

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: P928694

Luminaire Tested: DFN2DIP-HX4F0-090D090US930-RLLONL

Issue Date: 12/12/2024

Test Information

Test Method: LM-79-2019
Report Number: P928694
REPORT IS A COMBINATION OF REPORTS P900920 AND P896187
Test Lab: INNOVATION CENTER
Issue Date: 12/12/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX4F0-090D090US930-RLLONL
Description: 4 foot, Hexagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

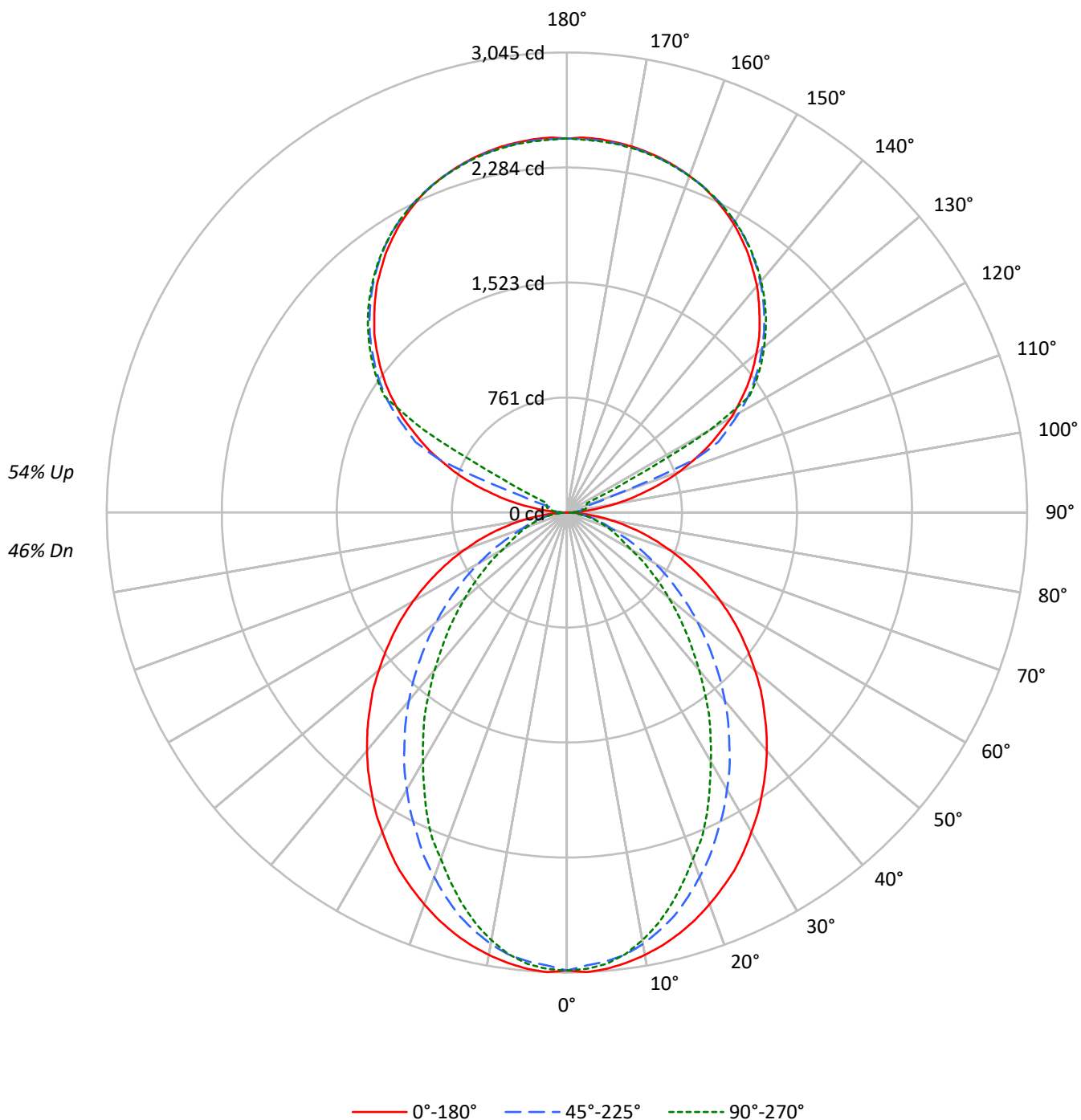
Lumens per Lamp: N/A
Luminaire Lumens: 13496.4 lumens
Efficiency: N/A
Efficacy: 86.2 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.54' x L: 4.09' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 156.6
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	106	106	106	106	98	98	98	98	81	81	81	66	66	66	53	53	53
1	97	93	90	86	89	86	83	80	72	70	68	59	58	56	47	46	45
2	89	82	76	71	82	76	70	66	63	60	57	52	50	48	42	40	39
3	81	72	65	60	75	67	61	56	56	52	48	47	43	41	38	35	34
4	75	64	57	51	68	60	53	48	50	45	41	42	38	35	34	31	29
5	69	58	50	44	63	53	46	41	45	40	36	38	34	31	31	28	26
6	63	52	44	38	58	48	41	36	41	36	32	34	30	27	28	25	23
7	59	47	39	34	54	44	37	32	37	32	28	31	27	24	26	23	21
8	55	43	35	30	50	40	33	28	34	29	25	29	25	22	24	21	19
9	51	39	32	27	47	36	30	25	31	26	22	27	23	20	22	19	17
10	48	36	29	24	44	33	27	23	29	24	20	25	21	18	20	18	15

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2254	2254	2254
5°	2258	2219	2233
10°	2236	2175	2160
15°	2205	2104	2048
20°	2165	2005	1910
25°	2123	1894	1777
30°	2067	1780	1608
35°	2013	1658	1460
40°	1957	1531	1290
45°	1892	1391	1136
50°	1826	1249	986
55°	1756	1097	841
60°	1675	939	692
65°	1582	778	623
70°	1470	628	564
75°	1329	554	514
80°	1124	465	446
85°	785	312	336

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 1892 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	284.1	2.1
10°-20°	780.0	5.8
20°-30°	1095.0	8.1
30°-40°	1193.7	8.8
40°-50°	1097.1	8.1
50°-60°	861.6	6.4
60°-70°	560.8	4.2
70°-80°	288.7	2.1
80°-90°	78.0	0.6
90°-100°	81.6	0.6
100°-110°	304.3	2.3
110°-120°	807.0	6.0
120°-130°	1338.5	9.9
130°-140°	1421.8	10.5
140°-150°	1321.4	9.8
150°-160°	1062.4	7.9
160°-170°	684.6	5.1
170°-180°	235.6	1.7
0°-30°	2159.1	16.0
0°-40°	3352.8	24.8
0°-60°	5311.5	39.4
0°-90°	6239.1	46.2
90°-120°	1193.0	8.8
90°-150°	5274.7	39.1
90°-180°	7257.0	53.8
0°-180°	13496.4	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3032	3032	3032	3032	3032	
5°	3032	3018	2982	3007	2999	287
15°	2883	2853	2760	2708	2680	813
25°	2617	2529	2348	2236	2195	1204
35°	2255	2115	1874	1701	1640	1412
45°	1844	1660	1372	1177	1111	1424
55°	1402	1188	892	727	675	1253
65°	946	724	477	384	376	938
75°	505	313	220	200	198	534
85°	118	60	52	52	52	135
90°	2	22	36	45	48	13
95°	116	57	70	79	77	138
105°	544	598	109	129	136	582
115°	1030	1060	1105	276	147	1014
125°	1456	1480	1514	1526	1532	1299
135°	1802	1831	1847	1865	1861	1392
145°	2090	2088	2119	2132	2123	1307
155°	2302	2286	2307	2318	2304	1061
165°	2425	2415	2420	2432	2420	685
175°	2481	2468	2472	2484	2466	236
180°	2476	2476	2476	2476	2476	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	3031.6	3031.6	3031.6	3031.6	3031.6
2.5°	3045.2	3031.6	3001.2	3028.9	3023.4
5°	3031.6	3017.9	2982.1	3006.8	2998.6
7.5°	3006.8	2990.5	2952.1	2962.9	2949.2
10°	2973.9	2954.7	2900.0	2891.5	2875.2
12.5°	2932.9	2908.2	2833.9	2817.6	2787.3
15°	2883.4	2853.2	2760.0	2707.8	2680.5
17.5°	2825.8	2781.8	2666.5	2606.3	2562.4
20°	2760.0	2705.0	2567.8	2499.4	2438.9
22.5°	2688.7	2625.5	2466.3	2373.1	2332.1
25°	2617.4	2529.4	2348.4	2236.0	2194.7
27.5°	2532.4	2438.9	2238.6	2109.7	2046.5
30°	2441.8	2337.3	2117.9	1978.2	1903.9
32.5°	2353.9	2227.6	2002.9	1838.2	1769.4
35°	2255.3	2115.3	1873.9	1701.1	1640.5
37.5°	2159.2	2008.2	1753.1	1563.7	1495.3
40°	2057.6	1893.2	1626.8	1432.1	1360.8
42.5°	1953.4	1777.9	1500.7	1297.6	1229.2
45°	1843.7	1659.7	1371.8	1176.8	1111.0
47.5°	1739.5	1544.8	1248.4	1053.4	993.2
50°	1624.2	1429.4	1127.6	938.1	880.8
52.5°	1511.6	1305.8	1012.4	831.3	779.2
55°	1401.8	1187.9	891.5	727.1	675.0
57.5°	1289.5	1070.0	784.8	631.1	587.1
60°	1174.2	954.7	672.1	532.4	488.4
62.5°	1061.9	842.4	576.0	444.5	422.7
65°	946.5	724.2	477.3	384.2	375.8
67.5°	836.8	614.4	384.2	337.3	329.2
70°	721.6	507.7	318.2	290.8	279.7
72.5°	611.8	408.6	266.0	244.2	238.7
75°	504.7	312.6	219.5	200.2	197.6
77.5°	397.9	222.1	172.9	161.9	156.3
80°	298.9	159.3	131.5	120.8	120.8
82.5°	208.4	107.1	90.5	85.0	85.0
85°	117.8	60.2	52.1	52.1	52.1
87.5°	43.9	21.8	21.8	19.2	19.2
90°	1.7	21.5	35.7	44.9	48.2
92.5°	44.9	37.7	43.0	46.6	48.2
95°	116.4	57.2	69.8	78.9	77.0
97.5°	209.5	62.8	91.3	96.7	98.5
100°	317.1	71.7	102.1	116.4	120.0
102.5°	435.2	431.8	105.7	125.3	130.8
105°	544.5	598.4	109.3	128.9	136.1
107.5°	671.7	716.4	113.0	132.5	139.8
110°	793.6	831.1	313.5	134.4	141.5

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	908.2	940.3	909.9	137.8	143.4
115°	1029.9	1060.3	1105.2	275.9	146.9
117.5°	1135.6	1171.4	1202.0	945.7	476.4
120°	1253.9	1280.7	1313.0	1334.5	1092.7
122.5°	1354.1	1382.8	1418.8	1429.3	1431.3
125°	1456.2	1479.6	1513.6	1526.2	1531.5
127.5°	1549.3	1574.4	1601.5	1619.3	1621.0
130°	1637.2	1665.9	1685.5	1705.2	1703.6
132.5°	1726.7	1750.1	1769.7	1785.9	1784.2
135°	1802.0	1830.7	1846.7	1864.8	1861.2
137.5°	1880.8	1902.2	1920.3	1938.2	1932.9
140°	1957.7	1972.2	1991.8	2007.9	1999.0
142.5°	2022.4	2035.0	2058.1	2072.4	2063.5
145°	2090.5	2088.5	2119.0	2131.6	2122.6
147.5°	2149.4	2144.1	2174.5	2183.5	2176.4
150°	2206.9	2194.3	2223.0	2233.6	2224.7
152.5°	2255.1	2240.8	2267.7	2278.5	2265.9
155°	2301.7	2285.7	2307.2	2317.9	2303.6
157.5°	2339.4	2325.1	2341.3	2353.8	2339.4
160°	2371.6	2360.8	2371.6	2382.3	2369.8
162.5°	2400.2	2389.5	2398.5	2411.0	2394.9
165°	2425.3	2414.6	2420.0	2432.5	2420.0
167.5°	2445.1	2434.2	2439.7	2452.3	2436.1
170°	2461.2	2450.4	2454.0	2466.5	2450.4
172.5°	2471.9	2461.2	2464.8	2477.4	2461.2
175°	2480.8	2468.2	2471.9	2484.4	2466.5
177.5°	2484.4	2471.9	2473.8	2486.3	2470.2
180°	2475.5	2475.5	2475.5	2475.5	2475.5

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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	9.61	10.41	10.60	11.41	12.74	5.58	6.38	6.58	7.38	8.71
	3H	11.28	12.00	12.29	13.01	14.36	6.77	7.49	7.78	8.50	9.84
	4H	11.89	12.57	12.91	13.58	14.94	7.22	7.90	8.24	8.91	10.27
	6H	12.31	12.94	13.34	13.96	15.32	7.54	8.16	8.57	9.18	10.55
	8H	12.44	13.03	13.47	14.07	15.43	7.63	8.22	8.67	9.26	10.62
	12H	12.50	13.06	13.54	14.09	15.48	7.68	8.24	8.71	9.27	10.65
4H	2H	9.62	10.30	10.65	11.31	12.67	6.17	6.85	7.20	7.87	9.22
	3H	11.45	12.01	12.48	13.06	14.43	7.52	8.09	8.56	9.13	10.50
	4H	12.14	12.66	13.18	13.69	15.08	8.07	8.59	9.11	9.62	11.01
	6H	12.66	13.10	13.71	14.16	15.55	8.49	8.93	9.54	9.99	11.38
	8H	12.83	13.25	13.88	14.30	15.70	8.62	9.03	9.67	10.08	11.49
	12H	12.93	13.30	14.00	14.36	15.77	8.69	9.06	9.75	10.12	11.53
8H	4H	12.11	12.52	13.16	13.57	14.97	8.35	8.76	9.40	9.81	11.22
	6H	12.68	13.02	13.75	14.11	15.51	8.87	9.21	9.94	10.30	11.70
	8H	12.89	13.19	13.97	14.27	15.69	9.06	9.36	10.14	10.44	11.86
	12H	13.03	13.29	14.11	14.37	15.83	9.18	9.44	10.27	10.52	11.98
12H	4H	12.06	12.43	13.13	13.50	14.90	8.35	8.73	9.42	9.79	11.20
	6H	12.65	12.95	13.73	14.03	15.45	8.92	9.22	10.00	10.30	11.71
	8H	12.87	13.13	13.96	14.21	15.67	9.13	9.39	10.21	10.46	11.93