

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: P243504

Luminaire Tested: S124DRP-H575D840-X4F0-XX-UDD-A-W

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-2024
Report Number: P243504
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1802-639-60)
Test Lab: INNOVATION CENTER
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: S124DRP-H575D840-X4F0-XX-UDD-A-W
Description: DEFINE 4 DIRECT RECESSED WITH ASYMMETRIC FLUSH DIFFUSER.
HIGH PERFORMANCE LIGHT ENGINE
Light Source: (184) 4000K CCT, 80 CRI LEDS
Ballast/Driver: -

Summary

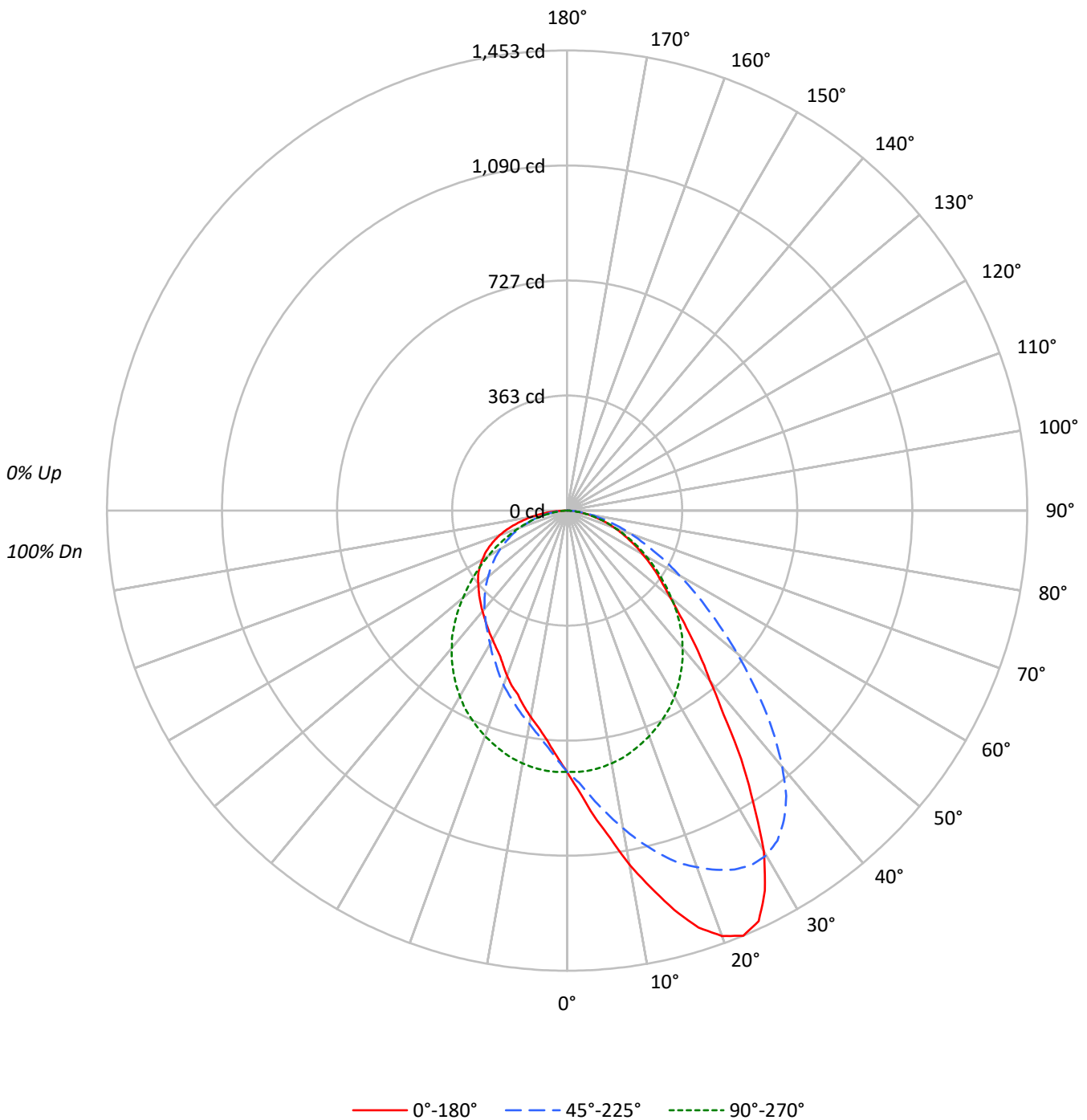
Lumens per Lamp: N/A
Luminaire Lumens: 2364.9 lumens
Efficiency: N/A
Efficacy: 137.5 lumens/watt
Spacing Criteria (0/90/45): 1.35 / 1.22 / 1.45
Luminous Opening: Rectangular (W 3.88' x L: 0.31' x H: 0')
CIE Type: Direct

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	109	105	101	97	107	103	99	96	98	95	93	94	92	90	91	89	87	85					85			
2	100	92	86	80	97	90	84	79	87	82	77	83	79	76	80	77	74	72					72			
3	92	81	74	67	89	80	73	67	77	71	66	74	69	64	72	67	63	61					61			
4	84	73	64	58	82	71	63	57	69	62	56	66	60	56	64	59	55	53					53			
5	78	65	56	50	75	64	56	50	62	55	49	60	54	49	58	53	48	46					46			
6	72	59	50	44	70	58	50	44	56	49	43	54	48	43	53	47	43	41					41			
7	67	53	45	39	65	53	45	39	51	44	38	50	43	38	48	42	38	36					36			
8	62	49	41	35	61	48	40	35	47	40	35	46	39	34	44	39	34	32					32			
9	58	45	37	31	57	44	37	31	43	36	31	42	36	31	41	35	31	29					29			
10	54	41	34	29	53	41	34	28	40	33	28	39	33	28	38	32	28	26					26			

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°	135°	180°
0°	7331	7331	7331	7331	7331
5°	8627	8134	7350	6644	6488
10°	10252	9198	7317	6174	5973
15°	12007	10316	7252	5836	5533
20°	13520	11336	7168	5544	5248
25°	14032	12266	7072	5230	4939
30°	12743	12902	6952	4997	4830
35°	10396	12953	6788	4829	4800
40°	8140	12262	6573	4715	4820
45°	6813	11057	6309	4608	4909
50°	5847	9669	5939	4507	5056
55°	5342	8378	5540	4429	5300
60°	4896	7271	5129	4357	5493
65°	4488	6301	4695	4213	5706
70°	4130	5520	4234	4078	5879
75°	3675	4753	3723	3805	5873
80°	3066	3860	3051	3517	5861
85°	2336	2886	2305	3162	5497

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 50°
 Vertical Angle: 45°
 Luminance: 11556 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	80.3	3.4
10°-20°	248.6	10.5
20°-30°	399.4	16.9
30°-40°	456.6	19.3
40°-50°	420.3	17.8
50°-60°	343.8	14.5
60°-70°	245.0	10.4
70°-80°	134.6	5.7
80°-90°	36.2	1.5
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°	728.3	30.8
0°-40°	1184.9	50.1
0°-60°	1949.0	82.4
0°-90°	2364.9	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	2364.9	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	825	825	825	825	825	
5°	967	912	824	745	727	97
15°	1305	1121	788	634	601	372
25°	1431	1251	721	533	504	642
35°	958	1194	626	445	442	595
45°	542	880	502	367	390	423
55°	345	541	358	286	342	309
65°	213	300	223	200	271	213
75°	107	138	108	111	171	114
85°	23	28	23	31	54	27
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°	824.7	824.7	824.7	824.7	824.7	824.7	824.7	824.7	824.7	824.7	824.7
2.5°	888.0	885.3	884.0	882.3	882.0	880.3	876.9	872.2	866.1	859.8	859.8
5°	966.8	966.1	961.1	961.4	955.0	947.9	942.6	935.8	922.7	911.6	903.8
7.5°	1042.2	1049.3	1047.6	1042.2	1032.8	1022.7	1011.9	1002.5	978.2	964.8	953.7
10°	1135.8	1138.5	1133.8	1126.0	1117.6	1098.1	1083.9	1068.1	1041.9	1019.0	998.8
12.5°	1217.9	1224.3	1215.9	1208.5	1188.6	1174.2	1160.0	1128.4	1100.8	1071.8	1042.5
15°	1304.8	1298.0	1302.4	1284.2	1270.1	1256.3	1220.3	1188.0	1156.7	1121.0	1090.3
17.5°	1380.2	1380.2	1372.1	1360.3	1345.5	1319.6	1283.6	1247.9	1213.2	1166.4	1123.0
20°	1429.3	1433.0	1423.6	1411.2	1393.3	1366.4	1337.8	1299.1	1252.9	1198.4	1149.3
22.5°	1452.9	1453.6	1450.2	1439.8	1425.3	1402.4	1373.1	1335.4	1286.6	1228.0	1176.5
25°	1430.7	1434.4	1433.4	1432.7	1425.3	1412.2	1388.6	1353.6	1309.2	1250.6	1195.0
27.5°	1352.6	1361.7	1369.4	1372.8	1380.9	1381.5	1374.5	1353.3	1316.9	1261.7	1199.7
30°	1241.5	1236.8	1257.6	1268.1	1295.7	1312.2	1324.0	1322.6	1301.7	1257.0	1198.1
32.5°	1093.4	1106.2	1121.0	1145.5	1178.2	1216.6	1245.5	1267.1	1265.1	1235.8	1186.6
35°	958.0	958.0	976.9	1007.2	1041.9	1088.0	1136.5	1176.5	1201.1	1193.7	1159.0
37.5°	811.3	820.4	841.9	865.5	907.9	952.3	1016.3	1069.5	1121.0	1136.5	1118.6
40°	701.5	705.6	728.5	748.3	791.8	837.9	891.4	959.4	1018.6	1056.7	1059.0
42.5°	620.1	619.7	629.2	647.0	682.0	723.1	781.0	847.6	917.0	970.8	996.1
45°	542.0	541.3	551.1	569.2	594.2	630.5	680.7	747.3	818.3	879.6	919.3
47.5°	476.0	482.1	486.4	500.6	521.1	552.1	595.2	648.3	716.7	785.4	838.9
50°	422.8	425.5	434.9	441.7	464.5	486.1	520.8	568.6	627.1	699.2	757.1
52.5°	380.4	382.1	387.8	396.5	409.7	428.5	456.1	500.2	553.1	615.7	675.6
55°	344.7	343.7	347.4	353.1	364.6	380.4	400.6	434.3	480.4	540.6	595.8
57.5°	309.7	309.7	313.1	317.1	323.5	336.6	356.5	383.1	420.1	473.6	522.4
60°	275.4	277.7	279.1	283.1	288.5	298.3	313.1	333.9	365.2	409.0	457.5
62.5°	245.1	245.1	247.4	248.8	255.8	262.9	273.7	291.5	316.1	355.1	392.8
65°	213.4	215.4	215.4	218.1	224.2	229.6	238.0	251.5	271.7	299.6	334.9
67.5°	186.5	186.5	188.2	189.5	192.9	196.6	204.0	214.4	231.6	253.8	285.8
70°	158.9	159.9	159.2	160.9	162.9	166.6	172.0	180.8	193.2	212.4	236.0
72.5°	134.0	132.6	133.3	135.0	136.0	138.4	141.7	148.5	158.6	174.0	191.2
75°	107.0	106.4	108.7	108.1	109.7	111.8	114.8	119.8	127.6	138.4	151.5
77.5°	83.5	82.5	83.5	84.2	84.8	86.5	88.9	91.9	97.3	104.4	116.1
80°	59.9	59.6	60.3	60.9	61.3	64.0	64.6	67.7	70.0	75.4	81.1
82.5°	39.7	40.4	40.7	41.4	41.1	42.4	43.1	45.1	47.1	49.8	54.2
85°	22.9	21.9	22.9	22.9	22.9	24.6	24.2	25.6	26.9	28.3	31.3
87.5°	8.1	8.1	8.4	8.8	8.8	9.8	9.4	10.1	11.4	11.4	12.5
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°	824.7	824.7	824.7	824.7	824.7	824.7	824.7	824.7	824.7	824.7	824.7
2.5°	857.7	854.0	851.3	843.6	838.9	834.5	830.5	826.1	821.4	815.3	811.6
5°	895.8	887.7	875.9	865.1	853.0	842.2	833.5	823.7	813.0	801.9	792.1
7.5°	937.8	922.7	904.5	884.7	865.8	850.0	833.5	818.0	802.9	788.0	774.2
10°	979.9	953.7	929.8	902.5	877.6	853.7	832.1	810.6	791.8	772.2	754.7
12.5°	1019.0	987.3	952.3	918.3	885.0	854.0	827.4	801.2	776.9	753.7	733.2
15°	1048.9	1009.2	967.8	927.4	889.0	856.7	822.0	788.0	762.8	734.5	712.0
17.5°	1083.3	1036.1	995.1	946.6	898.8	846.6	809.9	772.9	742.6	715.3	692.8
20°	1106.2	1054.3	995.1	940.2	891.1	844.3	800.2	757.8	725.8	694.1	666.9
22.5°	1124.3	1070.8	1005.5	948.3	886.7	830.1	782.3	740.6	702.9	672.9	647.0
25°	1133.8	1068.5	1006.2	936.8	875.2	821.0	767.2	721.1	683.0	649.7	627.5
27.5°	1134.1	1067.1	993.4	924.7	858.7	800.2	747.0	701.5	658.8	626.8	600.2
30°	1132.4	1058.4	980.6	905.5	839.9	780.0	724.4	677.3	638.2	604.2	579.0
32.5°	1121.6	1046.2	961.4	882.6	811.3	751.0	699.9	653.1	611.3	580.3	553.8
35°	1097.4	1019.7	934.5	853.4	785.7	723.1	672.6	625.5	588.1	554.4	527.2
37.5°	1066.4	993.7	907.2	822.4	749.3	690.1	642.6	598.2	559.1	528.2	500.9
40°	1027.4	959.1	873.9	785.7	712.6	652.7	608.0	566.5	533.2	501.6	475.0
42.5°	973.9	921.4	833.8	748.0	671.6	615.0	571.6	537.3	502.9	474.3	447.7
45°	916.6	868.8	791.1	705.9	632.5	574.3	533.6	501.9	472.6	443.7	422.1
47.5°	853.4	814.3	742.3	659.1	586.7	535.2	495.2	466.9	440.0	417.8	396.2
50°	778.0	757.4	690.1	614.7	544.3	491.5	458.5	429.5	409.7	388.1	367.9
52.5°	707.9	691.4	636.6	562.5	498.5	452.1	416.7	393.9	374.3	358.5	342.4
55°	631.9	623.4	577.0	513.0	455.1	408.7	378.4	357.5	342.0	327.2	315.4
57.5°	561.8	561.2	520.1	465.2	408.7	369.3	340.3	323.2	309.7	299.3	289.2
60°	490.1	495.9	462.2	412.0	367.3	330.2	304.0	288.5	279.4	269.6	261.2
62.5°	425.2	433.9	403.3	363.9	319.8	289.5	269.3	257.5	247.4	240.4	234.0
65°	362.9	374.0	349.1	313.7	280.1	251.5	234.3	223.2	215.4	211.4	207.0
67.5°	308.0	314.1	297.2	269.6	241.7	216.8	202.7	192.9	186.2	184.5	179.4
70°	253.1	260.2	248.4	223.2	201.6	183.5	170.7	162.9	158.9	156.5	153.2
72.5°	209.0	212.1	200.3	182.8	165.6	150.5	141.0	135.3	130.6	129.6	127.9
75°	163.6	168.0	158.6	145.1	130.9	120.2	113.1	108.4	106.0	104.4	104.4
77.5°	123.5	127.2	121.9	110.1	101.7	92.2	87.5	83.1	82.1	80.5	81.1
80°	87.9	89.5	86.5	78.4	71.0	66.0	61.9	59.6	59.2	57.9	59.2
82.5°	58.2	58.6	55.2	51.5	45.8	43.1	40.4	39.4	39.0	39.0	38.4
85°	32.3	33.0	30.6	28.3	26.3	23.9	23.2	22.6	21.9	22.9	23.6
87.5°	12.5	12.8	12.5	11.4	10.8	10.1	9.8	10.4	9.4	10.1	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):

	110°	115°	120°	125°	130°	135°	140°	145°	150°	155°	160°
0°	824.7	824.7	824.7	824.7	824.7	824.7	824.7	824.7	824.7	824.7	824.7
2.5°	805.9	803.2	799.2	792.4	787.7	782.7	780.6	781.3	779.3	776.6	777.3
5°	784.7	776.9	770.2	760.8	752.0	744.6	742.3	739.2	736.5	734.9	733.2
7.5°	762.1	751.4	741.3	731.8	721.7	712.3	708.6	705.9	704.6	699.9	697.8
10°	740.6	728.1	716.0	704.9	694.5	684.0	680.3	677.0	672.2	670.2	667.9
12.5°	717.7	705.2	692.1	678.6	668.2	659.8	653.4	651.0	646.3	644.3	643.0
15°	695.5	680.3	669.9	659.5	643.6	634.2	631.5	623.1	620.4	616.4	613.7
17.5°	673.3	659.1	643.6	631.5	621.8	610.0	603.6	599.9	594.8	591.1	586.1
20°	651.4	634.9	622.8	607.6	596.8	586.1	578.0	574.6	570.3	565.2	558.1
22.5°	630.2	612.0	600.2	586.1	572.6	560.2	553.4	548.7	540.0	538.9	532.5
25°	605.3	589.1	573.6	558.8	545.7	533.2	528.8	521.4	518.4	512.3	511.3
27.5°	581.7	564.5	547.7	531.5	520.1	511.3	503.6	498.9	495.9	491.1	491.5
30°	557.1	538.3	522.4	507.6	495.2	486.8	481.7	479.4	475.0	474.3	472.0
32.5°	530.9	513.7	497.2	484.1	471.3	463.9	461.5	459.2	456.5	456.8	456.1
35°	504.6	489.5	472.0	459.8	449.4	445.0	441.3	440.6	439.6	440.3	440.3
37.5°	479.0	462.5	448.1	436.9	430.9	424.8	423.1	422.8	423.1	423.8	425.5
40°	454.1	439.0	424.8	415.7	409.0	406.3	404.0	405.0	406.3	408.7	410.7
42.5°	429.2	414.7	402.9	393.9	387.5	386.1	386.5	388.5	388.8	392.2	395.9
45°	402.9	390.5	379.4	372.3	368.3	366.6	367.3	369.3	371.6	376.4	381.1
47.5°	378.7	367.6	357.8	350.8	347.7	347.1	348.4	351.1	356.5	361.2	366.6
50°	354.1	344.0	334.9	328.6	328.2	325.9	328.9	332.3	338.6	345.0	353.1
52.5°	329.9	320.1	312.4	307.3	306.0	306.0	309.7	315.8	321.5	329.9	337.3
55°	304.6	295.9	288.5	286.8	284.8	285.8	289.8	295.9	304.0	313.4	321.5
57.5°	278.7	271.3	265.9	263.6	262.6	265.9	270.7	277.0	287.5	296.9	305.7
60°	254.2	247.8	242.0	241.4	240.7	245.1	250.8	257.5	268.0	277.4	288.2
62.5°	227.9	222.8	219.1	218.1	218.1	222.5	228.9	237.7	247.4	257.5	269.0
65°	201.3	196.9	195.9	194.6	197.6	200.3	206.7	215.1	225.5	236.7	248.8
67.5°	176.7	174.0	172.0	172.0	174.4	179.4	185.1	193.6	204.3	216.1	226.9
70°	152.2	149.5	147.8	149.5	150.8	156.9	162.9	171.0	181.1	192.6	204.0
72.5°	126.6	126.9	127.2	126.9	128.3	134.0	140.0	147.8	157.5	168.7	179.1
75°	104.0	102.3	102.7	103.3	107.7	110.8	116.8	124.2	134.7	144.8	153.5
77.5°	80.8	80.1	81.8	81.8	85.8	89.5	94.6	102.0	111.1	120.2	127.2
80°	59.2	59.6	60.9	61.3	64.6	68.7	74.1	79.1	87.2	93.6	100.3
82.5°	40.1	40.7	42.4	44.8	46.1	48.5	53.2	58.6	64.3	71.0	75.1
85°	23.2	24.2	25.6	27.3	28.6	31.0	34.3	38.7	42.8	46.5	49.8
87.5°	11.4	11.4	12.5	13.1	14.1	15.5	17.8	19.5	22.2	24.9	26.3
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: P243504

CATALOG NUMBER: S124DRP-H575D840-X4F0-XX-UDD-A-W

CANDELA DISTRIBUTION (continued):

	165°	170°	175°	180°
0°	824.7	824.7	824.7	824.7
2.5°	775.9	775.6	774.2	774.9
5°	732.2	728.8	728.5	727.1
7.5°	694.5	693.5	693.5	690.8
10°	665.5	662.5	663.2	661.8
12.5°	637.9	636.2	634.2	632.2
15°	606.9	606.9	606.9	601.2
17.5°	582.7	582.4	580.7	580.3
20°	557.5	556.1	551.7	554.8
22.5°	531.9	530.9	527.2	527.8
25°	508.0	507.0	506.3	503.6
27.5°	487.4	487.8	488.4	486.8
30°	472.0	470.9	472.3	470.6
32.5°	457.5	457.5	456.1	456.5
35°	441.0	442.3	442.7	442.3
37.5°	426.5	428.2	429.5	428.2
40°	413.0	414.4	415.7	415.4
42.5°	398.9	401.3	402.3	403.3
45°	385.4	388.5	390.2	390.5
47.5°	371.6	375.3	378.7	378.4
50°	358.2	362.9	365.9	365.6
52.5°	344.7	349.4	353.1	354.8
55°	329.6	335.6	339.0	342.0
57.5°	314.4	321.1	324.5	325.9
60°	297.6	303.6	308.0	309.0
62.5°	278.7	285.1	290.8	292.2
65°	259.2	266.3	270.7	271.3
67.5°	236.7	243.4	247.8	249.8
70°	213.4	218.5	223.2	226.2
72.5°	187.5	193.6	197.9	200.0
75°	160.6	167.3	169.7	171.0
77.5°	132.6	136.7	140.4	140.7
80°	104.7	109.7	111.1	114.5
82.5°	77.1	81.8	80.8	82.1
85°	50.8	52.5	53.5	53.9
87.5°	26.9	27.9	28.6	29.0
90°	0.0	0.0	0.0	0.0



TEST NUMBER: P243504
 CATALOG NUMBER: S124DRP-H575D840-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	17.49	19.06	17.85	19.37	19.69	17.78	19.35	18.14	19.66	19.98
	3H	18.93	20.35	19.31	20.67	21.03	19.16	20.58	19.54	20.91	21.27
	4H	19.45	20.78	19.85	21.13	21.51	19.65	20.98	20.05	21.33	21.70
	6H	19.80	21.03	20.21	21.39	21.78	19.96	21.19	20.37	21.56	21.95
	8H	19.89	21.07	20.32	21.46	21.86	20.05	21.22	20.47	21.61	22.01
	12H	19.94	21.07	20.37	21.45	21.88	20.09	21.22	20.52	21.60	22.03
4H	2H	18.63	19.96	19.02	20.30	20.68	18.57	19.90	18.97	20.25	20.62
	3H	20.13	21.24	20.54	21.64	22.04	20.27	21.38	20.68	21.78	22.18
	4H	20.70	21.70	21.13	22.12	22.56	20.87	21.87	21.30	22.28	22.72
	6H	21.12	21.99	21.57	22.43	22.89	21.27	22.14	21.72	22.58	23.04
	8H	21.23	22.05	21.69	22.49	22.96	21.37	22.19	21.84	22.63	23.10
	12H	21.31	22.04	21.79	22.51	22.98	21.44	22.17	21.92	22.65	23.12
8H	4H	21.13	21.95	21.59	22.39	22.86	21.21	22.02	21.67	22.47	22.93
	6H	21.63	22.30	22.12	22.79	23.27	21.74	22.42	22.23	22.90	23.38
	8H	21.79	22.40	22.30	22.91	23.39	21.90	22.51	22.41	23.02	23.50
	12H	21.91	22.44	22.41	22.94	23.50	22.02	22.55	22.52	23.05	23.61
12H	4H	21.17	21.90	21.65	22.38	22.85	21.24	21.97	21.72	22.45	22.92
	6H	21.69	22.30	22.20	22.81	23.30	21.80	22.41	22.31	22.92	23.40
	8H	21.91	22.44	22.41	22.93	23.50	22.02	22.56	22.53	23.05	23.61