

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: P927066

Luminaire Tested: DFN2DIP-HX4F0-090D070US830-RLLONL

Issue Date: 12/12/2024

Test Information

Test Method: LM-79-2019
Report Number: P927066
REPORT IS A COMBINATION OF REPORTS P900884 AND P896187
Test Lab: INNOVATION CENTER
Issue Date: 12/12/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX4F0-090D070US830-RLLONL
Description: 4 foot, Hexagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

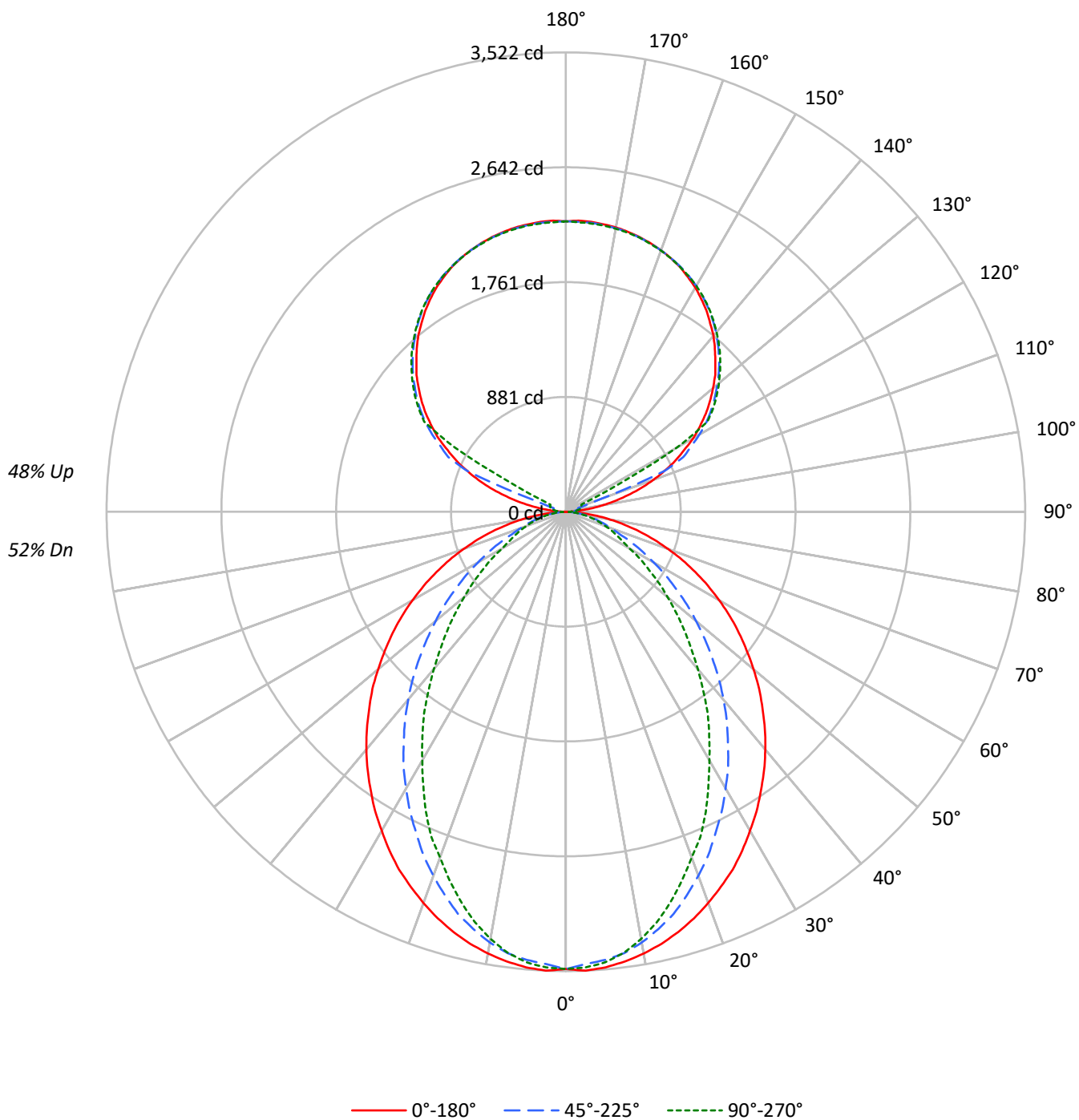
Lumens per Lamp: N/A
Luminaire Lumens: 13741.6 lumens
Efficiency: N/A
Efficacy: 97.7 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.54' x L: 4.09' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 140.7
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	108	108	108	108	100	100	100	100	85	85	85	71	71	71	58	58	58
1	99	95	91	88	91	88	85	82	75	73	71	63	62	60	52	51	50
2	90	83	77	72	84	77	72	68	66	63	59	56	53	51	47	45	43
3	83	74	67	61	76	69	62	57	59	54	50	50	47	44	42	39	37
4	76	66	58	52	70	61	54	49	53	48	43	45	41	38	38	35	33
5	70	59	51	45	65	55	48	43	47	42	38	41	36	33	34	31	29
6	65	53	45	39	60	49	42	37	43	37	33	37	33	29	31	28	26
7	60	48	40	35	55	45	38	33	39	34	30	34	29	26	29	25	23
8	56	44	36	31	52	41	34	29	36	30	26	31	27	24	26	23	21
9	52	40	33	28	48	38	31	26	33	28	24	29	24	21	25	21	19
10	49	37	30	25	45	35	28	24	30	25	22	27	22	19	23	20	17

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	2.4
10°-20°	902.0	6.6
20°-30°	1266.4	9.2
30°-40°	1380.4	10.0
40°-50°	1268.7	9.2
50°-60°	996.4	7.3
60°-70°	648.6	4.7
70°-80°	333.9	2.4
80°-90°	89.1	0.6
90°-100°	73.4	0.5
100°-110°	273.7	2.0
110°-120°	725.9	5.3
120°-130°	1203.9	8.8
130°-140°	1278.9	9.3
140°-150°	1188.6	8.6
150°-160°	955.6	7.0
160°-170°	615.7	4.5
170°-180°	211.9	1.5
0°-30°	2496.9	18.2
0°-40°	3877.3	28.2
0°-60°	6142.5	44.7
0°-90°	7214.1	52.5
90°-120°	1073.0	7.8
90°-150°	4744.3	34.5
90°-180°	6528.0	47.5
0°-180°	13741.6	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°	2	19	32	40	43	13
95°	105	52	63	71	69	124
105°	490	538	98	116	122	523
115°	926	954	994	248	132	912
125°	1310	1331	1361	1373	1378	1168
135°	1621	1647	1661	1677	1674	1252
145°	1880	1879	1906	1917	1909	1176
155°	2070	2056	2075	2085	2072	954
165°	2181	2172	2177	2188	2177	616
175°	2231	2220	2223	2235	2219	212
180°	2227	2227	2227	2227	2227	

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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°	1.5	19.3	32.1	40.3	43.4
92.5°	40.3	33.8	38.6	41.9	43.4
95°	104.6	51.5	62.8	71.0	69.3
97.5°	188.4	56.5	82.1	87.1	88.6
100°	285.3	64.5	91.8	104.6	107.9
102.5°	391.4	388.4	95.1	112.7	117.6
105°	489.8	538.2	98.3	115.9	122.4
107.5°	604.1	644.4	101.6	119.2	125.7
110°	713.8	747.5	282.0	120.9	127.2

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	817.0	845.8	818.5	123.9	128.9
115°	926.4	953.7	994.1	248.2	132.2
117.5°	1021.5	1053.6	1081.1	850.6	428.6
120°	1127.8	1151.9	1181.0	1200.4	982.8
122.5°	1217.9	1243.7	1276.1	1285.7	1287.4
125°	1309.8	1330.8	1361.4	1372.8	1377.5
127.5°	1393.6	1416.1	1440.4	1456.5	1458.0
130°	1472.6	1498.4	1516.0	1533.8	1532.3
132.5°	1553.1	1574.2	1591.8	1606.3	1604.8
135°	1620.8	1646.6	1661.1	1677.3	1674.1
137.5°	1691.6	1711.0	1727.2	1743.3	1738.5
140°	1760.9	1773.9	1791.5	1806.0	1798.0
142.5°	1819.0	1830.3	1851.2	1864.0	1856.0
145°	1880.3	1878.6	1905.9	1917.2	1909.2
147.5°	1933.3	1928.5	1955.9	1963.9	1957.6
150°	1984.9	1973.7	1999.5	2009.0	2001.0
152.5°	2028.4	2015.5	2039.7	2049.4	2038.2
155°	2070.3	2055.9	2075.2	2084.8	2072.0
157.5°	2104.1	2091.3	2105.8	2117.1	2104.1
160°	2133.3	2123.5	2133.3	2142.8	2131.5
162.5°	2158.9	2149.3	2157.3	2168.6	2154.1
165°	2181.4	2171.9	2176.6	2187.9	2176.6
167.5°	2199.2	2189.4	2194.4	2205.7	2191.2
170°	2213.7	2204.0	2207.2	2218.6	2204.0
172.5°	2223.4	2213.7	2217.0	2228.3	2213.7
175°	2231.4	2220.1	2223.4	2234.6	2218.6
177.5°	2234.6	2223.4	2225.1	2236.4	2221.8
180°	2226.6	2226.6	2226.6	2226.6	2226.6

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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	10.71	11.56	11.65	12.51	13.75	6.68	7.53	7.62	8.49	9.72
	3H	12.39	13.15	13.34	14.11	15.37	7.87	8.63	8.83	9.60	10.86
	4H	13.00	13.72	13.97	14.68	15.95	8.33	9.04	9.29	10.01	11.28
	6H	13.42	14.08	14.40	15.06	16.34	8.65	9.31	9.63	10.28	11.57
	8H	13.55	14.18	14.53	15.17	16.45	8.74	9.37	9.73	10.36	11.64
	12H	13.61	14.21	14.60	15.19	16.50	8.79	9.39	9.78	10.37	11.67
4H	2H	10.73	11.45	11.70	12.42	13.69	7.28	8.00	8.25	8.97	10.24
	3H	12.56	13.16	13.54	14.16	15.44	8.63	9.23	9.62	10.23	11.51
	4H	13.25	13.80	14.25	14.79	16.10	9.18	9.73	10.18	10.72	12.03
	6H	13.77	14.24	14.78	15.26	16.56	9.61	10.07	10.61	11.09	12.40
	8H	13.95	14.39	14.95	15.39	16.71	9.74	10.17	10.74	11.18	12.50
	12H	14.04	14.44	15.07	15.46	16.79	9.80	10.20	10.83	11.22	12.55
8H	4H	13.22	13.66	14.23	14.67	15.99	9.47	9.90	10.47	10.91	12.23
	6H	13.79	14.15	14.82	15.20	16.52	9.99	10.35	11.02	11.40	12.72
	8H	14.01	14.33	15.05	15.36	16.70	10.18	10.50	11.22	11.53	12.87
	12H	14.15	14.43	15.19	15.46	16.84	10.30	10.58	11.34	11.61	12.99
12H	4H	13.18	13.57	14.20	14.60	15.92	9.47	9.87	10.49	10.89	12.21
	6H	13.77	14.09	14.81	15.12	16.46	10.04	10.36	11.07	11.39	12.73
	8H	13.99	14.27	15.03	15.30	16.68	10.25	10.53	11.29	11.56	12.94