228.3	215.7	204.2	193.2	183.7
52.5°	340.5	341.4	316.7	282.9	250.9	225.9	208.1	196.5	187.0	178.5	170.2
55°	302.3	307.1	287.3	256.5	227.2	204.4	188.3	177.8	170.9	163.4	157.0
57.5°	267.2	275.3	258.0	229.8	205.1	183.3	169.1	161.0	153.4	148.6	143.5
60°	233.0	240.6	227.8	204.9	181.9	164.0	150.6	143.5	137.1	134.0	130.7
62.5°	202.5	209.1	200.4	179.7	160.5	143.4	132.6	125.9	122.1	118.6	116.7
65°	173.8	179.5	171.4	156.0	138.9	125.0	115.9	110.5	106.4	105.0	102.6
67.5°	145.4	150.6	146.3	132.8	118.3	107.4	100.1	94.4	92.0	90.6	89.1
70°	120.7	125.9	121.2	109.8	99.3	90.4	83.7	80.8	78.2	77.7	75.2
72.5°	99.8	102.9	98.2	89.9	81.3	74.2	69.4	66.2	65.2	64.2	63.1
75°	78.0	81.1	78.0	71.1	64.7	59.5	55.0	53.8	52.2	51.7	50.8
77.5°	58.5	61.4	59.0	54.3	49.3	45.0	42.4	40.6	40.5	39.4	39.8
80°	42.2	43.9	41.7	38.7	34.9	32.2	30.4	29.6	28.5	28.2	28.9
82.5°	27.3	27.8	27.0	25.2	22.7	21.1	20.1	19.0	19.0	19.2	19.0
85°	15.7	15.6	15.4	13.7	12.8	11.6	10.9	10.7	10.5	10.9	11.2
87.5°	6.6	6.7	6.6	5.9	5.4	4.8	4.7	4.5	4.7	4.8	5.0
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):**

	110°	115°	120°	125°	130°	135°	140°	145°	150°	155°	160°
0°	417.5	417.5	417.5	417.5	417.5	417.5	417.5	417.5	417.5	417.5	417.5
2.5°	407.5	405.9	403.7	400.5	397.9	395.2	394.5	393.4	395.5	393.8	393.3
5°	396.0	392.4	387.7	382.4	379.3	374.8	373.9	372.2	370.4	370.3	368.5
7.5°	384.1	379.1	373.2	367.7	362.8	358.0	354.9	354.5	351.8	350.4	348.7
10°	372.7	366.1	359.0	353.8	348.0	342.8	339.1	337.1	335.3	333.4	331.7
12.5°	359.2	352.1	346.6	340.9	333.6	330.0	323.4	319.4	319.4	319.9	314.8
15°	349.3	342.4	333.4	325.5	321.7	314.1	310.8	306.6	304.0	301.4	299.4
17.5°	337.2	328.8	321.8	312.9	305.8	300.1	295.6	293.3	289.2	285.4	282.8
20°	326.0	316.8	309.4	299.7	291.8	284.3	280.7	277.2	274.3	271.2	268.2
22.5°	314.6	304.9	295.4	286.0	278.8	270.8	267.4	262.4	259.6	258.2	255.3
25°	302.5	292.1	281.7	272.7	265.1	258.2	253.5	249.9	246.8	245.4	243.5
27.5°	289.3	279.1	269.3	258.9	250.1	245.1	241.3	238.3	236.4	234.3	233.5
30°	276.9	266.2	255.4	245.9	238.0	233.0	229.5	227.6	226.2	225.3	224.5
32.5°	264.3	253.7	242.3	233.8	226.9	222.6	220.2	218.3	217.7	217.6	217.4
35°	250.6	239.9	229.5	221.7	215.0	213.2	211.0	210.0	209.6	210.8	211.3
37.5°	237.5	227.4	217.7	210.0	205.5	202.7	201.8	201.7	202.9	203.9	205.1
40°	224.8	215.1	206.1	199.6	195.4	193.9	193.5	194.4	195.8	197.0	198.4
42.5°	212.5	203.0	195.1	189.0	186.4	185.0	185.4	186.3	188.3	189.9	192.1
45°	199.8	191.8	183.8	178.8	176.4	176.7	176.7	178.3	180.2	182.5	184.7
47.5°	187.8	179.7	172.9	168.6	167.4	166.9	167.8	169.8	172.4	175.0	178.1
50°	175.7	168.1	162.4	158.6	157.2	157.7	159.1	161.0	164.3	167.8	171.0
52.5°	163.4	156.7	151.5	148.0	147.2	148.2	149.6	152.9	155.6	159.5	163.6
55°	150.6	144.8	140.6	138.0	137.7	138.2	139.7	143.0	147.2	151.8	155.6
57.5°	138.0	133.0	129.0	127.1	127.3	127.6	130.1	134.0	138.2	143.2	148.0
60°	125.2	120.7	117.6	116.2	116.4	117.4	120.5	124.2	129.7	134.6	139.7
62.5°	113.1	109.3	106.4	105.1	104.8	107.4	110.3	114.1	119.7	125.2	130.9
65°	100.0	96.8	94.4	93.7	94.3	96.0	99.8	104.8	109.5	115.2	121.1
67.5°	87.2	84.6	82.8	83.2	83.7	86.1	89.4	93.7	98.9	104.8	110.9
70°	75.1	72.6	71.3	71.4	72.5	75.6	78.3	82.7	88.4	94.4	99.3
72.5°	62.6	61.2	60.0	60.9	61.9	63.8	67.4	71.8	76.6	82.1	87.3
75°	50.0	50.0	49.3	49.8	51.4	53.4	56.0	60.5	65.5	70.0	74.2
77.5°	39.3	38.7	39.1	39.6	40.6	43.2	46.2	49.5	53.4	58.1	61.6
80°	28.4	28.5	29.4	30.4	30.8	32.7	35.8	38.7	41.7	45.5	48.8
82.5°	19.5	19.7	20.1	21.4	21.8	23.9	25.6	28.5	31.1	33.4	36.0
85°	11.6	11.6	12.5	13.0	13.8	15.2	16.4	18.2	20.6	22.3	24.9
87.5°	5.5	5.5	6.2	6.6	7.1	8.0	8.3	10.2	10.9	11.8	13.3
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0





TEST NUMBER: P242628

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**CANDELA DISTRIBUTION (continued):**

	165°	170°	175°	180°
0°	417.5	417.5	417.5	417.5
2.5°	392.9	392.6	391.4	391.2
5°	367.5	366.6	366.1	368.0
7.5°	348.3	347.6	346.1	345.5
10°	330.0	329.3	327.9	327.6
12.5°	312.3	310.8	310.8	311.3
15°	297.1	296.4	294.5	295.0
17.5°	281.6	280.9	278.3	280.9
20°	267.0	265.6	264.4	264.3
22.5°	253.2	252.0	252.2	250.8
25°	242.1	240.9	240.6	239.7
27.5°	233.1	232.4	231.7	232.1
30°	225.0	224.8	224.5	224.5
32.5°	218.3	218.3	218.6	218.6
35°	212.0	212.5	212.9	212.4
37.5°	206.5	206.8	207.4	207.9
40°	199.9	201.1	201.5	202.3
42.5°	193.7	195.1	196.1	196.1
45°	187.3	188.7	189.9	189.9
47.5°	180.7	182.6	183.8	184.0
50°	174.0	176.4	177.6	178.5
52.5°	167.4	169.8	171.6	171.9
55°	159.6	163.1	165.0	165.7
57.5°	152.7	155.8	157.9	158.4
60°	144.4	147.9	150.6	151.2
62.5°	135.9	139.6	142.0	143.5
65°	125.9	129.5	132.0	132.5
67.5°	115.4	119.2	120.7	121.8
70°	104.1	107.1	108.8	109.6
72.5°	91.3	94.4	96.5	96.5
75°	78.2	80.9	82.0	82.0
77.5°	64.5	66.1	67.4	67.8
80°	51.4	52.2	53.3	53.3
82.5°	37.9	38.6	39.6	39.4
85°	24.6	26.1	25.9	25.6
87.5°	13.8	14.0	14.5	14.9
90°	0.0	0.0	0.0	0.0

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