

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: P243514

Luminaire Tested: S124DRP-H575D935-X4F0-XX-UDD-A-W

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-2024
Report Number: P243514
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-H575D935-X4F0-XX-UDD-A-W
Description: DEFINE 4 DIRECT RECESSED WITH ASYMMETRIC FLUSH DIFFUSER.
HIGH PERFORMANCE LIGHT ENGINE
Light Source: (184) 3500K CCT, 90 CRI LEDS
Ballast/Driver: -

Summary

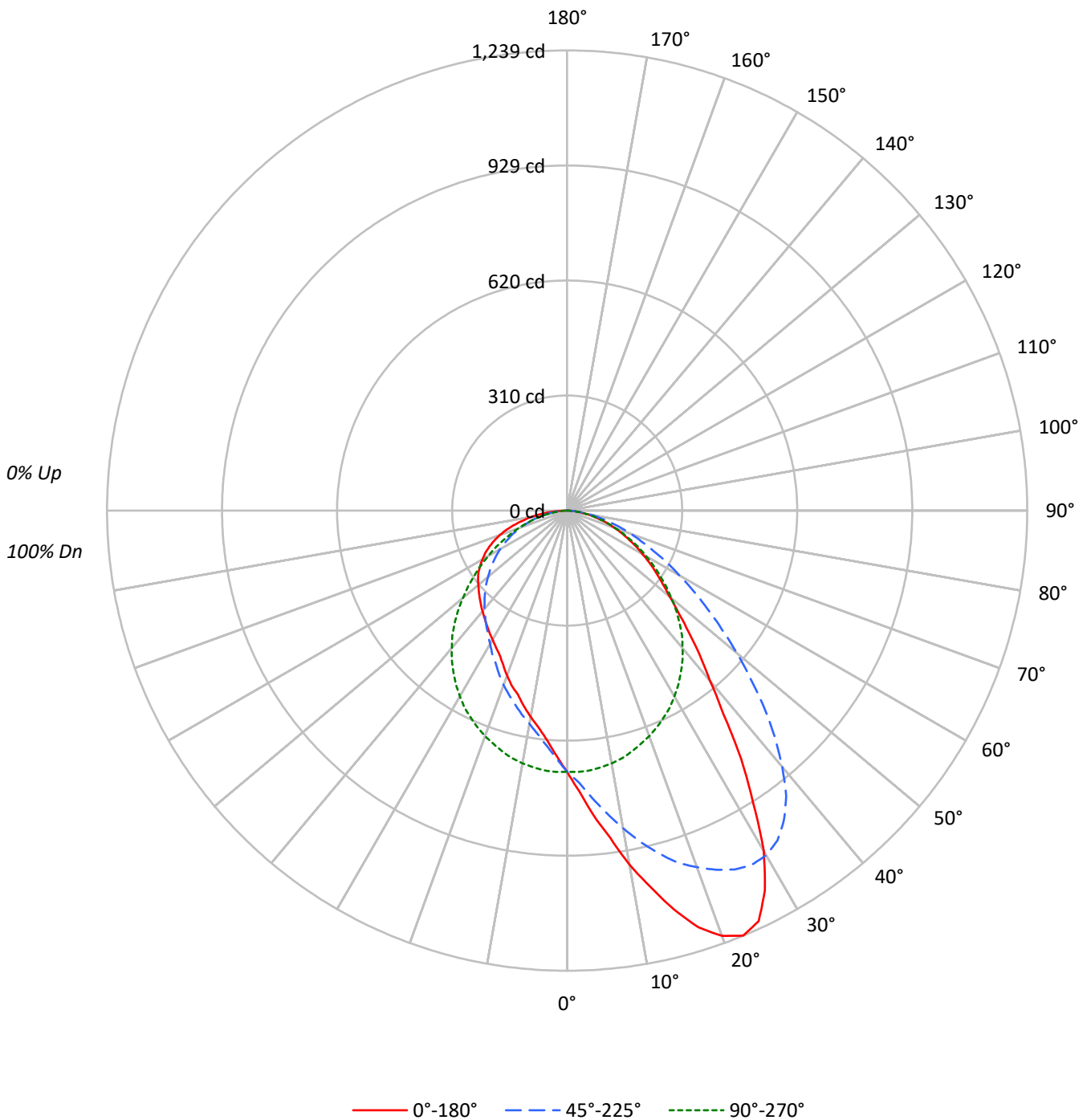
Lumens per Lamp: N/A
Luminaire Lumens: 2016.3 lumens
Efficiency: N/A
Efficacy: 117.2 lumens/watt
Spacing Criteria (0/90/45): 1.35 / 1.22 / 1.45
Luminous Opening: Rectangular (W 3.88' x L: 0.31' x H: 0')
CIE Type: Direct

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°	6251	6251	6251	6251	6251
5°	7355	6935	6267	5665	5531
10°	8741	7842	6238	5264	5093
15°	10237	8795	6183	4976	4717
20°	11527	9665	6112	4727	4474
25°	11964	10457	6030	4459	4211
30°	10864	11000	5927	4260	4118
35°	8863	11043	5787	4117	4092
40°	6940	10454	5605	4020	4110
45°	5809	9427	5379	3930	4185
50°	4985	8243	5064	3842	4310
55°	4555	7143	4724	3777	4519
60°	4174	6199	4373	3714	4684
65°	3828	5372	4003	3592	4865
70°	3522	4707	3610	3475	5013
75°	3136	4053	3173	3242	5007
80°	2616	3291	2600	2995	4996
85°	1989	2458	1958	2693	4681

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 50°
 Vertical Angle: 45°
 Luminance: 9853 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	68.4	3.4
10°-20°	212.0	10.5
20°-30°	340.5	16.9
30°-40°	389.3	19.3
40°-50°	358.3	17.8
50°-60°	293.1	14.5
60°-70°	208.9	10.4
70°-80°	114.8	5.7
80°-90°	30.8	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°	621.0	30.8
0°-40°	1010.3	50.1
0°-60°	1661.7	82.4
0°-90°	2016.3	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	2016.3	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	703	703	703	703	703	
5°	824	777	702	635	620	83
15°	1112	956	672	541	513	317
25°	1220	1066	615	455	429	547
35°	817	1018	533	379	377	508
45°	462	750	428	313	333	361
55°	294	461	305	244	292	264
65°	182	255	190	171	231	182
75°	91	118	92	94	146	98
85°	20	24	19	26	46	23
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°	703.2	703.2	703.2	703.2	703.2	703.2	703.2	703.2	703.2	703.2	703.2
2.5°	757.1	754.8	753.7	752.2	752.0	750.5	747.7	743.6	738.5	733.0	733.0
5°	824.3	823.7	819.4	819.7	814.2	808.2	803.6	797.9	786.7	777.2	770.6
7.5°	888.6	894.6	893.2	888.6	880.5	871.9	862.7	854.7	834.0	822.6	813.1
10°	968.4	970.7	966.6	960.0	952.9	936.2	924.2	910.7	888.3	868.8	851.5
12.5°	1038.4	1043.8	1036.7	1030.4	1013.4	1001.1	989.0	962.0	938.5	913.8	888.9
15°	1112.4	1106.7	1110.4	1094.9	1082.9	1071.1	1040.4	1012.8	986.2	955.7	929.6
17.5°	1176.7	1176.7	1169.8	1159.8	1147.2	1125.1	1094.4	1063.9	1034.4	994.5	957.5
20°	1218.6	1221.8	1213.8	1203.1	1187.9	1165.0	1140.6	1107.6	1068.2	1021.7	979.8
22.5°	1238.7	1239.3	1236.4	1227.5	1215.2	1195.7	1170.7	1138.6	1096.9	1047.0	1003.1
25°	1219.8	1222.9	1222.1	1221.5	1215.2	1204.0	1183.9	1154.1	1116.2	1066.2	1018.9
27.5°	1153.2	1160.9	1167.5	1170.4	1177.3	1177.9	1171.8	1153.8	1122.8	1075.7	1022.9
30°	1058.5	1054.5	1072.3	1081.2	1104.7	1118.8	1128.8	1127.6	1109.9	1071.7	1021.5
32.5°	932.2	943.1	955.7	976.7	1004.5	1037.2	1061.9	1080.3	1078.6	1053.6	1011.7
35°	816.8	816.8	832.9	858.7	888.3	927.6	968.9	1003.1	1024.0	1017.7	988.2
37.5°	691.7	699.4	717.8	737.9	774.1	811.9	866.5	911.8	955.7	968.9	953.7
40°	598.1	601.6	621.1	638.0	675.0	714.4	760.0	818.0	868.5	900.9	902.9
42.5°	528.7	528.4	536.4	551.6	581.5	616.5	665.9	722.7	781.8	827.7	849.3
45°	462.1	461.5	469.8	485.3	506.6	537.6	580.3	637.2	697.7	749.9	783.8
47.5°	405.8	411.0	414.7	426.8	444.3	470.7	507.4	552.8	611.0	669.6	715.2
50°	360.5	362.8	370.8	376.6	396.1	414.4	444.0	484.8	534.7	596.1	645.5
52.5°	324.3	325.8	330.6	338.1	349.3	365.4	388.9	426.5	471.6	524.9	576.0
55°	293.9	293.0	296.2	301.1	310.8	324.3	341.5	370.2	409.6	460.9	508.0
57.5°	264.0	264.0	266.9	270.4	275.8	287.0	303.9	326.6	358.2	403.8	445.4
60°	234.8	236.8	237.9	241.4	246.0	254.3	266.9	284.7	311.4	348.7	390.0
62.5°	208.9	208.9	210.9	212.1	218.1	224.2	233.3	248.5	269.5	302.8	334.9
65°	182.0	183.7	183.7	186.0	191.1	195.7	202.9	214.4	231.6	255.4	285.6
67.5°	159.0	159.0	160.4	161.6	164.5	167.6	173.9	182.8	197.5	216.4	243.7
70°	135.5	136.3	135.8	137.2	138.9	142.1	146.7	154.1	164.7	181.1	201.2
72.5°	114.2	113.1	113.7	115.1	116.0	118.0	120.8	126.6	135.2	148.4	163.0
75°	91.3	90.7	92.7	92.1	93.6	95.3	97.9	102.2	108.8	118.0	129.2
77.5°	71.2	70.3	71.2	71.8	72.3	73.8	75.8	78.4	82.9	89.0	99.0
80°	51.1	50.8	51.4	51.9	52.2	54.5	55.1	57.7	59.7	64.3	69.2
82.5°	33.9	34.4	34.7	35.3	35.0	36.2	36.7	38.5	40.2	42.5	46.2
85°	19.5	18.7	19.5	19.5	19.5	21.0	20.7	21.8	23.0	24.1	26.7
87.5°	6.9	6.9	7.2	7.5	7.5	8.3	8.0	8.6	9.8	9.8	10.6
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°	703.2	703.2	703.2	703.2	703.2	703.2	703.2	703.2	703.2	703.2	703.2
2.5°	731.3	728.1	725.8	719.2	715.2	711.5	708.0	704.3	700.3	695.1	692.0
5°	763.7	756.8	746.8	737.6	727.3	718.1	710.6	702.3	693.1	683.6	675.3
7.5°	799.6	786.7	771.2	754.3	738.2	724.7	710.6	697.4	684.5	671.9	660.1
10°	835.5	813.1	792.7	769.5	748.2	727.8	709.5	691.1	675.0	658.4	643.5
12.5°	868.8	841.8	811.9	783.0	754.5	728.1	705.5	683.1	662.4	642.6	625.1
15°	894.3	860.4	825.1	790.7	758.0	730.4	700.9	671.9	650.4	626.2	607.0
17.5°	923.6	883.4	848.4	807.1	766.3	721.8	690.5	659.0	633.1	609.9	590.7
20°	943.1	898.9	848.4	801.6	759.7	719.8	682.2	646.1	618.8	591.8	568.6
22.5°	958.6	913.0	857.3	808.5	756.0	707.8	667.0	631.4	599.3	573.7	551.6
25°	966.6	911.0	857.9	798.7	746.2	700.0	654.1	614.8	582.3	553.9	535.0
27.5°	966.9	909.8	847.0	788.4	732.2	682.2	636.9	598.1	561.7	534.4	511.7
30°	965.5	902.3	836.1	772.0	716.1	665.0	617.6	577.5	544.2	515.2	493.7
32.5°	956.3	892.0	819.7	752.5	691.7	640.3	596.7	556.8	521.2	494.8	472.1
35°	935.6	869.3	796.7	727.6	669.9	616.5	573.4	533.3	501.4	472.7	449.5
37.5°	909.2	847.2	773.5	701.2	638.9	588.4	547.9	510.0	476.7	450.3	427.1
40°	875.9	817.7	745.1	669.9	607.6	556.5	518.3	483.0	454.6	427.6	405.0
42.5°	830.3	785.5	710.9	637.7	572.6	524.4	487.3	458.1	428.8	404.4	381.7
45°	781.5	740.8	674.5	601.9	539.3	489.6	454.9	427.9	403.0	378.3	359.9
47.5°	727.6	694.3	632.8	562.0	500.3	456.3	422.2	398.1	375.1	356.2	337.8
50°	663.3	645.8	588.4	524.1	464.1	419.0	390.9	366.2	349.3	330.9	313.7
52.5°	603.6	589.5	542.7	479.6	425.1	385.4	355.3	335.8	319.2	305.7	291.9
55°	538.7	531.5	491.9	437.4	388.0	348.4	322.6	304.8	291.6	279.0	268.9
57.5°	479.0	478.4	443.4	396.6	348.4	314.8	290.2	275.5	264.0	255.1	246.5
60°	417.9	422.8	394.1	351.3	313.1	281.6	259.2	246.0	238.2	229.9	222.7
62.5°	362.5	370.0	343.8	310.3	272.7	246.8	229.6	219.6	210.9	204.9	199.5
65°	309.4	318.9	297.6	267.5	238.8	214.4	199.8	190.3	183.7	180.2	176.5
67.5°	262.6	267.8	253.4	229.9	206.1	184.8	172.8	164.5	158.7	157.3	153.0
70°	215.8	221.9	211.8	190.3	171.9	156.4	145.5	138.9	135.5	133.5	130.6
72.5°	178.2	180.8	170.8	155.8	141.2	128.3	120.3	115.4	111.4	110.5	109.1
75°	139.5	143.2	135.2	123.7	111.6	102.5	96.4	92.4	90.4	89.0	89.0
77.5°	105.3	108.5	103.9	93.9	86.7	78.6	74.6	70.9	70.0	68.6	69.2
80°	74.9	76.3	73.8	66.9	60.6	56.3	52.8	50.8	50.5	49.4	50.5
82.5°	49.7	49.9	47.1	43.9	39.0	36.7	34.4	33.6	33.3	33.3	32.7
85°	27.6	28.1	26.1	24.1	22.4	20.4	19.8	19.2	18.7	19.5	20.1
87.5°	10.6	10.9	10.6	9.8	9.2	8.6	8.3	8.9	8.0	8.6	8.9
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°	703.2	703.2	703.2	703.2	703.2	703.2	703.2	703.2	703.2	703.2	703.2
2.5°	687.1	684.8	681.4	675.6	671.6	667.3	665.6	666.1	664.4	662.1	662.7
5°	669.0	662.4	656.7	648.6	641.2	634.9	632.8	630.3	628.0	626.5	625.1
7.5°	649.8	640.6	632.0	624.0	615.3	607.3	604.1	601.9	600.7	596.7	595.0
10°	631.4	620.8	610.5	601.0	592.1	583.2	580.0	577.2	573.2	571.4	569.4
12.5°	611.9	601.3	590.1	578.6	569.7	562.5	557.1	555.1	551.1	549.3	548.2
15°	593.0	580.0	571.1	562.2	548.8	540.7	538.4	531.2	529.0	525.5	523.2
17.5°	574.0	562.0	548.8	538.4	530.1	520.1	514.6	511.4	507.1	504.0	499.7
20°	555.4	541.3	531.0	518.0	508.9	499.7	492.8	489.9	486.2	481.9	475.9
22.5°	537.3	521.8	511.7	499.7	488.2	477.6	471.8	467.8	460.4	459.5	454.0
25°	516.0	502.3	489.1	476.4	465.2	454.6	450.9	444.6	442.0	436.8	436.0
27.5°	495.9	481.3	467.0	453.2	443.4	436.0	429.4	425.3	422.8	418.7	419.0
30°	475.0	458.9	445.4	432.8	422.2	415.0	410.7	408.7	405.0	404.4	402.4
32.5°	452.6	438.0	423.9	412.7	401.8	395.5	393.5	391.5	389.2	389.5	388.9
35°	430.2	417.3	402.4	392.1	383.2	379.4	376.3	375.7	374.8	375.4	375.4
37.5°	408.4	394.3	382.0	372.5	367.4	362.2	360.8	360.5	360.8	361.3	362.8
40°	387.2	374.3	362.2	354.5	348.7	346.4	344.4	345.3	346.4	348.4	350.1
42.5°	365.9	353.6	343.5	335.8	330.3	329.2	329.5	331.2	331.5	334.4	337.5
45°	343.5	332.9	323.5	317.4	314.0	312.6	313.1	314.8	316.9	320.9	324.9
47.5°	322.9	313.4	305.1	299.1	296.5	295.9	297.1	299.3	303.9	308.0	312.6
50°	301.9	293.3	285.6	280.1	279.8	277.8	280.4	283.3	288.7	294.2	301.1
52.5°	281.3	272.9	266.3	262.0	260.9	260.9	264.0	269.2	274.1	281.3	287.6
55°	259.7	252.3	246.0	244.5	242.8	243.7	247.1	252.3	259.2	267.2	274.1
57.5°	237.6	231.3	226.7	224.7	223.9	226.7	230.8	236.2	245.1	253.1	260.6
60°	216.7	211.2	206.4	205.8	205.2	208.9	213.8	219.6	228.5	236.5	245.7
62.5°	194.3	190.0	186.8	186.0	186.0	189.7	195.2	202.6	210.9	219.6	229.3
65°	171.6	167.9	167.0	165.9	168.5	170.8	176.2	183.4	192.3	201.8	212.1
67.5°	150.7	148.4	146.7	146.7	148.7	153.0	157.9	165.0	174.2	184.3	193.4
70°	129.7	127.4	126.0	127.4	128.6	133.7	138.9	145.8	154.4	164.2	173.9
72.5°	107.9	108.2	108.5	108.2	109.3	114.2	119.4	126.0	134.3	143.8	152.7
75°	88.7	87.2	87.5	88.1	91.8	94.4	99.6	105.9	114.8	123.4	130.9
77.5°	68.9	68.3	69.7	69.7	73.2	76.3	80.6	87.0	94.7	102.5	108.5
80°	50.5	50.8	51.9	52.2	55.1	58.5	63.1	67.4	74.3	79.8	85.5
82.5°	34.2	34.7	36.2	38.2	39.3	41.3	45.3	49.9	54.8	60.6	64.0
85°	19.8	20.7	21.8	23.2	24.4	26.4	29.3	33.0	36.4	39.6	42.5
87.5°	9.8	9.8	10.6	11.2	12.1	13.2	15.2	16.6	18.9	21.2	22.4
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: P243514

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CANDELA DISTRIBUTION (continued):

	165°	170°	175°	180°
0°	703.2	703.2	703.2	703.2
2.5°	661.6	661.3	660.1	660.7
5°	624.2	621.4	621.1	619.9
7.5°	592.1	591.2	591.2	588.9
10°	567.4	564.8	565.4	564.3
12.5°	543.9	542.4	540.7	539.0
15°	517.5	517.5	517.5	512.6
17.5°	496.8	496.5	495.1	494.8
20°	475.3	474.1	470.4	473.0
22.5°	453.5	452.6	449.5	450.0
25°	433.1	432.2	431.7	429.4
27.5°	415.6	415.9	416.4	415.0
30°	402.4	401.5	402.7	401.2
32.5°	390.0	390.0	388.9	389.2
35°	376.0	377.1	377.4	377.1
37.5°	363.6	365.1	366.2	365.1
40°	352.2	353.3	354.5	354.2
42.5°	340.1	342.1	343.0	343.8
45°	328.6	331.2	332.6	332.9
47.5°	316.9	320.0	322.9	322.6
50°	305.4	309.4	312.0	311.7
52.5°	293.9	297.9	301.1	302.5
55°	281.0	286.1	289.0	291.6
57.5°	268.1	273.8	276.7	277.8
60°	253.7	258.9	262.6	263.5
62.5°	237.6	243.1	248.0	249.1
65°	221.0	227.0	230.8	231.3
67.5°	201.8	207.5	211.2	213.0
70°	182.0	186.3	190.3	192.9
72.5°	159.9	165.0	168.8	170.5
75°	136.9	142.6	144.7	145.8
77.5°	113.1	116.5	119.7	120.0
80°	89.3	93.6	94.7	97.6
82.5°	65.7	69.7	68.9	70.0
85°	43.3	44.8	45.6	45.9
87.5°	23.0	23.8	24.4	24.7
90°	0.0	0.0	0.0	0.0



TEST NUMBER: P243514
 CATALOG NUMBER: S124DRP-H575D935-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	16.94	18.51	17.30	18.82	19.14	17.22	18.79	17.59	19.11	19.42
	3H	18.38	19.79	18.75	20.12	20.48	18.61	20.02	18.99	20.35	20.71
	4H	18.90	20.23	19.30	20.58	20.95	19.09	20.42	19.49	20.77	21.15
	6H	19.24	20.47	19.65	20.84	21.23	19.41	20.64	19.82	21.01	21.40
	8H	19.34	20.51	19.76	20.90	21.30	19.49	20.67	19.92	21.06	21.46
	12H	19.39	20.51	19.82	20.90	21.32	19.54	20.66	19.97	21.04	21.47
4H	2H	18.07	19.40	18.47	19.75	20.13	18.01	19.34	18.41	19.69	20.07
	3H	19.58	20.69	19.99	21.08	21.48	19.72	20.83	20.13	21.23	21.63
	4H	20.15	21.15	20.58	21.56	22.00	20.31	21.31	20.74	21.73	22.16
	6H	20.56	21.43	21.02	21.88	22.33	20.71	21.59	21.17	22.03	22.49
	8H	20.68	21.50	21.14	21.94	22.40	20.82	21.64	21.28	22.08	22.55
	12H	20.75	21.48	21.23	21.96	22.43	20.89	21.62	21.37	22.10	22.57
8H	4H	20.58	21.39	21.04	21.84	22.30	20.65	21.47	21.11	21.91	22.38
	6H	21.07	21.75	21.57	22.24	22.72	21.18	21.86	21.68	22.35	22.83
	8H	21.24	21.84	21.75	22.35	22.84	21.35	21.96	21.86	22.46	22.95
	12H	21.35	21.89	21.86	22.38	22.94	21.46	22.00	21.97	22.49	23.05
12H	4H	20.62	21.35	21.10	21.83	22.30	20.69	21.42	21.17	21.90	22.37
	6H	21.14	21.75	21.65	22.26	22.74	21.25	21.85	21.76	22.36	22.85
	8H	21.35	21.89	21.86	22.38	22.94	21.47	22.01	21.98	22.50	23.06