

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: P927054

Luminaire Tested: DFN2DIP-HX4F0-090D040US830-RLLONL

Issue Date: 12/12/2024

Test Information

Test Method: LM-79-2019
Report Number: P927054
REPORT IS A COMBINATION OF REPORTS P900830 AND P896187
Test Lab: INNOVATION CENTER
Issue Date: 12/12/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX4F0-090D040US830-RLLONL
Description: 4 foot, Hexagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

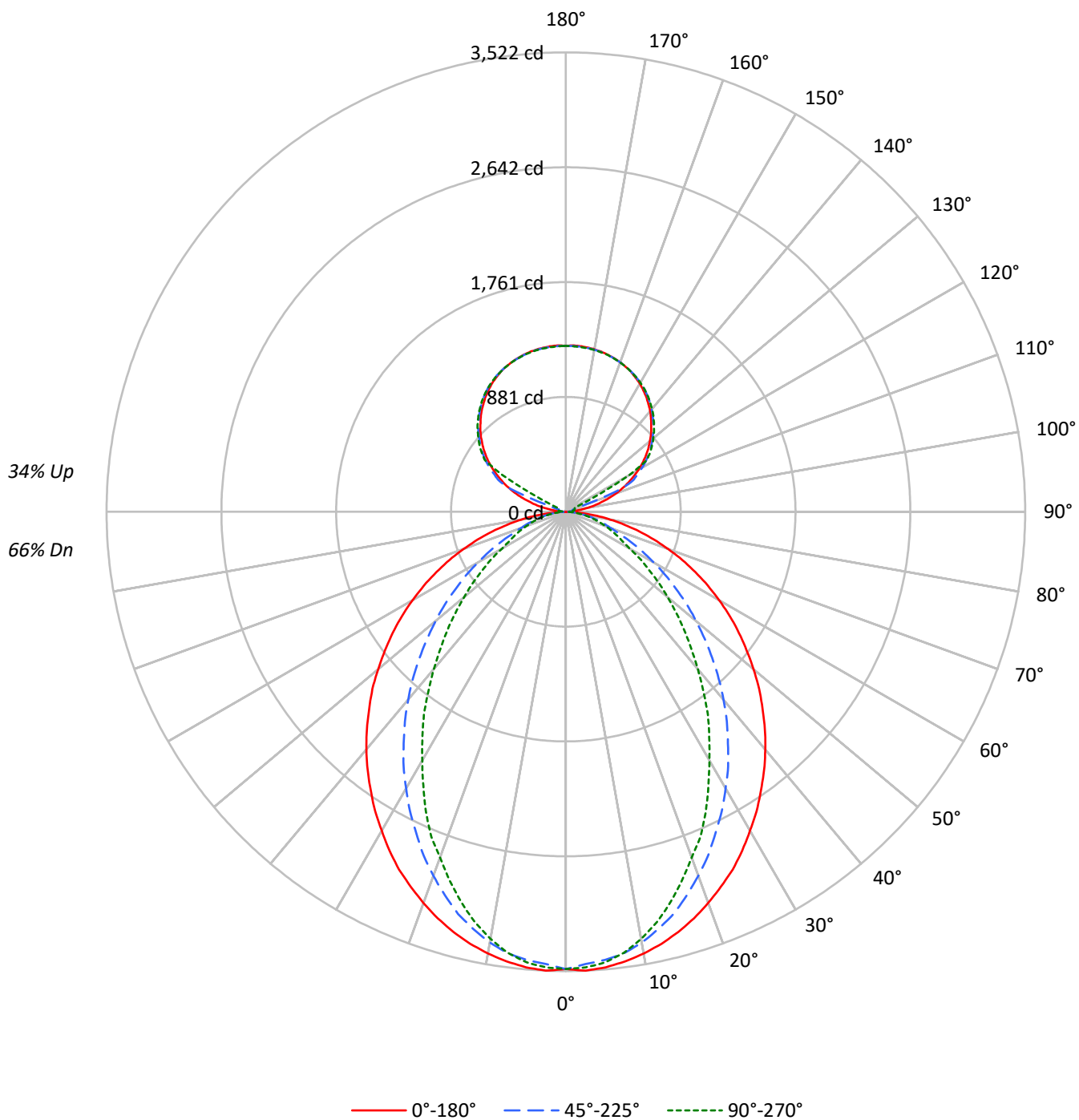
Lumens per Lamp: N/A
Luminaire Lumens: 10942.4 lumens
Efficiency: N/A
Efficacy: 92.1 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.54' x L: 4.09' x H: 0.1')
CIE Type: Semi-Direct

Input Watts (W): 118.8
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9821
Total Harmonic Distortion (THDi): 0.08
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
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10
RCR																	
0	111	111	111	111	104	104	104	104	92	92	92	81	81	81	71	71	71
1	102	98	94	91	96	92	89	86	82	79	77	72	71	69	64	62	61
2	93	86	80	75	88	81	76	72	73	68	65	64	61	59	57	54	52
3	86	76	69	63	80	72	66	61	65	60	55	57	54	50	51	48	45
4	79	68	60	54	74	65	58	52	58	52	48	52	47	44	46	42	40
5	73	61	53	47	68	58	51	45	52	46	42	47	42	38	42	38	35
6	67	55	47	41	63	52	45	40	47	41	37	43	38	34	38	34	31
7	62	50	42	37	59	48	40	35	43	37	33	39	34	30	35	31	28
8	58	46	38	33	55	44	37	32	40	34	29	36	31	27	32	28	25
9	54	42	35	29	51	40	33	29	37	31	27	33	28	25	30	26	23
10	51	39	32	27	48	37	30	26	34	28	24	31	26	23	28	24	21

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2607	2607	2607
5°	2611	2566	2582
10°	2586	2516	2498
15°	2550	2433	2368
20°	2503	2318	2209
25°	2455	2190	2055
30°	2391	2059	1860
35°	2328	1917	1689
40°	2263	1771	1492
45°	2188	1608	1314
50°	2111	1444	1140
55°	2031	1269	973
60°	1937	1086	801
65°	1830	899	721
70°	1700	726	653
75°	1537	640	594
80°	1300	538	516
85°	909	360	388

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 2188 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	328.6	3.0
10°-20°	902.0	8.2
20°-30°	1266.4	11.6
30°-40°	1380.4	12.6
40°-50°	1268.7	11.6
50°-60°	996.4	9.1
60°-70°	648.6	5.9
70°-80°	333.9	3.1
80°-90°	87.5	0.8
90°-100°	41.9	0.4
100°-110°	156.4	1.4
110°-120°	414.8	3.8
120°-130°	688.0	6.3
130°-140°	730.8	6.7
140°-150°	679.2	6.2
150°-160°	546.0	5.0
160°-170°	351.9	3.2
170°-180°	121.1	1.1
0°-30°	2496.9	22.8
0°-40°	3877.3	35.4
0°-60°	6142.5	56.1
0°-90°	7212.4	65.9
90°-120°	613.1	5.6
90°-150°	2711.1	24.8
90°-180°	3730.0	34.1
0°-180°	10942.4	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3506	3506	3506	3506	3506	
5°	3506	3490	3449	3477	3468	332
15°	3334	3300	3192	3132	3100	940
25°	3027	2925	2716	2586	2538	1392
35°	2608	2446	2167	1967	1897	1632
45°	2132	1919	1586	1361	1285	1647
55°	1621	1374	1031	841	781	1449
65°	1095	838	552	444	435	1085
75°	584	362	254	232	229	617
85°	136	70	60	60	60	156
90°	1	11	18	23	25	10
95°	60	29	36	40	40	71
105°	280	308	56	66	70	299
115°	529	545	568	142	76	521
125°	748	760	778	784	787	667
135°	926	941	949	958	957	715
145°	1074	1074	1089	1096	1091	672
155°	1183	1175	1186	1191	1184	545
165°	1247	1241	1244	1250	1244	352
175°	1275	1269	1270	1277	1268	121
180°	1272	1272	1272	1272	1272	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	3505.8	3505.8	3505.8	3505.8	3505.8
2.5°	3521.7	3505.8	3470.8	3502.8	3496.4
5°	3505.8	3490.0	3448.6	3477.2	3467.7
7.5°	3477.2	3458.3	3413.9	3426.4	3410.5
10°	3439.2	3416.9	3353.7	3343.9	3325.0
12.5°	3391.7	3363.1	3277.3	3258.4	3223.4
15°	3334.5	3299.5	3191.8	3131.5	3099.9
17.5°	3267.8	3217.0	3083.7	3014.0	2963.2
20°	3191.8	3128.2	2969.5	2890.5	2820.4
22.5°	3109.3	3036.3	2852.1	2744.4	2697.0
25°	3026.8	2925.1	2715.8	2585.8	2538.1
27.5°	2928.5	2820.4	2588.9	2439.8	2366.7
30°	2823.8	2703.0	2449.2	2287.6	2201.8
32.5°	2722.1	2576.0	2316.2	2125.7	2046.3
35°	2608.1	2446.2	2167.1	1967.2	1897.2
37.5°	2497.0	2322.3	2027.4	1808.3	1729.2
40°	2379.5	2189.3	1881.3	1656.2	1573.7
42.5°	2259.0	2056.1	1735.5	1500.6	1421.5
45°	2132.1	1919.4	1586.4	1360.9	1284.8
47.5°	2011.6	1786.4	1443.7	1218.2	1148.5
50°	1878.3	1653.1	1304.0	1084.9	1018.6
52.5°	1748.1	1510.1	1170.8	961.4	901.1
55°	1621.1	1373.7	1031.0	840.9	780.6
57.5°	1491.2	1237.4	907.5	729.8	679.0
60°	1357.9	1104.0	777.3	615.6	564.8
62.5°	1228.0	974.2	666.2	514.0	488.8
65°	1094.6	837.5	552.0	444.3	434.6
67.5°	967.8	710.6	444.3	390.1	380.7
70°	834.5	587.1	368.0	336.3	323.5
72.5°	707.5	472.6	307.6	282.4	276.1
75°	583.7	361.5	253.8	231.6	228.6
77.5°	460.1	256.8	199.9	187.2	180.8
80°	345.7	184.2	152.1	139.7	139.7
82.5°	241.0	123.8	104.7	98.3	98.3
85°	136.3	69.7	60.2	60.2	60.2
87.5°	50.8	25.3	25.3	22.2	22.2
90°	0.8	11.0	18.4	23.1	24.8
92.5°	23.1	19.3	22.1	23.9	24.8
95°	59.8	29.4	35.8	40.5	39.6
97.5°	107.7	32.2	46.9	49.8	50.6
100°	163.0	36.9	52.5	59.8	61.6
102.5°	223.7	222.0	54.3	64.4	67.2
105°	279.8	307.5	56.2	66.3	69.9
107.5°	345.2	368.2	58.1	68.1	71.8
110°	407.9	427.1	161.2	69.1	72.7

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	466.8	483.3	467.7	70.9	73.7
115°	529.3	545.0	568.0	141.8	75.6
117.5°	583.7	602.1	617.8	486.0	244.9
120°	644.5	658.2	674.8	686.0	561.6
122.5°	695.9	710.7	729.2	734.7	735.6
125°	748.4	760.5	777.9	784.4	787.2
127.5°	796.3	809.2	823.1	832.3	833.2
130°	841.5	856.3	866.3	876.4	875.6
132.5°	887.5	899.5	909.6	917.9	917.1
135°	926.2	941.0	949.2	958.4	956.6
137.5°	966.6	977.7	987.0	996.1	993.4
140°	1006.2	1013.7	1023.7	1032.0	1027.4
142.5°	1039.5	1045.9	1057.9	1065.1	1060.6
145°	1074.4	1073.5	1089.1	1095.6	1090.9
147.5°	1104.7	1102.0	1117.6	1122.2	1118.7
150°	1134.2	1127.8	1142.6	1148.1	1143.4
152.5°	1159.1	1151.7	1165.5	1171.1	1164.6
155°	1183.0	1174.8	1185.9	1191.3	1184.0
157.5°	1202.3	1195.0	1203.4	1209.8	1202.3
160°	1218.9	1213.4	1218.9	1224.4	1218.0
162.5°	1233.6	1228.2	1232.8	1239.2	1230.9
165°	1246.6	1241.1	1243.8	1250.2	1243.8
167.5°	1256.7	1251.1	1254.0	1260.4	1252.1
170°	1265.0	1259.5	1261.3	1267.8	1259.5
172.5°	1270.5	1265.0	1266.9	1273.3	1265.0
175°	1275.0	1268.6	1270.5	1276.9	1267.8
177.5°	1276.9	1270.5	1271.4	1277.9	1269.6
180°	1272.4	1272.4	1272.4	1272.4	1272.4

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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	11.85	12.83	12.66	13.66	14.69	7.82	8.80	8.64	9.63	10.66
	3H	13.54	14.41	14.36	15.25	16.31	9.02	9.90	9.85	10.74	11.80
	4H	14.15	14.98	15.00	15.83	16.89	9.48	10.31	10.33	11.16	12.22
	6H	14.58	15.34	15.44	16.20	17.28	9.81	10.57	10.67	11.43	12.51
	8H	14.71	15.44	15.58	16.31	17.39	9.91	10.63	10.77	11.50	12.58
	12H	14.78	15.47	15.65	16.34	17.44	9.96	10.64	10.83	11.51	12.62
4H	2H	11.88	12.71	12.73	13.56	14.63	8.43	9.26	9.28	10.11	11.18
	3H	13.73	14.41	14.59	15.30	16.38	9.80	10.49	10.66	11.37	12.45
	4H	14.43	15.05	15.30	15.93	17.04	10.36	10.98	11.23	11.86	12.97
	6H	14.95	15.49	15.84	16.39	17.50	10.78	11.32	11.67	12.23	13.34
	8H	15.13	15.63	16.02	16.53	17.65	10.92	11.42	11.81	12.32	13.44
	12H	15.23	15.68	16.14	16.60	17.73	10.99	11.44	11.90	12.36	13.49
8H	4H	14.41	14.91	15.30	15.81	16.93	10.65	11.15	11.54	12.05	13.17
	6H	14.98	15.39	15.90	16.33	17.46	11.17	11.59	12.09	12.53	13.65
	8H	15.20	15.56	16.12	16.50	17.64	11.37	11.73	12.29	12.67	13.81
	12H	15.34	15.67	16.27	16.59	17.78	11.49	11.82	12.42	12.74	13.93
12H	4H	14.36	14.82	15.27	15.73	16.86	10.66	11.11	11.57	12.03	13.16
	6H	14.95	15.32	15.88	16.25	17.40	11.22	11.59	12.15	12.52	13.66
	8H	15.18	15.51	16.11	16.43	17.62	11.44	11.77	12.37	12.69	13.88