

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: P243160

Luminaire Tested: S122DRP-H485D840-X4F0-XX-UDD-A-W

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-2024
Report Number: P243160
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1802-639-58)
Test Lab: INNOVATION CENTER
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: S122DRP-H485D840-X4F0-XX-UDD-A-W
Description: DEFINE 2 DIRECT RECESSED WITH ASYMMETRIC FLUSH DIFFUSER.
HIGH PERFORMANCE LIGHT ENGINE
Light Source: (184) 4000K CCT, 80 CRI LEDS
Ballast/Driver: -

Summary

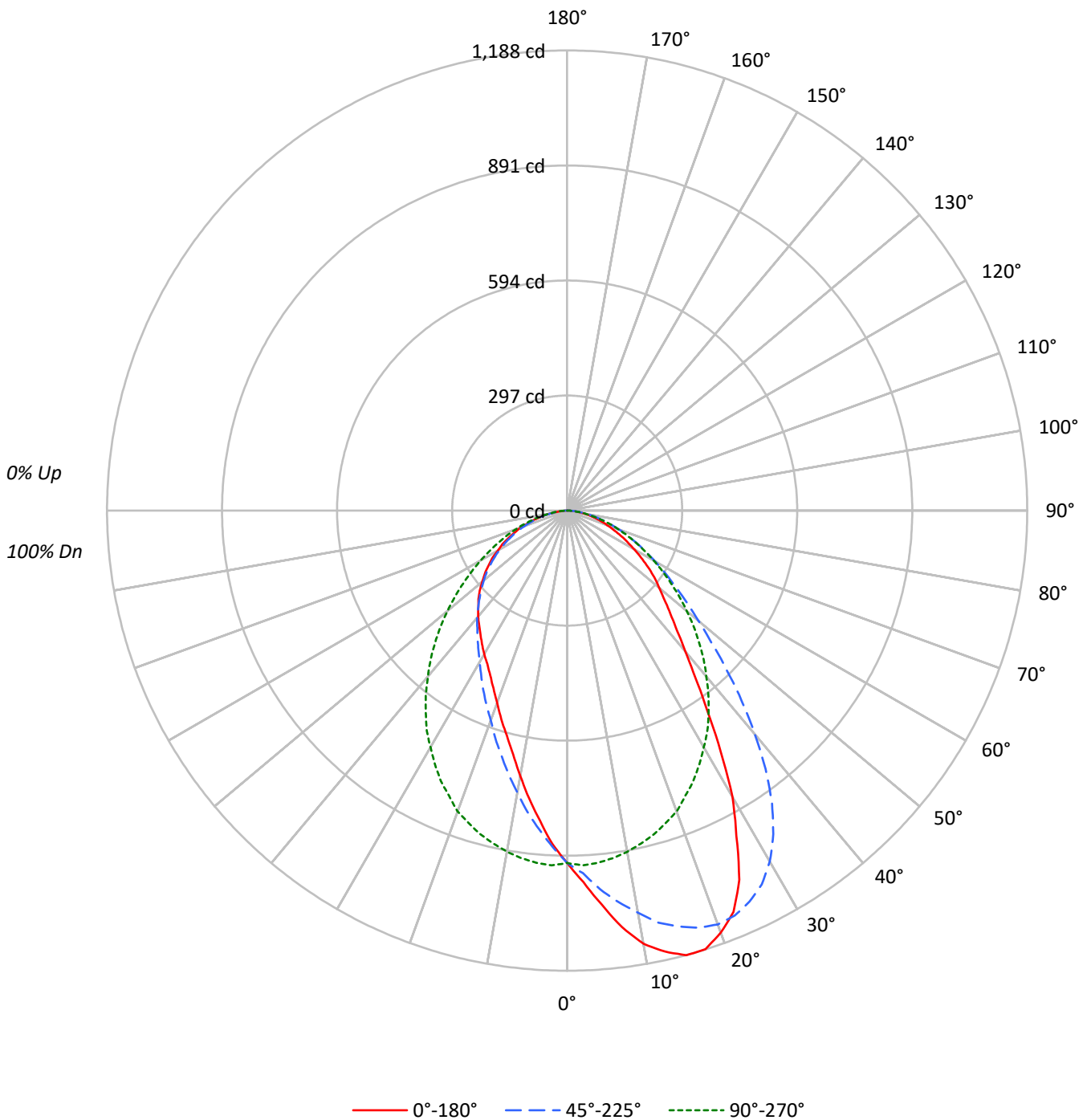
Lumens per Lamp: N/A
Luminaire Lumens: 2018.6 lumens
Efficiency: N/A
Efficacy: 117.4 lumens/watt
Spacing Criteria (0/90/45): 1.09 / 1.16 / 1.24
Luminous Opening: Rectangular (W 3.88' x L: 0.15' x H: 0')
CIE Type: Direct

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

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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	98	107	103	100	97	99	96	94	95	93	91	92	90	88					86				
2	101	93	87	82	98	92	86	81	88	83	79	85	81	77	82	79	76					74				
3	93	83	76	70	90	82	75	69	79	73	68	76	71	67	73	69	66					63				
4	86	74	66	60	83	73	66	60	71	64	59	68	63	58	66	61	57					55				
5	79	67	59	52	77	66	58	52	64	57	52	62	56	51	60	55	51					49				
6	73	61	52	46	72	60	52	46	58	51	46	57	50	45	55	49	45					43				
7	68	56	47	41	67	55	47	41	53	46	41	52	46	41	51	45	40					39				
8	64	51	43	37	62	50	43	37	49	42	37	48	41	37	47	41	37					35				
9	60	47	39	34	58	46	39	34	45	38	34	44	38	34	43	38	33					32				
10	56	44	36	31	55	43	36	31	42	35	31	41	35	31	40	35	31					29				

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°	135°	180°
0°	17328	17328	17328	17328	17328
5°	19518	18771	17451	15803	15373
10°	21970	20388	17295	14307	13454
15°	23437	21916	17063	12912	11857
20°	23503	23045	16753	11676	10701
25°	22105	23415	16196	10754	9863
30°	18763	23015	15521	9922	9418
35°	14670	21435	14796	9371	9066
40°	11786	18743	13905	8991	8889
45°	10139	15707	12987	8615	8725
50°	9198	13101	11951	8330	8481
55°	8475	11258	10889	8007	8252
60°	7619	9928	9813	7631	7874
65°	6860	8879	8816	7148	7495
70°	6115	7875	7836	6544	7012
75°	5498	6866	6741	5799	6145
80°	4804	5682	5430	4728	4804
85°	4131	4699	4043	3169	2644

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 65°
 Vertical Angle: 45°
 Luminance: 21720 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	86.7	4.3
10°-20°	249.1	12.3
20°-30°	362.3	17.9
30°-40°	388.6	19.3
40°-50°	348.3	17.3
50°-60°	277.7	13.8
60°-70°	187.8	9.3
70°-80°	95.8	4.7
80°-90°	22.4	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°	698.0	34.6
0°-40°	1086.6	53.8
0°-60°	1712.5	84.8
0°-90°	2018.6	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	2018.6	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	910	910	910	910	910	
5°	1021	982	913	826	804	101
15°	1188	1111	865	655	601	333
25°	1052	1114	771	512	469	473
35°	631	922	636	403	390	400
45°	376	583	482	320	324	294
55°	255	339	328	241	248	228
65°	152	197	196	159	166	151
75°	75	93	92	79	84	80
85°	19	22	18	14	12	22
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°	909.7	909.7	909.7	909.7	909.7	909.7	909.7	909.7	909.7	909.7	909.7
2.5°	960.2	963.2	960.5	959.5	957.5	956.8	951.4	947.1	944.4	937.0	937.6
5°	1020.8	1027.5	1023.8	1023.5	1016.1	1011.4	1006.7	999.9	989.8	981.7	975.3
7.5°	1084.8	1081.4	1080.4	1076.7	1071.3	1064.6	1054.1	1044.4	1031.6	1019.8	1011.0
10°	1135.9	1134.9	1136.6	1127.2	1123.8	1113.4	1104.3	1089.1	1072.6	1054.1	1042.7
12.5°	1166.2	1169.3	1171.6	1167.9	1159.8	1156.8	1141.7	1120.5	1114.7	1089.5	1075.7
15°	1188.5	1189.8	1190.1	1186.1	1182.1	1174.3	1165.2	1151.8	1133.2	1111.4	1100.9
17.5°	1187.1	1186.8	1188.8	1186.4	1184.1	1181.7	1174.7	1164.2	1149.7	1129.2	1111.7
20°	1159.5	1165.6	1170.3	1171.3	1171.0	1172.3	1168.9	1162.2	1151.8	1136.9	1117.1
22.5°	1121.8	1119.4	1129.5	1128.9	1133.2	1143.3	1147.7	1145.0	1141.0	1131.6	1115.7
25°	1051.8	1054.1	1061.2	1068.6	1085.8	1091.8	1105.0	1115.1	1116.4	1114.1	1104.3
27.5°	946.7	963.6	967.3	977.0	1000.9	1020.8	1047.4	1063.2	1085.8	1087.8	1083.4
30°	853.1	852.5	858.2	875.7	897.6	927.5	961.9	1002.6	1028.5	1046.4	1052.8
32.5°	738.0	740.7	755.5	777.0	799.3	829.2	869.0	918.8	953.5	990.5	1011.4
35°	630.9	639.3	653.5	668.3	692.5	733.6	777.7	819.1	872.3	921.8	955.5
37.5°	542.7	554.2	564.9	579.1	602.6	634.3	674.0	728.9	781.8	841.3	890.8
40°	474.0	478.4	485.8	499.6	515.4	547.1	587.2	628.2	685.5	753.8	818.8
42.5°	420.2	419.2	427.2	436.0	450.5	474.0	509.1	550.1	607.0	667.6	733.3
45°	376.4	376.7	380.1	389.2	400.6	414.1	441.0	479.8	522.9	583.1	652.8
47.5°	340.7	341.7	346.8	353.2	359.9	372.4	390.2	415.5	455.9	506.4	571.7
50°	310.4	312.1	315.5	320.2	325.2	334.0	347.4	367.3	399.3	442.1	501.3
52.5°	283.5	284.2	285.2	289.5	293.6	301.7	311.8	327.2	352.5	388.2	434.3
55°	255.2	254.5	256.9	260.6	264.3	270.0	280.4	292.9	310.8	339.0	377.1
57.5°	226.2	227.3	228.9	231.0	237.7	243.8	251.5	262.9	277.1	299.3	331.0
60°	200.0	200.0	202.0	204.7	209.1	213.1	220.5	231.0	243.4	260.6	287.2
62.5°	174.4	175.7	177.8	179.1	183.2	188.2	193.9	202.0	213.5	227.3	247.1
65°	152.2	151.5	153.5	156.2	159.2	162.6	169.0	175.7	184.5	197.0	213.5
67.5°	129.3	131.3	132.0	133.3	135.7	140.1	143.1	150.2	157.2	168.3	182.1
70°	109.8	111.1	112.1	113.8	115.8	117.8	120.9	126.6	133.7	141.4	151.2
72.5°	92.2	93.3	92.2	93.9	94.9	97.0	101.0	103.7	109.1	115.8	124.6
75°	74.7	75.4	75.1	76.8	77.1	79.1	81.1	83.5	89.6	93.3	99.3
77.5°	58.6	59.3	59.6	60.3	60.9	61.9	63.0	65.3	68.7	72.0	76.8
80°	43.8	43.8	44.8	45.1	45.5	46.1	47.8	48.5	50.8	51.8	55.6
82.5°	30.3	30.6	31.0	31.0	31.3	32.0	32.3	33.7	34.3	36.0	37.7
85°	18.9	19.2	19.2	19.2	20.2	19.9	19.9	20.5	21.5	21.5	22.2
87.5°	9.4	9.8	9.8	9.8	10.1	10.1	10.1	10.1	10.1	10.8	10.4
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):

	55°	60°	65°	70°	75°	80°	85°	90°	95°	100°	105°
0°	909.7	909.7	909.7	909.7	909.7	909.7	909.7	909.7	909.7	909.7	909.7
2.5°	937.3	937.0	935.6	929.6	924.8	918.8	917.8	916.8	908.3	899.3	896.6
5°	970.3	964.2	955.8	945.7	935.6	924.5	918.1	912.7	899.9	885.8	877.7
7.5°	1002.6	990.8	977.7	961.9	945.0	927.2	915.8	905.0	887.5	869.0	857.8
10°	1030.2	1014.4	996.2	975.3	952.1	927.9	911.0	894.2	872.0	849.4	834.6
12.5°	1053.1	1032.9	1009.0	980.7	959.5	926.2	902.6	880.4	855.8	826.5	810.4
15°	1070.6	1050.8	1018.4	989.8	961.9	917.4	888.8	865.3	832.3	803.6	778.1
17.5°	1091.8	1063.6	1031.6	990.5	959.5	908.7	876.4	845.7	810.0	776.4	748.1
20°	1101.3	1071.6	1037.3	991.5	952.1	899.3	856.2	826.5	783.4	744.7	712.7
22.5°	1102.6	1074.3	1037.0	988.5	939.3	885.5	836.0	797.2	754.2	713.1	677.1
25°	1096.9	1070.0	1031.2	983.1	925.2	870.6	815.4	770.6	720.8	678.4	641.7
27.5°	1081.4	1059.5	1022.8	971.3	910.7	847.7	787.5	738.7	689.5	641.4	606.4
30°	1056.5	1042.0	1010.4	955.8	892.2	822.8	762.6	705.7	652.5	607.4	569.7
32.5°	1024.5	1017.4	991.2	937.3	873.3	795.6	732.6	674.0	616.1	573.4	534.6
35°	983.8	987.5	965.2	916.4	849.4	768.0	697.6	636.3	579.8	534.3	498.6
37.5°	930.9	949.1	934.9	889.2	818.8	740.0	660.9	599.3	540.0	496.3	464.9
40°	871.6	903.6	896.9	858.5	785.8	707.4	625.5	559.2	501.3	459.9	429.9
42.5°	802.0	848.4	855.8	821.1	753.1	666.6	585.8	521.8	466.0	425.2	396.6
45°	723.8	781.4	806.3	779.1	715.1	627.2	545.1	482.1	426.9	392.2	368.3
47.5°	645.4	714.8	748.4	735.3	670.7	585.1	504.7	443.1	390.9	360.6	338.0
50°	568.0	642.4	691.5	682.8	626.9	545.1	463.9	403.3	355.5	327.6	308.4
52.5°	500.0	570.3	623.9	628.2	578.1	499.3	420.8	364.6	323.9	298.6	282.5
55°	433.0	498.3	556.9	567.6	526.9	451.1	381.1	327.9	290.9	270.0	256.9
57.5°	373.0	432.3	490.5	509.4	476.4	408.0	338.4	291.6	259.6	243.4	232.0
60°	322.2	375.7	425.9	445.1	422.5	360.2	299.3	257.6	231.0	216.5	207.4
62.5°	277.8	319.2	363.6	384.8	369.7	315.5	262.3	225.2	203.7	191.2	184.2
65°	237.7	269.7	304.7	329.3	312.4	272.0	227.6	195.6	177.4	166.0	160.9
67.5°	200.7	227.3	255.2	274.7	266.3	229.6	192.2	167.3	152.2	143.4	138.7
70°	167.0	186.9	209.4	224.6	218.5	190.2	160.6	140.7	127.9	121.9	117.8
72.5°	137.0	149.8	167.0	179.4	173.1	153.2	132.0	116.2	106.7	99.7	96.6
75°	108.7	119.9	132.0	140.4	135.3	120.5	103.7	91.6	85.2	80.8	78.8
77.5°	82.5	91.2	99.7	103.7	101.3	90.6	79.1	69.7	64.3	61.6	59.3
80°	59.3	64.3	70.0	73.7	72.4	65.0	56.9	49.5	47.1	43.8	43.1
82.5°	39.7	43.8	45.1	46.8	45.8	42.4	36.7	32.3	30.3	28.6	28.3
85°	23.6	24.6	26.3	26.3	25.3	22.9	19.9	18.5	16.5	16.2	15.2
87.5°	10.4	10.4	10.4	10.4	10.4	9.8	8.4	7.7	7.1	6.7	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°	909.7	909.7	909.7	909.7	909.7	909.7	909.7	909.7	909.7	909.7	909.7
2.5°	894.2	890.8	886.1	880.7	876.0	868.6	866.3	866.3	867.9	865.9	864.2
5°	871.0	864.2	857.5	847.1	838.3	826.5	823.2	819.8	819.5	816.1	811.7
7.5°	846.1	836.0	822.2	807.3	797.9	785.1	778.1	776.0	769.6	763.6	756.5
10°	817.1	801.6	785.1	771.0	756.2	739.7	731.3	725.5	719.1	711.7	706.7
12.5°	782.1	764.6	749.4	732.9	720.5	697.3	694.6	687.2	674.4	663.2	659.2
15°	760.5	729.9	712.7	697.6	678.7	654.8	646.1	638.0	625.9	618.8	613.1
17.5°	722.5	694.9	673.3	653.1	635.0	616.5	603.3	596.6	586.8	580.8	575.0
20°	687.8	657.9	635.3	611.7	592.9	576.0	564.9	556.5	551.5	545.4	539.7
22.5°	652.8	621.5	600.0	576.0	553.8	543.7	530.6	523.5	516.8	512.1	506.0
25°	612.1	587.2	560.2	541.7	522.2	511.7	499.3	492.6	487.2	481.8	478.8
27.5°	575.7	550.5	525.5	507.0	490.5	480.4	472.7	466.3	459.6	455.5	453.2
30°	538.0	514.8	492.9	475.0	462.3	451.1	446.4	440.4	435.3	433.6	429.9
32.5°	504.3	478.4	460.9	444.7	434.0	426.2	422.9	416.5	415.5	413.8	411.8
35°	470.7	448.4	431.6	417.8	408.7	403.0	398.6	396.9	395.3	393.6	391.9
37.5°	437.3	419.8	404.0	392.9	385.5	381.1	380.1	376.7	376.4	374.0	374.0
40°	407.4	389.5	378.4	369.7	363.6	361.6	358.9	358.2	357.2	356.5	357.9
42.5°	377.4	365.3	355.9	346.8	342.1	340.4	339.7	338.7	338.0	340.0	340.7
45°	349.5	339.0	331.0	324.6	321.9	319.8	319.8	320.9	320.5	321.5	321.5
47.5°	323.5	314.1	307.4	305.0	301.7	301.0	301.3	301.0	302.7	304.0	305.4
50°	299.0	290.5	285.2	282.8	282.1	281.1	282.5	283.1	284.2	285.5	286.2
52.5°	271.7	267.7	264.3	261.9	261.6	261.9	261.6	264.0	265.0	267.0	266.6
55°	248.5	245.4	243.1	240.4	240.0	241.1	241.7	243.8	245.1	246.8	246.4
57.5°	226.6	224.2	221.5	220.9	220.5	220.9	223.9	223.6	225.6	226.9	227.6
60°	202.7	201.0	198.6	198.6	199.6	200.3	201.3	203.0	205.0	204.7	207.1
62.5°	180.8	178.8	178.1	179.1	178.8	180.5	181.5	181.5	184.2	185.2	185.8
65°	158.9	158.2	157.2	157.2	158.2	158.6	160.3	161.3	162.3	164.3	166.0
67.5°	138.4	136.7	136.7	136.0	137.4	138.4	139.4	140.7	141.4	143.8	144.8
70°	116.8	116.2	115.8	116.5	116.5	117.5	119.2	120.9	122.2	122.5	124.6
72.5°	96.0	96.0	96.0	97.0	97.6	98.6	99.0	100.3	102.3	102.7	103.7
75°	77.1	77.4	77.1	77.4	77.8	78.8	79.5	80.8	82.1	82.5	83.2
77.5°	59.6	58.9	58.2	59.3	59.9	61.9	61.6	62.3	63.6	63.0	63.6
80°	41.7	42.8	41.4	43.4	43.4	43.1	43.8	44.8	44.4	45.1	44.4
82.5°	28.3	27.3	27.3	28.3	28.6	27.6	28.3	28.6	29.0	28.3	27.9
85°	15.5	15.2	15.8	14.8	15.2	14.5	14.5	13.8	14.5	13.8	13.1
87.5°	5.7	5.4	5.7	4.7	4.4	4.0	3.7	3.7	3.0	3.0	3.0
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: P243160

CATALOG NUMBER: S122DRP-H485D840-X4F0-XX-UDD-A-W

CANDELA DISTRIBUTION (continued):

	165°	170°	175°	180°
0°	909.7	909.7	909.7	909.7
2.5°	866.6	862.9	861.2	862.6
5°	807.0	808.0	802.0	804.0
7.5°	755.5	751.1	752.5	750.1
10°	701.0	698.6	694.9	695.6
12.5°	664.3	648.4	647.4	644.4
15°	612.7	604.0	602.0	601.3
17.5°	571.7	564.3	567.0	564.9
20°	534.6	535.0	530.6	527.9
22.5°	502.0	501.3	499.6	496.9
25°	474.4	474.4	470.3	469.3
27.5°	449.1	449.8	446.4	446.4
30°	430.3	427.9	427.6	428.2
32.5°	411.4	408.7	409.1	408.7
35°	391.2	391.9	390.9	389.9
37.5°	374.0	374.0	374.0	373.0
40°	357.2	357.9	356.9	357.5
42.5°	340.4	340.7	340.7	339.4
45°	323.5	323.2	322.5	323.9
47.5°	306.0	306.0	305.7	306.4
50°	286.8	287.5	286.5	286.2
52.5°	267.3	267.7	267.3	268.0
55°	247.5	247.5	247.8	248.5
57.5°	226.9	229.3	227.6	228.9
60°	206.7	207.1	207.4	206.7
62.5°	187.5	187.2	187.5	188.5
65°	166.7	167.3	167.0	166.3
67.5°	146.1	145.4	146.5	145.4
70°	124.2	125.6	124.6	125.9
72.5°	104.4	104.0	104.7	103.0
75°	83.5	83.5	83.8	83.5
77.5°	64.0	63.3	63.0	61.9
80°	44.1	44.1	42.8	43.8
82.5°	26.9	27.3	27.6	25.6
85°	12.8	12.8	12.5	12.1
87.5°	2.7	2.7	3.0	3.4
90°	0.0	0.0	0.0	0.0

TEST NUMBER: P243160

CATALOG NUMBER: S122DRP-H485D840-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	18.56	20.08	18.92	20.39	20.71	21.40	22.92	21.76	23.23	23.55
	3H	19.91	21.28	20.29	21.60	21.97	22.42	23.78	22.79	24.11	24.47
	4H	20.40	21.68	20.80	22.03	22.40	22.74	24.02	23.14	24.37	24.75
	6H	20.75	21.93	21.16	22.30	22.69	22.94	24.12	23.35	24.49	24.88
	8H	20.85	21.98	21.28	22.37	22.77	22.98	24.11	23.41	24.50	24.90
	12H	20.92	22.00	21.35	22.38	22.81	23.00	24.08	23.43	24.46	24.89
4H	2H	19.44	20.72	19.84	21.07	21.45	21.64	22.92	22.04	23.27	23.65
	3H	20.94	22.00	21.35	22.40	22.80	23.01	24.07	23.42	24.47	24.87
	4H	21.51	22.46	21.94	22.88	23.32	23.52	24.48	23.95	24.89	25.33
	6H	21.94	22.78	22.40	23.22	23.68	23.85	24.69	24.31	25.13	25.59
	8H	22.08	22.86	22.54	23.30	23.77	23.93	24.71	24.39	25.15	25.62
	12H	22.18	22.87	22.66	23.35	23.82	23.97	24.66	24.45	25.14	25.61
8H	4H	21.94	22.72	22.41	23.16	23.63	23.66	24.44	24.12	24.88	25.35
	6H	22.47	23.11	22.96	23.60	24.08	24.10	24.74	24.60	25.23	25.71
	8H	22.65	23.23	23.17	23.74	24.23	24.23	24.81	24.75	25.32	25.81
	12H	22.81	23.32	23.32	23.81	24.37	24.32	24.83	24.83	25.32	25.89
12H	4H	22.00	22.69	22.48	23.17	23.64	23.65	24.35	24.13	24.83	25.30
	6H	22.54	23.12	23.06	23.63	24.12	24.10	24.68	24.62	25.19	25.68
	8H	22.78	23.29	23.29	23.78	24.35	24.28	24.79	24.79	25.28	25.85