

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: P242477

Luminaire Tested: S123DRP-S560D930-X4F0-XX-UDD-A-W

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-2024
Report Number: P242477
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-S560D930-X4F0-XX-UDD-A-W
Description: DEFINE 3 DIRECT RECESSED WITH ASYMMETRIC FLUSH DIFFUSER
STANDARD LIGHT ENGINE
Light Source: (92) 3000K CCT, 90 CRI LEDS
Ballast/Driver: -

Summary

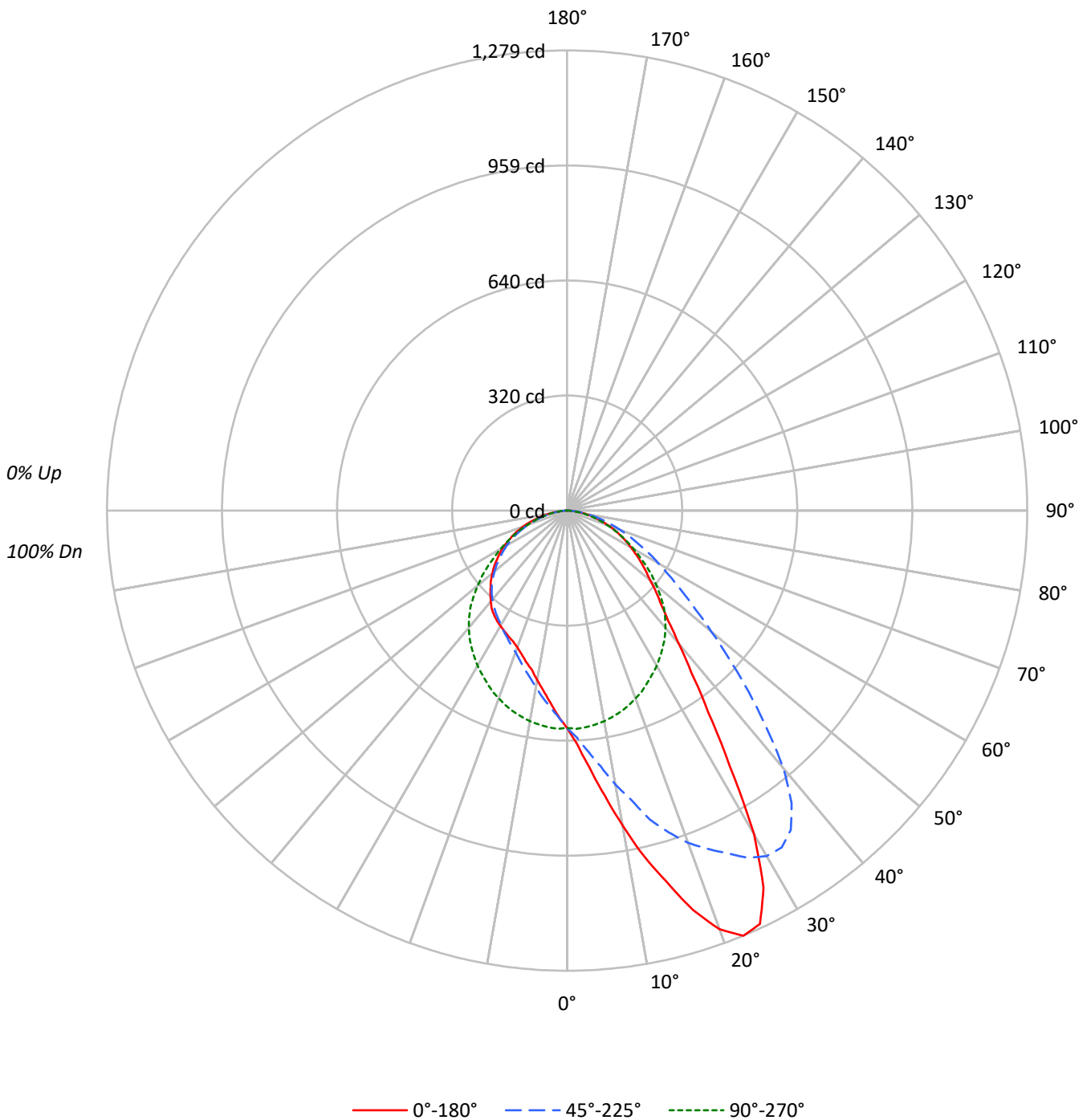
Lumens per Lamp: N/A
Luminaire Lumens: 1823.4 lumens
Efficiency: N/A
Efficacy: 97.0 lumens/watt
Spacing Criteria (0/90/45): 1.37 / 1.23 / 1.5
Luminous Opening: Rectangular (W 3.88' x L: 0.23' x H: 0')
CIE Type: Direct

Input Watts (W): 18.8
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: P242477

CATALOG NUMBER: S123DRP-S560D930-X4F0-XX-UDD-A-W

Luminous Intensity Polar Plot



TEST NUMBER: P242477

CATALOG NUMBER: S123DRP-S560D930-X4F0-XX-UDD-A-W

COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:

RF	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	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									85																			
2	100	93	86	81	98	91	85	80	87	82	78	84	80	76	81	78	74	72									72																			
3	92	82	74	68	89	80	73	67	77	71	66	75	69	65	72	68	64	62									62																			
4	84	73	65	58	82	72	64	58	69	62	57	67	61	56	65	60	56	53									53																			
5	78	66	57	51	76	64	56	50	62	55	50	60	54	49	59	53	49	47									47																			
6	72	59	51	44	70	58	50	44	56	49	44	55	48	43	53	48	43	41									41																			
7	67	54	45	39	65	53	45	39	52	44	39	50	44	39	49	43	38	36									36																			
8	62	49	41	35	61	49	41	35	47	40	35	46	39	35	45	39	35	33									33																			
9	58	45	37	32	57	45	37	32	43	36	32	42	36	31	41	36	31	29									29																			
10	55	42	34	29	53	41	34	29	40	33	29	39	33	29	38	33	28	27									27																			

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°	135°	180°
0°	7322	7322	7322	7322	7322
5°	8733	8184	7354	6659	6517
10°	10930	9514	7317	6136	5887
15°	13406	11158	7258	5722	5480
20°	15970	12671	7165	5398	5218
25°	16957	14054	7054	5241	5160
30°	14535	15518	6973	5141	5186
35°	10108	16033	6856	5124	5241
40°	7614	14801	6720	5112	5225
45°	6322	12243	6517	5077	5158
50°	5663	9879	6104	4978	5110
55°	5294	8195	5659	4837	5046
60°	4967	7088	5193	4698	4996
65°	4666	6238	4735	4457	4836
70°	4377	5571	4210	4097	4607
75°	3920	4824	3686	3658	4220
80°	3434	3965	3022	2960	3637
85°	2684	3087	2197	2156	2448

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 55°
 Vertical Angle: 45°
 Luminance: 14470 cd/sqm



TEST NUMBER: P242477

CATALOG NUMBER: S123DRP-S560D930-X4F0-XX-UDD-A-W

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	59.4	3.3
10°-20°	190.8	10.5
20°-30°	321.1	17.6
30°-40°	362.9	19.9
40°-50°	325.0	17.8
50°-60°	262.4	14.4
60°-70°	182.8	10.0
70°-80°	95.9	5.3
80°-90°	23.0	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°	571.3	31.3
0°-40°	934.2	51.2
0°-60°	1521.6	83.5
0°-90°	1823.4	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1823.4	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	604	604	604	604	604	
5°	718	673	604	547	536	74
15°	1068	889	578	456	437	308
25°	1268	1051	527	392	386	561
35°	683	1084	463	346	354	441
45°	369	714	380	296	301	291
55°	250	388	268	229	239	225
65°	163	218	165	155	169	162
75°	84	103	79	78	90	89
85°	19	22	16	16	18	23
90°	0	0	0	0	0	



TEST NUMBER: P242477

CATALOG NUMBER: S123DRP-S560D930-X4F0-XX-UDD-A-W

CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
0°	604.1	604.1	604.1	604.1	604.1	604.1	604.1	604.1	604.1	604.1	604.1
2.5°	650.4	649.8	648.3	649.5	647.1	643.9	643.6	640.7	632.2	631.6	629.3
5°	717.7	715.3	715.0	714.8	710.7	705.1	694.6	693.7	679.6	672.6	664.1
7.5°	799.0	798.2	795.8	793.2	779.4	772.7	762.8	749.9	733.5	717.7	707.7
10°	888.0	897.7	885.7	877.5	869.9	855.5	838.9	818.1	797.3	773.0	754.6
12.5°	983.4	987.0	987.0	979.3	966.5	942.8	910.0	886.6	867.8	823.3	807.5
15°	1068.3	1086.2	1074.8	1048.4	1049.0	1028.2	989.6	947.1	924.6	889.2	840.9
17.5°	1164.3	1167.5	1164.0	1139.4	1127.4	1097.3	1062.5	1023.0	980.5	937.5	887.4
20°	1238.1	1236.3	1226.1	1214.7	1189.5	1167.3	1128.3	1083.0	1024.4	982.3	926.4
22.5°	1279.1	1275.8	1272.3	1263.3	1243.4	1219.1	1185.1	1134.5	1079.4	1017.4	950.7
25°	1267.9	1271.7	1272.3	1269.7	1262.4	1248.0	1220.5	1181.0	1125.4	1050.8	983.4
27.5°	1181.9	1191.5	1203.8	1212.0	1225.2	1234.0	1225.2	1200.3	1154.7	1087.9	1005.1
30°	1038.5	1026.8	1055.7	1092.3	1117.2	1161.1	1185.7	1187.2	1164.0	1108.7	1028.5
32.5°	839.4	858.5	867.2	914.4	976.1	1026.8	1081.8	1130.7	1142.1	1109.9	1042.3
35°	683.1	699.2	722.7	746.1	804.6	855.0	941.0	1015.9	1075.6	1083.5	1040.5
37.5°	567.8	577.2	591.5	616.4	656.5	718.8	787.0	884.5	966.8	1024.7	1018.9
40°	481.2	483.5	500.2	518.1	549.1	598.3	658.3	742.0	845.6	935.4	972.9
42.5°	416.2	422.1	426.7	443.7	466.8	500.8	555.5	621.1	713.9	820.7	903.0
45°	368.8	374.6	379.0	390.5	408.0	432.9	471.8	535.0	607.3	714.2	812.8
47.5°	336.0	335.4	339.2	348.3	360.9	380.8	409.5	451.6	521.0	610.3	713.6
50°	300.3	305.0	306.2	312.9	322.3	336.0	358.8	393.4	447.8	523.9	617.0
52.5°	275.1	275.7	279.5	283.9	291.8	301.8	320.8	346.0	385.8	447.8	531.5
55°	250.5	250.5	253.8	257.6	262.3	271.9	285.1	305.0	337.5	387.8	458.6
57.5°	227.7	228.9	231.8	232.7	236.8	243.5	254.9	270.7	295.6	336.3	394.8
60°	204.9	207.5	207.2	209.6	213.1	218.1	227.4	239.7	261.4	292.4	339.8
62.5°	185.0	184.1	184.1	187.0	190.5	195.2	200.5	210.7	228.3	254.9	293.6
65°	162.7	162.2	164.2	166.0	167.1	170.6	175.3	184.7	197.0	217.5	248.8
67.5°	143.4	141.7	143.1	143.7	145.8	148.7	153.4	159.2	169.2	186.4	211.6
70°	123.5	122.1	121.8	122.3	124.1	126.1	129.4	134.9	144.0	157.2	174.4
72.5°	103.0	102.1	102.1	103.6	104.2	105.4	107.4	112.4	119.1	128.2	144.0
75°	83.7	83.7	83.7	84.0	84.9	86.1	87.8	90.4	96.0	103.0	113.9
77.5°	66.1	66.4	65.9	65.6	67.0	67.6	67.9	70.8	74.1	79.3	87.8
80°	49.2	47.7	48.3	49.2	49.8	50.1	50.9	51.5	54.1	56.8	62.3
82.5°	33.4	32.2	32.2	33.7	33.7	34.0	34.8	35.7	36.3	38.6	41.0
85°	19.3	19.3	19.6	19.6	19.9	19.6	20.5	20.8	20.8	22.2	24.0
87.5°	8.8	8.2	8.5	8.8	8.5	8.8	9.1	9.4	9.7	10.0	10.2
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: P242477

CATALOG NUMBER: S123DRP-S560D930-X4F0-XX-UDD-A-W

CANDELA DISTRIBUTION (continued):

	55°	60°	65°	70°	75°	80°	85°	90°	95°	100°	105°
0°	604.1	604.1	604.1	604.1	604.1	604.1	604.1	604.1	604.1	604.1	604.1
2.5°	627.5	625.2	622.8	618.7	615.2	610.3	608.8	607.0	601.8	597.1	593.6
5°	660.9	653.9	643.6	634.3	626.7	616.4	610.6	604.4	595.6	587.7	581.3
7.5°	692.8	680.5	666.2	650.7	635.7	621.4	610.0	599.7	588.3	577.2	568.7
10°	732.3	712.4	690.2	666.2	645.7	625.8	609.1	594.5	578.7	564.9	553.5
12.5°	777.4	745.5	712.7	682.3	657.1	627.5	606.5	586.8	568.4	551.1	538.0
15°	811.0	773.6	737.3	697.2	660.3	625.8	601.8	578.4	557.6	540.6	524.2
17.5°	844.4	803.4	757.2	708.9	665.6	625.8	593.0	567.8	542.4	521.9	506.1
20°	871.9	823.6	769.5	718.8	669.7	624.0	587.1	555.5	527.4	505.5	487.0
22.5°	895.6	837.1	780.6	725.6	669.4	619.3	576.3	543.5	512.5	491.1	471.2
25°	910.6	843.0	786.8	723.2	662.1	611.1	564.3	527.4	497.0	471.8	451.6
27.5°	924.6	842.1	778.6	710.1	653.3	602.7	552.3	512.8	480.9	453.7	432.9
30°	938.7	843.5	764.2	696.6	639.2	586.6	538.0	498.2	464.2	436.4	417.1
32.5°	947.4	842.7	751.0	677.9	617.0	571.9	522.5	480.9	445.8	418.5	400.1
35°	949.8	837.7	735.5	650.7	592.7	547.3	506.1	463.3	426.7	401.3	380.2
37.5°	944.8	828.6	718.6	626.1	563.4	518.4	482.4	445.8	410.6	382.3	363.8
40°	928.7	819.8	698.1	599.7	533.0	490.0	460.4	424.7	390.2	363.5	346.5
42.5°	898.0	802.0	675.5	570.5	501.4	458.4	431.7	403.3	371.1	346.5	329.6
45°	844.1	774.5	653.0	541.2	470.4	425.9	401.9	380.2	350.6	326.4	311.7
47.5°	775.3	737.3	620.5	510.5	437.9	394.8	369.7	351.8	328.7	309.1	294.7
50°	703.0	689.3	587.4	478.8	405.4	363.5	339.5	323.7	308.2	288.6	275.7
52.5°	619.6	633.7	548.8	446.1	372.3	331.3	309.1	297.4	283.6	268.4	257.6
55°	542.4	573.1	503.1	408.6	339.5	300.3	278.9	267.8	259.6	247.6	238.0
57.5°	467.4	506.6	455.7	370.8	307.3	273.1	252.0	239.4	234.2	227.4	219.5
60°	402.2	440.8	404.2	332.8	274.8	242.6	224.5	214.2	209.0	204.6	198.2
62.5°	343.9	383.1	353.9	294.2	242.9	213.7	198.4	188.5	184.7	182.9	177.7
65°	291.5	325.2	304.7	253.8	212.8	186.4	172.1	165.1	161.3	160.4	156.9
67.5°	246.2	272.2	256.4	218.1	184.7	160.7	148.1	142.0	138.7	138.4	135.5
70°	201.7	225.7	214.2	180.3	152.5	134.6	124.1	118.8	117.1	116.8	115.3
72.5°	167.1	182.1	173.6	146.6	126.7	110.9	103.9	98.3	96.3	96.9	96.0
75°	128.8	141.4	136.1	116.5	99.2	88.7	82.2	78.7	77.0	77.9	76.7
77.5°	98.3	107.1	101.9	86.9	75.8	67.9	62.9	60.6	58.8	58.8	58.2
80°	70.0	74.6	72.0	63.8	55.0	48.6	44.8	43.3	42.4	42.1	41.9
82.5°	44.8	48.6	45.4	40.4	35.1	31.9	30.1	28.1	27.5	27.8	27.5
85°	25.2	26.6	25.5	22.0	19.6	17.9	16.7	15.8	15.2	15.5	14.9
87.5°	10.8	11.1	10.2	9.1	8.5	7.6	7.6	7.0	6.4	6.4	6.1
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: P242477

CATALOG NUMBER: S123DRP-S560D930-X4F0-XX-UDD-A-W

CANDELA DISTRIBUTION (continued):

	110°	115°	120°	125°	130°	135°	140°	145°	150°	155°	160°
0°	604.1	604.1	604.1	604.1	604.1	604.1	604.1	604.1	604.1	604.1	604.1
2.5°	591.5	589.5	586.6	582.2	578.7	573.1	573.1	574.0	574.0	573.7	573.1
5°	576.0	571.6	566.4	560.2	553.8	547.3	546.2	543.8	542.1	540.9	539.4
7.5°	560.2	552.9	545.6	537.1	529.8	523.6	519.2	515.4	513.1	510.5	508.4
10°	544.1	534.5	525.4	516.3	506.4	498.5	493.5	490.0	487.3	485.0	483.8
12.5°	525.1	513.7	503.4	494.9	483.8	475.6	470.9	469.8	466.5	461.0	458.1
15°	506.6	496.4	484.4	471.2	466.0	456.0	450.5	447.8	446.1	442.3	441.1
17.5°	491.4	477.7	463.9	454.3	444.6	436.7	433.5	430.0	427.6	424.1	423.2
20°	472.4	460.4	448.1	437.6	427.3	418.5	415.9	413.6	411.2	409.8	408.6
22.5°	453.1	441.1	431.4	421.8	410.6	405.7	402.7	400.1	398.6	397.8	396.6
25°	435.2	424.7	413.3	404.5	395.7	391.9	390.2	388.7	387.5	386.1	385.8
27.5°	419.4	407.7	398.1	389.6	383.1	379.9	377.9	377.0	377.0	377.6	377.9
30°	401.3	390.7	383.1	376.1	370.3	367.3	367.0	367.0	368.2	368.5	369.1
32.5°	384.6	376.4	368.8	362.1	358.0	356.2	357.7	357.7	358.5	359.4	360.6
35°	368.5	360.9	355.0	349.2	345.4	346.3	346.8	347.4	348.9	350.6	351.8
37.5°	353.3	346.3	340.1	335.4	333.1	334.8	336.3	337.5	339.2	340.7	341.9
40°	336.6	331.6	325.8	321.7	322.3	323.1	324.3	325.8	327.2	328.1	329.3
42.5°	321.1	315.8	311.7	308.5	309.4	310.5	311.1	311.7	313.5	315.2	315.8
45°	305.3	301.2	297.1	295.0	295.6	296.2	296.8	297.7	299.1	300.3	300.6
47.5°	287.4	284.5	281.9	279.5	280.7	280.4	281.3	283.0	283.6	284.2	286.0
50°	270.4	267.8	264.6	264.0	264.0	264.0	264.3	266.6	266.6	267.8	269.0
52.5°	251.7	250.3	248.5	247.3	246.7	246.7	248.2	249.1	249.7	251.4	252.6
55°	233.3	231.5	229.8	228.9	228.3	228.9	231.2	231.8	233.3	234.2	235.0
57.5°	214.0	212.8	211.3	210.7	210.7	211.0	212.8	214.2	214.5	217.5	218.6
60°	194.9	192.9	191.7	191.7	191.1	193.8	193.2	196.1	196.7	198.4	200.5
62.5°	175.3	172.4	172.1	172.1	173.3	173.6	174.7	175.6	177.4	179.7	181.2
65°	154.0	152.5	154.5	154.2	153.7	155.4	155.4	156.9	158.6	160.7	163.9
67.5°	134.1	132.9	133.5	133.2	134.1	135.2	136.1	137.3	139.3	141.7	143.7
70°	113.9	114.7	113.3	114.4	115.3	115.6	116.2	118.0	120.3	121.8	124.1
72.5°	94.2	94.0	94.5	94.8	95.7	96.3	96.9	98.9	101.6	102.7	104.5
75°	75.5	75.2	76.1	76.1	77.6	78.1	78.7	79.6	82.0	83.7	85.2
77.5°	58.5	58.8	58.5	59.7	59.1	59.4	61.2	62.1	62.3	66.1	66.7
80°	41.6	42.1	42.4	42.7	43.0	42.4	44.5	45.4	45.4	47.4	48.9
82.5°	26.9	27.2	28.1	28.4	28.4	29.3	29.0	29.6	30.4	31.0	33.1
85°	14.9	15.8	16.1	15.8	16.1	15.5	16.4	16.7	17.0	17.0	17.0
87.5°	5.9	6.1	5.9	6.1	5.9	6.1	6.1	5.6	5.6	6.4	5.3
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: P242477

CATALOG NUMBER: S123DRP-S560D930-X4F0-XX-UDD-A-W

CANDELA DISTRIBUTION (continued):

	165°	170°	175°	180°
0°	604.1	604.1	604.1	604.1
2.5°	571.0	570.7	572.8	571.3
5°	537.7	538.6	535.6	535.6
7.5°	507.5	506.4	506.6	504.6
10°	480.3	478.6	478.0	478.3
12.5°	457.8	457.8	453.1	453.1
15°	441.1	435.5	434.9	436.7
17.5°	422.6	419.4	419.7	419.1
20°	408.6	406.8	406.5	404.5
22.5°	395.7	395.4	395.7	393.4
25°	385.5	386.9	385.8	385.8
27.5°	378.4	378.4	377.6	377.6
30°	370.3	370.0	370.5	370.5
32.5°	362.1	362.6	362.6	362.9
35°	353.6	353.9	354.7	354.2
37.5°	342.4	343.9	343.6	344.2
40°	329.6	330.4	330.2	330.2
42.5°	316.4	317.0	316.1	315.5
45°	301.8	301.2	302.1	300.9
47.5°	285.7	286.0	286.3	287.4
50°	269.6	271.3	271.3	271.0
52.5°	253.8	254.3	255.8	255.8
55°	237.4	238.0	238.5	238.8
57.5°	220.7	220.4	221.6	221.9
60°	202.8	202.8	205.2	206.1
62.5°	183.8	185.0	187.3	185.6
65°	165.4	167.7	167.4	168.6
67.5°	146.1	147.5	149.9	149.9
70°	126.4	127.9	129.1	130.0
72.5°	107.4	108.0	111.2	109.5
75°	87.2	89.3	91.0	90.1
77.5°	67.9	70.5	71.1	70.2
80°	50.9	50.6	52.4	52.1
82.5°	34.0	33.7	34.2	34.5
85°	18.1	19.0	17.9	17.6
87.5°	5.3	5.3	5.0	4.7
90°	0.0	0.0	0.0	0.0



TEST NUMBER: P242477

CATALOG NUMBER: S123DRP-S560D930-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	17.30	18.86	17.67	19.17	19.49	17.85	19.41	18.22	19.72	20.04
	3H	18.85	20.25	19.23	20.57	20.94	19.19	20.59	19.56	20.91	21.27
	4H	19.41	20.73	19.81	21.08	21.45	19.65	20.96	20.05	21.31	21.69
	6H	19.81	21.03	20.23	21.39	21.79	19.94	21.16	20.35	21.52	21.91
	8H	19.93	21.08	20.35	21.47	21.87	20.01	21.17	20.44	21.56	21.96
	12H	19.99	21.10	20.42	21.48	21.91	20.05	21.16	20.48	21.54	21.97
4H	2H	18.45	19.77	18.85	20.12	20.49	18.62	19.93	19.02	20.28	20.66
	3H	20.05	21.14	20.46	21.54	21.94	20.42	21.52	20.83	21.92	22.32
	4H	20.67	21.66	21.10	22.07	22.51	20.99	21.98	21.42	22.39	22.83
	6H	21.14	22.00	21.60	22.44	22.90	21.35	22.21	21.81	22.65	23.11
	8H	21.28	22.08	21.74	22.53	22.99	21.44	22.25	21.91	22.69	23.16
	12H	21.37	22.09	21.86	22.57	23.04	21.50	22.21	21.98	22.69	23.16
8H	4H	21.15	21.96	21.62	22.40	22.87	21.29	22.10	21.76	22.54	23.01
	6H	21.70	22.37	22.20	22.86	23.33	21.80	22.47	22.30	22.96	23.43
	8H	21.89	22.49	22.40	22.99	23.48	21.95	22.54	22.46	23.05	23.54
	12H	22.03	22.56	22.54	23.05	23.62	22.05	22.57	22.55	23.06	23.63
12H	4H	21.21	21.92	21.69	22.40	22.87	21.31	22.02	21.79	22.50	22.97
	6H	21.78	22.37	22.29	22.88	23.37	21.84	22.43	22.35	22.94	23.43
	8H	22.02	22.54	22.53	23.03	23.60	22.04	22.57	22.55	23.06	23.62