

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: P243508

Luminaire Tested: **S124DR-H350D930-X4F0-XX-UDD-A-W**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-79-08  
Report Number: P243508  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1802-639-60)  
Test Lab: INNOVATION CENTER  
Issue Date: 3/3/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: NEO-RAY  
Catalog Number: S124DR-H350D930-X4F0-XX-UDD-A-W  
Description: DEFINE 4 DIRECT RECESSED WITH ASYMMETRIC FLUSH DIFFUSER.  
HIGH PERFORMANCE LIGHT ENGINE  
Light Source: (184) 3000K CCT, 90 CRI LEDS  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

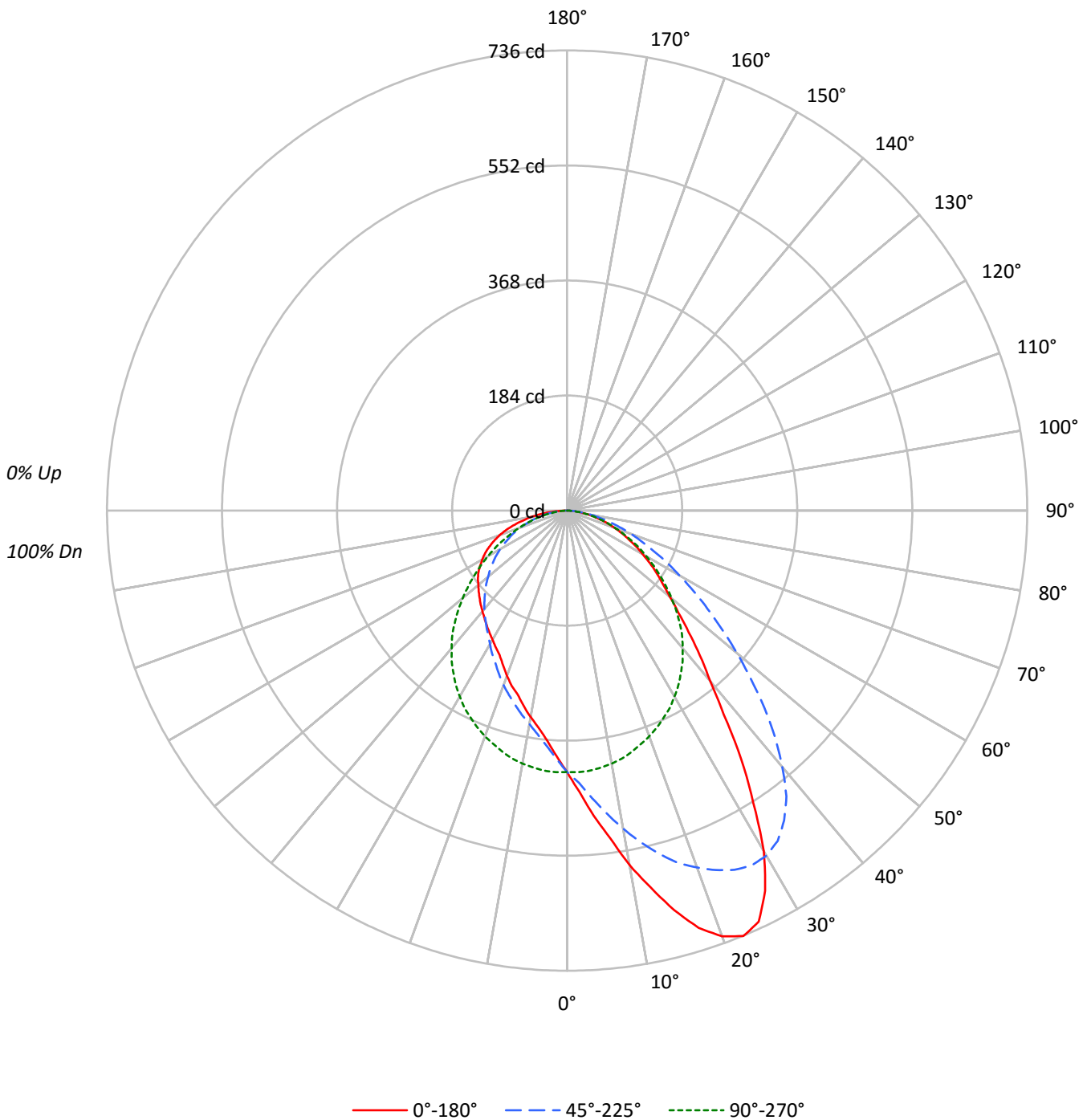
Lumens per Lamp: N/A  
Luminaire Lumens: 1198.9 lumens  
Efficiency: N/A  
Efficacy: 107.0 lumens/watt  
Spacing Criteria (0/90/45): 1.35 / 1.22 / 1.45  
Luminous Opening: Rectangular (W 3.88' x L: 0.31' x H: 0')  
CIE Type: Direct  
  
Input Watts (W): 11.2  
Input Voltage (V): 120  
Input Current (A<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



TEST NUMBER: P243508

CATALOG NUMBER: S124DR-H350D930-X4F0-XX-UDD-A-W

### Luminous Intensity Polar Plot





TEST NUMBER: P243508

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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	94	92	90	91	89	87	85
2	100	92	86	80	97	90	84	79	87	82	77	83	79	76	80	77	74	72
3	92	81	74	67	89	80	73	67	77	71	66	74	69	64	72	67	63	61
4	84	73	64	58	82	71	63	57	69	62	56	66	60	56	64	59	55	53
5	78	65	56	50	75	64	56	50	62	55	49	60	54	49	58	53	48	46
6	72	59	50	44	70	58	50	44	56	49	43	54	48	43	53	47	43	41
7	67	53	45	39	65	53	45	39	51	44	38	50	43	38	48	42	38	36
8	62	49	41	35	61	48	40	35	47	40	35	46	39	34	44	39	34	32
9	58	45	37	31	57	44	37	31	43	36	31	42	36	31	41	35	31	29
10	54	41	34	29	53	41	34	28	40	33	28	39	33	28	38	32	28	26

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

	0°	90°	180°
0°	3716	3716	3716
5°	4373	3726	3289
10°	5197	3709	3028
15°	6087	3676	2805
20°	6854	3633	2660
25°	7114	3585	2504
30°	6460	3525	2449
35°	5271	3441	2433
40°	4126	3333	2444
45°	3454	3198	2489
50°	2963	3012	2562
55°	2709	2808	2687
60°	2482	2601	2786
65°	2276	2379	2892
70°	2092	2147	2981
75°	1865	1889	2978
80°	1556	1546	2969
85°	1183	1163	2784



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	40.7	3.4
10°-20°	126.0	10.5
20°-30°	202.5	16.9
30°-40°	231.5	19.3
40°-50°	213.1	17.8
50°-60°	174.3	14.5
60°-70°	124.2	10.4
70°-80°	68.3	5.7
80°-90°	18.3	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°	369.2	30.8
0°-40°	600.7	50.1
0°-60°	988.1	82.4
0°-90°	1198.9	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1198.9	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	418	418	418	418	418	
5°	490	462	418	378	369	49
15°	662	568	400	322	305	189
25°	725	634	366	270	255	326
35°	486	605	317	226	224	302
45°	275	446	254	186	198	214
55°	175	274	181	145	173	157
65°	108	152	113	102	138	108
75°	54	70	55	56	87	58
85°	12	14	11	16	27	14
90°	0	0	0	0	0	



TEST NUMBER: P243508

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**CANDELA DISTRIBUTION (FULL):**

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
0°	418.1	418.1	418.1	418.1	418.1	418.1	418.1	418.1	418.1	418.1	418.1
2.5°	450.2	448.8	448.1	447.3	447.1	446.3	444.6	442.2	439.1	435.9	435.9
5°	490.1	489.8	487.2	487.4	484.1	480.6	477.8	474.4	467.8	462.1	458.2
7.5°	528.3	531.9	531.1	528.3	523.6	518.5	513.0	508.2	495.9	489.1	483.5
10°	575.8	577.2	574.8	570.8	566.6	556.7	549.5	541.5	528.2	516.6	506.3
12.5°	617.4	620.7	616.4	612.7	602.6	595.2	588.1	572.0	558.0	543.4	528.5
15°	661.5	658.0	660.3	651.0	643.9	636.9	618.6	602.2	586.4	568.3	552.8
17.5°	699.7	699.7	695.6	689.6	682.1	669.0	650.7	632.6	615.0	591.3	569.3
20°	724.6	726.5	721.7	715.4	706.3	692.7	678.2	658.6	635.2	607.5	582.6
22.5°	736.5	736.9	735.2	729.9	722.6	710.9	696.1	677.0	652.2	622.5	596.4
25°	725.3	727.2	726.6	726.3	722.6	715.9	704.0	686.2	663.7	634.0	605.8
27.5°	685.7	690.3	694.2	695.9	700.0	700.4	696.8	686.0	667.6	639.6	608.2
30°	629.4	627.0	637.6	642.9	656.9	665.2	671.2	670.5	659.9	637.2	607.4
32.5°	554.3	560.8	568.3	580.7	597.3	616.7	631.4	642.3	641.3	626.5	601.6
35°	485.7	485.7	495.2	510.6	528.2	551.6	576.1	596.4	608.9	605.1	587.6
37.5°	411.3	415.9	426.8	438.8	460.3	482.8	515.2	542.2	568.3	576.1	567.1
40°	355.6	357.7	369.3	379.4	401.4	424.8	451.9	486.4	516.4	535.7	536.9
42.5°	314.3	314.2	319.0	328.0	345.7	366.6	395.9	429.7	464.9	492.2	505.0
45°	274.8	274.4	279.4	288.6	301.2	319.6	345.1	378.9	414.9	445.9	466.1
47.5°	241.3	244.4	246.6	253.8	264.2	279.9	301.7	328.7	363.3	398.1	425.3
50°	214.3	215.7	220.5	223.9	235.5	246.4	264.0	288.2	317.9	354.5	383.8
52.5°	192.8	193.7	196.6	201.0	207.7	217.2	231.2	253.6	280.4	312.1	342.5
55°	174.8	174.2	176.1	179.0	184.8	192.8	203.1	220.1	243.5	274.1	302.1
57.5°	157.0	157.0	158.7	160.8	164.0	170.7	180.7	194.2	213.0	240.1	264.9
60°	139.6	140.8	141.5	143.5	146.3	151.2	158.7	169.3	185.2	207.3	231.9
62.5°	124.2	124.2	125.4	126.1	129.7	133.3	138.7	147.8	160.2	180.0	199.2
65°	108.2	109.2	109.2	110.6	113.7	116.4	120.7	127.5	137.7	151.9	169.8
67.5°	94.5	94.5	95.4	96.1	97.8	99.7	103.4	108.7	117.4	128.7	144.9
70°	80.5	81.1	80.7	81.6	82.6	84.5	87.2	91.6	98.0	107.7	119.6
72.5°	67.9	67.2	67.6	68.4	68.9	70.1	71.8	75.3	80.4	88.2	96.9
75°	54.3	53.9	55.1	54.8	55.6	56.7	58.2	60.8	64.7	70.1	76.8
77.5°	42.3	41.8	42.3	42.7	43.0	43.9	45.1	46.6	49.3	52.9	58.9
80°	30.4	30.2	30.5	30.9	31.1	32.4	32.8	34.3	35.5	38.2	41.1
82.5°	20.1	20.5	20.6	21.0	20.8	21.5	21.8	22.9	23.9	25.3	27.5
85°	11.6	11.1	11.6	11.6	11.6	12.5	12.3	13.0	13.7	14.3	15.9
87.5°	4.1	4.1	4.3	4.4	4.4	4.9	4.8	5.1	5.8	5.8	6.3
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°	418.1	418.1	418.1	418.1	418.1	418.1	418.1	418.1	418.1	418.1	418.1
2.5°	434.8	433.0	431.6	427.7	425.3	423.1	421.0	418.8	416.4	413.3	411.4
5°	454.1	450.0	444.0	438.6	432.4	427.0	422.5	417.6	412.1	406.5	401.6
7.5°	475.4	467.8	458.6	448.5	438.9	430.9	422.5	414.7	407.0	399.5	392.5
10°	496.8	483.5	471.3	457.5	444.9	432.8	421.9	410.9	401.4	391.5	382.6
12.5°	516.6	500.5	482.8	465.5	448.7	433.0	419.5	406.2	393.9	382.1	371.7
15°	531.8	511.6	490.6	470.2	450.7	434.3	416.7	399.5	386.7	372.4	360.9
17.5°	549.2	525.3	504.5	479.9	455.6	429.2	410.6	391.8	376.5	362.6	351.2
20°	560.8	534.5	504.5	476.6	451.7	428.0	405.6	384.1	367.9	351.9	338.1
22.5°	570.0	542.9	509.7	480.7	449.5	420.8	396.6	375.4	356.3	341.1	328.0
25°	574.8	541.7	510.1	474.9	443.7	416.2	388.9	365.5	346.3	329.4	318.1
27.5°	574.9	541.0	503.6	468.8	435.3	405.6	378.7	355.6	334.0	317.8	304.3
30°	574.1	536.5	497.1	459.1	425.8	395.4	367.2	343.4	323.6	306.3	293.5
32.5°	568.6	530.4	487.4	447.5	411.3	380.7	354.8	331.1	309.9	294.2	280.7
35°	556.3	516.9	473.7	432.6	398.3	366.6	341.0	317.1	298.1	281.1	267.2
37.5°	540.6	503.8	459.9	416.9	379.9	349.8	325.8	303.3	283.5	267.8	253.9
40°	520.8	486.2	443.0	398.3	361.3	330.9	308.2	287.2	270.3	254.3	240.8
42.5°	493.7	467.1	422.7	379.2	340.5	311.8	289.8	272.4	255.0	240.5	227.0
45°	464.7	440.5	401.0	357.9	320.7	291.1	270.5	254.4	239.6	224.9	214.0
47.5°	432.6	412.8	376.3	334.1	297.5	271.3	251.0	236.7	223.0	211.8	200.9
50°	394.4	384.0	349.8	311.6	275.9	249.2	232.4	217.8	207.7	196.8	186.5
52.5°	358.9	350.5	322.7	285.2	252.7	229.2	211.3	199.7	189.8	181.7	173.6
55°	320.3	316.1	292.5	260.1	230.7	207.2	191.8	181.2	173.4	165.9	159.9
57.5°	284.8	284.5	263.7	235.8	207.2	187.2	172.5	163.8	157.0	151.7	146.6
60°	248.5	251.4	234.3	208.9	186.2	167.4	154.1	146.3	141.6	136.7	132.4
62.5°	215.5	220.0	204.4	184.5	162.1	146.8	136.5	130.6	125.4	121.8	118.6
65°	184.0	189.6	177.0	159.1	142.0	127.5	118.8	113.1	109.2	107.2	105.0
67.5°	156.1	159.2	150.7	136.7	122.5	109.9	102.7	97.8	94.4	93.5	91.0
70°	128.3	131.9	125.9	113.1	102.2	93.0	86.5	82.6	80.5	79.4	77.6
72.5°	106.0	107.5	101.5	92.7	84.0	76.3	71.5	68.6	66.2	65.7	64.8
75°	82.9	85.2	80.4	73.6	66.4	60.9	57.3	55.0	53.8	52.9	52.9
77.5°	62.6	64.5	61.8	55.8	51.5	46.8	44.4	42.2	41.6	40.8	41.1
80°	44.5	45.4	43.9	39.8	36.0	33.4	31.4	30.2	30.0	29.4	30.0
82.5°	29.5	29.7	28.0	26.1	23.2	21.8	20.5	20.0	19.8	19.8	19.5
85°	16.4	16.7	15.5	14.3	13.3	12.1	11.8	11.4	11.1	11.6	11.9
87.5°	6.3	6.5	6.3	5.8	5.5	5.1	4.9	5.3	4.8	5.1	5.3
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°	418.1	418.1	418.1	418.1	418.1	418.1	418.1	418.1	418.1	418.1	418.1
2.5°	408.5	407.2	405.1	401.7	399.3	396.8	395.7	396.1	395.1	393.7	394.0
5°	397.8	393.9	390.5	385.7	381.2	377.5	376.3	374.8	373.4	372.5	371.7
7.5°	386.4	380.9	375.8	371.0	365.9	361.1	359.2	357.9	357.2	354.8	353.8
10°	375.4	369.1	363.0	357.4	352.1	346.8	344.9	343.2	340.8	339.8	338.6
12.5°	363.8	357.5	350.9	344.0	338.8	334.5	331.2	330.0	327.7	326.6	326.0
15°	352.6	344.9	339.6	334.3	326.3	321.5	320.1	315.9	314.5	312.5	311.1
17.5°	341.3	334.1	326.3	320.1	315.2	309.2	306.0	304.1	301.5	299.7	297.1
20°	330.2	321.9	315.7	308.0	302.6	297.1	293.0	291.3	289.1	286.5	282.9
22.5°	319.5	310.3	304.3	297.1	290.3	284.0	280.6	278.2	273.7	273.2	270.0
25°	306.8	298.6	290.8	283.3	276.6	270.3	268.1	264.3	262.8	259.7	259.2
27.5°	294.9	286.2	277.7	269.5	263.7	259.2	255.3	252.9	251.4	249.0	249.2
30°	282.4	272.9	264.9	257.3	251.0	246.8	244.2	243.0	240.8	240.5	239.3
32.5°	269.1	260.4	252.1	245.4	238.9	235.2	234.0	232.8	231.4	231.6	231.2
35°	255.8	248.1	239.3	233.1	227.8	225.6	223.7	223.4	222.9	223.2	223.2
37.5°	242.8	234.5	227.1	221.5	218.4	215.4	214.5	214.3	214.5	214.9	215.7
40°	230.2	222.5	215.4	210.8	207.3	206.0	204.8	205.3	206.0	207.2	208.2
42.5°	217.6	210.2	204.3	199.7	196.4	195.7	195.9	196.9	197.1	198.8	200.7
45°	204.3	198.0	192.3	188.7	186.7	185.8	186.2	187.2	188.4	190.8	193.2
47.5°	192.0	186.4	181.4	177.8	176.3	175.9	176.6	178.0	180.7	183.1	185.8
50°	179.5	174.4	169.8	166.6	166.4	165.2	166.7	168.4	171.7	174.9	179.0
52.5°	167.2	162.3	158.4	155.8	155.1	155.1	157.0	160.1	163.0	167.2	171.0
55°	154.4	150.0	146.3	145.4	144.4	144.9	146.9	150.0	154.1	158.9	163.0
57.5°	141.3	137.5	134.8	133.6	133.1	134.8	137.2	140.4	145.7	150.5	155.0
60°	128.8	125.6	122.7	122.4	122.0	124.2	127.1	130.6	135.8	140.6	146.1
62.5°	115.5	113.0	111.1	110.6	110.6	112.8	116.0	120.5	125.4	130.6	136.4
65°	102.1	99.8	99.3	98.6	100.2	101.5	104.8	109.0	114.3	120.0	126.1
67.5°	89.6	88.2	87.2	87.2	88.4	91.0	93.9	98.1	103.6	109.6	115.0
70°	77.1	75.8	74.9	75.8	76.5	79.5	82.6	86.7	91.8	97.6	103.4
72.5°	64.2	64.3	64.5	64.3	65.0	67.9	71.0	74.9	79.9	85.5	90.8
75°	52.7	51.9	52.0	52.4	54.6	56.1	59.2	63.0	68.3	73.4	77.8
77.5°	41.0	40.6	41.5	41.5	43.5	45.4	48.0	51.7	56.3	60.9	64.5
80°	30.0	30.2	30.9	31.1	32.8	34.8	37.5	40.1	44.2	47.4	50.9
82.5°	20.3	20.6	21.5	22.7	23.4	24.6	27.0	29.7	32.6	36.0	38.1
85°	11.8	12.3	13.0	13.8	14.5	15.7	17.4	19.6	21.7	23.6	25.3
87.5°	5.8	5.8	6.3	6.7	7.2	7.9	9.0	9.9	11.3	12.6	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: P243508

CATALOG NUMBER: S124DR-H350D930-X4F0-XX-UDD-A-W

**CANDELA DISTRIBUTION (continued):**

	165°	170°	175°	180°
0°	418.1	418.1	418.1	418.1
2.5°	393.4	393.2	392.5	392.8
5°	371.2	369.5	369.3	368.6
7.5°	352.1	351.5	351.5	350.2
10°	337.4	335.8	336.2	335.5
12.5°	323.4	322.5	321.5	320.5
15°	307.7	307.7	307.7	304.8
17.5°	295.4	295.2	294.4	294.2
20°	282.6	281.9	279.7	281.2
22.5°	269.6	269.1	267.2	267.6
25°	257.5	257.0	256.7	255.3
27.5°	247.1	247.3	247.6	246.8
30°	239.3	238.7	239.4	238.6
32.5°	231.9	231.9	231.2	231.4
35°	223.6	224.2	224.4	224.2
37.5°	216.2	217.1	217.8	217.1
40°	209.4	210.1	210.8	210.6
42.5°	202.2	203.4	203.9	204.4
45°	195.4	196.9	197.8	198.0
47.5°	188.4	190.3	192.0	191.8
50°	181.6	184.0	185.5	185.3
52.5°	174.8	177.1	179.0	179.9
55°	167.1	170.1	171.8	173.4
57.5°	159.4	162.8	164.5	165.2
60°	150.9	153.9	156.1	156.7
62.5°	141.3	144.5	147.4	148.1
65°	131.4	135.0	137.2	137.5
67.5°	120.0	123.4	125.6	126.6
70°	108.2	110.8	113.1	114.7
72.5°	95.1	98.1	100.3	101.4
75°	81.4	84.8	86.0	86.7
77.5°	67.2	69.3	71.2	71.3
80°	53.1	55.6	56.3	58.0
82.5°	39.1	41.5	41.0	41.6
85°	25.8	26.6	27.1	27.3
87.5°	13.7	14.2	14.5	14.7
90°	0.0	0.0	0.0	0.0

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