

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: P908206

Luminaire Tested: DFN2DIP-HX4F0-070D090US840-FLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P908206
REPORT IS A COMBINATION OF REPORTS P899395 AND P896188
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX4F0-070D090US840-FLLFLL
Description: 4 foot, Hexagon Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

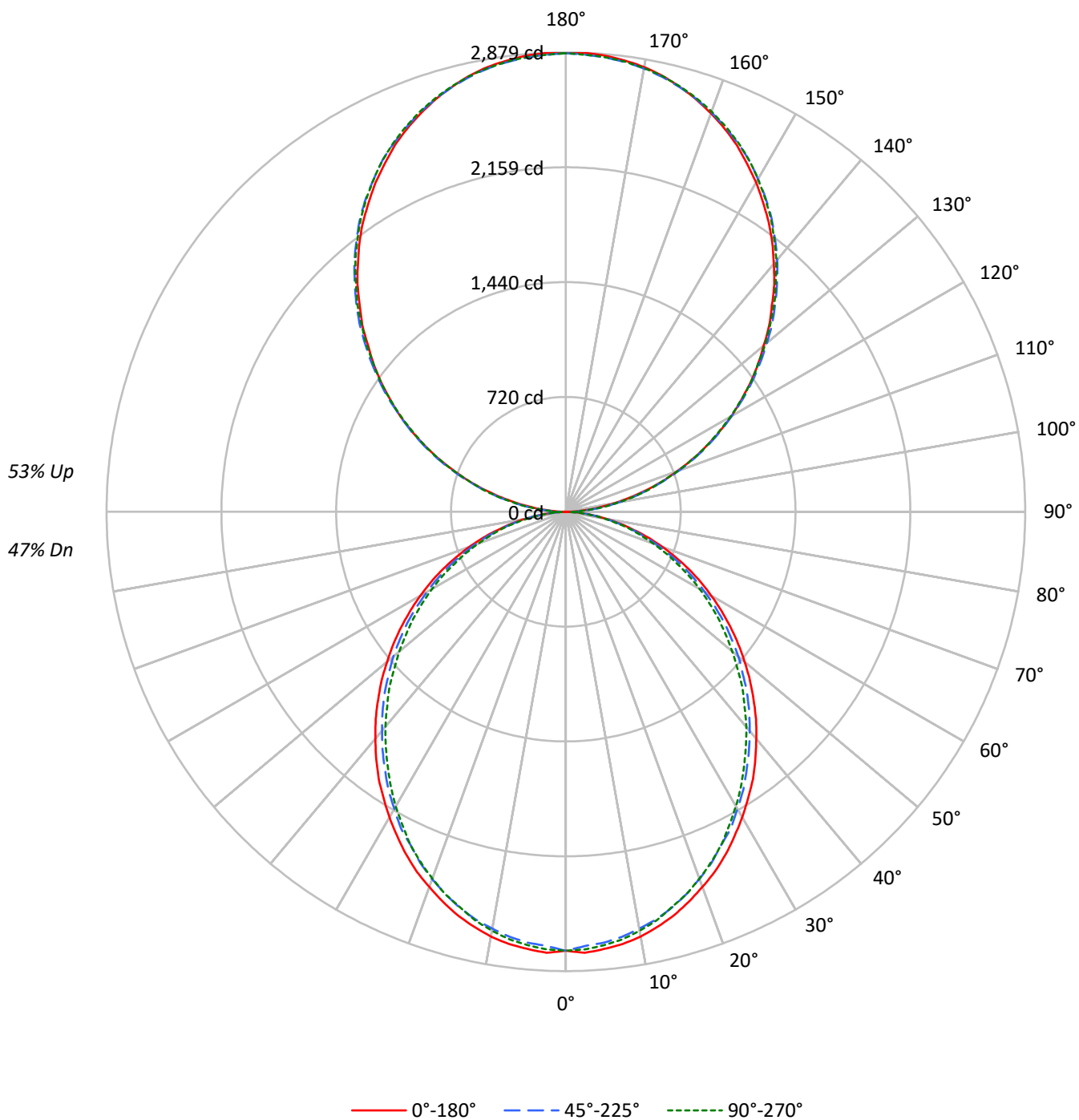
Lumens per Lamp: N/A
Luminaire Lumens: 15042.0 lumens
Efficiency: N/A
Efficacy: 128.2 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.54' x L: 4.09' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 117.3
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9972
Total Harmonic Distortion (THDi): 0.128
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	50	30	10
RCR																				
0	106	106	106	106	98	98	98	98	81	81	81	67	67	67	53	53	53			47
1	97	93	89	85	89	85	82	79	71	69	67	59	57	55	47	46	45			39
2	88	81	75	70	81	75	69	65	63	59	55	51	49	46	41	39	38			33
3	81	71	64	58	74	66	59	54	55	50	47	45	42	39	37	34	32			28
4	74	63	55	49	67	58	51	46	49	44	40	41	37	34	33	30	28			24
5	68	56	48	42	62	52	45	39	44	38	34	36	32	29	29	26	24			21
6	62	50	42	36	57	47	39	34	39	34	30	33	29	25	27	24	21			18
7	58	45	37	32	53	42	35	30	36	30	26	30	26	23	24	21	19			16
8	53	41	33	28	49	38	31	27	33	27	23	27	23	20	22	19	17			14
9	50	38	30	25	46	35	28	24	30	25	21	25	21	18	21	18	15			13
10	46	34	27	22	43	32	26	21	28	22	19	23	19	16	19	16	14			12

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2045	2045	2045
5°	2049	2017	2030
10°	2032	1990	2003
15°	2003	1957	1960
20°	1962	1912	1916
25°	1922	1858	1866
30°	1872	1807	1801
35°	1825	1748	1733
40°	1766	1688	1668
45°	1708	1628	1601
50°	1644	1564	1524
55°	1577	1491	1454
60°	1502	1404	1373
65°	1420	1314	1277
70°	1315	1205	1174
75°	1169	1074	1080
80°	995	907	898
85°	723	618	597

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 2167 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	258.9	1.7
10°-20°	728.4	4.8
20°-30°	1070.5	7.1
30°-40°	1243.3	8.3
40°-50°	1241.7	8.3
50°-60°	1082.8	7.2
60°-70°	800.4	5.3
70°-80°	452.9	3.0
80°-90°	127.7	0.8
90°-100°	177.9	1.2
100°-110°	565.2	3.8
110°-120°	967.2	6.4
120°-130°	1272.0	8.5
130°-140°	1427.7	9.5
140°-150°	1400.0	9.3
150°-160°	1174.4	7.8
160°-170°	778.9	5.2
170°-180°	272.2	1.8
0°-30°	2057.8	13.7
0°-40°	3301.1	21.9
0°-60°	5625.6	37.4
0°-90°	7006.5	46.6
90°-120°	1710.2	11.4
90°-150°	5809.9	38.6
90°-180°	8035.0	53.4
0°-180°	15042.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2751	2751	2751	2751	2751	
5°	2751	2740	2711	2732	2727	261
15°	2618	2603	2568	2579	2566	737
25°	2370	2349	2304	2309	2304	1090
35°	2045	2018	1976	1960	1947	1277
45°	1664	1645	1605	1576	1566	1284
55°	1259	1243	1211	1180	1166	1126
65°	849	833	807	783	770	840
75°	444	439	426	410	415	474
85°	108	106	103	95	93	121
90°	3	31	85	80	82	15
95°	126	151	155	155	151	141
105°	522	529	534	538	538	551
115°	971	984	980	978	971	960
125°	1412	1433	1426	1419	1416	1261
135°	1826	1853	1858	1855	1848	1411
145°	2217	2234	2248	2250	2241	1385
155°	2535	2542	2550	2562	2554	1167
165°	2757	2755	2755	2772	2760	778
175°	2869	2862	2857	2874	2860	273
180°	2874	2874	2874	2874	2874	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2750.6	2750.6	2750.6	2750.6	2750.6
2.5°	2766.6	2753.4	2724.2	2750.6	2745.5
5°	2750.6	2740.3	2711.1	2732.1	2727.0
7.5°	2732.1	2716.3	2687.2	2708.6	2703.2
10°	2703.2	2684.6	2652.9	2674.0	2666.1
12.5°	2663.3	2647.7	2616.0	2629.1	2623.7
15°	2618.5	2602.7	2568.2	2578.9	2565.7
17.5°	2562.8	2547.2	2512.6	2525.9	2512.6
20°	2501.9	2486.3	2449.2	2457.1	2446.7
22.5°	2441.3	2417.5	2383.0	2383.0	2377.6
25°	2369.9	2348.7	2303.9	2309.0	2303.9
27.5°	2290.4	2271.9	2237.7	2229.8	2216.6
30°	2211.3	2189.9	2150.4	2142.5	2131.8
32.5°	2126.5	2110.8	2068.4	2052.5	2041.7
35°	2044.6	2018.2	1975.8	1959.8	1946.6
37.5°	1952.0	1928.1	1885.7	1867.2	1854.0
40°	1856.8	1835.5	1793.1	1769.6	1758.9
42.5°	1764.2	1742.9	1700.8	1674.2	1658.4
45°	1663.8	1645.3	1605.4	1576.5	1565.8
47.5°	1565.8	1547.3	1504.9	1475.7	1460.1
50°	1462.6	1449.4	1412.3	1375.3	1362.1
52.5°	1362.1	1343.6	1309.4	1280.2	1261.6
55°	1259.1	1243.1	1211.4	1179.7	1166.5
57.5°	1155.9	1142.7	1108.1	1076.4	1065.8
60°	1052.6	1042.2	1005.2	976.0	968.2
62.5°	952.1	933.6	907.3	880.9	870.2
65°	849.2	833.1	806.8	782.9	769.7
67.5°	743.4	729.9	706.3	687.8	677.1
70°	645.4	634.8	610.9	592.4	582.0
72.5°	544.9	534.3	521.1	502.6	494.7
75°	444.2	439.2	425.7	410.0	415.4
77.5°	354.5	343.8	338.4	330.5	322.8
80°	264.6	261.9	256.5	248.6	243.3
82.5°	179.9	179.9	177.3	166.7	166.7
85°	108.4	105.8	103.3	95.1	92.6
87.5°	47.7	42.4	37.1	29.2	26.4
90°	2.6	31.2	84.9	79.7	82.3
92.5°	53.7	72.8	75.4	78.0	78.0
95°	126.5	150.8	155.1	155.1	150.8
97.5°	210.6	233.1	242.7	242.7	242.7
100°	307.6	327.6	334.5	334.5	331.9
102.5°	409.9	424.6	434.1	436.8	434.1
105°	521.7	528.6	533.8	538.2	538.2
107.5°	632.6	643.0	643.0	644.7	632.6
110°	740.0	754.0	754.0	754.0	747.0

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	856.2	870.9	868.3	861.4	856.2
115°	970.6	984.4	980.1	977.5	970.6
117.5°	1084.1	1103.2	1091.1	1084.1	1077.1
120°	1198.5	1217.5	1198.5	1198.5	1190.6
122.5°	1302.4	1326.8	1314.6	1307.7	1302.4
125°	1411.7	1433.3	1426.4	1418.6	1416.0
127.5°	1518.2	1545.1	1535.6	1525.2	1518.2
130°	1617.9	1649.1	1644.8	1639.5	1630.0
132.5°	1729.7	1753.9	1755.7	1743.5	1736.7
135°	1825.8	1852.7	1858.0	1855.3	1848.5
137.5°	1933.3	1955.0	1959.3	1957.6	1947.2
140°	2027.8	2049.4	2061.5	2061.5	2052.0
142.5°	2124.9	2146.5	2153.4	2156.1	2146.5
145°	2216.8	2234.0	2247.9	2250.5	2241.0
147.5°	2299.1	2320.7	2331.1	2335.4	2325.9
150°	2384.0	2398.7	2408.2	2416.0	2408.2
152.5°	2459.3	2474.1	2486.2	2495.8	2486.2
155°	2534.8	2541.6	2549.5	2561.6	2553.8
157.5°	2599.7	2604.9	2609.3	2626.6	2614.4
160°	2657.8	2663.0	2665.6	2680.3	2669.9
162.5°	2711.5	2711.5	2714.1	2730.6	2718.5
165°	2757.4	2754.8	2754.8	2772.2	2760.1
167.5°	2799.0	2791.3	2791.3	2808.5	2796.4
170°	2830.2	2823.3	2820.8	2838.0	2823.3
172.5°	2851.9	2845.0	2842.4	2859.7	2845.0
175°	2869.2	2862.3	2857.1	2874.5	2859.7
177.5°	2878.7	2871.9	2866.6	2881.3	2866.6
180°	2874.5	2874.5	2874.5	2874.5	2874.5

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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	9.43	10.26	10.42	11.26	12.58	9.00	9.83	9.99	10.83	12.15
	3H	11.09	11.84	12.09	12.84	14.18	10.62	11.36	11.61	12.37	13.71
	4H	11.68	12.38	12.69	13.39	14.74	11.20	11.91	12.21	12.92	14.27
	6H	12.08	12.73	13.10	13.74	15.10	11.60	12.25	12.62	13.27	14.63
	8H	12.18	12.80	13.21	13.83	15.19	11.71	12.33	12.73	13.36	14.71
	12H	12.23	12.82	13.26	13.84	15.23	11.75	12.34	12.78	13.36	14.74
4H	2H	9.89	10.60	10.91	11.61	12.96	9.55	10.25	10.56	11.26	12.61
	3H	11.76	12.34	12.78	13.38	14.75	11.36	11.95	12.39	12.99	14.35
	4H	12.47	13.01	13.50	14.04	15.42	12.06	12.60	13.10	13.63	15.02
	6H	12.98	13.45	14.03	14.50	15.88	12.57	13.04	13.62	14.09	15.47
	8H	13.13	13.57	14.18	14.61	16.01	12.72	13.15	13.76	14.20	15.60
	12H	13.21	13.60	14.27	14.66	16.06	12.78	13.17	13.84	14.24	15.64
8H	4H	12.66	13.10	13.71	14.15	15.54	12.30	12.74	13.35	13.78	15.18
	6H	13.30	13.65	14.36	14.74	16.14	12.93	13.29	14.00	14.38	15.77
	8H	13.52	13.83	14.59	14.91	16.32	13.15	13.46	14.22	14.54	15.95
	12H	13.65	13.93	14.73	14.99	16.45	13.26	13.54	14.34	14.61	16.06
12H	4H	12.65	13.04	13.71	14.10	15.50	12.30	12.69	13.36	13.75	15.15
	6H	13.33	13.64	14.40	14.71	16.13	12.97	13.29	14.05	14.36	15.77
	8H	13.57	13.84	14.65	14.91	16.37	13.21	13.49	14.29	14.56	16.01