

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: P243444

Luminaire Tested: S123RDRP-H340D935-X4F0-XX-UDD-A-W

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-2024
Report Number: P243444
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1802-639-69)
Test Lab: INNOVATION CENTER
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: S123RDRP-H340D935-X4F0-XX-UDD-A-W
Description: DEFINE 3 REGRESSED DIRECT RECESSED WITH ASYMMETRIC FLUSH DIFFUSER.
HIGH PERFORMANCE LIGHT ENGINE
Light Source: (184) 3500K CCT, 90 CRI LEDS
Ballast/Driver: -

Summary

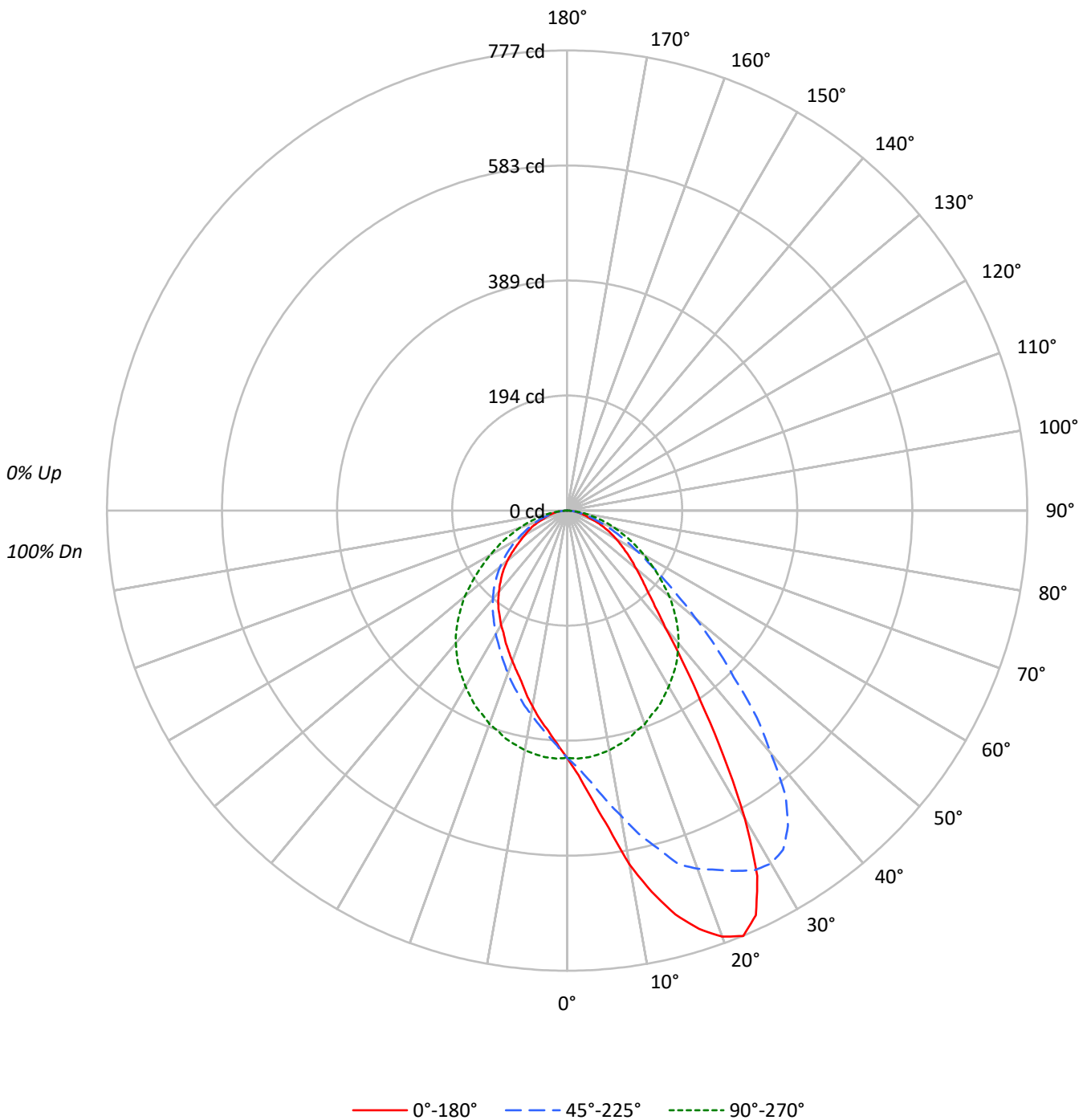
Lumens per Lamp: N/A
Luminaire Lumens: 1087.5 lumens
Efficiency: N/A
Efficacy: 97.1 lumens/watt
Spacing Criteria (0/90/45): 1.28 / 1.22 / 1.4
Luminous Opening: Rectangular (W 3.88' x L: 0.23' x H: 0')
CIE Type: Direct

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	0
RCR																		
0	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102	100
1	110	106	102	99	107	104	100	97	99	97	94	96	93	91	92	90	89	87
2	101	94	88	83	99	92	86	82	89	84	80	85	81	78	82	79	76	74
3	93	84	76	70	91	82	75	70	79	73	68	76	71	67	74	70	66	64
4	86	75	67	61	84	74	66	60	71	65	59	69	63	59	67	62	58	56
5	79	68	59	53	77	66	59	53	64	57	52	62	56	52	61	55	51	49
6	74	61	53	47	72	60	52	47	59	52	46	57	51	46	55	50	46	44
7	69	56	48	42	67	55	47	42	54	47	41	52	46	41	51	45	41	39
8	64	51	43	38	62	51	43	37	49	42	37	48	42	37	47	41	37	35
9	60	47	39	34	59	47	39	34	45	39	34	44	38	34	43	38	33	32
10	56	44	36	31	55	43	36	31	42	35	31	41	35	31	40	35	31	29

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°	135°	180°
0°	5059	5059	5059	5059	5059
5°	5965	5598	5087	4625	4530
10°	7466	6437	5057	4299	4134
15°	8861	7406	5007	4021	3745
20°	9874	8301	4947	3773	3487
25°	10080	8978	4886	3548	3283
30°	8399	9632	4802	3372	3123
35°	5802	9618	4737	3215	2992
40°	4078	8469	4628	3086	2834
45°	3274	6821	4464	2947	2681
50°	2855	5338	4250	2783	2482
55°	2559	4121	3935	2601	2208
60°	2315	3280	3634	2359	2000
65°	2025	2693	3350	2134	1870
70°	1634	2190	3016	1960	1584
75°	1419	1723	2623	1653	1555
80°	1305	1410	2241	1585	1557
85°	1154	1210	1808	1432	1349

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 55°
 Vertical Angle: 45°
 Luminance: 8549 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	40.9	3.8
10°-20°	128.9	11.9
20°-30°	206.5	19.0
30°-40°	224.2	20.6
40°-50°	192.1	17.7
50°-60°	145.6	13.4
60°-70°	93.0	8.6
70°-80°	44.5	4.1
80°-90°	11.7	1.1
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°	376.4	34.6
0°-40°	600.6	55.2
0°-60°	938.3	86.3
0°-90°	1087.5	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1087.5	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	417	417	417	417	417	
5°	490	460	418	380	372	50
15°	706	590	399	320	298	200
25°	754	671	365	265	246	334
35°	392	650	320	217	202	252
45°	191	398	260	172	156	151
55°	121	195	186	123	104	109
65°	71	94	117	74	65	70
75°	30	37	56	35	33	33
85°	8	9	13	10	10	9
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°	417.4	417.4	417.4	417.4	417.4	417.4	417.4	417.4	417.4	417.4	417.4
2.5°	447.3	447.8	446.9	446.8	446.6	443.7	442.8	441.3	436.3	435.0	434.1
5°	490.2	488.7	490.4	487.3	483.9	481.9	478.6	471.4	465.1	460.1	456.8
7.5°	541.0	541.5	539.9	537.0	530.2	527.3	518.5	509.8	501.5	491.1	483.3
10°	606.6	602.3	603.2	594.2	587.0	578.3	566.2	552.4	537.8	523.0	512.0
12.5°	658.9	661.9	659.8	655.4	641.6	633.1	622.1	601.9	578.8	559.0	542.3
15°	706.1	701.9	702.5	692.0	687.0	679.2	661.0	641.0	626.1	590.2	570.4
17.5°	740.7	740.3	739.8	730.9	724.8	708.6	690.0	669.5	650.8	625.9	601.0
20°	765.5	768.3	767.5	760.3	749.5	733.8	722.7	697.1	666.3	643.5	613.1
22.5°	777.4	777.6	778.0	774.6	767.4	757.3	741.4	720.9	693.5	656.3	622.5
25°	753.7	754.6	759.2	762.1	764.1	759.6	751.3	732.8	709.1	671.3	636.2
27.5°	695.3	698.1	703.4	720.7	727.7	737.4	740.9	733.5	716.0	684.5	644.4
30°	600.1	608.2	613.3	632.9	660.5	686.4	698.7	710.8	709.1	688.2	647.7
32.5°	491.3	496.5	511.1	532.2	554.0	592.0	634.5	663.7	680.1	679.0	650.4
35°	392.1	399.7	412.1	428.2	458.3	497.8	545.9	591.8	632.9	650.0	639.8
37.5°	318.3	319.0	330.7	353.4	372.1	406.9	450.4	507.1	561.0	605.7	615.6
40°	257.7	262.8	268.9	283.1	305.3	338.6	367.5	423.3	479.2	535.2	575.2
42.5°	219.5	219.5	226.3	235.4	250.1	270.1	304.6	355.2	405.5	474.3	519.4
45°	191.0	192.8	195.9	201.7	212.1	227.6	254.3	288.7	340.1	397.9	465.7
47.5°	170.5	170.3	173.0	176.4	184.5	196.3	211.9	239.9	277.9	340.2	400.1
50°	151.4	152.1	154.1	157.0	162.4	170.7	180.6	201.7	233.7	283.1	345.8
52.5°	136.6	136.4	138.0	139.8	144.0	148.7	157.5	173.2	195.4	234.6	286.7
55°	121.1	121.8	123.8	124.9	128.3	131.4	138.8	147.6	165.4	195.0	242.4
57.5°	107.8	108.7	109.8	110.8	113.2	116.2	122.4	127.8	140.7	162.0	199.9
60°	95.5	95.2	96.4	98.2	99.5	102.2	105.6	111.2	120.2	135.3	163.1
62.5°	83.3	83.4	83.6	84.7	87.0	89.4	92.4	96.6	102.0	113.2	132.8
65°	70.6	70.8	71.2	72.3	74.6	76.1	79.3	82.9	87.2	93.9	107.6
67.5°	59.5	60.2	60.2	61.1	62.0	63.4	65.8	68.5	72.1	77.0	85.8
70°	46.1	46.0	46.9	48.7	49.6	52.1	53.7	55.5	58.7	61.8	69.4
72.5°	37.1	37.1	37.1	37.8	38.0	38.6	39.6	43.4	46.0	49.0	53.2
75°	30.3	30.5	30.5	30.6	30.8	31.4	31.7	32.8	33.5	36.8	39.3
77.5°	24.1	24.3	24.3	24.5	24.7	24.9	25.6	25.6	26.1	26.9	27.9
80°	18.7	18.6	18.6	18.7	18.7	19.3	19.3	19.6	19.8	20.2	20.7
82.5°	13.3	13.2	13.3	13.2	13.3	13.5	13.9	13.7	14.1	14.4	14.6
85°	8.3	8.5	8.5	8.8	8.7	8.5	8.7	8.7	8.7	8.7	9.0
87.5°	3.6	4.0	4.0	3.8	4.0	4.0	3.6	4.0	4.0	4.0	4.1
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°	417.4	417.4	417.4	417.4	417.4	417.4	417.4	417.4	417.4	417.4	417.4
2.5°	433.6	432.9	430.2	427.6	423.9	422.2	420.1	419.2	416.3	412.3	410.5
5°	453.8	448.4	443.1	436.8	431.6	425.5	422.1	418.1	412.0	406.4	402.4
7.5°	475.2	467.3	457.6	447.1	437.7	428.9	421.3	415.0	407.1	399.4	393.2
10°	498.8	485.3	469.6	456.3	442.8	430.0	420.4	410.9	400.6	390.9	383.5
12.5°	524.2	505.1	486.2	466.2	446.0	431.3	417.0	404.8	393.2	383.0	374.1
15°	550.6	524.4	500.3	477.7	449.6	429.8	414.1	399.0	384.6	372.0	363.3
17.5°	569.3	539.4	508.9	477.0	452.9	428.4	408.9	389.8	376.5	363.5	351.8
20°	586.6	552.7	516.5	486.8	453.1	423.1	401.9	383.5	364.9	351.1	341.1
22.5°	594.0	563.3	526.8	485.5	451.8	421.2	393.8	373.0	356.5	341.3	328.4
25°	595.4	561.2	523.7	483.9	446.9	413.8	386.0	365.3	343.7	328.0	317.9
27.5°	601.7	554.9	518.1	478.5	441.0	406.4	377.2	354.1	333.9	317.2	304.2
30°	603.4	552.2	506.2	468.4	429.8	395.9	366.4	343.1	321.1	304.0	292.3
32.5°	604.1	548.6	493.8	452.3	415.6	383.7	356.6	331.4	310.5	292.5	280.4
35°	601.6	543.5	478.8	434.1	398.8	367.5	342.4	320.1	296.8	279.9	267.1
37.5°	591.6	535.6	470.4	412.9	379.2	349.6	328.4	306.4	284.9	266.5	253.4
40°	572.9	524.1	454.5	395.0	356.8	330.3	310.5	292.5	270.9	253.2	240.2
42.5°	543.0	508.4	439.9	374.8	334.7	309.6	293.0	277.5	258.1	241.3	227.1
45°	498.7	486.4	420.4	354.3	310.5	286.9	272.5	260.4	242.7	227.4	214.3
47.5°	450.7	453.4	400.8	333.4	288.5	266.0	253.4	242.7	229.4	213.0	200.9
50°	395.4	410.2	373.2	312.3	266.5	244.4	231.9	225.4	213.0	199.3	188.0
52.5°	344.7	368.2	345.3	289.2	244.9	223.1	211.6	205.1	196.8	185.4	173.9
55°	292.3	322.0	305.5	264.4	222.9	200.9	191.2	186.2	179.3	170.5	160.0
57.5°	248.9	280.6	270.1	238.2	201.5	181.7	173.0	167.2	163.1	155.0	146.5
60°	206.3	235.7	231.6	208.1	180.2	161.3	154.6	149.9	146.5	140.6	132.3
62.5°	166.5	195.0	197.5	179.1	159.5	142.4	136.2	133.0	130.3	125.6	118.0
65°	132.1	157.1	162.4	148.3	137.7	124.7	118.8	116.8	114.8	109.4	103.6
67.5°	103.4	123.1	129.9	122.0	114.4	106.9	102.2	99.5	98.0	94.8	90.8
70°	79.1	96.1	101.8	98.4	93.4	90.5	86.9	85.1	83.6	79.5	77.3
72.5°	59.3	70.8	78.0	77.0	75.9	73.9	71.7	71.2	69.0	66.3	64.3
75°	43.4	50.1	56.6	58.9	58.6	59.3	56.9	56.0	54.8	52.8	51.2
77.5°	31.2	35.1	39.6	42.5	44.0	44.2	44.2	43.6	42.7	41.3	40.0
80°	21.6	22.5	26.7	29.4	30.8	31.9	31.9	32.1	31.2	30.6	29.7
82.5°	15.0	15.5	16.4	18.6	20.4	21.6	21.8	21.6	21.3	21.1	19.8
85°	9.4	9.2	9.2	9.7	11.2	12.4	12.6	13.0	12.8	12.6	11.4
87.5°	4.0	4.0	4.1	4.0	4.5	4.7	5.0	5.9	5.8	4.9	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



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CANDELA DISTRIBUTION (continued):

	110°	115°	120°	125°	130°	135°	140°	145°	150°	155°	160°
0°	417.4	417.4	417.4	417.4	417.4	417.4	417.4	417.4	417.4	417.4	417.4
2.5°	409.4	407.1	404.9	402.6	399.7	397.0	396.7	396.3	397.2	395.4	394.7
5°	399.4	394.8	391.4	387.1	384.0	380.1	377.9	377.4	377.2	376.1	374.7
7.5°	388.4	383.5	378.6	373.8	368.7	364.6	362.2	361.0	359.9	358.1	356.6
10°	378.1	372.0	366.7	360.1	354.7	349.3	347.1	345.3	344.2	341.7	339.7
12.5°	366.6	358.8	353.0	345.8	341.0	336.3	332.9	329.4	326.9	323.1	321.5
15°	356.5	348.4	338.6	334.3	327.4	320.4	316.6	316.6	311.4	308.3	306.4
17.5°	342.9	335.9	329.1	320.2	310.5	306.4	302.0	298.3	294.7	293.7	290.1
20°	331.1	322.8	315.7	306.2	297.4	292.5	287.4	283.3	280.6	278.1	276.1
22.5°	319.3	311.0	300.2	290.9	284.9	278.4	273.0	269.4	267.1	263.3	261.5
25°	307.1	297.2	287.4	278.3	270.9	265.3	259.7	257.7	253.6	251.6	249.1
27.5°	294.8	282.9	273.7	265.8	257.5	252.1	248.3	244.7	241.1	240.0	238.6
30°	281.1	270.1	261.3	253.6	245.6	240.9	236.4	233.2	230.1	227.8	226.2
32.5°	267.4	258.2	249.8	240.8	233.6	228.5	224.7	221.8	220.4	216.4	215.0
35°	254.8	245.5	236.4	228.0	222.2	217.3	213.9	211.2	208.1	205.6	204.2
37.5°	241.8	233.4	224.2	217.0	210.5	206.5	202.7	199.1	196.8	195.4	193.5
40°	229.2	220.2	213.2	205.3	199.5	195.0	191.0	188.3	185.4	184.2	181.8
42.5°	217.3	208.7	200.6	193.4	188.1	183.8	180.0	177.0	174.6	172.3	171.0
45°	203.6	196.1	188.7	181.5	176.6	171.9	167.8	165.1	161.8	159.8	159.1
47.5°	192.1	184.2	176.2	169.6	164.5	159.5	156.1	152.8	150.1	148.1	147.1
50°	178.4	171.0	164.5	157.9	153.0	147.6	143.5	140.4	137.3	135.9	134.1
52.5°	166.7	159.5	151.6	145.6	140.0	135.3	131.6	129.0	126.3	124.2	122.9
55°	152.1	145.1	138.8	132.5	126.9	123.1	120.0	115.7	113.4	111.2	107.8
57.5°	139.3	132.6	126.0	119.8	114.6	110.1	106.3	103.4	100.4	98.8	96.4
60°	125.8	118.8	112.6	107.9	102.2	97.3	94.8	91.4	88.8	86.3	85.6
62.5°	112.5	106.0	99.8	95.0	89.7	86.0	82.7	81.1	78.6	76.6	75.9
65°	98.6	93.2	87.4	82.0	78.8	74.4	72.6	69.9	68.5	67.6	67.4
67.5°	84.9	80.0	74.8	70.6	67.6	64.7	62.5	61.5	60.0	58.9	58.0
70°	72.4	67.8	63.3	59.8	57.5	55.3	53.9	51.9	50.5	49.0	47.0
72.5°	60.2	56.4	52.6	49.9	47.6	46.3	44.3	41.3	39.8	39.5	39.3
75°	48.8	44.7	42.0	40.5	38.4	35.3	34.1	33.7	33.5	33.2	33.2
77.5°	37.7	35.1	33.3	30.3	29.2	29.0	28.1	27.9	27.6	27.8	27.8
80°	27.4	26.0	23.8	22.9	22.5	22.7	22.3	22.5	22.2	22.3	22.0
82.5°	18.2	16.9	17.3	16.8	16.8	17.1	16.9	16.4	16.4	16.2	16.2
85°	10.8	10.6	11.0	11.0	10.8	10.3	10.6	10.5	9.9	10.1	10.1
87.5°	4.7	4.7	4.7	4.5	4.7	4.5	4.5	4.5	4.0	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



TEST NUMBER: P243444

CATALOG NUMBER: S123RDRP-H340D935-X4F0-XX-UDD-A-W

CANDELA DISTRIBUTION (continued):

	165°	170°	175°	180°
0°	417.4	417.4	417.4	417.4
2.5°	395.0	394.7	394.1	393.6
5°	374.7	373.0	372.9	372.3
7.5°	355.6	354.8	353.6	355.0
10°	338.1	338.6	337.4	335.9
12.5°	319.9	318.8	316.8	317.9
15°	303.8	302.0	301.0	298.4
17.5°	287.1	285.6	285.6	284.0
20°	272.5	271.0	271.4	270.3
22.5°	260.2	259.1	257.5	257.7
25°	248.7	247.1	245.3	245.5
27.5°	235.9	234.5	234.1	232.8
30°	224.5	223.3	223.1	223.1
32.5°	213.6	213.0	212.1	211.6
35°	204.0	203.3	201.8	202.2
37.5°	192.1	191.4	191.2	191.0
40°	180.9	180.4	179.0	179.1
42.5°	169.8	168.9	168.0	167.6
45°	157.7	157.5	156.1	156.4
47.5°	146.2	145.8	145.1	144.2
50°	133.4	133.2	132.6	131.6
52.5°	120.9	120.4	119.3	118.2
55°	106.9	105.2	105.4	104.5
57.5°	95.3	94.6	93.2	92.6
60°	84.2	83.4	83.3	82.5
62.5°	74.8	74.1	73.5	73.5
65°	66.3	65.4	65.2	65.2
67.5°	56.9	56.0	55.9	55.5
70°	45.2	45.1	44.7	44.7
72.5°	38.9	38.7	38.9	38.2
75°	33.2	33.0	33.0	33.2
77.5°	27.6	27.6	27.4	27.4
80°	21.8	22.0	21.8	22.3
82.5°	16.4	16.0	16.2	15.9
85°	10.1	10.1	9.7	9.7
87.5°	4.0	4.0	4.0	4.0
90°	0.0	0.0	0.0	0.0



TEST NUMBER: P243444
 CATALOG NUMBER: S123RDRP-H340D935-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	14.02	15.52	14.38	15.83	16.15	16.72	18.22	17.08	18.53	18.85
	3H	15.21	16.55	15.59	16.88	17.24	18.15	19.49	18.52	19.82	20.18
	4H	15.56	16.82	15.96	17.17	17.55	18.65	19.91	19.05	20.26	20.64
	6H	15.84	17.00	16.25	17.37	17.76	18.99	20.16	19.41	20.52	20.92
	8H	15.93	17.03	16.35	17.42	17.82	19.09	20.20	19.52	20.59	20.99
	12H	15.99	17.05	16.42	17.43	17.86	19.15	20.21	19.58	20.60	21.03
4H	2H	14.97	16.23	15.37	16.58	16.96	17.00	18.26	17.40	18.61	18.99
	3H	16.24	17.28	16.65	17.68	18.08	18.72	19.76	19.13	20.16	20.56
	4H	16.65	17.58	17.08	18.00	18.44	19.33	20.27	19.76	20.68	21.12
	6H	16.99	17.81	17.45	18.25	18.71	19.79	20.60	20.25	21.05	21.51
	8H	17.11	17.87	17.57	18.31	18.78	19.93	20.69	20.39	21.13	21.60
	12H	17.20	17.88	17.68	18.36	18.83	20.02	20.70	20.50	21.18	21.65
8H	4H	17.01	17.77	17.47	18.21	18.68	19.39	20.15	19.85	20.60	21.06
	6H	17.43	18.06	17.92	18.55	19.02	19.92	20.55	20.42	21.04	21.52
	8H	17.59	18.15	18.11	18.66	19.15	20.11	20.67	20.62	21.18	21.67
	12H	17.74	18.24	18.25	18.73	19.29	20.26	20.76	20.77	21.25	21.82
12H	4H	17.04	17.72	17.52	18.20	18.67	19.38	20.06	19.86	20.54	21.01
	6H	17.47	18.04	17.99	18.55	19.04	19.91	20.47	20.42	20.98	21.47
	8H	17.68	18.18	18.19	18.67	19.24	20.14	20.64	20.65	21.13	21.69