

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: P928758

Luminaire Tested: DFN2DIP-HX4F0-110D070US930-RLLONL

Issue Date: 12/12/2024

Test Information

Test Method: LM-79-2019
Report Number: P928758
REPORT IS A COMBINATION OF REPORTS P900888 AND P896187
Test Lab: INNOVATION CENTER
Issue Date: 12/12/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX4F0-110D070US930-RLLONL
Description: 4 foot, Hexagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

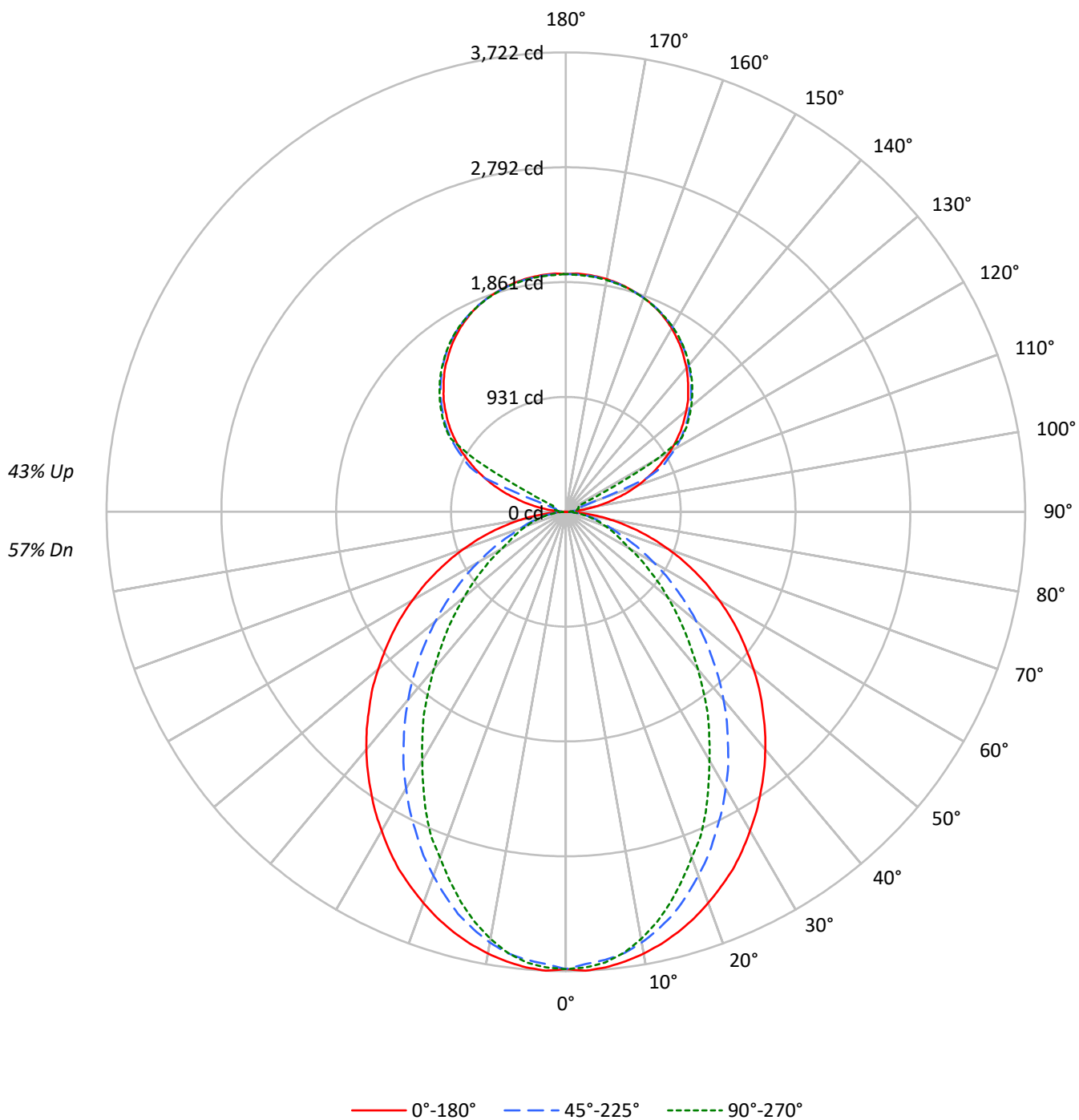
Lumens per Lamp: N/A
Luminaire Lumens: 13268.2 lumens
Efficiency: N/A
Efficacy: 80.8 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.54' x L: 4.09' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 164.3
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9967
Total Harmonic Distortion (THDi): 0.063
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
RCR																	
0	109	109	109	109	101	101	101	101	87	87	87		75	75	75		63
1	100	96	92	89	93	89	86	83	78	75	73		67	65	63		57
2	92	84	78	73	85	79	74	69	69	65	61		59	56	54		50
3	84	75	68	62	78	70	64	59	61	56	52		53	49	46		45
4	77	66	59	53	72	62	56	50	55	49	45		47	43	40		41
5	71	60	52	46	66	56	49	44	49	44	39		43	39	35		37
6	66	54	46	40	61	51	43	38	45	39	35		39	35	31		34
7	61	49	41	35	57	46	39	34	41	35	31		36	31	28		31
8	57	44	37	32	53	42	35	30	37	32	28		33	28	25		29
9	53	41	33	28	49	38	32	27	34	29	25		30	26	23		27
10	49	37	30	26	46	35	29	25	32	26	23		28	24	21		25

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2755	2755	2755
5°	2760	2712	2729
10°	2733	2659	2640
15°	2695	2571	2503
20°	2646	2450	2335
25°	2595	2315	2172
30°	2527	2176	1966
35°	2460	2026	1785
40°	2392	1872	1577
45°	2313	1700	1389
50°	2231	1526	1205
55°	2146	1341	1028
60°	2047	1147	846
65°	1934	951	762
70°	1797	767	690
75°	1624	676	628
80°	1374	568	545
85°	961	381	411

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 2313 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	347.3	2.6
10°-20°	953.3	7.2
20°-30°	1338.4	10.1
30°-40°	1458.9	11.0
40°-50°	1340.9	10.1
50°-60°	1053.1	7.9
60°-70°	685.5	5.2
70°-80°	352.9	2.7
80°-90°	93.5	0.7
90°-100°	63.5	0.5
100°-110°	236.7	1.8
110°-120°	627.7	4.7
120°-130°	1041.1	7.8
130°-140°	1105.9	8.3
140°-150°	1027.8	7.7
150°-160°	826.3	6.2
160°-170°	532.4	4.0
170°-180°	183.3	1.4
0°-30°	2638.9	19.9
0°-40°	4097.9	30.9
0°-60°	6491.9	48.9
0°-90°	7623.7	57.5
90°-120°	927.9	7.0
90°-150°	4102.6	30.9
90°-180°	5645.0	42.5
0°-180°	13268.2	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3705	3705	3705	3705	3705	
5°	3705	3688	3645	3675	3665	351
15°	3524	3487	3373	3310	3276	993
25°	3199	3092	2870	2733	2682	1471
35°	2756	2585	2290	2079	2005	1725
45°	2253	2028	1677	1438	1358	1740
55°	1713	1452	1090	889	825	1531
65°	1157	885	584	470	459	1147
75°	617	382	268	245	242	652
85°	144	74	64	64	64	165
90°	1	17	28	35	38	12
95°	90	44	54	61	60	107
105°	424	465	85	100	106	453
115°	801	825	860	215	114	789
125°	1133	1151	1177	1187	1191	1010
135°	1402	1424	1436	1450	1448	1083
145°	1626	1624	1648	1658	1651	1017
155°	1790	1778	1794	1803	1792	825
165°	1886	1878	1882	1892	1882	533
175°	1930	1920	1923	1932	1918	184
180°	1925	1925	1925	1925	1925	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	3705.2	3705.2	3705.2	3705.2	3705.2
2.5°	3721.9	3705.2	3668.2	3702.1	3695.3
5°	3705.2	3688.5	3644.8	3675.0	3665.1
7.5°	3675.0	3655.0	3608.1	3621.3	3604.5
10°	3634.8	3611.3	3544.4	3534.1	3514.2
12.5°	3584.6	3554.4	3463.7	3443.7	3406.7
15°	3524.1	3487.1	3373.3	3309.6	3276.1
17.5°	3453.7	3400.0	3259.1	3185.4	3131.7
20°	3373.3	3306.0	3138.5	3054.9	2980.9
22.5°	3286.2	3208.9	3014.4	2900.5	2850.3
25°	3199.0	3091.5	2870.3	2732.9	2682.4
27.5°	3095.1	2980.9	2736.1	2578.5	2501.3
30°	2984.4	2856.7	2588.5	2417.7	2327.0
32.5°	2877.0	2722.6	2447.9	2246.6	2162.7
35°	2756.4	2585.3	2290.4	2079.1	2005.1
37.5°	2639.1	2454.4	2142.7	1911.1	1827.6
40°	2514.8	2313.9	1988.4	1750.3	1663.2
42.5°	2387.5	2173.0	1834.3	1586.0	1502.4
45°	2253.4	2028.5	1676.7	1438.3	1358.0
47.5°	2126.0	1888.0	1525.8	1287.5	1213.9
50°	1985.1	1747.1	1378.2	1146.6	1076.5
52.5°	1847.4	1595.9	1237.3	1016.1	952.3
55°	1713.3	1451.8	1089.7	888.7	825.0
57.5°	1576.0	1307.7	959.1	771.3	717.5
60°	1435.1	1166.9	821.4	650.7	597.0
62.5°	1297.8	1029.6	704.1	543.3	516.5
65°	1156.9	885.1	583.5	469.6	459.3
67.5°	1022.8	751.0	469.6	412.3	402.4
70°	881.9	620.5	388.8	355.4	341.9
72.5°	747.8	499.5	325.2	298.5	291.7
75°	616.9	382.1	268.2	244.7	241.6
77.5°	486.3	271.5	211.3	197.8	191.0
80°	365.4	194.6	160.8	147.7	147.7
82.5°	254.7	130.9	110.7	103.9	103.9
85°	144.1	73.7	63.7	63.7	63.7
87.5°	53.7	26.7	26.7	23.5	23.5
90°	1.3	16.7	27.8	34.9	37.6
92.5°	34.9	29.3	33.4	36.3	37.6
95°	90.5	44.5	54.3	61.4	59.9
97.5°	162.9	48.8	71.0	75.3	76.6
100°	246.7	55.7	79.4	90.5	93.3
102.5°	338.5	335.9	82.2	97.5	101.7
105°	423.6	465.4	85.0	100.2	105.9
107.5°	522.4	557.2	87.9	103.1	108.7
110°	617.3	646.4	243.8	104.6	110.0

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	706.4	731.4	707.7	107.2	111.5
115°	801.1	824.7	859.6	214.6	114.3
117.5°	883.3	911.1	934.9	735.5	370.6
120°	975.2	996.1	1021.3	1038.0	849.9
122.5°	1053.1	1075.5	1103.5	1111.7	1113.2
125°	1132.6	1150.8	1177.3	1187.0	1191.1
127.5°	1205.1	1224.5	1245.6	1259.5	1260.8
130°	1273.4	1295.7	1310.9	1326.3	1325.0
132.5°	1343.0	1361.2	1376.5	1389.0	1387.7
135°	1401.6	1423.9	1436.4	1450.4	1447.6
137.5°	1462.8	1479.6	1493.6	1507.5	1503.3
140°	1522.7	1533.9	1549.2	1561.7	1554.8
142.5°	1572.9	1582.7	1600.7	1611.8	1604.9
145°	1625.9	1624.5	1648.1	1657.9	1650.9
147.5°	1671.7	1667.7	1691.3	1698.2	1692.8
150°	1716.4	1706.7	1729.0	1737.3	1730.3
152.5°	1754.0	1742.9	1763.7	1772.1	1762.4
155°	1790.2	1777.8	1794.5	1802.8	1791.7
157.5°	1819.5	1808.4	1821.0	1830.7	1819.5
160°	1844.7	1836.2	1844.7	1852.9	1843.1
162.5°	1866.8	1858.5	1865.5	1875.2	1862.7
165°	1886.3	1878.1	1882.2	1891.9	1882.2
167.5°	1901.7	1893.2	1897.6	1907.3	1894.8
170°	1914.3	1905.9	1908.6	1918.4	1905.9
172.5°	1922.6	1914.3	1917.1	1926.8	1914.3
175°	1929.5	1919.7	1922.6	1932.3	1918.4
177.5°	1932.3	1922.6	1924.1	1933.8	1921.2
180°	1925.4	1925.4	1925.4	1925.4	1925.4

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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	11.34	12.23	12.24	13.15	14.31	7.31	8.21	8.21	9.12	10.28
	3H	13.02	13.82	13.93	14.74	15.93	8.51	9.31	9.42	10.23	11.42
	4H	13.63	14.39	14.56	15.32	16.52	8.96	9.72	9.89	10.64	11.84
	6H	14.06	14.76	15.00	15.69	16.90	9.29	9.98	10.22	10.92	12.13
	8H	14.19	14.85	15.13	15.80	17.01	9.38	10.04	10.32	10.99	12.20
	12H	14.25	14.88	15.20	15.83	17.06	9.43	10.06	10.38	11.00	12.23
4H	2H	11.36	12.12	12.30	13.05	14.25	7.92	8.67	8.85	9.60	10.80
	3H	13.20	13.83	14.14	14.79	16.00	9.27	9.90	10.21	10.86	12.07
	4H	13.90	14.47	14.85	15.42	16.66	9.83	10.40	10.78	11.35	12.59
	6H	14.42	14.91	15.38	15.88	17.12	10.25	10.74	11.21	11.72	12.96
	8H	14.59	15.05	15.56	16.02	17.27	10.38	10.84	11.35	11.81	13.06
	12H	14.69	15.11	15.68	16.09	17.35	10.45	10.86	11.43	11.85	13.11
8H	4H	13.87	14.33	14.83	15.30	16.55	10.11	10.57	11.08	11.54	12.79
	6H	14.44	14.82	15.43	15.83	17.08	10.63	11.01	11.62	12.03	13.27
	8H	14.66	14.99	15.66	15.99	17.26	10.83	11.16	11.83	12.16	13.43
	12H	14.80	15.09	15.80	16.09	17.40	10.95	11.25	11.95	12.24	13.55
12H	4H	13.82	14.24	14.81	15.23	16.48	10.12	10.53	11.10	11.52	12.78
	6H	14.42	14.75	15.41	15.75	17.02	10.68	11.02	11.68	12.02	13.29
	8H	14.64	14.93	15.64	15.93	17.24	10.90	11.19	11.90	12.19	13.50