

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: P242644

Luminaire Tested: S124DRP-S575D840-X4F0-XX-UDD-A-W

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-2024
Report Number: P242644
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1802-639-21)
Test Lab: INNOVATION CENTER
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: S124DRP-S575D840-X4F0-XX-UDD-A-W
Description: DEFINE 4 DIRECT RECESSED WITH ASYMMETRIC FLUSH DIFFUSER
STANDARD LIGHT ENGINE
Light Source: (92) 4000K CCT, 80 CRI LEDS
Ballast/Driver: -

Summary

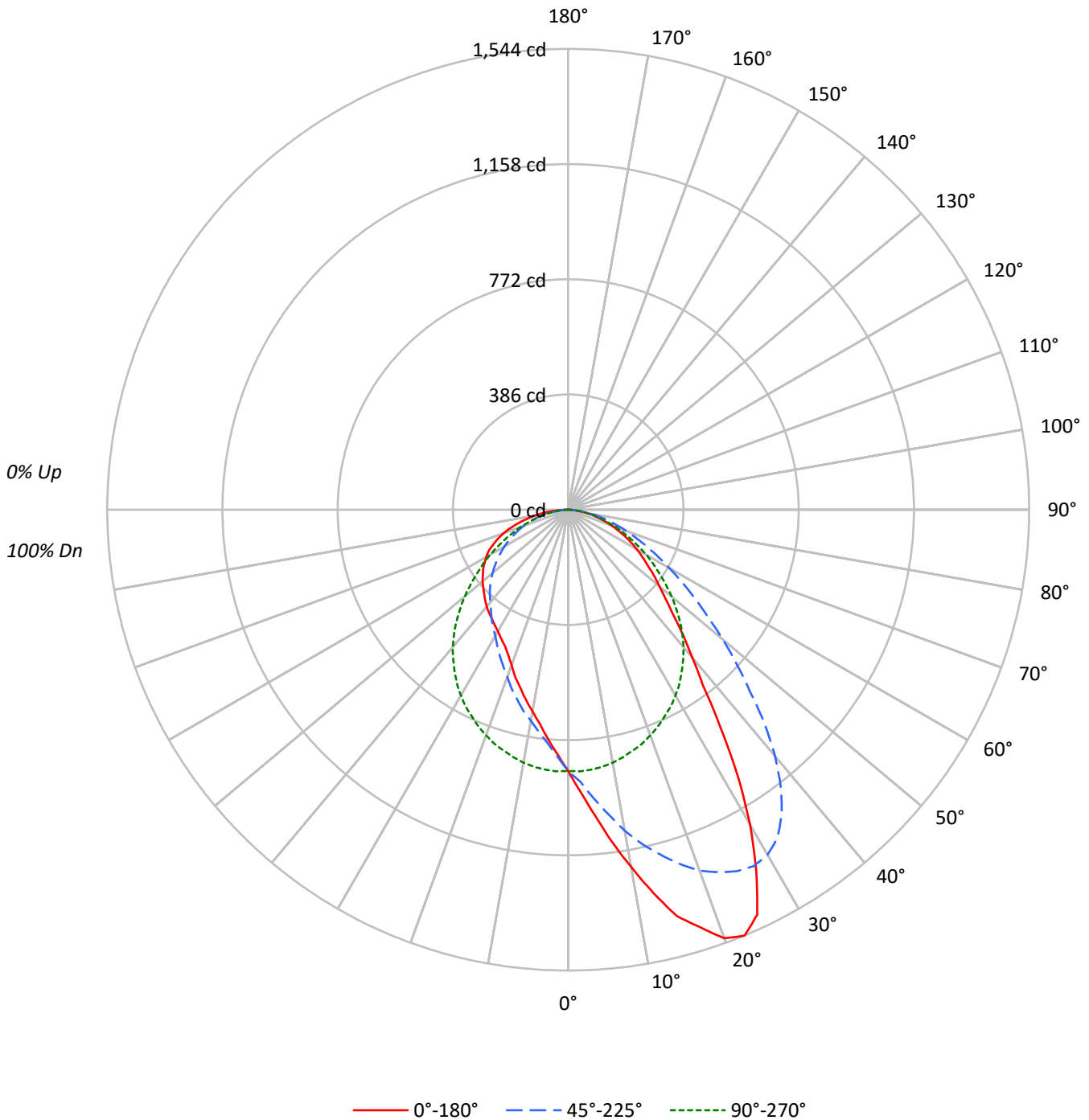
Lumens per Lamp: N/A
Luminaire Lumens: 2415.1 lumens
Efficiency: N/A
Efficacy: 128.5 lumens/watt
Spacing Criteria (0/90/45): 1.3 / 1.22 / 1.41
Luminous Opening: Rectangular (W 3.88' x L: 0.31' x H: 0')
CIE Type: Direct

Input Watts (W): 18.8
Input Voltage (V): 120
Input Current (A_{in}): 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	95	92	90	91	89	87	85					85			
2	100	92	86	80	98	90	84	79	87	82	78	84	79	76	81	77	74	72					72			
3	92	82	74	68	89	80	73	67	77	71	66	74	69	65	72	67	64	62					62			
4	84	73	64	58	82	72	64	58	69	62	57	67	61	56	65	60	55	53					53			
5	78	65	57	50	76	64	56	50	62	55	50	60	54	49	58	53	49	46					46			
6	72	59	51	44	70	58	50	44	56	49	44	55	48	43	53	47	43	41					41			
7	67	54	45	39	65	53	45	39	52	44	39	50	44	39	49	43	38	36					36			
8	62	49	41	35	61	49	41	35	47	40	35	46	40	35	45	39	35	33					33			
9	58	45	37	32	57	45	37	32	44	37	32	43	36	32	42	36	31	30					30			
10	55	42	34	29	54	41	34	29	40	34	29	39	33	29	39	33	29	27					27			

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°	135°	180°
0°	7780	7780	7780	7780	7780
5°	9162	8653	7799	7011	6884
10°	10969	9860	7765	6486	6198
15°	12978	11014	7687	6059	5692
20°	14452	12175	7607	5638	5240
25°	14686	13110	7488	5309	4928
30°	12496	13701	7376	5013	4830
35°	9608	13529	7192	4851	4831
40°	7489	12503	6975	4716	4922
45°	6244	10820	6650	4657	5004
50°	5496	9330	6252	4573	5175
55°	5035	8029	5776	4490	5382
60°	4718	6948	5349	4377	5634
65°	4392	6070	4873	4232	5841
70°	4013	5362	4400	4117	5975
75°	3586	4619	3874	3847	5904
80°	3005	3747	3174	3506	5718
85°	2223	2845	2295	3253	5477

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 55°
 Vertical Angle: 45°
 Luminance: 11946 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	85.2	3.5
10°-20°	262.9	10.9
20°-30°	417.7	17.3
30°-40°	464.1	19.2
40°-50°	422.1	17.5
50°-60°	344.9	14.3
60°-70°	246.2	10.2
70°-80°	135.5	5.6
80°-90°	36.6	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°	765.8	31.7
0°-40°	1229.8	50.9
0°-60°	1996.8	82.7
0°-90°	2415.1	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	2415.1	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	875	875	875	875	875	
5°	1027	970	874	786	772	104
15°	1410	1197	835	658	618	399
25°	1497	1337	764	541	502	664
35°	885	1247	663	447	445	560
45°	497	861	529	370	398	390
55°	325	518	373	290	347	293
65°	209	289	232	201	278	207
75°	104	134	113	112	172	111
85°	22	28	22	32	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°	875.2	875.2	875.2	875.2	875.2	875.2	875.2	875.2	875.2	875.2	875.2
2.5°	945.5	945.2	941.6	940.8	938.3	935.0	934.3	928.5	916.9	911.5	910.0
5°	1026.8	1034.0	1024.6	1022.8	1021.7	1009.7	1003.6	996.3	979.6	969.8	962.2
7.5°	1121.8	1122.1	1118.1	1114.1	1107.2	1097.1	1083.3	1067.4	1048.2	1028.6	1014.8
10°	1215.3	1218.2	1213.5	1212.8	1194.3	1182.7	1159.5	1139.9	1117.4	1092.4	1069.5
12.5°	1313.9	1308.1	1306.3	1287.1	1287.4	1263.9	1236.0	1215.7	1177.9	1148.2	1116.0
15°	1410.3	1402.4	1397.3	1375.9	1365.4	1336.0	1307.4	1285.3	1239.9	1196.8	1164.2
17.5°	1466.2	1476.0	1462.9	1454.2	1425.6	1406.4	1377.7	1332.4	1298.7	1245.0	1207.7
20°	1527.8	1528.5	1522.0	1513.0	1491.6	1465.5	1433.6	1382.8	1340.4	1287.1	1230.5
22.5°	1544.5	1544.5	1542.7	1534.3	1519.5	1499.5	1467.3	1427.0	1373.4	1314.3	1257.7
25°	1497.4	1495.9	1499.2	1508.6	1502.4	1495.9	1477.4	1445.9	1398.0	1336.7	1275.8
27.5°	1363.9	1373.4	1392.9	1416.1	1432.8	1447.7	1446.6	1433.2	1399.1	1346.2	1281.3
30°	1217.5	1229.8	1243.6	1266.8	1311.7	1337.5	1365.8	1387.1	1375.2	1334.9	1275.5
32.5°	1056.5	1057.2	1079.3	1106.5	1146.8	1202.2	1251.2	1300.1	1321.2	1304.8	1257.7
35°	885.4	890.4	912.6	938.7	989.1	1049.6	1117.0	1177.2	1226.9	1246.8	1221.5
37.5°	741.8	757.7	774.4	804.2	850.2	904.9	977.5	1052.5	1125.4	1169.6	1174.3
40°	645.4	654.4	665.7	687.0	724.8	778.4	838.6	927.8	1006.5	1077.5	1100.7
42.5°	569.2	573.6	579.4	598.2	624.7	678.0	731.6	807.4	886.5	974.9	1017.7
45°	496.7	502.1	513.7	525.0	546.7	583.7	634.8	699.4	778.8	860.7	932.5
47.5°	442.3	445.9	453.2	465.5	485.1	510.1	553.6	608.4	686.0	765.4	842.2
50°	397.4	400.3	405.7	416.6	430.7	452.5	486.6	536.9	594.6	674.7	749.8
52.5°	361.8	362.6	366.2	372.7	383.2	400.6	427.1	466.6	519.2	588.4	663.1
55°	324.9	326.3	329.9	335.4	345.2	356.8	378.1	409.3	456.1	518.1	583.0
57.5°	294.4	295.8	298.7	300.9	309.6	319.4	336.8	359.3	395.9	451.0	510.1
60°	265.4	264.7	268.3	270.1	275.5	283.5	296.2	317.6	348.4	390.8	444.1
62.5°	237.1	236.0	238.9	241.5	244.0	250.5	260.3	275.9	299.5	336.8	381.0
65°	208.8	207.4	209.2	212.1	215.0	218.6	226.2	241.1	261.0	288.6	323.8
67.5°	179.8	181.6	181.6	183.5	185.3	190.3	195.8	207.4	221.5	244.0	275.2
70°	154.4	154.8	156.3	156.3	157.3	161.7	166.1	172.2	186.0	206.3	230.6
72.5°	129.1	130.9	129.8	131.2	132.0	134.5	137.4	143.2	154.4	168.2	187.8
75°	104.4	105.5	105.5	105.9	107.0	108.0	110.6	114.9	123.3	134.5	148.6
77.5°	80.5	80.5	81.2	82.7	82.7	84.5	86.7	89.9	94.6	103.0	112.0
80°	58.7	59.5	59.1	59.8	59.8	61.3	62.0	66.3	68.2	73.2	80.1
82.5°	39.2	39.9	39.9	41.0	41.7	41.7	42.8	43.9	45.7	50.0	51.8
85°	21.8	22.5	21.8	22.5	23.6	23.9	25.0	25.4	26.8	27.9	30.5
87.5°	8.0	9.1	9.1	9.4	10.2	10.5	10.9	10.5	12.0	12.3	13.8
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°	875.2	875.2	875.2	875.2	875.2	875.2	875.2	875.2	875.2	875.2	875.2
2.5°	910.4	905.3	901.7	898.8	890.8	886.1	882.5	877.4	871.6	865.4	857.8
5°	954.6	942.3	933.2	919.4	906.4	895.5	884.3	874.1	861.8	848.4	838.6
7.5°	999.9	982.9	960.1	942.3	920.9	902.4	886.1	869.0	850.9	833.5	817.2
10°	1042.7	1019.1	993.0	962.2	933.2	907.5	883.6	860.3	837.9	815.4	796.2
12.5°	1088.8	1057.9	1016.2	978.9	945.5	908.9	878.8	849.1	820.8	796.9	773.7
15°	1129.0	1086.6	1042.0	993.8	951.0	910.7	871.2	835.3	804.9	773.7	751.9
17.5°	1154.4	1101.8	1054.0	1003.6	954.2	903.9	862.9	822.6	784.9	754.5	727.3
20°	1179.4	1127.2	1063.7	1013.3	951.7	899.5	850.2	804.2	764.3	731.3	703.0
22.5°	1201.2	1138.8	1075.3	1005.0	943.7	887.5	832.4	786.0	745.1	709.9	683.1
25°	1206.2	1137.0	1068.1	1002.1	932.5	866.9	817.9	763.5	720.0	683.4	654.4
27.5°	1208.0	1134.8	1058.3	986.5	914.7	854.9	791.1	743.6	698.6	659.9	632.3
30°	1204.1	1126.8	1043.1	963.7	891.5	825.2	771.5	718.6	672.5	634.1	605.1
32.5°	1191.4	1110.1	1023.5	938.3	862.9	798.4	742.5	692.8	648.3	610.5	579.7
35°	1164.5	1085.1	993.4	906.0	829.5	763.9	713.9	662.8	617.8	581.9	552.5
37.5°	1128.6	1054.7	961.5	870.5	796.9	730.2	679.8	632.7	592.1	555.1	524.6
40°	1078.6	1015.5	922.0	833.9	752.7	689.9	643.5	601.1	560.9	526.4	497.8
42.5°	1021.0	968.0	883.6	788.9	711.3	648.3	603.3	566.3	529.0	497.8	469.1
45°	950.3	914.0	832.8	746.5	664.9	605.5	562.3	529.0	497.1	465.9	442.0
47.5°	871.6	851.3	780.6	697.9	619.6	560.2	522.8	490.9	461.9	434.7	413.3
50°	792.2	783.5	724.4	645.4	571.4	516.3	478.6	452.1	428.2	405.0	385.0
52.5°	713.9	715.7	663.8	593.1	526.1	473.5	436.2	411.9	391.9	374.2	356.8
55°	633.7	643.9	602.2	537.7	476.4	428.5	394.8	372.7	358.2	342.6	329.2
57.5°	560.2	577.2	540.9	481.8	430.0	384.3	354.6	337.5	321.6	311.4	300.9
60°	488.4	504.3	477.5	429.6	381.4	343.7	315.8	300.9	287.5	281.0	274.1
62.5°	424.6	438.3	420.2	376.7	336.5	300.6	278.1	263.9	256.0	248.7	244.7
65°	364.4	376.3	359.3	327.0	291.1	262.1	242.9	231.7	223.0	220.1	215.0
67.5°	304.9	315.8	306.7	278.4	248.0	225.1	209.9	198.0	192.9	190.0	186.7
70°	253.1	263.9	254.2	230.2	208.1	189.6	175.5	169.3	163.9	162.8	157.7
72.5°	209.2	215.7	205.9	188.5	170.4	155.5	145.4	138.9	136.7	134.5	132.3
75°	163.5	170.0	163.5	149.0	135.6	124.7	115.3	112.8	109.5	108.4	106.6
77.5°	122.5	128.7	123.6	113.8	103.3	94.3	88.8	85.2	84.8	82.7	83.4
80°	88.5	92.1	87.4	81.2	73.2	67.4	63.8	62.0	59.8	59.1	60.5
82.5°	57.3	58.4	56.6	52.9	47.5	44.2	42.1	39.9	39.9	40.2	39.9
85°	33.0	32.6	32.3	28.6	26.8	24.3	22.8	22.5	22.1	22.8	23.6
87.5°	13.8	14.1	13.8	12.3	11.2	10.2	9.8	9.4	9.8	10.2	10.5
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):

	110°	115°	120°	125°	130°	135°	140°	145°	150°	155°	160°
0°	875.2	875.2	875.2	875.2	875.2	875.2	875.2	875.2	875.2	875.2	875.2
2.5°	854.2	850.9	846.2	839.7	834.2	828.4	827.0	824.8	829.2	825.5	824.5
5°	830.3	822.6	812.9	801.6	795.1	785.7	783.8	780.2	776.6	776.2	772.6
7.5°	805.2	794.7	782.4	770.8	760.6	750.5	744.0	743.2	737.4	734.5	730.9
10°	781.3	767.5	752.7	741.8	729.5	718.6	711.0	706.6	703.0	699.0	695.4
12.5°	753.0	738.2	726.6	714.6	699.4	691.8	678.0	669.6	669.6	670.7	659.9
15°	732.4	717.9	699.0	682.3	674.4	658.4	651.5	642.8	637.4	631.9	627.6
17.5°	707.0	689.2	674.7	655.9	641.0	629.0	619.6	614.9	606.2	598.2	592.8
20°	683.4	664.2	648.6	628.3	611.6	596.0	588.4	581.2	575.0	568.5	562.3
22.5°	659.5	639.2	619.2	599.7	584.4	567.8	560.5	550.0	544.2	541.3	535.1
25°	634.1	612.4	590.6	571.8	555.8	541.3	531.5	523.9	517.4	514.5	510.5
27.5°	606.6	585.2	564.5	542.7	524.3	513.7	505.8	499.6	495.6	491.3	489.5
30°	580.5	558.0	535.5	515.6	498.9	488.4	481.1	477.1	474.2	472.4	470.6
32.5°	554.0	531.9	507.9	490.2	475.7	466.6	461.5	457.5	456.5	456.1	455.7
35°	525.3	502.9	481.1	464.8	450.7	447.0	442.3	440.1	439.4	442.0	443.0
37.5°	497.8	476.8	456.5	440.1	430.7	424.9	423.1	422.7	425.3	427.5	430.0
40°	471.3	451.0	432.2	418.4	409.7	406.4	405.7	407.5	410.4	413.0	415.9
42.5°	445.6	425.6	409.0	396.3	390.8	387.9	388.7	390.5	394.8	398.1	402.8
45°	418.8	402.1	385.4	374.9	369.8	370.5	370.5	373.8	377.8	382.5	387.2
47.5°	393.7	376.7	362.6	353.5	351.0	349.9	351.7	356.0	361.5	366.9	373.4
50°	368.4	352.4	340.4	332.5	329.6	330.7	333.6	337.5	344.4	351.7	358.6
52.5°	342.6	328.5	317.6	310.3	308.5	310.7	313.6	320.5	326.3	334.3	343.0
55°	315.8	303.5	294.8	289.3	288.6	289.7	292.9	299.8	308.5	318.3	326.3
57.5°	289.3	278.8	270.5	266.5	266.8	267.6	272.6	281.0	289.7	300.2	310.3
60°	262.5	253.1	246.5	243.6	244.0	246.2	252.7	260.3	271.9	282.1	292.9
62.5°	237.1	229.1	223.0	220.4	219.7	225.1	231.3	239.3	250.9	262.5	274.5
65°	209.6	203.0	198.0	196.5	197.6	201.2	209.2	219.7	229.5	241.5	253.8
67.5°	182.7	177.3	173.7	174.4	175.5	180.6	187.4	196.5	207.4	219.7	232.4
70°	157.3	152.3	149.4	149.7	151.9	158.4	164.2	173.3	185.3	198.0	208.1
72.5°	131.2	128.3	125.8	127.6	129.8	133.8	141.4	150.5	160.6	172.2	183.1
75°	104.8	104.8	103.3	104.4	107.7	112.0	117.5	126.9	137.4	146.8	155.5
77.5°	82.3	81.2	81.9	83.0	85.2	90.6	96.8	103.7	112.0	121.8	129.1
80°	59.5	59.8	61.6	63.8	64.5	68.5	75.0	81.2	87.4	95.4	102.2
82.5°	41.0	41.3	42.1	45.0	45.7	50.0	53.7	59.8	65.3	70.0	75.4
85°	24.3	24.3	26.1	27.2	29.0	31.9	34.4	38.1	43.1	46.8	52.2
87.5°	11.6	11.6	13.1	13.8	14.9	16.7	17.4	21.4	22.8	24.7	27.9
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: P242644

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CANDELA DISTRIBUTION (continued):

	165°	170°	175°	180°
0°	875.2	875.2	875.2	875.2
2.5°	823.7	823.0	820.5	820.1
5°	770.4	768.6	767.5	771.5
7.5°	730.2	728.7	725.5	724.4
10°	691.8	690.3	687.4	686.7
12.5°	654.8	651.5	651.5	652.6
15°	622.9	621.4	617.4	618.5
17.5°	590.2	588.8	583.4	588.8
20°	559.8	556.9	554.3	554.0
22.5°	530.8	528.2	528.6	525.7
25°	507.6	505.0	504.3	502.5
27.5°	488.7	487.3	485.8	486.6
30°	471.7	471.3	470.6	470.6
32.5°	457.5	457.5	458.3	458.3
35°	444.5	445.6	446.3	445.2
37.5°	432.9	433.6	434.7	435.8
40°	419.1	421.7	422.4	424.2
42.5°	406.1	409.0	411.1	411.1
45°	392.6	395.5	398.1	398.1
47.5°	378.9	382.9	385.4	385.8
50°	364.7	369.8	372.3	374.2
52.5°	351.0	356.0	359.7	360.4
55°	334.6	341.9	345.9	347.3
57.5°	320.1	326.7	331.0	332.1
60°	302.7	310.0	315.8	316.9
62.5°	285.0	292.6	297.7	300.9
65°	263.9	271.6	276.6	277.7
67.5°	241.8	249.8	253.1	255.2
70°	218.3	224.4	228.0	229.9
72.5°	191.4	198.0	202.3	202.3
75°	163.9	169.7	171.9	171.9
77.5°	135.2	138.5	141.4	142.1
80°	107.7	109.5	111.7	111.7
82.5°	79.4	80.9	83.0	82.7
85°	51.5	54.7	54.4	53.7
87.5°	29.0	29.4	30.5	31.2
90°	0.0	0.0	0.0	0.0



TEST NUMBER: P242644
 CATALOG NUMBER: S124DRP-S575D840-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	17.09	18.66	17.46	18.97	19.28	18.01	19.57	18.37	19.88	20.20
	3H	18.58	19.98	18.96	20.31	20.67	19.37	20.78	19.75	21.11	21.47
	4H	19.12	20.44	19.52	20.79	21.16	19.84	21.17	20.24	21.51	21.89
	6H	19.48	20.70	19.89	21.07	21.46	20.15	21.38	20.56	21.74	22.13
	8H	19.58	20.74	20.00	21.13	21.53	20.23	21.40	20.66	21.79	22.19
	12H	19.63	20.75	20.06	21.13	21.56	20.27	21.39	20.70	21.77	22.20
4H	2H	18.26	19.58	18.65	19.93	20.30	18.69	20.01	19.09	20.36	20.74
	3H	19.79	20.89	20.20	21.29	21.69	20.40	21.50	20.81	21.90	22.30
	4H	20.37	21.37	20.80	21.78	22.22	20.99	21.98	21.42	22.40	22.84
	6H	20.80	21.67	21.26	22.11	22.57	21.39	22.25	21.84	22.69	23.15
	8H	20.92	21.73	21.39	22.18	22.64	21.49	22.30	21.95	22.74	23.21
	12H	21.00	21.73	21.48	22.20	22.67	21.55	22.28	22.04	22.76	23.23
8H	4H	20.83	21.64	21.29	22.08	22.55	21.30	22.11	21.76	22.56	23.02
	6H	21.33	22.01	21.83	22.50	22.97	21.83	22.50	22.33	22.99	23.47
	8H	21.51	22.11	22.02	22.62	23.10	21.99	22.60	22.51	23.11	23.59
	12H	21.63	22.16	22.14	22.65	23.22	22.11	22.64	22.62	23.13	23.69
12H	4H	20.88	21.60	21.36	22.08	22.55	21.33	22.06	21.82	22.54	23.01
	6H	21.41	22.01	21.92	22.52	23.01	21.89	22.49	22.40	23.00	23.49
	8H	21.63	22.16	22.14	22.65	23.22	22.11	22.64	22.62	23.13	23.70