

Cooper Lighting Solutions Photometric Lab
1121 Highway 74 South
Peachtree City, GA 30269



Scaled data based on original data using
LM-79-2019 Approved Method: Electrical and Photometric Measurements of Solid-
State Lighting Products

Test Report Prepared for
Cooper Lighting Solutions

Brand: NEO-RAY

Report Number: P902441

Luminaire Tested: DFN2DIP-HX2F0-030D020US830-RLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P902441
REPORT IS A COMBINATION OF REPORTS P900674 AND P897595
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX2F0-030D020US830-RLLONL
Description: 2 foot, Hexagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

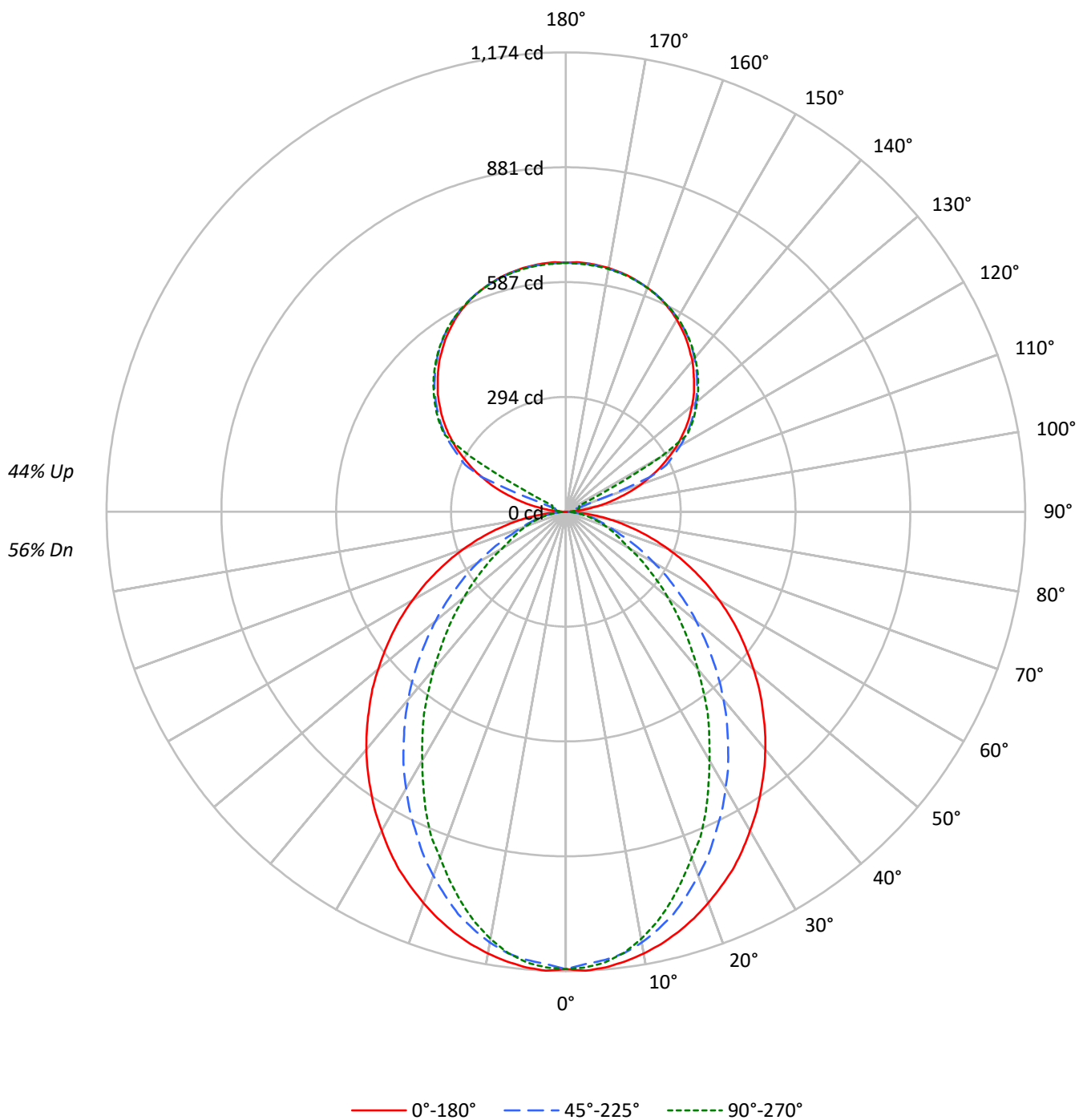
Lumens per Lamp: N/A
Luminaire Lumens: 4269.7 lumens
Efficiency: N/A
Efficacy: 105.4 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 1.99' x L: 2.3' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 40.5
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9951
Total Harmonic Distortion (THDi): 0.07
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

TEST NUMBER: P902441

CATALOG NUMBER: DFN2DIP-HX2F0-030D020US830-RLLONL

Luminous Intensity Polar Plot



TEST NUMBER: P902441

CATALOG NUMBER: DFN2DIP-HX2F0-030D020US830-RLLONL

COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:

RF	20					20					20					20					20
RC	80					70					50					30					10
RW	70	50	30	10		70	50	30	10		50	30	10		50	30	10		50	30	10
RCR																					
0	109	109	109	109		101	101	101	101		87	87	87		74	74	74		62	62	62
1	100	96	92	88		93	89	86	83		77	75	72		66	64	63		56	54	53
2	91	84	78	73		85	79	73	69		68	64	61		58	56	53		50	48	46
3	84	74	67	62		78	70	63	58		61	56	52		52	49	46		44	42	40
4	77	66	59	53		71	62	55	50		54	49	45		47	43	40		40	37	35
5	71	59	51	46		66	56	49	43		49	43	39		42	38	35		36	33	31
6	65	54	46	40		61	50	43	38		44	39	34		39	34	31		33	30	27
7	61	49	41	35		56	46	39	34		40	35	30		35	31	27		30	27	24
8	56	44	37	31		52	42	35	30		37	31	27		32	28	25		28	25	22
9	53	41	33	28		49	38	32	27		34	28	25		30	25	22		26	23	20
10	49	37	30	25		46	35	29	24		31	26	22		28	23	20		24	21	18

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2754	2754	2754
5°	2754	2703	2722
10°	2722	2644	2629
15°	2680	2550	2487
20°	2626	2424	2315
25°	2571	2283	2149
30°	2498	2139	1941
35°	2427	1986	1757
40°	2354	1827	1548
45°	2270	1653	1359
50°	2182	1477	1174
55°	2090	1290	997
60°	1983	1095	816
65°	1861	898	729
70°	1711	714	652
75°	1523	617	584
80°	1255	500	492
85°	819	309	345

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 2270 cd/sqm

TEST NUMBER: P902441

CATALOG NUMBER: DFN2DIP-HX2F0-030D020US830-RLONL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	109.5	2.6
10°-20°	300.7	7.0
20°-30°	422.1	9.9
30°-40°	460.2	10.8
40°-50°	422.9	9.9
50°-60°	332.2	7.8
60°-70°	216.2	5.1
70°-80°	111.3	2.6
80°-90°	29.5	0.7
90°-100°	21.0	0.5
100°-110°	78.2	1.8
110°-120°	207.4	4.9
120°-130°	344.0	8.1
130°-140°	365.4	8.6
140°-150°	339.6	8.0
150°-160°	273.0	6.4
160°-170°	175.9	4.1
170°-180°	60.6	1.4
0°-30°	832.3	19.5
0°-40°	1292.5	30.3
0°-60°	2047.6	48.0
0°-90°	2404.6	56.3
90°-120°	306.6	7.2
90°-150°	1355.6	31.7
90°-180°	1865.0	43.7
0°-180°	4269.7	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1169	1169	1169	1169	1169	
5°	1169	1163	1150	1159	1156	111
15°	1112	1100	1064	1044	1033	313
25°	1009	975	905	862	846	464
35°	869	815	722	656	632	544
45°	711	640	529	454	428	549
55°	540	458	344	280	260	483
65°	365	279	184	148	145	362
75°	194	121	85	77	76	206
85°	45	23	20	20	20	52
90°	0	6	9	12	12	4
95°	30	15	18	20	20	35
105°	140	154	28	33	35	150
115°	265	272	284	71	38	261
125°	374	380	389	392	394	334
135°	463	470	475	479	478	358
145°	537	537	545	548	546	336
155°	592	587	593	596	592	273
165°	623	621	622	625	622	176
175°	638	634	635	638	634	61
180°	636	636	636	636	636	

TEST NUMBER: P902441

CATALOG NUMBER: DFN2DIP-HX2F0-030D020US830-RLLONL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	1168.7	1168.7	1168.7	1168.7	1168.7
2.5°	1173.9	1168.7	1157.0	1167.6	1165.5
5°	1168.7	1163.4	1149.6	1159.1	1155.9
7.5°	1159.1	1152.8	1138.0	1142.2	1136.9
10°	1146.4	1139.1	1117.9	1114.7	1108.4
12.5°	1130.6	1121.1	1092.5	1086.2	1074.5
15°	1111.5	1099.9	1063.9	1043.9	1033.3
17.5°	1089.3	1072.4	1027.9	1004.8	987.8
20°	1063.9	1042.7	989.9	963.6	940.2
22.5°	1036.5	1012.1	950.7	914.8	899.0
25°	1009.0	975.1	905.3	862.0	846.0
27.5°	976.2	940.2	863.0	813.3	788.9
30°	941.3	901.1	816.4	762.6	734.0
32.5°	907.4	858.8	772.1	708.6	682.1
35°	869.4	815.4	722.4	655.7	632.4
37.5°	832.4	774.1	675.8	602.8	576.5
40°	793.2	729.8	627.2	552.0	524.6
42.5°	753.0	685.4	578.5	500.2	473.8
45°	710.8	639.8	528.9	453.6	428.3
47.5°	670.5	595.5	481.3	406.0	382.9
50°	626.1	551.0	434.7	361.7	339.5
52.5°	582.7	503.4	390.3	320.5	300.4
55°	540.4	457.9	343.7	280.3	260.2
57.5°	497.1	412.5	302.6	243.3	226.3
60°	452.6	368.1	259.1	205.2	188.3
62.5°	409.3	324.7	222.1	171.4	163.0
65°	364.9	279.2	184.0	148.1	144.9
67.5°	322.6	236.9	148.1	130.1	126.9
70°	278.1	195.7	122.6	112.1	107.8
72.5°	235.8	157.5	102.5	94.2	92.0
75°	194.5	120.6	84.6	77.2	76.2
77.5°	153.4	85.6	66.6	62.4	60.2
80°	115.3	61.4	50.7	46.6	46.6
82.5°	80.3	41.3	34.9	32.8	32.8
85°	45.4	23.2	20.1	20.1	20.1
87.5°	17.0	8.4	8.4	7.4	7.4
90°	0.5	5.6	9.1	11.5	12.4
92.5°	11.5	9.7	11.0	12.0	12.4
95°	29.9	14.7	17.9	20.3	19.8
97.5°	53.8	16.1	23.5	24.9	25.4
100°	81.5	18.4	26.2	29.9	30.8
102.5°	111.9	110.9	27.1	32.2	33.6
105°	140.0	153.7	28.1	33.1	35.0
107.5°	172.7	184.1	29.0	34.0	35.9
110°	204.0	213.6	80.6	34.6	36.4



TEST NUMBER: P902441

CATALOG NUMBER: DFN2DIP-HX2F0-030D020US830-RLLONL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	233.4	241.7	233.8	35.4	36.9
115°	264.7	272.5	284.1	70.9	37.8
117.5°	291.8	301.0	308.9	243.1	122.4
120°	322.3	329.1	337.4	343.0	280.8
122.5°	348.0	355.3	364.6	367.3	367.9
125°	374.3	380.2	389.0	392.2	393.6
127.5°	398.2	404.6	411.6	416.1	416.6
130°	420.8	428.1	433.2	438.3	437.8
132.5°	443.7	449.8	454.8	458.9	458.5
135°	463.2	470.5	474.6	479.3	478.3
137.5°	483.3	488.9	493.5	498.1	496.7
140°	503.1	506.9	511.9	516.0	513.8
142.5°	519.7	523.0	529.0	532.6	530.3
145°	537.2	536.8	544.6	547.8	545.5
147.5°	552.4	551.0	558.8	561.1	559.3
150°	567.1	563.9	571.3	574.0	571.7
152.5°	579.6	575.9	582.8	585.6	582.3
155°	591.5	587.4	593.0	595.7	592.0
157.5°	601.2	597.6	601.7	604.9	601.2
160°	609.5	606.7	609.5	612.3	609.1
162.5°	616.8	614.1	616.4	619.6	615.5
165°	623.3	620.6	621.9	625.2	621.9
167.5°	628.4	625.6	627.0	630.3	626.0
170°	632.5	629.7	630.7	633.9	629.7
172.5°	635.3	632.5	633.5	636.7	632.5
175°	637.5	634.3	635.3	638.5	633.9
177.5°	638.5	635.3	635.7	638.9	634.8
180°	636.2	636.2	636.2	636.2	636.2

TEST NUMBER: P902441

CATALOG NUMBER: DFN2DIP-HX2F0-030D020US830-RLONL

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	11.10	11.99	12.01	12.91	14.09	7.08	7.97	7.99	8.89	10.07
	3H	12.76	13.55	13.68	14.48	15.68	8.26	9.05	9.18	9.98	11.19
	4H	13.35	14.10	14.29	15.03	16.25	8.70	9.45	9.64	10.38	11.60
	6H	13.75	14.44	14.70	15.38	16.61	9.01	9.70	9.96	10.64	11.87
	8H	13.87	14.53	14.82	15.49	16.71	9.09	9.75	10.05	10.71	11.93
	12H	13.92	14.55	14.88	15.50	16.75	9.13	9.75	10.09	10.71	11.96
4H	2H	11.12	11.87	12.06	12.80	14.02	7.67	8.42	8.61	9.35	10.57
	3H	12.93	13.55	13.88	14.51	15.74	9.01	9.63	9.96	10.59	11.82
	4H	13.60	14.17	14.56	15.13	16.38	9.54	10.11	10.50	11.07	12.32
	6H	14.10	14.58	15.07	15.57	16.82	9.95	10.43	10.92	11.42	12.67
	8H	14.26	14.71	15.23	15.69	16.96	10.07	10.52	11.04	11.50	12.77
	12H	14.34	14.75	15.33	15.75	17.02	10.12	10.53	11.12	11.53	12.80
8H	4H	13.57	14.02	14.54	15.00	16.27	9.81	10.27	10.79	11.24	12.51
	6H	14.11	14.49	15.11	15.51	16.77	10.31	10.68	11.31	11.70	12.97
	8H	14.31	14.64	15.32	15.65	16.93	10.49	10.82	11.49	11.83	13.11
	12H	14.43	14.73	15.44	15.73	17.06	10.59	10.89	11.60	11.89	13.22
12H	4H	13.52	13.93	14.52	14.93	16.20	9.81	10.22	10.81	11.22	12.49
	6H	14.08	14.42	15.09	15.42	16.71	10.35	10.68	11.36	11.69	12.97
	8H	14.29	14.58	15.30	15.58	16.91	10.55	10.84	11.56	11.84	13.17