

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: P243316

Luminaire Tested: S123DRP-H340D927-X4F0-XX-UDD-A-W

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-2024
Report Number: P243316
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-H340D927-X4F0-XX-UDD-A-W
Description: DEFINE 3 DIRECT RECESSED WITH ASYMMETRIC FLUSH DIFFUSER.
HIGH PERFORMANCE LIGHT ENGINE
Light Source: (184) 2700K CCT, 90 CRI LEDS
Ballast/Driver: -

Summary

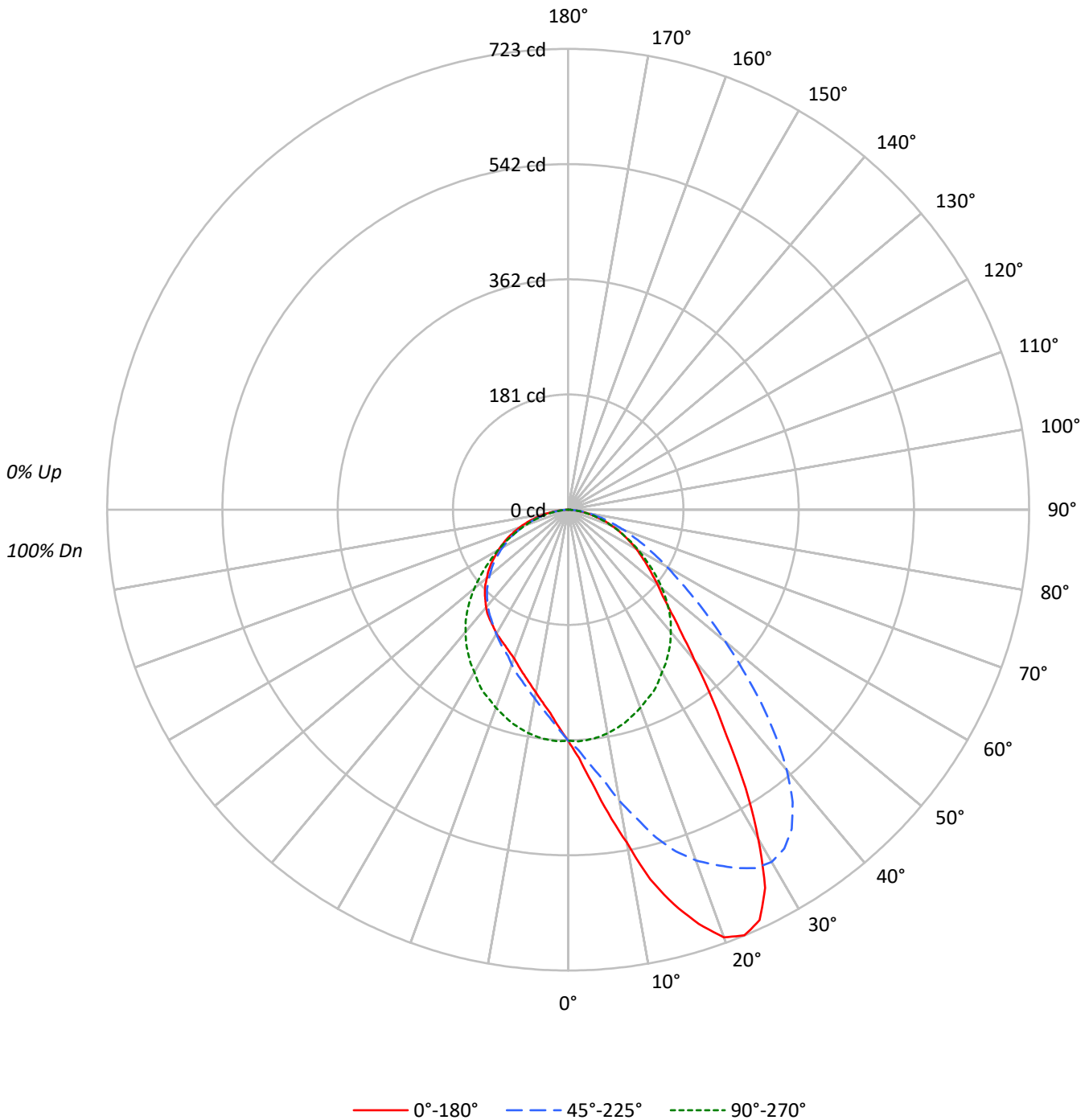
Lumens per Lamp: N/A
Luminaire Lumens: 1091.3 lumens
Efficiency: N/A
Efficacy: 97.4 lumens/watt
Spacing Criteria (0/90/45): 1.39 / 1.21 / 1.5
Luminous Opening: Rectangular (W 3.88' x L: 0.23' x H: 0')
CIE Type: Direct

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				
2	100	92	86	81	98	91	85	80	87	82	78	84	80	76	81	77	74					72				
3	92	82	74	68	89	80	73	67	77	71	66	75	69	65	72	68	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	50	44	70	58	50	44	56	49	44	55	48	43	53	47	43					41				
7	67	54	45	39	65	53	45	39	51	44	39	50	43	39	49	43	38					36				
8	62	49	41	35	61	48	41	35	47	40	35	46	39	35	45	39	34					33				
9	58	45	37	32	57	45	37	32	43	36	31	42	36	31	41	35	31					29				
10	55	42	34	29	53	41	34	29	40	33	29	39	33	28	38	33	28					27				

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°	135°	180°
0°	4389	4389	4389	4389	4389
5°	5230	4890	4410	3989	3897
10°	6531	5712	4383	3704	3584
15°	8048	6683	4336	3494	3362
20°	9210	7552	4267	3334	3199
25°	9504	8296	4220	3218	3140
30°	8350	8930	4119	3153	3142
35°	6409	9046	4057	3113	3146
40°	4875	8443	3959	3103	3169
45°	3922	7321	3831	3087	3166
50°	3451	6057	3626	3032	3140
55°	3183	5068	3360	2986	3119
60°	2999	4325	3074	2885	3055
65°	2788	3757	2811	2773	2997
70°	2552	3275	2520	2552	2867
75°	2267	2796	2196	2281	2669
80°	1899	2304	1815	1954	2338
85°	1335	1711	1321	1474	1752

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 55°
 Vertical Angle: 45°
 Luminance: 8220 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	35.6	3.3
10°-20°	114.4	10.5
20°-30°	188.9	17.3
30°-40°	216.2	19.8
40°-50°	195.9	18.0
50°-60°	158.3	14.5
60°-70°	110.3	10.1
70°-80°	57.8	5.3
80°-90°	13.8	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°	338.9	31.1
0°-40°	555.1	50.9
0°-60°	909.4	83.3
0°-90°	1091.3	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1091.3	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	362	362	362	362	362	
5°	430	402	362	328	320	44
15°	641	533	346	278	268	183
25°	711	620	316	241	235	318
35°	433	611	274	210	213	274
45°	229	427	224	180	185	180
55°	151	240	159	141	148	135
65°	97	131	98	97	104	96
75°	48	60	47	49	57	52
85°	10	12	10	11	13	12
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°	362.1	362.1	362.1	362.1	362.1	362.1	362.1	362.1	362.1	362.1	362.1
2.5°	390.0	390.8	389.5	390.3	388.3	387.2	385.3	384.5	380.5	377.7	376.7
5°	429.8	429.8	430.1	428.1	425.8	421.6	416.2	412.7	408.7	401.9	398.4
7.5°	479.8	477.4	475.7	472.0	468.9	462.1	456.1	449.0	439.7	428.4	422.5
10°	530.6	533.2	531.6	527.8	519.6	508.5	499.7	489.5	475.0	464.1	448.5
12.5°	593.9	590.4	587.8	582.0	573.0	561.2	547.7	532.4	513.8	495.8	478.3
15°	641.3	641.8	641.7	634.0	625.2	609.3	596.7	571.4	547.8	532.6	503.7
17.5°	681.5	683.6	681.1	669.7	661.9	652.4	636.4	608.2	586.8	562.1	530.2
20°	714.0	714.3	710.3	701.8	692.9	682.3	661.1	639.5	618.6	585.5	555.1
22.5°	722.6	723.4	722.6	718.9	711.6	700.4	684.4	664.5	638.2	602.9	574.7
25°	710.6	710.1	713.0	710.8	710.5	706.8	696.4	680.3	654.3	620.3	584.5
27.5°	668.9	665.4	672.5	681.8	683.1	688.9	689.1	681.6	662.9	633.9	594.9
30°	596.6	599.9	603.4	622.8	633.5	648.6	661.7	666.5	659.4	638.0	601.5
32.5°	518.0	528.6	538.4	551.8	567.5	593.1	613.8	632.0	639.8	630.4	601.5
35°	433.1	438.7	454.1	471.2	493.9	513.8	554.9	581.5	605.2	611.3	593.9
37.5°	366.8	371.9	377.2	390.5	416.0	449.2	483.2	518.0	553.1	578.3	577.3
40°	308.1	309.2	313.9	325.3	346.5	376.0	411.7	453.6	499.2	533.6	548.0
42.5°	263.0	263.0	268.8	282.0	294.3	315.9	350.3	387.3	437.2	481.3	512.2
45°	228.8	229.1	233.8	243.2	252.9	269.8	295.3	330.1	381.5	427.1	470.1
47.5°	201.0	204.1	206.8	211.7	221.3	236.3	254.8	284.5	321.2	370.9	421.0
50°	183.0	183.7	185.7	188.7	196.1	205.9	222.0	244.6	277.1	321.2	371.7
52.5°	165.5	165.5	167.5	171.1	175.4	183.4	195.0	213.7	238.1	278.1	323.5
55°	150.6	151.0	151.4	154.4	158.0	164.0	173.1	185.4	207.8	239.8	279.4
57.5°	136.0	137.8	137.3	139.6	142.3	146.6	153.0	163.6	180.7	205.1	240.7
60°	123.7	123.4	124.2	125.2	127.0	130.0	136.0	143.8	158.0	178.4	207.6
62.5°	109.8	109.4	110.4	111.6	113.2	115.7	120.0	126.0	137.3	152.5	177.9
65°	97.2	96.8	97.3	98.0	99.8	101.8	105.1	110.1	117.6	131.0	150.4
67.5°	84.6	84.6	84.9	85.6	86.7	88.2	90.9	93.8	101.3	110.3	125.5
70°	72.0	72.1	72.1	72.8	73.8	74.9	77.1	79.8	84.4	92.4	104.6
72.5°	61.0	61.0	60.7	61.0	61.7	62.2	63.5	66.0	69.5	75.3	84.6
75°	48.4	49.2	49.1	48.9	49.4	50.2	51.4	53.4	55.5	59.7	66.7
77.5°	37.1	37.6	37.6	37.8	38.3	39.0	39.3	41.3	43.3	45.8	50.9
80°	27.2	27.5	27.2	27.4	27.7	28.4	29.0	29.3	30.8	33.0	35.5
82.5°	18.2	17.7	18.4	18.2	18.6	18.7	19.1	19.2	20.2	21.6	23.2
85°	9.6	10.4	10.3	10.6	10.3	10.4	10.6	11.3	11.4	12.3	13.3
87.5°	3.6	4.0	4.0	4.0	4.0	4.0	4.3	4.5	4.8	5.0	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):

	55°	60°	65°	70°	75°	80°	85°	90°	95°	100°	105°
0°	362.1	362.1	362.1	362.1	362.1	362.1	362.1	362.1	362.1	362.1	362.1
2.5°	377.4	375.9	373.7	371.4	368.9	366.4	365.3	363.8	360.8	357.8	355.5
5°	395.6	391.5	385.8	381.7	375.7	370.1	365.6	362.4	357.6	351.8	348.0
7.5°	416.0	408.5	399.6	390.5	381.5	373.1	366.1	360.1	352.7	345.5	339.7
10°	440.0	425.6	413.2	399.9	386.7	374.7	364.8	356.1	346.5	337.9	330.8
12.5°	461.3	444.5	427.3	408.5	390.6	375.2	362.4	351.2	339.6	329.6	322.3
15°	484.6	461.1	437.2	416.0	394.3	375.4	358.6	345.5	332.3	321.0	312.5
17.5°	511.5	480.0	450.0	419.5	400.3	375.9	355.3	338.1	324.5	313.2	302.3
20°	527.4	496.1	459.3	427.9	396.1	371.1	348.2	330.8	314.9	301.9	293.0
22.5°	536.0	503.1	464.6	432.4	395.3	367.3	342.9	322.3	305.2	292.3	282.2
25°	548.1	503.1	467.4	428.8	396.6	362.8	335.3	315.5	297.6	282.7	272.1
27.5°	553.6	507.5	467.7	421.8	388.6	354.3	326.5	305.6	285.7	271.1	262.0
30°	558.1	508.4	461.1	416.3	379.4	344.9	317.7	294.3	275.7	261.8	252.2
32.5°	558.4	506.2	452.1	406.1	366.9	333.8	307.2	285.2	265.8	251.0	241.6
35°	555.4	500.9	441.9	390.3	352.5	322.3	295.8	274.2	254.5	240.4	230.8
37.5°	547.8	494.9	432.3	375.5	335.4	306.1	283.5	263.0	243.4	229.3	221.3
40°	531.6	485.3	419.7	359.8	318.2	288.8	269.1	250.2	232.8	218.2	210.2
42.5°	510.0	470.9	404.4	343.0	298.9	270.6	253.2	237.9	220.2	207.6	199.5
45°	479.5	451.3	389.1	325.5	279.9	252.0	236.1	223.5	208.3	195.6	188.5
47.5°	445.0	427.8	369.4	305.7	259.8	233.6	218.5	208.4	195.5	184.7	177.6
50°	406.2	399.8	347.7	285.8	241.1	214.2	200.3	192.3	181.4	172.8	166.6
52.5°	364.1	368.1	324.8	265.6	223.0	195.8	182.6	175.3	168.3	161.0	155.2
55°	321.3	330.8	297.1	243.6	202.3	178.6	165.6	159.0	153.9	147.7	143.6
57.5°	281.2	296.0	268.4	220.0	183.2	160.5	148.2	142.4	138.6	135.3	131.5
60°	242.2	259.3	238.9	198.0	164.1	143.4	132.5	126.8	125.0	122.5	118.9
62.5°	207.8	225.2	209.9	175.3	144.9	127.2	117.2	112.6	109.9	109.1	106.9
65°	175.4	191.7	180.1	151.5	126.7	110.9	102.1	98.0	96.5	96.3	94.7
67.5°	147.4	163.2	152.5	128.5	107.4	94.7	88.0	84.7	83.2	83.4	82.2
70°	121.5	132.6	126.3	107.4	91.2	79.9	74.8	71.1	70.0	70.0	69.6
72.5°	97.5	106.3	101.5	87.0	74.3	65.7	61.2	59.0	58.0	57.9	58.0
75°	76.3	83.9	79.6	68.3	58.7	52.2	48.4	46.9	46.4	46.1	46.3
77.5°	57.0	61.8	59.2	51.9	43.9	39.5	37.6	36.1	35.6	35.8	36.1
80°	40.3	42.9	41.5	36.8	31.5	28.5	27.2	26.0	25.5	26.0	26.0
82.5°	25.5	27.5	26.2	23.2	20.6	18.6	17.2	16.9	16.7	16.4	16.9
85°	13.9	14.9	14.3	13.3	11.4	10.6	9.6	9.5	9.5	9.5	9.5
87.5°	5.5	6.1	5.3	5.3	5.0	4.1	4.1	4.0	3.8	4.0	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):

	110°	115°	120°	125°	130°	135°	140°	145°	150°	155°	160°
0°	362.1	362.1	362.1	362.1	362.1	362.1	362.1	362.1	362.1	362.1	362.1
2.5°	354.5	352.3	351.0	349.2	347.0	344.2	343.0	344.2	343.5	342.4	342.9
5°	344.7	341.9	338.2	335.3	331.9	327.8	326.5	325.8	324.8	324.3	323.5
7.5°	335.1	330.9	326.5	322.3	317.5	313.9	312.2	311.0	310.7	308.2	307.2
10°	325.1	320.0	315.5	309.9	305.7	300.9	298.9	297.6	296.1	294.5	293.3
12.5°	314.7	309.6	303.9	298.6	294.5	289.2	286.5	285.0	283.9	282.7	281.4
15°	305.6	300.4	292.6	288.7	283.7	278.4	276.7	273.4	273.7	271.8	270.4
17.5°	296.0	288.3	282.9	276.9	273.2	269.4	266.3	262.8	262.3	260.8	260.3
20°	285.2	277.2	273.4	267.3	262.3	258.5	255.7	255.3	254.3	252.2	251.4
22.5°	274.6	268.1	262.8	257.2	252.7	247.7	246.4	246.9	245.1	244.6	242.7
25°	265.0	259.3	252.7	247.4	243.7	240.6	238.8	238.1	237.4	236.9	236.1
27.5°	254.7	248.7	243.1	238.8	235.3	233.1	232.0	230.5	230.3	230.3	230.0
30°	244.4	239.1	235.3	229.8	226.7	225.3	224.3	223.8	224.3	224.3	224.5
32.5°	234.9	229.8	225.3	221.5	218.4	217.4	217.2	217.2	217.9	217.9	218.4
35°	225.2	220.0	215.9	213.2	210.6	210.4	210.6	210.9	211.7	211.9	212.6
37.5°	214.6	210.6	207.4	204.1	203.4	203.8	204.1	204.4	204.8	206.1	206.1
40°	204.8	201.8	198.6	196.5	195.3	196.1	196.6	196.8	197.8	198.6	199.3
42.5°	195.2	192.3	189.8	188.0	187.5	188.2	188.7	189.2	190.2	190.8	192.0
45°	184.4	182.6	180.4	178.9	179.1	180.1	180.1	181.7	182.4	182.7	183.5
47.5°	174.4	172.4	170.9	170.3	170.1	170.9	171.4	172.8	173.1	174.3	174.9
50°	163.8	162.3	161.2	160.3	160.5	160.8	162.0	163.3	163.6	165.0	166.1
52.5°	152.7	151.4	150.4	150.7	151.2	151.2	152.4	153.2	154.0	155.0	156.2
55°	141.8	139.9	140.1	139.6	140.1	141.3	141.8	143.1	143.8	144.2	145.9
57.5°	129.8	129.5	129.0	128.5	129.5	130.0	130.8	131.6	132.8	133.5	134.6
60°	117.6	117.1	117.1	117.7	118.1	119.0	120.4	120.9	121.2	122.5	124.0
62.5°	106.3	105.8	105.6	106.6	106.6	107.6	108.1	108.9	110.3	110.8	112.7
65°	94.2	93.8	93.8	94.7	94.8	96.7	96.7	96.7	97.5	99.3	100.3
67.5°	81.6	81.7	82.2	82.7	83.4	83.9	84.1	85.1	86.4	87.5	89.5
70°	69.0	69.8	70.8	70.6	71.1	72.0	72.1	73.1	74.3	75.8	78.1
72.5°	57.7	58.2	59.2	59.2	59.9	60.4	61.2	61.8	63.3	64.7	65.7
75°	46.4	46.6	47.4	47.9	48.4	48.7	49.6	50.7	51.6	52.7	54.2
77.5°	36.5	36.1	36.8	37.0	37.3	38.0	38.6	39.8	40.5	41.8	42.3
80°	25.9	26.5	26.7	26.9	27.2	28.0	28.5	29.0	29.7	30.8	31.3
82.5°	17.1	17.4	17.9	18.1	18.4	18.6	18.7	19.6	20.1	20.4	22.1
85°	9.9	10.4	10.1	10.1	10.4	10.6	11.3	11.3	11.9	11.6	12.4
87.5°	4.3	4.1	4.1	4.3	4.1	4.0	4.5	4.5	4.3	4.5	4.5
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: P243316

CATALOG NUMBER: S123DRP-H340D927-X4F0-XX-UDD-A-W

CANDELA DISTRIBUTION (continued):

	165°	170°	175°	180°
0°	362.1	362.1	362.1	362.1
2.5°	342.1	342.1	340.7	341.2
5°	321.8	322.5	320.8	320.3
7.5°	306.9	306.2	305.1	305.1
10°	292.3	291.6	291.2	291.2
12.5°	279.7	279.0	278.1	278.9
15°	268.4	268.6	267.9	267.9
17.5°	259.8	258.3	257.8	257.7
20°	249.5	249.9	249.2	248.0
22.5°	243.1	242.2	241.6	241.4
25°	236.4	235.6	235.4	234.8
27.5°	229.8	230.0	229.5	229.5
30°	224.3	224.8	224.3	224.5
32.5°	218.9	218.9	218.9	218.2
35°	212.9	213.1	212.9	212.6
37.5°	206.8	206.8	206.9	207.3
40°	200.0	200.0	200.3	200.3
42.5°	191.8	192.7	193.2	192.3
45°	184.5	184.7	184.9	184.7
47.5°	176.4	175.9	176.1	176.4
50°	166.3	167.5	167.5	166.5
52.5°	156.5	156.9	157.5	157.5
55°	146.9	147.1	147.2	147.6
57.5°	136.0	136.1	136.1	136.0
60°	125.0	126.0	125.8	126.0
62.5°	113.2	114.7	115.2	115.1
65°	102.1	102.5	103.3	104.5
67.5°	90.4	91.2	92.5	92.2
70°	78.8	79.9	80.2	80.9
72.5°	67.2	68.6	69.0	69.3
75°	55.9	56.5	57.2	57.0
77.5°	43.6	44.6	45.8	45.1
80°	32.7	32.8	33.8	33.5
82.5°	21.6	22.9	22.9	22.2
85°	12.6	12.6	12.6	12.6
87.5°	4.3	4.1	4.5	4.3
90°	0.0	0.0	0.0	0.0



TEST NUMBER: P243316
 CATALOG NUMBER: S123DRP-H340D927-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	15.54	17.10	15.90	17.41	17.73	16.07	17.63	16.43	17.94	18.26
	3H	17.06	18.46	17.44	18.79	19.15	17.41	18.81	17.78	19.14	19.50
	4H	17.60	18.92	18.00	19.27	19.65	17.86	19.18	18.26	19.53	19.91
	6H	17.97	19.18	18.38	19.55	19.94	18.16	19.38	18.57	19.75	20.14
	8H	18.06	19.22	18.49	19.61	20.01	18.24	19.40	18.66	19.79	20.19
	12H	18.11	19.23	18.54	19.61	20.04	18.27	19.39	18.70	19.77	20.20
4H	2H	16.70	18.02	17.10	18.37	18.75	16.86	18.18	17.26	18.53	18.90
	3H	18.26	19.36	18.67	19.76	20.16	18.65	19.75	19.06	20.15	20.55
	4H	18.86	19.84	19.29	20.26	20.70	19.21	20.20	19.64	20.62	21.05
	6H	19.28	20.14	19.74	20.59	21.04	19.58	20.44	20.04	20.88	21.34
	8H	19.40	20.21	19.86	20.65	21.12	19.67	20.48	20.13	20.92	21.39
	12H	19.48	20.20	19.96	20.67	21.14	19.72	20.44	20.21	20.92	21.39
8H	4H	19.32	20.12	19.78	20.57	21.03	19.52	20.32	19.98	20.77	21.23
	6H	19.82	20.48	20.31	20.97	21.45	20.03	20.69	20.52	21.18	21.66
	8H	19.98	20.58	20.49	21.09	21.57	20.17	20.77	20.69	21.28	21.77
	12H	20.10	20.63	20.61	21.12	21.68	20.27	20.80	20.78	21.29	21.85
12H	4H	19.37	20.09	19.85	20.56	21.03	19.53	20.25	20.01	20.73	21.20
	6H	19.89	20.49	20.40	20.99	21.48	20.06	20.66	20.57	21.17	21.65
	8H	20.10	20.62	20.60	21.11	21.68	20.26	20.79	20.77	21.28	21.85