

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: P243336

Luminaire Tested: S123DRP-H340D930-X4F0-XX-UDD-A-W

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-79-2024  
Report Number: P243336  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1802-639-59)  
Test Lab: INNOVATION CENTER  
Issue Date: 3/3/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: NEO-RAY  
Catalog Number: S123DRP-H340D930-X4F0-XX-UDD-A-W  
Description: DEFINE 3 DIRECT RECESSED WITH ASYMMETRIC FLUSH DIFFUSER.  
HIGH PERFORMANCE LIGHT ENGINE  
Light Source: (184) 3000K CCT, 90 CRI LEDS  
Ballast/Driver: -

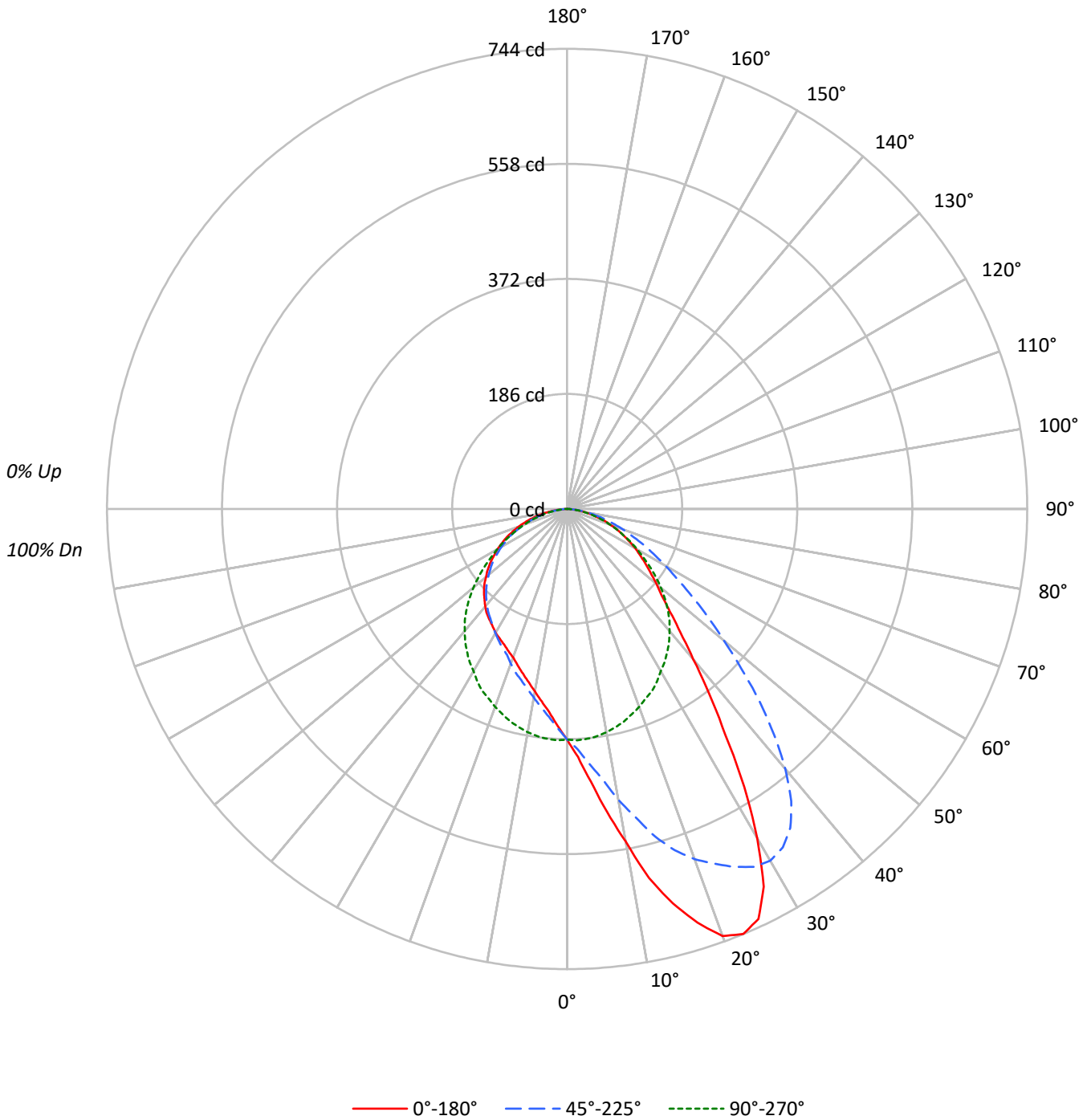
**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 1123.2 lumens  
Efficiency: N/A  
Efficacy: 100.3 lumens/watt  
Spacing Criteria (0/90/45): 1.39 / 1.21 / 1.5  
Luminous Opening: Rectangular (W 3.88' x L: 0.23' x H: 0')  
CIE Type: Direct  
  
Input Watts (W): 11.2  
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	105	101	98	107	103	99	96	99	96	93	95	92	90	91	89	87	85					85			
2	100	92	86	81	98	91	85	80	87	82	78	84	80	76	81	77	74	72					72			
3	92	82	74	68	89	80	73	67	77	71	66	75	69	65	72	68	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	50	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	51	44	39	50	43	39	49	43	38	36					36			
8	62	49	41	35	61	48	41	35	47	40	35	46	39	35	45	39	34	33					33			
9	58	45	37	32	57	45	37	32	43	36	31	42	36	31	41	35	31	29					29			
10	55	42	34	29	53	41	34	29	40	33	29	39	33	28	38	33	28	27					27			

**AVERAGE LUMINANCE (cd/sqm):**

	0°	45°	90°	135°	180°
0°	4518	4518	4518	4518	4518
5°	5382	5032	4538	4105	4012
10°	6722	5878	4511	3812	3688
15°	8282	6878	4462	3595	3461
20°	9478	7772	4391	3431	3293
25°	9782	8538	4343	3311	3231
30°	8594	9190	4240	3246	3235
35°	6595	9310	4176	3204	3238
40°	5018	8688	4074	3195	3261
45°	4037	7536	3943	3176	3259
50°	3553	6232	3732	3121	3230
55°	3273	5213	3457	3073	3210
60°	3086	4451	3164	2970	3144
65°	2868	3866	2891	2854	3083
70°	2626	3367	2594	2626	2952
75°	2332	2876	2262	2351	2749
80°	1954	2373	1871	2010	2408
85°	1377	1752	1349	1516	1808

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 55°  
 Vertical Angle: 45°  
 Luminance: 8460 cd/sqm



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	36.7	3.3
10°-20°	117.7	10.5
20°-30°	194.4	17.3
30°-40°	222.5	19.8
40°-50°	201.7	18.0
50°-60°	162.9	14.5
60°-70°	113.5	10.1
70°-80°	59.5	5.3
80°-90°	14.2	1.3
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°	348.8	31.1
0°-40°	571.3	50.9
0°-60°	935.9	83.3
0°-90°	1123.2	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1123.2	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	373	373	373	373	373	
5°	442	414	373	337	330	46
15°	660	548	356	286	276	188
25°	731	638	325	248	242	327
35°	446	629	282	216	219	282
45°	236	440	230	185	190	186
55°	155	247	164	145	152	139
65°	100	135	101	100	108	99
75°	50	61	48	50	59	53
85°	10	13	10	11	13	13
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°	372.7	372.7	372.7	372.7	372.7	372.7	372.7	372.7	372.7	372.7	372.7
2.5°	401.4	402.2	400.8	401.7	399.6	398.5	396.6	395.7	391.6	388.7	387.7
5°	442.3	442.3	442.6	440.6	438.2	433.9	428.3	424.7	420.6	413.6	410.1
7.5°	493.8	491.3	489.6	485.8	482.6	475.6	469.4	462.1	452.5	440.9	434.8
10°	546.1	548.8	547.1	543.2	534.8	523.4	514.3	503.7	488.9	477.6	461.6
12.5°	611.2	607.7	604.9	599.0	589.7	577.6	563.6	547.9	528.8	510.2	492.3
15°	660.0	660.6	660.4	652.5	643.5	627.1	614.1	588.0	563.8	548.1	518.4
17.5°	701.3	703.6	701.0	689.2	681.2	671.5	654.9	625.9	603.9	578.5	545.7
20°	734.8	735.1	731.0	722.3	713.1	702.2	680.4	658.2	636.7	602.5	571.3
22.5°	743.7	744.5	743.7	739.9	732.4	720.8	704.4	683.9	656.8	620.5	591.4
25°	731.4	730.9	733.8	731.5	731.2	727.5	716.7	700.1	673.4	638.4	601.5
27.5°	688.4	684.8	692.1	701.7	703.0	709.0	709.2	701.5	682.2	652.4	612.3
30°	614.0	617.4	621.0	640.9	652.0	667.6	681.0	686.0	678.6	656.6	619.1
32.5°	533.1	544.0	554.1	567.9	584.1	610.4	631.7	650.5	658.5	648.8	619.1
35°	445.7	451.5	467.4	485.0	508.3	528.8	571.1	598.4	622.8	629.2	611.2
37.5°	377.5	382.8	388.2	401.9	428.1	462.3	497.3	533.1	569.3	595.2	594.2
40°	317.1	318.2	323.0	334.8	356.6	387.0	423.7	466.9	513.8	549.1	564.0
42.5°	270.6	270.6	276.6	290.3	302.9	325.1	360.6	398.6	450.0	495.4	527.1
45°	235.5	235.8	240.6	250.3	260.2	277.6	303.9	339.7	392.6	439.6	483.8
47.5°	206.8	210.1	212.8	217.9	227.8	243.2	262.3	292.8	330.5	381.7	433.3
50°	188.4	189.1	191.1	194.2	201.9	211.9	228.5	251.7	285.1	330.5	382.6
52.5°	170.3	170.3	172.3	176.1	180.5	188.7	200.7	220.0	245.0	286.2	332.9
55°	154.9	155.5	155.8	158.9	162.6	168.8	178.2	190.8	213.8	246.7	287.5
57.5°	139.9	141.8	141.3	143.7	146.4	150.8	157.5	168.4	186.0	211.1	247.8
60°	127.3	127.0	127.8	128.8	130.7	133.8	139.9	147.9	162.6	183.6	213.6
62.5°	113.0	112.6	113.6	114.8	116.5	119.1	123.5	129.7	141.3	157.0	183.1
65°	100.0	99.7	100.2	100.8	102.7	104.8	108.2	113.3	121.0	134.8	154.8
67.5°	87.0	87.0	87.4	88.1	89.2	90.8	93.5	96.6	104.3	113.5	129.2
70°	74.1	74.2	74.2	74.9	75.9	77.1	79.3	82.1	86.9	95.0	107.7
72.5°	62.8	62.8	62.5	62.8	63.5	64.0	65.4	67.9	71.5	77.5	87.0
75°	49.8	50.7	50.5	50.3	50.9	51.7	52.9	54.9	57.2	61.4	68.6
77.5°	38.2	38.7	38.7	38.9	39.4	40.1	40.4	42.5	44.5	47.1	52.4
80°	28.0	28.3	28.0	28.2	28.5	29.2	29.9	30.2	31.7	34.0	36.5
82.5°	18.8	18.3	18.9	18.8	19.1	19.3	19.6	19.8	20.8	22.2	23.9
85°	9.9	10.8	10.6	10.9	10.6	10.8	10.9	11.6	11.8	12.6	13.7
87.5°	3.8	4.1	4.1	4.1	4.1	4.1	4.4	4.6	4.9	5.1	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°	372.7	372.7	372.7	372.7	372.7	372.7	372.7	372.7	372.7	372.7	372.7
2.5°	388.4	386.8	384.6	382.2	379.7	377.1	375.9	374.4	371.3	368.2	365.9
5°	407.2	402.9	397.1	392.8	386.7	380.9	376.3	373.0	368.1	362.1	358.2
7.5°	428.1	420.5	411.2	401.9	392.6	383.9	376.8	370.6	363.0	355.6	349.6
10°	452.9	438.0	425.2	411.6	397.9	385.7	375.4	366.5	356.6	347.8	340.4
12.5°	474.7	457.5	439.7	420.5	402.0	386.2	373.0	361.4	349.5	339.2	331.7
15°	498.8	474.6	450.0	428.1	405.8	386.3	369.1	355.6	342.0	330.4	321.7
17.5°	526.4	494.0	463.1	431.7	411.9	386.8	365.7	347.9	333.9	322.3	311.1
20°	542.8	510.6	472.7	440.4	407.7	381.9	358.3	340.4	324.1	310.7	301.5
22.5°	551.7	517.7	478.1	445.0	406.8	378.0	352.9	331.7	314.2	300.8	290.4
25°	564.1	517.7	481.0	441.3	408.2	373.4	345.0	324.7	306.3	290.9	280.0
27.5°	569.8	522.3	481.4	434.1	400.0	364.7	336.0	314.5	294.0	279.0	269.6
30°	574.4	523.2	474.6	428.5	390.4	354.9	327.0	302.9	283.8	269.4	259.5
32.5°	574.7	521.0	465.3	417.9	377.6	343.5	316.2	293.5	273.5	258.4	248.6
35°	571.7	515.5	454.8	401.7	362.8	331.7	304.4	282.2	261.9	247.4	237.5
37.5°	563.8	509.4	444.9	386.5	345.2	315.0	291.8	270.6	250.5	236.0	227.8
40°	547.1	499.5	431.9	370.3	327.5	297.3	277.0	257.5	239.6	224.6	216.4
42.5°	524.9	484.6	416.2	353.1	307.7	278.5	260.6	244.9	226.6	213.6	205.3
45°	493.5	464.5	400.5	335.0	288.0	259.4	243.0	230.0	214.3	201.4	194.0
47.5°	458.0	440.3	380.2	314.7	267.4	240.4	224.9	214.5	201.2	190.1	182.8
50°	418.1	411.4	357.8	294.2	248.1	220.5	206.1	197.9	186.7	177.8	171.5
52.5°	374.7	378.8	334.3	273.4	229.5	201.5	187.9	180.4	173.2	165.7	159.7
55°	330.7	340.4	305.8	250.7	208.2	183.8	170.5	163.6	158.4	152.0	147.8
57.5°	289.4	304.6	276.3	226.4	188.6	165.2	152.6	146.6	142.7	139.2	135.3
60°	249.3	266.9	245.9	203.7	168.9	147.6	136.3	130.5	128.7	126.1	122.4
62.5°	213.8	231.7	216.0	180.4	149.1	130.9	120.6	115.9	113.1	112.3	110.1
65°	180.5	197.3	185.3	156.0	130.4	114.2	105.1	100.8	99.3	99.1	97.4
67.5°	151.7	167.9	157.0	132.2	110.6	97.4	90.6	87.2	85.7	85.8	84.6
70°	125.1	136.5	130.0	110.6	93.9	82.2	77.0	73.2	72.0	72.0	71.7
72.5°	100.3	109.4	104.4	89.6	76.4	67.6	63.0	60.7	59.7	59.6	59.7
75°	78.5	86.3	81.9	70.3	60.4	53.8	49.8	48.3	47.8	47.4	47.6
77.5°	58.7	63.6	60.9	53.4	45.2	40.6	38.7	37.2	36.7	36.9	37.2
80°	41.5	44.2	42.7	37.9	32.4	29.4	28.0	26.8	26.3	26.8	26.8
82.5°	26.3	28.3	27.0	23.9	21.2	19.1	17.7	17.4	17.2	16.9	17.4
85°	14.3	15.4	14.7	13.7	11.8	10.9	9.9	9.7	9.7	9.7	9.7
87.5°	5.6	6.3	5.5	5.5	5.1	4.3	4.3	4.1	3.9	4.1	4.1
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°	372.7	372.7	372.7	372.7	372.7	372.7	372.7	372.7	372.7	372.7	372.7
2.5°	364.8	362.6	361.3	359.4	357.2	354.3	353.1	354.3	353.6	352.4	352.9
5°	354.8	351.9	348.1	345.0	341.6	337.4	336.0	335.3	334.3	333.8	332.9
7.5°	344.9	340.6	336.0	331.7	326.8	323.0	321.3	320.1	319.8	317.2	316.2
10°	334.6	329.3	324.7	318.9	314.7	309.7	307.7	306.3	304.8	303.1	301.9
12.5°	323.9	318.6	312.8	307.3	303.1	297.6	294.9	293.3	292.1	290.9	289.6
15°	314.5	309.2	301.2	297.1	292.0	286.5	284.8	281.4	281.7	279.7	278.3
17.5°	304.6	296.7	291.1	285.0	281.2	277.3	274.1	270.5	270.0	268.4	267.9
20°	293.5	285.3	281.4	275.1	270.0	266.0	263.1	262.8	261.8	259.5	258.7
22.5°	282.6	275.9	270.5	264.7	260.1	254.9	253.6	254.1	252.2	251.7	249.8
25°	272.7	266.9	260.1	254.6	250.8	247.6	245.7	245.0	244.4	243.8	243.0
27.5°	262.1	256.0	250.2	245.7	242.1	239.9	238.7	237.2	237.0	237.0	236.7
30°	251.5	246.1	242.1	236.5	233.3	231.9	230.9	230.4	230.9	230.9	231.1
32.5°	241.8	236.5	231.9	228.0	224.7	223.7	223.5	223.5	224.2	224.2	224.7
35°	231.7	226.4	222.2	219.4	216.7	216.5	216.7	217.1	217.9	218.1	218.8
37.5°	220.8	216.7	213.5	210.1	209.4	209.7	210.1	210.4	210.7	212.1	212.1
40°	210.7	207.7	204.4	202.2	201.0	201.9	202.4	202.6	203.6	204.4	205.1
42.5°	200.8	197.9	195.4	193.5	193.0	193.7	194.2	194.7	195.7	196.4	197.6
45°	189.8	187.9	185.7	184.1	184.3	185.3	185.3	187.0	187.7	188.0	188.9
47.5°	179.5	177.5	175.9	175.3	175.1	175.9	176.4	177.8	178.2	179.3	180.0
50°	168.6	167.1	165.9	165.0	165.2	165.5	166.7	168.1	168.4	169.8	171.0
52.5°	157.2	155.8	154.8	155.1	155.6	155.6	156.8	157.7	158.5	159.6	160.7
55°	145.9	144.0	144.2	143.7	144.2	145.4	145.9	147.3	147.9	148.5	150.2
57.5°	133.6	133.3	132.8	132.2	133.3	133.8	134.6	135.5	136.7	137.4	138.6
60°	121.0	120.5	120.5	121.2	121.5	122.5	123.9	124.4	124.7	126.1	127.6
62.5°	109.4	108.9	108.7	109.7	109.7	110.7	111.3	112.1	113.5	114.0	116.0
65°	96.9	96.6	96.6	97.4	97.6	99.5	99.5	99.5	100.3	102.2	103.2
67.5°	84.0	84.1	84.6	85.2	85.8	86.3	86.5	87.5	88.9	90.1	92.1
70°	71.0	71.8	72.9	72.7	73.2	74.1	74.2	75.3	76.4	78.0	80.4
72.5°	59.4	59.9	60.9	60.9	61.6	62.1	63.0	63.6	65.2	66.6	67.6
75°	47.8	48.0	48.8	49.3	49.8	50.2	51.0	52.2	53.1	54.3	55.8
77.5°	37.5	37.2	37.9	38.1	38.4	39.1	39.8	41.0	41.6	43.0	43.5
80°	26.6	27.3	27.5	27.6	28.0	28.8	29.4	29.9	30.5	31.7	32.3
82.5°	17.6	17.9	18.4	18.6	18.9	19.1	19.3	20.1	20.6	21.0	22.7
85°	10.2	10.8	10.4	10.4	10.8	10.9	11.6	11.6	12.3	11.9	12.8
87.5°	4.4	4.3	4.3	4.4	4.3	4.1	4.6	4.6	4.4	4.6	4.6
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: P243336

CATALOG NUMBER: S123DRP-H340D930-X4F0-XX-UDD-A-W

**CANDELA DISTRIBUTION (continued):**

	165°	170°	175°	180°
0°	372.7	372.7	372.7	372.7
2.5°	352.0	352.0	350.7	351.2
5°	331.2	331.9	330.2	329.7
7.5°	315.9	315.2	314.0	314.0
10°	300.8	300.2	299.6	299.6
12.5°	287.9	287.2	286.2	287.0
15°	276.3	276.4	275.8	275.8
17.5°	267.4	265.9	265.3	265.2
20°	256.8	257.2	256.5	255.3
22.5°	250.2	249.3	248.6	248.5
25°	243.3	242.5	242.3	241.6
27.5°	236.5	236.7	236.2	236.2
30°	230.9	231.4	230.9	231.1
32.5°	225.2	225.2	225.2	224.6
35°	219.1	219.3	219.1	218.8
37.5°	212.8	212.8	213.0	213.3
40°	205.8	205.8	206.1	206.1
42.5°	197.4	198.3	198.8	197.9
45°	189.9	190.1	190.3	190.1
47.5°	181.6	181.1	181.2	181.6
50°	171.2	172.3	172.3	171.3
52.5°	161.1	161.4	162.1	162.1
55°	151.2	151.4	151.5	151.9
57.5°	139.9	140.1	140.1	139.9
60°	128.7	129.7	129.5	129.7
62.5°	116.5	118.1	118.6	118.4
65°	105.1	105.5	106.3	107.5
67.5°	93.0	93.9	95.2	94.9
70°	81.1	82.2	82.6	83.3
72.5°	69.1	70.6	71.0	71.3
75°	57.5	58.2	58.9	58.7
77.5°	44.9	45.9	47.1	46.4
80°	33.6	33.8	34.8	34.5
82.5°	22.2	23.5	23.5	22.9
85°	13.0	13.0	13.0	13.0
87.5°	4.4	4.3	4.6	4.4
90°	0.0	0.0	0.0	0.0

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**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	15.64	17.20	16.00	17.51	17.82	16.17	17.73	16.53	18.04	18.36
	3H	17.16	18.56	17.53	18.89	19.25	17.51	18.91	17.89	19.24	19.60
	4H	17.70	19.02	18.10	19.37	19.75	17.96	19.28	18.36	19.63	20.01
	6H	18.06	19.28	18.48	19.65	20.04	18.26	19.48	18.68	19.85	20.24
	8H	18.16	19.32	18.59	19.71	20.11	18.34	19.50	18.77	19.89	20.29
	12H	18.21	19.33	18.64	19.71	20.14	18.38	19.49	18.81	19.87	20.30
4H	2H	16.80	18.12	17.20	18.47	18.84	16.96	18.28	17.36	18.63	19.01
	3H	18.36	19.46	18.77	19.85	20.26	18.75	19.85	19.16	20.25	20.65
	4H	18.95	19.94	19.39	20.36	20.80	19.31	20.30	19.75	20.72	21.15
	6H	19.38	20.24	19.84	20.68	21.14	19.68	20.54	20.14	20.98	21.44
	8H	19.50	20.31	19.96	20.75	21.22	19.77	20.58	20.23	21.02	21.49
	12H	19.58	20.30	20.06	20.77	21.24	19.82	20.54	20.31	21.02	21.49
8H	4H	19.42	20.22	19.88	20.67	21.13	19.62	20.42	20.08	20.87	21.33
	6H	19.92	20.58	20.41	21.07	21.55	20.13	20.79	20.62	21.28	21.76
	8H	20.08	20.68	20.59	21.19	21.67	20.27	20.87	20.79	21.38	21.87
	12H	20.20	20.73	20.71	21.22	21.78	20.37	20.90	20.88	21.39	21.96
12H	4H	19.47	20.19	19.95	20.66	21.13	19.63	20.35	20.11	20.83	21.30
	6H	19.99	20.58	20.50	21.09	21.58	20.16	20.76	20.67	21.27	21.75
	8H	20.19	20.72	20.70	21.21	21.78	20.36	20.89	20.87	21.38	21.95