

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: P242309

Luminaire Tested: S122DRP-S290D935-X4F0-XX-UDD-A-W

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-2024
Report Number: P242309
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1802-639-19)
Test Lab: INNOVATION CENTER
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: S122DRP-S290D935-X4F0-XX-UDD-A-W
Description: DEFINE 2 DIRECT RECESSED WITH ASYMMETRIC FLUSH DIFFUSER
STANDARD LIGHT ENGINE
Light Source: (92) 3500K CCT, 90 CRI LEDS
Ballast/Driver: -

Summary

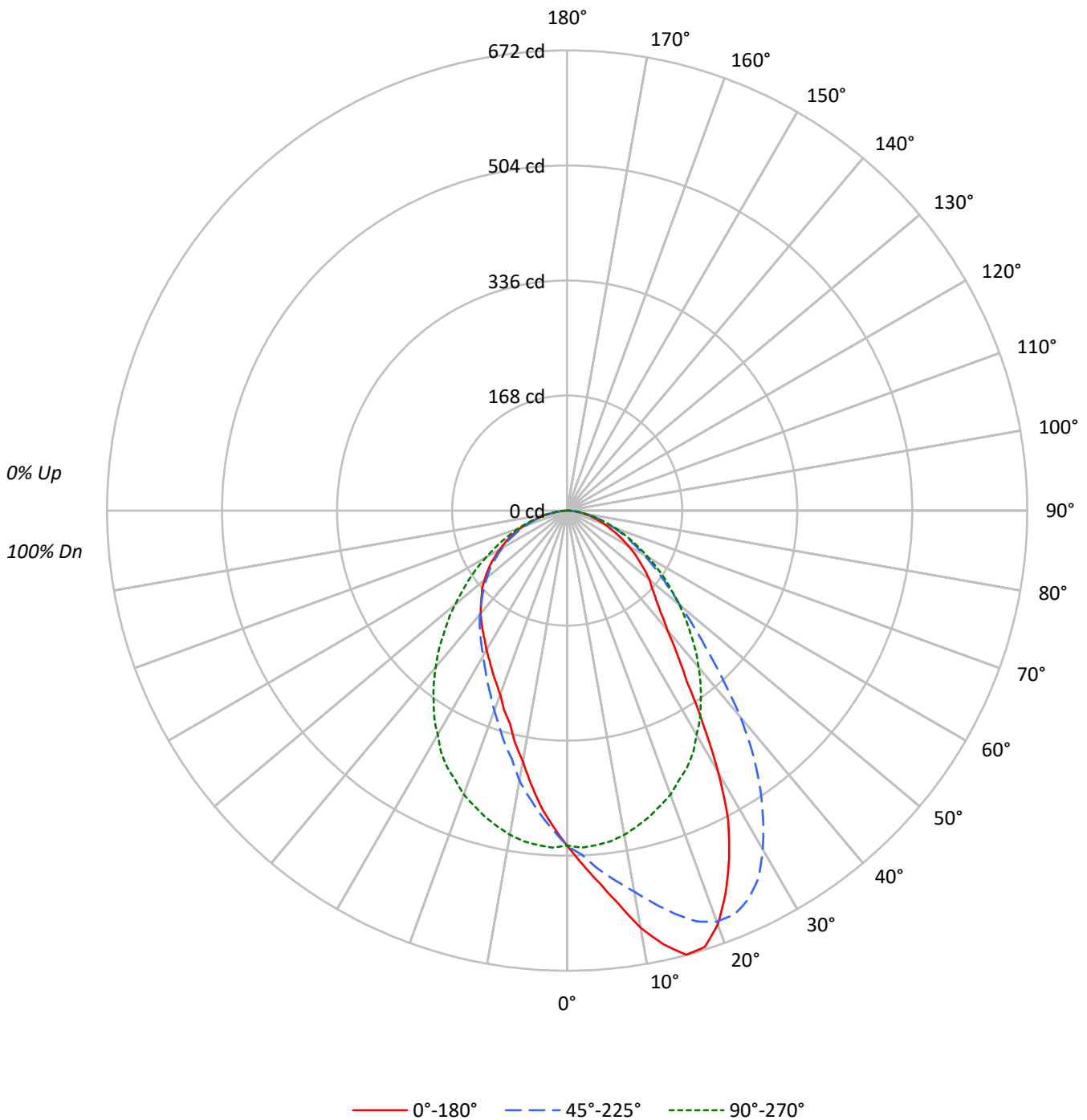
Lumens per Lamp: N/A
Luminaire Lumens: 1079.1 lumens
Efficiency: N/A
Efficacy: 93.0 lumens/watt
Spacing Criteria (0/90/45): 1.09 / 1.16 / 1.23
Luminous Opening: Rectangular (W 3.88' x L: 0.15' x H: 0')
CIE Type: Direct

Input Watts (W): 11.6
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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CATALOG NUMBER: S122DRP-S290D935-X4F0-XX-UDD-A-W

Luminous Intensity Polar Plot





TEST NUMBER: P242309

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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	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				86
2	101	94	87	82	98	92	86	81	88	83	79	85	81	78	82	79	76	74				74
3	93	83	76	70	90	82	75	69	79	73	68	76	71	67	74	69	66	64				64
4	86	75	66	60	83	73	66	60	71	64	59	69	63	58	66	62	58	55				55
5	79	67	59	53	77	66	58	52	64	57	52	62	56	51	60	55	51	49				49
6	74	61	53	47	72	60	52	46	58	51	46	57	51	46	55	50	45	43				43
7	69	56	48	42	67	55	47	42	54	46	41	52	46	41	51	45	41	39				39
8	64	51	43	38	63	51	43	38	49	42	37	48	42	37	47	41	37	35				35
9	60	47	39	34	59	47	39	34	46	39	34	45	38	34	44	38	34	32				32
10	56	44	36	31	55	43	36	31	42	36	31	41	35	31	41	35	31	29				29

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°	135°	180°
0°	9316	9316	9316	9316	9316
5°	10446	10054	9379	8518	8310
10°	11970	10930	9301	7748	7191
15°	13242	12029	9130	6943	6354
20°	13040	12949	8947	6302	5791
25°	11759	13165	8703	5788	5437
30°	9717	12574	8314	5386	5177
35°	7081	11408	7908	5141	4992
40°	5657	9784	7427	4926	4888
45°	4943	7823	6872	4709	4749
50°	4646	6383	6333	4528	4658
55°	4284	5549	5788	4364	4533
60°	3924	4941	5208	4168	4339
65°	3574	4467	4687	3917	4151
70°	3247	3988	4177	3614	3876
75°	2878	3525	3613	3238	3430
80°	2479	2995	2995	2666	2764
85°	2229	2426	2229	1858	1639

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 65°
 Vertical Angle: 45°
 Luminance: 11987 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	46.6	4.3
10°-20°	135.6	12.6
20°-30°	196.8	18.2
30°-40°	207.5	19.2
40°-50°	183.6	17.0
50°-60°	146.5	13.6
60°-70°	99.5	9.2
70°-80°	50.9	4.7
80°-90°	12.0	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°	379.0	35.1
0°-40°	586.5	54.3
0°-60°	916.6	84.9
0°-90°	1079.1	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1079.1	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	489	489	489	489	489	
5°	546	526	490	446	435	54
15°	672	610	463	352	322	186
25°	560	626	414	275	259	254
35°	304	491	340	221	215	197
45°	184	290	255	175	176	144
55°	129	167	174	131	136	116
65°	79	99	104	87	92	79
75°	39	48	49	44	47	42
85°	10	11	10	8	8	12
90°	0	0	0	0	0	



TEST NUMBER: P242309

CATALOG NUMBER: S122DRP-S290D935-X4F0-XX-UDD-A-W

CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
0°	489.1	489.1	489.1	489.1	489.1	489.1	489.1	489.1	489.1	489.1	489.1
2.5°	517.3	517.5	517.9	514.9	514.5	514.5	511.9	509.6	507.0	503.4	503.8
5°	546.3	548.4	549.1	546.9	543.5	543.1	539.9	534.6	529.7	525.8	523.0
7.5°	579.8	580.5	579.0	576.4	574.1	569.8	564.5	559.5	551.9	545.2	540.3
10°	618.9	620.0	616.8	612.5	608.9	603.6	595.0	586.1	575.4	565.1	556.8
12.5°	648.6	651.8	647.4	647.8	641.0	633.3	622.6	619.2	603.1	587.6	578.6
15°	671.5	671.3	671.7	668.1	663.6	662.5	651.6	639.7	618.5	610.0	595.4
17.5°	668.1	670.7	672.2	671.1	670.4	668.7	664.0	655.1	643.5	629.2	611.7
20°	643.3	647.1	647.6	651.9	654.4	657.6	658.9	656.8	650.2	638.8	624.1
22.5°	604.9	605.3	607.4	614.7	620.7	629.9	634.8	644.0	642.5	638.4	626.8
25°	559.5	557.6	564.2	567.5	579.8	592.5	601.7	611.9	620.9	626.4	622.8
27.5°	509.1	505.1	515.1	523.9	532.6	545.0	558.9	575.4	588.0	605.1	609.3
30°	441.8	443.5	452.9	462.4	477.5	497.0	513.2	531.8	551.9	571.7	585.4
32.5°	369.2	376.9	382.0	398.0	410.8	433.1	458.7	483.1	509.4	532.6	555.7
35°	304.5	312.1	320.3	331.0	349.7	371.3	394.4	425.8	460.0	490.6	515.8
37.5°	263.6	262.2	267.3	275.2	291.2	309.8	337.2	369.2	410.2	444.2	478.1
40°	227.5	226.7	230.1	237.2	248.7	261.5	284.8	312.1	349.5	393.5	435.8
42.5°	202.7	203.4	204.9	209.4	216.4	226.3	242.3	264.5	298.0	338.8	385.0
45°	183.5	184.8	186.9	189.3	193.8	202.5	212.2	228.8	255.9	290.4	335.2
47.5°	168.4	168.8	171.1	173.3	176.0	181.2	189.9	200.4	221.1	250.6	290.6
50°	156.8	155.5	157.0	158.7	161.5	164.9	170.1	179.9	192.7	215.4	247.6
52.5°	142.5	142.9	144.2	144.6	147.0	150.4	155.1	161.1	172.4	188.9	213.9
55°	129.0	129.9	130.7	131.8	134.0	136.5	140.2	144.8	153.8	167.1	186.7
57.5°	116.2	116.6	117.1	119.6	120.9	123.1	126.9	131.0	137.0	147.4	162.8
60°	103.0	103.0	104.5	105.5	107.3	109.6	112.4	116.4	121.6	129.7	141.6
62.5°	91.0	90.8	91.2	92.9	94.2	96.2	99.1	102.3	107.2	114.1	123.3
65°	79.3	79.0	80.1	80.5	82.0	84.0	86.3	89.9	93.8	99.1	107.7
67.5°	67.7	68.2	69.0	69.7	70.5	72.9	74.4	77.1	80.5	85.0	91.0
70°	58.3	58.3	58.3	58.8	60.0	61.1	62.6	64.7	67.9	71.6	76.9
72.5°	47.7	48.5	49.3	48.7	50.2	50.8	52.6	53.6	56.6	58.7	63.2
75°	39.1	39.1	39.1	40.0	40.6	41.2	42.3	43.4	44.9	47.9	50.4
77.5°	30.8	30.6	30.8	31.0	31.8	32.5	32.9	33.8	35.3	36.8	39.1
80°	22.6	22.9	23.1	23.5	23.5	23.9	24.1	25.4	26.3	27.3	28.6
82.5°	16.2	16.2	16.2	16.2	16.4	16.5	17.1	17.3	17.5	18.2	19.2
85°	10.2	10.0	10.0	10.3	10.2	10.2	10.5	10.9	10.9	11.1	11.7
87.5°	4.9	4.9	5.1	4.9	4.9	5.1	5.1	4.9	5.1	5.3	5.5
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°	489.1	489.1	489.1	489.1	489.1	489.1	489.1	489.1	489.1	489.1	489.1
2.5°	505.1	503.6	502.7	499.3	496.3	493.3	492.3	492.7	488.6	484.6	482.9
5°	521.5	517.7	514.1	509.1	503.1	496.5	493.1	490.5	483.9	476.7	472.6
7.5°	536.3	531.4	525.0	516.0	507.8	498.0	492.0	486.9	477.7	468.1	462.3
10°	549.7	542.3	533.5	521.9	511.1	498.5	489.7	480.9	469.6	457.6	450.0
12.5°	561.1	550.6	542.0	526.2	513.0	496.5	485.6	472.2	460.2	445.3	438.0
15°	580.7	562.5	545.9	529.0	513.4	491.4	479.7	463.0	447.4	429.7	421.3
17.5°	595.2	575.4	549.9	529.4	512.1	488.6	471.8	451.9	434.3	414.7	403.4
20°	607.2	583.7	555.7	530.1	508.3	480.5	461.9	441.4	419.8	397.0	384.6
22.5°	614.3	589.3	561.7	527.3	500.8	473.9	449.3	426.4	404.4	379.4	366.2
25°	614.7	592.2	562.8	526.0	494.8	464.1	435.9	414.1	387.6	364.7	345.7
27.5°	608.5	590.7	562.3	523.4	487.8	452.7	422.0	398.2	370.1	345.3	326.3
30°	594.8	585.4	557.9	518.8	479.2	440.6	406.1	378.0	350.2	325.0	305.5
32.5°	573.5	573.4	550.1	512.5	470.0	425.4	389.3	360.9	329.4	304.7	286.3
35°	544.4	553.4	538.2	502.3	457.9	411.1	372.4	340.1	308.1	284.4	266.9
37.5°	507.4	528.2	522.2	488.8	442.5	395.9	353.8	320.0	289.3	264.9	247.8
40°	468.8	497.4	501.6	472.8	426.0	377.7	332.4	298.7	269.0	247.2	229.9
42.5°	427.5	462.1	475.2	453.6	407.9	358.5	313.2	278.0	248.7	227.7	212.8
45°	380.3	424.5	445.0	431.8	387.4	337.1	290.4	255.1	228.4	208.5	196.6
47.5°	337.6	385.6	411.7	405.5	365.4	315.4	269.4	235.0	208.5	192.3	181.2
50°	291.8	341.4	374.7	376.2	341.4	291.9	245.7	213.7	189.9	175.0	166.4
52.5°	251.9	298.7	335.7	345.3	314.5	267.5	224.5	192.7	172.4	159.0	151.5
55°	218.3	258.3	298.5	313.2	287.8	242.7	202.3	174.3	154.5	145.1	138.4
57.5°	186.3	221.4	259.6	275.0	258.9	219.2	180.1	155.5	138.7	130.3	125.0
60°	162.0	188.4	221.4	240.8	227.3	192.9	159.8	136.7	123.5	116.2	111.3
62.5°	139.5	162.0	188.7	206.0	200.2	168.2	139.5	119.7	108.8	102.1	98.9
65°	118.8	137.2	158.8	175.2	170.3	145.7	121.4	104.0	94.9	89.5	86.7
67.5°	101.1	115.2	130.7	145.7	141.6	123.3	102.8	88.7	81.8	76.9	75.2
70°	84.6	94.7	108.1	119.6	116.4	102.1	86.7	75.0	69.2	65.2	63.5
72.5°	68.8	76.7	86.1	94.9	93.1	81.8	69.6	61.5	57.3	53.8	52.4
75°	54.3	60.7	66.9	73.1	72.6	63.4	55.8	49.1	45.5	42.7	42.1
77.5°	42.5	46.4	50.9	54.9	54.0	47.9	41.7	37.6	34.8	32.9	32.7
80°	30.6	32.7	35.7	38.3	37.0	34.8	30.1	27.3	25.4	23.5	22.7
82.5°	20.1	22.2	23.7	24.8	23.9	21.8	19.4	17.7	16.7	15.6	15.4
85°	11.7	12.8	13.5	13.9	13.5	12.2	10.9	10.2	9.2	8.6	8.5
87.5°	5.6	5.6	5.6	6.0	5.5	5.5	4.7	4.1	3.9	3.8	3.4
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: P242309

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CANDELA DISTRIBUTION (continued):

	110°	115°	120°	125°	130°	135°	140°	145°	150°	155°	160°
0°	489.1	489.1	489.1	489.1	489.1	489.1	489.1	489.1	489.1	489.1	489.1
2.5°	481.1	479.9	476.0	473.9	470.5	467.3	465.3	466.2	467.0	466.6	466.0
5°	468.8	465.3	459.8	455.1	451.7	445.5	442.9	441.6	440.5	439.1	437.8
7.5°	455.3	450.2	442.5	436.5	430.5	422.6	418.6	416.4	413.9	411.1	408.5
10°	440.6	432.7	424.5	415.1	407.6	400.6	394.4	390.3	386.5	382.9	380.3
12.5°	425.2	415.8	405.1	391.4	382.9	372.2	372.6	364.5	358.1	356.2	353.0
15°	408.7	395.9	382.9	367.7	361.1	352.1	346.5	340.8	335.7	332.2	331.2
17.5°	390.6	373.5	360.9	349.7	338.9	329.7	324.8	320.3	316.0	310.7	310.6
20°	369.4	355.1	341.0	331.4	320.3	310.9	304.5	300.0	296.5	293.6	291.2
22.5°	349.3	333.3	320.7	310.0	299.1	291.9	287.2	282.9	280.1	276.9	274.6
25°	327.5	315.3	301.2	289.3	280.3	275.4	271.3	267.5	265.6	263.6	260.9
27.5°	308.9	295.3	281.4	272.2	263.9	259.6	256.4	253.6	251.9	250.6	248.9
30°	288.9	275.2	264.9	255.9	249.3	244.9	243.1	241.6	239.5	238.7	238.0
32.5°	269.8	257.7	249.3	241.8	235.5	233.1	231.4	230.1	228.6	227.8	226.1
35°	251.9	241.6	232.9	228.6	223.5	221.1	219.8	217.9	216.4	215.6	215.4
37.5°	234.8	225.4	219.6	213.7	211.3	210.0	208.1	206.8	206.2	206.0	205.8
40°	218.3	210.9	205.8	201.3	200.4	198.1	196.6	195.5	195.5	195.7	195.5
42.5°	203.2	196.8	192.5	188.7	187.6	186.5	185.0	185.2	185.5	186.3	185.5
45°	188.0	183.3	180.1	178.2	176.1	174.8	174.6	175.2	175.4	175.6	176.1
47.5°	173.7	170.7	167.7	165.4	164.5	164.3	163.9	164.9	165.8	166.0	166.9
50°	161.3	157.7	155.3	154.0	153.2	152.8	153.2	154.3	155.1	156.0	156.6
52.5°	147.4	145.1	143.6	142.7	142.5	142.9	142.9	144.2	145.5	145.7	145.9
55°	134.8	132.9	132.5	130.8	131.6	131.4	132.3	133.1	134.2	135.4	135.5
57.5°	122.0	120.3	119.2	119.4	119.6	120.3	121.1	122.4	123.7	125.0	125.0
60°	109.2	108.5	107.9	107.9	108.3	109.4	110.3	111.7	112.4	113.2	113.7
62.5°	97.6	96.8	96.2	96.6	97.8	98.3	99.4	100.0	100.8	101.5	101.7
65°	85.2	84.8	85.3	85.7	85.9	86.9	88.2	88.7	89.5	89.9	91.2
67.5°	73.9	73.9	73.7	74.3	75.4	75.6	76.9	78.4	78.4	79.1	80.1
70°	62.4	62.8	63.2	63.5	64.5	64.9	65.8	66.4	67.1	67.7	68.2
72.5°	51.9	51.9	52.3	52.1	52.8	53.8	54.5	55.1	55.8	56.6	57.1
75°	41.5	41.5	41.9	42.1	43.0	44.0	43.8	44.2	44.9	45.7	46.1
77.5°	32.1	31.8	32.1	32.3	32.7	33.5	33.6	34.2	35.2	35.0	35.3
80°	23.1	22.6	23.1	23.3	23.3	24.3	24.3	24.6	25.2	24.6	25.2
82.5°	14.9	14.7	15.0	15.0	15.4	15.2	15.6	15.6	16.2	16.0	16.2
85°	8.3	8.1	8.3	8.1	8.3	8.5	8.5	8.3	8.3	8.6	8.1
87.5°	3.2	3.0	2.8	2.8	2.6	2.4	2.3	2.3	2.3	1.9	1.9
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: P242309

CATALOG NUMBER: S122DRP-S290D935-X4F0-XX-UDD-A-W

CANDELA DISTRIBUTION (continued):

	165°	170°	175°	180°
0°	489.1	489.1	489.1	489.1
2.5°	464.1	463.8	463.8	462.1
5°	435.2	434.6	433.7	434.6
7.5°	407.7	405.3	404.9	403.0
10°	377.1	375.6	375.4	371.8
12.5°	353.8	349.7	350.6	348.9
15°	326.2	326.2	325.4	322.2
17.5°	306.4	306.2	304.5	305.7
20°	289.1	288.0	285.7	285.7
22.5°	272.8	273.0	270.5	271.5
25°	260.7	259.2	258.1	258.7
27.5°	248.3	247.8	247.6	245.9
30°	237.8	235.9	236.3	235.4
32.5°	225.8	225.4	224.8	224.1
35°	215.1	215.2	214.3	214.7
37.5°	205.5	206.2	205.7	205.7
40°	196.1	196.1	196.1	196.6
42.5°	187.0	186.7	186.3	186.1
45°	176.5	177.1	177.3	176.3
47.5°	167.3	167.5	167.3	168.4
50°	157.5	157.2	157.5	157.2
52.5°	147.2	147.4	147.0	147.0
55°	136.3	136.7	136.5	136.5
57.5°	125.2	125.4	125.8	124.8
60°	113.5	114.5	114.3	113.9
62.5°	102.8	103.0	103.0	103.0
65°	91.7	92.1	91.5	92.1
67.5°	79.7	79.9	80.3	80.5
70°	68.6	68.4	69.0	69.6
72.5°	57.0	57.5	57.1	57.5
75°	45.7	46.2	46.1	46.6
77.5°	35.0	35.2	35.2	35.3
80°	25.2	24.8	24.4	25.2
82.5°	15.6	16.0	15.6	15.4
85°	8.1	7.9	7.5	7.5
87.5°	1.9	1.7	1.7	1.5
90°	0.0	0.0	0.0	0.0



TEST NUMBER: P242309
 CATALOG NUMBER: S122DRP-S290D935-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	16.05	17.57	16.42	17.88	18.20	19.31	20.82	19.67	21.13	21.45
	3H	17.46	18.82	17.83	19.15	19.51	20.31	21.67	20.69	22.00	22.36
	4H	17.96	19.24	18.36	19.59	19.96	20.63	21.91	21.03	22.26	22.64
	6H	18.31	19.49	18.73	19.86	20.25	20.83	22.01	21.24	22.37	22.77
	8H	18.43	19.55	18.85	19.94	20.34	20.87	21.99	21.30	22.38	22.79
	12H	18.50	19.57	18.93	19.96	20.39	20.89	21.96	21.32	22.35	22.78
4H	2H	16.91	18.19	17.31	18.54	18.91	19.52	20.79	19.91	21.14	21.52
	3H	18.46	19.53	18.88	19.92	20.33	20.86	21.92	21.27	22.32	22.72
	4H	19.06	20.01	19.49	20.43	20.86	21.36	22.32	21.79	22.73	23.17
	6H	19.50	20.33	19.96	20.77	21.23	21.70	22.53	22.15	22.97	23.43
	8H	19.64	20.42	20.11	20.86	21.33	21.77	22.55	22.23	22.99	23.46
	12H	19.75	20.44	20.23	20.92	21.39	21.81	22.50	22.29	22.98	23.45
8H	4H	19.49	20.26	19.95	20.71	21.18	21.49	22.26	21.95	22.71	23.18
	6H	20.02	20.66	20.52	21.15	21.63	21.93	22.57	22.42	23.06	23.54
	8H	20.21	20.79	20.73	21.30	21.79	22.06	22.63	22.58	23.14	23.63
	12H	20.38	20.88	20.89	21.37	21.94	22.15	22.66	22.66	23.15	23.72
12H	4H	19.55	20.24	20.03	20.72	21.19	21.48	22.18	21.97	22.65	23.13
	6H	20.10	20.67	20.61	21.18	21.67	21.93	22.50	22.44	23.01	23.50
	8H	20.34	20.85	20.85	21.34	21.91	22.11	22.61	22.62	23.10	23.67