

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: P242481

Luminaire Tested: S123DRP-S340D935-X4F0-XX-UDD-A-W

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-2024
Report Number: P242481
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1802-639-20)
Test Lab: INNOVATION CENTER
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: S123DRP-S340D935-X4F0-XX-UDD-A-W
Description: DEFINE 3 DIRECT RECESSED WITH ASYMMETRIC FLUSH DIFFUSER
STANDARD LIGHT ENGINE
Light Source: (92) 3500K CCT, 90 CRI LEDS
Ballast/Driver: -

Summary

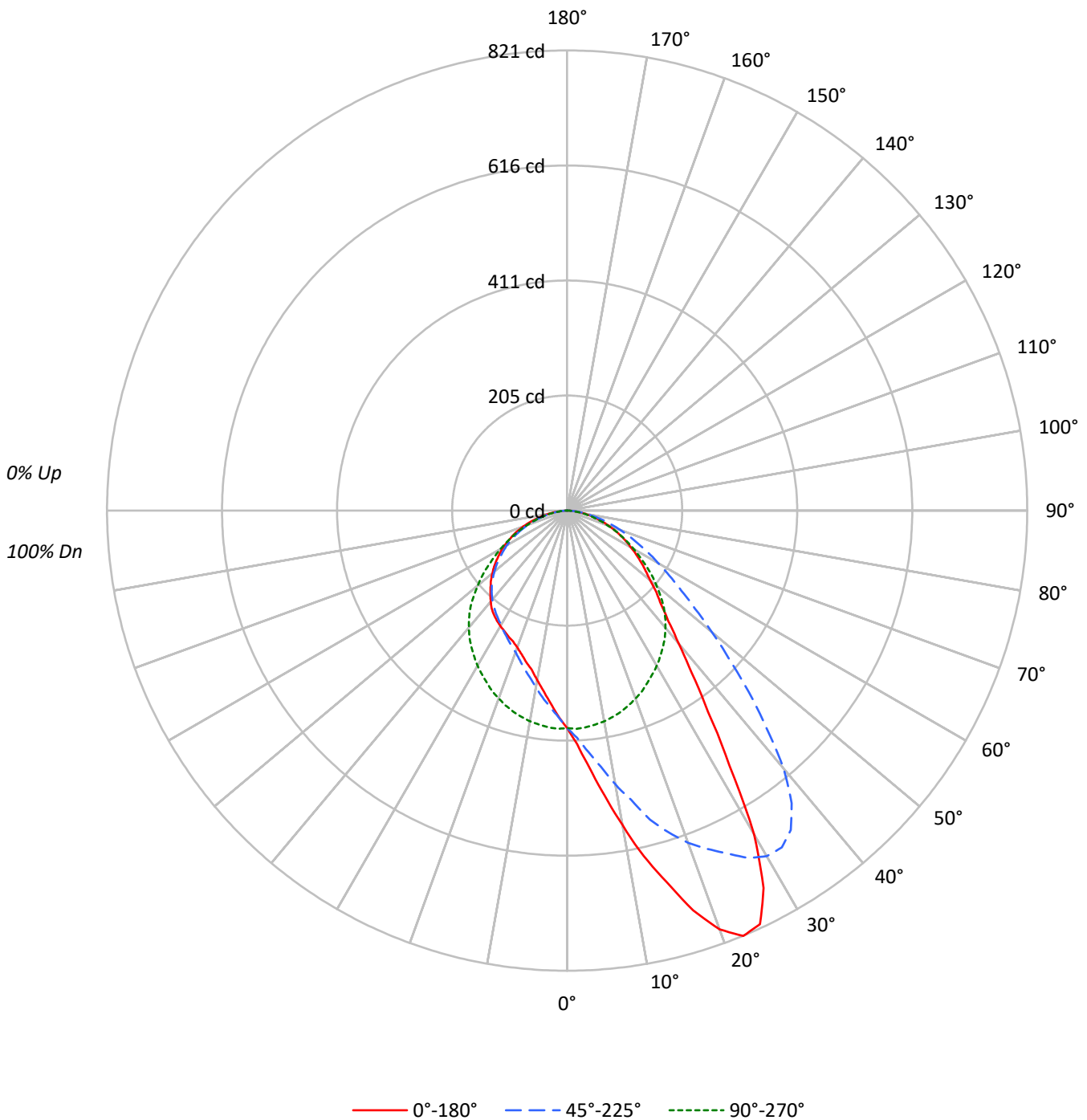
Lumens per Lamp: N/A
Luminaire Lumens: 1170.9 lumens
Efficiency: N/A
Efficacy: 100.9 lumens/watt
Spacing Criteria (0/90/45): 1.37 / 1.23 / 1.5
Luminous Opening: Rectangular (W 3.88' x L: 0.23' x H: 0')
CIE Type: Direct

Input Watts (W): 11.6
Input Voltage (V): 120
Input Current (A_{in}): 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

TEST NUMBER: P242481

CATALOG NUMBER: S123DRP-S340D935-X4F0-XX-UDD-A-W

Luminous Intensity Polar Plot



TEST NUMBER: P242481

CATALOG NUMBER: S123DRP-S340D935-X4F0-XX-UDD-A-W

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	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	93	86	81	98	91	85	80	87	82	78	84	80	76	81	78	74				72	
3	92	82	74	68	89	80	73	67	77	71	66	75	69	65	72	68	64				62	
4	84	73	65	58	82	72	64	58	69	62	57	67	61	56	65	60	56				53	
5	78	66	57	51	76	64	56	50	62	55	50	60	54	49	59	53	49				47	
6	72	59	51	44	70	58	50	44	56	49	44	55	48	43	53	48	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	39	35	45	39	35				33	
9	58	45	37	32	57	45	37	32	43	36	32	42	36	31	41	36	31				29	
10	55	42	34	29	53	41	34	29	40	33	29	39	33	29	38	33	28				27	

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°	135°	180°
0°	4702	4702	4702	4702	4702
5°	5608	5255	4722	4277	4186
10°	7019	6110	4698	3940	3780
15°	8608	7165	4661	3674	3519
20°	10256	8137	4601	3467	3351
25°	10889	9025	4530	3366	3313
30°	9334	9965	4477	3302	3331
35°	6492	10296	4402	3291	3365
40°	4889	9505	4315	3283	3355
45°	4059	7861	4186	3260	3312
50°	3636	6344	3920	3196	3281
55°	3400	5262	3635	3107	3242
60°	3190	4553	3336	3016	3207
65°	2997	4007	3040	2862	3106
70°	2810	3576	2704	2630	2959
75°	2520	3100	2370	2351	2712
80°	2206	2548	1941	1906	2338
85°	1725	1989	1405	1391	1572

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 55°
 Vertical Angle: 45°
 Luminance: 9293 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	38.2	3.3
10°-20°	122.5	10.5
20°-30°	206.2	17.6
30°-40°	233.0	19.9
40°-50°	208.7	17.8
50°-60°	168.5	14.4
60°-70°	117.4	10.0
70°-80°	61.6	5.3
80°-90°	14.8	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°	366.9	31.3
0°-40°	599.9	51.2
0°-60°	977.1	83.5
0°-90°	1170.9	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1170.9	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	388	388	388	388	388	
5°	461	432	388	352	344	47
15°	686	571	371	293	280	198
25°	814	675	339	252	248	360
35°	439	696	298	222	227	283
45°	237	459	244	190	193	187
55°	161	249	172	147	153	144
65°	104	140	106	100	108	104
75°	54	66	51	50	58	57
85°	12	14	10	10	11	15
90°	0	0	0	0	0	



TEST NUMBER: P242481

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CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
0°	387.9	387.9	387.9	387.9	387.9	387.9	387.9	387.9	387.9	387.9	387.9
2.5°	417.6	417.3	416.3	417.1	415.6	413.5	413.3	411.4	406.0	405.6	404.1
5°	460.9	459.4	459.2	459.0	456.4	452.8	446.0	445.5	436.4	431.9	426.5
7.5°	513.1	512.6	511.1	509.4	500.5	496.2	489.8	481.6	471.0	460.9	454.5
10°	570.3	576.5	568.8	563.5	558.6	549.4	538.7	525.3	512.0	496.4	484.6
12.5°	631.5	633.8	633.8	628.9	620.6	605.4	584.4	569.3	557.3	528.7	518.6
15°	686.0	697.5	690.2	673.3	673.6	660.3	635.5	608.2	593.8	571.0	540.0
17.5°	747.7	749.8	747.5	731.7	724.0	704.7	682.3	656.9	629.7	602.0	569.9
20°	795.1	793.9	787.4	780.0	763.9	749.6	724.6	695.4	657.9	630.8	594.9
22.5°	821.4	819.3	817.1	811.2	798.4	782.8	761.0	728.5	693.2	653.3	610.5
25°	814.2	816.7	817.1	815.4	810.7	801.5	783.8	758.4	722.7	674.8	631.5
27.5°	759.0	765.2	773.1	778.3	786.8	792.4	786.8	770.8	741.5	698.6	645.5
30°	666.9	659.4	678.0	701.5	717.4	745.6	761.4	762.4	747.5	712.0	660.5
32.5°	539.1	551.3	556.9	587.2	626.8	659.4	694.7	726.1	733.4	712.7	669.3
35°	438.7	449.0	464.1	479.1	516.7	549.0	604.3	652.4	690.7	695.8	668.2
37.5°	364.6	370.7	379.9	395.8	421.6	461.6	505.4	568.0	620.8	658.0	654.3
40°	309.0	310.5	321.2	332.7	352.6	384.2	422.7	476.5	543.0	600.7	624.8
42.5°	267.3	271.0	274.0	284.9	299.8	321.6	356.7	398.8	458.4	527.0	579.9
45°	236.8	240.6	243.4	250.7	262.0	278.0	303.0	343.6	390.0	458.6	522.0
47.5°	215.8	215.4	217.8	223.7	231.8	244.5	263.0	290.0	334.6	391.9	458.2
50°	192.8	195.9	196.6	200.9	206.9	215.8	230.4	252.6	287.6	336.4	396.2
52.5°	176.7	177.1	179.5	182.3	187.4	193.8	206.0	222.2	247.7	287.6	341.3
55°	160.9	160.9	163.0	165.4	168.4	174.6	183.1	195.9	216.7	249.0	294.5
57.5°	146.2	147.0	148.9	149.4	152.1	156.4	163.7	173.9	189.8	216.0	253.6
60°	131.6	133.3	133.1	134.6	136.8	140.0	146.0	153.9	167.8	187.8	218.2
62.5°	118.8	118.2	118.2	120.1	122.4	125.4	128.8	135.3	146.6	163.7	188.5
65°	104.5	104.1	105.4	106.6	107.3	109.6	112.6	118.6	126.5	139.7	159.8
67.5°	92.1	91.0	91.9	92.3	93.6	95.5	98.5	102.2	108.6	119.7	135.9
70°	79.3	78.4	78.2	78.6	79.7	81.0	83.1	86.6	92.5	100.9	112.0
72.5°	66.2	65.6	65.6	66.5	66.9	67.7	69.0	72.2	76.5	82.3	92.5
75°	53.8	53.8	53.8	53.9	54.5	55.3	56.4	58.1	61.7	66.2	73.1
77.5°	42.5	42.7	42.3	42.1	43.0	43.4	43.6	45.5	47.6	50.9	56.4
80°	31.6	30.6	31.0	31.6	32.0	32.1	32.7	33.1	34.8	36.5	40.0
82.5°	21.4	20.7	20.7	21.6	21.6	21.8	22.4	22.9	23.3	24.8	26.3
85°	12.4	12.4	12.6	12.6	12.8	12.6	13.2	13.3	13.3	14.3	15.4
87.5°	5.6	5.3	5.5	5.6	5.5	5.6	5.8	6.0	6.2	6.4	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°	387.9	387.9	387.9	387.9	387.9	387.9	387.9	387.9	387.9	387.9	387.9
2.5°	403.0	401.5	400.0	397.3	395.1	391.9	391.0	389.8	386.4	383.4	381.2
5°	424.4	419.9	413.3	407.3	402.4	395.8	392.1	388.1	382.5	377.4	373.3
7.5°	444.9	437.0	427.8	417.8	408.2	399.0	391.7	385.1	377.8	370.7	365.2
10°	470.3	457.5	443.2	427.8	414.6	401.9	391.1	381.7	371.6	362.8	355.4
12.5°	499.2	478.7	457.7	438.1	422.0	403.0	389.5	376.9	365.0	353.9	345.5
15°	520.8	496.8	473.5	447.7	424.0	401.9	386.4	371.4	358.1	347.2	336.6
17.5°	542.3	515.9	486.2	455.2	427.4	401.9	380.8	364.6	348.3	335.1	325.0
20°	559.9	528.9	494.1	461.6	430.0	400.7	377.0	356.7	338.7	324.6	312.8
22.5°	575.2	537.6	501.3	465.9	429.9	397.7	370.1	349.0	329.1	315.4	302.6
25°	584.7	541.3	505.2	464.4	425.2	392.5	362.4	338.7	319.2	303.0	290.0
27.5°	593.8	540.8	500.0	456.0	419.5	387.0	354.7	329.3	308.8	291.3	278.0
30°	602.8	541.7	490.8	447.3	410.5	376.7	345.5	319.9	298.1	280.2	267.8
32.5°	608.4	541.1	482.3	435.3	396.2	367.3	335.5	308.8	286.3	268.8	256.9
35°	609.9	537.9	472.3	417.8	380.6	351.5	325.0	297.5	274.0	257.7	244.2
37.5°	606.7	532.1	461.4	402.0	361.8	332.9	309.8	286.3	263.7	245.5	233.6
40°	596.4	526.5	448.3	385.1	342.3	314.6	295.7	272.7	250.5	233.4	222.5
42.5°	576.7	515.0	433.8	366.3	322.0	294.3	277.2	259.0	238.3	222.5	211.6
45°	542.1	497.3	419.3	347.5	302.0	273.5	258.1	244.2	225.2	209.6	200.2
47.5°	497.9	473.5	398.5	327.8	281.2	253.6	237.4	225.9	211.1	198.5	189.3
50°	451.5	442.6	377.2	307.5	260.3	233.4	218.0	207.9	197.9	185.3	177.1
52.5°	397.9	406.9	352.4	286.4	239.1	212.8	198.5	191.0	182.1	172.4	165.4
55°	348.3	368.0	323.1	262.4	218.0	192.8	179.1	172.0	166.7	159.0	152.8
57.5°	300.2	325.4	292.7	238.1	197.4	175.4	161.8	153.8	150.4	146.0	141.0
60°	258.3	283.1	259.6	213.7	176.5	155.8	144.2	137.6	134.2	131.4	127.2
62.5°	220.9	246.0	227.2	188.9	156.0	137.2	127.4	121.0	118.6	117.5	114.1
65°	187.2	208.8	195.7	163.0	136.6	119.7	110.5	106.0	103.6	103.0	100.7
67.5°	158.1	174.8	164.7	140.0	118.6	103.2	95.1	91.2	89.1	88.9	87.0
70°	129.5	144.9	137.6	115.8	97.9	86.5	79.7	76.3	75.2	75.0	74.1
72.5°	107.3	116.9	111.5	94.2	81.4	71.2	66.7	63.2	61.8	62.2	61.7
75°	82.7	90.8	87.4	74.8	63.7	57.0	52.8	50.6	49.4	50.0	49.2
77.5°	63.2	68.8	65.4	55.8	48.7	43.6	40.4	38.9	37.8	37.8	37.4
80°	44.9	47.9	46.2	41.0	35.3	31.2	28.8	27.8	27.3	27.1	26.9
82.5°	28.8	31.2	29.1	25.9	22.6	20.5	19.4	18.0	17.7	17.9	17.7
85°	16.2	17.1	16.4	14.1	12.6	11.5	10.7	10.1	9.8	10.0	9.6
87.5°	7.0	7.1	6.6	5.8	5.5	4.9	4.9	4.5	4.1	4.1	3.9
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°	387.9	387.9	387.9	387.9	387.9	387.9	387.9	387.9	387.9	387.9	387.9
2.5°	379.9	378.5	376.7	373.9	371.6	368.0	368.0	368.6	368.6	368.4	368.0
5°	369.9	367.1	363.7	359.8	355.6	351.5	350.7	349.2	348.1	347.3	346.4
7.5°	359.8	355.1	350.4	344.9	340.2	336.3	333.4	331.0	329.5	327.8	326.5
10°	349.4	343.2	337.4	331.6	325.2	320.1	316.9	314.6	313.0	311.4	310.7
12.5°	337.2	329.9	323.3	317.8	310.7	305.4	302.4	301.7	299.6	296.0	294.2
15°	325.4	318.8	311.1	302.6	299.2	292.8	289.3	287.6	286.4	284.0	283.3
17.5°	315.6	306.7	297.9	291.7	285.5	280.4	278.4	276.1	274.6	272.4	271.8
20°	303.4	295.7	287.8	281.0	274.4	268.8	267.1	265.6	264.1	263.1	262.4
22.5°	291.0	283.3	277.1	270.8	263.7	260.5	258.6	256.9	256.0	255.4	254.7
25°	279.5	272.7	265.4	259.8	254.1	251.7	250.5	249.6	248.9	247.9	247.7
27.5°	269.3	261.8	255.6	250.2	246.0	244.0	242.7	242.1	242.1	242.5	242.7
30°	257.7	250.9	246.0	241.5	237.8	235.9	235.7	235.7	236.5	236.6	237.0
32.5°	247.0	241.7	236.8	232.5	229.9	228.7	229.7	229.7	230.2	230.8	231.6
35°	236.6	231.8	228.0	224.2	221.8	222.4	222.7	223.1	224.0	225.2	225.9
37.5°	226.9	222.4	218.4	215.4	213.9	215.0	216.0	216.7	217.8	218.8	219.5
40°	216.2	213.0	209.2	206.6	206.9	207.5	208.3	209.2	210.1	210.7	211.5
42.5°	206.2	202.8	200.2	198.1	198.7	199.4	199.8	200.2	201.3	202.4	202.8
45°	196.0	193.4	190.8	189.5	189.8	190.2	190.6	191.2	192.1	192.8	193.0
47.5°	184.6	182.7	181.0	179.5	180.3	180.1	180.6	181.8	182.1	182.5	183.6
50°	173.7	172.0	169.9	169.5	169.5	169.5	169.7	171.2	171.2	172.0	172.7
52.5°	161.6	160.7	159.6	158.8	158.4	158.4	159.4	160.0	160.3	161.5	162.2
55°	149.8	148.7	147.5	147.0	146.6	147.0	148.5	148.9	149.8	150.4	150.9
57.5°	137.4	136.6	135.7	135.3	135.3	135.5	136.6	137.6	137.8	139.7	140.4
60°	125.2	123.9	123.1	123.1	122.7	124.4	124.1	125.9	126.3	127.4	128.8
62.5°	112.6	110.7	110.5	110.5	111.3	111.5	112.2	112.8	113.9	115.4	116.3
65°	98.9	97.9	99.2	99.1	98.7	99.8	99.8	100.7	101.9	103.2	105.3
67.5°	86.1	85.3	85.7	85.5	86.1	86.8	87.4	88.2	89.5	91.0	92.3
70°	73.1	73.7	72.7	73.5	74.1	74.2	74.6	75.7	77.3	78.2	79.7
72.5°	60.5	60.3	60.7	60.9	61.5	61.8	62.2	63.5	65.2	66.0	67.1
75°	48.5	48.3	48.9	48.9	49.8	50.2	50.6	51.1	52.6	53.8	54.7
77.5°	37.6	37.8	37.6	38.3	38.0	38.2	39.3	39.8	40.0	42.5	42.9
80°	26.7	27.1	27.3	27.4	27.6	27.3	28.6	29.1	29.1	30.4	31.4
82.5°	17.3	17.5	18.0	18.2	18.2	18.8	18.6	19.0	19.5	19.9	21.2
85°	9.6	10.1	10.3	10.1	10.3	10.0	10.5	10.7	10.9	10.9	10.9
87.5°	3.8	3.9	3.8	3.9	3.8	3.9	3.9	3.6	3.6	4.1	3.4
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: P242481

CATALOG NUMBER: S123DRP-S340D935-X4F0-XX-UDD-A-W

CANDELA DISTRIBUTION (continued):

	165°	170°	175°	180°
0°	387.9	387.9	387.9	387.9
2.5°	366.7	366.5	367.8	366.9
5°	345.3	345.8	344.0	344.0
7.5°	325.9	325.2	325.4	324.0
10°	308.4	307.3	306.9	307.1
12.5°	294.0	294.0	291.0	291.0
15°	283.3	279.7	279.3	280.4
17.5°	271.4	269.3	269.5	269.2
20°	262.4	261.3	261.1	259.8
22.5°	254.1	253.9	254.1	252.6
25°	247.5	248.5	247.7	247.7
27.5°	243.0	243.0	242.5	242.5
30°	237.8	237.6	238.0	238.0
32.5°	232.5	232.9	232.9	233.1
35°	227.1	227.2	227.8	227.4
37.5°	219.9	220.9	220.7	221.0
40°	211.6	212.2	212.0	212.0
42.5°	203.2	203.6	203.0	202.6
45°	193.8	193.4	194.0	193.2
47.5°	183.4	183.6	183.8	184.6
50°	173.1	174.2	174.2	174.0
52.5°	163.0	163.3	164.3	164.3
55°	152.4	152.8	153.2	153.4
57.5°	141.7	141.5	142.3	142.5
60°	130.3	130.3	131.8	132.3
62.5°	118.0	118.8	120.3	119.2
65°	106.2	107.7	107.5	108.3
67.5°	93.8	94.7	96.2	96.2
70°	81.2	82.1	82.9	83.5
72.5°	69.0	69.4	71.4	70.3
75°	56.0	57.3	58.5	57.9
77.5°	43.6	45.3	45.7	45.1
80°	32.7	32.5	33.6	33.5
82.5°	21.8	21.6	22.0	22.2
85°	11.7	12.2	11.5	11.3
87.5°	3.4	3.4	3.2	3.0
90°	0.0	0.0	0.0	0.0



TEST NUMBER: P242481
 CATALOG NUMBER: S123DRP-S340D935-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	15.76	17.32	16.13	17.63	17.95	16.32	17.87	16.68	18.19	18.50
	3H	17.31	18.71	17.69	19.04	19.40	17.65	19.05	18.03	19.38	19.74
	4H	17.88	19.19	18.28	19.54	19.92	18.11	19.42	18.51	19.77	20.15
	6H	18.28	19.49	18.69	19.86	20.25	18.40	19.62	18.81	19.98	20.38
	8H	18.39	19.55	18.81	19.93	20.34	18.48	19.63	18.90	20.02	20.42
	12H	18.46	19.56	18.89	19.95	20.38	18.51	19.62	18.94	20.00	20.43
4H	2H	16.92	18.23	17.32	18.58	18.96	17.08	18.39	17.48	18.74	19.12
	3H	18.51	19.60	18.92	20.00	20.40	18.88	19.98	19.30	20.38	20.78
	4H	19.13	20.12	19.56	20.53	20.97	19.45	20.44	19.88	20.85	21.29
	6H	19.60	20.46	20.06	20.90	21.36	19.82	20.67	20.27	21.12	21.57
	8H	19.74	20.54	20.20	20.99	21.45	19.91	20.71	20.37	21.15	21.62
	12H	19.84	20.55	20.32	21.03	21.50	19.96	20.68	20.44	21.15	21.62
8H	4H	19.62	20.42	20.08	20.86	21.33	19.76	20.56	20.22	21.00	21.47
	6H	20.16	20.83	20.66	21.32	21.80	20.27	20.93	20.76	21.42	21.90
	8H	20.35	20.95	20.86	21.46	21.94	20.41	21.01	20.92	21.52	22.00
	12H	20.50	21.02	21.00	21.51	22.08	20.51	21.03	21.02	21.53	22.09
12H	4H	19.67	20.39	20.15	20.86	21.33	19.77	20.49	20.25	20.96	21.43
	6H	20.24	20.84	20.75	21.35	21.83	20.30	20.90	20.81	21.40	21.89
	8H	20.48	21.00	20.99	21.50	22.06	20.50	21.03	21.01	21.52	22.08