

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: P913682

Luminaire Tested: DFN2DIP-HX4F0-080D100US927-FLLFLL

Issue Date: 11/21/2024

**Test Information**

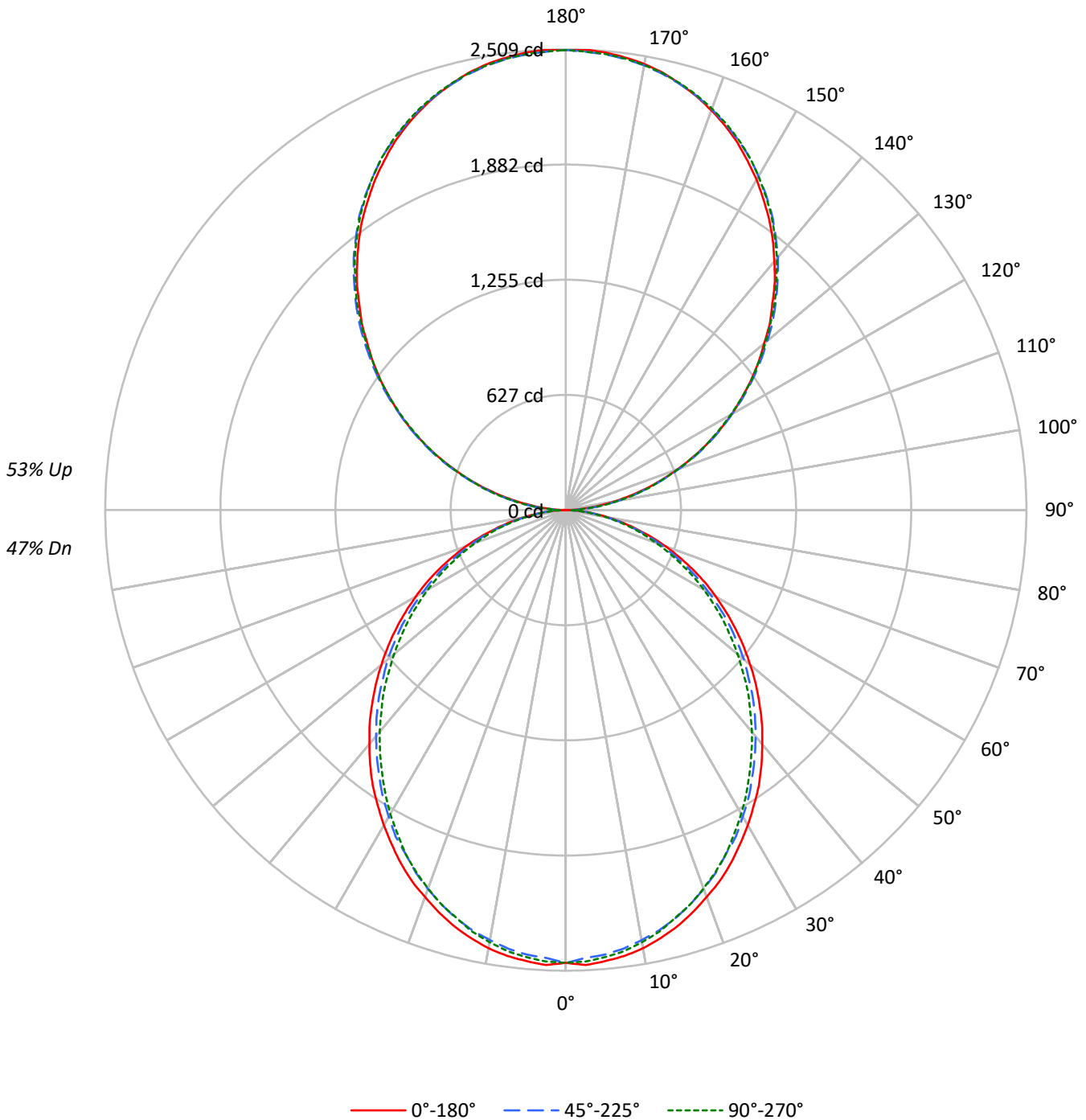
Test Method: LM-79-2019  
Report Number: P913682  
REPORT IS A COMBINATION OF REPORTS P899415 AND P896188  
Test Lab: INNOVATION CENTER  
Issue Date: 11/21/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: NEO-RAY  
Catalog Number: DFN2DIP-HX4F0-080D100US927-FLLFLL  
Description: 4 foot, Hexagon Define Geo, with Direct Frosted Lens, Indirect Frosted Lens  
Light Source: -  
Ballast/Driver: -

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 13284.9 lumens  
Efficiency: N/A  
Efficacy: 98.8 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): 134.4  
Input Voltage (V):  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: 0.9613  
Total Harmonic Distortion (THDi): 0.083  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 24 FT

TEST NUMBER: P913682  
CATALOG NUMBER: DFN2DIP-HX4F0-080D100US927-FLLFLL

### Luminous Intensity Polar Plot





TEST NUMBER: P913682

CATALOG NUMBER: DFN2DIP-HX4F0-080D100US927-FLLFLL

**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	98	98	98	98	82	82	82	67	67	67	54	54	54	47	47	47	47
1	97	93	89	85	89	85	82	79	72	69	67	59	57	56	47	46	45	40	40	40	40
2	88	81	75	70	81	75	69	65	63	59	56	52	49	47	42	40	38	33	33	33	33
3	81	71	64	58	74	66	59	54	55	51	47	46	42	39	37	35	32	28	28	28	28
4	74	63	55	49	68	58	51	46	49	44	40	41	37	34	33	30	28	24	24	24	24
5	68	56	48	42	62	52	45	39	44	39	34	37	33	29	30	27	24	21	21	21	21
6	62	50	42	37	57	47	40	34	40	34	30	33	29	26	27	24	21	19	19	19	19
7	58	45	38	32	53	42	35	30	36	30	26	30	26	23	25	21	19	16	16	16	16
8	54	41	34	28	49	38	31	27	33	27	23	28	23	20	23	19	17	15	15	15	15
9	50	38	30	25	46	35	28	24	30	25	21	25	21	18	21	18	15	13	13	13	13
10	47	35	27	23	43	32	26	21	28	22	19	23	19	16	19	16	14	12	12	12	12

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

	0°	45°	90°
0°	1834	1834	1834
5°	1837	1808	1820
10°	1822	1784	1796
15°	1795	1755	1757
20°	1759	1714	1718
25°	1723	1666	1673
30°	1678	1620	1615
35°	1636	1567	1553
40°	1583	1513	1495
45°	1531	1459	1436
50°	1474	1402	1367
55°	1414	1337	1303
60°	1346	1259	1230
65°	1273	1178	1145
70°	1179	1080	1053
75°	1048	963	968
80°	892	813	805
85°	647	554	535

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 90°  
 Vertical Angle: 90°  
 Luminance: 1890 cd/sqm



TEST NUMBER: P913682

CATALOG NUMBER: DFN2DIP-HX4F0-080D100US927-FLLFLL

**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	232.1	1.7
10°-20°	653.0	4.9
20°-30°	959.7	7.2
30°-40°	1114.6	8.4
40°-50°	1113.2	8.4
50°-60°	970.7	7.3
60°-70°	717.6	5.4
70°-80°	406.0	3.1
80°-90°	114.3	0.9
90°-100°	155.0	1.2
100°-110°	492.6	3.7
110°-120°	843.0	6.3
120°-130°	1108.6	8.3
130°-140°	1244.4	9.4
140°-150°	1220.3	9.2
150°-160°	1023.6	7.7
160°-170°	678.9	5.1
170°-180°	237.3	1.8
0°-30°	1844.8	13.9
0°-40°	2959.4	22.3
0°-60°	5043.4	38.0
0°-90°	6281.2	47.3
90°-120°	1490.6	11.2
90°-150°	5063.9	38.1
90°-180°	7004.0	52.7
0°-180°	13284.9	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	2466	2466	2466	2466	2466	
5°	2466	2457	2430	2449	2445	234
15°	2348	2333	2302	2312	2300	661
25°	2125	2106	2066	2070	2066	978
35°	1833	1809	1771	1757	1745	1145
45°	1492	1475	1439	1413	1404	1151
55°	1129	1114	1086	1058	1046	1009
65°	761	747	723	702	690	753
75°	398	394	382	368	372	425
85°	97	95	93	85	83	108
90°	2	27	74	70	72	13
95°	110	131	135	135	131	123
105°	455	461	465	469	469	480
115°	846	858	854	852	846	837
125°	1230	1249	1243	1236	1234	1100
135°	1591	1615	1619	1617	1611	1230
145°	1932	1947	1959	1962	1953	1207
155°	2209	2215	2222	2233	2226	1017
165°	2403	2401	2401	2416	2406	678
175°	2501	2495	2490	2505	2492	238
180°	2505	2505	2505	2505	2505	



TEST NUMBER: P913682

CATALOG NUMBER: DFN2DIP-HX4F0-080D100US927-FLLFLL

**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°
0°	2465.9	2465.9	2465.9	2465.9	2465.9
2.5°	2480.2	2468.4	2442.3	2465.9	2461.4
5°	2465.9	2456.6	2430.5	2449.3	2444.8
7.5°	2449.3	2435.2	2409.1	2428.2	2423.4
10°	2423.4	2406.8	2378.4	2397.2	2390.2
12.5°	2387.7	2373.6	2345.2	2357.0	2352.2
15°	2347.5	2333.4	2302.4	2312.0	2300.2
17.5°	2297.6	2283.5	2252.6	2264.4	2252.6
20°	2243.1	2229.0	2195.8	2202.8	2193.5
22.5°	2188.7	2167.3	2136.4	2136.4	2131.6
25°	2124.6	2105.7	2065.5	2070.0	2065.5
27.5°	2053.3	2036.8	2006.0	1999.0	1987.2
30°	1982.4	1963.3	1927.9	1920.8	1911.2
32.5°	1906.5	1892.4	1854.3	1840.0	1830.5
35°	1832.9	1809.3	1771.3	1757.0	1745.2
37.5°	1749.9	1728.5	1690.6	1674.0	1662.2
40°	1664.7	1645.5	1607.6	1586.4	1576.8
42.5°	1581.7	1562.5	1524.8	1500.9	1486.8
45°	1491.6	1475.0	1439.2	1413.3	1403.8
47.5°	1403.8	1387.2	1349.2	1323.0	1308.9
50°	1311.2	1299.4	1266.1	1233.0	1221.1
52.5°	1221.1	1204.5	1173.9	1147.7	1131.1
55°	1128.8	1114.4	1086.1	1057.6	1045.8
57.5°	1036.3	1024.4	993.5	965.0	955.4
60°	943.6	934.4	901.1	875.0	867.9
62.5°	853.6	837.0	813.3	789.7	780.1
65°	761.3	746.9	723.3	701.9	690.1
67.5°	666.4	654.3	633.2	616.6	607.0
70°	578.6	569.0	547.7	531.1	521.7
72.5°	488.5	479.0	467.1	450.6	443.5
75°	398.2	393.7	381.7	367.6	372.3
77.5°	317.7	308.2	303.4	296.4	289.3
80°	237.3	234.7	230.0	222.9	218.1
82.5°	161.3	161.3	159.0	149.4	149.4
85°	97.1	94.8	92.6	85.3	83.0
87.5°	42.8	38.0	33.2	26.1	23.7
90°	2.3	27.2	74.0	69.5	71.8
92.5°	46.8	63.5	65.8	68.0	68.0
95°	110.3	131.4	135.2	135.2	131.4
97.5°	183.5	203.2	211.5	211.5	211.5
100°	268.2	285.5	291.5	291.5	289.3
102.5°	357.3	370.1	378.4	380.6	378.4
105°	454.7	460.7	465.2	469.1	469.1
107.5°	551.4	560.5	560.5	562.0	551.4
110°	645.1	657.1	657.1	657.1	651.1



TEST NUMBER: P913682

CATALOG NUMBER: DFN2DIP-HX4F0-080D100US927-FLLFLL

**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°
112.5°	746.2	759.1	756.8	750.8	746.2
115°	846.0	858.0	854.3	852.0	846.0
117.5°	944.9	961.5	950.9	944.9	938.8
120°	1044.6	1061.2	1044.6	1044.6	1037.8
122.5°	1135.2	1156.3	1145.8	1139.8	1135.2
125°	1230.4	1249.3	1243.2	1236.4	1234.2
127.5°	1323.3	1346.7	1338.4	1329.4	1323.3
130°	1410.2	1437.3	1433.6	1429.0	1420.8
132.5°	1507.6	1528.8	1530.3	1519.7	1513.6
135°	1591.4	1614.9	1619.4	1617.2	1611.1
137.5°	1685.1	1704.0	1707.8	1706.3	1697.2
140°	1767.4	1786.3	1796.9	1796.9	1788.6
142.5°	1852.0	1870.9	1876.9	1879.2	1870.9
145°	1932.1	1947.2	1959.3	1961.5	1953.2
147.5°	2003.8	2022.8	2031.8	2035.6	2027.3
150°	2077.9	2090.7	2099.0	2105.8	2099.0
152.5°	2143.6	2156.4	2167.0	2175.3	2167.0
155°	2209.3	2215.3	2222.1	2232.7	2225.9
157.5°	2266.0	2270.5	2274.3	2289.3	2278.8
160°	2316.6	2321.1	2323.3	2336.1	2327.1
162.5°	2363.4	2363.4	2365.6	2379.9	2369.4
165°	2403.4	2401.1	2401.1	2416.2	2405.7
167.5°	2439.7	2432.9	2432.9	2448.0	2437.4
170°	2466.9	2460.8	2458.5	2473.7	2460.8
172.5°	2485.7	2479.7	2477.4	2492.5	2479.7
175°	2500.8	2494.8	2490.3	2505.4	2492.5
177.5°	2509.2	2503.1	2498.5	2511.4	2498.5
180°	2505.4	2505.4	2505.4	2505.4	2505.4



TEST NUMBER: P913682  
 CATALOG NUMBER: DFN2DIP-HX4F0-080D100US927-FLLFLL

**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	9.12	9.96	10.10	10.95	12.26	8.69	9.53	9.67	10.52	11.83
	3H	10.78	11.53	11.77	12.53	13.86	10.31	11.06	11.30	12.06	13.39
	4H	11.37	12.08	12.37	13.08	14.42	10.89	11.60	11.90	12.61	13.95
	6H	11.77	12.42	12.78	13.43	14.78	11.29	11.95	12.30	12.96	14.31
	8H	11.87	12.49	12.89	13.52	14.87	11.40	12.02	12.42	13.05	14.39
	12H	11.92	12.51	12.94	13.53	14.90	11.44	12.03	12.46	13.05	14.42
4H	2H	9.58	10.29	10.59	11.30	12.64	9.23	9.95	10.25	10.95	12.29
	3H	11.44	12.04	12.46	13.07	14.43	11.05	11.65	12.07	12.68	14.03
	4H	12.16	12.70	13.19	13.73	15.10	11.75	12.30	12.78	13.32	14.70
	6H	12.67	13.14	13.71	14.19	15.56	12.26	12.73	13.30	13.78	15.15
	8H	12.82	13.26	13.86	14.30	15.69	12.41	12.85	13.45	13.89	15.28
	12H	12.90	13.29	13.95	14.35	15.74	12.47	12.87	13.53	13.93	15.32
8H	4H	12.35	12.79	13.39	13.83	15.22	11.99	12.43	13.03	13.47	14.86
	6H	12.99	13.35	14.05	14.43	15.82	12.62	12.98	13.68	14.07	15.45
	8H	13.21	13.52	14.28	14.59	16.00	12.84	13.16	13.91	14.22	15.63
	12H	13.34	13.62	14.41	14.68	16.13	12.95	13.23	14.03	14.30	15.74
12H	4H	12.34	12.73	13.40	13.79	15.18	11.99	12.38	13.04	13.44	14.83
	6H	13.02	13.33	14.09	14.40	15.81	12.66	12.98	13.73	14.05	15.45
	8H	13.26	13.54	14.33	14.60	16.05	12.90	13.18	13.97	14.24	15.69