

Cooper Lighting Solutions Photometric Lab  
1121 Highway 74 South  
Peachtree City, GA 30269



Scaled data based on original data using  
LM-79-2024 Approved Method: Electrical and Photometric Measurements of Solid-  
State Lighting Products

Test Report Prepared for  
Cooper Lighting Solutions

Brand: NEO-RAY

Report Number: P243326

Luminaire Tested: S123DRP-H340D835-X4F0-XX-UDD-A-W

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-79-2024  
Report Number: P243326  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1802-639-59)  
Test Lab: INNOVATION CENTER  
Issue Date: 3/3/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: NEO-RAY  
Catalog Number: S123DRP-H340D835-X4F0-XX-UDD-A-W  
Description: DEFINE 3 DIRECT RECESSED WITH ASYMMETRIC FLUSH DIFFUSER.  
HIGH PERFORMANCE LIGHT ENGINE  
Light Source: (184) 3500K CCT, 80 CRI LEDS  
Ballast/Driver: -

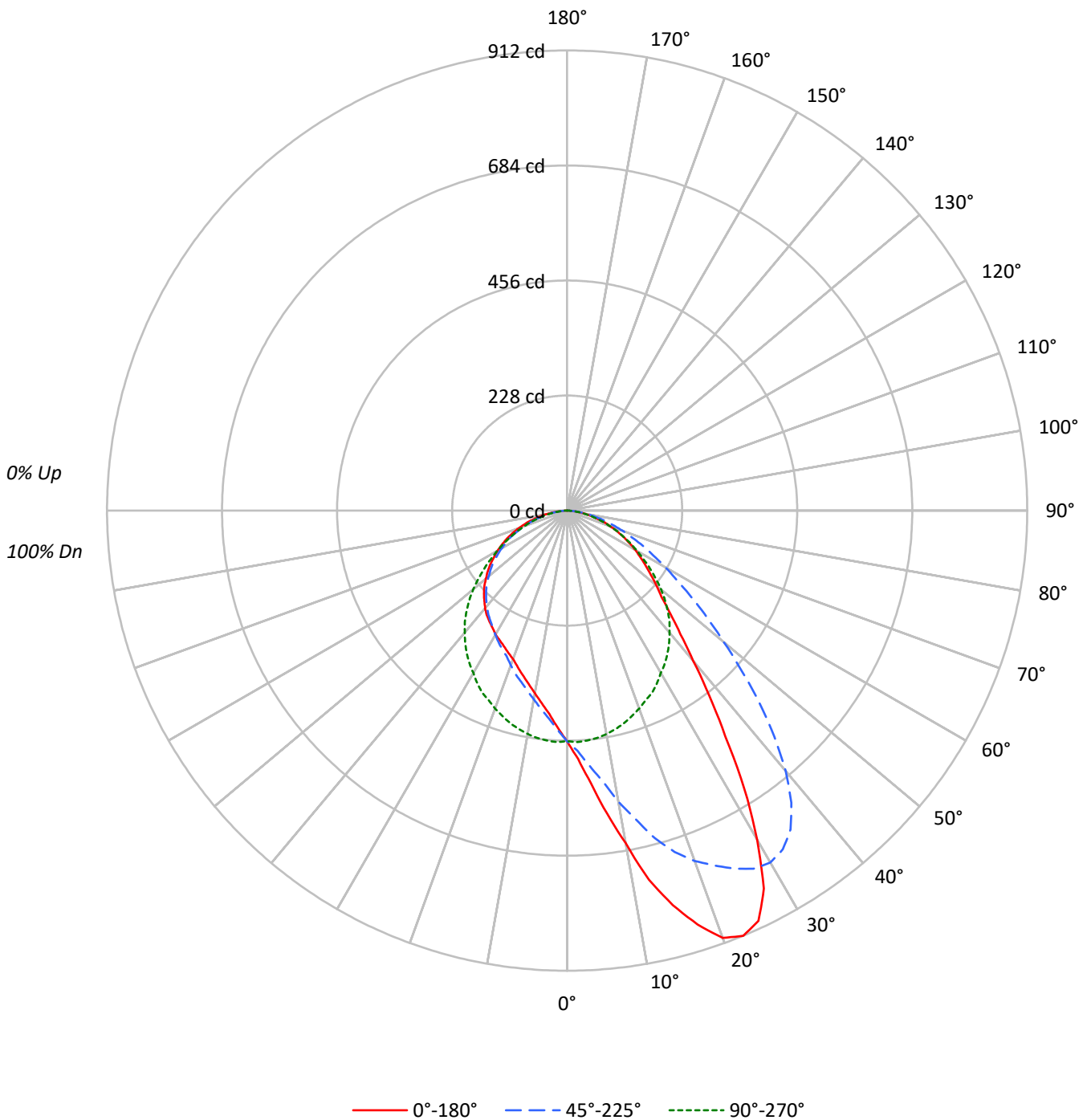
**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 1377.6 lumens  
Efficiency: N/A  
Efficacy: 123.0 lumens/watt  
Spacing Criteria (0/90/45): 1.39 / 1.21 / 1.5  
Luminous Opening: Rectangular (W 3.88' x L: 0.23' 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: 24 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	101	98	107	103	99	96	99	96	93	95	92	90	91	89	87	85					85			
2	100	92	86	81	98	91	85	80	87	82	78	84	80	76	81	77	74	72					72			
3	92	82	74	68	89	80	73	67	77	71	66	75	69	65	72	68	64	62					62			
4	84	73	64	58	82	72	64	58	69	62	57	67	61	56	65	60	55	53					53			
5	78	65	57	50	76	64	56	50	62	55	50	60	54	49	58	53	49	46					46			
6	72	59	50	44	70	58	50	44	56	49	44	55	48	43	53	47	43	41					41			
7	67	54	45	39	65	53	45	39	51	44	39	50	43	39	49	43	38	36					36			
8	62	49	41	35	61	48	41	35	47	40	35	46	39	35	45	39	34	33					33			
9	58	45	37	32	57	45	37	32	43	36	31	42	36	31	41	35	31	29					29			
10	55	42	34	29	53	41	34	29	40	33	29	39	33	28	38	33	28	27					27			

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

	0°	45°	90°	135°	180°
0°	5541	5541	5541	5541	5541
5°	6601	6173	5567	5035	4921
10°	8244	7210	5534	4676	4523
15°	10160	8437	5474	4410	4244
20°	11625	9532	5387	4209	4039
25°	11998	10472	5327	4062	3964
30°	10541	11273	5200	3981	3967
35°	8090	11419	5123	3930	3970
40°	6154	10657	4997	3918	4000
45°	4951	9243	4836	3896	3998
50°	4358	7645	4579	3828	3962
55°	4015	6395	4241	3768	3937
60°	3784	5459	3881	3644	3857
65°	3519	4741	3548	3499	3783
70°	3218	4132	3183	3218	3618
75°	2861	3527	2773	2880	3372
80°	2394	2911	2297	2471	2953
85°	1683	2156	1655	1864	2211

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 55°  
 Vertical Angle: 45°  
 Luminance: 10376 cd/sqm



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	45.0	3.3
10°-20°	144.4	10.5
20°-30°	238.5	17.3
30°-40°	272.9	19.8
40°-50°	247.3	18.0
50°-60°	199.8	14.5
60°-70°	139.2	10.1
70°-80°	73.0	5.3
80°-90°	17.4	1.3
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°	427.8	31.1
0°-40°	700.8	50.9
0°-60°	1148.0	83.3
0°-90°	1377.6	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1377.6	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	457	457	457	457	457	
5°	542	507	458	414	404	56
15°	810	672	436	351	338	230
25°	897	783	398	304	296	401
35°	547	772	346	266	268	346
45°	289	539	282	227	233	228
55°	190	303	201	178	186	171
65°	123	165	124	122	132	122
75°	61	75	59	62	72	65
85°	12	16	12	13	16	15
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°	457.1	457.1	457.1	457.1	457.1	457.1	457.1	457.1	457.1	457.1	457.1
2.5°	492.3	493.3	491.6	492.7	490.2	488.7	486.4	485.4	480.3	476.8	475.5
5°	542.5	542.5	542.9	540.4	537.5	532.3	525.3	520.9	515.9	507.3	502.9
7.5°	605.7	602.6	600.5	595.9	591.9	583.3	575.8	566.8	555.1	540.8	533.3
10°	669.8	673.1	671.0	666.2	655.9	641.9	630.8	617.9	599.6	585.8	566.2
12.5°	749.7	745.3	742.0	734.6	723.3	708.5	691.3	672.1	648.6	625.8	603.8
15°	809.6	810.2	810.0	800.4	789.3	769.2	753.3	721.3	691.5	672.3	635.9
17.5°	860.2	862.9	859.8	845.4	835.5	823.6	803.3	767.7	740.7	709.5	669.3
20°	901.2	901.7	896.6	886.0	874.7	861.3	834.5	807.3	780.9	739.0	700.7
22.5°	912.1	913.2	912.1	907.5	898.3	884.1	864.0	838.9	805.6	761.0	725.4
25°	897.1	896.4	900.0	897.3	896.9	892.2	879.1	858.8	825.9	783.0	737.8
27.5°	844.3	839.9	848.9	860.6	862.3	869.6	869.9	860.4	836.8	800.2	751.0
30°	753.1	757.3	761.6	786.1	799.7	818.8	835.3	841.4	832.4	805.4	759.3
32.5°	653.9	667.3	679.6	696.6	716.4	748.7	774.8	797.9	807.7	795.8	759.3
35°	546.7	553.8	573.3	594.8	623.5	648.6	700.5	734.0	763.9	771.7	749.7
37.5°	463.0	469.5	476.2	492.9	525.1	567.0	609.9	653.9	698.2	730.0	728.8
40°	388.9	390.3	396.2	410.6	437.4	474.7	519.7	572.6	630.2	673.5	691.7
42.5°	332.0	332.0	339.3	356.0	371.5	398.7	442.3	488.9	551.9	607.6	646.5
45°	288.8	289.3	295.1	307.0	319.2	340.5	372.8	416.7	481.6	539.2	593.4
47.5°	253.7	257.6	261.0	267.3	279.4	298.3	321.7	359.2	405.4	468.2	531.4
50°	231.1	231.9	234.4	238.2	247.6	260.0	280.3	308.7	349.7	405.4	469.3
52.5°	208.9	208.9	211.4	216.0	221.4	231.5	246.1	269.8	300.6	351.0	408.3
55°	190.0	190.7	191.1	194.9	199.5	207.0	218.5	234.0	262.3	302.6	352.7
57.5°	171.6	173.9	173.3	176.2	179.6	185.0	193.2	206.6	228.1	258.9	303.9
60°	156.1	155.7	156.8	158.0	160.3	164.1	171.6	181.5	199.5	225.2	262.0
62.5°	138.6	138.1	139.4	140.9	143.0	146.1	151.5	159.1	173.3	192.6	224.6
65°	122.7	122.2	122.9	123.7	126.0	128.5	132.7	139.0	148.4	165.3	189.8
67.5°	106.7	106.7	107.2	108.0	109.5	111.3	114.7	118.5	127.9	139.2	158.4
70°	90.8	91.0	91.0	91.9	93.1	94.6	97.3	100.7	106.5	116.6	132.1
72.5°	77.0	77.0	76.6	77.0	77.9	78.5	80.2	83.3	87.7	95.0	106.7
75°	61.1	62.2	62.0	61.7	62.4	63.4	64.9	67.4	70.1	75.3	84.1
77.5°	46.9	47.5	47.5	47.7	48.3	49.2	49.6	52.1	54.6	57.8	64.3
80°	34.3	34.7	34.3	34.5	35.0	35.8	36.6	37.0	38.9	41.7	44.8
82.5°	23.0	22.4	23.2	23.0	23.4	23.7	24.1	24.3	25.5	27.2	29.3
85°	12.1	13.2	13.0	13.4	13.0	13.2	13.4	14.2	14.4	15.5	16.7
87.5°	4.6	5.0	5.0	5.0	5.0	5.0	5.4	5.7	6.1	6.3	6.7
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):**

	55°	60°	65°	70°	75°	80°	85°	90°	95°	100°	105°
0°	457.1	457.1	457.1	457.1	457.1	457.1	457.1	457.1	457.1	457.1	457.1
2.5°	476.4	474.5	471.8	468.8	465.7	462.6	461.1	459.2	455.4	451.7	448.7
5°	499.4	494.2	487.0	481.8	474.3	467.2	461.5	457.5	451.5	444.1	439.3
7.5°	525.1	515.7	504.4	492.9	481.6	470.9	462.1	454.6	445.2	436.2	428.9
10°	555.5	537.3	521.6	504.8	488.1	473.0	460.5	449.6	437.4	426.6	417.6
12.5°	582.3	561.1	539.4	515.7	493.1	473.6	457.5	443.3	428.6	416.1	406.9
15°	611.8	582.1	551.9	525.1	497.7	473.9	452.7	436.2	419.4	405.2	394.5
17.5°	645.7	605.9	568.0	529.5	505.3	474.5	448.5	426.8	409.6	395.4	381.6
20°	665.8	626.2	579.8	540.2	500.0	468.4	439.5	417.6	397.5	381.1	369.8
22.5°	676.7	635.0	586.5	545.9	499.0	463.6	432.8	406.9	385.3	369.0	356.2
25°	691.9	635.0	590.0	541.3	500.6	458.0	423.2	398.3	375.7	356.9	343.5
27.5°	698.9	640.7	590.4	532.5	490.6	447.3	412.1	385.7	360.6	342.2	330.7
30°	704.5	641.7	582.1	525.6	478.9	435.3	401.0	371.5	348.1	330.5	318.3
32.5°	704.9	639.0	570.8	512.6	463.2	421.3	387.8	360.0	335.5	316.9	305.0
35°	701.2	632.3	557.8	492.7	445.0	406.9	373.4	346.2	321.3	303.5	291.3
37.5°	691.5	624.8	545.6	474.1	423.4	386.4	357.9	332.0	307.3	289.5	279.4
40°	671.0	612.6	529.7	454.2	401.6	364.6	339.7	315.8	293.9	275.4	265.4
42.5°	643.8	594.4	510.5	433.0	377.4	341.6	319.6	300.3	278.0	262.0	251.8
45°	605.3	569.7	491.2	410.9	353.3	318.1	298.0	282.1	262.9	247.0	238.0
47.5°	561.8	540.0	466.3	386.0	328.0	294.9	275.9	263.1	246.8	233.2	224.2
50°	512.8	504.6	438.9	360.8	304.3	270.4	252.8	242.8	229.0	218.1	210.3
52.5°	459.6	464.6	410.0	335.3	281.5	247.2	230.4	221.2	212.4	203.2	195.9
55°	405.6	417.6	375.1	307.5	255.3	225.4	209.1	200.7	194.2	186.5	181.3
57.5°	355.0	373.6	338.9	277.7	231.3	202.6	187.1	179.8	175.0	170.8	166.0
60°	305.8	327.3	301.6	249.9	207.2	181.0	167.2	160.1	157.8	154.7	150.1
62.5°	262.3	284.2	265.0	221.2	182.9	160.5	148.0	142.1	138.8	137.7	135.0
65°	221.4	242.0	227.3	191.3	159.9	140.0	128.9	123.7	121.8	121.6	119.5
67.5°	186.1	206.0	192.6	162.2	135.6	119.5	111.1	107.0	105.1	105.3	103.8
70°	153.4	167.4	159.5	135.6	115.1	100.9	94.4	89.8	88.3	88.3	87.9
72.5°	123.1	134.2	128.1	109.9	93.8	82.9	77.2	74.5	73.3	73.0	73.3
75°	96.3	105.9	100.5	86.2	74.1	65.9	61.1	59.2	58.6	58.2	58.4
77.5°	72.0	78.1	74.7	65.5	55.5	49.8	47.5	45.6	45.0	45.2	45.6
80°	50.9	54.2	52.3	46.5	39.8	36.0	34.3	32.9	32.2	32.9	32.9
82.5°	32.2	34.7	33.1	29.3	26.0	23.4	21.8	21.3	21.1	20.7	21.3
85°	17.6	18.8	18.0	16.7	14.4	13.4	12.1	11.9	11.9	11.9	11.9
87.5°	6.9	7.7	6.7	6.7	6.3	5.2	5.2	5.0	4.8	5.0	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°	457.1	457.1	457.1	457.1	457.1	457.1	457.1	457.1	457.1	457.1	457.1
2.5°	447.5	444.8	443.1	440.8	438.1	434.5	433.0	434.5	433.7	432.2	432.8
5°	435.1	431.6	427.0	423.2	419.0	413.8	412.1	411.3	410.0	409.4	408.3
7.5°	423.0	417.8	412.1	406.9	400.8	396.2	394.1	392.6	392.2	389.1	387.8
10°	410.4	404.0	398.3	391.2	386.0	379.9	377.4	375.7	373.8	371.7	370.3
12.5°	397.3	390.8	383.6	377.0	371.7	365.0	361.7	359.8	358.3	356.9	355.2
15°	385.7	379.3	369.4	364.4	358.1	351.4	349.3	345.1	345.6	343.0	341.4
17.5°	373.6	364.0	357.1	349.5	344.9	340.1	336.1	331.7	331.1	329.2	328.6
20°	360.0	350.0	345.1	337.4	331.1	326.3	322.7	322.3	321.1	318.3	317.3
22.5°	346.6	338.4	331.7	324.6	319.0	312.7	311.0	311.6	309.3	308.7	306.4
25°	334.5	327.3	319.0	312.3	307.7	303.7	301.4	300.6	299.7	299.1	298.0
27.5°	321.5	314.0	306.8	301.4	297.0	294.3	292.8	290.9	290.7	290.7	290.3
30°	308.5	301.8	297.0	290.1	286.1	284.4	283.2	282.6	283.2	283.2	283.4
32.5°	296.6	290.1	284.4	279.6	275.6	274.4	274.2	274.2	275.0	275.0	275.6
35°	284.2	277.7	272.5	269.2	265.8	265.6	265.8	266.2	267.3	267.5	268.3
37.5°	270.8	265.8	261.8	257.6	256.8	257.2	257.6	258.1	258.5	260.2	260.2
40°	258.5	254.7	250.7	248.0	246.6	247.6	248.2	248.4	249.7	250.7	251.6
42.5°	246.3	242.8	239.6	237.3	236.7	237.6	238.2	238.8	240.1	240.9	242.4
45°	232.7	230.4	227.7	225.8	226.0	227.3	227.3	229.4	230.2	230.6	231.7
47.5°	220.2	217.7	215.8	215.0	214.7	215.8	216.4	218.1	218.5	220.0	220.8
50°	206.8	204.9	203.4	202.4	202.6	203.0	204.5	206.2	206.6	208.3	209.7
52.5°	192.8	191.1	189.8	190.3	190.9	190.9	192.3	193.4	194.4	195.7	197.2
55°	179.0	176.6	176.9	176.2	176.9	178.3	179.0	180.6	181.5	182.1	184.2
57.5°	163.9	163.5	162.8	162.2	163.5	164.1	165.1	166.2	167.6	168.5	170.0
60°	148.4	147.8	147.8	148.6	149.0	150.3	152.0	152.6	153.0	154.7	156.6
62.5°	134.2	133.5	133.3	134.6	134.6	135.8	136.5	137.5	139.2	139.8	142.3
65°	118.9	118.5	118.5	119.5	119.7	122.0	122.0	122.0	123.1	125.4	126.6
67.5°	103.0	103.2	103.8	104.4	105.3	105.9	106.1	107.4	109.0	110.5	113.0
70°	87.1	88.1	89.4	89.2	89.8	90.8	91.0	92.3	93.8	95.7	98.6
72.5°	72.8	73.5	74.7	74.7	75.6	76.2	77.2	78.1	80.0	81.6	82.9
75°	58.6	58.8	59.9	60.5	61.1	61.5	62.6	64.0	65.1	66.6	68.4
77.5°	46.0	45.6	46.5	46.7	47.1	47.9	48.8	50.2	51.1	52.7	53.4
80°	32.7	33.5	33.7	33.9	34.3	35.4	36.0	36.6	37.5	38.9	39.6
82.5°	21.6	22.0	22.6	22.8	23.2	23.4	23.7	24.7	25.3	25.7	27.8
85°	12.6	13.2	12.8	12.8	13.2	13.4	14.2	14.2	15.1	14.7	15.7
87.5°	5.4	5.2	5.2	5.4	5.2	5.0	5.7	5.7	5.4	5.7	5.7
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°	457.1	457.1	457.1	457.1
2.5°	431.8	431.8	430.1	430.7
5°	406.3	407.1	405.0	404.4
7.5°	387.4	386.6	385.1	385.1
10°	369.0	368.2	367.5	367.5
12.5°	353.1	352.3	351.0	352.0
15°	338.9	339.1	338.2	338.2
17.5°	328.0	326.1	325.5	325.3
20°	315.0	315.4	314.6	313.1
22.5°	306.8	305.8	305.0	304.7
25°	298.5	297.4	297.2	296.4
27.5°	290.1	290.3	289.7	289.7
30°	283.2	283.8	283.2	283.4
32.5°	276.3	276.3	276.3	275.4
35°	268.7	269.0	268.7	268.3
37.5°	261.0	261.0	261.2	261.6
40°	252.4	252.4	252.8	252.8
42.5°	242.2	243.2	243.8	242.8
45°	233.0	233.2	233.4	233.2
47.5°	222.7	222.1	222.3	222.7
50°	209.9	211.4	211.4	210.1
52.5°	197.6	198.0	198.8	198.8
55°	185.4	185.6	185.9	186.3
57.5°	171.6	171.8	171.8	171.6
60°	157.8	159.1	158.9	159.1
62.5°	143.0	144.8	145.5	145.3
65°	128.9	129.3	130.4	131.9
67.5°	114.1	115.1	116.8	116.4
70°	99.4	100.9	101.3	102.1
72.5°	84.8	86.7	87.1	87.5
75°	70.5	71.4	72.2	72.0
77.5°	55.0	56.3	57.8	56.9
80°	41.2	41.4	42.7	42.3
82.5°	27.2	28.9	28.9	28.0
85°	15.9	15.9	15.9	15.9
87.5°	5.4	5.2	5.7	5.4
90°	0.0	0.0	0.0	0.0

TEST NUMBER: P243326

CATALOG NUMBER: S123DRP-H340D835-X4F0-XX-UDD-A-W

**CIE UGR TABLE:**

Reflectances:											
Ceiling		0.7	0.7	0.5	0.5	0.3	0.7	0.7	0.5	0.5	0.3
Wall		0.5	0.3	0.5	0.3	0.3	0.5	0.3	0.5	0.3	0.3
Reference plane		0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Room dimensions		Viewed crosswise					Viewed endwise				
X=2H	Y=2H	16.35	17.91	16.71	18.22	18.54	16.88	18.44	17.24	18.75	19.07
	3H	17.87	19.27	18.24	19.60	19.96	18.22	19.62	18.59	19.95	20.31
	4H	18.41	19.73	18.81	20.08	20.46	18.67	19.99	19.07	20.34	20.72
	6H	18.77	19.99	19.19	20.36	20.75	18.97	20.19	19.39	20.56	20.95
	8H	18.87	20.03	19.30	20.42	20.82	19.05	20.21	19.47	20.60	21.00
	12H	18.92	20.04	19.35	20.42	20.85	19.08	20.20	19.51	20.58	21.01
4H	2H	17.51	18.83	17.91	19.18	19.55	17.67	18.99	18.07	19.34	19.71
	3H	19.07	20.17	19.48	20.56	20.96	19.46	20.56	19.87	20.96	21.36
	4H	19.66	20.65	20.10	21.07	21.51	20.02	21.01	20.45	21.43	21.86
	6H	20.09	20.95	20.55	21.39	21.85	20.39	21.25	20.85	21.69	22.15
	8H	20.21	21.01	20.67	21.46	21.92	20.48	21.29	20.94	21.73	22.20
	12H	20.28	21.00	20.77	21.48	21.95	20.53	21.25	21.02	21.73	22.20
8H	4H	20.13	20.93	20.59	21.38	21.84	20.33	21.13	20.79	21.57	22.04
	6H	20.63	21.29	21.12	21.78	22.26	20.84	21.50	21.33	21.99	22.47
	8H	20.79	21.39	21.30	21.89	22.38	20.98	21.58	21.50	22.09	22.58
	12H	20.91	21.43	21.41	21.93	22.49	21.08	21.61	21.59	22.10	22.66
12H	4H	20.18	20.90	20.66	21.37	21.84	20.34	21.06	20.82	21.54	22.01
	6H	20.70	21.29	21.21	21.80	22.29	20.87	21.47	21.38	21.98	22.46
	8H	20.90	21.43	21.41	21.92	22.49	21.07	21.60	21.58	22.09	22.66