

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: P929338

Luminaire Tested: DFN2DIP-HX4F0-090D080US940-RLLONL

Issue Date: 12/12/2024

Test Information

Test Method: LM-79-2019
Report Number: P929338
REPORT IS A COMBINATION OF REPORTS P900902 AND P896187
Test Lab: INNOVATION CENTER
Issue Date: 12/12/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX4F0-090D080US940-RLLONL
Description: 4 foot, Hexagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

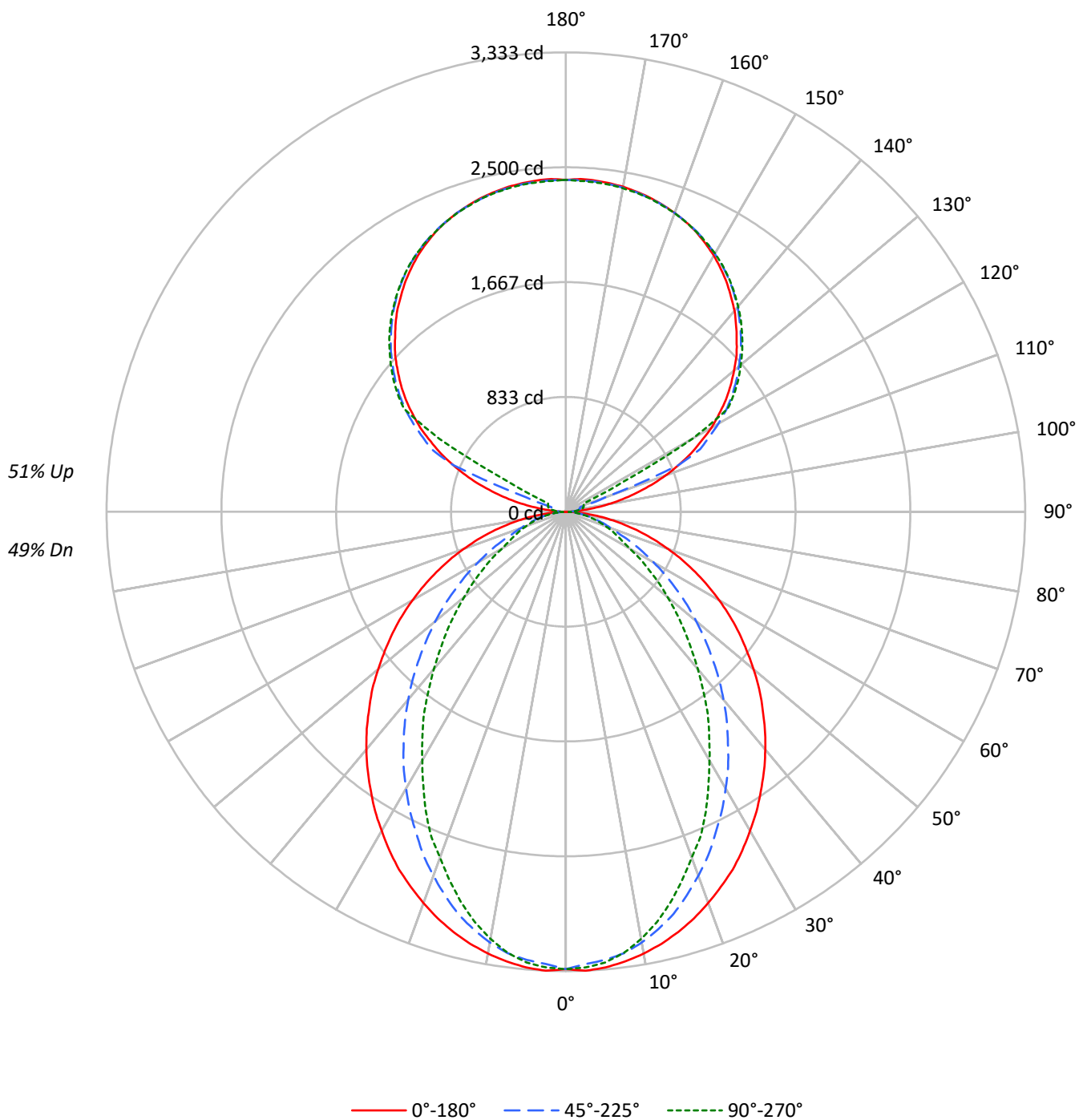
Lumens per Lamp: N/A
Luminaire Lumens: 13888.5 lumens
Efficiency: N/A
Efficacy: 94.5 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.54' x L: 4.09' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 147
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	107	107	107	107	99	99	99	99	83	83	83	69	69	69	55	55	55
1	98	94	90	87	90	87	84	81	73	71	69	61	59	58	50	49	48
2	90	83	77	72	82	76	71	67	65	61	58	54	52	49	44	42	41
3	82	73	66	60	75	68	62	57	58	53	49	48	45	42	40	37	35
4	75	65	57	51	69	60	54	48	51	46	42	43	40	37	36	33	31
5	69	58	50	44	64	54	47	42	46	41	37	39	35	32	32	30	27
6	64	52	44	39	59	49	42	37	42	36	32	36	31	28	30	27	24
7	59	47	40	34	55	44	37	32	38	33	29	32	28	25	27	24	22
8	55	43	36	30	51	40	33	29	35	29	26	30	26	23	25	22	20
9	51	39	32	27	47	37	30	26	32	27	23	28	23	20	23	20	18
10	48	36	29	24	44	34	28	23	30	24	21	25	21	19	22	18	16

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2467	2467	2467
5°	2471	2428	2444
10°	2447	2381	2364
15°	2413	2302	2241
20°	2369	2194	2091
25°	2324	2073	1945
30°	2263	1948	1760
35°	2203	1814	1598
40°	2142	1676	1412
45°	2071	1522	1244
50°	1998	1367	1079
55°	1922	1201	921
60°	1833	1028	758
65°	1732	851	682
70°	1609	687	618
75°	1454	606	562
80°	1230	509	488
85°	860	341	368

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 2071 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	311.0	2.2
10°-20°	853.7	6.1
20°-30°	1198.5	8.6
30°-40°	1306.5	9.4
40°-50°	1200.8	8.6
50°-60°	943.0	6.8
60°-70°	613.8	4.4
70°-80°	316.0	2.3
80°-90°	84.9	0.6
90°-100°	79.4	0.6
100°-110°	296.0	2.1
110°-120°	785.1	5.7
120°-130°	1302.2	9.4
130°-140°	1383.2	10.0
140°-150°	1285.6	9.3
150°-160°	1033.6	7.4
160°-170°	666.0	4.8
170°-180°	229.2	1.7
0°-30°	2363.1	17.0
0°-40°	3669.6	26.4
0°-60°	5813.4	41.9
0°-90°	6828.1	49.2
90°-120°	1160.6	8.4
90°-150°	5131.6	36.9
90°-180°	7060.0	50.8
0°-180°	13888.5	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3318	3318	3318	3318	3318	
5°	3318	3303	3264	3291	3282	315
15°	3156	3123	3021	2964	2934	889
25°	2865	2768	2570	2447	2402	1317
35°	2468	2315	2051	1862	1796	1545
45°	2018	1817	1501	1288	1216	1558
55°	1534	1300	976	796	739	1371
65°	1036	793	522	420	411	1027
75°	552	342	240	219	216	584
85°	129	66	57	57	57	148
90°	2	21	35	44	47	13
95°	113	56	68	77	75	134
105°	530	582	106	125	132	566
115°	1002	1032	1075	268	143	986
125°	1417	1439	1472	1485	1490	1263
135°	1753	1781	1797	1814	1811	1354
145°	2034	2032	2062	2074	2065	1272
155°	2239	2224	2245	2255	2241	1032
165°	2360	2349	2354	2366	2354	667
175°	2414	2401	2405	2417	2400	230
180°	2408	2408	2408	2408	2408	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	3318.0	3318.0	3318.0	3318.0	3318.0
2.5°	3333.0	3318.0	3284.8	3315.1	3309.1
5°	3318.0	3303.0	3263.8	3290.9	3281.9
7.5°	3290.9	3273.0	3231.0	3242.8	3227.8
10°	3254.9	3233.9	3174.0	3164.7	3146.9
12.5°	3210.0	3182.9	3101.7	3083.8	3050.6
15°	3155.8	3122.7	3020.8	2963.7	2933.8
17.5°	3092.7	3044.7	2918.4	2852.5	2804.4
20°	3020.8	2960.5	2810.4	2735.6	2669.3
22.5°	2942.7	2873.6	2699.3	2597.3	2552.5
25°	2864.7	2768.4	2570.3	2447.3	2402.1
27.5°	2771.6	2669.3	2450.1	2309.0	2239.9
30°	2672.5	2558.2	2318.0	2165.1	2083.8
32.5°	2576.3	2438.0	2192.1	2011.8	1936.6
35°	2468.3	2315.1	2051.0	1861.8	1795.5
37.5°	2363.2	2197.9	1918.8	1711.4	1636.6
40°	2252.0	2072.0	1780.5	1567.4	1489.4
42.5°	2137.9	1945.9	1642.5	1420.2	1345.3
45°	2017.9	1816.6	1501.4	1288.0	1216.0
47.5°	1903.8	1690.7	1366.4	1152.9	1087.0
50°	1777.7	1564.5	1234.2	1026.8	964.0
52.5°	1654.4	1429.2	1108.0	909.8	852.8
55°	1534.2	1300.1	975.8	795.8	738.8
57.5°	1411.3	1171.1	858.9	690.7	642.6
60°	1285.1	1044.9	735.6	582.7	534.6
62.5°	1162.2	922.0	630.5	486.5	462.6
65°	1036.0	792.6	522.4	420.5	411.3
67.5°	915.9	672.5	420.5	369.2	360.3
70°	789.8	555.6	348.2	318.3	306.1
72.5°	669.6	447.2	291.1	267.2	261.3
75°	552.4	342.2	240.2	219.2	216.3
77.5°	435.5	243.1	189.2	177.2	171.1
80°	327.2	174.3	144.0	132.2	132.2
82.5°	228.1	117.2	99.1	93.0	93.0
85°	129.0	65.9	57.0	57.0	57.0
87.5°	48.1	23.9	23.9	21.1	21.1
90°	1.7	20.9	34.8	43.6	47.0
92.5°	43.6	36.7	41.8	45.3	47.0
95°	113.2	55.7	67.9	76.8	74.9
97.5°	203.8	61.0	88.8	94.2	95.8
100°	308.5	69.8	99.4	113.2	116.7
102.5°	423.4	420.0	102.8	121.8	127.3
105°	529.8	582.1	106.3	125.4	132.5
107.5°	653.5	696.9	109.9	128.9	135.9
110°	772.1	808.5	305.1	130.8	137.6

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	883.6	914.8	885.3	134.1	139.5
115°	1002.0	1031.6	1075.2	268.4	143.0
117.5°	1104.8	1139.6	1169.4	920.0	463.6
120°	1219.9	1245.9	1277.4	1298.3	1063.0
122.5°	1317.3	1345.3	1380.3	1390.6	1392.5
125°	1416.7	1439.4	1472.5	1484.7	1489.9
127.5°	1507.3	1531.7	1558.1	1575.4	1577.1
130°	1592.8	1620.7	1639.8	1659.0	1657.3
132.5°	1679.9	1702.6	1721.7	1737.4	1735.7
135°	1753.1	1781.1	1796.6	1814.2	1810.7
137.5°	1829.8	1850.6	1868.2	1885.6	1880.4
140°	1904.6	1918.7	1937.8	1953.5	1944.7
142.5°	1967.6	1979.7	2002.3	2016.2	2007.4
145°	2033.8	2031.9	2061.5	2073.7	2065.0
147.5°	2091.1	2085.9	2115.5	2124.2	2117.3
150°	2147.0	2134.7	2162.7	2173.0	2164.3
152.5°	2194.0	2180.0	2206.1	2216.7	2204.5
155°	2239.3	2223.8	2244.6	2255.0	2241.2
157.5°	2275.8	2262.0	2277.7	2289.9	2275.8
160°	2307.3	2296.8	2307.3	2317.7	2305.5
162.5°	2335.1	2324.7	2333.4	2345.6	2329.9
165°	2359.5	2349.2	2354.3	2366.5	2354.3
167.5°	2378.7	2368.2	2373.5	2385.7	2370.0
170°	2394.5	2383.9	2387.4	2399.7	2383.9
172.5°	2404.8	2394.5	2398.0	2410.2	2394.5
175°	2413.5	2401.3	2404.8	2417.0	2399.7
177.5°	2417.0	2404.8	2406.6	2418.8	2403.1
180°	2408.3	2408.3	2408.3	2408.3	2408.3

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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	10.21	11.03	11.18	12.01	13.30	6.18	7.00	7.15	7.98	9.27
	3H	11.88	12.62	12.87	13.61	14.92	7.37	8.11	8.35	9.10	10.40
	4H	12.49	13.19	13.49	14.18	15.50	7.82	8.52	8.82	9.51	10.83
	6H	12.92	13.56	13.92	14.55	15.88	8.14	8.78	9.15	9.78	11.11
	8H	13.04	13.65	14.05	14.67	15.99	8.23	8.84	9.25	9.86	11.18
	12H	13.10	13.68	14.12	14.69	16.04	8.28	8.86	9.30	9.87	11.22
4H	2H	10.22	10.92	11.23	11.91	13.23	6.77	7.47	7.78	8.46	9.78
	3H	12.05	12.63	13.06	13.66	14.98	8.13	8.70	9.14	9.73	11.06
	4H	12.75	13.28	13.76	14.29	15.64	8.68	9.20	9.69	10.22	11.57
	6H	13.26	13.72	14.29	14.76	16.11	9.10	9.55	10.13	10.59	11.94
	8H	13.44	13.86	14.47	14.89	16.26	9.23	9.65	10.26	10.68	12.05
	12H	13.53	13.92	14.58	14.96	16.33	9.29	9.67	10.34	10.72	12.09
8H	4H	12.71	13.14	13.74	14.17	15.53	8.96	9.38	9.99	10.41	11.78
	6H	13.28	13.63	14.34	14.70	16.07	9.48	9.83	10.53	10.90	12.26
	8H	13.50	13.81	14.56	14.86	16.25	9.67	9.98	10.73	11.03	12.42
	12H	13.64	13.91	14.70	14.96	16.39	9.79	10.06	10.85	11.11	12.54
12H	4H	12.67	13.05	13.71	14.09	15.46	8.96	9.34	10.01	10.39	11.76
	6H	13.26	13.57	14.32	14.62	16.00	9.53	9.83	10.59	10.89	12.27
	8H	13.48	13.75	14.54	14.80	16.23	9.74	10.01	10.80	11.06	12.48

END OF REPORT