

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: P243327

Luminaire Tested: S123DRP-H560D835-X4F0-XX-UDD-A-W

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-79-2024  
Report Number: P243327  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1802-639-59)  
Test Lab: INNOVATION CENTER  
Issue Date: 3/3/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: NEO-RAY  
Catalog Number: S123DRP-H560D835-X4F0-XX-UDD-A-W  
Description: DEFINE 3 DIRECT RECESSED WITH ASYMMETRIC FLUSH DIFFUSER.  
HIGH PERFORMANCE LIGHT ENGINE  
Light Source: (184) 3500K CCT, 80 CRI LEDS  
Ballast/Driver: -

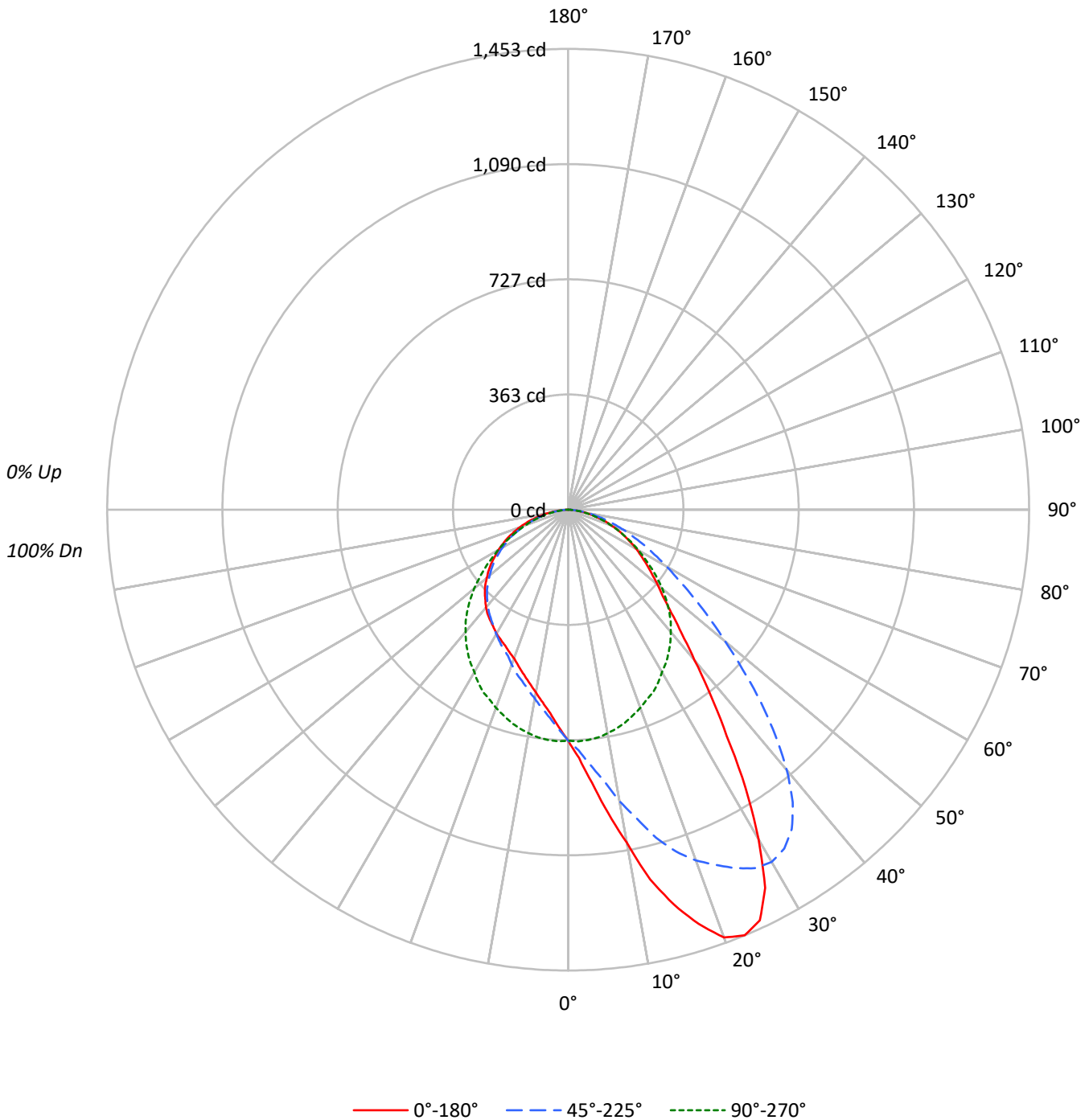
**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 2193.9 lumens  
Efficiency: N/A  
Efficacy: 127.6 lumens/watt  
Spacing Criteria (0/90/45): 1.39 / 1.21 / 1.5  
Luminous Opening: Rectangular (W 3.88' x L: 0.23' x H: 0')  
CIE Type: Direct  
  
Input Watts (W): 17.2  
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

TEST NUMBER: P243327

CATALOG NUMBER: S123DRP-H560D835-X4F0-XX-UDD-A-W

### Luminous Intensity Polar Plot



TEST NUMBER: P243327

CATALOG NUMBER: S123DRP-H560D835-X4F0-XX-UDD-A-W

**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	105	101	98	107	103	99	96	99	96	93	95	92	90	91	89	87					85				
2	100	92	86	81	98	91	85	80	87	82	78	84	80	76	81	77	74					72				
3	92	82	74	68	89	80	73	67	77	71	66	75	69	65	72	68	64					62				
4	84	73	64	58	82	72	64	58	69	62	57	67	61	56	65	60	55					53				
5	78	65	57	50	76	64	56	50	62	55	50	60	54	49	58	53	49					46				
6	72	59	50	44	70	58	50	44	56	49	44	55	48	43	53	47	43					41				
7	67	54	45	39	65	53	45	39	51	44	39	50	43	39	49	43	38					36				
8	62	49	41	35	61	48	41	35	47	40	35	46	39	35	45	39	34					33				
9	58	45	37	32	57	45	37	32	43	36	31	42	36	31	41	35	31					29				
10	55	42	34	29	53	41	34	29	40	33	29	39	33	28	38	33	28					27				

**AVERAGE LUMINANCE (cd/sqm):**

	0°	45°	90°	135°	180°
0°	8824	8824	8824	8824	8824
5°	10513	9831	8865	8018	7836
10°	13128	11484	8813	7446	7204
15°	16179	13435	8716	7022	6759
20°	18514	15181	8578	6702	6432
25°	19107	16676	8483	6468	6313
30°	16786	17952	8280	6340	6317
35°	12883	18184	8158	6259	6323
40°	9799	16972	7959	6239	6370
45°	7885	14718	7702	6205	6365
50°	6939	12174	7290	6097	6312
55°	6397	10186	6756	6002	6270
60°	6029	8693	6182	5801	6141
65°	5601	7552	5650	5573	6023
70°	5128	6581	5068	5128	5766
75°	4557	5620	4416	4590	5372
80°	3818	4628	3651	3930	4698
85°	2684	3435	2642	2962	3519

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 55°  
 Vertical Angle: 45°  
 Luminance: 16525 cd/sqm



TEST NUMBER: P243327

CATALOG NUMBER: S123DRP-H560D835-X4F0-XX-UDD-A-W

**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	71.6	3.3
10°-20°	229.9	10.5
20°-30°	379.8	17.3
30°-40°	434.7	19.8
40°-50°	393.9	18.0
50°-60°	318.3	14.5
60°-70°	221.8	10.1
70°-80°	116.3	5.3
80°-90°	27.7	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°	681.3	31.1
0°-40°	1116.0	50.9
0°-60°	1828.2	83.3
0°-90°	2193.9	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	2193.9	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	728	728	728	728	728	
5°	864	808	729	659	644	89
15°	1289	1071	695	560	539	367
25°	1429	1247	634	484	472	638
35°	871	1229	551	423	427	552
45°	460	859	449	362	371	363
55°	303	482	320	284	297	272
65°	195	263	197	194	210	194
75°	97	120	94	98	115	104
85°	19	25	19	21	25	25
90°	0	0	0	0	0	



TEST NUMBER: P243327

CATALOG NUMBER: S123DRP-H560D835-X4F0-XX-UDD-A-W

**CANDELA DISTRIBUTION (FULL):**

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
0°	728.0	728.0	728.0	728.0	728.0	728.0	728.0	728.0	728.0	728.0	728.0
2.5°	784.0	785.6	783.0	784.6	780.6	778.3	774.6	773.0	765.0	759.3	757.3
5°	864.0	864.0	864.6	860.6	856.0	847.6	836.6	829.6	821.6	808.0	801.0
7.5°	964.6	959.6	956.3	949.0	942.6	929.0	917.0	902.6	884.0	861.3	849.3
10°	1066.6	1071.9	1068.6	1060.9	1044.6	1022.3	1004.6	984.0	955.0	933.0	901.6
12.5°	1193.9	1186.9	1181.6	1169.9	1151.9	1128.3	1100.9	1070.3	1032.9	996.6	961.6
15°	1289.3	1290.3	1289.9	1274.6	1256.9	1224.9	1199.6	1148.6	1101.3	1070.6	1012.6
17.5°	1369.9	1374.3	1369.3	1346.3	1330.6	1311.6	1279.3	1222.6	1179.6	1129.9	1065.9
20°	1435.3	1435.9	1427.9	1410.9	1392.9	1371.6	1328.9	1285.6	1243.6	1176.9	1115.9
22.5°	1452.6	1454.3	1452.6	1445.3	1430.6	1407.9	1375.9	1335.9	1282.9	1211.9	1155.3
25°	1428.6	1427.6	1433.3	1428.9	1428.3	1420.9	1399.9	1367.6	1315.3	1246.9	1174.9
27.5°	1344.6	1337.6	1351.9	1370.6	1373.3	1384.9	1385.3	1370.3	1332.6	1274.3	1195.9
30°	1199.3	1205.9	1212.9	1251.9	1273.6	1303.9	1330.3	1339.9	1325.6	1282.6	1209.3
32.5°	1041.3	1062.6	1082.3	1109.3	1140.9	1192.3	1233.9	1270.6	1286.3	1267.3	1209.3
35°	870.6	882.0	913.0	947.3	993.0	1032.9	1115.6	1168.9	1216.6	1228.9	1193.9
37.5°	737.3	747.6	758.3	785.0	836.3	903.0	971.3	1041.3	1111.9	1162.6	1160.6
40°	619.3	621.6	631.0	654.0	696.6	756.0	827.6	912.0	1003.6	1072.6	1101.6
42.5°	528.6	528.6	540.3	567.0	591.6	635.0	704.3	778.6	879.0	967.6	1029.6
45°	460.0	460.6	470.0	489.0	508.3	542.3	593.6	663.6	767.0	858.6	945.0
47.5°	404.0	410.3	415.6	425.6	445.0	475.0	512.3	572.0	645.6	745.6	846.3
50°	368.0	369.3	373.3	379.3	394.3	414.0	446.3	491.6	557.0	645.6	747.3
52.5°	332.7	332.7	336.7	344.0	352.6	368.6	392.0	429.6	478.6	559.0	650.3
55°	302.7	303.7	304.3	310.3	317.7	329.7	348.0	372.6	417.6	482.0	561.6
57.5°	273.3	277.0	276.0	280.7	286.0	294.7	307.7	329.0	363.3	412.3	484.0
60°	248.7	248.0	249.7	251.7	255.3	261.3	273.3	289.0	317.7	358.6	417.3
62.5°	220.7	220.0	222.0	224.3	227.7	232.7	241.3	253.3	276.0	306.7	357.6
65°	195.3	194.7	195.7	197.0	200.7	204.7	211.3	221.3	236.3	263.3	302.3
67.5°	170.0	170.0	170.7	172.0	174.3	177.3	182.7	188.7	203.7	221.7	252.3
70°	144.7	145.0	145.0	146.3	148.3	150.7	155.0	160.3	169.7	185.7	210.3
72.5°	122.7	122.7	122.0	122.7	124.0	125.0	127.7	132.7	139.7	151.3	170.0
75°	97.3	99.0	98.7	98.3	99.3	101.0	103.3	107.3	111.7	120.0	134.0
77.5°	74.7	75.7	75.7	76.0	77.0	78.3	79.0	83.0	87.0	92.0	102.3
80°	54.7	55.3	54.7	55.0	55.7	57.0	58.3	59.0	62.0	66.3	71.3
82.5°	36.7	35.7	37.0	36.7	37.3	37.7	38.3	38.7	40.7	43.3	46.7
85°	19.3	21.0	20.7	21.3	20.7	21.0	21.3	22.7	23.0	24.7	26.7
87.5°	7.3	8.0	8.0	8.0	8.0	8.0	8.7	9.0	9.7	10.0	10.7
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: P243327

CATALOG NUMBER: S123DRP-H560D835-X4F0-XX-UDD-A-W

**CANDELA DISTRIBUTION (continued):**

	55°	60°	65°	70°	75°	80°	85°	90°	95°	100°	105°
0°	728.0	728.0	728.0	728.0	728.0	728.0	728.0	728.0	728.0	728.0	728.0
2.5°	758.6	755.6	751.3	746.6	741.6	736.6	734.3	731.3	725.3	719.3	714.6
5°	795.3	787.0	775.6	767.3	755.3	744.0	735.0	728.6	719.0	707.3	699.6
7.5°	836.3	821.3	803.3	785.0	767.0	750.0	736.0	724.0	709.0	694.6	683.0
10°	884.6	855.6	830.6	804.0	777.3	753.3	733.3	716.0	696.6	679.3	665.0
12.5°	927.3	893.6	859.0	821.3	785.3	754.3	728.6	706.0	682.6	662.6	648.0
15°	974.3	927.0	879.0	836.3	792.6	754.6	721.0	694.6	668.0	645.3	628.3
17.5°	1028.3	965.0	904.6	843.3	804.6	755.6	714.3	679.6	652.3	629.6	607.6
20°	1060.3	997.3	923.3	860.3	796.3	746.0	700.0	665.0	633.0	607.0	589.0
22.5°	1077.6	1011.3	934.0	869.3	794.6	738.3	689.3	648.0	613.6	587.6	567.3
25°	1101.9	1011.3	939.6	862.0	797.3	729.3	674.0	634.3	598.3	568.3	547.0
27.5°	1112.9	1020.3	940.3	848.0	781.3	712.3	656.3	614.3	574.3	545.0	526.6
30°	1121.9	1021.9	927.0	837.0	762.6	693.3	638.6	591.6	554.3	526.3	507.0
32.5°	1122.6	1017.6	909.0	816.3	737.6	671.0	617.6	573.3	534.3	504.6	485.6
35°	1116.6	1007.0	888.3	784.6	708.6	648.0	594.6	551.3	511.6	483.3	464.0
37.5°	1101.3	995.0	869.0	755.0	674.3	615.3	570.0	528.6	489.3	461.0	445.0
40°	1068.6	975.6	843.6	723.3	639.6	580.6	541.0	503.0	468.0	438.6	422.6
42.5°	1025.3	946.6	813.0	689.6	601.0	544.0	509.0	478.3	442.6	417.3	401.0
45°	964.0	907.3	782.3	654.3	562.6	506.6	474.6	449.3	418.6	393.3	379.0
47.5°	894.6	860.0	742.6	614.6	522.3	469.6	439.3	419.0	393.0	371.3	357.0
50°	816.6	803.6	699.0	574.6	484.6	430.6	402.6	386.6	364.6	347.3	335.0
52.5°	732.0	740.0	653.0	534.0	448.3	393.6	367.0	352.3	338.3	323.7	312.0
55°	646.0	665.0	597.3	489.6	406.6	359.0	333.0	319.7	309.3	297.0	288.7
57.5°	565.3	595.0	539.6	442.3	368.3	322.7	298.0	286.3	278.7	272.0	264.3
60°	487.0	521.3	480.3	398.0	330.0	288.3	266.3	255.0	251.3	246.3	239.0
62.5°	417.6	452.6	422.0	352.3	291.3	255.7	235.7	226.3	221.0	219.3	215.0
65°	352.6	385.3	362.0	304.7	254.7	223.0	205.3	197.0	194.0	193.7	190.3
67.5°	296.3	328.0	306.7	258.3	216.0	190.3	177.0	170.3	167.3	167.7	165.3
70°	244.3	266.7	254.0	216.0	183.3	160.7	150.3	143.0	140.7	140.7	140.0
72.5°	196.0	213.7	204.0	175.0	149.3	132.0	123.0	118.7	116.7	116.3	116.7
75°	153.3	168.7	160.0	137.3	118.0	105.0	97.3	94.3	93.3	92.7	93.0
77.5°	114.7	124.3	119.0	104.3	88.3	79.3	75.7	72.7	71.7	72.0	72.7
80°	81.0	86.3	83.3	74.0	63.3	57.3	54.7	52.3	51.3	52.3	52.3
82.5°	51.3	55.3	52.7	46.7	41.3	37.3	34.7	34.0	33.7	33.0	34.0
85°	28.0	30.0	28.7	26.7	23.0	21.3	19.3	19.0	19.0	19.0	19.0
87.5°	11.0	12.3	10.7	10.7	10.0	8.3	8.3	8.0	7.7	8.0	8.0
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: P243327

CATALOG NUMBER: S123DRP-H560D835-X4F0-XX-UDD-A-W

**CANDELA DISTRIBUTION (continued):**

	110°	115°	120°	125°	130°	135°	140°	145°	150°	155°	160°
0°	728.0	728.0	728.0	728.0	728.0	728.0	728.0	728.0	728.0	728.0	728.0
2.5°	712.6	708.3	705.6	702.0	697.6	692.0	689.6	692.0	690.6	688.3	689.3
5°	693.0	687.3	680.0	674.0	667.3	659.0	656.3	655.0	653.0	652.0	650.3
7.5°	673.6	665.3	656.3	648.0	638.3	631.0	627.6	625.3	624.6	619.6	617.6
10°	653.6	643.3	634.3	623.0	614.6	605.0	601.0	598.3	595.3	592.0	589.6
12.5°	632.6	622.3	611.0	600.3	592.0	581.3	576.0	573.0	570.6	568.3	565.6
15°	614.3	604.0	588.3	580.3	570.3	559.6	556.3	549.6	550.3	546.3	543.6
17.5°	595.0	579.6	568.6	556.6	549.3	541.6	535.3	528.3	527.3	524.3	523.3
20°	573.3	557.3	549.6	537.3	527.3	519.6	514.0	513.3	511.3	507.0	505.3
22.5°	552.0	539.0	528.3	517.0	508.0	498.0	495.3	496.3	492.6	491.6	488.0
25°	532.6	521.3	508.0	497.3	490.0	483.6	480.0	478.6	477.3	476.3	474.6
27.5°	512.0	500.0	488.6	480.0	473.0	468.6	466.3	463.3	463.0	463.0	462.3
30°	491.3	480.6	473.0	462.0	455.6	453.0	451.0	450.0	451.0	451.0	451.3
32.5°	472.3	462.0	453.0	445.3	439.0	437.0	436.6	436.6	438.0	438.0	439.0
35°	452.6	442.3	434.0	428.6	423.3	423.0	423.3	424.0	425.6	426.0	427.3
37.5°	431.3	423.3	417.0	410.3	409.0	409.6	410.3	411.0	411.6	414.3	414.3
40°	411.6	405.6	399.3	395.0	392.6	394.3	395.3	395.6	397.6	399.3	400.6
42.5°	392.3	386.6	381.6	378.0	377.0	378.3	379.3	380.3	382.3	383.6	386.0
45°	370.6	367.0	362.6	359.6	360.0	362.0	362.0	365.3	366.6	367.3	369.0
47.5°	350.6	346.6	343.6	342.3	342.0	343.6	344.6	347.3	348.0	350.3	351.6
50°	329.3	326.3	324.0	322.3	322.7	323.3	325.7	328.3	329.0	331.7	334.0
52.5°	307.0	304.3	302.3	303.0	304.0	304.0	306.3	308.0	309.7	311.7	314.0
55°	285.0	281.3	281.7	280.7	281.7	284.0	285.0	287.7	289.0	290.0	293.3
57.5°	261.0	260.3	259.3	258.3	260.3	261.3	263.0	264.7	267.0	268.3	270.7
60°	236.3	235.3	235.3	236.7	237.3	239.3	242.0	243.0	243.7	246.3	249.3
62.5°	213.7	212.7	212.3	214.3	214.3	216.3	217.3	219.0	221.7	222.7	226.7
65°	189.3	188.7	188.7	190.3	190.7	194.3	194.3	194.3	196.0	199.7	201.7
67.5°	164.0	164.3	165.3	166.3	167.7	168.7	169.0	171.0	173.7	176.0	180.0
70°	138.7	140.3	142.3	142.0	143.0	144.7	145.0	147.0	149.3	152.3	157.0
72.5°	116.0	117.0	119.0	119.0	120.3	121.3	123.0	124.3	127.3	130.0	132.0
75°	93.3	93.7	95.3	96.3	97.3	98.0	99.7	102.0	103.7	106.0	109.0
77.5°	73.3	72.7	74.0	74.3	75.0	76.3	77.7	80.0	81.3	84.0	85.0
80°	52.0	53.3	53.7	54.0	54.7	56.3	57.3	58.3	59.7	62.0	63.0
82.5°	34.3	35.0	36.0	36.3	37.0	37.3	37.7	39.3	40.3	41.0	44.3
85°	20.0	21.0	20.3	20.3	21.0	21.3	22.7	22.7	24.0	23.3	25.0
87.5°	8.7	8.3	8.3	8.7	8.3	8.0	9.0	9.0	8.7	9.0	9.0
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: P243327

CATALOG NUMBER: S123DRP-H560D835-X4F0-XX-UDD-A-W

**CANDELA DISTRIBUTION (continued):**

	165°	170°	175°	180°
0°	728.0	728.0	728.0	728.0
2.5°	687.6	687.6	685.0	686.0
5°	647.0	648.3	645.0	644.0
7.5°	617.0	615.6	613.3	613.3
10°	587.6	586.3	585.3	585.3
12.5°	562.3	561.0	559.0	560.6
15°	539.6	540.0	538.6	538.6
17.5°	522.3	519.3	518.3	518.0
20°	501.6	502.3	501.0	498.6
22.5°	488.6	487.0	485.6	485.3
25°	475.3	473.6	473.3	472.0
27.5°	462.0	462.3	461.3	461.3
30°	451.0	452.0	451.0	451.3
32.5°	440.0	440.0	440.0	438.6
35°	428.0	428.3	428.0	427.3
37.5°	415.6	415.6	416.0	416.6
40°	402.0	402.0	402.6	402.6
42.5°	385.6	387.3	388.3	386.6
45°	371.0	371.3	371.6	371.3
47.5°	354.6	353.6	354.0	354.6
50°	334.3	336.7	336.7	334.7
52.5°	314.7	315.3	316.7	316.7
55°	295.3	295.7	296.0	296.7
57.5°	273.3	273.7	273.7	273.3
60°	251.3	253.3	253.0	253.3
62.5°	227.7	230.7	231.7	231.3
65°	205.3	206.0	207.7	210.0
67.5°	181.7	183.3	186.0	185.3
70°	158.3	160.7	161.3	162.7
72.5°	135.0	138.0	138.7	139.3
75°	112.3	113.7	115.0	114.7
77.5°	87.7	89.7	92.0	90.7
80°	65.7	66.0	68.0	67.3
82.5°	43.3	46.0	46.0	44.7
85°	25.3	25.3	25.3	25.3
87.5°	8.7	8.3	9.0	8.7
90°	0.0	0.0	0.0	0.0



TEST NUMBER: P243327

CATALOG NUMBER: S123DRP-H560D835-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	17.96	19.52	18.33	19.84	20.15	18.49	20.05	18.86	20.37	20.68
	3H	19.48	20.89	19.86	21.21	21.58	19.83	21.24	20.21	21.56	21.93
	4H	20.03	21.35	20.43	21.70	22.07	20.29	21.61	20.69	21.95	22.33
	6H	20.39	21.61	20.80	21.98	22.37	20.59	21.81	21.00	22.17	22.57
	8H	20.49	21.65	20.92	22.04	22.44	20.66	21.83	21.09	22.22	22.62
	12H	20.54	21.65	20.97	22.04	22.46	20.70	21.81	21.13	22.20	22.62
4H	2H	19.13	20.45	19.53	20.79	21.17	19.29	20.60	19.69	20.95	21.33
	3H	20.69	21.78	21.10	22.18	22.58	21.08	22.17	21.49	22.57	22.97
	4H	21.28	22.27	21.71	22.68	23.12	21.64	22.63	22.07	23.04	23.48
	6H	21.71	22.57	22.16	23.01	23.47	22.01	22.87	22.46	23.31	23.77
	8H	21.83	22.63	22.29	23.08	23.54	22.10	22.90	22.56	23.35	23.81
	12H	21.90	22.62	22.38	23.10	23.57	22.15	22.87	22.63	23.35	23.82
8H	4H	21.74	22.55	22.21	22.99	23.46	21.94	22.75	22.41	23.19	23.66
	6H	22.24	22.91	22.74	23.40	23.88	22.45	23.12	22.95	23.61	24.08
	8H	22.41	23.00	22.92	23.51	24.00	22.60	23.20	23.11	23.71	24.19
	12H	22.52	23.05	23.03	23.54	24.11	22.70	23.23	23.21	23.72	24.28
12H	4H	21.79	22.51	22.27	22.99	23.46	21.96	22.68	22.44	23.15	23.62
	6H	22.31	22.91	22.83	23.42	23.91	22.49	23.08	23.00	23.59	24.08
	8H	22.52	23.05	23.03	23.54	24.10	22.69	23.22	23.20	23.71	24.27