

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: P928948

Luminaire Tested: DFN2DIP-HX4F0-070D100US935-FLLONL

Issue Date: 12/12/2024

Test Information

Test Method: LM-79-2019
Report Number: P928948
REPORT IS A COMBINATION OF REPORTS P900933 AND P896187
Test Lab: INNOVATION CENTER
Issue Date: 12/12/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX4F0-070D100US935-FLLONL
Description: 4 foot, Hexagon Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

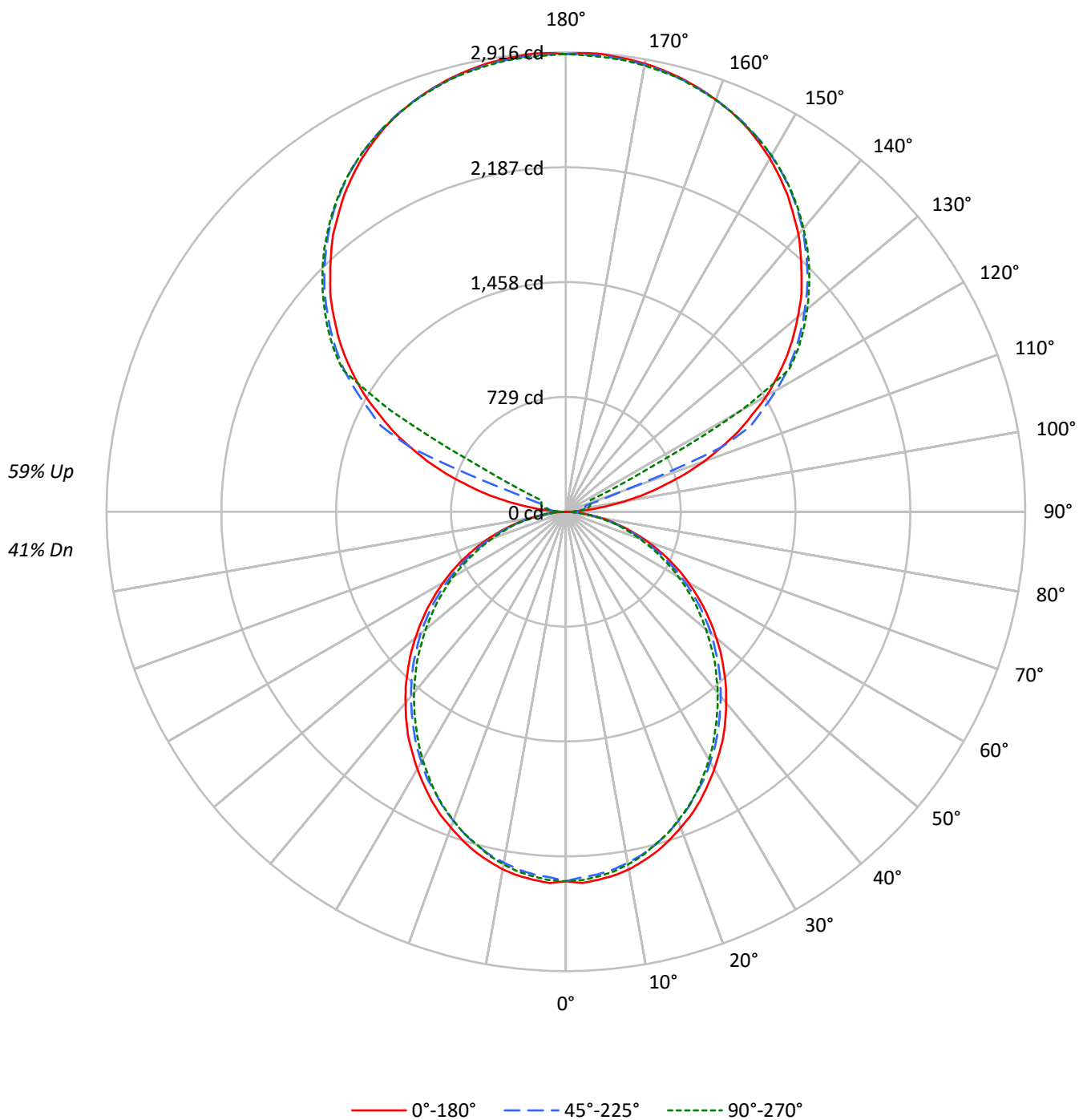
Lumens per Lamp: N/A
Luminaire Lumens: 14490.7 lumens
Efficiency: N/A
Efficacy: 101.8 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.54' x L: 4.09' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 142.4
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
RCR																	
0	105	105	105	105	96	96	96	96	78	78	78	63	63	63	48	48	48
1	96	92	88	84	87	84	80	77	69	66	64	55	54	52	42	41	41
2	87	80	74	69	79	73	68	63	60	56	53	48	46	43	37	36	34
3	80	70	63	57	72	64	58	53	53	49	45	43	39	37	33	31	29
4	73	62	54	48	66	57	50	45	47	42	38	38	34	31	30	27	25
5	67	55	47	41	61	51	44	38	42	37	33	34	30	27	27	24	22
6	61	50	42	36	56	46	38	33	38	33	29	31	27	24	24	21	19
7	57	45	37	31	52	41	34	29	34	29	25	28	24	21	22	19	17
8	53	40	33	28	48	37	31	26	31	26	22	26	22	19	20	17	15
9	49	37	30	25	45	34	27	23	29	23	20	24	20	17	19	16	14
10	46	34	27	22	42	31	25	21	26	21	18	22	18	15	17	15	13

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1744	1744	1744
5°	1747	1720	1731
10°	1733	1697	1708
15°	1707	1669	1671
20°	1673	1630	1634
25°	1639	1584	1591
30°	1596	1541	1536
35°	1556	1490	1477
40°	1506	1439	1422
45°	1456	1388	1365
50°	1402	1334	1300
55°	1345	1271	1239
60°	1280	1197	1170
65°	1210	1121	1089
70°	1121	1027	1001
75°	997	915	920
80°	848	773	765
85°	616	527	510

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 1493 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	220.7	1.5
10°-20°	621.0	4.3
20°-30°	912.7	6.3
30°-40°	1060.0	7.3
40°-50°	1058.7	7.3
50°-60°	923.2	6.4
60°-70°	682.4	4.7
70°-80°	386.1	2.7
80°-90°	107.0	0.7
90°-100°	95.8	0.7
100°-110°	357.2	2.5
110°-120°	947.3	6.5
120°-130°	1571.2	10.8
130°-140°	1669.0	11.5
140°-150°	1551.1	10.7
150°-160°	1247.1	8.6
160°-170°	803.6	5.5
170°-180°	276.6	1.9
0°-30°	1754.4	12.1
0°-40°	2814.5	19.4
0°-60°	4796.3	33.1
0°-90°	5971.9	41.2
90°-120°	1400.3	9.7
90°-150°	6191.6	42.7
90°-180°	8519.0	58.8
0°-180°	14490.7	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2345	2345	2345	2345	2345	
5°	2345	2336	2311	2329	2325	223
15°	2232	2219	2190	2199	2188	629
25°	2020	2002	1964	1969	1964	930
35°	1743	1721	1684	1671	1660	1089
45°	1418	1403	1369	1344	1335	1095
55°	1074	1060	1033	1006	994	960
65°	724	710	688	668	656	716
75°	379	374	363	350	354	404
85°	92	90	88	81	79	103
90°	2	25	42	53	57	13
95°	137	67	82	93	90	162
105°	639	702	128	151	160	683
115°	1209	1245	1297	324	172	1190
125°	1709	1737	1777	1792	1798	1525
135°	2115	2149	2168	2189	2185	1634
145°	2454	2452	2487	2502	2492	1535
155°	2702	2683	2708	2721	2704	1245
165°	2847	2834	2841	2855	2841	804
175°	2912	2897	2902	2916	2895	277
180°	2906	2906	2906	2906	2906	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2345.1	2345.1	2345.1	2345.1	2345.1
2.5°	2358.8	2347.5	2322.6	2345.1	2340.8
5°	2345.1	2336.3	2311.4	2329.3	2325.0
7.5°	2329.3	2315.9	2291.0	2309.3	2304.7
10°	2304.7	2288.9	2261.8	2279.8	2273.1
12.5°	2270.7	2257.4	2230.3	2241.5	2237.0
15°	2232.5	2219.1	2189.6	2198.7	2187.5
17.5°	2185.0	2171.7	2142.3	2153.5	2142.3
20°	2133.1	2119.8	2088.2	2094.9	2086.0
22.5°	2081.5	2061.1	2031.7	2031.7	2027.1
25°	2020.5	2002.5	1964.3	1968.6	1964.3
27.5°	1952.7	1937.0	1907.8	1901.1	1889.8
30°	1885.3	1867.1	1833.4	1826.7	1817.6
32.5°	1813.0	1799.7	1763.5	1749.9	1740.8
35°	1743.2	1720.7	1684.5	1670.9	1659.7
37.5°	1664.2	1643.9	1607.7	1592.0	1580.7
40°	1583.1	1565.0	1528.8	1508.7	1499.6
42.5°	1504.2	1486.0	1450.1	1427.4	1413.9
45°	1418.5	1402.7	1368.7	1344.1	1335.0
47.5°	1335.0	1319.2	1283.1	1258.2	1244.8
50°	1247.0	1235.7	1204.1	1172.6	1161.3
52.5°	1161.3	1145.6	1116.4	1091.5	1075.6
55°	1073.5	1059.9	1032.9	1005.8	994.5
57.5°	985.5	974.2	944.8	917.7	908.7
60°	897.4	888.6	857.0	832.2	825.4
62.5°	811.8	796.0	773.5	751.1	741.9
65°	724.0	710.3	687.9	667.5	656.3
67.5°	633.8	622.3	602.2	586.4	577.3
70°	550.3	541.2	520.8	505.1	496.2
72.5°	464.6	455.6	444.3	428.5	421.8
75°	378.8	374.4	362.9	349.6	354.1
77.5°	302.2	293.1	288.5	281.8	275.2
80°	225.6	223.3	218.7	212.0	207.4
82.5°	153.3	153.3	151.2	142.2	142.2
85°	92.4	90.2	88.1	81.1	79.0
87.5°	40.6	36.2	31.6	24.9	22.5
90°	2.0	25.2	41.9	52.7	56.7
92.5°	52.7	44.2	50.5	54.7	56.7
95°	136.6	67.2	81.9	92.6	90.4
97.5°	245.9	73.6	107.1	113.6	115.6
100°	372.3	84.1	119.9	136.6	140.9
102.5°	510.8	506.9	124.1	147.1	153.5
105°	639.2	702.3	128.4	151.3	159.8
107.5°	788.5	840.9	132.6	155.6	164.0
110°	931.5	975.5	368.0	157.8	166.0

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1066.1	1103.8	1068.2	161.8	168.3
115°	1208.9	1244.7	1297.4	323.8	172.5
117.5°	1333.0	1375.0	1410.9	1110.1	559.3
120°	1471.9	1503.3	1541.3	1566.5	1282.6
122.5°	1589.5	1623.2	1665.3	1677.8	1680.1
125°	1709.3	1736.8	1776.8	1791.5	1797.7
127.5°	1818.7	1848.1	1879.8	1900.8	1902.8
130°	1921.8	1955.5	1978.5	2001.7	1999.7
132.5°	2026.9	2054.3	2077.3	2096.3	2094.3
135°	2115.3	2149.0	2167.7	2188.9	2184.7
137.5°	2207.7	2232.9	2254.1	2275.1	2268.8
140°	2298.0	2315.1	2338.0	2357.0	2346.5
142.5°	2373.9	2388.7	2415.9	2432.6	2422.2
145°	2453.8	2451.6	2487.3	2502.1	2491.6
147.5°	2523.0	2516.8	2552.4	2562.9	2554.8
150°	2590.4	2575.7	2609.4	2621.9	2611.4
152.5°	2647.1	2630.4	2661.9	2674.5	2659.8
155°	2701.8	2683.0	2708.3	2720.8	2704.1
157.5°	2746.0	2729.3	2748.2	2762.9	2746.0
160°	2784.0	2771.2	2784.0	2796.4	2781.7
162.5°	2817.4	2804.9	2815.4	2830.1	2811.2
165°	2846.8	2834.3	2840.6	2855.3	2840.6
167.5°	2870.1	2857.3	2863.9	2878.6	2859.6
170°	2889.0	2876.3	2880.6	2895.3	2876.3
172.5°	2901.5	2889.0	2893.3	2908.0	2889.0
175°	2912.0	2897.3	2901.5	2916.3	2895.3
177.5°	2916.3	2901.5	2903.8	2918.5	2899.5
180°	2905.8	2905.8	2905.8	2905.8	2905.8

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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	8.33	9.12	9.36	10.16	11.55	7.90	8.69	8.93	9.73	11.12
	3H	9.99	10.70	11.03	11.74	13.15	9.52	10.22	10.56	11.27	12.68
	4H	10.57	11.24	11.63	12.29	13.71	10.10	10.77	11.15	11.82	13.24
	6H	10.97	11.59	12.03	12.64	14.07	10.50	11.11	11.56	12.16	13.59
	8H	11.07	11.66	12.14	12.73	14.15	10.60	11.19	11.66	12.25	13.68
	12H	11.12	11.68	12.19	12.74	14.19	10.64	11.20	11.71	12.26	13.71
4H	2H	8.79	9.46	9.84	10.50	11.92	8.44	9.11	9.50	10.16	11.58
	3H	10.65	11.21	11.71	12.28	13.71	10.25	10.81	11.32	11.89	13.32
	4H	11.36	11.87	12.43	12.94	14.39	10.95	11.47	12.03	12.53	13.98
	6H	11.87	12.31	12.95	13.40	14.85	11.46	11.90	12.54	12.99	14.44
	8H	12.02	12.43	13.10	13.51	14.98	11.61	12.02	12.69	13.10	14.56
	12H	12.09	12.46	13.19	13.56	15.03	11.67	12.04	12.77	13.13	14.60
8H	4H	11.55	11.96	12.63	13.04	14.51	11.19	11.60	12.27	12.68	14.15
	6H	12.18	12.52	13.28	13.64	15.10	11.82	12.16	12.92	13.28	14.74
	8H	12.40	12.70	13.51	13.80	15.28	12.03	12.33	13.14	13.44	14.92
	12H	12.53	12.79	13.64	13.89	15.41	12.15	12.41	13.26	13.51	15.03
12H	4H	11.53	11.90	12.63	13.00	14.47	11.18	11.55	12.28	12.65	14.12
	6H	12.21	12.51	13.32	13.61	15.09	11.86	12.16	12.97	13.26	14.74
	8H	12.45	12.71	13.56	13.81	15.33	12.09	12.35	13.21	13.46	14.97