

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: P242487

Luminaire Tested: S123DRP-S560D940-X4F0-XX-UDD-A-W

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-2024
Report Number: P242487
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-S560D940-X4F0-XX-UDD-A-W
Description: DEFINE 3 DIRECT RECESSED WITH ASYMMETRIC FLUSH DIFFUSER
STANDARD LIGHT ENGINE
Light Source: (92) 4000K CCT, 90 CRI LEDS
Ballast/Driver: -

Summary

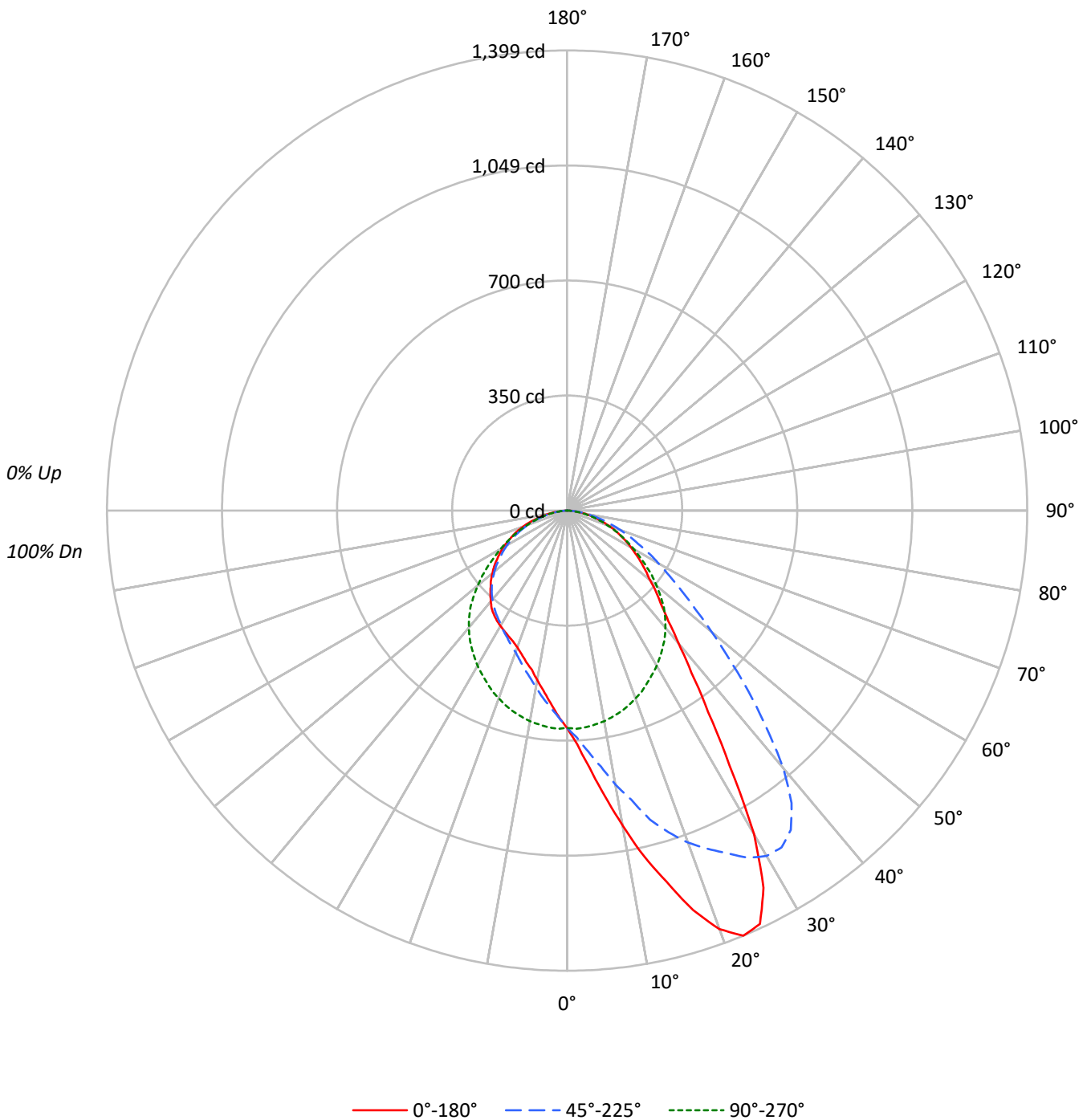
Lumens per Lamp: N/A
Luminaire Lumens: 1994.3 lumens
Efficiency: N/A
Efficacy: 106.1 lumens/watt
Spacing Criteria (0/90/45): 1.37 / 1.23 / 1.5
Luminous Opening: Rectangular (W 3.88' x L: 0.23' x H: 0')
CIE Type: Direct

Input Watts (W): 18.8
Input Voltage (V): 120
Input Current (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: P242487

CATALOG NUMBER: S123DRP-S560D940-X4F0-XX-UDD-A-W

Luminous Intensity Polar Plot



TEST NUMBER: P242487

CATALOG NUMBER: S123DRP-S560D940-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																												
1	110	105	101	98	107	103	99	96	99	96	93	95	92	90	91	89	87	85																												
2	100	93	86	81	98	91	85	80	87	82	78	84	80	76	81	78	74	72																												
3	92	82	74	68	89	80	73	67	77	71	66	75	69	65	72	68	64	62																												
4	84	73	65	58	82	72	64	58	69	62	57	67	61	56	65	60	56	53																												
5	78	66	57	51	76	64	56	50	62	55	50	60	54	49	59	53	49	47																												
6	72	59	51	44	70	58	50	44	56	49	44	55	48	43	53	48	43	41																												
7	67	54	45	39	65	53	45	39	52	44	39	50	44	39	49	43	38	36																												
8	62	49	41	35	61	49	41	35	47	40	35	46	39	35	45	39	35	33																												
9	58	45	37	32	57	45	37	32	43	36	32	42	36	31	41	36	31	29																												
10	55	42	34	29	53	41	34	29	40	33	29	39	33	29	38	33	28	27																												

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°	135°	180°
0°	8008	8008	8008	8008	8008
5°	9550	8950	8044	7283	7128
10°	11955	10405	8003	6710	6438
15°	14662	12204	7938	6259	5993
20°	17467	13858	7838	5905	5707
25°	18547	15370	7716	5732	5643
30°	15897	16972	7625	5624	5673
35°	11057	17536	7499	5604	5731
40°	8328	16189	7350	5592	5714
45°	6915	13390	7128	5554	5641
50°	6193	10805	6677	5446	5589
55°	5790	8964	6190	5290	5520
60°	5433	7753	5680	5137	5464
65°	5105	6823	5177	4876	5289
70°	4788	6092	4607	4480	5036
75°	4290	5278	4032	4004	4618
80°	3755	4335	3309	3239	3979
85°	2934	3380	2406	2364	2670

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 55°
 Vertical Angle: 45°
 Luminance: 15825 cd/sqm



TEST NUMBER: P242487

CATALOG NUMBER: S123DRP-S560D940-X4F0-XX-UDD-A-W

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	65.0	3.3
10°-20°	208.7	10.5
20°-30°	351.2	17.6
30°-40°	396.9	19.9
40°-50°	355.5	17.8
50°-60°	286.9	14.4
60°-70°	199.9	10.0
70°-80°	104.9	5.3
80°-90°	25.1	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°	624.9	31.3
0°-40°	1021.8	51.2
0°-60°	1664.2	83.5
0°-90°	1994.3	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1994.3	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	661	661	661	661	661	
5°	785	736	661	599	586	81
15°	1168	972	633	499	478	337
25°	1387	1149	577	429	422	613
35°	747	1185	507	379	387	482
45°	403	781	416	324	329	318
55°	274	424	293	250	261	246
65°	178	238	180	170	184	177
75°	92	113	86	86	99	98
85°	21	24	17	17	19	26
90°	0	0	0	0	0	



TEST NUMBER: P242487

CATALOG NUMBER: S123DRP-S560D940-X4F0-XX-UDD-A-W

CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
0°	660.7	660.7	660.7	660.7	660.7	660.7	660.7	660.7	660.7	660.7	660.7
2.5°	711.3	710.7	709.1	710.4	707.8	704.3	703.9	700.7	691.5	690.8	688.3
5°	784.9	782.4	782.1	781.7	777.3	771.2	759.7	758.7	743.3	735.6	726.4
7.5°	873.9	873.0	870.4	867.5	852.5	845.1	834.2	820.2	802.2	784.9	774.1
10°	971.3	981.8	968.7	959.7	951.4	935.7	917.5	894.7	872.0	845.4	825.3
12.5°	1075.6	1079.5	1079.5	1071.1	1057.0	1031.1	995.3	969.7	949.2	900.5	883.2
15°	1168.4	1188.0	1175.5	1146.7	1147.3	1124.6	1082.3	1035.9	1011.3	972.5	919.7
17.5°	1273.4	1277.0	1273.1	1246.2	1233.1	1200.1	1162.0	1118.8	1072.4	1025.4	970.6
20°	1354.1	1352.2	1341.0	1328.5	1301.0	1276.6	1234.1	1184.5	1120.4	1074.3	1013.2
22.5°	1398.9	1395.4	1391.6	1381.6	1359.9	1333.3	1296.2	1240.8	1180.6	1112.7	1039.8
25°	1386.8	1390.9	1391.6	1388.7	1380.7	1365.0	1334.9	1291.7	1230.9	1149.2	1075.6
27.5°	1292.7	1303.2	1316.7	1325.6	1340.0	1349.6	1340.0	1312.8	1262.9	1189.9	1099.3
30°	1135.8	1123.0	1154.7	1194.7	1221.9	1269.9	1296.8	1298.4	1273.1	1212.6	1124.9
32.5°	918.1	938.9	948.5	1000.1	1067.6	1123.0	1183.2	1236.6	1249.1	1213.9	1140.0
35°	747.2	764.8	790.4	816.0	880.0	935.1	1029.2	1111.1	1176.5	1185.1	1138.0
37.5°	621.0	631.3	647.0	674.2	718.0	786.2	860.8	967.4	1057.4	1120.7	1114.3
40°	526.3	528.8	547.1	566.6	600.6	654.3	720.0	811.5	924.8	1023.1	1064.1
42.5°	455.2	461.6	466.7	485.3	510.6	547.7	607.6	679.3	780.8	897.6	987.6
45°	403.4	409.8	414.6	427.0	446.3	473.5	516.0	585.2	664.3	781.1	889.0
47.5°	367.5	366.9	371.0	380.9	394.7	416.5	447.9	493.9	569.8	667.5	780.5
50°	328.4	333.6	334.8	342.2	352.5	367.5	392.5	430.2	489.8	573.0	674.8
52.5°	300.9	301.6	305.7	310.5	319.2	330.0	350.9	378.4	421.9	489.8	581.3
55°	274.0	274.0	277.5	281.7	286.8	297.4	311.8	333.6	369.1	424.2	501.6
57.5°	249.1	250.3	253.5	254.5	259.0	266.3	278.8	296.1	323.3	367.8	431.8
60°	224.1	227.0	226.6	229.2	233.0	238.5	248.7	262.2	285.9	319.8	371.7
62.5°	202.3	201.4	201.4	204.6	208.4	213.5	219.3	230.5	249.7	278.8	321.1
65°	178.0	177.3	179.6	181.5	182.8	186.6	191.8	202.0	215.4	237.9	272.1
67.5°	156.9	154.9	156.5	157.2	159.4	162.6	167.7	174.1	185.0	203.9	231.4
70°	135.1	133.5	133.2	133.8	135.7	138.0	141.5	147.6	157.5	171.9	190.8
72.5°	112.7	111.7	111.7	113.3	114.0	115.2	117.5	122.9	130.3	140.2	157.5
75°	91.6	91.6	91.6	91.9	92.8	94.1	96.0	98.9	105.0	112.7	124.5
77.5°	72.3	72.7	72.0	71.7	73.3	73.9	74.3	77.5	81.0	86.8	96.0
80°	53.8	52.2	52.8	53.8	54.4	54.7	55.7	56.3	59.2	62.1	68.2
82.5°	36.5	35.2	35.2	36.8	36.8	37.1	38.1	39.1	39.7	42.3	44.8
85°	21.1	21.1	21.4	21.4	21.8	21.4	22.4	22.7	22.7	24.3	26.3
87.5°	9.6	9.0	9.3	9.6	9.3	9.6	9.9	10.2	10.6	10.9	11.2
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: P242487

CATALOG NUMBER: S123DRP-S560D940-X4F0-XX-UDD-A-W

CANDELA DISTRIBUTION (continued):

	55°	60°	65°	70°	75°	80°	85°	90°	95°	100°	105°
0°	660.7	660.7	660.7	660.7	660.7	660.7	660.7	660.7	660.7	660.7	660.7
2.5°	686.3	683.8	681.2	676.7	672.9	667.5	665.9	663.9	658.2	653.1	649.2
5°	722.8	715.2	703.9	693.7	685.4	674.2	667.8	661.1	651.4	642.8	635.8
7.5°	757.7	744.3	728.6	711.6	695.3	679.6	667.1	655.9	643.4	631.3	622.0
10°	800.9	779.2	754.8	728.6	706.2	684.4	666.2	650.2	632.9	617.8	605.4
12.5°	850.2	815.4	779.5	746.2	718.7	686.3	663.3	641.8	621.7	602.8	588.4
15°	887.1	846.1	806.4	762.5	722.2	684.4	658.2	632.6	609.8	591.3	573.3
17.5°	923.6	878.7	828.2	775.3	728.0	684.4	648.6	621.0	593.2	570.8	553.5
20°	953.6	900.8	841.6	786.2	732.4	682.5	642.2	607.6	576.9	552.9	532.7
22.5°	979.6	915.6	853.8	793.6	732.1	677.4	630.3	594.5	560.5	537.2	515.4
25°	995.9	922.0	860.5	791.0	724.1	668.4	617.2	576.9	543.6	516.0	493.9
27.5°	1011.3	921.0	851.5	776.6	714.5	659.1	604.1	560.9	526.0	496.2	473.5
30°	1026.6	922.6	835.8	761.9	699.1	641.5	588.4	544.8	507.7	477.3	456.2
32.5°	1036.2	921.6	821.4	741.4	674.8	625.5	571.4	526.0	487.5	457.8	437.6
35°	1038.8	916.2	804.5	711.6	648.2	598.6	553.5	506.8	466.7	438.9	415.8
37.5°	1033.4	906.3	785.9	684.7	616.2	566.9	527.6	487.5	449.1	418.1	397.9
40°	1015.7	896.7	763.5	655.9	582.9	535.9	503.6	464.5	426.7	397.6	379.0
42.5°	982.1	877.1	738.8	623.9	548.4	501.3	472.2	441.1	405.9	379.0	360.5
45°	923.2	847.0	714.2	591.9	514.4	465.8	439.5	415.8	383.5	356.9	340.9
47.5°	848.0	806.4	678.7	558.3	478.9	431.8	404.3	384.8	359.5	338.0	322.4
50°	768.9	753.9	642.5	523.7	443.4	397.6	371.3	354.1	337.1	315.6	301.6
52.5°	677.7	693.1	600.2	487.9	407.2	362.4	338.0	325.2	310.2	293.6	281.7
55°	593.2	626.8	550.3	446.9	371.3	328.4	305.1	292.9	283.9	270.8	260.3
57.5°	511.2	554.1	498.4	405.6	336.1	298.7	275.6	261.9	256.1	248.7	240.1
60°	439.8	482.1	442.1	364.0	300.6	265.4	245.5	234.3	228.6	223.8	216.7
62.5°	376.1	419.0	387.0	321.7	265.7	233.7	217.0	206.2	202.0	200.1	194.3
65°	318.8	355.7	333.2	277.5	232.7	203.9	188.2	180.5	176.4	175.4	171.6
67.5°	269.2	297.7	280.4	238.5	202.0	175.7	162.0	155.3	151.7	151.4	148.2
70°	220.6	246.8	234.3	197.2	166.8	147.3	135.7	130.0	128.0	127.7	126.1
72.5°	182.8	199.1	189.8	160.4	138.6	121.3	113.6	107.6	105.3	106.0	105.0
75°	140.9	154.6	148.9	127.4	108.5	97.0	90.0	86.1	84.2	85.2	83.9
77.5°	107.6	117.2	111.4	95.1	82.9	74.3	68.8	66.3	64.3	64.3	63.7
80°	76.5	81.6	78.8	69.8	60.2	53.1	49.0	47.4	46.4	46.1	45.8
82.5°	49.0	53.1	49.6	44.2	38.4	34.9	33.0	30.7	30.1	30.4	30.1
85°	27.5	29.1	27.9	24.0	21.4	19.5	18.2	17.3	16.6	17.0	16.3
87.5°	11.8	12.2	11.2	9.9	9.3	8.3	8.3	7.7	7.0	7.0	6.7
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: P242487

CATALOG NUMBER: S123DRP-S560D940-X4F0-XX-UDD-A-W

CANDELA DISTRIBUTION (continued):

	110°	115°	120°	125°	130°	135°	140°	145°	150°	155°	160°
0°	660.7	660.7	660.7	660.7	660.7	660.7	660.7	660.7	660.7	660.7	660.7
2.5°	647.0	644.7	641.5	636.7	632.9	626.8	626.8	627.8	627.8	627.4	626.8
5°	630.0	625.2	619.4	612.7	605.7	598.6	597.3	594.8	592.9	591.6	590.0
7.5°	612.7	604.7	596.7	587.4	579.4	572.7	567.9	563.7	561.2	558.3	556.1
10°	595.1	584.5	574.6	564.7	553.8	545.2	539.7	535.9	533.0	530.4	529.2
12.5°	574.3	561.8	550.6	541.3	529.2	520.2	515.1	513.8	510.3	504.2	501.0
15°	554.1	542.9	529.8	515.4	509.6	498.8	492.7	489.8	487.9	483.7	482.4
17.5°	537.5	522.4	507.4	496.8	486.3	477.6	474.1	470.3	467.7	463.9	462.9
20°	516.7	503.6	490.1	478.6	467.4	457.8	454.9	452.3	449.8	448.2	446.9
22.5°	495.6	482.4	471.9	461.3	449.1	443.7	440.5	437.6	436.0	435.0	433.8
25°	476.0	464.5	452.0	442.4	432.8	428.6	426.7	425.1	423.8	422.2	421.9
27.5°	458.7	445.9	435.4	426.1	419.0	415.5	413.3	412.3	412.3	413.0	413.3
30°	438.9	427.4	419.0	411.4	405.0	401.8	401.4	401.4	402.7	403.0	403.7
32.5°	420.6	411.7	403.4	396.0	391.5	389.6	391.2	391.2	392.2	393.1	394.4
35°	403.0	394.7	388.3	381.9	377.7	378.7	379.3	380.0	381.6	383.5	384.8
37.5°	386.4	378.7	372.0	366.9	364.3	366.2	367.8	369.1	371.0	372.6	373.9
40°	368.1	362.7	356.3	351.8	352.5	353.4	354.7	356.3	357.9	358.9	360.1
42.5°	351.2	345.4	340.9	337.4	338.4	339.7	340.3	340.9	342.9	344.8	345.4
45°	333.9	329.4	324.9	322.7	323.3	324.0	324.6	325.6	327.2	328.4	328.8
47.5°	314.4	311.2	308.3	305.7	307.0	306.7	307.6	309.6	310.2	310.8	312.8
50°	295.8	292.9	289.4	288.8	288.8	288.8	289.1	291.6	291.6	292.9	294.2
52.5°	275.3	273.7	271.8	270.5	269.9	269.9	271.5	272.4	273.1	275.0	276.3
55°	255.1	253.2	251.3	250.3	249.7	250.3	252.9	253.5	255.1	256.1	257.1
57.5°	234.0	232.7	231.1	230.5	230.5	230.8	232.7	234.3	234.6	237.9	239.1
60°	213.2	211.0	209.7	209.7	209.0	211.9	211.3	214.5	215.1	217.0	219.3
62.5°	191.8	188.6	188.2	188.2	189.5	189.8	191.1	192.1	194.0	196.6	198.2
65°	168.4	166.8	169.0	168.7	168.1	170.0	170.0	171.6	173.5	175.7	179.3
67.5°	146.6	145.3	146.0	145.7	146.6	147.9	148.9	150.1	152.4	154.9	157.2
70°	124.5	125.5	123.9	125.2	126.1	126.4	127.1	129.0	131.6	133.2	135.7
72.5°	103.1	102.8	103.4	103.7	104.7	105.3	106.0	108.2	111.1	112.4	114.3
75°	82.6	82.3	83.2	83.2	84.8	85.5	86.1	87.1	89.6	91.6	93.2
77.5°	64.0	64.3	64.0	65.3	64.7	65.0	66.9	67.9	68.2	72.3	73.0
80°	45.5	46.1	46.4	46.7	47.1	46.4	48.7	49.6	49.6	51.9	53.5
82.5°	29.5	29.8	30.7	31.1	31.1	32.0	31.7	32.3	33.3	33.9	36.2
85°	16.3	17.3	17.6	17.3	17.6	17.0	17.9	18.2	18.6	18.6	18.6
87.5°	6.4	6.7	6.4	6.7	6.4	6.7	6.7	6.1	6.1	7.0	5.8
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: P242487

CATALOG NUMBER: S123DRP-S560D940-X4F0-XX-UDD-A-W

CANDELA DISTRIBUTION (continued):

	165°	170°	175°	180°
0°	660.7	660.7	660.7	660.7
2.5°	624.6	624.2	626.5	624.9
5°	588.1	589.0	585.8	585.8
7.5°	555.1	553.8	554.1	551.9
10°	525.3	523.4	522.8	523.1
12.5°	500.7	500.7	495.6	495.6
15°	482.4	476.3	475.7	477.6
17.5°	462.3	458.7	459.1	458.4
20°	446.9	445.0	444.7	442.4
22.5°	432.8	432.5	432.8	430.2
25°	421.6	423.2	421.9	421.9
27.5°	413.9	413.9	413.0	413.0
30°	405.0	404.6	405.3	405.3
32.5°	396.0	396.6	396.6	397.0
35°	386.7	387.0	388.0	387.3
37.5°	374.5	376.1	375.8	376.5
40°	360.5	361.4	361.1	361.1
42.5°	346.1	346.7	345.7	345.1
45°	330.0	329.4	330.4	329.1
47.5°	312.4	312.8	313.1	314.4
50°	294.8	296.8	296.8	296.4
52.5°	277.5	278.2	279.8	279.8
55°	259.6	260.3	260.9	261.2
57.5°	241.4	241.1	242.3	242.7
60°	221.8	221.8	224.4	225.4
62.5°	201.0	202.3	204.9	203.0
65°	180.9	183.4	183.1	184.4
67.5°	159.7	161.3	163.9	163.9
70°	138.3	139.9	141.2	142.1
72.5°	117.5	118.1	121.6	119.7
75°	95.4	97.6	99.6	98.6
77.5°	74.3	77.1	77.8	76.8
80°	55.7	55.4	57.3	57.0
82.5°	37.1	36.8	37.5	37.8
85°	19.8	20.8	19.5	19.2
87.5°	5.8	5.8	5.4	5.1
90°	0.0	0.0	0.0	0.0

TEST NUMBER: P242487

CATALOG NUMBER: S123DRP-S560D940-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	17.61	19.17	17.98	19.48	19.80	18.17	19.72	18.53	20.03	20.35
	3H	19.16	20.56	19.54	20.89	21.25	19.50	20.90	19.88	21.22	21.59
	4H	19.73	21.04	20.12	21.39	21.77	19.96	21.27	20.36	21.62	22.00
	6H	20.12	21.34	20.54	21.71	22.10	20.25	21.47	20.66	21.83	22.22
	8H	20.24	21.39	20.66	21.78	22.18	20.33	21.48	20.75	21.87	22.27
	12H	20.30	21.41	20.73	21.80	22.22	20.36	21.47	20.79	21.85	22.28
4H	2H	18.76	20.08	19.16	20.43	20.80	18.93	20.24	19.33	20.59	20.97
	3H	20.36	21.45	20.77	21.85	22.25	20.73	21.83	21.14	22.23	22.63
	4H	20.98	21.97	21.41	22.38	22.82	21.30	22.29	21.73	22.70	23.14
	6H	21.45	22.31	21.91	22.75	23.21	21.67	22.52	22.12	22.97	23.42
	8H	21.59	22.39	22.05	22.84	23.30	21.75	22.56	22.22	23.00	23.47
	12H	21.68	22.40	22.17	22.88	23.35	21.81	22.52	22.29	23.00	23.47
8H	4H	21.46	22.27	21.93	22.71	23.18	21.60	22.41	22.07	22.85	23.32
	6H	22.01	22.68	22.51	23.17	23.64	22.12	22.78	22.61	23.27	23.75
	8H	22.20	22.80	22.71	23.30	23.79	22.26	22.86	22.77	23.37	23.85
	12H	22.34	22.87	22.85	23.36	23.93	22.36	22.88	22.87	23.37	23.94
12H	4H	21.52	22.23	22.00	22.71	23.18	21.62	22.34	22.10	22.81	23.28
	6H	22.09	22.69	22.60	23.19	23.68	22.15	22.74	22.66	23.25	23.74
	8H	22.33	22.85	22.84	23.34	23.91	22.35	22.88	22.86	23.37	23.93