

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: P242402

Luminaire Tested: S122RDRP-S290D840-X4F0-XX-UDD-A-W

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-2024
Report Number: P242402
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1802-639-29)
Test Lab: INNOVATION CENTER
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: S122RDRP-S290D840-X4F0-XX-UDD-A-W
Description: DEFINE 2 REGRESSED DIRECT RECESSED WITH ASYMMETRIC FLUSH DIFFUSER
STANDARD LIGHT ENGINE
Light Source: (92) 4000K CCT, 80 CRI LEDS
Ballast/Driver: -

Summary

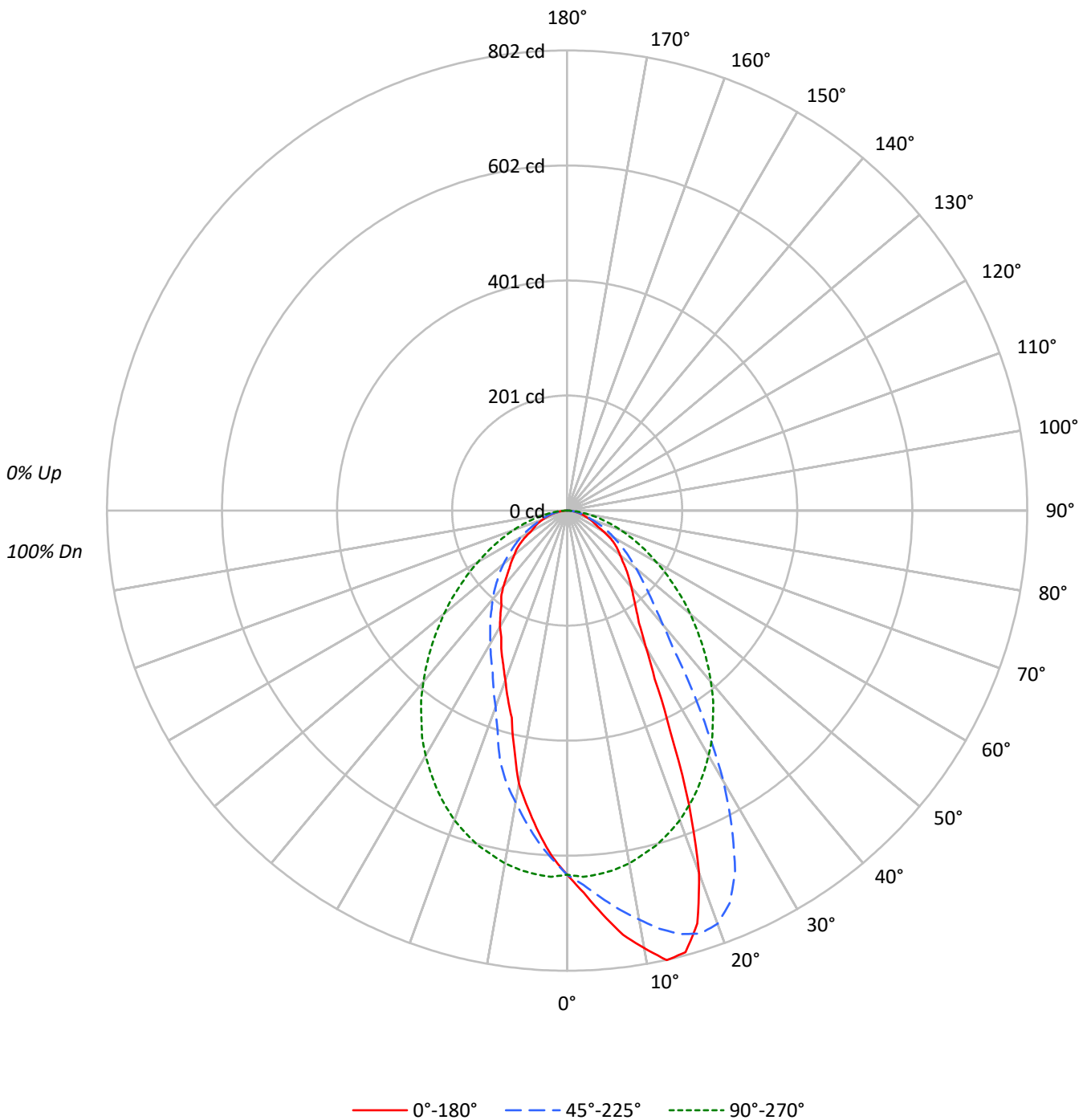
Lumens per Lamp: N/A
Luminaire Lumens: 1096.5 lumens
Efficiency: N/A
Efficacy: 94.5 lumens/watt
Spacing Criteria (0/90/45): 0.85 / 1.16 / 1.02
Luminous Opening: Rectangular (W 3.88' x L: 0.15' x H: 0')
CIE Type: Direct

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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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	111	106	103	100	108	104	101	98	100	97	95	96	94	92	93	91	89					87				
2	102	95	89	84	100	93	88	83	90	85	81	87	83	80	84	81	78					76				
3	94	85	78	72	92	84	77	72	81	75	71	78	73	69	76	72	68					66				
4	87	77	69	63	85	76	68	63	73	67	62	71	66	61	69	64	60					59				
5	81	70	62	56	79	69	61	56	67	60	55	65	59	55	63	58	54					52				
6	76	64	56	50	74	63	55	50	61	54	49	60	54	49	58	53	49					47				
7	71	59	51	45	69	58	50	45	56	50	45	55	49	44	54	48	44					42				
8	66	54	46	41	65	53	46	41	52	45	41	51	45	40	50	44	40					39				
9	62	50	43	38	61	50	42	37	49	42	37	47	41	37	47	41	37					35				
10	59	47	39	35	58	46	39	35	45	39	34	44	38	34	44	38	34					33				

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°	135°	180°
0°	12086	12086	12086	12086	12086
5°	13499	12943	12163	11082	10784
10°	14976	13999	12077	9988	9348
15°	15713	15070	11899	8909	7365
20°	13622	15535	11637	7378	6373
25°	8934	14554	11278	6458	5689
30°	6013	11983	10843	5881	5149
35°	4871	8752	10294	5425	4646
40°	4331	6430	9697	5005	4299
45°	3919	5344	8997	4639	3836
50°	3568	4632	8303	4285	3553
55°	3354	4101	7535	3872	3311
60°	2804	3570	6827	3554	2773
65°	2366	3182	6202	3159	2682
70°	2183	2528	5536	2785	2528
75°	2046	2289	4820	2627	2333
80°	1887	2084	3971	2293	2084
85°	1727	1792	3125	1836	1836

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 70°
 Vertical Angle: 45°
 Luminance: 13108 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	60.2	5.5
10°-20°	168.0	15.3
20°-30°	216.2	19.7
30°-40°	205.1	18.7
40°-50°	175.7	16.0
50°-60°	133.9	12.2
60°-70°	84.4	7.7
70°-80°	42.1	3.8
80°-90°	10.8	1.0
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°	444.4	40.5
0°-40°	649.5	59.2
0°-60°	959.1	87.5
0°-90°	1096.5	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1096.5	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	634	634	634	634	634	
5°	706	677	636	580	564	70
15°	797	764	603	452	374	217
25°	425	692	537	307	271	201
35°	210	376	443	233	200	133
45°	146	198	334	172	142	113
55°	101	124	227	117	100	89
65°	52	71	138	70	60	53
75°	28	31	66	36	32	29
85°	8	8	14	8	8	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°	634.5	634.5	634.5	634.5	634.5	634.5	634.5	634.5	634.5	634.5	634.5
2.5°	666.7	667.4	668.0	666.5	666.5	665.2	662.3	660.1	653.9	653.1	653.1
5°	706.0	705.5	706.4	703.5	699.6	698.7	694.5	689.0	683.3	676.9	675.5
7.5°	745.7	743.0	741.9	743.2	739.0	733.3	726.3	719.6	709.7	701.6	696.5
10°	774.3	781.6	777.2	769.5	771.0	760.6	755.1	745.7	737.7	723.8	720.7
12.5°	802.5	804.3	803.6	800.1	797.2	790.9	782.9	775.0	758.7	746.5	733.7
15°	796.8	801.0	802.1	800.8	801.9	801.4	797.5	790.6	777.8	764.2	752.3
17.5°	754.5	759.3	763.3	766.8	772.3	783.1	786.4	787.8	782.5	772.8	762.9
20°	672.0	667.2	687.4	697.8	706.6	728.7	747.6	754.9	766.6	766.4	764.2
22.5°	555.2	557.8	576.8	589.6	619.5	641.6	663.9	696.3	721.6	740.4	751.8
25°	425.1	433.5	452.6	469.4	498.1	539.1	576.3	619.5	660.3	692.5	723.2
27.5°	330.7	331.8	349.2	366.2	383.9	419.3	469.2	521.0	579.2	621.1	674.0
30°	273.4	272.1	278.5	287.9	302.5	328.5	363.8	414.5	472.5	544.8	609.2
32.5°	232.8	233.3	237.7	244.1	255.5	271.0	292.4	331.2	385.2	455.9	534.2
35°	209.5	209.2	212.8	217.8	222.9	234.1	250.7	272.3	310.0	376.4	453.5
37.5°	190.1	191.2	192.7	196.0	202.2	208.8	219.2	234.4	263.0	304.3	373.5
40°	174.2	174.6	177.0	179.7	183.0	187.8	196.0	207.7	227.3	258.6	306.0
42.5°	159.6	160.1	161.6	164.0	166.5	171.3	177.7	187.4	202.4	225.1	262.1
45°	145.5	145.5	147.1	148.2	151.0	155.4	160.9	169.3	180.4	198.4	224.4
47.5°	131.8	131.8	132.9	134.9	136.9	140.4	146.2	153.2	161.2	175.9	199.1
50°	120.4	120.6	121.3	122.8	123.9	127.0	131.2	137.1	145.5	156.3	174.8
52.5°	111.1	110.9	111.8	112.2	112.9	114.9	117.7	122.8	130.1	139.1	153.7
55°	101.0	100.1	101.4	102.5	103.2	104.1	105.8	109.1	115.5	123.5	134.9
57.5°	89.1	88.6	89.3	90.4	92.4	94.6	95.7	97.9	101.2	107.4	119.5
60°	73.6	73.6	75.6	76.3	78.7	81.8	84.9	86.6	90.0	93.7	102.1
62.5°	60.0	60.2	60.9	61.5	62.6	66.6	71.2	75.6	78.7	82.2	87.1
65°	52.5	52.9	52.9	53.4	54.2	55.1	56.9	60.0	65.5	70.6	74.7
67.5°	45.9	45.9	46.1	46.5	46.7	47.8	48.5	50.0	51.2	56.9	62.6
70°	39.2	39.9	39.7	40.1	40.3	40.8	41.7	42.3	44.3	45.4	48.5
72.5°	33.1	33.5	33.5	33.7	34.4	34.4	35.1	35.7	36.8	37.7	39.0
75°	27.8	27.6	27.8	28.2	28.4	28.7	28.7	29.5	30.2	31.1	32.2
77.5°	22.5	22.7	22.7	22.7	22.7	23.2	23.2	23.6	24.3	24.7	25.4
80°	17.2	17.4	17.2	17.4	17.6	17.9	17.6	17.9	18.5	19.0	19.0
82.5°	12.3	12.3	12.6	12.6	12.6	12.6	13.0	13.0	13.4	13.2	13.4
85°	7.9	7.7	7.7	7.7	7.9	8.2	7.9	7.9	8.2	8.2	8.2
87.5°	3.5	3.7	3.7	3.7	3.7	3.7	3.7	4.0	3.7	4.0	3.7
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°	634.5	634.5	634.5	634.5	634.5	634.5	634.5	634.5	634.5	634.5	634.5
2.5°	653.5	651.7	650.2	646.2	644.2	639.8	639.2	638.9	633.2	627.7	626.2
5°	672.0	668.5	663.2	657.0	650.6	644.0	639.6	636.1	627.3	618.9	614.0
7.5°	690.3	683.9	675.5	665.0	655.9	645.3	638.1	631.4	619.3	608.3	601.0
10°	711.3	698.9	686.8	670.7	658.1	645.8	634.3	624.4	610.3	594.4	583.2
12.5°	724.3	710.4	692.5	676.9	659.7	643.1	626.8	613.4	596.2	579.6	565.7
15°	735.7	721.2	700.9	678.4	657.5	637.0	619.3	603.4	581.8	562.2	545.9
17.5°	746.3	726.3	705.3	679.3	656.1	631.2	609.0	589.1	565.5	542.4	523.9
20°	750.9	731.1	706.0	680.0	651.3	620.6	596.2	574.1	548.3	522.5	500.5
22.5°	748.1	733.7	705.1	672.7	643.1	610.7	582.3	555.8	526.5	500.0	473.6
25°	733.1	727.8	701.3	667.4	633.9	596.6	564.6	536.6	504.0	475.8	448.0
27.5°	705.5	713.2	694.5	657.7	621.5	581.4	546.6	515.0	481.7	450.2	422.4
30°	661.9	688.1	681.1	647.5	605.9	566.6	526.3	493.0	456.8	424.2	396.9
32.5°	602.1	649.7	660.1	633.4	590.0	545.9	503.1	470.1	431.9	397.1	370.6
35°	538.0	602.8	632.5	614.7	571.5	525.0	481.3	442.7	404.8	370.8	344.4
37.5°	461.9	548.3	594.2	592.2	551.0	503.6	456.2	418.0	379.0	345.5	317.9
40°	388.3	483.9	548.5	562.9	529.4	477.1	429.0	390.0	352.1	319.5	286.6
42.5°	322.1	417.4	500.5	528.0	503.1	451.3	403.0	361.8	325.2	294.8	261.0
45°	271.2	354.5	442.1	486.6	471.8	423.8	372.8	334.0	299.4	272.7	240.5
47.5°	234.8	295.4	383.4	441.6	439.9	394.2	343.5	306.2	273.6	248.9	221.6
50°	204.6	255.8	327.4	395.8	401.5	364.7	317.0	280.2	250.2	224.0	203.1
52.5°	177.5	217.4	280.0	344.8	363.8	333.1	287.3	254.0	225.1	201.5	184.3
55°	154.6	187.2	236.1	297.4	322.1	299.6	258.6	226.9	203.3	183.0	167.6
57.5°	134.5	160.1	200.9	252.2	280.2	265.0	230.0	203.7	182.8	163.8	151.5
60°	115.8	135.8	169.1	210.3	242.1	232.2	203.3	179.2	162.1	146.2	134.7
62.5°	98.1	114.6	142.0	173.5	202.0	199.3	177.0	157.9	143.3	129.2	119.9
65°	81.8	94.4	116.6	142.9	166.2	168.2	151.2	137.6	124.1	112.7	104.1
67.5°	67.7	76.3	93.0	116.2	134.1	140.2	128.8	117.7	106.7	97.5	89.7
70°	54.9	61.5	73.0	90.8	106.9	113.5	107.6	99.4	90.2	82.9	76.5
72.5°	41.9	48.3	56.0	67.9	81.1	88.4	87.3	82.0	75.0	69.2	63.3
75°	33.5	35.5	41.2	50.0	60.9	67.0	68.6	65.5	59.5	54.9	51.4
77.5°	26.0	27.3	30.4	35.7	43.2	48.7	51.2	50.7	46.3	43.2	39.9
80°	19.8	20.5	21.8	23.8	29.1	34.6	36.2	36.2	33.3	32.2	28.9
82.5°	13.9	14.3	15.0	15.9	17.6	22.3	24.0	24.5	22.9	21.4	19.0
85°	8.6	8.4	8.8	9.5	9.9	11.2	13.9	14.3	13.9	12.1	11.5
87.5°	3.7	4.0	4.0	3.7	4.0	4.2	5.3	6.4	5.5	4.9	4.4
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°	634.5	634.5	634.5	634.5	634.5	634.5	634.5	634.5	634.5	634.5	634.5
2.5°	623.3	621.7	618.9	614.5	611.8	607.2	604.1	605.9	606.3	605.9	605.4
5°	608.7	604.1	597.7	591.5	585.8	579.6	576.1	574.6	571.5	569.7	568.8
7.5°	592.2	585.4	576.3	566.4	557.1	548.3	544.4	541.3	535.5	532.5	529.6
10°	573.2	560.7	551.6	537.5	528.9	516.4	507.8	508.0	499.4	494.5	491.0
12.5°	552.3	538.2	521.6	509.3	496.5	487.0	476.2	470.9	461.7	457.0	446.0
15°	528.7	512.6	496.7	479.5	467.4	451.8	436.8	418.5	403.7	390.9	387.4
17.5°	503.6	483.7	468.1	450.4	431.5	403.0	384.5	373.3	364.4	357.8	352.5
20°	477.6	457.3	440.3	409.9	381.9	364.0	351.2	343.1	333.8	326.5	322.6
22.5°	450.2	428.8	404.1	369.3	349.0	335.6	324.5	314.8	309.3	304.0	300.5
25°	424.6	401.5	363.3	340.0	322.3	307.3	299.4	293.7	287.1	279.3	275.8
27.5°	398.0	361.1	332.3	315.3	297.2	287.7	280.9	271.4	265.5	262.6	258.6
30°	367.3	330.5	309.1	290.1	278.2	267.4	259.1	254.2	248.5	242.5	240.1
32.5°	333.1	305.6	285.3	270.3	258.2	249.4	243.2	234.6	230.8	227.8	222.0
35°	306.0	283.8	265.0	252.2	240.8	233.3	225.5	220.9	213.4	210.3	208.4
37.5°	281.3	261.9	247.8	233.7	224.9	216.1	211.7	203.9	201.1	196.2	192.3
40°	261.0	242.1	228.6	217.6	207.5	201.3	195.3	189.4	184.5	182.6	177.5
42.5°	240.3	225.8	212.3	200.0	194.0	187.4	179.5	175.5	170.4	166.9	164.3
45°	221.6	207.9	196.4	186.5	179.0	172.2	167.3	160.1	157.2	150.8	148.2
47.5°	205.0	191.8	180.8	171.1	163.6	159.6	152.6	146.2	142.2	137.8	134.1
50°	187.2	176.6	166.0	157.6	151.0	144.6	137.4	134.5	127.4	125.5	123.5
52.5°	170.9	160.9	151.5	143.3	136.7	130.5	124.3	120.4	116.2	114.2	112.9
55°	155.9	146.2	136.9	129.6	123.0	116.6	112.7	108.0	105.8	104.3	102.5
57.5°	140.4	131.6	124.3	116.9	110.2	104.9	100.1	97.5	95.2	93.5	91.1
60°	125.9	117.5	111.1	104.3	97.5	93.3	89.7	86.4	83.8	80.7	79.8
62.5°	110.5	103.4	97.7	91.1	85.3	81.6	78.3	75.2	71.9	67.0	65.7
65°	96.6	90.8	84.7	79.2	73.9	70.1	65.3	61.7	60.4	60.0	59.7
67.5°	83.8	78.3	73.0	67.2	62.4	58.2	55.3	54.9	54.0	53.8	53.1
70°	71.0	65.9	60.6	55.3	50.7	50.0	49.2	48.3	47.2	46.7	46.3
72.5°	59.5	54.2	48.9	45.0	43.7	42.8	41.9	41.0	40.3	39.9	39.7
75°	47.4	42.6	39.0	37.5	36.4	35.7	34.4	33.7	33.3	32.6	32.4
77.5°	36.2	33.1	31.3	30.4	29.1	28.4	27.6	26.9	26.2	26.2	25.8
80°	26.0	24.7	23.6	22.3	21.8	20.9	20.7	20.1	20.3	19.6	19.6
82.5°	18.7	17.0	16.1	15.7	15.2	14.6	14.3	14.1	14.1	13.7	13.7
85°	10.4	9.9	9.5	9.0	9.0	8.4	8.6	8.4	8.4	7.9	7.7
87.5°	4.2	4.0	3.5	3.5	3.5	3.3	3.3	3.1	3.1	3.1	2.9
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):

	165°	170°	175°	180°
0°	634.5	634.5	634.5	634.5
2.5°	603.0	603.4	602.8	603.2
5°	567.7	565.1	564.6	564.0
7.5°	526.1	525.8	524.5	523.0
10°	486.2	485.1	484.8	483.3
12.5°	439.4	430.8	429.9	425.5
15°	382.1	380.8	376.4	373.5
17.5°	350.1	345.7	344.2	343.5
20°	319.5	315.5	314.8	314.4
22.5°	298.3	294.1	292.1	290.6
25°	273.6	272.1	271.2	270.7
27.5°	254.2	250.2	249.8	248.7
30°	238.1	237.0	235.5	234.1
32.5°	219.2	218.3	216.9	216.5
35°	206.1	203.1	201.7	199.8
37.5°	191.8	190.1	187.8	188.7
40°	174.6	173.5	173.1	172.9
42.5°	160.9	157.4	156.1	156.1
45°	147.1	144.2	142.2	142.4
47.5°	132.1	132.3	131.0	131.4
50°	121.9	120.6	119.7	119.9
52.5°	112.2	111.1	110.5	111.6
55°	101.4	100.1	99.9	99.7
57.5°	89.7	89.1	88.0	87.3
60°	76.9	75.2	73.0	72.8
62.5°	65.3	65.3	65.3	65.3
65°	59.3	59.1	59.3	59.5
67.5°	53.1	52.7	52.3	52.5
70°	45.9	45.6	45.4	45.4
72.5°	38.8	38.8	38.6	38.4
75°	32.2	31.7	31.7	31.7
77.5°	25.8	25.6	25.4	25.1
80°	19.4	19.2	19.0	19.0
82.5°	13.7	13.4	13.4	13.2
85°	7.9	8.2	7.9	8.4
87.5°	2.9	2.6	2.9	2.6
90°	0.0	0.0	0.0	0.0



TEST NUMBER: P242402
 CATALOG NUMBER: S122RDRP-S290D840-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	14.19	15.65	14.56	15.96	16.27	20.09	21.54	20.46	21.86	22.17
	3H	15.30	16.60	15.68	16.93	17.30	21.25	22.55	21.63	22.88	23.24
	4H	15.76	16.98	16.16	17.33	17.71	21.64	22.86	22.05	23.21	23.59
	6H	16.13	17.25	16.54	17.62	18.01	21.91	23.03	22.32	23.40	23.79
	8H	16.25	17.32	16.68	17.71	18.11	21.98	23.05	22.41	23.44	23.84
	12H	16.33	17.35	16.76	17.73	18.16	22.02	23.04	22.45	23.42	23.85
4H	2H	14.90	16.12	15.31	16.47	16.85	20.06	21.27	20.46	21.62	22.00
	3H	16.17	17.18	16.58	17.58	17.98	21.35	22.36	21.76	22.76	23.16
	4H	16.72	17.63	17.16	18.04	18.48	21.85	22.75	22.28	23.17	23.61
	6H	17.19	17.98	17.65	18.42	18.88	22.23	23.02	22.69	23.46	23.92
	8H	17.36	18.09	17.82	18.53	19.00	22.35	23.08	22.81	23.52	23.99
	12H	17.47	18.13	17.96	18.60	19.08	22.42	23.07	22.91	23.55	24.03
8H	4H	17.07	17.80	17.53	18.25	18.71	21.83	22.56	22.30	23.01	23.48
	6H	17.64	18.24	18.14	18.73	19.21	22.26	22.86	22.76	23.35	23.83
	8H	17.86	18.40	18.38	18.91	19.40	22.41	22.95	22.92	23.46	23.95
	12H	18.05	18.52	18.56	19.02	19.58	22.53	23.01	23.04	23.50	24.07
12H	4H	17.11	17.76	17.59	18.24	18.71	21.81	22.46	22.29	22.94	23.41
	6H	17.70	18.24	18.22	18.75	19.24	22.23	22.77	22.75	23.28	23.77
	8H	17.98	18.46	18.49	18.95	19.52	22.41	22.89	22.93	23.38	23.95