

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: P242574

Luminaire Tested: S123RDRP-S340D840-X4F0-XX-UDD-A-W

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-2024
Report Number: P242574
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-S340D840-X4F0-XX-UDD-A-W
Description: DEFINE 3 REGRESSED DIRECT RECESSED WITH ASYMMETRIC FLUSH DIFFUSER
STANDARD LIGHT ENGINE
Light Source: (92) 4000K CCT, 80 CRI LEDS
Ballast/Driver: -

Summary

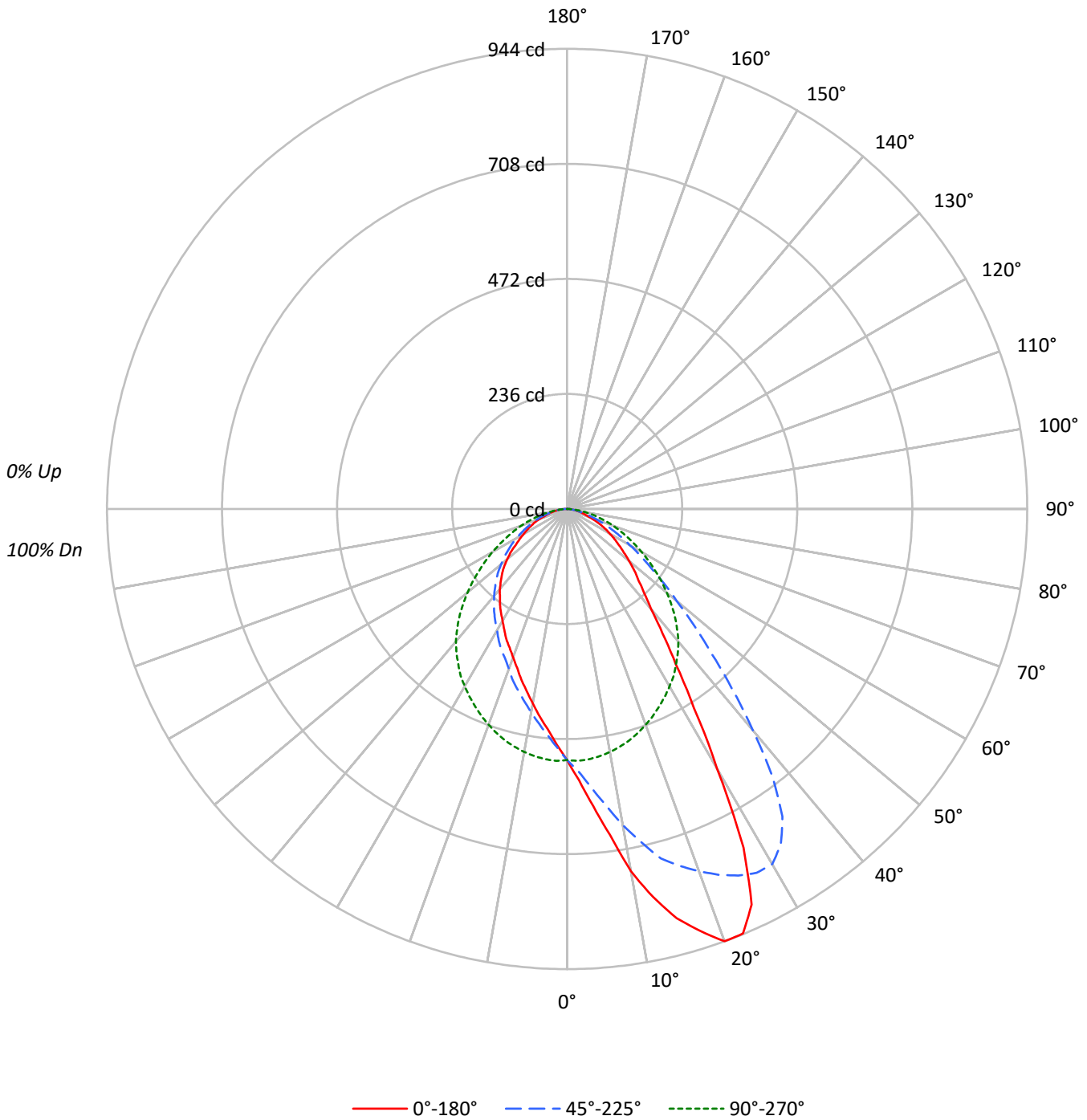
Lumens per Lamp: N/A
Luminaire Lumens: 1282.4 lumens
Efficiency: N/A
Efficacy: 110.6 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.22 / 1.35
Luminous Opening: Rectangular (W 3.88' x L: 0.23' x H: 0')
CIE Type: Direct

Input Watts (W): 11.6
Input Voltage (V): 120
Input Current (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	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°	6242	6242	6242	6242	6242
5°	7442	6981	6269	5660	5520
10°	9291	8109	6233	5215	4987
15°	10906	9312	6169	4850	4549
20°	12172	10198	6074	4507	4174
25°	11977	11098	5974	4269	3945
30°	8609	11775	5881	4024	3709
35°	5749	11392	5761	3856	3556
40°	4236	9391	5617	3687	3397
45°	3552	7165	5362	3530	3243
50°	3134	5525	5031	3338	3027
55°	2749	4408	4649	3140	2730
60°	2448	3598	4286	2887	2502
65°	2151	2946	3895	2662	2326
70°	1687	2367	3548	2445	2126
75°	1485	1747	3096	2211	1939
80°	1291	1494	2632	1941	1906
85°	1043	1140	2114	1961	2031

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 60°
 Vertical Angle: 45°
 Luminance: 10083 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	50.6	3.9
10°-20°	158.3	12.3
20°-30°	249.4	19.4
30°-40°	259.3	20.2
40°-50°	221.9	17.3
50°-60°	169.1	13.2
60°-70°	108.3	8.4
70°-80°	51.9	4.0
80°-90°	13.7	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°	458.3	35.7
0°-40°	717.6	56.0
0°-60°	1108.5	86.4
0°-90°	1282.4	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1282.4	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	515	515	515	515	515	
5°	612	574	515	465	454	63
15°	869	742	492	386	362	247
25°	896	830	447	319	295	389
35°	388	770	389	261	240	253
45°	207	418	313	206	189	163
55°	130	209	220	149	129	117
65°	75	103	136	93	81	74
75°	32	37	66	47	41	34
85°	8	8	15	14	15	9
90°	0	0	0	0	0	



TEST NUMBER: P242574

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CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
0°	515.0	515.0	515.0	515.0	515.0	515.0	515.0	515.0	515.0	515.0	515.0
2.5°	556.9	557.8	554.9	554.5	551.2	550.3	550.3	545.7	542.8	539.0	536.8
5°	611.6	615.1	613.3	609.4	602.8	601.2	597.0	590.4	582.9	573.7	569.3
7.5°	674.2	681.5	680.1	674.0	666.9	662.5	650.8	641.3	627.0	614.0	603.9
10°	754.9	749.8	745.8	739.9	733.5	723.1	710.8	693.8	674.2	658.8	641.6
12.5°	815.3	815.5	810.2	804.1	794.4	784.7	768.8	747.2	723.6	699.6	679.3
15°	869.1	870.4	867.1	860.7	847.9	830.5	807.6	799.0	766.4	742.1	717.8
17.5°	907.5	907.7	907.0	898.4	884.5	872.6	851.2	831.2	800.3	767.5	735.0
20°	943.6	941.4	941.8	931.9	922.2	907.9	887.2	854.3	830.1	790.6	756.9
22.5°	942.7	942.7	944.7	942.9	936.6	926.4	911.2	884.7	852.1	812.2	773.2
25°	895.5	893.8	904.1	907.0	918.3	920.2	915.4	900.2	870.9	829.8	782.9
27.5°	783.1	776.7	798.3	819.7	848.1	866.2	884.7	888.9	875.0	841.5	792.4
30°	615.1	635.8	645.5	680.4	719.2	765.5	806.0	844.6	854.1	841.3	802.7
32.5°	484.6	502.0	509.7	538.4	573.9	630.1	696.0	754.7	800.5	816.0	796.6
35°	388.5	388.7	407.2	420.4	453.9	509.7	568.8	642.0	714.8	769.9	775.6
37.5°	320.6	321.4	333.4	346.6	373.5	404.8	459.7	521.4	608.9	691.2	733.9
40°	267.7	269.6	278.0	291.0	309.1	331.4	371.9	429.3	499.4	593.5	670.4
42.5°	233.7	237.2	240.5	249.8	259.3	279.8	310.6	351.6	413.8	501.6	593.3
45°	207.2	209.0	212.3	216.9	227.1	241.6	263.7	293.4	346.4	418.0	506.9
47.5°	187.0	185.9	189.6	193.6	200.4	211.0	226.4	252.2	291.9	351.9	428.8
50°	166.2	166.0	168.4	171.3	177.7	185.0	197.1	215.4	245.4	293.0	362.0
52.5°	146.8	147.9	149.5	153.2	157.4	162.9	173.5	185.4	210.1	249.6	304.2
55°	130.1	130.7	133.2	135.1	138.5	144.4	151.2	162.3	179.9	208.6	256.0
57.5°	115.5	115.3	117.7	118.0	122.1	127.2	132.7	141.3	154.8	177.5	210.5
60°	101.0	100.3	102.3	103.8	105.8	109.8	114.2	122.6	132.7	148.4	175.7
62.5°	87.7	87.5	88.8	90.4	91.9	95.5	99.0	104.9	112.4	125.0	145.3
65°	75.0	75.6	76.3	76.9	77.8	80.0	83.6	88.0	93.5	102.7	118.4
67.5°	61.7	62.6	62.8	64.4	66.1	67.2	69.2	73.4	77.6	86.0	95.2
70°	47.6	47.4	47.6	48.3	50.7	53.1	56.0	58.9	61.3	66.8	74.3
72.5°	39.2	38.8	39.5	39.5	40.3	40.6	42.1	44.8	48.1	51.4	56.2
75°	31.7	31.7	31.7	31.7	32.6	33.1	33.7	34.4	35.5	37.3	41.2
77.5°	24.7	24.7	25.1	25.4	25.6	25.8	26.2	26.9	27.3	28.2	30.2
80°	18.5	18.7	18.5	18.7	18.7	19.2	19.4	20.1	20.3	21.4	22.0
82.5°	12.8	12.6	12.8	13.0	13.0	13.4	13.4	13.9	13.9	14.3	15.0
85°	7.5	7.1	7.5	7.3	7.7	7.3	7.5	7.9	7.9	8.2	9.0
87.5°	2.2	2.6	2.2	2.4	2.4	2.6	2.6	2.6	3.1	2.9	3.1
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°	515.0	515.0	515.0	515.0	515.0	515.0	515.0	515.0	515.0	515.0	515.0
2.5°	536.0	535.3	532.2	528.7	524.1	521.0	518.5	517.2	513.3	508.4	505.1
5°	564.6	558.0	551.0	542.4	534.4	526.3	521.2	515.2	508.0	499.8	494.1
7.5°	593.1	581.6	569.0	556.0	542.8	531.1	520.3	511.5	500.5	489.2	481.5
10°	626.8	607.8	588.2	568.2	549.9	532.7	519.4	506.4	492.5	479.1	468.9
12.5°	657.4	631.0	607.6	581.8	557.1	535.7	515.2	499.4	481.9	467.4	455.5
15°	682.4	656.8	629.4	592.0	560.9	534.9	511.7	491.6	471.4	453.7	442.5
17.5°	708.4	669.6	633.6	604.5	564.0	532.4	505.3	481.9	459.9	441.8	427.7
20°	723.4	686.1	646.2	606.3	566.6	530.2	497.4	470.9	447.8	426.6	413.8
22.5°	732.4	689.0	646.4	602.8	560.0	521.9	489.4	459.7	434.1	414.3	397.7
25°	739.0	688.7	642.4	600.1	557.1	516.1	477.5	446.7	419.6	398.2	381.4
27.5°	744.3	686.1	633.0	586.9	543.5	501.8	467.0	433.9	406.8	384.5	366.2
30°	745.6	682.8	621.7	570.8	526.5	489.0	451.5	420.2	391.1	367.1	350.3
32.5°	747.4	674.6	606.5	551.6	506.0	468.9	435.9	406.3	376.3	352.8	335.6
35°	741.2	672.7	591.1	528.9	483.5	447.6	416.9	389.3	360.0	337.1	319.7
37.5°	722.5	661.9	575.6	503.6	456.6	423.5	397.9	372.8	345.7	320.6	304.5
40°	691.0	644.2	557.1	480.8	431.2	397.1	374.6	355.0	328.9	305.8	288.2
42.5°	644.0	620.2	539.5	457.0	402.6	369.9	351.9	333.8	311.7	288.2	271.8
45°	584.5	588.2	514.1	431.5	376.6	343.5	325.6	312.8	292.6	273.2	256.2
47.5°	512.2	543.5	487.0	404.6	348.3	317.3	301.6	289.9	275.8	255.7	240.1
50°	441.6	491.6	453.1	377.4	322.1	291.2	275.8	266.8	254.9	239.9	225.1
52.5°	376.6	431.2	412.1	347.2	293.7	266.1	251.1	244.1	235.2	221.4	208.3
55°	317.7	372.2	366.9	316.8	265.2	239.9	228.4	220.0	213.6	203.1	192.5
57.5°	266.5	319.2	320.3	283.1	240.5	214.7	204.8	198.2	193.8	185.4	175.1
60°	218.7	266.1	275.4	248.9	213.6	191.6	181.9	176.8	173.5	167.1	159.6
62.5°	179.0	217.6	228.4	211.2	187.8	167.6	160.5	155.7	153.7	148.4	142.0
65°	143.1	176.6	186.7	176.2	162.7	146.2	140.0	135.8	133.8	130.7	125.9
67.5°	112.9	138.9	149.9	141.1	136.0	124.3	120.2	117.7	116.0	113.8	109.6
70°	86.4	104.5	116.0	114.0	110.0	104.5	101.6	100.1	98.3	96.6	93.0
72.5°	65.3	76.3	86.9	88.6	85.5	85.5	83.1	82.7	81.8	79.6	78.0
75°	46.1	54.7	62.2	65.0	66.4	67.5	66.4	66.1	65.9	64.2	63.1
77.5°	32.0	37.5	42.6	47.6	49.4	50.9	51.1	52.0	51.4	50.3	49.8
80°	23.1	24.3	27.6	31.7	35.1	36.4	37.3	37.7	37.5	37.3	36.4
82.5°	15.2	16.1	17.2	19.8	22.5	24.9	25.4	25.1	25.8	26.0	25.4
85°	9.0	9.3	9.7	10.1	11.7	14.1	14.8	15.2	15.7	15.7	14.3
87.5°	3.5	3.3	3.7	3.7	4.4	4.6	6.0	7.1	7.3	6.4	6.4
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°	515.0	515.0	515.0	515.0	515.0	515.0	515.0	515.0	515.0	515.0	515.0
2.5°	504.0	501.1	499.1	494.7	491.9	488.8	485.7	487.7	487.5	487.2	487.2
5°	489.2	484.2	479.5	473.6	469.8	465.2	461.7	461.2	462.1	459.0	457.3
7.5°	475.3	468.7	462.1	455.9	449.1	443.8	440.5	439.2	436.8	434.8	433.0
10°	460.6	452.4	446.0	437.9	430.4	423.7	419.6	416.7	415.1	413.6	410.7
12.5°	445.3	437.4	428.8	419.3	412.3	404.3	401.5	398.2	394.9	393.1	388.9
15°	430.6	420.2	411.6	401.9	394.0	386.5	382.1	375.7	374.8	372.6	368.6
17.5°	416.2	404.8	392.2	385.6	377.7	369.7	362.7	360.7	354.1	351.9	348.1
20°	398.6	388.2	379.2	369.7	356.7	349.4	344.2	341.3	336.2	333.1	330.9
22.5°	383.4	372.8	362.0	350.5	340.4	332.0	328.5	323.6	321.4	316.8	314.4
25°	369.1	357.6	345.0	333.1	325.4	319.2	313.1	309.1	305.1	303.1	298.7
27.5°	351.6	340.2	328.1	318.8	310.0	303.8	297.9	294.5	289.5	286.2	283.7
30°	337.8	323.6	313.5	305.4	293.2	287.5	283.3	278.9	275.4	271.8	269.4
32.5°	321.7	309.1	299.6	289.0	280.4	274.0	268.3	264.6	261.7	258.4	256.0
35°	304.7	293.9	284.0	273.8	267.0	260.6	254.2	250.9	248.0	244.9	242.7
37.5°	289.3	279.1	269.9	260.2	251.8	246.3	241.0	238.8	234.8	232.6	230.4
40°	275.1	265.2	255.1	245.8	237.0	233.0	228.4	224.7	221.1	219.6	217.2
42.5°	259.7	249.8	241.6	231.5	224.7	218.9	214.7	210.5	208.1	205.7	204.6
45°	244.5	235.7	227.3	217.4	210.5	205.9	201.1	197.3	194.9	193.4	190.9
47.5°	230.0	220.9	212.5	203.7	197.1	191.8	186.7	184.3	181.0	179.2	177.5
50°	213.9	205.9	196.9	188.9	182.3	177.0	173.1	169.8	166.9	164.5	163.4
52.5°	199.1	190.5	183.0	175.7	168.7	162.5	159.0	155.4	153.4	150.6	149.3
55°	182.5	174.4	167.8	160.5	153.7	148.6	144.2	141.1	138.9	135.8	134.0
57.5°	167.3	160.3	152.1	145.7	138.5	134.5	130.7	126.3	123.7	121.3	119.5
60°	151.9	143.5	136.7	130.7	124.6	119.1	115.7	112.4	109.6	107.1	105.6
62.5°	135.8	128.8	122.4	115.7	110.2	105.6	101.6	99.0	96.6	95.2	93.7
65°	119.3	113.5	106.9	101.6	96.3	92.8	89.7	87.3	85.5	84.4	83.1
67.5°	104.1	98.6	92.6	87.1	83.6	80.7	78.5	76.3	75.4	74.1	73.2
70°	89.3	83.6	78.5	74.5	71.0	69.0	67.7	66.1	65.3	63.5	62.6
72.5°	73.2	69.4	66.1	63.1	60.4	58.6	56.9	54.9	53.4	51.4	50.5
75°	60.2	56.4	53.6	51.4	49.6	47.2	44.8	42.8	42.1	41.4	41.2
77.5°	47.0	44.5	42.3	40.6	38.1	35.9	35.3	34.8	34.6	34.2	34.2
80°	35.1	32.9	31.3	29.1	27.8	27.8	27.8	27.3	27.6	27.6	27.6
82.5°	23.8	21.8	21.2	20.7	20.7	20.9	20.9	21.2	20.9	21.4	21.2
85°	13.4	13.7	14.1	13.9	14.1	14.1	14.6	14.3	14.6	14.1	14.6
87.5°	6.2	6.8	7.1	7.3	7.5	7.3	7.5	7.5	7.7	7.7	7.7
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: P242574

CATALOG NUMBER: S123RDRP-S340D840-X4F0-XX-UDD-A-W

CANDELA DISTRIBUTION (continued):

	165°	170°	175°	180°
0°	515.0	515.0	515.0	515.0
2.5°	484.6	484.4	484.6	483.7
5°	456.6	456.4	455.7	453.7
7.5°	431.2	430.8	429.0	429.5
10°	409.2	409.4	406.8	405.2
12.5°	387.8	386.5	384.5	382.7
15°	369.5	367.3	362.0	362.5
17.5°	346.8	345.0	344.8	341.7
20°	327.4	326.3	326.7	323.6
22.5°	312.2	311.1	308.7	308.2
25°	297.4	295.7	293.9	295.0
27.5°	282.4	281.1	279.1	279.1
30°	268.3	267.0	266.1	265.0
32.5°	254.0	254.0	252.2	252.2
35°	241.9	240.5	240.1	240.3
37.5°	230.2	228.4	227.5	226.6
40°	217.4	215.6	215.2	214.7
42.5°	203.1	202.6	202.4	201.5
45°	190.3	190.0	188.7	189.2
47.5°	176.6	175.5	174.8	175.5
50°	162.5	162.0	160.1	160.5
52.5°	148.4	146.4	146.0	145.5
55°	132.5	130.5	129.6	129.2
57.5°	116.8	116.2	115.3	116.0
60°	103.4	103.4	103.4	103.2
62.5°	93.0	92.4	92.2	92.6
65°	82.5	82.2	81.4	81.1
67.5°	72.8	71.9	71.9	71.4
70°	61.5	61.1	59.7	60.0
72.5°	49.4	48.9	48.9	48.5
75°	41.0	40.8	40.6	41.4
77.5°	34.2	34.2	34.4	34.0
80°	27.6	27.6	27.3	27.3
82.5°	20.7	20.9	21.2	20.7
85°	14.6	14.3	14.8	14.6
87.5°	8.2	7.7	7.7	7.9
90°	0.0	0.0	0.0	0.0



TEST NUMBER: P242574
 CATALOG NUMBER: S123RDRP-S340D840-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	14.00	15.49	14.37	15.81	16.12	17.40	18.89	17.76	19.20	19.52
	3H	15.09	16.43	15.47	16.76	17.12	18.81	20.14	19.18	20.47	20.83
	4H	15.43	16.68	15.83	17.03	17.41	19.31	20.56	19.71	20.91	21.29
	6H	15.67	16.83	16.09	17.20	17.59	19.66	20.81	20.07	21.18	21.57
	8H	15.74	16.84	16.17	17.23	17.64	19.76	20.86	20.19	21.25	21.65
	12H	15.78	16.83	16.21	17.22	17.65	19.82	20.87	20.25	21.26	21.69
4H	2H	14.98	16.23	15.38	16.58	16.96	17.64	18.89	18.04	19.24	19.62
	3H	16.15	17.19	16.56	17.59	17.99	19.33	20.37	19.74	20.77	21.17
	4H	16.54	17.47	16.97	17.89	18.32	19.94	20.87	20.38	21.29	21.73
	6H	16.85	17.66	17.30	18.10	18.56	20.41	21.22	20.87	21.66	22.12
	8H	16.94	17.69	17.40	18.14	18.61	20.55	21.31	21.02	21.75	22.22
	12H	16.99	17.67	17.48	18.15	18.62	20.65	21.33	21.13	21.81	22.28
8H	4H	16.90	17.66	17.37	18.10	18.57	20.00	20.75	20.46	21.20	21.66
	6H	17.28	17.90	17.77	18.39	18.87	20.53	21.15	21.03	21.65	22.12
	8H	17.41	17.97	17.92	18.48	18.97	20.72	21.28	21.24	21.79	22.28
	12H	17.51	18.00	18.02	18.50	19.06	20.88	21.38	21.39	21.87	22.43
12H	4H	16.93	17.61	17.42	18.09	18.56	19.98	20.66	20.46	21.14	21.61
	6H	17.32	17.88	17.84	18.39	18.88	20.52	21.08	21.03	21.59	22.08
	8H	17.50	17.99	18.01	18.48	19.05	20.75	21.24	21.26	21.74	22.30