

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: P924573

Luminaire Tested: DFN2DIP-HX4F0-070D080US950-RLLFLL

Issue Date: 11/21/2024

**Test Information**

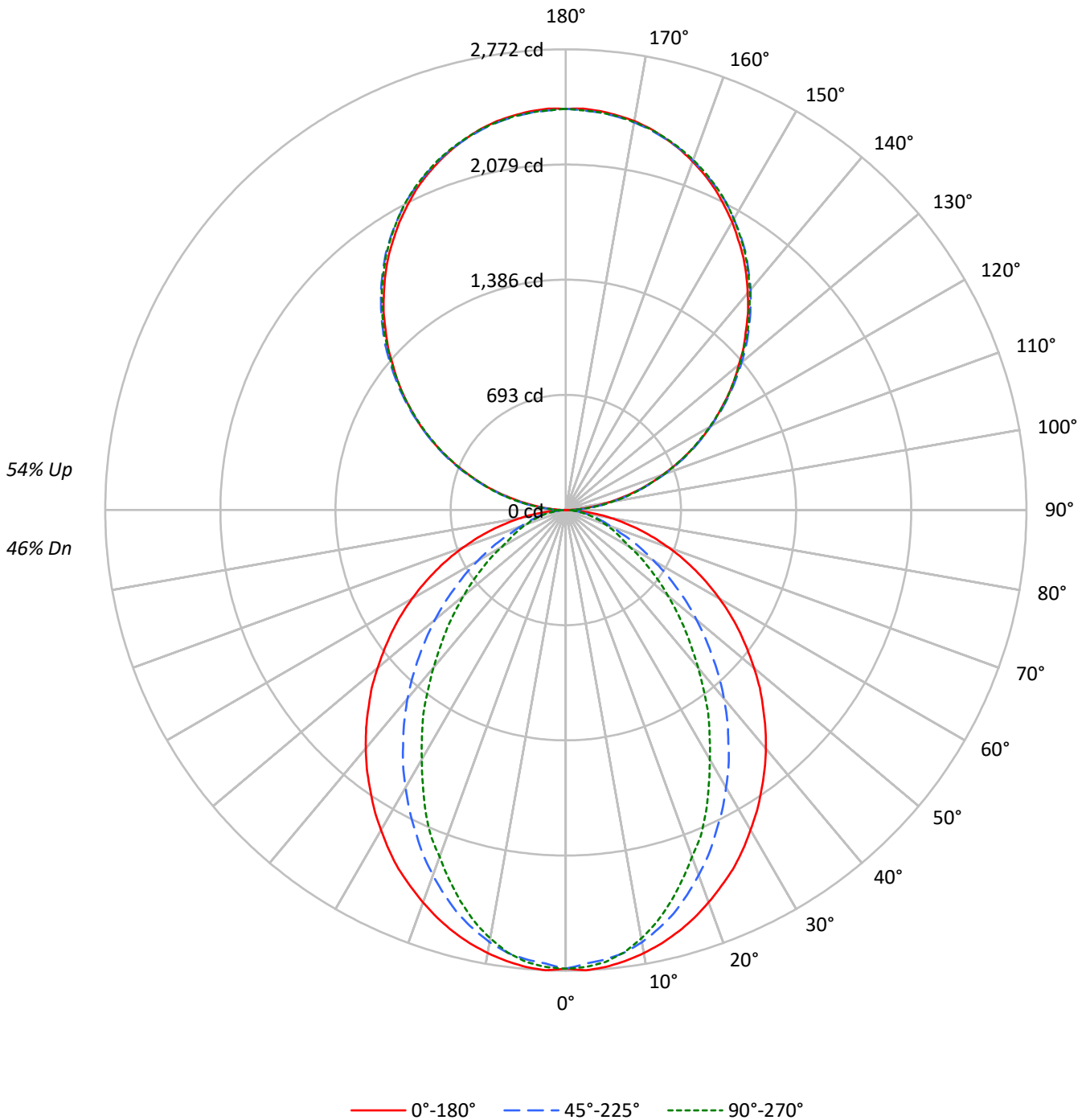
Test Method: LM-79-2019  
Report Number: P924573  
REPORT IS A COMBINATION OF REPORTS P899378 AND P896188  
Test Lab: INNOVATION CENTER  
Issue Date: 11/21/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: NEO-RAY  
Catalog Number: DFN2DIP-HX4F0-070D080US950-RLLFLL  
Description: 4 foot, Hexagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens  
Light Source: -  
Ballast/Driver: -

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 12430.6 lumens  
Efficiency: N/A  
Efficacy: 111.4 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): 111.6  
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

TEST NUMBER: P924573  
CATALOG NUMBER: DFN2DIP-HX4F0-070D080US950-RLFL

### 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			0	
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	50	30	10	0
RCR																					
0	106	106	106	106	97	97	97	97	81	81	81	66	66	66	52	52	52	46	46	46	46
1	97	93	89	86	89	86	82	80	72	69	67	59	57	56	47	46	45	39	39	39	39
2	89	82	76	71	81	75	70	66	63	60	56	52	49	47	42	40	38	34	34	34	34
3	81	72	65	60	74	67	61	56	56	52	48	46	43	40	37	35	33	29	29	29	29
4	75	64	57	51	68	59	53	48	50	45	41	42	38	35	34	31	29	25	25	25	25
5	69	57	50	44	63	53	46	41	45	40	36	38	34	31	31	28	26	22	22	22	22
6	63	52	44	38	58	48	41	36	41	35	31	34	30	27	28	25	23	20	20	20	20
7	59	47	39	34	54	43	37	32	37	32	28	31	27	24	26	23	20	18	18	18	18
8	55	43	35	30	50	40	33	28	34	29	25	29	25	22	24	21	18	16	16	16	16
9	51	39	32	27	47	36	30	25	31	26	22	26	22	20	22	19	17	15	15	15	15
10	47	36	29	24	44	33	27	23	29	24	20	24	20	18	20	17	15	13	13	13	13

**AVERAGE LUMINANCE (cd/sqm):**

	0°	45°	90°
0°	2052	2052	2052
5°	2056	2020	2033
10°	2035	1980	1967
15°	2008	1915	1864
20°	1971	1825	1739
25°	1933	1724	1618
30°	1882	1621	1464
35°	1832	1509	1329
40°	1782	1394	1175
45°	1723	1266	1034
50°	1662	1137	897
55°	1599	999	766
60°	1525	855	630
65°	1441	708	568
70°	1338	571	514
75°	1210	504	468
80°	1024	423	406
85°	715	284	306

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 90°  
 Vertical Angle: 90°  
 Luminance: 1822 cd/sqm



TEST NUMBER: P924573

CATALOG NUMBER: DFN2DIP-HX4F0-070D080US950-RLFL

**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	258.7	2.1
10°-20°	710.1	5.7
20°-30°	997.0	8.0
30°-40°	1086.8	8.7
40°-50°	998.8	8.0
50°-60°	784.4	6.3
60°-70°	510.6	4.1
70°-80°	262.8	2.1
80°-90°	74.0	0.6
90°-100°	149.4	1.2
100°-110°	474.6	3.8
110°-120°	812.1	6.5
120°-130°	1068.1	8.6
130°-140°	1198.9	9.6
140°-150°	1175.6	9.5
150°-160°	986.2	7.9
160°-170°	654.0	5.3
170°-180°	228.6	1.8
0°-30°	1965.7	15.8
0°-40°	3052.5	24.6
0°-60°	4835.8	38.9
0°-90°	5683.1	45.7
90°-120°	1436.1	11.6
90°-150°	4878.6	39.2
90°-180°	6747.0	54.3
0°-180°	12430.6	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	2760	2760	2760	2760	2760	
5°	2760	2748	2715	2738	2730	262
15°	2625	2598	2513	2465	2440	740
25°	2383	2303	2138	2036	1998	1096
35°	2053	1926	1706	1549	1494	1285
45°	1679	1511	1249	1071	1012	1296
55°	1276	1082	812	662	615	1140
65°	862	659	435	350	342	854
75°	460	285	200	182	180	486
85°	107	55	47	47	47	123
90°	2	26	71	67	69	12
95°	106	127	130	130	127	118
105°	438	444	448	452	452	462
115°	815	827	823	821	815	806
125°	1185	1204	1198	1191	1189	1059
135°	1533	1556	1560	1558	1552	1185
145°	1861	1876	1888	1890	1882	1163
155°	2128	2134	2141	2151	2144	980
165°	2316	2313	2313	2328	2318	653
175°	2409	2404	2399	2414	2401	229
180°	2414	2414	2414	2414	2414	



TEST NUMBER: P924573

CATALOG NUMBER: DFN2DIP-HX4F0-070D080US950-RLFL

**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°
0°	2760.0	2760.0	2760.0	2760.0	2760.0
2.5°	2772.4	2760.0	2732.4	2757.6	2752.6
5°	2760.0	2747.5	2715.0	2737.5	2730.1
7.5°	2737.5	2722.6	2687.7	2697.4	2685.0
10°	2707.5	2690.1	2640.2	2632.6	2617.7
12.5°	2670.2	2647.6	2580.1	2565.2	2537.6
15°	2625.1	2597.6	2512.7	2465.3	2440.4
17.5°	2572.7	2532.7	2427.7	2372.8	2332.8
20°	2512.7	2462.7	2337.9	2275.6	2220.4
22.5°	2447.9	2390.3	2245.3	2160.5	2123.2
25°	2382.9	2302.9	2138.0	2035.7	1998.2
27.5°	2305.5	2220.4	2038.1	1920.8	1863.3
30°	2223.1	2128.0	1928.1	1801.0	1733.4
32.5°	2143.1	2028.1	1823.5	1673.5	1610.9
35°	2053.2	1925.7	1706.1	1548.7	1493.6
37.5°	1965.8	1828.2	1596.1	1423.6	1361.4
40°	1873.3	1723.6	1481.1	1303.8	1238.9
42.5°	1778.4	1618.7	1366.3	1181.3	1119.1
45°	1678.6	1511.0	1249.0	1071.4	1011.5
47.5°	1583.6	1406.4	1136.6	959.1	904.2
50°	1478.7	1301.4	1026.6	854.1	801.9
52.5°	1376.1	1188.8	921.7	756.8	709.4
55°	1276.3	1081.5	811.7	662.0	614.6
57.5°	1174.0	974.1	714.5	574.5	534.5
60°	1069.1	869.2	611.9	484.7	444.7
62.5°	966.7	766.9	524.4	404.7	384.7
65°	861.7	659.3	434.6	349.8	342.1
67.5°	761.9	559.4	349.8	307.1	299.7
70°	656.9	462.1	289.6	264.7	254.6
72.5°	557.0	372.1	242.2	222.4	217.3
75°	459.5	284.6	199.8	182.3	179.9
77.5°	362.2	202.2	157.4	147.3	142.3
80°	272.2	144.9	119.8	110.0	110.0
82.5°	189.8	97.5	82.4	77.4	77.4
85°	107.3	54.9	47.4	47.4	47.4
87.5°	40.0	19.8	19.8	17.5	17.5
90°	2.2	26.2	71.4	67.0	69.2
92.5°	45.1	61.2	63.3	65.4	65.4
95°	106.3	126.6	130.2	130.2	126.6
97.5°	176.9	195.8	203.8	203.8	203.8
100°	258.3	275.0	280.9	280.9	278.7
102.5°	344.2	356.6	364.5	366.7	364.5
105°	438.1	443.9	448.3	451.9	451.9
107.5°	531.2	540.0	540.0	541.4	531.2
110°	621.4	633.1	633.1	633.1	627.3



TEST NUMBER: P924573

CATALOG NUMBER: DFN2DIP-HX4F0-070D080US950-RLFL

**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°
112.5°	718.9	731.3	729.1	723.3	718.9
115°	815.0	826.6	823.0	820.8	815.0
117.5°	910.3	926.3	916.1	910.3	904.5
120°	1006.4	1022.4	1006.4	1006.4	999.8
122.5°	1093.7	1114.1	1103.9	1098.1	1093.7
125°	1185.3	1203.6	1197.7	1191.2	1189.1
127.5°	1274.9	1297.4	1289.4	1280.7	1274.9
130°	1358.6	1384.7	1381.1	1376.8	1368.8
132.5°	1452.5	1472.8	1474.3	1464.1	1458.3
135°	1533.2	1555.8	1560.2	1558.0	1552.2
137.5°	1623.4	1641.6	1645.3	1643.8	1635.1
140°	1702.8	1720.9	1731.1	1731.1	1723.1
142.5°	1784.3	1802.5	1808.3	1810.5	1802.5
145°	1861.4	1875.9	1887.6	1889.8	1881.8
147.5°	1930.5	1948.7	1957.4	1961.1	1953.1
150°	2001.9	2014.2	2022.2	2028.8	2022.2
152.5°	2065.1	2077.5	2087.7	2095.7	2087.7
155°	2128.5	2134.3	2140.9	2151.0	2144.5
157.5°	2183.0	2187.4	2191.1	2205.6	2195.4
160°	2231.8	2236.2	2238.4	2250.7	2242.0
162.5°	2276.9	2276.9	2279.1	2292.9	2282.7
165°	2315.5	2313.3	2313.3	2327.9	2317.6
167.5°	2350.4	2343.9	2343.9	2358.4	2348.2
170°	2376.6	2370.8	2368.6	2383.2	2370.8
172.5°	2394.8	2389.0	2386.8	2401.3	2389.0
175°	2409.3	2403.5	2399.1	2413.7	2401.3
177.5°	2417.3	2411.5	2407.1	2419.5	2407.1
180°	2413.7	2413.7	2413.7	2413.7	2413.7



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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	9.23	10.03	10.23	11.03	12.37	5.20	6.00	6.20	7.01	8.34
	3H	10.91	11.62	11.92	12.63	13.99	6.39	7.10	7.40	8.12	9.47
	4H	11.51	12.19	12.54	13.21	14.57	6.84	7.51	7.86	8.53	9.90
	6H	11.93	12.55	12.97	13.58	14.95	7.16	7.78	8.19	8.80	10.18
	8H	12.06	12.65	13.10	13.69	15.06	7.25	7.84	8.29	8.88	10.25
	12H	12.12	12.68	13.16	13.71	15.11	7.30	7.86	8.34	8.89	10.28
4H	2H	9.24	9.92	10.27	10.94	12.30	5.79	6.47	6.82	7.49	8.85
	3H	11.07	11.63	12.11	12.68	14.05	7.14	7.70	8.18	8.75	10.13
	4H	11.76	12.28	12.81	13.31	14.71	7.69	8.20	8.74	9.24	10.64
	6H	12.28	12.72	13.33	13.78	15.17	8.11	8.55	9.17	9.61	11.01
	8H	12.45	12.86	13.51	13.92	15.33	8.24	8.65	9.30	9.71	11.11
	12H	12.55	12.92	13.62	13.99	15.40	8.31	8.68	9.38	9.74	11.16
8H	4H	11.73	12.14	12.78	13.19	14.60	7.97	8.38	9.02	9.43	10.84
	6H	12.30	12.63	13.37	13.73	15.14	8.49	8.83	9.57	9.92	11.33
	8H	12.51	12.81	13.60	13.89	15.32	8.68	8.98	9.77	10.06	11.49
	12H	12.65	12.91	13.74	13.99	15.45	8.80	9.06	9.89	10.14	11.60
12H	4H	11.68	12.05	12.75	13.12	14.53	7.97	8.34	9.05	9.41	10.83
	6H	12.27	12.57	13.36	13.65	15.07	8.54	8.84	9.62	9.92	11.34
	8H	12.49	12.75	13.58	13.83	15.29	8.75	9.01	9.84	10.09	11.55