

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: P242589

Luminaire Tested: S123RDRP-S340D940-X4F0-XX-UDD-A-W

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-2024
Report Number: P242589
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1802-639-30)
Test Lab: INNOVATION CENTER
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: S123RDRP-S340D940-X4F0-XX-UDD-A-W
Description: DEFINE 3 REGRESSED DIRECT RECESSED WITH ASYMMETRIC FLUSH DIFFUSER
STANDARD LIGHT ENGINE
Light Source: (92) 4000K CCT, 90 CRI LEDS
Ballast/Driver: -

Summary

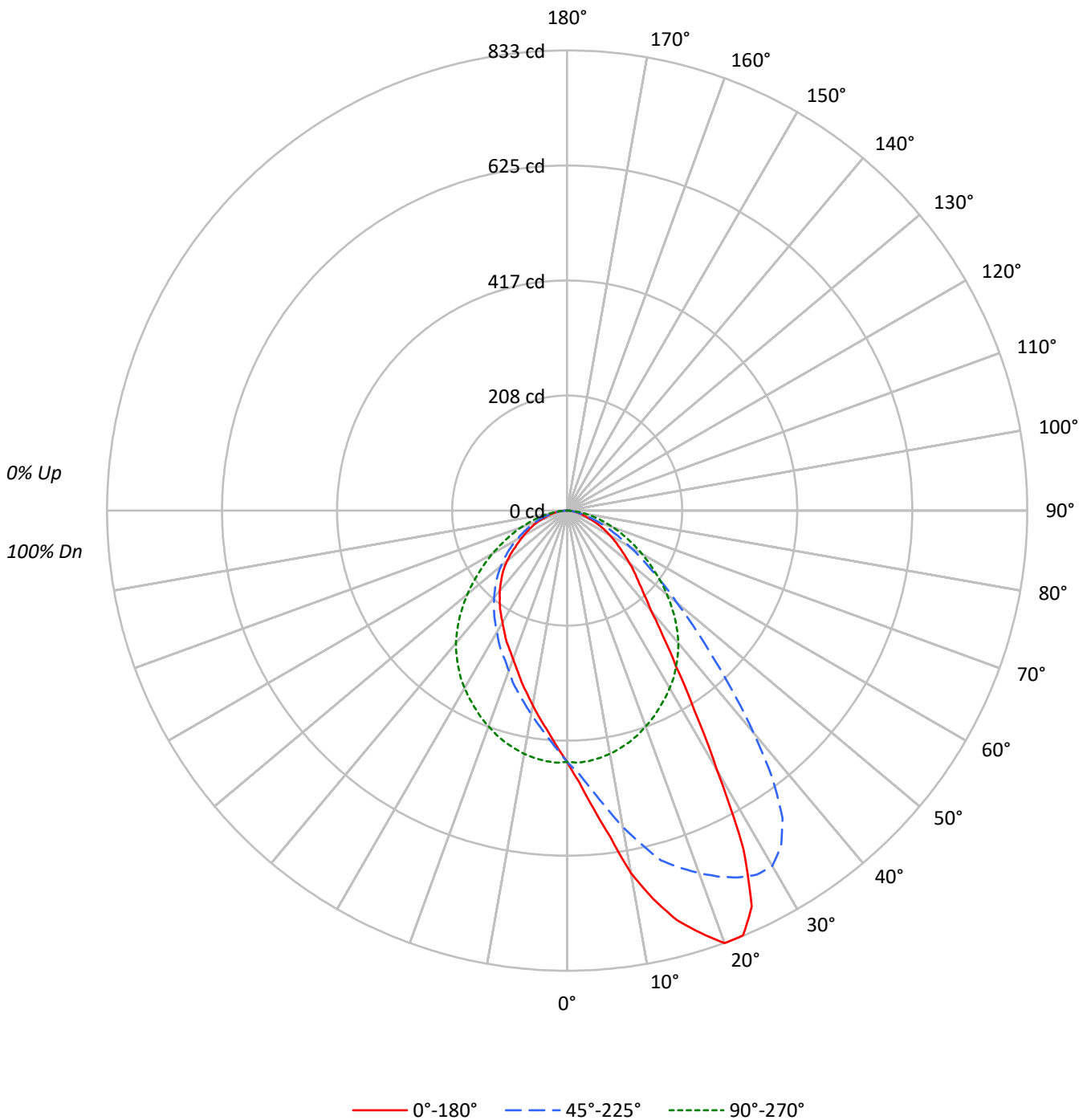
Lumens per Lamp: N/A
Luminaire Lumens: 1132.3 lumens
Efficiency: N/A
Efficacy: 97.6 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.22 / 1.35
Luminous Opening: Rectangular (W 3.88' x L: 0.23' x H: 0')
CIE Type: Direct

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

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CATALOG NUMBER: S123RDRP-S340D940-X4F0-XX-UDD-A-W

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	106	102	99	108	104	100	97	100	97	94	96	93	91	92	90	89					87				
2	101	94	88	83	99	92	87	82	89	84	80	86	82	78	83	79	77					74				
3	93	84	76	71	91	82	75	70	79	74	69	77	72	68	74	70	66					64				
4	86	75	67	61	84	74	66	61	71	65	60	69	64	59	67	62	58					56				
5	80	68	60	53	78	67	59	53	65	58	53	63	57	52	61	56	52					50				
6	74	62	53	47	72	61	53	47	59	52	47	57	51	46	56	50	46					44				
7	69	56	48	42	67	55	48	42	54	47	42	53	46	42	51	46	41					39				
8	64	52	44	38	63	51	43	38	50	43	38	48	42	38	47	42	37					36				
9	60	48	40	35	59	47	40	35	46	39	34	45	39	34	44	38	34					32				
10	57	44	37	32	55	44	36	32	43	36	31	42	36	31	41	35	31					29				

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°	135°	180°
0°	5513	5513	5513	5513	5513
5°	6570	6163	5536	4998	4874
10°	8205	7160	5504	4606	4404
15°	9630	8223	5447	4283	4016
20°	10748	9005	5363	3981	3687
25°	10576	9801	5275	3770	3484
30°	7601	10398	5194	3554	3275
35°	5075	10059	5087	3405	3140
40°	3739	8293	4959	3256	3000
45°	3137	6327	4735	3116	2863
50°	2768	4878	4443	2947	2672
55°	2428	3893	4106	2773	2411
60°	2162	3176	3784	2548	2208
65°	1899	2601	3439	2352	2054
70°	1488	2091	3133	2158	1878
75°	1311	1541	2735	1953	1714
80°	1145	1319	2324	1710	1682
85°	918	1001	1864	1738	1780

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 60°
 Vertical Angle: 45°
 Luminance: 8904 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	44.7	3.9
10°-20°	139.8	12.3
20°-30°	220.2	19.4
30°-40°	229.0	20.2
40°-50°	195.9	17.3
50°-60°	149.3	13.2
60°-70°	95.7	8.4
70°-80°	45.8	4.0
80°-90°	12.0	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°	404.6	35.7
0°-40°	633.6	56.0
0°-60°	978.8	86.4
0°-90°	1132.3	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1132.3	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	455	455	455	455	455	
5°	540	506	455	411	401	55
15°	767	655	434	341	320	218
25°	791	733	394	282	260	344
35°	343	680	344	230	212	223
45°	183	369	276	182	167	144
55°	115	184	194	131	114	104
65°	66	91	120	82	72	65
75°	28	33	58	42	37	30
85°	7	7	13	12	13	8
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°	454.8	454.8	454.8	454.8	454.8	454.8	454.8	454.8	454.8	454.8	454.8
2.5°	491.7	492.5	490.0	489.6	486.7	485.9	485.9	481.8	479.3	476.0	474.0
5°	540.0	543.1	541.6	538.1	532.2	530.9	527.2	521.3	514.7	506.5	502.7
7.5°	595.3	601.7	600.6	595.1	588.9	585.0	574.7	566.3	553.7	542.2	533.2
10°	666.6	662.1	658.6	653.3	647.7	638.5	627.6	612.6	595.3	581.7	566.5
12.5°	719.9	720.1	715.4	710.0	701.4	692.8	678.8	659.8	638.9	617.7	599.8
15°	767.4	768.6	765.7	760.0	748.7	733.3	713.1	705.5	676.7	655.3	633.9
17.5°	801.3	801.5	800.9	793.3	781.0	770.5	751.6	733.9	706.7	677.7	649.0
20°	833.2	831.3	831.7	822.9	814.3	801.7	783.4	754.4	733.0	698.1	668.3
22.5°	832.4	832.4	834.2	832.6	827.0	818.0	804.6	781.2	752.4	717.2	682.7
25°	790.8	789.2	798.4	800.9	810.8	812.6	808.3	794.9	769.0	732.8	691.3
27.5°	691.5	685.8	704.9	723.8	748.9	764.9	781.2	784.9	772.7	743.1	699.7
30°	543.1	561.4	570.0	600.8	635.0	675.9	711.7	745.8	754.2	742.9	708.8
32.5°	427.9	443.3	450.1	475.4	506.7	556.4	614.6	666.4	706.9	720.5	703.4
35°	343.0	343.2	359.6	371.2	400.8	450.1	502.3	566.9	631.1	679.8	684.9
37.5°	283.1	283.8	294.3	306.0	329.8	357.4	405.9	460.4	537.7	610.3	648.1
40°	236.3	238.1	245.5	257.0	272.9	292.6	328.4	379.0	440.9	524.1	592.0
42.5°	206.4	209.5	212.4	220.6	228.9	247.0	274.3	310.5	365.4	442.9	523.9
45°	183.0	184.6	187.5	191.6	200.5	213.4	232.8	259.1	305.8	369.1	447.6
47.5°	165.1	164.1	167.4	170.9	177.0	186.3	199.9	222.7	257.7	310.7	378.6
50°	146.8	146.6	148.7	151.3	156.9	163.3	174.0	190.2	216.7	258.7	319.7
52.5°	129.7	130.6	132.0	135.3	139.0	143.9	153.2	163.7	185.5	220.4	268.7
55°	114.9	115.4	117.6	119.3	122.3	127.5	133.5	143.3	158.9	184.2	226.0
57.5°	102.0	101.8	104.0	104.2	107.8	112.3	117.2	124.8	136.7	156.7	185.9
60°	89.2	88.6	90.3	91.7	93.4	96.9	100.8	108.2	117.2	131.0	155.2
62.5°	77.5	77.3	78.5	79.8	81.2	84.3	87.4	92.7	99.3	110.4	128.3
65°	66.2	66.8	67.4	67.9	68.7	70.7	73.8	77.7	82.5	90.7	104.5
67.5°	54.5	55.3	55.5	56.8	58.4	59.4	61.1	64.8	68.5	75.9	84.1
70°	42.0	41.9	42.0	42.6	44.8	46.9	49.4	52.0	54.1	59.0	65.6
72.5°	34.7	34.3	34.8	34.8	35.6	35.8	37.2	39.5	42.4	45.4	49.6
75°	28.0	28.0	28.0	28.0	28.8	29.2	29.8	30.4	31.3	32.9	36.4
77.5°	21.8	21.8	22.2	22.4	22.6	22.8	23.2	23.8	24.1	24.9	26.7
80°	16.4	16.5	16.4	16.5	16.5	16.9	17.1	17.7	17.9	18.9	19.5
82.5°	11.3	11.1	11.3	11.5	11.5	11.9	11.9	12.3	12.3	12.7	13.2
85°	6.6	6.2	6.6	6.4	6.8	6.4	6.6	7.0	7.0	7.2	8.0
87.5°	1.9	2.3	1.9	2.1	2.1	2.3	2.3	2.3	2.7	2.5	2.7
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°	454.8	454.8	454.8	454.8	454.8	454.8	454.8	454.8	454.8	454.8	454.8
2.5°	473.3	472.7	469.9	466.8	462.7	460.0	457.9	456.7	453.2	448.9	446.0
5°	498.6	492.7	486.5	478.9	471.9	464.7	460.2	455.0	448.5	441.3	436.3
7.5°	523.7	513.6	502.5	491.0	479.3	469.0	459.4	451.6	441.9	432.0	425.2
10°	553.5	536.7	519.4	501.7	485.5	470.3	458.7	447.2	434.9	423.0	414.1
12.5°	580.5	557.2	536.5	513.7	491.9	473.1	455.0	440.9	425.6	412.7	402.2
15°	602.5	579.9	555.8	522.7	495.3	472.3	451.8	434.1	416.2	400.6	390.7
17.5°	625.5	591.2	559.5	533.8	498.0	470.1	446.2	425.6	406.1	390.1	377.7
20°	638.7	605.8	570.6	535.4	500.3	468.2	439.2	415.8	395.4	376.7	365.4
22.5°	646.7	608.4	570.8	532.2	494.5	460.8	432.2	405.9	383.3	365.8	351.2
25°	652.6	608.2	567.3	529.9	491.9	455.7	421.7	394.4	370.5	351.6	336.8
27.5°	657.2	605.8	558.9	518.2	479.9	443.1	412.3	383.1	359.2	339.5	323.4
30°	658.4	602.9	549.0	504.0	464.9	431.8	398.7	371.1	345.4	324.1	309.3
32.5°	659.9	595.7	535.6	487.1	446.8	414.1	384.9	358.8	332.3	311.5	296.3
35°	654.5	594.0	521.9	467.0	426.9	395.2	368.1	343.8	317.9	297.7	282.3
37.5°	637.9	584.4	508.3	444.6	403.2	374.0	351.4	329.2	305.3	283.1	268.8
40°	610.1	568.8	491.9	424.6	380.8	350.6	330.8	313.4	290.5	270.0	254.4
42.5°	568.6	547.6	476.4	403.6	355.5	326.7	310.7	294.7	275.3	254.4	240.0
45°	516.1	519.4	454.0	381.0	332.5	303.3	287.5	276.2	258.3	241.2	226.2
47.5°	452.2	479.9	430.0	357.2	307.6	280.1	266.3	256.0	243.5	225.8	212.0
50°	389.9	434.1	400.1	333.3	284.4	257.2	243.5	235.6	225.0	211.8	198.8
52.5°	332.5	380.8	363.8	306.6	259.3	235.0	221.7	215.5	207.7	195.5	184.0
55°	280.5	328.6	323.9	279.7	234.2	211.8	201.7	194.3	188.6	179.3	170.0
57.5°	235.4	281.9	282.9	250.0	212.4	189.6	180.9	175.0	171.1	163.7	154.6
60°	193.1	235.0	243.1	219.8	188.6	169.2	160.6	156.1	153.2	147.6	140.9
62.5°	158.1	192.1	201.7	186.5	165.9	148.0	141.7	137.4	135.7	131.0	125.4
65°	126.3	155.9	164.9	155.5	143.7	129.1	123.6	119.9	118.2	115.4	111.2
67.5°	99.7	122.6	132.4	124.6	120.1	109.8	106.1	104.0	102.4	100.5	96.8
70°	76.3	92.3	102.4	100.6	97.1	92.3	89.7	88.4	86.8	85.3	82.2
72.5°	57.6	67.4	76.7	78.3	75.5	75.5	73.4	73.0	72.2	70.3	68.9
75°	40.7	48.3	54.9	57.4	58.6	59.6	58.6	58.4	58.2	56.7	55.7
77.5°	28.2	33.1	37.6	42.0	43.6	45.0	45.2	45.9	45.4	44.4	44.0
80°	20.4	21.4	24.3	28.0	31.0	32.1	32.9	33.3	33.1	32.9	32.1
82.5°	13.4	14.2	15.2	17.5	19.9	22.0	22.4	22.2	22.8	23.0	22.4
85°	8.0	8.2	8.6	9.0	10.3	12.5	13.0	13.4	13.8	13.8	12.7
87.5°	3.1	2.9	3.3	3.3	3.9	4.1	5.3	6.2	6.4	5.6	5.6
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):

	110°	115°	120°	125°	130°	135°	140°	145°	150°	155°	160°
0°	454.8	454.8	454.8	454.8	454.8	454.8	454.8	454.8	454.8	454.8	454.8
2.5°	445.0	442.5	440.7	436.9	434.3	431.6	428.9	430.6	430.4	430.2	430.2
5°	432.0	427.5	423.4	418.2	414.9	410.8	407.6	407.3	408.0	405.3	403.8
7.5°	419.7	413.9	408.0	402.6	396.6	391.9	389.0	387.8	385.7	383.9	382.3
10°	406.7	399.5	393.8	386.6	380.0	374.2	370.5	367.9	366.6	365.2	362.7
12.5°	393.2	386.2	378.6	370.3	364.0	357.0	354.5	351.6	348.7	347.1	343.4
15°	380.2	371.1	363.5	354.9	347.9	341.3	337.4	331.7	330.9	329.0	325.5
17.5°	367.5	357.4	346.3	340.5	333.5	326.5	320.2	318.5	312.6	310.7	307.4
20°	352.0	342.8	334.8	326.5	315.0	308.6	303.9	301.4	296.9	294.2	292.2
22.5°	338.5	329.2	319.7	309.5	300.6	293.2	290.1	285.8	283.8	279.7	277.6
25°	325.9	315.8	304.7	294.2	287.3	281.9	276.4	272.9	269.4	267.7	263.8
27.5°	310.5	300.4	289.7	281.5	273.7	268.3	263.0	260.1	255.6	252.7	250.5
30°	298.2	285.8	276.8	269.6	258.9	253.9	250.2	246.3	243.1	240.0	237.9
32.5°	284.0	272.9	264.6	255.2	247.6	242.0	236.9	233.6	231.1	228.2	226.0
35°	269.0	259.5	250.7	241.8	235.8	230.1	224.5	221.5	219.0	216.3	214.3
37.5°	255.4	246.5	238.3	229.7	222.3	217.5	212.8	210.8	207.3	205.4	203.4
40°	243.0	234.2	225.2	217.1	209.3	205.8	201.7	198.4	195.3	193.9	191.8
42.5°	229.3	220.6	213.4	204.4	198.4	193.3	189.6	185.9	183.8	181.6	180.7
45°	215.9	208.1	200.7	191.9	185.9	181.8	177.5	174.2	172.1	170.7	168.6
47.5°	203.0	195.1	187.7	179.9	174.0	169.4	164.9	162.7	159.8	158.3	156.7
50°	188.8	181.8	173.8	166.8	161.0	156.3	152.8	149.9	147.4	145.2	144.3
52.5°	175.8	168.2	161.6	155.2	148.9	143.5	140.4	137.2	135.5	133.0	131.8
55°	161.2	154.0	148.1	141.7	135.7	131.2	127.3	124.6	122.6	119.9	118.4
57.5°	147.8	141.5	134.3	128.7	122.3	118.8	115.4	111.5	109.2	107.1	105.5
60°	134.1	126.7	120.7	115.4	110.0	105.1	102.2	99.3	96.8	94.6	93.2
62.5°	119.9	113.7	108.0	102.2	97.3	93.2	89.7	87.4	85.3	84.1	82.7
65°	105.3	100.3	94.4	89.7	85.1	82.0	79.2	77.1	75.5	74.6	73.4
67.5°	91.9	87.0	81.8	76.9	73.8	71.3	69.3	67.4	66.6	65.4	64.6
70°	78.8	73.8	69.3	65.8	62.7	60.9	59.8	58.4	57.6	56.1	55.3
72.5°	64.6	61.3	58.4	55.7	53.3	51.8	50.2	48.5	47.1	45.4	44.6
75°	53.1	49.8	47.3	45.4	43.8	41.7	39.5	37.8	37.2	36.6	36.4
77.5°	41.5	39.3	37.4	35.8	33.7	31.7	31.1	30.8	30.6	30.2	30.2
80°	31.0	29.0	27.6	25.7	24.5	24.5	24.5	24.1	24.3	24.3	24.3
82.5°	21.0	19.3	18.7	18.3	18.3	18.5	18.5	18.7	18.5	18.9	18.7
85°	11.9	12.1	12.5	12.3	12.5	12.5	12.8	12.7	12.8	12.5	12.8
87.5°	5.5	6.0	6.2	6.4	6.6	6.4	6.6	6.6	6.8	6.8	6.8
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: P242589

CATALOG NUMBER: S123RDRP-S340D940-X4F0-XX-UDD-A-W

CANDELA DISTRIBUTION (continued):

	165°	170°	175°	180°
0°	454.8	454.8	454.8	454.8
2.5°	427.9	427.7	427.9	427.1
5°	403.2	403.0	402.4	400.6
7.5°	380.8	380.4	378.8	379.2
10°	361.3	361.5	359.2	357.8
12.5°	342.4	341.3	339.5	338.0
15°	326.3	324.3	319.7	320.0
17.5°	306.2	304.7	304.5	301.7
20°	289.1	288.1	288.5	285.8
22.5°	275.7	274.7	272.5	272.2
25°	262.6	261.1	259.5	260.5
27.5°	249.4	248.2	246.5	246.5
30°	236.9	235.8	235.0	234.0
32.5°	224.3	224.3	222.7	222.7
35°	213.6	212.4	212.0	212.2
37.5°	203.2	201.7	200.9	200.1
40°	191.9	190.4	190.0	189.6
42.5°	179.3	178.9	178.7	177.9
45°	168.0	167.8	166.6	167.0
47.5°	155.9	155.0	154.4	155.0
50°	143.5	143.1	141.3	141.7
52.5°	131.0	129.3	128.9	128.5
55°	117.0	115.2	114.5	114.1
57.5°	103.2	102.6	101.8	102.4
60°	91.3	91.3	91.3	91.1
62.5°	82.2	81.6	81.4	81.8
65°	72.8	72.6	71.8	71.6
67.5°	64.2	63.5	63.5	63.1
70°	54.3	53.9	52.8	53.0
72.5°	43.6	43.2	43.2	42.8
75°	36.2	36.0	35.8	36.6
77.5°	30.2	30.2	30.4	30.0
80°	24.3	24.3	24.1	24.1
82.5°	18.3	18.5	18.7	18.3
85°	12.8	12.7	13.0	12.8
87.5°	7.2	6.8	6.8	7.0
90°	0.0	0.0	0.0	0.0



TEST NUMBER: P242589
 CATALOG NUMBER: S123RDRP-S340D940-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	13.57	15.06	13.93	15.37	15.69	16.97	18.46	17.33	18.77	19.09
	3H	14.66	16.00	15.04	16.32	16.69	18.37	19.71	18.75	20.04	20.40
	4H	14.99	16.25	15.39	16.60	16.98	18.88	20.13	19.28	20.48	20.86
	6H	15.24	16.40	15.65	16.76	17.16	19.23	20.38	19.64	20.75	21.14
	8H	15.31	16.41	15.74	16.80	17.20	19.33	20.43	19.75	20.82	21.22
	12H	15.35	16.40	15.78	16.78	17.21	19.39	20.44	19.82	20.82	21.25
4H	2H	14.55	15.80	14.95	16.15	16.53	17.20	18.46	17.60	18.81	19.18
	3H	15.71	16.75	16.13	17.15	17.55	18.90	19.93	19.31	20.33	20.74
	4H	16.10	17.04	16.54	17.45	17.89	19.51	20.44	19.94	20.86	21.30
	6H	16.41	17.22	16.87	17.67	18.13	19.98	20.79	20.43	21.23	21.69
	8H	16.50	17.26	16.97	17.70	18.17	20.12	20.88	20.58	21.32	21.79
	12H	16.56	17.24	17.04	17.71	18.19	20.22	20.89	20.70	21.37	21.84
8H	4H	16.47	17.22	16.93	17.67	18.14	19.56	20.32	20.03	20.76	21.23
	6H	16.84	17.47	17.34	17.96	18.44	20.10	20.72	20.60	21.21	21.69
	8H	16.98	17.54	17.49	18.05	18.53	20.29	20.85	20.81	21.36	21.85
	12H	17.07	17.57	17.59	18.06	18.63	20.45	20.94	20.96	21.44	22.00
12H	4H	16.50	17.17	16.98	17.65	18.12	19.55	20.22	20.03	20.70	21.17
	6H	16.89	17.45	17.40	17.96	18.45	20.09	20.65	20.60	21.16	21.65
	8H	17.06	17.56	17.57	18.05	18.62	20.32	20.81	20.83	21.30	21.87