

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: P929280

Luminaire Tested: DFN2DIP-HX4F0-070D120US940-FLLONL

Issue Date: 12/12/2024

Test Information

Test Method: LM-79-2019
Report Number: P929280
REPORT IS A COMBINATION OF REPORTS P900969 AND P896187
Test Lab: INNOVATION CENTER
Issue Date: 12/12/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX4F0-070D120US940-FLLONL
Description: 4 foot, Hexagon Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

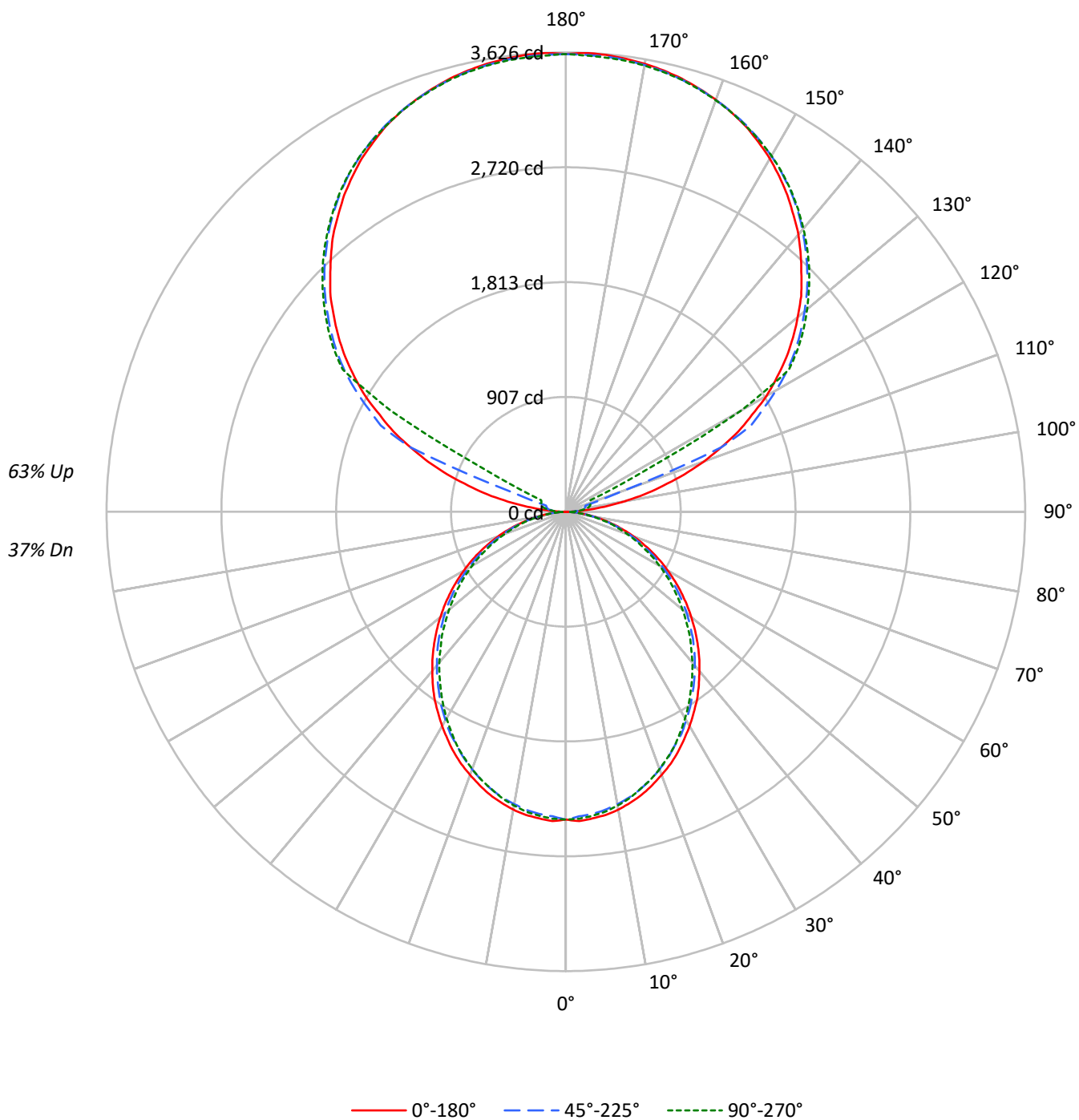
Lumens per Lamp: N/A
Luminaire Lumens: 16778.5 lumens
Efficiency: N/A
Efficacy: 103.4 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.54' x L: 4.09' x H: 0.1')
CIE Type: Semi-Indirect

Input Watts (W): 162.2
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	104	104	104	104	94	94	94	94	76	76	76	59	59	59	44	44	44
1	95	91	87	83	86	82	79	76	67	64	62	52	51	49	39	38	37
2	86	79	73	68	78	72	67	62	58	55	52	46	43	41	34	33	31
3	79	69	62	57	71	63	57	52	51	47	43	40	37	35	30	28	27
4	72	61	54	48	65	56	49	44	46	41	37	36	33	30	27	25	23
5	66	55	47	41	60	50	43	38	41	36	32	32	29	26	24	22	20
6	61	49	41	35	55	45	38	33	37	31	28	29	25	23	22	20	18
7	56	44	36	31	51	40	33	29	33	28	24	26	23	20	20	18	16
8	52	40	32	27	47	37	30	25	30	25	21	24	20	18	19	16	14
9	48	36	29	24	44	33	27	22	28	23	19	22	19	16	17	15	13
10	45	33	26	22	41	31	24	20	25	21	17	20	17	14	16	13	11

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1806	1806	1806
5°	1810	1782	1794
10°	1795	1758	1769
15°	1769	1729	1731
20°	1733	1689	1693
25°	1698	1641	1648
30°	1654	1596	1591
35°	1612	1544	1530
40°	1560	1491	1473
45°	1508	1438	1414
50°	1452	1382	1346
55°	1393	1317	1284
60°	1326	1240	1212
65°	1254	1161	1128
70°	1161	1064	1037
75°	1033	948	954
80°	879	801	793
85°	638	546	528

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 1856 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	228.7	1.4
10°-20°	643.4	3.8
20°-30°	945.5	5.6
30°-40°	1098.2	6.5
40°-50°	1096.8	6.5
50°-60°	956.4	5.7
60°-70°	707.0	4.2
70°-80°	400.0	2.4
80°-90°	112.0	0.7
90°-100°	119.1	0.7
100°-110°	444.1	2.6
110°-120°	1177.7	7.0
120°-130°	1953.3	11.6
130°-140°	2074.9	12.4
140°-150°	1928.4	11.5
150°-160°	1550.3	9.2
160°-170°	999.0	6.0
170°-180°	343.8	2.0
0°-30°	1817.6	10.8
0°-40°	2915.8	17.4
0°-60°	4969.0	29.6
0°-90°	6188.0	36.9
90°-120°	1740.9	10.4
90°-150°	7697.4	45.9
90°-180°	10591.0	63.1
0°-180°	16778.5	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2430	2430	2430	2430	2430	
5°	2430	2420	2395	2413	2409	231
15°	2313	2299	2268	2278	2266	651
25°	2093	2075	2035	2040	2035	963
35°	1806	1783	1745	1731	1719	1128
45°	1470	1453	1418	1392	1383	1134
55°	1112	1098	1070	1042	1030	994
65°	750	736	713	692	680	742
75°	392	388	376	362	367	419
85°	96	94	91	84	82	107
90°	2	31	52	66	70	15
95°	170	84	102	115	112	201
105°	795	873	160	188	199	849
115°	1503	1547	1613	403	214	1480
125°	2125	2159	2209	2227	2235	1895
135°	2630	2672	2695	2721	2716	2031
145°	3051	3048	3092	3111	3098	1908
155°	3359	3336	3367	3382	3362	1548
165°	3539	3524	3531	3550	3531	1000
175°	3620	3602	3607	3626	3599	345
180°	3612	3612	3612	3612	3612	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2429.5	2429.5	2429.5	2429.5	2429.5
2.5°	2443.7	2432.0	2406.3	2429.5	2425.1
5°	2429.5	2420.4	2394.7	2413.2	2408.8
7.5°	2413.2	2399.3	2373.5	2392.4	2387.7
10°	2387.7	2371.3	2343.3	2361.9	2355.0
12.5°	2352.5	2338.6	2310.6	2322.2	2317.5
15°	2312.9	2299.0	2268.4	2277.9	2266.2
17.5°	2263.7	2249.9	2219.4	2231.1	2219.4
20°	2209.9	2196.1	2163.4	2170.3	2161.1
22.5°	2156.4	2135.4	2104.9	2104.9	2100.1
25°	2093.3	2074.6	2035.0	2039.5	2035.0
27.5°	2023.1	2006.7	1976.5	1969.5	1957.9
30°	1953.2	1934.3	1899.4	1892.5	1883.0
32.5°	1878.3	1864.5	1827.0	1812.9	1803.4
35°	1805.9	1782.7	1745.2	1731.1	1719.4
37.5°	1724.1	1703.1	1665.6	1649.3	1637.6
40°	1640.1	1621.3	1583.8	1563.1	1553.6
42.5°	1558.3	1539.5	1502.3	1478.8	1464.8
45°	1469.6	1453.2	1418.0	1392.5	1383.0
47.5°	1383.0	1366.7	1329.3	1303.5	1289.7
50°	1291.9	1280.2	1247.5	1214.8	1203.1
52.5°	1203.1	1186.8	1156.6	1130.8	1114.4
55°	1112.1	1098.1	1070.0	1042.0	1030.3
57.5°	1021.0	1009.3	978.8	950.8	941.4
60°	929.7	920.5	887.9	862.1	855.2
62.5°	841.0	824.7	801.4	778.1	768.6
65°	750.1	735.9	712.6	691.6	679.9
67.5°	656.6	644.7	623.9	607.5	598.1
70°	570.1	560.7	539.6	523.2	514.1
72.5°	481.3	472.0	460.3	443.9	437.0
75°	392.4	387.9	376.0	362.2	366.9
77.5°	313.1	303.6	298.9	292.0	285.1
80°	233.7	231.3	226.6	219.6	214.9
82.5°	158.9	158.9	156.6	147.3	147.3
85°	95.7	93.5	91.3	84.0	81.8
87.5°	42.1	37.5	32.7	25.8	23.3
90°	2.5	31.3	52.2	65.5	70.5
92.5°	65.5	54.9	62.7	68.0	70.5
95°	169.7	83.5	101.8	115.2	112.4
97.5°	305.8	91.6	133.2	141.2	143.7
100°	462.8	104.6	149.0	169.7	175.1
102.5°	635.1	630.1	154.2	182.9	190.9
105°	794.6	873.2	159.6	188.1	198.6
107.5°	980.2	1045.4	164.8	193.4	203.9
110°	1158.1	1212.8	457.5	196.2	206.4

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1325.4	1372.3	1327.9	201.1	209.2
115°	1502.9	1547.4	1612.8	402.6	214.5
117.5°	1657.2	1709.4	1754.1	1380.0	695.3
120°	1829.8	1868.9	1916.1	1947.5	1594.5
122.5°	1976.0	2018.0	2070.4	2085.9	2088.7
125°	2125.0	2159.2	2208.9	2227.1	2234.9
127.5°	2261.0	2297.6	2337.0	2363.1	2365.6
130°	2389.1	2431.1	2459.6	2488.5	2486.0
132.5°	2519.8	2554.0	2582.5	2606.2	2603.7
135°	2629.7	2671.6	2694.9	2721.3	2716.1
137.5°	2744.6	2775.9	2802.3	2828.4	2820.6
140°	2857.0	2878.0	2906.6	2930.2	2917.2
142.5°	2951.3	2969.6	3003.5	3024.2	3011.2
145°	3050.6	3047.9	3092.2	3110.6	3097.5
147.5°	3136.6	3128.9	3173.3	3186.3	3176.1
150°	3220.4	3202.1	3244.0	3259.5	3246.5
152.5°	3290.9	3270.1	3309.2	3325.0	3306.7
155°	3358.8	3335.5	3366.9	3382.5	3361.7
157.5°	3413.8	3393.0	3416.6	3434.9	3413.8
160°	3461.0	3445.2	3461.0	3476.5	3458.2
162.5°	3502.6	3487.1	3500.1	3518.4	3494.9
165°	3539.2	3523.7	3531.4	3549.8	3531.4
167.5°	3568.1	3552.2	3560.3	3578.6	3555.1
170°	3591.6	3575.8	3581.1	3599.4	3575.8
172.5°	3607.2	3591.6	3597.0	3615.3	3591.6
175°	3620.2	3601.9	3607.2	3625.5	3599.4
177.5°	3625.5	3607.2	3610.0	3628.3	3604.8
180°	3612.5	3612.5	3612.5	3612.5	3612.5

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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	7.98	8.73	9.04	9.80	11.24	7.54	8.30	8.61	9.36	10.81
	3H	9.63	10.31	10.70	11.38	12.84	9.16	9.83	10.23	10.91	12.37
	4H	10.21	10.85	11.30	11.93	13.40	9.74	10.38	10.82	11.46	12.93
	6H	10.61	11.20	11.70	12.28	13.76	10.13	10.72	11.22	11.80	13.29
	8H	10.71	11.27	11.81	12.37	13.84	10.23	10.80	11.33	11.89	13.37
	12H	10.76	11.29	11.86	12.38	13.88	10.27	10.81	11.37	11.90	13.40
4H	2H	8.43	9.07	9.52	10.14	11.61	8.08	8.72	9.17	9.80	11.27
	3H	10.28	10.82	11.38	11.92	13.41	9.89	10.43	10.99	11.53	13.01
	4H	10.99	11.49	12.10	12.58	14.08	10.59	11.08	11.69	12.17	13.68
	6H	11.50	11.93	12.61	13.04	14.54	11.09	11.52	12.20	12.63	14.13
	8H	11.65	12.05	12.76	13.15	14.67	11.24	11.63	12.35	12.74	14.25
	12H	11.72	12.08	12.85	13.20	14.72	11.30	11.65	12.42	12.77	14.29
8H	4H	11.18	11.58	12.29	12.68	14.20	10.82	11.22	11.93	12.32	13.84
	6H	11.81	12.14	12.94	13.29	14.80	11.45	11.77	12.58	12.92	14.43
	8H	12.03	12.32	13.17	13.45	14.98	11.66	11.95	12.80	13.08	14.61
	12H	12.16	12.41	13.30	13.54	15.10	11.77	12.02	12.91	13.15	14.72
12H	4H	11.16	11.52	12.29	12.64	14.16	10.81	11.17	11.94	12.29	13.81
	6H	11.84	12.12	12.98	13.26	14.79	11.49	11.77	12.63	12.90	14.43
	8H	12.08	12.33	13.22	13.46	15.02	11.72	11.97	12.86	13.10	14.67

END OF REPORT